

User's Guide



Medtronic

MINIMED

Medtronic MiniMed

Northridge, CA 91325

USA

800-646-4633 (800-MiniMed)

818-576-5555

www.minimed.com

This device is protected under one or more of the following U.S.

Patents:

[US]4,562,751 [US]5,050,764 [US]5,376,070

[US]4,678,408 [US]5,080,653 [US]5,399,823

[US]4,685,903 [US]5,097,122

Other U.S. and/or foreign patents may be pending.

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Introduction to the model 508 insulin pump

Whether you are beginning pump therapy for the first time, or upgrading from a previous model, we are pleased that you have chosen Medtronic MiniMed as your partner to help you gain better control of your diabetes. We believe that the combination of state-of-the-art technology with simple, menu-driven programming will provide many benefits.

There are three main sections to this user's guide:

- A 'Quick Start' guide is available beginning on page 11. It has been designed to get you up and pumping!
- Following the 'Quick Start' guide, you will find more detailed information on specific programming features and more advanced options.
- A detailed troubleshooting guide and glossary are also included.

Throughout, you will find  **NEED TO KNOW** facts, and Checkpoints included in the margins and at the end of many sections. These are cues for you to check your understanding.

 answers can be found in the Checkpoint answers section.

This user's guide is designed to help you learn to use your pump, however, working with your health care professional will speed your familiarity with the pump and pump therapy.

Let's Get Started!

IN PREPARATION FOR YOUR PUMP START

The Medtronic MiniMed 508 has been designed to be very simple to learn and most pump wearers find the time spent learning how to operate their pump enjoyable! However, valuable time will be lost to both you and your health care team if you have not become familiar with your pump prior to your pump start.

Pump Start "Homework"

Along with your pump, remote control (where applicable) and supplies, you have received:

- This user's guide with 'Quick Start' guide
- Programming and Alarm Cards

With your pump in hand, watch the video and review the user's guide and 'Quick Start' guide. After doing this you should come to the pump start comfortable with the following basic functions:

- Using the **SEL** button to move through the pump screens
- Using the **ACT** button to choose a pump feature
- Changing the **Time and Date** on the pump
- Delivering a **Bolus**
- Stopping the pump by placing the pump in **Suspend** and then restarting the pump
- Setting three (3) **Basal Rates** and changing them
- Setting a **Temporary Basal Rate** and then canceling it
- Filling a Medtronic MiniMed reservoir syringe, attaching an infusion set to the syringe and priming the tubing (use tap water or a bottle of saline - no need to waste insulin!)
- Inserting the syringe into your pump and delivering a **Prime** to take up "slack" in the system

Please bring the following items with you to your pump start:

- One (1) Medtronic MiniMed pump, remote control and all the supplies that came in your pump box
- Two or three (2-3) extra Medtronic MiniMed reservoir syringes and infusion sets (Sof-set®, Silhouette™, etc.)
- Three or Four (3-4) tape patches (IV3000*, Polyskin, etc.)
- Insulin
- Any questions that you have from your "homework"

Coming prepared will help make your pump start a comfortable learning experience. Do not hesitate to call your Medtronic MiniMed representative or your health care professional if you have any questions during your preparation for your pump start.

**NEED TO KNOW****ALWAYS TREAT YOUR DIABETES FIRST!!!****As you start pump therapy REMEMBER:**

Your pump uses only fast acting, Regular insulin. This means you do not have longer-acting insulin in your body. Without insulin your blood glucose will rise and you could experience diabetic ketoacidosis (DKA), which could result in hospitalization.

If your insulin delivery is interrupted for any reason, you must be prepared to replace the missed insulin injection immediately.

The quickest way to do so is to **TAKE AN INJECTION OF REGULAR INSULIN.**

* IV3000 is a trademark of Smith & Nephew

Keep an emergency kit with you at all times.

This kit should include:

- Fast-acting glucose tablets
- Blood glucose monitoring supplies, urine ketone monitoring supplies
- Regular insulin & insulin syringe with directions from your health care professional regarding how much insulin to take
- An extra infusion set and Medtronic MiniMed reservoir
- Dressing and adhesive
- Extra batteries (MMT-104)
- 508 programming and alarm cards

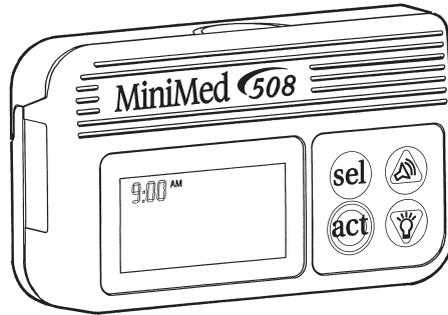
Let another family member or friend know where this is kept.



Please refer to the Pump User Safety Information section on page 95 for more information on pump therapy including troubleshooting and diabetes management issues.

Becoming Familiar With Your Pump

Take a look at your pump.



The pump is small, lightweight and has a large, backlit liquid crystal display (LCD).

The pump is also smart - storing approximately 90 days worth of data in memory. With the Com-Station, you will be able to connect your pump to a computer to 'download' this stored information.



NEED TO KNOW

'Press' means to push and release the button being used.

Blinking words or numbers, seen in an 'outline fashion', indicate information that can be changed.

HLINKING

Information that cannot be changed is printed on the screen in whole, black characters.

NOBMO

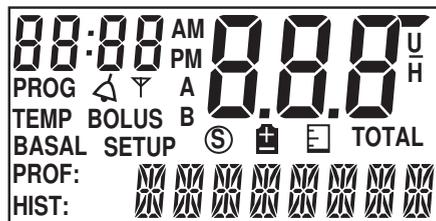
BUTTONS

Four buttons let you program all of the pump's features and options.

1. The SEL (Select) button will scroll through the screens. You will have about seven seconds to view each screen. If you wish to view the screen for longer periods, continue to hold the SEL button after each press.
2. The ACT (Activate) button will activate programming changes you wish to make. You will always hear a single beep after you have successfully activated a change.
3. The UP and DOWN arrows will change the number to the value of your choice. UP scrolls the number higher and DOWN scrolls the number lower.
 - The UP arrow lets you set an audio bolus.
 - The DOWN arrow lets you turn the backlight on or off.

**LIQUID CRYSTAL DISPLAY (LCD)**

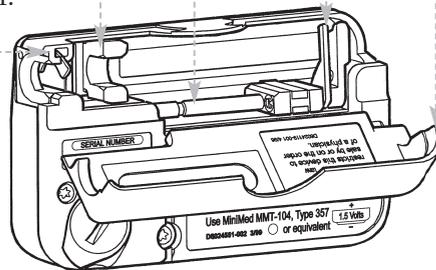
The pump has a unique LCD which combines both text and icons to notify you of all operations, alerts and alarms. Take a moment to become familiar with all the parts of the LCD. The LCD also has a backlight to help you see the pump in low light conditions.



-  Alarm Type
-  RF Device
- A** Personal Delivery Patterns
- B** Future Applications
-  Future Applications
-  Low Battery Indicator
-  Reservoir Volume

TURN YOUR PUMP OVER

- Look at the reservoir compartment window. This window lets you see how much insulin remains in the syringe.
- Apply pressure to the top of the case and pull open the reservoir compartment door.
- Find the mechanical driver arms and lead screw, reservoir converter and the Luer neck lever.



You will put insulin into a special syringe called a reservoir. The Luer neck lever holds the reservoir in position. The driver arms will be fit over the squared-off end of the reservoir plunger. The driver arms are connected to the driver block which moves insulin through the reservoir and tubing and into your body.

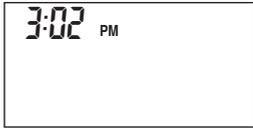


1. What button must be pressed to activate a change?

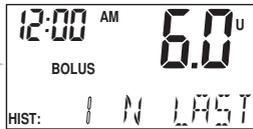
Find:

- a. The battery compartment located on the lower left side of the pump case.
- b. The toll-free Medtronic MiniMed Clinical Services Help Line number.

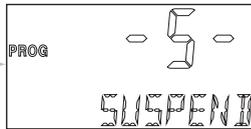
MAIN PROGRAMMING SCREENS



1. Time of Day



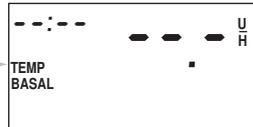
2. Bolus



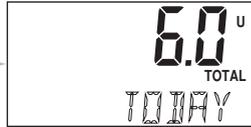
3. Suspend



4. Basal Rate



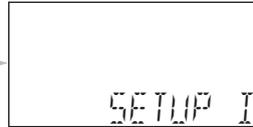
5. Temporary Basal Rate



6. Daily Totals



7. Prime & Low Reservoir Volume

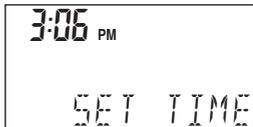


8. Set Up I

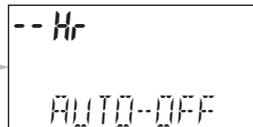


9. Set Up II

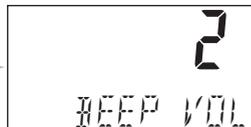
SETUP I



1. Set Time and Date



2. Automatic Off



3. Beep Volume



4. Self Test



5. Set Up II



6. Set Up I Exit

SETUP II



1. Variable Bolus



2. Maximum Bolus



3. Maximum Basal Rate



4. Alarm Review



5. Radio Frequency Device



6. Audio Bolus



7. Basal Patterns



8. Alarm Type



9. Child block



10. Time Display



11. Insulin Concentration



12. Set up I



13. Set Up II Exit

508 Quick Start Guide

The following guidelines are basic instructions to get you started using your pump. Please refer to the detailed instructions in this user's guide regarding additional options including various bolus and basal rates.

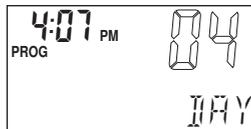
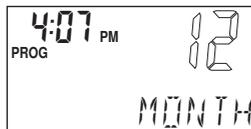
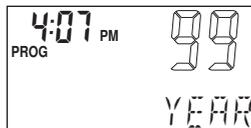
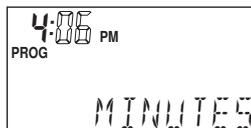
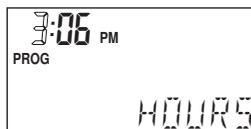
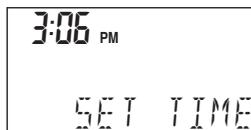
Verifying & Setting the Time and Date

Why: Sets the time and date for your specific area.

Where: SET UP I on the SET TIME screen.

How:

- From the TIME OF DAY screen, press SEL to SET UP I then press ACT. You will see the SET TIME screen. Press ACT, "PROG HOURS" will appear.
- Use the arrows to select the hour, then press ACT. The screen will say "PROG MINUTES".
- Use the arrows to select the minutes and press ACT. The screen will say "PROG YEAR".
- Use the arrows to select the year and press ACT. The screen will say "PROG MONTH".
- Use the arrows to select the month and press ACT. The screen will say "PROG DAY".
- Use the arrows to select the day and press ACT.



7. The time and date that you just set will be displayed.



NEED TO KNOW

The 508 does not have an On/Off button. As soon as you install batteries, the pump will be On and the current time will be shown on the window display.

WHY IS THE TIME AND DATE NECESSARY?

- ✗ The time shown on your clock is used to time the insulin delivery of your basal rate(s) and to monitor other pump operations.
- ✗ The date is used to sort the long term data stored in the pump's memory.
- ✗ This stored information can be downloaded to a computer for you or your health care professional to use in assisting you in your glucose control goals.

Setting Your Basal Rate

Why: Provides a continuous amount of insulin 24 hours a day.

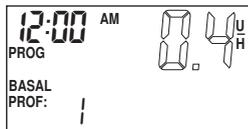
Where: Main Menu on the BASAL RATE screen.

How:

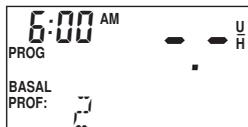
1. From the TIME OF DAY screen, press SEL until you see the BASAL RATE screen, then press ACT. The first basal rate always starts at midnight - this time cannot be changed.



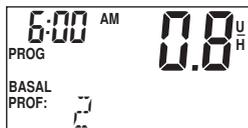
2. Use the arrows to select your basal rate. Press ACT.



3. To add another basal rate, use the arrows to select your start time. The start time for the second basal rate is the end time for the first basal rate. Press ACT.



4. Use the arrows to select a basal rate. Press ACT.



5. Follow this process to set additional rates as necessary.

6. When all rates have been set, press ACT. The total amount of insulin delivered as a basal rate for the day will appear on the screen.





#2

1. Which of the four buttons moves you to the BASAL screen?

2. Which of the four buttons sets the program you are selecting? _____

3. Which of the four buttons selects the number value?

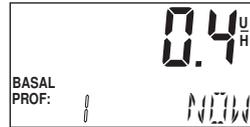
Reviewing Your Profiles

Why: Confirms that basal rates are entered correctly.

Where: Main Menu on the BASAL RATE screen.

How:

1. From the TIME OF DAY screen, press SEL until you see the BASAL RATE screen. You will see the current basal rate on the screen in units per hour.
2. Use the arrows to review the other basal rates you have set.

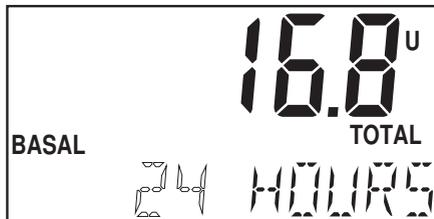


Example:

Profile 2:
What time does it begin?
What is the rate?



After you have reviewed all of your programmed basal rates, the total amount of insulin to be delivered as basal rate during the 24 hour day will be shown.



After a few seconds, the pump will then return to the TIME OF DAY screen.

The Reservoir and Infusion Set

The Medtronic MiniMed system includes the Medtronic MiniMed pump, reservoir syringe and infusion set. The Medtronic MiniMed pump is intended for use with the Medtronic MiniMed reservoir syringe, Model 103. Medtronic MiniMed also provides a variety of infusion sets to appeal to different types of people. Medtronic MiniMed also provides a variety of infusion sets to appeal to different types of people. The sets to be used with the Medtronic MiniMed pump and the Medtronic MiniMed model 103 reservoir include the following:

- Polyfin® Bent Needle Infusion sets
- Sof-set® Infusion sets
- Silhouette® Infusion sets
- Quick-set™ Infusion sets

All infusions sets are available with a disconnect feature. Please refer to the Instructions for Use found with the reservoir and infusion set you have chosen for detailed information.

Warning:

For your protection the model 508 infusion pump has undergone extensive testing to confirm appropriate operation when used with reservoir syringes and infusion sets manufactured or distributed by Medtronic MiniMed. We recommend using Medtronic MiniMed infusion sets as we cannot guarantee appropriate operation if the pump is used with reservoirs or infusion sets offered by third-parties and therefore we are not responsible for any injury or malfunctioning of the pump that may occur in association with such use.

Changing the Reservoir and Infusion Set

Why: It is important that you change the infusion set at least every 2-3 days. Rotating the site will help to avoid any problems with your skin, or with your infusion site. Also, the insulin will absorb best when you change the set regularly. For complete information, refer to the Instructions for Use that come with your reservoir and infusion set.

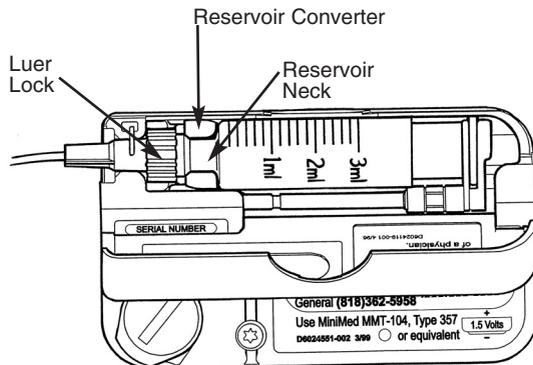
RESERVOIR PLACEMENT

There are two methods of installing the reservoir in your pump. These are the Short Reservoir method and the Full or Long Reservoir method. Please discuss with your health care professional which is right for you.

The Short Reservoir Method:

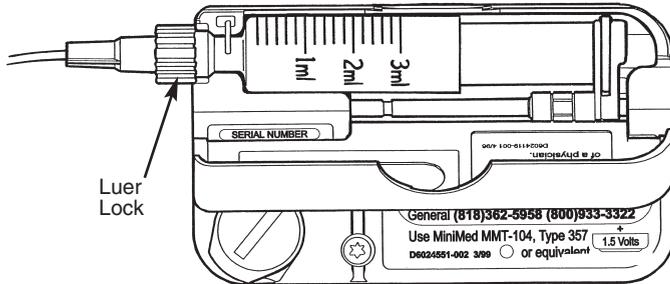
- Allows the Luer connection to be almost completely hidden inside the pump.
- The maximum reservoir volume is 150 units (U-100).
- Uses the **reservoir converter** to hold the reservoir neck in place inside the pump. (Reservoir converter must be used or inaccurate insulin delivery may result.)

NOTE: All pumps are shipped from Medtronic MiniMed in the Short Reservoir Method.



The Full Reservoir Method:

- Allows the Luer connection to be outside the reservoir compartment.
- Maximum reservoir volume is 300 units (U-100).
- Does not use the reservoir converter.



NEED TO KNOW
IMPORTANT

Always change the infusion set and the reservoir at the same time to insure adequate priming and accurate insulin delivery.

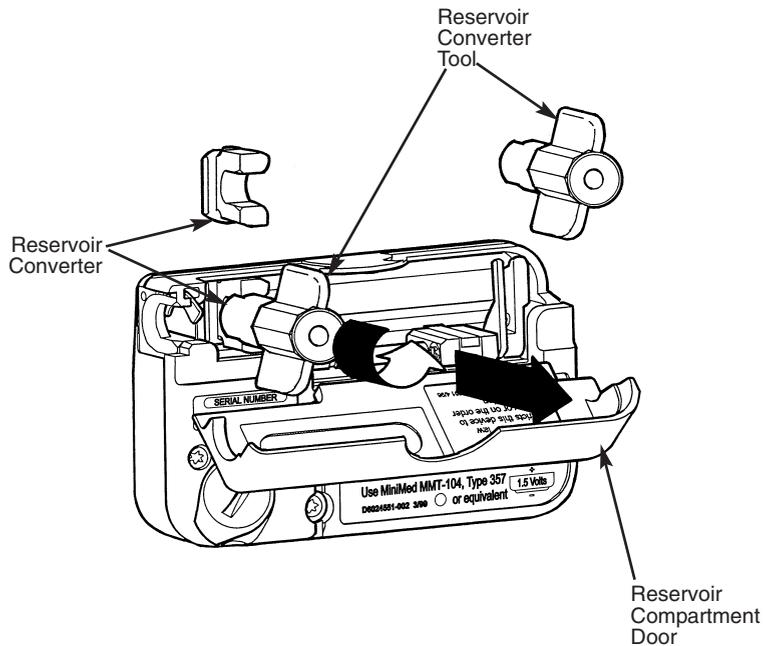
**CHECK
POINT**
#3

1. Which reservoir method is installed at Medtronic MiniMed?
2. Which reservoir method is used when the required reservoir volume is 300 units (U-100)? _____
3. What special task needs to be performed to use the Full Reservoir Method? _____

TO REMOVE THE RESERVOIR CONVERTER

(The converter is not used with the Full Reservoir Method.)

1. Open the reservoir compartment by gently pulling open the reservoir compartment door.
2. Place the reservoir converter tool over the reservoir converter.
3. Turn the tool counter-clockwise until the converter is dislodged.
4. Save it in a safe place for possible future use.

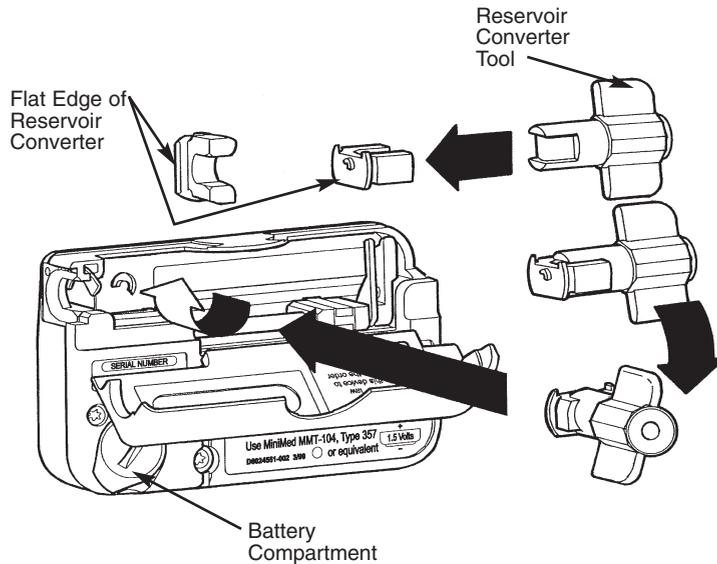


TO REINSTALL THE RESERVOIR CONVERTER

(Used in the Short Reservoir Method)

If the reservoir converter is not in place, reinstall the converter by following these steps:

1. Open the reservoir compartment by gently pulling open the reservoir compartment door.
2. Insert the reservoir converter tool in the reservoir converter.
3. Insert the converter horizontally between the marked slots in reservoir compartment.
4. Check that the flat edge is facing toward the battery compartment.
5. Turn the reservoir converter tool clockwise until the converter is securely in place.



SOF-SET AND RESERVOIR CHANGE

1. Wash your hands.
2. Gather a new reservoir, Sof-set, alcohol swab or site prep (e.g. IV Prep), Sof-serter, and insulin vial.
3. Discard old set and reservoir: pull off set at site first, then remove reservoir.
4. Cycle the syringe. Fill new reservoir with 2-3 days worth of insulin plus 25 extra priming units.
5. Remove the filling needle from the reservoir after purging air bubbles.
6. Open the Sof-set package and attach the reservoir to infusion set. Make sure the connection is tight!
7. Manually prime the infusion set by pressing slowly on the plunger until you see a drop of insulin come out of the Sof-set introducer needle.
8. Clear away air bubbles from tubing.
9. Open reservoir compartment door, pull driver arms up (towards you) and slide driver block to the far right of the case.
10. Place reservoir in pump with numbers facing upwards.
11. Lower the driver arms so that one arm is on each side of the reservoir plunger.
12. Close the reservoir compartment door.

13. Load the Sof-set into Sof-serter with tubing between the prongs.
14. Push the Sof-set down until it clicks into place.
15. Program pump to deliver a 5.0 unit prime bolus to “take up the slack.” Set the reservoir volume amount.
16. Watch to see insulin exit the introducer needle.
17. Clean the site with alcohol or IV Prep.
18. While holding the Sof-set wings, remove the white tab and needle guard.
19. Position the Sof-serter on the site and press the ACT button.
20. While holding the Sof-set wings, gently remove the Sof-serter and slide it off the blue needle hub.
21. Place Sof-set tape over the blue needle hub.
22. Holding the wings, give the blue hub $\frac{1}{4}$ turn and remove. Discard using proper needle disposal products.
23. Program 0.5 unit prime bolus to fill cannula.
24. Check your blood glucose level 3 hours later.

RESERVOIR CHANGE USING SILHOUETTE AND QUICK-SET

1. Wash your hands.
2. Gather new reservoir, infusion set, alcohol swab, and insulin vial.
3. Discard old set and reservoir: pull off set at site first, then remove reservoir.
4. Cycle the syringe. Fill new reservoir with 2-3 days worth of insulin plus 25 extra priming units.
5. Remove filling needle from the reservoir after purging air bubbles.
6. Open infusion set package. Attach reservoir to infusion set. Make sure connection is tight!
7. Manually prime the infusion set by pressing slowly on the plunger until you see a drop of insulin come out of the connector needle.
8. Clear away air bubbles from tubing.
9. Open reservoir compartment door, pull driver arms up (towards you) and slide driver block to the far right of the case.
10. Place reservoir in pump with numbers facing upwards.
11. Lower the driver arms so that one arm is on each side of the reservoir plunger.
12. Close the reservoir compartment door.

13. Program pump to deliver a 5.0 unit prime bolus to “take up the slack.” Set the reservoir volume amount.
14. Watch to see insulin exit the connector needle.
15. Clean site with alcohol or IV Prep.

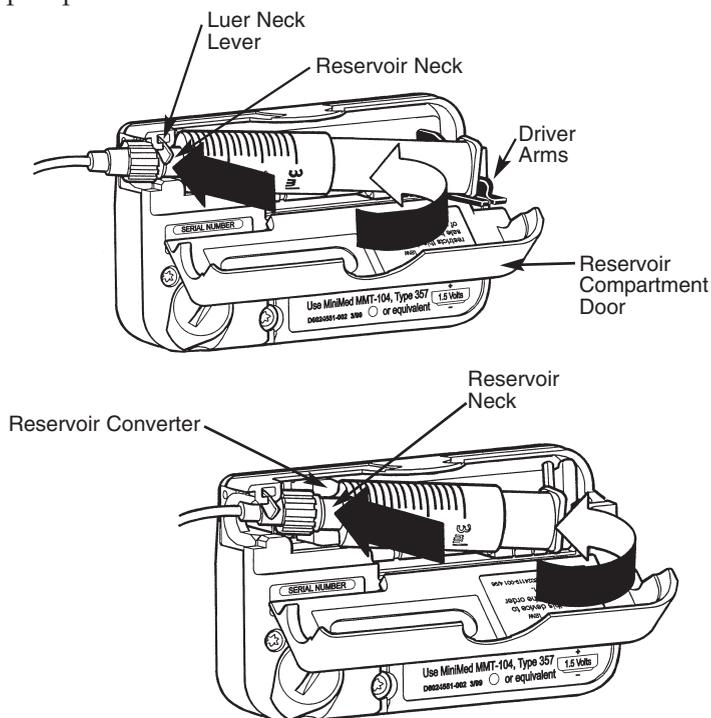
Steps 16-21 are for the Silhouette only (refer to the Quick-set Instructions for Use for insertion instructions.)

16. Remove the front half of the back paper from the white adhesive tape. Remove the plastic protective cap from the needle.
17. While using the index finger to hold back the forward flap of the white adhesive, insert the Silhouette at a 30° angle. (Talk with your health care professional about any changes to your individual angle of insertion.)
18. Carefully smooth out the front half of the backing paper onto the skin.
19. Remove the introducer needle. Put one finger just in front of the see-through window to keep Silhouette in place and with your other hand, press gently the side clips with two fingers while simultaneously withdrawing the introducer needle.
20. Remove the back side of the backing paper and smooth out the white adhesive tape to make sure good skin contact is achieved.
21. Connect site side of infusion set to the tubing side of the infusion set. Program 1.0 unit prime to fill the cannula.
22. Check your blood glucose level 3 hours later.

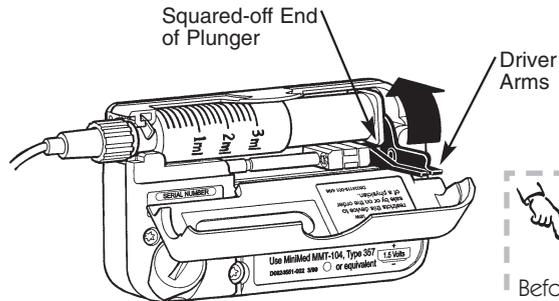
INSTALLING THE RESERVOIR AND INFUSION SET

Follow the directions on page 18. After this is complete, follow these steps to correctly insert the reservoir and infusion set into your pump.

1. Open the reservoir compartment door.
2. Lift up on the two driver arms and slide them to the end of the lead screw (away from the luer neck lever). Lift up the silver-colored Luer neck lever.
3. Align the reservoir neck with the reservoir converter (for the short reservoir method) or with the silver-colored Luer neck lever (for the full reservoir method), and insert it into the pump.



4. Push down firmly on the reservoir Luer neck so that it fits snugly in place. Do not press on the reservoir plunger or barrel.
5. Slide the two driver arms toward the reservoir so they rest on either side of the squared-end of the reservoir plunger. Push both arms so that the end of the plunger is firmly between them.



6. Close the reservoir compartment door.

NEED TO KNOW

Before inserting the reservoir into the pump, rotate the reservoir so the milliliter markings on the reservoir face outward. This allows you to look through the pump's reservoir compartment window to see how much insulin is left in the reservoir.

Is the door closed properly? If you can't close the door, the reservoir may be inserted incorrectly. Improper insertion of the reservoir may result in inaccurate delivery of insulin. Check to be sure the Luer neck lever is down and the reservoir is inserted correctly – then try again.



#4

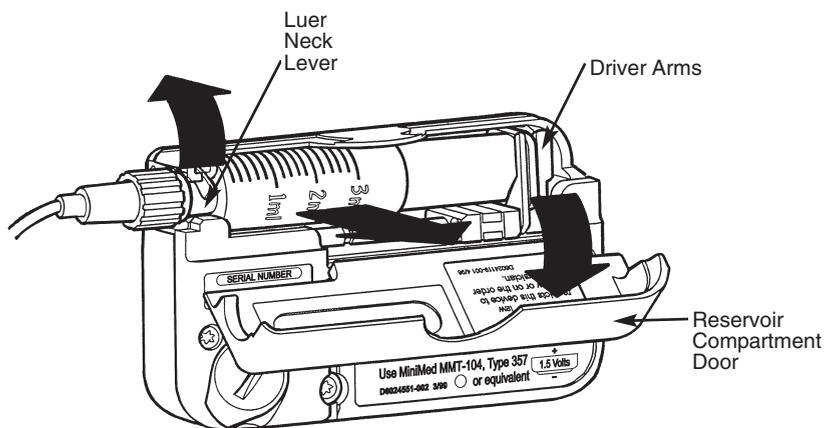
Why should the reservoir's milliliter markings face outward?

REMOVING THE RESERVOIR AND INFUSION SET

To remove the used infusion set and reservoir, follow these steps:

1. Using clean (aseptic) technique, remove the infusion set from your body following the directions on the infusion set.
2. Open the reservoir compartment by gently pulling open the reservoir compartment door.
3. Pull the driver arms forward and slide them to the end of the lead screw. Lift the silver-colored Luer neck lever and gently pull out the used reservoir.

Dispose of your used reservoir and infusion set. Prepare a new set and follow the procedures for priming and insertion.



Priming the Pump

Why: Makes certain that insulin delivery is continuous by removing any air in the tubing or “slack” in the pump mechanics.

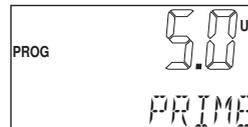
Where: Main Menu on the PRIME screen.

How:

1. From the TIME OF DAY screen, press SEL until you see the PRIME screen. The screen will display “PRIME” and “HIST”.



2. Press ACT to see “PROG PRIME” and the value dashes.



3. Use the arrows to program a 5.0 unit prime.
4. Press ACT. The screen will display “RES VOL”. Use the arrows to program reservoir volume.
5. Press ACT.

Insulin droplets will form at the infusion set needle tip indicating the reservoir and tubing are properly inserted.

You are now ready to insert the infusion set. Please follow the directions on page 22 or in the Instructions For Use.

TIP

Some pump users have told us that it is easy to use the following steps to Prime the set:

1. From the PRIME screen press ACT, then press the DOWN arrow - this will automatically set a prime for the maximum bolus amount.
2. Watch for insulin to appear at the end of the infusion set. When it appears, stop the prime by placing the pump into Suspend.
3. Insert the infusion set and restart the pump.



#5

After inserting a new reservoir and infusion set, what must you do to make sure delivery is uninterrupted? _____

Bolus

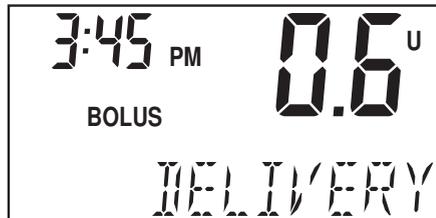
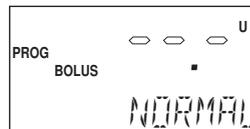
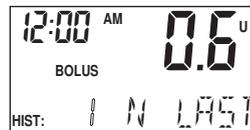
SETTING A NORMAL BOLUS

Why: Provides an immediate amount of insulin to cover current needs.

Where: Main Menu on the BOLUS screen.

How:

1. From the TIME OF DAY screen, press SEL until you see the BOLUS screen.
2. Press ACT. The dashes for units will blink, letting you know you can change this number.
3. Use the arrows to select the bolus amount you want. Press ACT.



Stopping and Restarting Your Pump

TO STOP OR PUT YOUR PUMP IN 'SUSPEND'

Why: Stops all delivery (basal and bolus) by the pump.

Where: Main Menu on the SUSPEND screen.

How:

1. From the TIME OF DAY screen, press SEL until you see the SUSPEND screen. The screen will blink.
2. Press ACT. This will stop your pump. The pump will beep three times and you will see "STOPPED" and the time it stopped.



NEED TO KNOW

Your pump will beep three times every fifteen minutes to remind you it has stopped insulin delivery. The screen will also show "-S- STOPPED" when suspended.

TO RESTART YOUR PUMP

Why: Restarts pump basal delivery.

Where: Main Menu on the SUSPEND screen.

How:

Press SEL and then ACT. Your pump will beep once and return to the TIME OF DAY screen. The current time will be displayed and your pump will resume your basal insulin delivery.

**NEED TO KNOW**

If you stopped your pump while it was in the middle of delivering any bolus – it will NOT be resumed. You may need to program a new one.

Why would you stop your pump?

- You may want to stop your pump when you are changing your infusion set.
- You may want to stop a bolus, go swimming or play contact sports. For the best results discuss these times with your health care professional.



#6

If your pump is in Suspend, what should you think about?

Prime History and Use

Why: Provides a method of delivery:

- To fill the Sof-set cannula after removing the introducer needle
- To deliver a small bolus just prior to reconnecting the QR®
- To conduct the 7.2 unit bolus test while disconnected from your pump
- To take up slack between the reservoir plunger and the driver arms after putting in a new reservoir.

Where: Main Menu on the PRIME screen.

How:

1. From the TIME OF DAY screen, press SEL until you see the PRIME screen. The screen will display “PRIME” and “HIST”.



2. Use the arrows to review the past nine Prime uses, beginning with the most recent.



3. To set a Prime, press ACT. The words “PROG PRIME” will appear with blinking dashes. Use the arrows to set the Prime amount.



4. Press ACT. “RES VOL” (reservoir volume) will appear with either dashes (if it is a new reservoir) or the amount of insulin remaining in your reservoir.



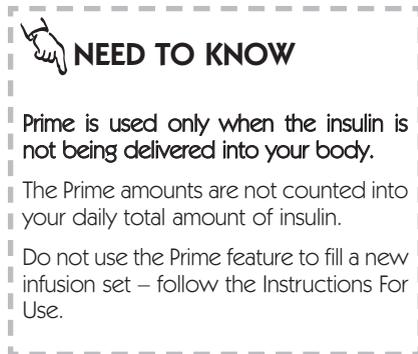
Reservoir Volume and Low Volume Alert

Why: Provides a ‘sound’ or ‘vibration’ when the insulin level in the reservoir reaches 20 Units and again at 10 Units.

Where: Main Menu on the PRIME screen.

How:

1. To get to the PRIME screen, follow the steps on page 34. Use the arrows to record the amount of insulin in the reservoir.
2. Press ACT. The Low Volume Alert is now activated and the Prime feature will begin. The screen will show “PRIME” along with the amount being delivered.
3. Every time you install a new reservoir, you should reset the reservoir volume.



Low Volume Alert Activation:

- The alert will first occur when 20 units of insulin are left in the reservoir.
- Alert sounds at the time triggered, at 30 and 60 seconds later.
- “LO VOLUME” appears on the screen for 60 seconds.
- Low Volume icon remains on the screen until the reservoir is replaced and a new value is set.
- Sequence repeats again when the reservoir volume reaches 10 Units.

**NEED TO KNOW**

- This is an OPTIONAL feature. You may bypass it by pressing ACT when the dashes to enter volume appear. Doing so means the feature is not set and you will not receive an alert when the insulin volume is low.
- Each time you set a Prime, the current reservoir amount will appear.
- To clear the LOW VOL alert, Press SEL – then replace the reservoir and enter the new amount of insulin in the reservoir.
- Press ACT from the TIME OF DAY screen to see how much insulin remains according to the amount you set.
- You can change the reservoir volume amount when you change the reservoir, do a reconnect prime or self-test.

Initial Pump Settings

This is the information you will need on the day that you begin using your pump with insulin.

- If your pump start is going to take place in your health care professional's office, you will be given the settings that day.
- If your pump start is going to take place in another location, make sure to get in touch with your health care professional to determine your basal rate and bolus amounts. This may require making an appointment to review your blood glucose logs in order to make an accurate determination.

Basal Rate Information

Most people require only one basal rate in the beginning.

Basal Rate #1 Time: _____ Units per Hour: _____

Additional Rates:

Basal Rate #2 Time _____ Units per Hour: _____

Basal Rate #3 Time _____ Units per Hour: _____

Basal Rate #4 Time _____ Units per Hour: _____

Meal Boluses

Carbohydrate Ratio: 1.0 unit of insulin for _____ grams of carbohydrates.

Correction Bolus

1.0 unit of insulin will lower blood glucose by approximately _____ mg/dl.

Blood Glucose Targets

Before Meals between _____ and _____ mg/dl.

2 Hours after Meals between _____ and _____ mg/dl.

Bedtime between _____ and _____ mg/dl.

2-3 A.M. between _____ and _____ mg/dl.

Please tear out and fold the following cards and carry them with you at all times.

LOW
blood sugars

HIGH
blood sugars

Treatment of Hyperglycemia Correction Bolus Guidelines

My insulin sensitivity factor is ____ mg/dL

Formula for determining insulin sensitivity factor:
$$\frac{1500}{\text{Total Daily Dose of Insulin}} = \frac{\text{mg/dL}}{\text{Amount that 1.0 unit of insulin will decrease BG}}$$

(See your health care professional about this formula.)

The Rule of 15

If blood glucose is 70 mg/dl or below

- Treat with 15 grams of carbohydrate
- Check BG in 15 minutes.

If not above 70 mg/dl, repeat treatment and check BG in 15 minutes

These have 15 grams of carbohydrate:

- Glucose tablets - three 5 grams tablets or four 4 gram tablets
- 4 oz. of juice
- 1/2 can regular soda pop
- 6 lifesavers
- 2 tablespoons table sugar or honey
- Tube of glucose gel

Carry carbohydrate with you at all times for treating hypoglycemia.

High Blood Glucose Treatment

If you have nausea or vomiting, check blood glucose and urine ketones immediately!!!

If this blood glucose is above 250 mg/dL and ketones are moderate or large:

Take insulin injection by syringe and contact physician (follow insulin sensitivity factor on back of card for amount of insulin).

Change insulin infusion set.

Drink liquid with no calories every 30 minutes.

Check BG every 2 hours and continue to take insulin until BG reaches target.

Check urine for ketones. Call physician if your BG and urine ketones remain elevated or you are unable to drink.

If this blood glucose is above 250 mg/dL and ketones are small, trace or negative:

Take insulin correction bolus (follow guidelines on back of card).

Check BG every two hours and give correction insulin bolus if BG is above target.

Basal Rates: why and how

Q & A

Why is a basal rate needed?

- ✗ Basal insulin is the amount that the body needs to maintain target glucose values under fasting conditions.
- ✗ The basal rate accounts for approximately 50 percent of the body's total daily insulin requirements. If it could, your pancreas would provide this basal rate. Your pump mimics your pancreas by delivering insulin continuously over the 24 hours in the day.
- ✗ You can set your insulin pump to provide one or more different rates, called "profiles". Some people only use one rate while others find they need more. It depends upon your lifestyle and insulin requirements.

Why program a maximum basal rate?

- ✗ A maximum basal rate is a safety feature to help you from programming a basal rate that is too high for your requirements.
- ✗ You should discuss this with your health care professional to decide on the maximum amount of basal insulin that can be delivered over an hour. This is usually based upon your blood glucose values and body's requirement for insulin.

Are the profiles set each day?

- ✗ Once set, these individual basal rates or profiles form your complete basal rate and the pump repeats them every 24 hours. There is no need to reprogram them.
- ✗ You have the option of programming a new basal rate every 30 minutes. However, most people find that only a few are needed.

Why start and stop times?

- ✗ The start time of one basal rate is the stop time of the previous one – giving you continuous basal insulin over 24 hours.
- ✗ You cannot set a start time for a basal rate that overlaps the next profile. The new profile will cancel any basal rates that follow.
- ✗ It may be helpful for you to record your basal rates on paper until you are familiar with the process or have the computer capacity to download this information.
- ✗ For best results, discuss setting or changing your basal rate with your health care professional.

When would a temporary basal rate be useful?

- ✗ Temporary basal rates offer an easy way to meet temporary situations that may affect your blood glucose levels.
- ✗ The stress of illnesses can elevate your blood sugar. Setting a temporary basal rate to meet this rise in glucose can help in your recovery.
- ✗ Setting a lower temporary basal rate during times of exercise may help prevent post-exercise hypoglycemia.

Why should I review my profiles?

- ✗ Comparing your profiles to your blood glucose records helps you and your health care professional identify your optimal basal rate(s).

About personal delivery patterns:

- ✗ Personal Delivery Patterns allow you to establish multiple sets of basal rates in order to match different lifestyle needs.
 - Do sleep patterns change?
 - Do weekday and weekend schedules change?
- ✗ For best results discuss this option with your health care professional.
- ✗ Each pattern must have at least one basal rate set or it will not be accepted as a pattern.
- ✗ Keep a paper copy of the pattern(s) and basal rate(s) you have programmed.

Are your basal rates set correctly?

- ✗ Review with your health care professional how to verify that your basal rates are set correctly.

Setting the Maximum Basal Rate

Why: Sets the maximum basal rate (units/hour) that your pump will deliver per hour. This maximum rate will apply to each and every profile that you set including a temporary basal rate.

Where: SET UP II on the MAXIMUM BASAL RATE screen.

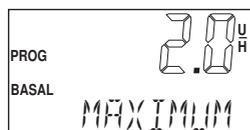
How:

1. From the TIME OF DAY screen, press SEL until you see SET UP II, then press ACT.
2. Press SEL until you see the MAXIMUM BASAL RATE screen.
3. Press ACT. The screen will display "BASAL MAXIMUM" and the number of units will blink showing the current maximum basal rate.



NEED TO KNOW

Your pump is delivered from the factory with a maximum basal setting of two (2.0) units per hour. Discuss with your health care professional if you need to personalize this amount.



NEED TO KNOW

A maximum basal rate of up to 35.0 units per hour can be set. Discuss with your health care professional what your limit should be.

You CANNOT set a maximum basal rate that is less than any of the currently programmed basal rates – this includes profiles and temporary basal rates.

4. Use the arrows to select the maximum basal rate. Press ACT. The screen will display the next SET UP II screen. Your pump will return to the TIME OF DAY screen if no buttons are pressed within 15 seconds.

Setting Your Basal Rate

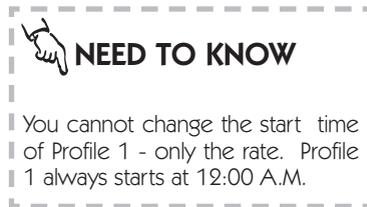
Why: Provides continuous insulin delivery 24 hours a day.

Where: Main Menu on the BASAL RATE screen.

How: It is important that you follow these steps to set your basal rates to avoid any programming or delivery errors. Work with your health care professional to set the basal rates best for you.

- 1a. If your pump does not have any basal rates set, talk with your health care professional about the rates for you to use as you begin pump therapy.

- 1b. **If you currently have basal rates set in your pump:**
 - From the Basal Rate screen, use the arrow buttons to make a list of your current basal rates. Be careful to record the start time and rate of each basal rate.
 - After you have made a list of your current basal rates, clear all of your basal rates. To do this:
 - Press ACT on the main BASAL RATE screen. Use the arrows to reset Basal Rate 1 to 0.0 u/h. Press ACT.
 - Use the arrows to reset the start time for Basal Rate 2 to dashes (--:--). Press ACT to complete.

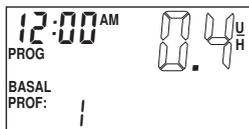


You are ready to begin setting basal rates.

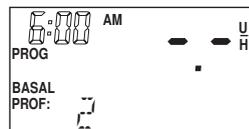
- From the TIME OF DAY screen, press SEL until you see the BASAL RATE screen, then press ACT. The first basal rate always starts at midnight - this time cannot be changed. You will see the "0.0" flashing - this means it can be changed.



- Use the arrows to select the basal rate. As you press the arrow buttons you will see the basal rate increase or decrease. Press ACT when you have the desired rate selected.



- To add another basal rate, use the arrows to select the start time for Basal Rate 2. The start time for Basal Rate 2 is the end time for Basal Rate 1. Press ACT.

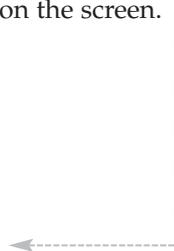


- Use the arrows to set a basal rate. Press ACT.



- Follow steps 4 and 5 to set additional rates as necessary

When all rates have been set, press ACT. The total amount of insulin delivered as a basal rate for the day will appear on the screen.



Personal Delivery Patterns

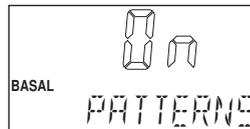
TO TURN PERSONAL DELIVERY PATTERNS ON

Why: Provides an option to set up to three different basal rate patterns– Standard, Pattern A and Pattern B – each containing up to 48 different basal rate profiles.

Where: SET UP II on the BASAL PATTERNS screen.

How:

1. From the TIME OF DAY screen press SEL until you see SET UP II, then press ACT. Press SEL until you see the BASAL PATTERNS screen, then press ACT.
2. The screen will show “PROG BASAL”, “OFF” and “PATTERNS”. Press ACT and use the arrows to turn patterns ON. Press ACT. The pump will move to the next SET UP II screen, ALARM TYPE.

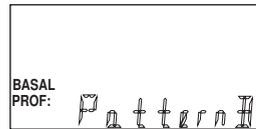
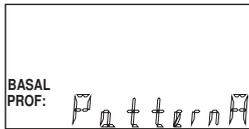


TO SET PERSONAL DELIVERY PATTERNS

1. From the TIME OF DAY screen, press SEL until you see the BASAL RATE screen, then press ACT.
2. The screen will show the word “STANDARD”.



- Use arrows to select the basal rate profile pattern you want, either Standard, Pattern A or Pattern B. Press ACT.



- Follow the same steps as described to set your basal rate profiles to set a personal pattern.
- To confirm your personal patterns, press ACT and wait 15 seconds for the pump to return to TIME OF DAY screen. If you have selected a basal pattern other than standard, the letter "A" or "B" will appear in the TIME OF DAY screen.

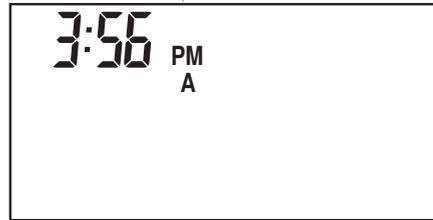


NEED TO KNOW

Your pump is delivered to you with the Personal Pattern option "OFF".

The personal pattern that is currently working will appear on the Basal Profile screen.

When you have completed setting the profiles in one pattern, the screen will display the 24 hour total basal amount you have set before going on to the next screen.



Setting a Temporary Basal Rate

Why: Provides a temporary change to programmed basal rate profiles in order to meet a temporary increase or decrease in your insulin requirements.

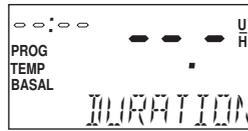
Where: Main Menu on the TEMPORARY BASAL screen.

How:

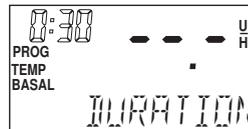
1. From the TIME OF DAY screen, press SEL until you see the TEMPORARY BASAL RATE screen.



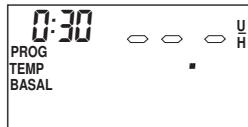
2. Press ACT. The dashes for duration in the upper left of the screen will blink, indicating that it can be changed.



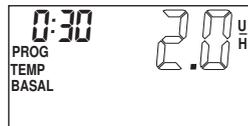
3. Use the arrows to set the desired duration. You may set a duration in 30 minute increments: 30 minutes, one hour, one hour 30 minutes, etc.



4. Press ACT. The dashes for amount in the upper right of the screen will blink, indicating that it can be changed.



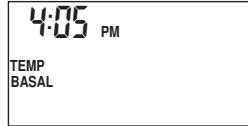
5. Use the arrows to set the desired temporary basal rate (units/hour).
6. Press ACT. The pump will beep once and return to the TIME OF DAY screen.



VERIFYING DELIVERY

You can verify that a temporary basal rate is delivering by checking the following screens:

1. The TIME OF DAY screen displays “TEMP BASAL” verifying it is active. Also your pump will beep three times on every hour.



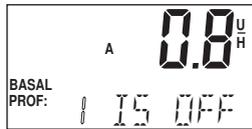
2. The BASAL RATE screen shows that the current profile is “OFF”.

3. The TEMPORARY BASAL RATE screen tells you the current temporary rate that is set and tells you the time remaining on the temporary rate.



NEED TO KNOW

If you have set a ‘profile’ to deliver a specific basal rate at the same time you set the temporary basal rate, the profile will be inactive. The screen will read: “BASAL PROF: ‘X’ IS OFF”.



The temporary basal rate will not repeat. If you want to repeat it, you will have to go through the process on the next day.

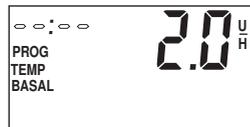
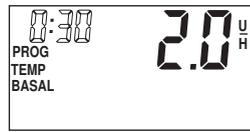
Stopping or Resetting a Temporary Basal Rate

Why: Stops or resets a temporary basal rate.

Where: Main Menu on the TEMPORARY BASAL RATE screen.

How:

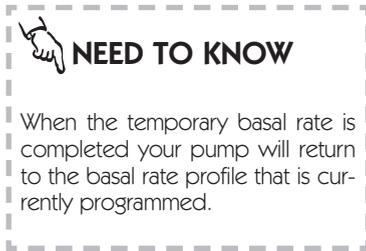
1. From the TIME OF DAY screen, press SEL until you see the TEMPORARY BASAL RATE screen. The current temporary basal rate is displayed.
2. Press ACT. The time remaining on the temporary basal rate will round down to the nearest half hour and will blink.
3. Use the arrow keys to select the duration you want or to dashes to completely reset the duration.
4. Press ACT. Your pump will beep once and return to the TIME OF DAY screen.



VERIFYING THE CHANGE

You can verify that a temporary basal rate has been stopped by checking the following screens:

1. The TIME OF DAY screen will return to normal.
2. The BASAL RATE screen will show an active profile.



#7

1. What is the 'start' time of your first profile? _____
2. Describe why you would want to set a second profile.

Insulin Boluses: why and how

The following bolus options will be discussed: Audio bolus, Variable bolus including Normal, Square Wave, Dual Wave and Normal on a Square Wave.

Q & A

What do the letters mean on the bolus screen?

- ✗ The Medtronic MiniMed 508 sets different types of boluses:
- ✗ 'N' stands for Normal bolus
- ✗ 'S' stands for Square Wave
- ✗ 'D' stands for Dual Wave indicating a Normal bolus followed by a Square Wave.

Setting the Bolus Maximum:

- ✗ Discuss with your health care professional what the maximum bolus amount should be for you. This feature can be set anywhere from 0.0 to 25.0 units.

Why choose a Square Wave bolus?

- ✗ The Square Wave bolus option can be a very useful tool to use when you have a long meal, are doing extended snacking or if you have gastroparesis. By extending the bolus delivery over a period of time, (30 minutes to eight hours), the insulin is more likely to be available to match your individual needs.

What can I do if I want to eat more than the Square Wave I have programmed?

- ✗ The 508 will let you program a Normal bolus if you have a Square Wave programmed, and need to give some additional insulin. The Normal bolus will "interrupt" the Square Wave that is being delivered, and then the Square Wave will resume after it is finished.

What is the advantage of the Dual Wave?

- ✗ This bolus option is useful for meals that contain both rapidly and slowly absorbed carbohydrates. (Example: buffets or combinations of starch, fruit and medium fat protein). This option meets both immediate and extended insulin needs.

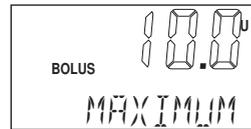
Setting the Maximum Bolus Limit

Why: Sets a safety limit for the amount of insulin that can be delivered in a single bolus.

Where: SET UP II menu on the MAXIMUM BOLUS screen.

How:

1. From the TIME OF DAY screen press SEL until you see the SET UP II screen, then press ACT. Press SEL until you see the MAXIMUM BOLUS screen.
2. Press ACT. The current maximum bolus value will blink.
3. Use the arrows to select the maximum amount and press ACT. The screen will display the next SET UP II screen, MAXIMUM BASAL RATE.



NEED TO KNOW

What is the Maximum Bolus Range?

The factory setting is 10.0 Units but it can be set for any value from 0.0 to 25.0 Units.

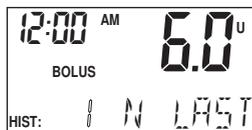
Reviewing Bolus History

Why: Provides a record of the last 24 delivered boluses from the most recent (history 1) to the most distant (history 24).

Where: Main Menu on the BOLUS screen.

How:

1. From the TIME OF DAY screen press SEL until you see the BOLUS screen.
2. Use the arrows to review your bolus history.



NEED TO KNOW

The Bolus screen has two parts:

- History lets you review bolus history.
- Programming lets you program a bolus.

After reviewing your bolus history, if you DO NOT press ACT, the pump will automatically return to the TIME OF DAY screen.

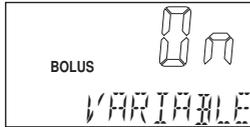
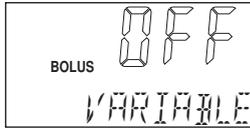
Variable Bolus

Why: Allows you to program bolus options.

Where: SET UP II on the VARIABLE BOLUS screen.

How:

1. From the TIME OF DAY screen, press SEL until you see SET UP II.
2. Press ACT. You will see the VARIABLE BOLUS screen.
3. Press ACT. "OFF" or "ON" will blink.
4. Use arrows to move between OFF and ON. Set your option and press ACT. The screen will display the next SET UP II option, MAXIMUM BOLUS.



 **NEED TO KNOW**

The factory setting is "OFF" so in order to set the Square Wave or Dual Wave bolus this option must be turned "ON".

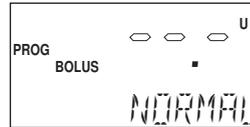
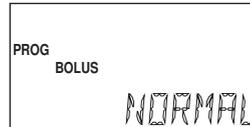
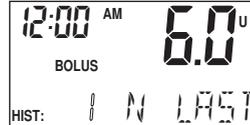
Setting A Normal Bolus

Why: Delivers an immediate bolus to cover current needs.

Where: Main Menu on the BOLUS screen.

How:

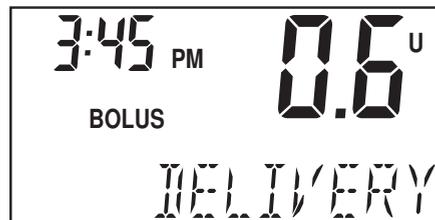
1. From the TIME OF DAY screen press SEL until you see the BOLUS screen.
2. Press ACT. Use the arrows to choose "NORMAL" then press ACT.
3. The dashes for the bolus amount will blink. Use the arrows to select the desired bolus amount. Press ACT.



 **NEED TO KNOW**

Setting a Normal bolus is also explained in the 'Quick Start' guide.

When setting a Normal bolus, you can set the bolus in 0.1 unit increments using U-100 insulin.



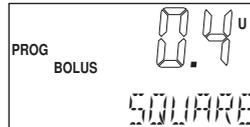
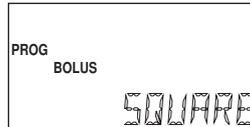
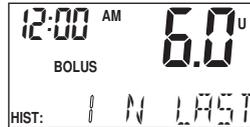
Square Wave Bolus Option

Why: Delivers a bolus evenly over a period of time, from 30 minutes to 8 hours.

Where: Main Menu on the BOLUS screen.

How:

1. From the TIME OF DAY screen, press SEL until you see the BOLUS screen.
2. Press ACT. Use the arrows to choose "SQUARE", then press ACT.
3. Dashes for the bolus amount will blink. Use the arrows to select the desired amount.
4. Press ACT. Dashes will now blink to set duration. Use the arrows to set the desired bolus duration.



NEED TO KNOW

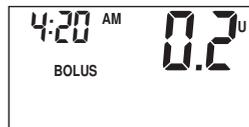
The Square Wave bolus may be useful for a prolonged, multi-course meal, if you have been doing extended snacking or you have 'gastroparesis'.

Note: Variable bolus must be "ON".

You are also able to set a Normal bolus while a Square Wave is being delivered. Simply follow the programming steps for setting a Normal bolus.

When a Square Wave is delivering, you will not be able to make any changes in SET UP.

5. Press ACT to begin delivery.



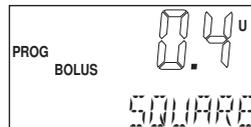
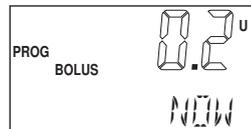
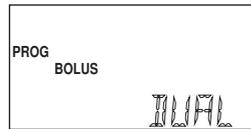
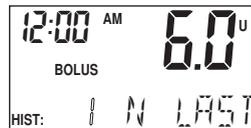
Dual Wave Bolus Option

Why: Delivers an immediate Normal bolus which will be followed by an extended Square Wave bolus.

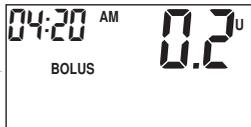
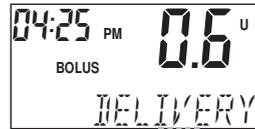
Where: Main Menu on the BOLUS screen.

How:

1. From the TIME OF DAY screen press SEL until you see the BOLUS screen.
2. Press ACT. Use the arrows to choose "DUAL" and then press ACT.
3. You will see the word "NOW" and the dashes for the bolus amount will blink. Use the arrows to select the amount to be delivered now as the Normal bolus.
4. Press ACT. The screen will now display the word "SQUARE" and the dashes for the amount will blink. Use the arrows to select the amount to be delivered as a Square Wave bolus.
5. Press ACT. Use the arrows to select the desired bolus duration.



6. Press ACT. The pump will begin to deliver the Normal bolus. The Square Wave bolus will follow the Normal bolus.



 **NEED TO KNOW**

This bolus option is useful for meals that contain both rapidly and slowly absorbed carbohydrates (e.g. buffets or combinations of starch, fruit and medium fat protein).

Note: Variable Bolus must be "ON".

How will you know the dual wave is delivering?

- During the entire bolus delivery the main screen will show the word "BOLUS" and the amount that has been delivered.
- At the end of the delivery your pump will beep once and the screen will display the amount of bolus delivered for five seconds.

Audio Bolus

TO TURN AUDIO BOLUS FEATURE ON

Why: Allows you to set a bolus with an audible sound. With each button press, you will hear a beep which equals your choice of either 0.5 or 1.0 Units (U-100 insulin).

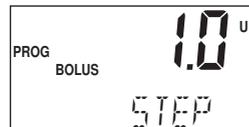
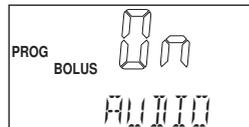
- Half unit (0.5) increases will have one short beep
- Whole unit (1.0) increases will have two short beeps

Each beep is a different note in a musical chord making it easy for you to count the beeps.

Where: SET UP II on the AUDIO BOLUS screen.

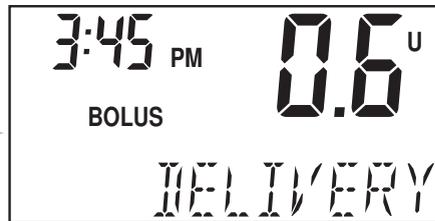
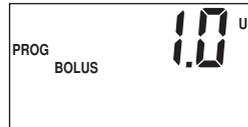
How:

1. From TIME OF DAY screen press SEL until you see SET UP II. Press ACT. Press SEL until you see the AUDIO BOLUS screen, then press ACT.
2. Use the arrows to select "ON". Press ACT.
3. Use the arrows to select the bolus increment amount, either 0.5 or 1.0 units. Press ACT.



TO SET AN AUDIO BOLUS

1. From the TIME OF DAY screen, press the UP arrow. Each time you press the button you will hear a beep or feel a vibration. Carefully count the beeps/vibrations until you have selected the bolus amount you want.
2. Press ACT. Listen and count the beeps as they are played back to you. If the beeps match the bolus amount you want, press ACT to deliver the bolus.

**NEED TO KNOW****WHY HAVE AN AUDIO BOLUS?**

It may be useful for setting a bolus through clothing; when you are unable to see the pump; or for the visually impaired.

When programming an Audio bolus, scrolling is disabled, thus preventing you from going so fast you may lose count of the beeps.

The factory setting is "OFF".

Daily Totals and History

Why: Allows you to recall the daily total amount that you have received in each of the past seven days.

Where: Main Menu on the DAILY TOTALS screen.

How:

1. From the TIME OF DAY screen, press SEL until you see the DAILY TOTALS screen. You will see the amount of insulin delivered for that day and the word "TODAY" will blink.
2. Use the arrows to review the daily totals for the last seven days.
3. When you have completed your review the pump will return to the TIME OF DAY screen.



NEED TO KNOW

The daily total includes all bolus and all basal amounts that have been delivered for that day since midnight.

The daily total does not include any insulin used with the Prime feature.

A 90 day review is kept by the pump's computer but is only available by downloading.

If you change or re-set the day of the week for any reason, the daily total will be erased for that day.

Clocks and Alarms

The following section covers: Changing the Time Display Format, Setting the Beep Volume, How to Review Alarms, Alarm Type and Setting the Automatic Off. Setting the Time and Day is discussed in the Quick Start guide. Please refer to page 13 if you have questions.

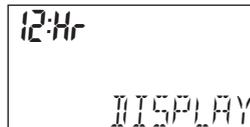
Changing the Time Display

Why: Allows changing the time display from 12 hour (AM/PM) to 24 hour (international) format, according to your personal preference.

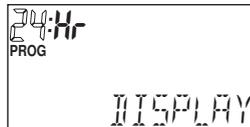
Where: SET UP II on the TIME DISPLAY screen.

How:

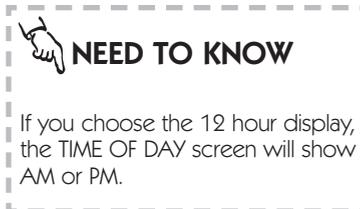
1. From the TIME OF DAY screen, press SEL until you see SET UP II, then press ACT.



2. Press SEL until you see the TIME DISPLAY screen, then press ACT. The time format will blink. Use the arrows to choose either "12:Hr" or "24:Hr".



3. Press ACT. Your pump will return to the TIME OF DAY screen if no other buttons are pressed within 15 seconds.



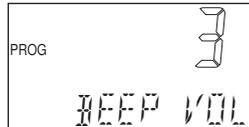
Setting the Beep Volume

Why: Allows the user to set the volume for the pump's beeps.

Where: SET UP I on the BEEP VOLUME screen.

How:

1. From the TIME OF DAY screen, press SEL until you see SET UP I, then press ACT. Press SEL until you see the BEEP VOLUME screen, then press ACT.
2. Use the arrows to select the beep volume level of your choice: 1, 2 or 3. Press ACT. The pump will return to the TIME OF DAY screen if no additional buttons are pressed in 15 seconds.



NEED TO KNOW

There are three beep volume levels:

1 = Low,

2 = Medium

3 = High.

Your pump arrives with the beep volume set at 2 (Medium).

Beep volumes do not affect the alarms, which will always sound at the highest level.

Reviewing Your Alarms

Why: Allows the user to review the last 12 alarms and/or errors that have occurred.

Where: SET UP II on the ALARM REVIEW screen.

How:

1. From the TIME OF DAY screen, press SEL until you see SET UP II, then press ACT. Press SEL until you see the ALARM REVIEW screen.



2. The screen will display the words "HIST" and "ALARM". Use the arrows to review the alarms, from the most recent (1) to the oldest (12) alarm. You will see both time and date.



3. The pump will return to the TIME OF DAY screen if no additional buttons are pressed within 15 seconds.



NEED TO KNOW

WHY REVIEW ALARMS?

This feature will assist you in the event you may have to contact Medtronic MiniMed's 24-hour Clinical Services Help Line at 1-800-826-2099. The Medtronic MiniMed representative may ask you for any alarms you have received.

Setting the Automatic Off

Why: Provides an optional safety feature. When 'ON' the pump's computer "watches" all button presses. If the computer notices that no buttons have been pressed within the time you set, ALL delivery will be stopped and the pump will alarm to alert you.

Where: SET UP I on the AUTOMATIC OFF screen.

How:

1. From the TIME OF DAY screen, press SEL until you see SET UP I then press ACT. Press SEL until you see the AUTOMATIC OFF screen.
2. Press ACT. Use the arrows to select the number of hours for the pump to monitor lack of activity before activating an alarm. You may choose from 1 hour to 16 hours.
3. Press ACT. The pump will return to the TIME OF DAY screen if no additional buttons are pressed in 15 seconds.



 **NEED TO KNOW**

The pump is shipped with this feature OFF.

Discuss this option with your health care professional for the setting best for you.

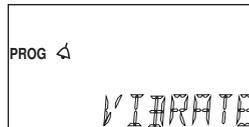
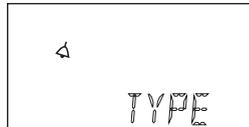
Alarm Type

Why: Allows user to select either an audible or vibration alarms and alerts.

Where: SET UP II on ALARM TYPE screen.

How:

1. From the TIME OF DAY screen, press SEL until you see SET UP II, then press ACT.
2. Press SEL until you see the ALARM TYPE screen, then press ACT. The alarm type will blink. Use the arrows to choose either "AUDIO" or "VIBRATE".
3. Press ACT. Your pump will return to the TIME OF DAY screen if no other buttons are pressed within 15 seconds.



NEED TO KNOW

Using the vibrate option uses more battery power than using the audible option. It is recommended that you use MMT 104 batteries as they will provide you with optimum battery life. To maximize battery life, use the vibration option sparingly.

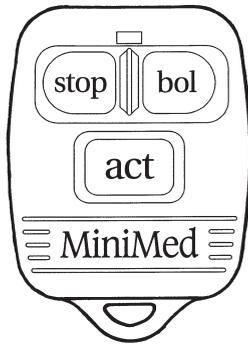
For safety purposes, when you receive a "LOW BATTERY" alert, your pump will automatically revert to audible tones.

If you are using the Child Block option, vibrate mode will be disabled. Any alarms or alerts will be in audio mode.

Other Useful Features

Using The Remote Control

The Model 500 Remote Control is an optional accessory item for your model 508 insulin pump that allows you to program a bolus or suspend and restart your pump without pressing any of the pump's buttons! The Remote Control contains a transmitter that sends signals to a receiver in your 508 pump. This is designed to add more freedom and flexibility to your daily activities! Of course, you can still program your pump by using the four main pump buttons.



NEED TO KNOW

The Remote Control is a very simple and easy to use device.

Three buttons control all the programming:

- 'STOP': Suspends or restarts your pump
- 'BOL': Allows you to set an Audio bolus
- 'ACT': activates your programming choices

Why: It allows the user, by way of ‘radio frequency waves’, to suspend, restart and program an Audio bolus without using the buttons on the 508 pump. This “links” the remote control to the pump.



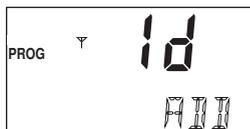
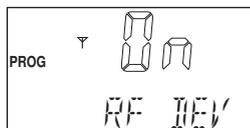
NEED TO KNOW

You have to link your remote to your pump. The pump will only work with YOUR individual remote and only after it has been linked!

Where: SET UP II on the RADIO FREQUENCY DEVICE screen.

How: To use the Remote Control, you must turn this feature ON in your 508 pump.

1. From the TIME OF DAY screen, press SEL until you see SET UP II, then press ACT. Press SEL until you see the RADIO FREQUENCY DEVICE screen then press ACT.
2. Use the arrows until the word ON appears and press ACT.
3. The screen will display “Id” and the word “ADD”. Press ACT.
4. Use the arrows to record the first six digits shown on the Remote Control’s serial number as the ID number. (This is on the back of the Remote). Press ACT to enter each number and to move to the next digit. (To enter a 0, press ACT, this will take you to the next digit). Press ACT after the last number is entered. Your pump and remote control are now linked.




NEED TO KNOW

You can have a maximum of three remote controls active. You may link them to the pump following the same steps.

5. You have the ability to add the ID numbers for up to three remote controls.
6. If you wish to add, delete or review remote control ID numbers, press ACT on the desired option at step four above.


NEED TO KNOW

The remote control runs on a single A23 battery. The control will go into 'sleep mode' when it is not being used to help preserve battery life.

The pump screen will return to the TIME OF DAY screen.

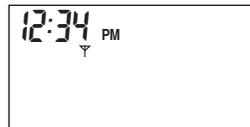

NEED TO KNOW
About the LED light on the remote control.

When the remote is in "sleep mode", green LED light will be off.

After you have awakened your remote by pressing and holding the ACT button, the LED light will glow and flash very fast.

When the battery is low, the LED will blink in a series of 3 quick flashes until the battery is replaced.

When this happens, replace the battery in the Remote Control as soon as possible.



USING THE REMOTE CONTROL TO DELIVER A BOLUS

Why: Allows you to deliver an audio bolus using the remote control.

Where: The BOL button on remote control.

How:

1. Press and hold ACT on the remote control for at least five seconds to 'wake up' the pump. When the pump is awake, it will beep or vibrate. You will now be able to program an Audio bolus.
2. Slowly, press the BOL button as many times as you want to select the bolus amount. **Each press will result in a beep or a vibration.** For example, with Audio bolus feature 'ON' and the increment set at 1.0 units a five unit bolus would be five presses of the BOL button.
3. Press ACT. The pump will playback the amount you just selected. Press ACT to deliver.

**NEED TO KNOW**

The remote control will work between a range of 12 to 18 inches.

The Audio bolus feature must be "ON" to set a bolus using the remote control.

Your pump 'looks' for a signal from the remote control every 2 or 3 seconds. This is why you need to press and hold the ACT button on the remote control before you can program.

USING THE REMOTE CONTROL TO SUSPEND/RESTART THE PUMP

1. Press and hold ACT on the remote control for at least five seconds to 'wake up' the pump. When the pump is awake, it will beep or vibrate.
2. To Suspend: Press STOP then press ACT. You will hear three audible beeps or vibrations confirming that the pump is in suspend.
3. To Restart: Press and hold ACT on the remote control for five seconds. This will "wake-up" the pump. Press STOP and then press ACT. The pump will beep and or vibrate once and then resume normal operations.

**NEED TO KNOW**

If you make a mistake you can let the pump time out. (just do not press any buttons), and in about 15 seconds the pump will reset and return to the TIME OF DAY screen.

To start programming, you need to "wakeup" the pump by pressing and holding ACT for 5 seconds.

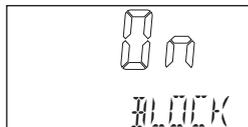
Child Block Activation

Why: Restricts access to the pump's features except by the Remote Control, Suspend ON/OFF and Self Test.

Where: SET UP II on the CHILD BLOCK screen.

How:

1. From the TIME OF DAY screen, press SEL until you see SET UP II then press ACT. Press SEL until you see the CHILD BLOCK screen, then press ACT.
2. Use the arrows to select "ON". Press ACT. If no additional buttons are pressed, the screen will return to the TIME OF DAY screen in 15 seconds.



NEED TO KNOW

You will not be able to change any of the programmed basal rates, or Personal Pattern information when Child Block is ON.

You will be able to program a Normal bolus and stop and restart the pump with the remote control. You will only be able to Suspend and run a Self Test when Child Block is ON.

For safety, when Child Block is ON, the pump will disable Vibrate mode and all alarms and alerts will be in Audio mode.

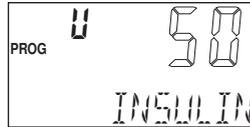
Setting Your Insulin Concentration

Why: Allows the user to change insulin concentration prescribed by his/her physician to achieve glucose control.

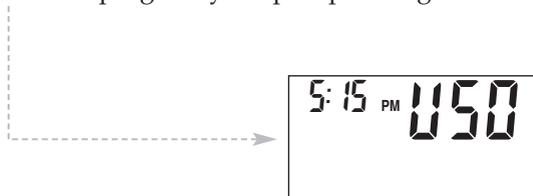
Where: Set Up II on the INSULIN CONCENTRATION screen.

How:

1. From the TIME OF DAY screen press SEL until you see SET UP II, then press ACT.
2. Press SEL until you see the INSULIN CONCENTRATION screen, then press ACT.
3. Use the arrows to set the concentration of your choice.
4. Press ACT. The screen will now display "E02 SET PUMP" and the pump will clear all previous settings and return to the factory settings.



To clear the E02 alarm, press SEL, then ACT. If you have chosen a concentration other than U-100, it will appear on the TIME OF DAY screen. Re-program your pump settings.



**NEED TO KNOW**

Your pump is shipped with the insulin concentration set for U – 100.

The rate of your insulin delivery is based on your insulin concentration:

U - 1000.1 U per stroke

U - 500.05 U per stroke

U - 400.04 U per stroke

If you change the insulin concentration from the pre-set type to another type, an alarm will sound to remind you to re-program your profiles and maximum values for basal and bolus rates.

This safety step is necessary to ensure accurate delivery of insulin after you change the insulin concentration.

Pump Function Evaluation Options

This section will discuss the following operations: Self Test, Lead Screw Rotation Test (Occlusion Alarm Test)

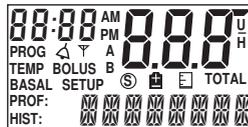
Self Test

Why: Allows you to perform safety checks on all pump software at any given time.

Where: SET UP I on the SELF TEST screen.

How:

1. From the TIME OF DAY screen, press SEL until you see SET UP I, then press ACT.
2. Press SEL until you see the SELF TEST screen then press ACT.
3. The following sequences will occur:
 - a. The pump will beep once and the Full Segment Display will appear for ten seconds. Verify that all segments are present.
 - b. The screen will count down from '9' to '3' and the screen will blink and the word "SELF TEST" will be displayed.



- c. At the countdown of '3', the bottom of the screen will show "VIBRATE" on the screen with a test of the vibrator.
- d. At the countdown of '2' the bottom of the screen will show "TONETEST" and you will hear an alarm beep sequence (European siren).
- e. "TEST OK" indicates a successful Self Test after which the TIME OF DAY screen will show.



 **NEED TO KNOW**

Run a Self Test if your pump experiences a hard bump or if an error code occurs you don't understand.

If any part of the Self Test is not accurate, if you do not hear sound during the tone test or if you do not feel a vibration during the vibrate test or if an Error Code appears, immediately call the 24-hour Clinical Services Help Line at 1-800-826-2099.



#8

1. Do you need to disconnect from your pump to run a Self Test? _____

Lead Screw Rotation Test

Why: Provides a method for you to verify that the lead screw turns properly.

How:

1. Disconnect from the pump by either of the following:
 - a. If you are using an infusion set with a Quick Release feature, disconnect by using the QR. Leave the fluid filled reservoir in the pump.
 - b. If you are not using an infusion set with a Quick Release feature, remove the infusion set from your body. Leave the reservoir in the pump.
2. Find the 'landmark' on the lead screw. This is the groove (white/yellow mark) which is placed on the end of the lead screw closest to the serial number.
3. Using the Prime feature, program a 7.2 unit bolus of U-100 insulin (3.6 of U-50, 2.88 of U-40). The lead screw will make one complete turn. The groove will return to its initial location.



NEED TO KNOW

If you have questions regarding the lead screw test, call the 24-hour Clinical Services Help Line at 1-800-826-2099.

If no insulin flow is seen during test:

1. Check that no air is in the infusion set. If air is seen, prime the set until insulin appears at the end.
2. Check that no obstruction is present in the infusion set tubing or needle. If there is an obstruction, prepare and insert a new infusion set.

3. Make sure the driver block and driver arms are snug around the syringe:
 - a. Disengage the two driver arms of the driver block by pulling both driver arms upwards toward you.
 - b. Slide the driver block away from the reservoir plunger along the lead screw.
 - c. Return the driver block snugly against the reservoir plunger.
 - d. Re-engage the two driver arms of the driver block by pushing both arms inward to secure the back of the plunger between them.

4. Repeat the Lead Screw Rotation Test.

Check:

- a. The yellow mark has moved.
- b. The yellow mark has returned to its original position after 7.2 units have been delivered.



NEED TO KNOW

Correct turning of the lead screw confirms that you will receive the correct amount of insulin.

Disconnection from your pump **MUST** be performed in one of these two options so you do not deliver a 7.2 unit insulin bolus during the test.



#9

What is the purpose of Lead Screw Rotation Test?

Pump Care and Maintenance

This section will cover Installation of Batteries, General Pump Care and Cleaning Your Pump.

Batteries

Certain features on the 508 pump use a lot of battery power.

- Remote Control
- Backlight
- Vibration alarms
- Downloading with the Com-Station.

If you use these features a lot, your batteries will need to be replaced more frequently.

LOW BATTERY & VIBRATION

When your pump receives a low battery alert, your pump will revert back to “audio mode” and vibration will be disabled.



NEED TO KNOW

Your Medtronic MiniMed pump uses three 1.5 volt silver oxide batteries.

For best results use Medtronic MiniMed Model 104 batteries (EverReady model 357) or equivalent batteries; however results may vary.

It is important that you **DO NOT** use **alkaline, lithium or zinc-air** batteries in your Medtronic MiniMed Insulin Pump.

TO REMOVE THE BATTERY CARRIER

1. Place the pump face down on a secure, flat surface.
2. Insert a coin in the slot on the cover of the battery carrier and rotate it counter-clockwise to the 'open' position. The slot will be parallel to the edge of the case.
3. Gently lift up the battery carrier and remove it from the case.

**NEED TO KNOW**

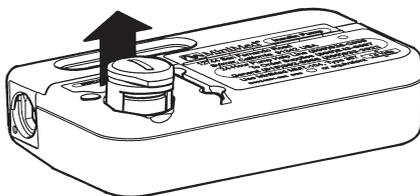
If you remove the batteries from your pump, all settings and history will be saved for approximately 45 minutes. After 45 minutes, you will receive either an E-03 or an E-01 message depending on how long the batteries were removed. Clear the message, check all settings and reprogram as needed. See page 107 for additional details.

Your pump turns on as soon as the batteries are inserted.

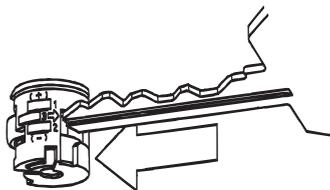
It will perform a two – three second 'safety check' and return to the TIME OF DAY screen.

For Best Results:

- Do not let the batteries touch each other prior to placing in the battery carrier.
- Do not mix old and new batteries.
- Never put batteries in upside down.

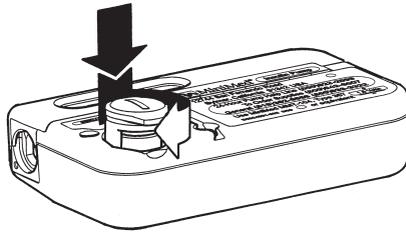
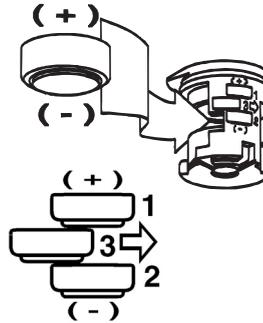


4. Remove all three of the old batteries from the battery carrier by using a key or other blunt object to push the middle battery out first.



TO INSTALL NEW BATTERIES

1. Insert three new batteries into the battery carrier. The middle battery must be inserted last. All three batteries should be facing in the same direction. Follow the diagram on the battery carrier.
2. Replace the battery carrier into the pump, pushing it down and turning it clockwise.



3. The TIME OF DAY screen should appear as soon as the batteries are inserted. If this does not happen:
 - a. Check to see if the batteries are inserted properly.
 - b. If yes, and it still does not turn on, try three new batteries.
 - c. If the pump is still not on, call the 24-hour Clinical services Help Line for assistance at 1-800-826-2099.

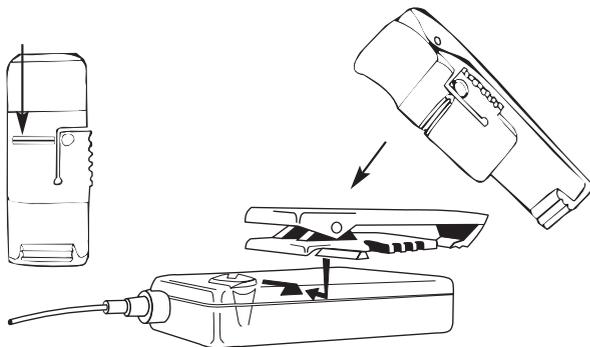
**NEED TO KNOW**

Low Battery Indication Icon – will appear on the TIME OF DAY screen when the pump's battery power is low (approximately 10% of battery life is remaining) and will be visible until the batteries are changed.

Installation of the Spring Belt Clip

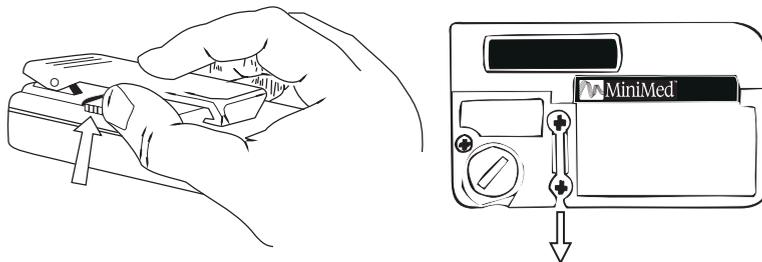
Installation

Slide the clip into the pump using the triangular ridge on the bottom. This ridge slides into the corresponding groove on the back of the pump. Push the clip until it stops and clicks into place.



Removal

Using your thumb, push up on the grooved edge of the Belt Clip, and gently slide the clip out of the groove.



Pump Care

IF YOUR PUMP IS DROPPED

1. Check that the driver arms and infusion set connections are not damaged and are still correctly in place.
2. Check for leaks, cracks or damage to the keyboard and reservoir syringe.
3. Review your PROFILES and **ALL** the SET UP options to ensure they are still properly programmed.
4. Perform a Self Test. (See page 79)



NEED TO KNOW

Read your warranty statement included with your pump for information on what is covered during your warranty period.

Take care to protect your pump from being dropped.

IF YOUR PUMP BECOMES SUBMERGED IN WATER

1. Pat the outside of the case until dry.
2. Open the reservoir compartment and check the compartment and reservoir for water. If wet, dry it completely within ten minutes of exposure to water. Exposure to liquids, including water or insulin, can corrode the mechanism.
3. Dry the reservoir completely – do not place a wet reservoir in your pump.
4. Do **not** use HOT AIR to dry your pump, as this may damage internal electronics.
5. Check the battery compartment and the batteries - if wet, let them dry completely before resuming use of the pump.
6. Check the battery carrier. If you need a new one, call the Clinical Services Help Line at 1-800-826-2099.



NEED TO KNOW

Your pump is watertight but should not be deliberately submerged in liquids.

We recommend using an infusion set with a Quick Release feature to disconnect before showering, bathing, etc.

You can also use a Shower Pak™ or a SportGuard™.

EXPOSURE TO EXTREME TEMPERATURES

1. Avoid exposure of your Medtronic MiniMed pump to temperatures above 104 °F (40°C) or below 33°F (0.5°C). Insulin solutions freeze near 32° F and degrade at high temperatures. If you are outside in cold weather, wear your pump close to your body and cover it with warm clothing. If you are in warm weather, take measures to keep your pump and insulin cool.
2. If you live in a cold, dry climate, protect your pump from Electrostatic Discharge (ESD) which can cause your pump to alarm. Using the leather case can help protect your pump from ESD. If this happens, contact the Clinical Services Help Line for assistance 1-800-826-2099.
3. Do not steam sterilize or autoclave your Medtronic MiniMed pump.

**NEED TO KNOW**

A leather case can provide greater protection for your pump.

If you have to remove and store your pump, it is recommended that you store it with the batteries in place. Keep a record of your current basal rates and reset the rates to zero to preserve battery life.

CLEANING YOUR PUMP

1. Use a damp (not wet) cloth and mild soap to clean the outside of your Medtronic MiniMed pump.
2. Never use organic solvents, such as lighter fluid, nail polish remover or paint thinner to clean your pump.
3. Keep the reservoir compartment free from moisture.
4. Each time you change your batteries, clean the lead screw with a stiff brush. A brush for cleaning the lead screw is located in your pump box.

Your Medtronic MiniMed pump mechanism has been treated with special dry lubricants designed to last the life of the pump. DO NOT use any lubricants on this mechanism.

X-RAYS, MRI'S AND CT SCANS

If you are going to have an X-ray, CT scan, MRI or any other type of radiation therapy, TAKE YOUR PUMP AND REMOTE CONTROL OFF.



Remote Control Care and Maintenance

INSTALLATION OF THE BATTERY

1. Place the Remote Control face down on a secure, flat surface.
2. Using a standard Phillips screwdriver, unscrew the rear panel. Remove the used battery and discard properly.
3. Insert a new A23 battery according to the diagram on the Remote Control case. When inserting the new battery, do not touch any of the exposed electronics.
4. Replace rear panel and screw to connect Remote Control case.



Your Remote Control should be able to talk with the pump as soon as the battery is inserted. If this does not happen:

- a. Check to see if the battery is inserted properly.
- b. If the battery is inserted properly and it still does not turn on, try a new battery.

If the Remote Control still does not turn on, call the Clinical Services Help Line for assistance at 1-800-826-2099.

IF YOUR REMOTE CONTROL IS DROPPED

1. Check that the Remote Control panels (front and rear) are still attached.
2. Press and hold the ACT button to check communication with the pump.

IF YOUR REMOTE CONTROL BECOMES SUBMERGED IN WATER

1. Pat the outside of the case until dry.
2. Following the battery installation procedure above, unscrew the rear panel and dry out the two sections.
3. Do not use HOT AIR to dry your Remote Control as this may damage internal electronics.
4. If you need assistance, call the Clinical Services Help Line at 1-800-826-2099.

EXPOSURE TO EXTREME TEMPERATURES

1. Avoid exposure of your Medtronic MiniMed Remote Control to temperatures above 104 °F (40°C) or below 33°F (0.5°C).
2. Do not steam sterilize or autoclave your Remote Control.

CLEANING YOUR REMOTE CONTROL

1. Use a damp (not wet) cloth and mild soap to clean the outside of your Remote Control.
2. Never use organic solvents, such as lighter fluid, nail polish remover or paint thinner to clean your Remote Control. Each time you change your battery, clean the compartment to remove any debris or lint that may have accumulated in this area.

FCC Notice for the Remote Control

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) This device must accept any interference received, including interference that may cause undesirable operation.

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the Remote Control
- Increase the separation between the Remote Control and the device that is receiving/emitting interference
- Consult Medtronic MiniMed's 24-hour Clinical Services Help Line at 1-800-826-2099 if you have any questions.

Caution: Any changes or modifications to the devices not expressly approved by Medtronic MiniMed could void your ability to operate the equipment.

Pump User Safety Information

Caution

Federal (USA) law restricts this device to sale by or on the order of a physician.

Indications

The Medtronic MiniMed Model 508 Insulin Pump is indicated for the continuous delivery of insulin at set and variable rates for the management of diabetes mellitus in persons requiring insulin.

Contraindications

Pump therapy is not recommended for people who are unwilling or unable to perform at least four to six blood glucose tests per day and to maintain contact with their health care professional.

Warnings

The following conditions may occur while using an insulin pump.

Hypoglycemia

The intensive management of diabetes has been associated with an increase in the incidence of hypoglycemia (low blood glucose).

Diabetic Ketoacidosis (DKA)

Insulin pump therapy uses only Regular (short-acting) insulin, therefore, any interruption in the delivery of insulin may result in the rapid onset of diabetic ketoacidosis.

Skin Infections

Infection at the infusion site is a risk of pump therapy. Please refer to the Troubleshooting sections for more information.

Precautions

GENERAL

Monitor your blood sugar levels at least FOUR to SIX times per day and ALWAYS:

- before you go to bed
- when you get up in the morning
- whenever you feel nauseous
- before driving a car

Act quickly to respond to abnormal blood sugars! Notify your health care professional of any serious hypoglycemia or hyperglycemia, or of an increased frequency in low or high blood sugars.

Develop a protocol with your health care professional in the event that a problem occurs and you are unable to reach him/her for advice. (There is also a troubleshooting section in this manual for your reference.)

Periodically check your 3:00 A.M. blood sugar levels. Discuss any abnormal readings with your health care professional.

Always carry an "emergency kit" of conventional insulin supplies in case you develop a problem with your pump and your insulin delivery is stopped. This kit should include:

- Fast-acting glucose tablets
- Blood glucose monitoring supplies, urine ketone monitoring supplies
- Regular insulin & insulin syringe with directions from your health care professional regarding how much insulin to take
- An extra infusion set and Medtronic MiniMed reservoir
- Dressing and adhesive
- Extra batteries (MMT-104)
- 508 programming and alarm cards

Check the amount of insulin remaining in your reservoir at least once a day.

Your Medtronic MiniMed pump is watertight, but should not be deliberately submerged in liquids. If the reservoir area does become wet, dry it completely within ten minutes. Wet reservoirs should not be placed in the pump. Continued exposure of the reservoir area to liquids, including water or insulin, can corrode the mechanism.

Do not use any lubricants on the Medtronic MiniMed pump mechanism. It has been treated with a special dry lubricant designed to last the life of the pump.

Use only 3.0 ml reservoirs labeled "for use with Medtronic MiniMed pumps." Other manufacturers' syringes can deliver the wrong amount of insulin.

If a display or function appears incomplete or differs from the descriptions contained in this manual, initiate a Self Test and contact the Medtronic MiniMed Clinical Services Help Line at 800-826-2099.

Successful operation of the Medtronic MiniMed pump requires both visual and auditory acuity. While features exist to help facilitate pump usage, Medtronic MiniMed does not recommend the use of this product by individuals whose impaired vision or hearing does not allow full recognition of the pump signals and alarms.

INFUSION SETS AND SITES

To help prevent problems with infusion sets or sites, routinely follow these precautions:

1. Always check for leaks after changing your reservoir and infusion set. Wrap a tissue around the Luer connection between the reservoir and infusion set and check for leaks.
2. Never use insulin that appears cloudy, as this may indicate the insulin is inactive. Do not expose your insulin to extreme changes in temperature.
3. Change your infusion site regularly every 2-3 days, according to your health care professional's suggestions and according to the Instructions for Use which accompany the infusion sets.
4. Practice aseptic technique when inserting infusion sets.
5. Check the infusion site often for redness, irritation and inflammation. Many health care professionals recommend that pump wearers check the site at the following times:
 - before getting up in the morning
 - before going to bed in the evening
 - whenever blood sugar levels are elevated
6. Use an infusion set or dressing that provides anti-microbial protection against infection.
7. Rotate the infusion site each time you change the infusion set to ensure proper absorption of insulin. The new site should be at least one inch from the previously used site.

8. Avoid using an infusion site that will be irritated by clothing and accessories, or by rigorous movement and stretching due to exercise.
9. If using the Short Reservoir method, the reservoir converter must be in place or inaccurate insulin delivery may result.

HYPOGLYCEMIA

To help prevent hypoglycemic (low blood glucose) episodes, routinely follow these precautionary steps:

1. Know the symptoms of hypoglycemia and never ignore these symptoms, no matter how mild they may be.
2. Always carry a fast-acting sugar replacement (such as candy, juice or glucose tabs) in the event of a hypoglycemic episode.
3. Have a current glucagon kit in your possession. Periodically review the proper procedure for administering glucagon with family members and significant others. Periodically check the expiration date of the kit.
4. Monitor your blood glucose frequently, at least four to six times a day, including periodic 3:00A.M. values. Discuss an appropriate protocol with your health care professional for adjustment of your insulin.
5. Never go to bed if your blood glucose is below your bedtime target level. Bedtime target levels are often set higher than other blood glucose levels.
6. Do not skip a bedtime snack prescribed by your health care professional. Use extra caution whenever you program a bedtime bolus.

7. Test before you drive. Blood glucose should be above 100 mg/dl.
8. Set Automatic Off feature of your pump (see page 68)

HYPERGLYCEMIA AND DIABETIC KETOACIDOSIS (DKA)

To help prevent serious hyperglycemia (high blood glucose) and the possibility of diabetic ketoacidosis (DKA), follow these precautions:

1. Monitor your blood glucose at least four to six times a day and always before you go to bed, when you get up in the morning and whenever you feel nauseous.
2. If your blood glucose is above 250 mg/dl twice in a row, give regular insulin by injection (shot). Check blood glucose again in 1-2 hours.
3. **Take insulin by injection (shot) at the first sign of nausea if blood glucose is above 250 mg/dl. Check blood glucose again in 1-2 hours.**
4. Check urine ketones if blood glucose is above 250 mg/dl or you feel nauseous. If positive, call your doctor immediately.
5. Change your infusion set if blood glucose is elevated above 250 mg/dl at two consecutive readings, **AFTER** you have taken an injection (shot).
6. Note: Remember, nausea and vomiting are often the first signs of DKA. The key to avoiding DKA is to be prepared and act quickly! Do not assume your blood glucose is high because you are under stress, have the flu or miscalculated your last meal bolus.

Adverse Reactions

HYPERGLYCEMIA AND DIABETIC KETOACIDOSIS (DKA)

Pump wearers use only Regular short-acting insulin. As a result you will not have a reserve of long-acting insulin. You must be aware that interruption of insulin delivery due to infusion set clogs, leaks, loss of insulin potency or pump malfunction can result in a rapid rise of blood glucose levels within two to four hours and the development of DKA within four to ten hours. In addition, the sudden onset of stress caused by infection or an emotional event can result in a rapid rise of blood glucose levels and the development of DKA.

Although the pump has multiple safety alarms, it cannot alarm if the set is leaking or the insulin has lost its potency.

Therefore, it is essential that you make frequent (at least four to six times per day) blood glucose determinations. If blood glucose levels are high (over 250 mg/dl), you must be prepared to give an injection of regular insulin and troubleshoot the pump and infusion set to insure that it is delivering the necessary amount of insulin. You should also check for urine ketones whenever blood glucose values are elevated, above 250 mg/dl. Establish a protocol with your health care professional for rapidly identifying and treating hyperglycemia to prevent the onset of diabetic ketoacidosis and possible hospitalization.

HYPOGLYCEMIA

Hypoglycemia can be more subtle for pump users than with patients on conventional therapy and may occur even when the pump is working properly. Check blood glucose levels at least four to six times per day with periodic checks at 3:00A.M. Notify your health care professional if you are experiencing repeated or severe low blood glucose reactions. Besides reviewing your insulin, food and exercise, you and your physician should also discuss your target blood glucose goals. Never go to bed with a blood glucose value below your target level. Also, blood glucose tests should be performed before driving a car because hypoglycemia may go unnoticed while concentrating on traffic. Set Automatic Off feature of your pump (see page 68).

SITE INFECTION/ABSCESES

Infections at the insertion site may occur, but can be minimized by good site preparation and the frequent changing of infusion sets. The set should always be changed immediately if the site becomes sore, red, or swollen. Follow the advice of your health care professional and product Instructions for Use regarding proper insertion techniques.



Troubleshooting: Alarms and Screen Messages

Your Medtronic MiniMed pump has a sophisticated network of safety checks and systems which continually monitor the computer software, operations and programs.

If the safety network detects anything unusual, your pump has alarms and signals to alert you to problems for immediate attention.

Error Messages

When you see an “E-XX” message, note the message and then restart your pump. If you receive the same error message, call the Clinical Services Help Line at 800-826-2099.

ERROR RESTART PROCEDURE

1. Press SEL, then ACT to clear the error message. A few alarms will result in the message “PROG PUMP E-01” appearing on the display.
2. Press SEL and then ACT to clear the E-01 message.
3. Reprogram ALL of your settings.



NEED TO KNOW

Safety check messages are divided into two groups: ERRORS (EXX) and ALARMS (AXX).

XX represents a number that corresponds to the safety check message seen on the screen.

Alarm Messages

When you see an 'AXX' message, look up the number on this troubleshooting list to determine the problem and how to remedy it. Press SEL and then ACT to restart your pump.

ALARM RESTART PROCEDURE

Press SEL then ACT. Your pump should restart. All of your prior programming will be intact – you do not have to reprogram your settings.

Alarm Message

Cause

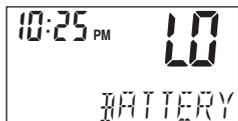
What to do



3 beeps/vibrations every 15 minutes.

Pump has been programmed to stop delivery.

To restart the pump, press SEL, then ACT.



3 beeps when the alarm is triggered.

- Vibration is disabled when pump has a Low Battery message.

Low battery. (Pump is still delivering. 10% battery life remains.)

Replace with MMT-104 batteries as soon as possible always before going to bed, and prior to downloading.

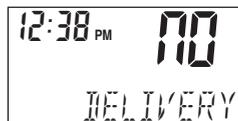


6 beeps every minute.*

- Displayed as A-05 in Alarm Review Feature.

Depleted battery.

Replace batteries now. Pump has stopped insulin delivery.



6 beeps/vibrations every minute.*

- Displayed as A-04 in Alarm Review Feature.

No delivery due to excess pressure caused by an occlusion or empty reservoir.

Press SEL, then ACT to stop the alarm. Check reservoir, infusion set and blood glucose. Replace as necessary.



Alarm Message	Cause	What to do
 <p>6 beeps/vibrations every minute.*</p>	Over-delivery protection "Watchdog."†	Press SEL, then ACT.
 <p>3 beeps/vibrations every hour.</p>	Temporary basal rate is active.	No action necessary unless you want to stop the temporary rate.
 <p>6 beeps/vibrations every minute.* •Displayed as A-06 in Alarm Review Feature.</p>	No buttons were pressed during the automatic-off time period.	To restart the pump, press SEL, then ACT. Check time duration for automatic off.
 <p>6 beeps/vibrations every minute.*</p>	Pump time and date has been reset.	Press SEL, then ACT. Reprogram ALL settings including time, profiles and set-up options.
 <p>6 beeps/vibrations every minute.*</p>	Change in insulin concentration has cleared profiles & maximum settings.	Press SEL, then ACT. Reprogram profiles & maximum settings.
 <p>6 beeps/vibrations every minute.*</p>	Batteries have been removed for longer than 45 minutes.	Press SEL, then ACT. Re-set time and date. Verify all other settings remain.
 <p>6 beeps/vibrations every minute.*</p>	Time safety check.	Press SEL, then ACT. Re-set time and date. Verify all other settings remain. →

Alarm Message	Cause	What to do
 <p>6 beeps/vibrations every minute.*</p>	<p>Delivery safety check. (Adjusting the lead screw may cause this alarm.)</p>	<p>Press SEL, then ACT. Call Medtronic MiniMed Help Line if same alarm reoccurs without explanation.</p>
 <p>6 beeps/vibrations every minute.*</p>	<p>Safety check message.**</p>	<p>Press SEL, then ACT. If same alarm reoccurs, call Medtronic MiniMed Help Line.</p>
 <p>6 beeps/vibrations every minute.*</p>	<p>Safety check message.**</p>	<p>Press SEL, then ACT. An E-01 alarm will occur. (To clear, see above instructions.) If same error message reoccurs, call Medtronic MiniMed Help Line.</p>



NEED TO KNOW

All alarms will gradually become higher in pitch until turned off.

If using vibrate mode, all alarms and alerts will start as vibrations. For alarms, if there is no response after 3 minutes, they will become beeps, and then sirens.

Performing a 'Self Test' at the time of an alarm or error may be beneficial. Page 79.

* For your safety, if alarms are not cleared within 10 minutes, your pump will siren every minute. To clear this alarm, wait until the siren has finished sounding, then press SEL and ACT.

** In the safety check messages, E-XX and A-XX, the numbers represented by "XX" will vary to indicate the specific safety check message.

† This alarm occurs if you deliver more than 2½ times your maximum bolus rate plus 1 maximum basal rate in one hour.



NEED TO KNOW

Questions or concerns regarding the alarms or screen messages that you cannot clear using the troubleshooting guidelines call the 24-hour Clinical Services Help Line at 1-800-826-2099.

Troubleshooting & Diabetes Management Issues

These are general suggestions. Consult with your health care professional for detailed guidelines.

Blood Glucose Monitoring

Why: Regular monitoring of blood glucose provides the user an 'external' view of 'internal' responses to insulin basal rates, boluses, ingested food, physical activity, stress or anything else than can impact the blood glucose.



NEED TO KNOW

Teach another person in your family or close personal circle how to check your blood glucose in case of an emergency and what to do if immediate action is necessary.

SUGGESTED FREQUENCY OF BLOOD GLUCOSE MONITORING

General:

1. Four to six times daily – before each meal and at bedtime.
2. Periodically at 3:00A.M. When pre-breakfast readings are outside of target range – do a 3:00A.M test.
3. Consult with your health care professional regarding changes to remedy these out of range values.

During Sick Days:

It is recommended that you check your blood sugar every two to four hours, 24 hours a day. The blood glucose results can alert you to DKA. Urine ketones should also be checked. See Sick Day Guidelines on page 116.

Exercise:

1. ½ hour before start of activity.
2. Midway point of activity more than 1 hour.
3. Within ½ hour after activity.

New physical activity (change in exercise routine):

1. Before activity.
2. Midway if new activity is longer than usual.
3. Within ½ hour after activity.

Stress - family, work, school, social, etc.

1. Review your pre-meal and pre-bedtime values to see if additional monitoring is necessary during the period of time.
2. Discuss these findings with your health care professional to develop an intervention plan.

**NEED TO KNOW**

Keep daily records of BG results, associated activities like exercise, parties, stress, illnesses, etc. and use this information to make insulin profile adjustments.

Watch for drops or elevations that follow basal profiles and insulin boluses.

Discuss your physical activity routine or new activity with your health care professional. Changes usually need to be made to basal profiles.

Changes in activity frequently occur with the changing of seasons – develop a plan for your basal rate profiles to meet that challenge.

Look at your blood glucose values for monthly patterns of ups or downs.

Low Blood Glucose - Hypoglycemia

May be experienced as: sudden sweating, trembling, hunger, weakness, pounding heart/rapid pulse, tingling of hands, lips or tongue, blurred vision, headache, dizziness, sweating, impaired speech or confusion.

Others may notice that they may not have any symptoms.

PROBLEMS & SOLUTIONS

Decreased food intake

- Adjust insulin bolus.

Increased physical activity

- Adjust insulin by decreasing basal or bolus dose before activity. Monitor blood glucose 1 – 2 hours after stopping activity.

Programming Error:

- Review pump programs: basal rates, profiles, concentration and total insulin delivered. Reprogram and adjust insulin as needed.

Improper disconnection of infusion set from reservoir:

- Adjust insulin as needed. Review proper method for disconnection to prevent excess insulin infusion.

Alcohol consumption:

- Check with your health care professional regarding the hypoglycemic effect of alcohol consumption. Check your blood glucose more frequently when consuming alcohol. Always eat food with any alcohol consumed. Check your blood glucose before going to bed and during the night.



NEED TO KNOW

Treat signs and symptoms of low blood glucose IMMEDIATELY. Keep a fast-acting source of glucose available - glucose tablets, juice or non-diet soda, hard candies.

Follow this action with blood glucose monitoring, a carb/protein snack or meal if it is that time, and re-test your blood sugars 15 minutes after the first treatment.

Bedtime BG less than target:

- Eat your snack plus a protein. Do a 3:00A.M. test.

Unexplained:

- Correct hypoglycemia. Check pump programs and your infusion set.

PREVENTION AND TREATMENT TIPS

1. Keep fast acting glucose tablets everywhere: car, office, purse, briefcase, bedside, kitchen, frequently used rooms at home, exercise bag, etc.
2. Have a regular blood glucose monitoring schedule and keep records.
3. Keep in contact with your health care professional/diabetes educator for fine tuning of your diabetes management.

**NEED TO KNOW**

TROUBLESHOOT this episode of low blood glucose – think about why it happened and how to prevent it.

Teach family members and close friends the signs/symptoms and treatment.

Keep a current glucagon kit with you.

Teach a family member or close friend how and when to use it.

GOOD NEWS: Pump therapy has been shown to reduce hypoglycemic episodes due to the more predictable delivery of insulin.

Bode BW, et al. Diabetes Care 1996;19:324-327.

Hyperglycemia and Diabetic Ketoacidosis – DKA

May be experienced as: high blood glucose (over 250 mg/dl) and/or positive urine ketone test, nausea and vomiting, abdominal pain, frequent urination, dehydration, blurred vision, breathing difficulties and fruity smelling breath.

HIGH BLOOD GLUCOSE PROBLEMS & SOLUTIONS



NEED TO KNOW

Nausea and vomiting may be the first signs you have of DKA.

Develop a plan for immediate treatment of possible DKA with your health care professional.

Teach a family member or close friend about the plan.



NEED TO KNOW

Treat signs and symptoms of hyperglycemia and DKA immediately.

- Take an injection of regular insulin with a syringe.
- If urine ketones are present, call your physician.
- Change your syringe, insulin and infusion set.
- Begin drinking eight ounces of water every 30 minutes until blood glucose target is near.

Forgot/delayed meal bolus

- Adjust your insulin according to your health professional's instructions. Review carbohydrate counting with a health care professional.

Illness, stress, menses

- Adjust your insulin according to a pre-set plan.

Programming error

- Review basal rate and profiles, insulin concentration and total delivered. Make necessary changes.

Empty reservoir

- Replace the reservoir; adjust insulin as necessary.

Leaks in infusion set or reservoir

- Change the reservoir and move the infusion sets, as cracks may be difficult to see.

Obstructed set or poor site absorption

- Change the infusion set and site at least 1 inch from the previous site.

Infusion set left in too long

- Change immediately and go to a consistent change schedule according to instructions.

PVC infusion set

- Change to Polyolefin infusion set.

Inactivated insulin due to temperature extremes

- Protect the pump and infusion set from extremes in temperature. Change the infusion set, reservoir and insulin at the first sign of abnormal sugars.

Air bubbles or obstruction in infusion set or reservoir

- Change the infusion set and site. Fill the reservoir with room temperature insulin.

Inactive insulin

- Check the insulin for cloudiness and for expiration date. If in doubt, use a new vial.

Dawn phenomenon

- Check 3:00 A.M. blood glucose; notify health care professional if elevation of blood glucose occurs between 3:00 A.M. and pre-breakfast BG value. Adjust basal insulin according to their recommendations.

Unexplained

- **Take insulin by injection (shot) if your blood glucose is above 250 mg/dl twice in a row.** Check blood glucose again in 1-2 hours. Check ketones. If positive, call your health care professional. If negative, change your infusion set and verify that pump is functioning.



NEED TO KNOW

If you need to seek emergency health care, DO NOT drive yourself! Call for emergency help or have a family member or friend drive you there.

Change your infusion set as recommended.

Sick Day Management

May be experienced as: flu, diarrhea, bronchitis, 'common cold' or other illnesses.

- Discuss extra insulin intake with your health care professional to use during 'sick days'.
- Always take insulin. NEVER omit insulin, even if you are unable to eat.
- Do not take off your pump unless you are taking adequate amounts of insulin by injection.
- Begin to monitor your blood glucose and urine ketone testing as soon as your symptoms begin and continue to test every two hours, 24 hours a day until symptoms are gone and blood glucose returns to target. Keep accurate records and report these to your health care professional.
- Take extra insulin whenever BG results are 250 mg/dl or more and ketones are moderate or large. To take extra insulin safely, take small doses and check blood glucose two hours later. Extra insulin may be taken as often as every two to three hours. The amount of insulin for sick days depends on:
 - Blood glucose level
 - Presence of urine ketones
 - If you are able to eat and drink.
- See page 101 for additional guidelines.
- Call health care professional immediately if you are vomiting or if blood glucose is still elevated after injection (shot).



NEED TO KNOW

With the help of your health care professional, put together a sick day kit containing:

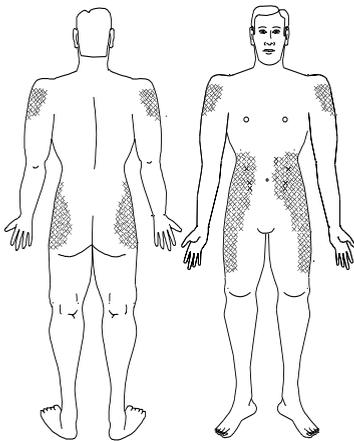
- Telephone numbers of physician and diabetes educator
- Liquids such as bouillon and chicken broth
- Several cans or bottles of both sugared and non-sugared fluids like ginger ale, apple juice, soda, diet soda, water and gelatin
- Anti-fever medication
- Thermometer
- Ketone testing strips in a closed bottle
- Anti-diarrheal medication
- Sugar free cough medicine and cough drops
- Glucagon kit
- Suppositories to stop vomiting (if your physician provides the prescription)

Discuss with your health care professional use of the temporary basal rate option to program basal insulin delivery during sick days.

Infusion Sets and Infusion Sites

SKIN SITE SELECTION

- The preferred area is the abdomen as insulin absorption is faster, more predictable and not as affected by exercise as other body areas.
- Other sites include outer thighs and hips; the arms can be used but tubing and needle placement may be awkward and the site needs to be checked more frequently.
- Avoid areas around the belt or waistline, at bikini/underwear lines, within a one-inch circle around the belly button and any other area where clothing might rub or constrict.
- Each new site should be at least one inch from the last site placement.



NEED TO KNOW

Your health care professional is a resource for:

- Information on NEW infusion sets
- Site selection preparation and choices
- Methods for securing the infusion set and pump and types of tape.

Develop a plan to treat any skin irritation with your health care professional.

PROBLEMS & SOLUTIONS**Site area used longer than 72 hours, possibly red or irritated.**

- Change infusion set and site immediately. Put skin treatment plan into effect. The new site should be at least one inch from red area.
- Use aseptic technique to prevent infection and discomfort.

Infusion site irritation

- Change site. Do not use infusion sites which may be irritated by clothing, belts, etc.

Allergic reaction to metal needles

- Ask your health care professional about non-needle sets, such as the Sof-set or Silhouette infusion sets.

Poor site absorption

- Change the set and site. The new site should be at least 1 inch from previous site. Avoid areas with scar tissue or stretch marks.

Blood in tubing (site may have been bumped or irritated)

- Change the site and infusion set.

Daily Living, Lifestyle Activities

The following are tips for wearing and protecting your pump:

- Use a belt clip to attach your pump to a belt or waistband.
- Keep your pump in a jacket, pant or skirt pocket.
- Sew a button hole behind a shirt pocket and place your pump in pocket.

Use a pump case or baby sock as a protective covering. Pump cases can be color coordinated to match clothing.



NEED TO KNOW

Make a list of all your activities from morning rising to bedtime and discuss each with your diabetes educator for pump management.

Temporary Removal Guidelines

Time Off the Pump (one to four hours):

- Monitor blood glucose every two to four hours.
- Take an injection of Regular insulin equal to basal amount missed.
- Take an injection of Regular insulin to cover carbohydrates consumed.
- Take an injection of Regular insulin based upon blood glucose value.
- Decrease insulin dose, usually 10 to 50%, if exercising. Discuss this with your health care professional.

Time Off the Pump (Overnight):

- Monitor blood glucose every four hours.
- Take an injection of Regular insulin equal to amount of basal missed every four hours during the sleep period.
- Take an injection of Regular insulin based upon blood glucose value.



NEED TO KNOW

For best results discuss pump disconnection with your health care professional.

Plans need to be made for insulin and carbohydrate coverage during the time away from your pump.

Physical Activity

General Guidelines (review these with your health care professional):

- Mild activity of less than 30 minutes can usually be compensated by an extra 15 grams of carbohydrate.
- Decreasing the basal rate or using a Temporary Basal Rate can compensate for planned activity before breakfast or four-six hours past the last meal bolus.
- Moderate activity of 30-60 minutes duration one to three hours after a meal can be compensated by a decrease in the pre-meal bolus.
- Moderate-to-high activity, lasting longer than one hour, usually requires adjustment in basal rate, pre-meal bolus or both. The basal rate may also need to be lowered for the next 24 to 36 hours following high intensity activity.
- Carbohydrate coverage for different levels of activity are dependent upon the person's weight and level of physical fitness and training. Consult with your health care professional for specific advice.



NEED TO KNOW

Blood glucose monitoring is an essential component of any physical activity – plan it into your routine.

Physical activity increases insulin sensitivity, uses up glucose and other energy fuels.

Review your physical activities with your health care professional to determine how to program your basal rates and adjust your food intake for the best results.

- When calculating the bolus for the first meal time after exercising, only bolus for the carbohydrate grams to be consumed. DO NOT bolus for an elevated blood glucose at this time.
- High intensity activity lasting two hours or less: disconnect from pump or put pump into Suspend.
 - ✗ Eat 15 grams of carbohydrate for every 30 minutes of planned intense activity.
 - ✗ Reconnect to pump after activity.
 - ✗ Use the 'temporary basal rate' option to decrease basal rate by 50% for one hour.
 - ✗ Monitor your blood glucose two to four hours post activity and more frequently over the next 24 to 36 hours.

**NEED TO KNOW**

High intensity physical activity with a lot of body movement may be better performed with your pump off. Discuss this option with your health care professional.



Pump Overview

Pump Specifications

Normal Bolus	Delivers 0.1 – 25 units in increments of 0.1 units.
Audio Bolus	A bolus can be programmed using audible tones in either 0.5 or 1.0 unit increments.
Square Wave Bolus	A bolus can be programmed to be delivered uniformly over a specified duration from 30 minutes up to eight hours.
Dual Wave Bolus	A combination bolus can be programmed to deliver a Normal bolus followed by a Square Wave bolus.
Bolus on Square Wave	A Normal bolus can be programmed after a Square Wave bolus has been set and is in progress.
Prime	Allows a specific amount of insulin to be set to prime the infusion set. These amounts are not counted in the total daily record but can be recorded separately.
Basal Rates and Profiles	Up to 48 daily basal rates may be programmed. A different basal profile can be programmed every 30 minutes. Rates can be set from 0.0 to 35.0 units per hour in 0.1 unit increments. Multiple basal rates are called profiles.
Personal Delivery Patterns	The pump user may program three different basal rate patterns: Standard, A and B, each with the option of setting up to 48 basal rates.

Temporary Basal Rate	Allows the user to temporarily increase or decrease the current basal rate for a duration of 30 minutes to 24 hours.
Remote Control	The Remote Control uses 'radio frequency' to allow the user to program a Normal bolus or suspend/restart their pump.
Back Light	Pressing the Down arrow will activate the back light on the LCD display.

Memory

Pump Accessible Memory (These histories can be viewed on the pump)

Bolus History	The pump stores the last 24 boluses in reverse chronological order.
Daily Totals	The pump stores the last 7 days of combined daily totals, (bolus deliveries + basal rates) in reverse chronological order.
Alarms	The pump stores the last 12 alarms or error messages received, including type, date and time in reverse chronological order.
Primes	The pump stores the last 9 Primes in reverse chronological order.

Stored Memory (This data is retrieved through downloading with additional equipment)

Bolus History	The pump stores the last 450 bolus with a time and date stamp.
Daily Totals	The pump stores approximately 90 days of combined daily totals (bolus deliveries + basal rates).
Alarms	The pump stores the last 50 alarms with time and date stamp.
Primes	The pumps stores the last 50 Primes with time and date stamp.

Safety Features

Feature	Performance
Solenoid Motor	Motor has a unique, patented design which delivers in precise 0.1 unit increments and is incapable of over-delivery.
Program Safety Checks	Over 50 independent safety systems are continuously monitoring all pump operations.
Alarms & Error Messages	Over 50 safety alarms and error messages.
Messages	Messages alert the user by an audible tone or a vibration. All alarms and errors have a visible message or icon on the TIME OF DAY screen.
Time Display	User has the choice of AM/PM or international time format. Time is always displayed on the TIME OF DAY screen.
Date Display	User sets the date in month, day, year format.
Insulin Concentration	User can select either U-100, U-50 or U-40 insulin.
Child Block	Activation of the 'Child Block' restricts access to all features except the Suspend, Self Test and programming with the Remote Control.
Reservoir	An impact-resistant, highly insulin compatible polypropylene syringe holds up to 300 units of U-100 insulin. Unit markings ensure accuracy. A clear pump window allows user to see the remaining amount of insulin.
Power Supply & Batteries	Powered by standard 1.5 V silver oxide batteries. For best results use MMT-104 available through Medtronic MiniMed. If MMT-104s are not available, use EverReady or silver oxide model 357 batteries. Batteries are available at photo shops and drug stores .
Pump Size	1.9 x 3.4 x 0.8 inches (4.8 x 8.6 x 2.0 cm).

Feature	Performance
Weight	The pump weighs 3.5 ounces (less than 100 grams).
Displacement Accuracy	+/- 2%
Delivery Volume Accuracy	+/- 5%
Water-tight	Conform to IEC60601-1 sub-clause 44.6 and IEC60529 IPX7 standard.
Delivery Increment	With U-100 each motor stroke delivers 0.1 units, U-50 delivers 0.05 units and U-40 delivers 0.04 units.

Factory Settings

The following features were set at the factory but can be re-programmed:

Feature	Setting
Current Basal Rate	-----0.0 u/h (units per hour)
Automatic OFF	-----OFF
Beep Volume Level	-----Two (medium)
Variable Bolus Mode	-----OFF
Maximum Bolus	-----10.0 units
Maximum Basal Rate	-----2.0 u/h
RF Device	-----OFF
Audio Bolus	-----OFF
Personal Delivery Patterns	----OFF
Alarm Type	-----Audible
Child Block	-----OFF
Time display	-----12 hour (A.M./P.M.)
Insulin Concentration	-----U-100
Reservoir	-----Short Reservoir Method – 150 units capacity

Icon Table

Do Not Reuse	
Attention: See Instructions for Use:	
Method of sterilization using ethylene oxide:	STERILE EO
Manufacture Date: (year - month)	 1999-06
Batch code:	LOT
Expiration Date (Use By Date): (year - month)	 1999-06
Catalogue Number:	REF MMT-115
Serial Number:	SN
Storage Temperature Range:	-20°C  +55°C
Fragile Product:	
Protect Against Moisture:	



Glossary

Activate Key:

The ACT button is located on the keypad of the insulin pump and on the Remote Control and allows the user to activate or change values.

AADE:

American Association of Diabetes Educators is composed of health care professionals with special knowledge in diabetes education and management. AADE maintains a free telephone line for those who would like to contact a diabetes educator in their geographic area call (1-800-TEAM UP-4)

ADA:

American Diabetes Association is composed of health professionals and people living with diabetes, as well as researchers, and other interested parties. They endeavor to develop educational programs and materials for professionals and the public, raise research funds to cure diabetes, increase awareness about the signs and symptoms of diabetes and provide general information to all peoples regarding diabetes. Their toll free number is 1-800-232-3472.

ADtA:

American Dietetic Association is an international organization of food and nutrition professionals. They maintain a consumer nutrition hot line staffed by registered dietitians at 1-800-366-1655.

Basal Rate:

The amount of insulin required by the individual's body to regulate the production and availability of fats, carbohydrates and proteins under fasting conditions. The user's physician calculates this rate. A basal rate is also called a profile. Multiple basal rates can be programmed depending upon the user's needs.

Bolus:

A specific amount of insulin released into the body to cover the estimated amount of carbohydrates in a given meal.

Bolus on Square Wave:

Provides increased flexibility for the user by allowing a Normal bolus during a programmed Square Wave bolus. This program provides the user the option to take more insulin to cover an unexpected addition to their meal.

Child Block:

Prevents accidental changing of set values in the SET UP I and SET UP II menu options. This is a 'lock-out' function and must be programmed into the pump.

CSII:

Continuous subcutaneous insulin infusion.

Default:

A specific setting that has been programmed into the pump's computer at the factory. The user cannot change this value.

Diabetes Educator:

A health care professional who has experience and training in assisting those with diabetes to understand how to manage this disease. A Certified Diabetes Educator (C.D.E.) is a diabetes educator who passed a national exam on diabetes education and management.

DKA:

Diabetic Ketoacidosis occurs when the blood glucose level becomes elevated, the insulin levels are low and the body uses fat for energy. This process produces ketone bodies which upset the body's acid-base balance leading to a potentially life threatening situation.

Dual Wave Bolus:

This provides for a Normal bolus and a Square Wave bolus to be programmed at the same time to cover the calories of a specific meal over two different time periods. The Normal bolus is infused first, followed by the Square Wave bolus which will be delivered over a longer period of time.

Hyperglycemia:

Elevated blood glucose over 240mg/dl as seen by monitoring blood glucose levels with any or all of the following symptoms: nausea, vomiting, blurred vision, headache, gastric distress, frequent urination of large amounts and lethargy. Insulin pump users need to take immediate treatment action (see page 113).

Hypoglycemia:

Low blood glucose less than 80 mg/dl as seen by monitoring blood glucose levels, with or without any or all of the following suddenly appearing symptoms: excessive hunger, shaking or tremors, perspiration, 'dancing' vision, headache, slurred speech, sudden mood swings or personality change. Insulin pump users need to take immediate treatment action (see page 111).

Icons:

Visual symbols that signify an action. (See page 131 for a list of the icons and their function.)

JDF:

Juvenile Diabetes Foundation – an organization dedicated to fundraising for juvenile diabetes research. Their toll free number is 1-800-223-1138.

Lead Screw Rotation Test:

Method whereby the insulin pump user can visually check that the pump is delivering insulin.

Low Volume Alert:

Audible sound to warn the user that the amount of insulin in the reservoir is low.

Low Battery Indicator:

Icon shown on LCD which indicates the amount of power remaining in the batteries is low.

LCD:

Liquid Crystal Display – this is the visual screen on the front of the insulin pump where functions and messages are displayed.

Normal Bolus:

This is a specific amount of insulin that can be programmed into the insulin pump’s computer and infused immediately.

Prime:

This is insulin used for priming the infusion set, taking up slack in the pump drive system, etc., that is not intended to be delivered to the body.

Profile:

This is a basal rate with a start and stop time. A user may program several different profiles, each with a different basal rate, during a 24-hour period of time to achieve better glucose control.

Reservoir:

A specially designed syringe for use with the Medtronic MiniMed insulin pump. Any other type should not be used as inaccurate delivery may occur.

Remote Control:

A Remote Control which uses radio frequency which to “talk” with your pump. Lets you deliver a Normal bolus and suspend and restart the insulin pump without pressing the buttons on the pump.

Scroll:

This is the process of pushing the button on the keypad to move the insulin pump screens to another option or of pressing the arrows to reach a specific number value.

Select Key:

SEL is identified on the button of the keypad on the insulin pump. It is used to select an option but NOT to change a value.

Self Test:

This a factory initiated program built into the pump to perform a safety check of all functions. The user has the option of initiating the Self Test at any time.

Square Wave Bolus:

A specific amount of insulin to be delivered over a longer period of time.

Suspend:

This function will stop ALL (both basal and bolus) delivery programmed into the pump. The user must restart the pump in order for delivery to resume.

Temporary Basal Rate:

This is a specific amount of insulin programmed to cover a short term need different than a programmed basal rate, (e.g., for exercise periods or for sick days).

Watch Dog Alarm:

An independent circuit within the insulin pump that monitors operations of the primary microprocessor. Deviations from normal operations will result in a continuous tone (see troubleshooting alarms on page 105.)

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Answers

- #1** 1. ACT.
 b. 1-800-826-2099.
- #2** 1. SEL.
 2. ACT.
 3. Arrows.
- #3** 1. The Short Reservoir method.
 2. The Full Reservoir method.
 3. Remove the reservoir convertor.
- #4** 1. This allows you to see how much insulin is left in the reservoir.
- #5** 1. Program a Prime.
- #6** 1. How you will make up for any missed insulin.
- #7** 1. 12:00 A.M. midnight.
 2. To match insulin requirements to blood glucose needs.
- #8** 1. No, you do not need to disconnect.
- #9** 1. The Lead Screw Rotation test checks to make sure that the motor and drive mechanisms are working correctly.