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	Title **Model 37751 INSR patient manual**	
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Medtronic

RECHARGER 37751

Charging System user manual

! USA Rx Only

CE 0123 2005

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I USA **FCC Information**

The following is communications regulation information on the Model 37751 Patient Programmer.

FCC ID: LF537751

This device complies with part 15 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 undesired operation.

IMPORTANT: Changes or modifications to this product not authorized by Medtronic, Inc., could void the FCC Certification and negate your authority to operate this product.

Contents

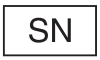
Label symbols

Explanation of symbols on products and packaging. Refer to the appropriate product to see symbols that apply.

CE 0123 Conformité Européenne (European Conformity). This symbol means that the device fully complies with AIMD Directive 90/385/EEC (NB 0123) and R&TTE Directive 1999/5/EC.

The use of this device might be subject to individual country licensing regimes in Europe.

Caution: consult accompanying documents



Serial number

Storage temperature

Relative humidity

Atmospheric pressure

IEC 60601-1/EN60601-1, Type BF equipment

Non-ionizing electromagnetic radiation

Class II equipment

System meets the applicable Canadian [C22.2-601.1-M90 (R2001)] and US (UL 60601-1:2003) electrical safety standard requirements.

For USA audiences only

1 Introduction

Purpose of the device

The Medtronic Model 37751 Charging System is designed to charge the Medtronic Model 37711 Restore Neurostimulator. The Restore Neurostimulation System is intended to provide electrical stimulation to relieve severe, intractable pain. Restore Neurostimulation System indications, contraindications, risks and benefits, warnings, precautions, and individualization of treatment information is located in the Model 37742 Patient Programmer: Pain Therapy User Manual.

Warnings

- DO NOT use the recharger on an unhealed wound. The recharger, antenna, and belt are not sterile, and contact with the wound can cause an infection.

- Do not use the AC power supply near water or during a lightning storm. Electric shock, serious injury, or death may result.

Precautions

- Charge the neurostimulator when you see a low battery (▭) screen on the patient programmer or recharger; this prevents the battery from overdischarging (see glossary). If the neurostimulator battery is allowed to overdischarge, charging is not possible; however, the clinician may be able to restore the battery function. Allowing the neurostimulator battery to overdischarge will permanently affect the neurostimulator in one of the following ways:
  - Battery function is restored; however, charging sessions may be more frequent because battery capacity has been reduced.
  - Battery function is not restored, and the neurostimulator must be surgically

replaced. Battery function is not restored because:

- The neurostimulator battery is permanently damaged.
- The neurostimulator battery has been overdischarged and restored twice before. The third time the battery is overdischarged, the neurostimulator will reach end of service. Surgery is required to replace the neurostimulator.

- Do not expose the recharger or antenna to extremely hot [eg, hot cars, saunas, or direct sunlight; +40°C (104°F)] or cold [eg, walk-in freezers; –20°C (–4°F)] environments. The recharger and antenna are sensitive to temperature extremes and can become damaged.
- Use only the Medtronic neurological charging system components to charge your recharger. Use of non-Medtronic

charging equipment to charge the recharger can damage your charging system components.

- When operating a charging system, use special care near flammable or explosive atmospheres. An interaction between the flammable or explosive atmospheres and the battery in the device could occur. The consequences of using a battery-powered device near flammable or explosive atmospheres are unknown.

How to use this manual

This manual is designed to help you understand your charging system. Ask your clinician to explain anything that is unclear.

- Chapter 1, “Introduction,” describes the recharger keys and screens and how the system works.
- Chapter 2, “Using your charging system,” describes the recharger and how to perform specific tasks.

- Chapter 3, “Troubleshooting,” describes recharger warning and information screens, how to solve possible charging system problems, and who to contact if your recharger is lost or broken.
- Chapter 4, “Maintenance,” describes how to care for your recharger and contains system specifications and battery information.
- A glossary is provided at the end of this manual.

Parts of your charging system

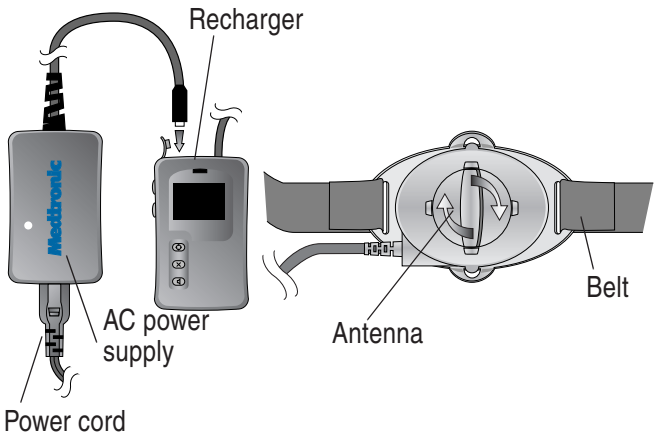


Figure 1.1 Parts of your charging system.

Recharger: The recharger is a hand-held device for charging the battery in your neurostimulator. It can also turn your neurostimulator ON or OFF. The display on the recharger provides information on your charging system.

AC power supply and power cord: This device is used to charge the recharger using AC power. If you need to charge your

neurostimulator but your recharger battery is low, connect your recharger to the AC power supply to conduct a charging session. The power cord plugs into an electrical outlet and connects the AC power supply to the recharger. The power supply is a universal component.

Note: Use only the power supply provided by Medtronic with your charging system.

Antenna: The antenna connects to the recharger to establish communication with your neurostimulator. You can adjust a dial on the antenna to improve the charging efficiency between the recharger and the neurostimulator.

Belt: The belt allows you to keep the antenna directly over your neurostimulator during a charging session.

Pouch: The recharger fits into a pouch that can be attached to the belt so you can maintain your normal activities during a charging session.

System carrying case: The carrying case is used to store the recharger, the charging system components, and your patient programmer.

How your charging system works

The charging system is used to charge your implanted neurostimulator battery. The battery in your recharger is similar to the rechargeable batteries commonly found in electronic devices. The battery typically lasts for approximately 5 years, depending upon your therapy needs and how often you use your recharger.

Rechargeable batteries lose some of their power every day, even when not used. Charging sessions restore power to the recharger battery.

△ Caution:

- Charge the neurostimulator when you see a low battery (▭) screen on the patient programmer or recharger; this prevents

the battery from overdischarging (see glossary). If the neurostimulator battery is allowed to overdischarge, charging is not possible; however, the clinician may be able to restore the battery function. Allowing the neurostimulator battery to overdischarge will permanently affect the neurostimulator in one of the following ways:

- Battery function is restored; however, charging sessions may be more frequent because battery capacity has been reduced.
- Battery function is not restored, and the neurostimulator must be surgically replaced. Battery function is not restored because:
  - The neurostimulator battery is permanently damaged.
  - The neurostimulator battery has been overdischarged and restored twice before. The third time the battery is overdischarged, the

neurostimulator will reach end of service. Surgery is required to replace the neurostimulator.

Recharger keys and screens

Recharger keys

Five keys on the recharger allow you to control the recharger and turn your neurostimulator ON and OFF.

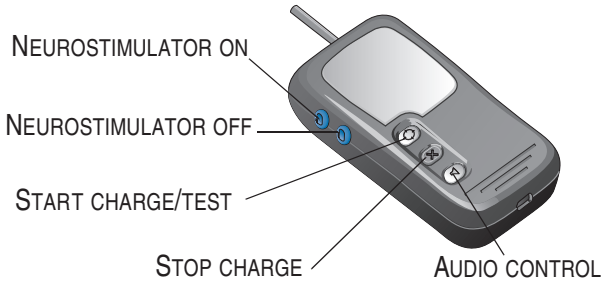


Figure 1.2 Recharger keys.

- **NEUROSTIMULATOR ON**  **:** Turns your neurostimulator ON.
- **NEUROSTIMULATOR OFF**  **:** Turns your neurostimulator OFF.
- **START CHARGE/TEST**  **:** Begins charging the neurostimulator.
- **STOP CHARGE**  **:** Ends or interrupts charging the neurostimulator.
- **AUDIO CONTROL**  **:** Turns your recharger ON.

Note: When your recharger is ON, pressing the AUDIO CONTROL key turns audible status tones ON and OFF. The AUDIO CONTROL key is also used to display the recharger battery status.

Recharger screens

Figure 1.3 shows the recharger screens.

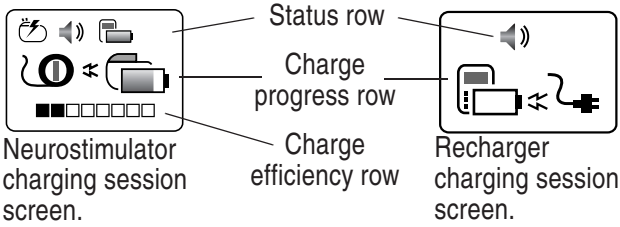


Figure 1.3 Recharger screens.

The screens are separated into either two or three rows of icons.

Status row – Displays icon information for the recharger or neurostimulator.

During a neurostimulator charging session, on the status row you will see:

- Neurostimulator is ON ( ) or OFF ( )
- Audio (sound) is ON ( ) or OFF ( )
- Battery charge status of the recharger (, needs recharging to full, respectively)

- The recharger is plugged into the AC power supply (). If the recharger is not plugged into a power supply, this area of the screen will be blank.

During a recharger charging session, the status row displays:

- Audio (sound) is ON () or OFF ()

Charge progress row – Indicates the progress of the charging session.

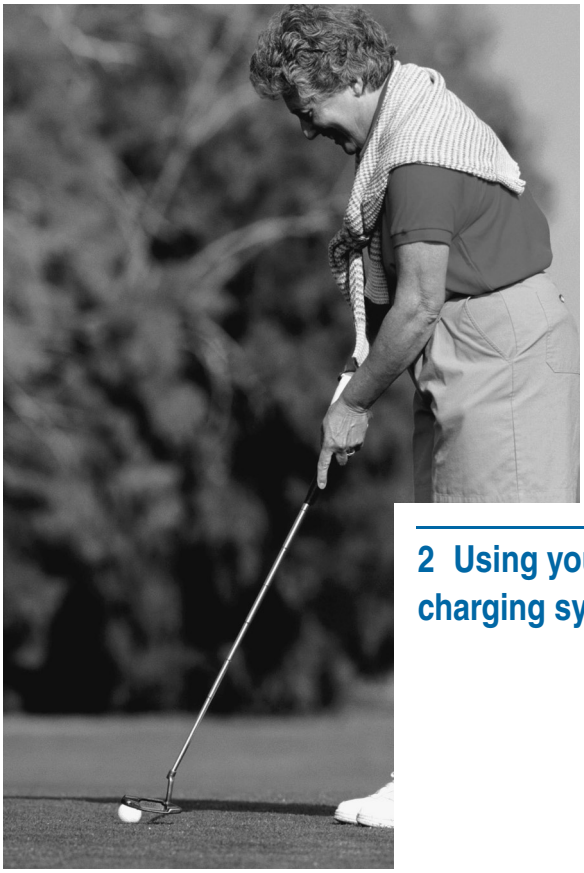
During a neurostimulator charging session, you will see:

- Current charge status of the neurostimulator battery. A flashing battery icon () indicates the neurostimulator is charging. When charging is complete, the NEUROSTIMULATOR CHARGING COMPLETE screen will display.

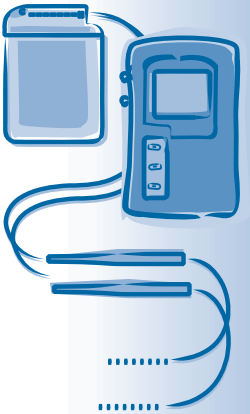
During a recharger charging session, you will see:

- Current charge status of the recharger battery. A flashing battery icon ( ) indicates the recharger is charging. When charging is complete, the RECHARGER CHARGING COMPLETE screen will display.
- The connection icon ( ), indicating that the power supply is connected to an operational electrical outlet.

Charge efficiency row – Displays a series of boxes indicating the efficiency of the charging signal between the neurostimulator and recharger. More solid black boxes (a maximum of eight) indicate a more efficient charging signal and a shorter charging session (■■■■■■■■). The least efficient charge is indicated by empty boxes (■■□□□□□□). If you see six empty boxes, adjust the antenna to continue charging.



2 Using your charging system



This chapter includes information on:

- the recharger battery and the charging procedure.
- neurostimulator battery status icons.
- charging your neurostimulator.
- how to turn your neurostimulator ON or OFF during a charging session.
- the charging system accessories.

Battery and charging information

Recharger and Neurostimulator

- Charge the recharger or neurostimulator even if you are not using them for an extended period of time.

- You can charge the neurostimulator and recharger at the same time. Follow the instructions for both procedures (“Charging your neurostimulator battery” on page 32 and “Charging your recharger battery” on page 69) at the same time.
- Ensure you charge the batteries in your recharger and neurostimulator before they are low.

Recharger

- As your recharger ages, you will need to charge the battery more often.
- The recharger battery might have run low since it was manufactured and shipped. You might need to charge it before you use it the first time.

Neurostimulator

- Your ability to locate your neurostimulator and the depth of the neurostimulator determine the efficiency of the charging session. With practice, you will find the best location on your skin for placing your recharger and antenna.
- If your neurostimulator is on while you are charging the battery, your charging session might last longer.
- Depending on your therapy needs, charging your neurostimulator could take from one hour to more than 12 hours per week.
- You can partially charge your neurostimulator if you do not have enough time for a complete charging session.
- You can charge your neurostimulator at any time; you do not have to wait for a low battery message.

Neurostimulator battery status

Use your patient programmer to check your neurostimulator battery charge level every day. Refer to the manual supplied with the patient programmer.

If either message in Table 2.1 is displayed, you must recharge the neurostimulator battery.

Table 2.1 When to charge the neurostimulator.

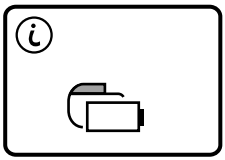
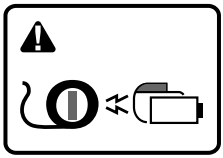
When you see this	It means
	The neurostimulator battery charge level is low, and soon your therapy will not be available. **Charge the neurostimulator battery. Press the gray AUDIO key on the recharger to clear the message.**

Table 2.1 When to charge the neurostimulator. (continued)

When you see this	It means
	The neurostimulator battery charge level is low. Stimulation has stopped. **Charge the neurostimulator battery now. Press the green Start charge/test key to clear the screen.**

△ **Caution:** Charge the neurostimulator when you see a low battery (▭) screen on the patient programmer or recharger; this prevents the battery from overdischarging (see glossary). If the neurostimulator battery is allowed to overdischarge, charging is not possible; however, the clinician may be able to restore the battery function.

Allowing the neurostimulator battery to overdischarge will permanently affect the neurostimulator in one of the following ways:

- Battery function is restored; however, charging sessions may be more frequent because battery capacity has been reduced.
- Battery function is not restored, and the neurostimulator must be surgically replaced. Battery function is not restored because:

Table 2.1 When to charge the neurostimulator. (continued)

When you see this	It means
	The neurostimulator battery is permanently damaged.
	The neurostimulator battery has been overdischarged and restored twice before. The third time the battery is overdischarged, the neurostimulator will reach end of service. Surgery is required to replace the neurostimulator.

Charging your neurostimulator battery

Check with your clinician prior to using your recharger for the first time. When your neurostimulator needs to be charged, follow the steps below.

Notes:

- You might need to charge the recharger battery before you charge your neurostimulator battery. Refer to “Recharger maintenance tasks” on page 66.
- Based on the configuration of your implanted neurostimulator, you might need to use more than one template (Figure 2.1) to ensure the antenna remains positioned correctly over your neurostimulator.

1. Press your bare skin where your neurostimulator is located to determine the best place for the belt and antenna.

Notes:

- Do not place the antenna or belt over bulky clothing or bandages.
- The antenna may be placed directly on your skin. However, if the antenna irritates your skin, you might want to wear a thin undergarment to protect your skin.

2. Put on your belt, with the template centered over your neurostimulator (Figure 2.1) and secure the belt. Reposition your template, if necessary.

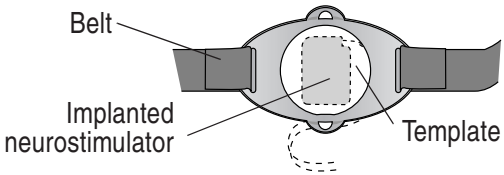


Figure 2.1 Place the belt over your neurostimulator.

3. Place the antenna in the template, and press it into the belt until it snaps into the openings on the template (Figure 2.2).

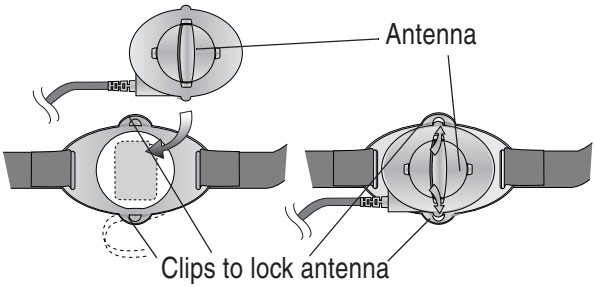


Figure 2.2 Attach the antenna to the belt.

4. Press the green **START CHARGE/TEST** key. The recharger wait screen will appear on the recharger display (Figure 2.3). The RECHARGER WAIT screen indicates that the neurostimulator and recharger are trying to communicate.

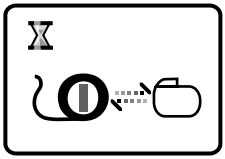


Figure 2.3 RECHARGER WAIT screen.

When charging begins, the recharger displays a new screen indicating the

neurostimulator battery charge level and efficiency of the charging session (Figure 2.4).

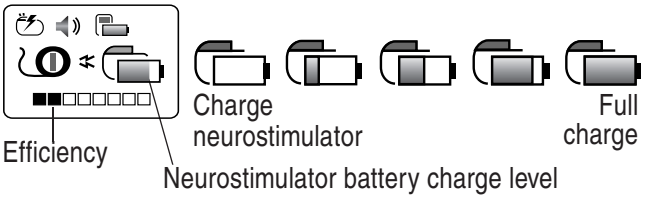


Figure 2.4 Neurostimulator battery charge level and charging efficiency.

The battery charge level updates throughout the charging session. Charging sessions can take a few minutes to more than 12 hours, depending on the charging efficiency, how often you charge, and your therapy needs.

Notes:

- If you need to interrupt your charging session, press the **STOP CHARGE** key.
- You might hear periodic clicking noises during recharging, and you might see the screen refresh.

5. If the recharger screen shows a less efficient session, use the dial on the antenna to try to make the session more efficient. Turn the dial on the antenna one quarter turn in either direction (Figure 2.5). Press the green START CHARGE/TEST key. The recharger will display an updated efficiency status.

Note: The efficiency status screen will not be updated unless the START CHARGE/TEST key is pressed.

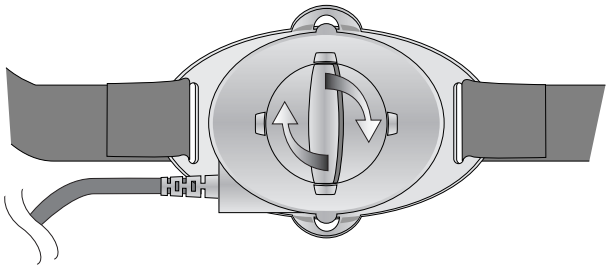


Figure 2.5 Adjusting the antenna dial.

Note: Repeat step 5 until the recharger screen indicates a more efficient charging session. Charging efficiency is affected by factors such as implant depth, and

efficiency will vary between patients. You and your clinician can work together to identify the best efficiency for you.

6. Periodically check the progress of the charging session by reviewing the icons on your recharger screen. If you see 6 empty boxes (■■□□□□□□) adjust the antenna to continue charging.

7. When your neurostimulator has a charge sufficient for use, you will see the following screen:

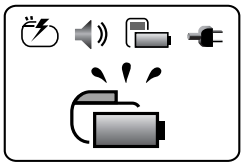


Figure 2.6 NEUROSTIMULATOR CHARGE SUFFICIENT FOR USE screen.

8. You can press the STOP CHARGE key to quit your charging session, if desired. You will hear three tones if the audio is ON. If you wait for the system to fully charge your neurostimulator, the

NEUROSTIMULATOR CHARGING COMPLETE screen will be displayed on the recharger display, and you will hear one tone, if the audio is ON (Figure 2.7).

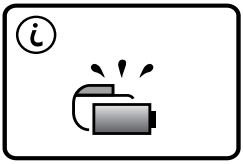


Figure 2.7 NEUROSTIMULATOR CHARGING COMPLETE screen.

9. Carefully expand the clips to unlock the antenna and remove it from the belt (Figure 2.8).

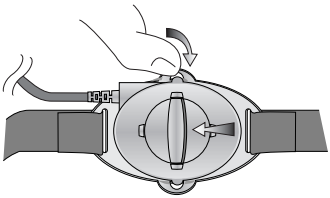


Figure 2.8 Removing the antenna.

10. Remove the belt and store the belt, antenna, and recharger in the charging system carrying case.

Turning the neurostimulator ON and OFF while charging

You can turn your neurostimulator ON or OFF during a charging session.

To turn the neurostimulator ON while charging:

1. Press the NEUROSTIMULATOR ON key.
2. If audio is enabled, listen for the confirmation tone.
3. Verify that the NEUROSTIMULATOR ON icon ( ) is displayed on the recharger screen.

To turn the neurostimulator OFF while charging:

1. Press the NEUROSTIMULATOR OFF key.
2. If audio is enabled, listen for the confirmation tone.
3. Verify that the NEUROSTIMULATOR OFF icon ( ) is displayed on the recharger screen.

Note: If you want to adjust stimulation using your patient programmer before your neurostimulator is completely charged, press the **STOP CHARGE**  key on the recharger. You might need to remove the antenna so your patient programmer can communicate with your neurostimulator. Adjust stimulation with your patient programmer. Resume the charging session by pressing the **START CHARGE/TEST**  key.

Accessories

Using the recharger pouch

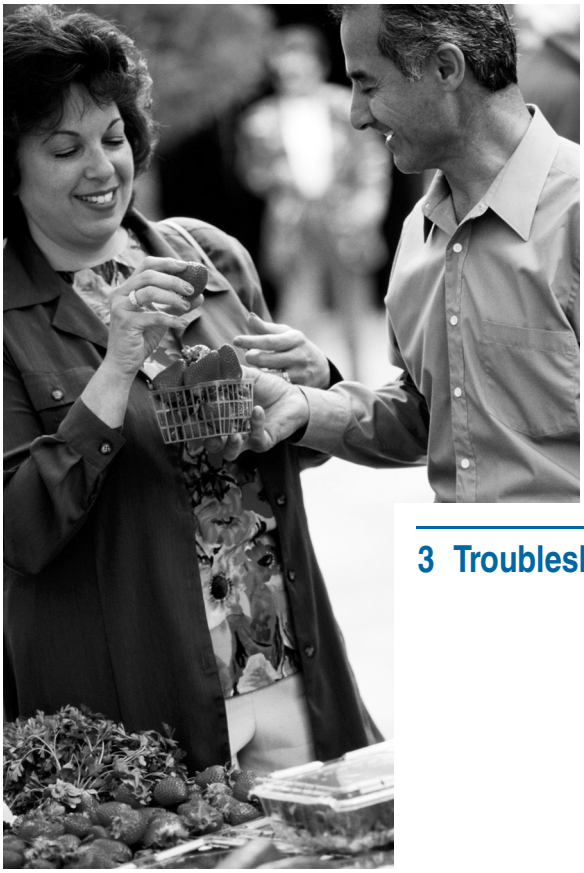
The recharger comes with a small pouch that you can wear on a belt during a charging session. Using this allows you to remain active during a charging session.

Using the charging system carrying case

The recharger comes with a carrying case to store the recharger and accessories. Using the case keeps the components clean and free from damage.

Identification label

Place an identification label on the back of your recharger in case the recharger is lost.



3 Troubleshooting

This section will help you solve problems with your charging system. It also provides information on when to call your clinician or Medtronic.

Note: If you cannot solve a problem, or if a problem is not described here, contact your clinician.

Recharger screens

The recharger displays warning (⚠) and information (ⓘ) screens to provide you with information about your system, alert you to a problem with your system, or to guide you during recharger use.

Warning screens

Warning screens (⚠) indicate a problem with the recharger, the antenna, or the neurostimulator. If the audio is ON, three tones alert you to the screen. Table 3.1

describes warning screens and provides instructions (**see blue text**) on how to resolve the problem and clear the screen.

Table 3.1 Recharger warning screens

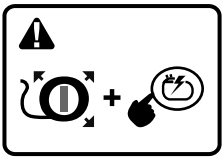
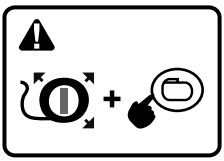
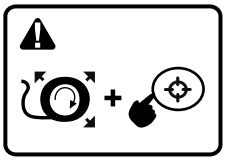
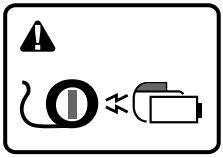
Warning screen	Cause and action
Reposition antenna  	You tried to turn your neurostimulator ON or OFF during a charging session, but the recharger did not communicate successfully with the neurostimulator. **Reposition your antenna over your neurostimulator. Try again to turn your neurostimulator ON or OFF.**
	The communication between your recharger and your neurostimulator was interrupted or could not be established. **Reposition your antenna over your neurostimulator, and press the green START CHARGE/TEST key.**

Table 3.1 Recharger warning screens (continued)

Warning screen	Cause and action
Charge your neurostimulator battery 	The neurostimulator battery charge level is low. Stimulation has stopped. **Press the green START CHARGE/TEST key to clear the screen.** **Charge the neurostimulator battery now.**

Caution: Charge the neurostimulator when you see a low battery ( ) screen on the patient programmer or recharger; this prevents the battery from overdischarging (see glossary). If the neurostimulator battery is allowed to overdischarge, charging is not possible; however, the clinician may be able to restore the battery function.

Allowing the neurostimulator battery to overdischarge will permanently affect the neurostimulator in one of the following ways:

- Battery function is restored; however, charging sessions may be more frequent because battery capacity has been reduced.
- Battery function is not restored, and the neurostimulator must be surgically replaced. Battery function is not restored because:

Table 3.1 Recharger warning screens (continued)

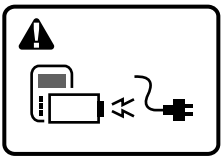
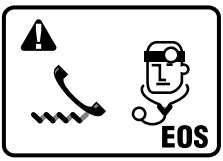
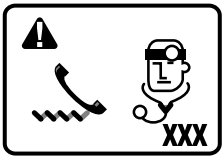
Warning screen	Cause and action
	The neurostimulator battery is permanently damaged. The neurostimulator battery has been overdischarged and restored twice before. The third time the battery is overdischarged, the neurostimulator will reach end of service. Surgery is required to replace the neurostimulator.
Charge your recharger battery 	Your recharger battery charge is insufficient to charge your neurostimulator. **Charge your recharger with the AC power supply.**
Call doctor 	Your neurostimulator has reached end of service. Stimulation has stopped. **Call your doctor immediately.**

Table 3.1 Recharger warning screens (continued)

Warning screen	Cause and action
Call clinician 	Your system is not working correctly. Stimulation might have stopped. **Call your clinician and provide the specific error code shown on the recharger display.**

Information screens

Information screens (ⓘ) provide information and instructions on how to proceed. If the audio is ON, three tones alert you to the message. Press the AUDIO key on the recharger to clear the screen. Table 3.2 describes information screens.

Table 3.2 Recharger information screens

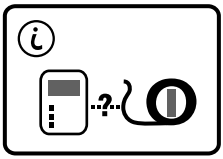
Information screen	Description and action
Check antenna 	The antenna connection to the recharger is loose or your antenna is not connected. **Check that the antenna and recharger are making full contact. Connect or tighten the connection and retry.** The antenna or recharger might require service. **Call Medtronic. Refer to the addresses and phone numbers on the inside back cover of this manual.**

Table 3.2 Recharger information screens (continued)

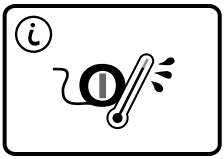
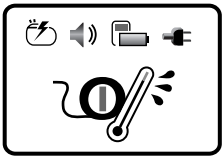
Information screen	Description and action
Move to a cooler environment; ensure your system is not too hot  	Your antenna is too hot to work properly. **Allow the antenna to cool and retry. Store the charging system components in a cool, dry place.** Your skin temperature is too warm for a successful charging session. **Move to a cool location, remove any excess clothing, allow your skin temperature to cool, and retry.** The antenna may require service. **Contact Medtronic. Refer to the addresses and phone numbers on the inside back cover of this manual.**

Table 3.2 Recharger information screens (continued)

Information screen	Description and action
	Note: This screen might appear during a recharging session, even if the antenna surface does not feel warm to you. Recharging will stop when this screen is displayed because the antenna is too warm for the system to work properly. Recharging will begin again once the surface temperature of the recharger antenna is within the operating range of the system.
Recharger system information AB34; v5.1 QR26.78	The **AUDIO CONTROL** and **STOP CHARGE** keys were pressed at the same time. **Press the STOP CHARGE key to clear this message.**

Table 3.2 Recharger information screens (continued)

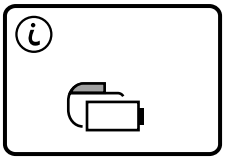
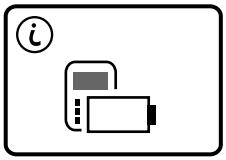
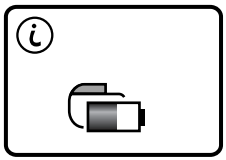
Information screen	Description and action
Charge your neurostimulator battery 	The neurostimulator battery charge level is low and stimulation will stop soon. **Charge your neurostimulator battery using the recharger.**
Charge your recharger 	The recharger battery charge level is low. **Charge your recharger battery using the AC power supply.**
Finish neurostimulator charging session 	The neurostimulator battery is only partially charged. **You did not completely charge the neurostimulator battery. Finish charging your neurostimulator battery using the recharger, if desired.**

Table 3.2 Recharger information screens (continued)

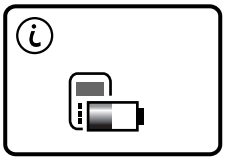
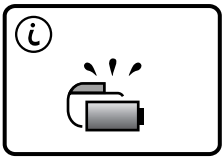
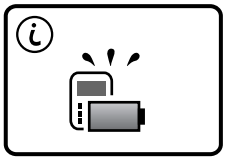
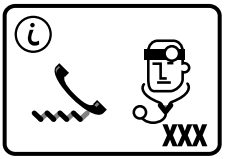
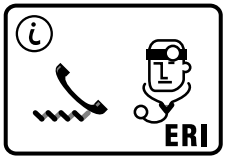
Information screen	Description and action
Finish recharger charging session 	The recharger battery is only partially charged. **You did not completely charge the recharger battery. Finish charging your recharger battery using the AC power supply, if desired.**
Neurostimulator charging complete 	The neurostimulator battery contains sufficient charge for use. **Press the AUDIO key to clear the message.**
Recharger charging complete 	The recharger battery is fully charged. **Press the AUDIO key to clear the message.**

Table 3.2 Recharger information screens (continued)

Information screen	Description and action
Call clinician 	There is a problem with a component of your system. **Call your clinician and provide the specific error code shown on the recharger display.**
Call clinician 	Your neurostimulator needs to be replaced, because stimulation will stop soon. **Call your clinician and provide the message shown on the recharger display.**

Possible problems and solutions

The following table will help you solve problems or identify when to call your clinician. Problems are described in the left column (**bold black text**). The right column lists possible causes of the problem (plain text) and how to correct the problem (**bold blue text**).

Note: If a problem is not resolved after several attempts or if a problem is not described in the following table, contact your clinician.

Table 3.3 Troubleshooting

Problems	Causes and actions
Your recharger screen does not turn on when you try to charge your neurostimulator	The recharger battery is low. **Attach the AC power supply to the recharger.** The recharger is broken. **Contact your doctor.**
You cannot turn ON your neurostimulator with the recharger	Electronic devices might be interfering with the recharger communication signal. **Move away from all electronic devices (eg, TVs, computer monitors, or microwaves), and retry.**

Table 3.3 Troubleshooting (continued)

Problems	Causes and actions
Your AC power supply will not turn ON (the light on the supply does not turn green when you plug it in)	The power cord might not be plugged into the AC power supply or electrical outlet. **Connect the power cord to the electrical outlet.** The connection to the power cord might be loose. **Reseat the electrical cord on the AC power supply.** The power cord connected to the AC power supply might be incompatible with the electrical outlet. **Obtain an adapter for the type of electrical outlet you are using.**

Table 3.3 Troubleshooting (continued)

Problems	Causes and actions
You spill fluid on your recharger, antenna, or AC power supply	**1. If the AC power supply is plugged into an electrical outlet, interrupt the flow of electricity to the outlet. Unplug the power supply.** **2. Dry the component with a towel.**

Table 3.3 Troubleshooting (continued)

Problems	Causes and actions
Your recharger or antenna falls into water	1. If the AC power supply is plugged into an electrical outlet, interrupt the flow of electricity to the outlet. Unplug the power supply. 2. Remove the recharger or antenna from the water. 3. If the recharger or antenna is dirty, wipe it with a towel dampened with clean water. 4. Shake the recharger or antenna. 5. If you see or hear water inside, wipe it dry with a clean towel. Repeat steps 4 and 5. 6. When the recharger or antenna is dry, try to use it.

Table 3.3 Troubleshooting (continued)

Problems	Causes and actions
Your AC power supply falls into water	1. Turn off the power, preferably at the breaker fuse box, if the AC power cord is plugged into an electrical outlet. Unplug the power supply. 2. Remove the AC power supply from water. 3. If it is dirty, wipe it with a towel dampened with clean water. 4. Leave the AC power supply on a dry towel for a few hours. 5. Shake the AC power supply. If you see or hear water inside, repeat steps 4 and 5 until the power supply is thoroughly dry. 6. Plug the power cord into a GROUNDED electrical outlet. A green light on the top of the power supply will come on if it is working properly.

Table 3.3 Troubleshooting (continued)

Problems	Causes and actions
Your recharger, antenna, or AC power supply falls off a cabinet or table	The recharger, antenna, and AC power supply are designed to withstand falls of short distances. **Try the recharger, antenna, or AC power supply; they should work.**
Your recharger is beeping	You cannot resolve the problem or you see a screen other than those described in this section. **Contact your clinician to resolve the problem.**
Your recharger screen is blank	The recharger wait screen did not appear when you pressed the START CHARGE/TEST key. **Connect your recharger to the AC power supply and follow the directions for charging your recharger on page 69.** **Note: If the Recharger charging screen does not appear after you connect the recharger to the AC power supply, contact your clinician.**

User assistance

Your recharger has been designed and tested to provide trouble-free service. If repair or service is needed, contact your clinician or a Medtronic sales office. Refer to the list of Medtronic contacts at the end of this manual.

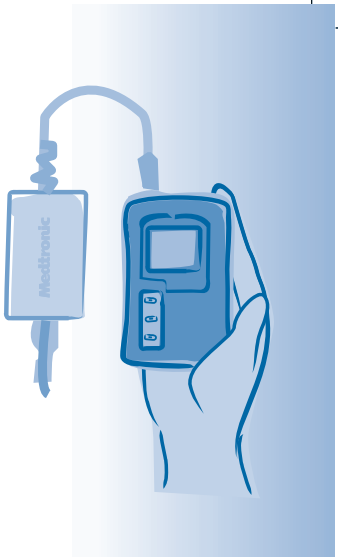
The serial number is located on the back of the recharger. This number identifies each recharger. If you contact Medtronic about your recharger, refer to the serial number.

If your recharger stops working – First try the steps in Table 3.3. Otherwise, contact Medtronic.

If you lose your recharger – Contact your clinician to order a new recharger.

To register the recharger for service covered by the warranty, complete and mail the warranty registration.

4 Maintenance



This section describes how to care for and dispose of your recharger and accessories.

Recharger maintenance tasks

Maintaining the battery in your recharger ensures that you can charge your neurostimulator battery when needed. For information on charging and the batteries within the recharger, see “Battery and charging information” on page 26.

Checking the recharger battery

Press the gray AUDIO key on the recharger to turn ON your recharger and check the recharger battery charge level. The RECHARGER BATTERY CHARGE LEVEL screen displays the current battery charge level (Figure 4.1).

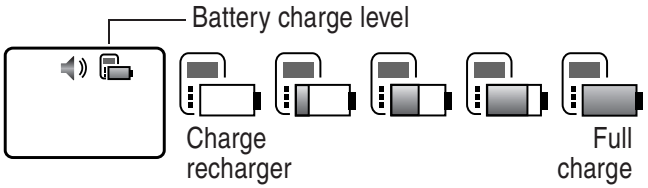
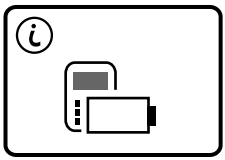
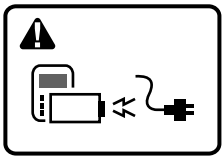


Figure 4.1 RECHARGER BATTERY CHARGE LEVEL screen and icons.

Charge your recharger with the AC power supply when you see either of the screens in Table 4.1.

Table 4.1 When to charge the recharger

When you see this	It means
	The recharger battery charge level is low and will lose power soon. Charge the recharger battery. **Press the AUDIO key to clear the message, and charge the recharger battery.**
	The recharger battery lost or is about to lose power. **Charge the recharger battery immediately.**

Charging your recharger battery

Follow the steps below to charge the recharger battery using the AC power supply.

1. Plug the AC power supply into your AC outlet (Figure 4.2). A green light indicates it has power.

   ⚠ **Warning:** Do not use the AC power supply near water or during a lightning storm. Electric shock, serious injury, or death may result.

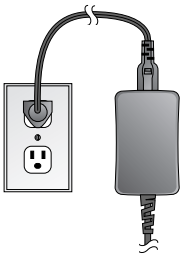


Figure 4.2 Plug in the AC power supply.

2. Connect the recharger to the AC power supply (Figure 4.3). The recharger will automatically start to charge when connected to the AC power supply, and

the RECHARGER CHARGING SESSION screen will be displayed. (Figure 4.4). The charging session could take several hours, depending on the charge level of the batteries.

Note: To interrupt a recharger charging session, disconnect the recharger from the AC power supply.

Figure 4.3 Connect the recharger to the AC power supply.

Figure 4.4 illustrates a RECHARGER CHARGING SESSION screen.

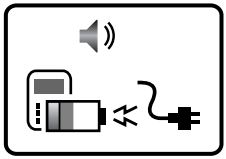


Figure 4.4 RECHARGER CHARGING SESSION screen.

3. When the charging session is complete, the recharger will show a RECHARGER CHARGING COMPLETE screen (Figure 4.5.)

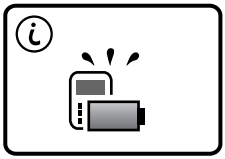


Figure 4.5 RECHARGER CHARGING COMPLETE screen.

4. Unplug the AC power supply from the electrical outlet.
5. Disconnect the AC power supply from the recharger.
6. Return the recharger, power cord, and AC power supply to the system carrying case.

Cleaning and care

Follow these guidelines to ensure that the recharger system and accessories function properly:

- Keep the recharger, antenna, and AC power supply out of the reach of children.
- Use the recharger, antenna, and AC power supply only as instructed by your clinician and this manual.
- Handle the recharger, antenna, and AC power supply with care. Do not drop, strike or step on the components.
- Do not dismantle or tamper with the recharger, antenna, or AC power supply.
- Clean the outside of the recharger, antenna, and AC power supply with a damp cloth when necessary. Mild household cleaners will not damage the components.
- The recharger, antenna, and AC power supply are not waterproof. Do not allow moisture to get inside the components.

- The belt, with the antenna removed, can be washed with a mild laundry detergent in a washing machine and dried in a dryer on a low heat setting.

Safety and technical checks

Periodic safety and technical checks or periodic maintenance of the recharger are not required.

The recharger contains no user-serviceable parts. If the recharger requires repair or is nonfunctional, send it to the appropriate address listed below.

USA

Medtronic, Inc.
Neurological Division
MSN600
PO Box 1250
Minneapolis, MN 55440-9087

Europe, Africa, Middle East, and Asia-Pacific countries

Medtronic EOC
Medical Equipment Service Europe
Earl Bakkenstraat 10
6422 PJ Heerlen
The Netherlands
Tel. 31-455664880
Fax 31-455668028

Battery and device disposal

Dispose of worn out devices according to local regulations. Do not incinerate. If you no longer need your recharger and would like to donate it, contact your clinician.

Declaration of conformity

Medtronic declares that this product is in conformity with the essential requirements of Directive 1999/5/EC on Radio and Telecommunications Terminal Equipment and Directive 90/385/EEC on Active Implantable Medical Devices.

For additional information, contact Medtronic. Refer to the list of Medtronic contacts at the end of this manual.

Specifications

The following table lists the specifications for your recharger.

Table 4.2 Recharger specifications

Parameter	Specification
Power source	2 non-removable lithium-ion batteries (rechargeable)
Operating temperature	+10 to +35°C (+50 to +95°F)
Storage temperature	–20 to +40°C (–4 to +104°F)
Operating/storage relative humidity	30% to 95%
Operating atmospheric pressure	700 hPa to 1060 hPa (20.7 in. Hg to 31.3 in. Hg)
Storage atmospheric pressure	700 hPa to 1060 hPa (20.7 in. Hg to 31.3 in. Hg)
Recharger size	Approximately 13 x 8 x 3.18 cm (5 x 3 x 1.25 inches)
Recharger weight, including battery	Approximately 227 g (8 oz.)

Table 4.2 Recharger specifications (continued)

Parameter	Specification
Battery life	5 years (life of device)[a]
Power supply voltage	100–240V voltage (auto-ranging)
Rated frequency	50/60 Hz
Input current	0.35 A
Outputs	0.85 A, 8.4 V dc (V charge) 0.5 A, 10 V dc (V base)
Mode of operation	Continuous

[a] The longevity of your recharger battery is dependent upon how often you use your recharger.

Glossary

Caution – A statement describing actions that could result in damage to or improper functioning of a device.

Clinician – A health care professional such as a doctor or nurse.

Contraindication – A condition or circumstance when a person should not have a neurostimulation system.

Indication – The purpose of the neurostimulation system and the medical condition for which it may be implanted.

Neurostimulator – The power source of a neurostimulation system. It contains the battery and electronics that control the stimulation you feel.

Overdischarge – The neurostimulator battery continues to lose charge even after you see a low battery ( ) screen. Eventually, the battery loses enough charge to permanently affect the neurostimulator. If this occurs, the battery is overdischarged.

Patient programmer – A hand-held device that allows you to turn your neurostimulator ON and OFF. It is also used to adjust some of the stimulation settings.

Precaution – See “Caution”.

Recharger – The component of the Restore Neurostimulation System that is used to charge your neurostimulator battery.

Stimulation – The delivery of electrical pulses to the area where pain signals are blocked. Stimulation blocks some pain signals from reaching the brain.

Template – The cut-out area in the plastic part of the charging system belt.

Warning – A statement describing an action or situation that could harm the patient.

Warning screen – A screen displayed on the recharger that alerts you to a problem with the charging system.

Index

Contacts:

Asia: Medtronic International Ltd.
Suite 1602 16/F, Manulife Plaza,
The Lee Gardens, 33 Hysan Avenue,
Causeway Bay, Hong Kong
Tel. 852-2891-4068 Fax 852-2591-0313

Medtronic Asia Ltd.
3 Floor Peter Building,
570-6 Shinsa-Dong Kangnam-ku,
Seoul 135-120, South Korea
Tel. 82-2-548-1148 Fax 82-2-518-4786

Australia: Medtronic Australasia Pty. Ltd.
Unit 4/446 Victoria Road, Gladesville NSW 2111
Tel. 02-9879-5999 Fax 02-9879-5100

Austria: Medtronic Österreich G.m.b.H.
Millennium Tower, Handelskai 94-96, 1200 Vienna
Tel. 01-24044 Fax 01-24044-100

Belgium: Medtronic Belgium S.A.
Boechoutlaan 55, 1853 Strombeek-Bever
Tel. 02-456-0900 Fax 02-460-2667

Canada: Medtronic of Canada Ltd.
6733 Kitimat Road, Mississauga,
Ontario L5N 1W3
Tel. 905-826-6020 Fax 905-826-6620

Denmark: Medtronic-ViCare A/S
Birkerød Kongevej 150B, DK-3460 Birkerød
Tel. 45-823366 Fax 45-823365

Finland: Medtronic Finland OY/LTD
Sahaajankatu 24, P.O. Box 230
FIN-00810 Helsinki
Tel. 9-755-2500 Fax 9-755-25018

France: Medtronic France S.A.S.
122, avenue du Général Leclerc,
92514 Boulogne-Billancourt Cedex
Tel. 01-5538-1700 Fax 01-5538-1800

Germany: Medtronic GmbH
Emanuel-Leutze-Straße 20, 40547 Düsseldorf,
P.O. Box 110738
Tel. 0211-52930 Fax 0211-5293100

Greece: Medtronic Hellas S.A.
Agias Varvaras 5, 15231 Halandri, Athens
Tel. +30 2 10-677 90 99 Fax 30 2 10-677 93 99

Italy: Medtronic Italia SpA
P.zza Indro Montanelli 30,20099 Sesto
San Giovanni (MI).
Tel. 02-241371. Fax 02-241381.

Via Lucrezio Caro, 63, 00193 Roma
Tel. 06-328141 Fax 06-3215812

Japan: Medtronic Japan
Solid Square West Tower 6F,
580 Horikawa-cho, Saiwai-ku,
Kawasaki, Kanagawa 210-0913.
Tel. 044-540-6112 Fax 044-540-6200

Latin America Headquarters: Medtronic, Inc.
710 Medtronic Parkway,
Minneapolis, MN 55432-5604 USA
Tel. 763-514-4000 Fax 763-514-4879

The Netherlands: Medtronic B.V.
Earl Bakkenstraat 10, P.O.Box 2542,
6401 DA Heerlen
Tel. 045-5668000 Fax 045-5668668

Norway: Medtronic Vingmed AS
Fjordveien 1, Postboks 366, 1323 Høvik
Tel. 67 58 06 80 Fax 67 10 12 12

Portugal: Medtronic Portugal, Lda.
Rua Tomás da Fonseca,
Torre E 8, andar A,B,
1600 - 209 Lisboa
Tel.21-724-5100 Fax 21-724-5199

Spain: Medtronic Ibérica, S.A.
Centro Empresarial Miniparc III, Edificio K,
Calle Caléndula, 93, El Soto de la Moraleja,
28109 Alcobendas - Madrid
Tel. 91-625-0400 Fax 91-650-7410

Sweden: Medtronic AB
Dackevägen 33, Box 265
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