# Philips Telemetry System

# M2601B Transmitter Configuration Guide

**PHILIPS**

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Publication Number
4535 641 08021
Printed in USA

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# About this Document

This document contains information that you need to configure an M2601B replacement transmitter for Philips Telemetry Systems.

**Printing History**

New editions of this document incorporate all material updated since the previous edition. Update packages and/or Addendums may be issued between editions and contain replacement and additional pages to be merged by a revision date at the bottom of the page. Pages that are rearranged due to changes on a previous page are not considered revised.

First Edition . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . June 2008

**Text Conventions**

The following conventions for Warnings, Cautions, and *Notes* are used in this manual.

| Warning | **A Warning calls attention to a condition or possible situation that could cause injury to the user and/or patient.** |
|---|---|

| Caution | **A Caution calls attention to a condition or possible situation that could damage or destroy the product or the user's work.** |
|---|---|

| Note | **Note** calls attention to an important point in the text. |
|---|---|

# Before Using the Transmitter

Before using the replacement transmitter, you must configure a frequency. If configuring the frequency with TeleMon, you must also configure a check code.

You must also perform a *Learn Code* at the Information Center to associate the transmitter and receiver frequencies.

## Determining the Configuration Tool

You can configure the transmitter using either of these options:

*   Telemetry Configuration Tool (4535 640 95811) with:
    –   A PC running Microsoft$^®$ Windows$^{™}$ 2000 or XP
    –   A Serial interface cable (4535 640 07401)
    –   Telemetry Service Tool Installation Note and Instructions for Use (M4841-91038 or 4535 640 63931.zip)
    –   Frequency Management Database (FMDB) floppy disk
*   TeleMon
    –   M2636C (C.00.01 or higher)

To have Philips configure the transmitter instead, contact the Philips Response Center to schedule a service call.

# Determining the Frequency

To configure the transmitter frequency you must know the frequency.

*   If you already know the frequency and check code of the transmitter being repaired, go to the section "Setting the Transmitter Frequency" on page 4.

*   If you do not know the frequency, go to the section "Locating the Receiver Frequency From the Information Center" on page 2.

*   If you are using the Wireless Medical Telemetry Service (WMTS) band — 608 to 614 MHz — you need the option number of the frequency converter to calculate the frequency. Go to the section "Determining the Option Number for the Frequency Converter (M2616A)" on page 2.

## Locating the Receiver Frequency From the Information Center

You can use the Information Center to find the receiver frequency. In order to find the frequency, you must first have that transmitter/receiver assigned to a sector (**NO Signal** displays in the sector). Once you locate the frequency, configure this into the transmitter using the steps in "Setting the Transmitter Frequency" on page 4.

1. Select **Patient Window** → **All Controls** → **Unit Settings**.
2. Under **Bedside Unit Settings**, select **Telemetry Freq**.
3. Enter the password: **m3150** or **philips**
4. Identify the correct receiver:
   - If you see a frequency and check code, then this is the receiver frequency and check code.
   - If you see 0.0000 as the frequency, be sure the telemetry bed has been assigned to a sector and has a "No Signal" INOP in the sector. Repeat Steps 1 through 4.
   - If you still get 0.0000 as the frequency, you might have an upgraded M1402A receiver with a set frequency VCXO. Examine the receiver to obtain its channel number. Once you know the channel number, call the Philips Response Center to obtain the frequency, or refer to the Service Manual for M1403A Digital Telemetry.

## Determining the Option Number for the Frequency Converter (M2616A)

If the transmitter is transmitting in the WMTS band:

1. Look at the external frequency converter (M2616A) for its option number.

**Note**

You can have more than one option frequency converter in use. Please confirm that the frequency converter is connected directly to the mainframe that houses the receiver.

The option number for the frequency converter is printed on the model number/serial number label located on the bottom left side as mounted on the wall. The option number may be any of the following: 130, 136, 142, 148, 154, 160, or 166. Most frequency converter option numbers will be 142 or 148.

**Note**

If there is no external frequency converter on site, but you are transmitting in the WMTS band, then your mainframe might have a built-in frequency converter. Look on the right rear side of the mainframe for a label that says "Internal Frequency Converter C08 option". In this case, use option number 148.

2. Calculate the transmitter frequency by adding the frequency converter option number to the receiver. For example:

If the receiver frequency is 460.4875 and the frequency converter is option 148, add:

460.4875 + 148 = 608.4875

608.4875 is the transmitter frequency.

**Using the Frequency Management Data Base (FMDB) Floppy Disk to Find a Check Code**

**Note**

When you use TeleMon to configure the transmitter, you must also configure a check code.

The FMDB floppy disk included with this document contains all US frequencies and check codes. It is a comma delimited data file that you can open as a spreadsheet or as a text file.

1. To find transmitter frequencies in the 460 to 470 MHz band, use the section titled **System Frequency Range Option:,,007**, then go to "Setting the Transmitter Frequency" on page 4.
2. To find transmitter frequencies in the 608 to 614 MHz band (WMTS), use the section titled **System Frequency Range Option:,,037**. If you have a frequency converter, you are transmitting in this band.

The following example shows the check code (9559) for a transmitter transmitting a frequency of 608.4875.
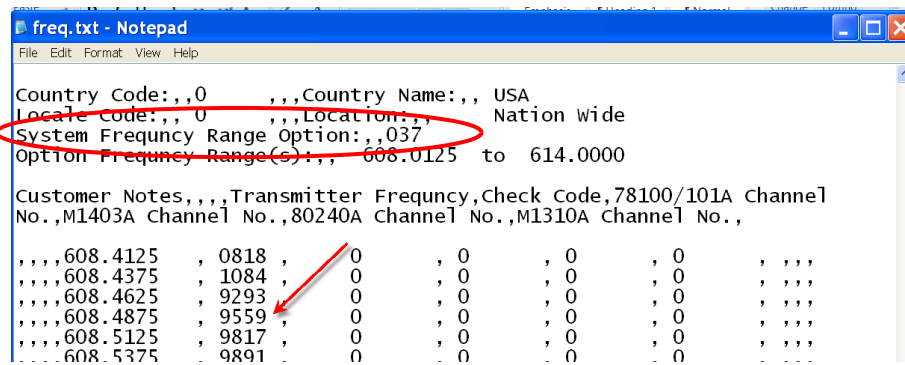


3. Go to the section, "Setting the Transmitter Frequency".

# Setting the Transmitter Frequency

Once you determine the receiver frequency and check code, you can configure the transmitter with either the Telemetry Configuration Tool or TeleMon.

## Installing the Telemetry Configuration Tool

**Note**

Delete any previous versions of the Telemetry Configuration Tool in the **C:\TelemetryPWD\** directory on your PC. The Telemetry Configuration Tool is compatible with all previous transmitter/transceiver versions.

To install the Telemetry Configuration Tool:

1. Insert the CD-ROM into the service PC.
2. Double click on the **INSTALL.BAT** executable on the CD.

The program files are copied to the **C:\TelemetryPWD\** directory.

| | | | |
|---|---|---|---|
| 📁 | BIN | 📁 | PRIVATE |
| ⚙️ | INSTALL.BAT<br>MS-DOS Batch File<br>1 KB | 📄 | PWDLIB.LIB<br>LIB File<br>72 KB |
| 📝 | README.TXT<br>Text Document<br>1 KB | 🧊 | TELECFGTOOL.EXE<br>TeleCfgTool MFC Application |

**Caution**

**Do _not_ rename any directories or folders where the files are copied. The Telemetry Configuration Tool will not run if you do.**

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## Connecting the Telemetry Configuration Tool to the Transmitter

To connect the Telemetry Configuration Tool:

1. Terminate any PC applications or services that are currently using a COM port on the PC.
2. Remove the batteries from the transmitter.
3. Connect the serial interface cable (4535 640 07401) to the appropriate COM port on the PC, and the other end to the serial port on the transmitter.
4. Browse to the appropriate directory and double-click on the **TeleCfgTool.exe** icon to start the Telemetry Configuration Tool.



TELECFGTOOL.EXE
TeleCfgTool MFC Application

The Telemetry Configuration Tool window appears.
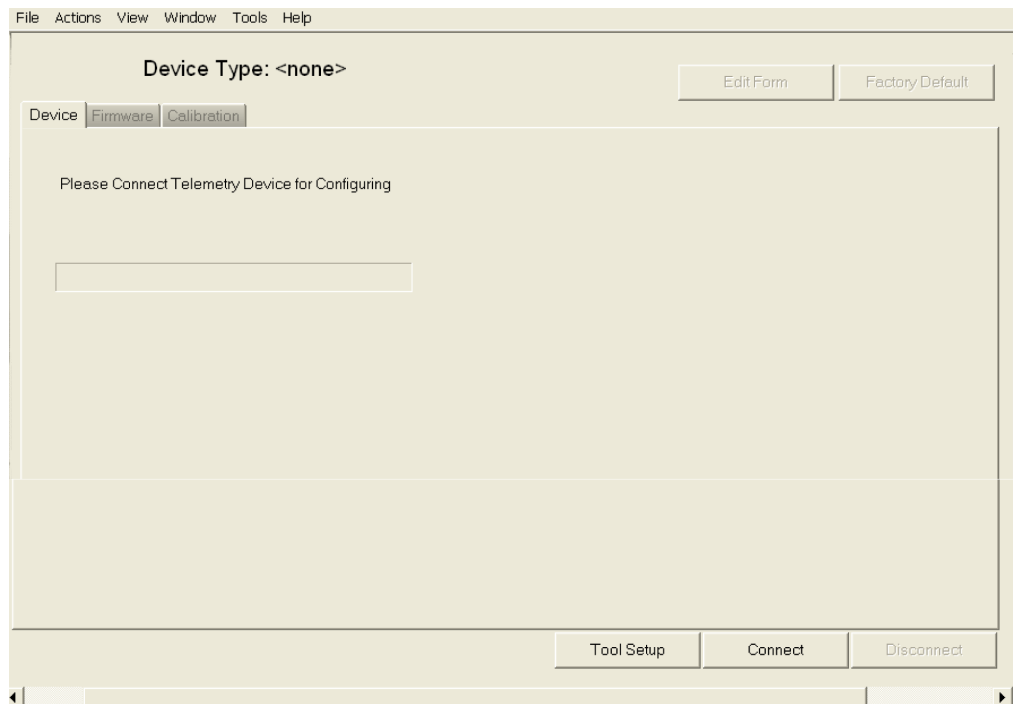


**Important**

Before connecting to the transmitter, insert one AA battery into the transmitter and prepare another for quick insertion.

5. Click the **Connect** button to start establishing the connection to the device.
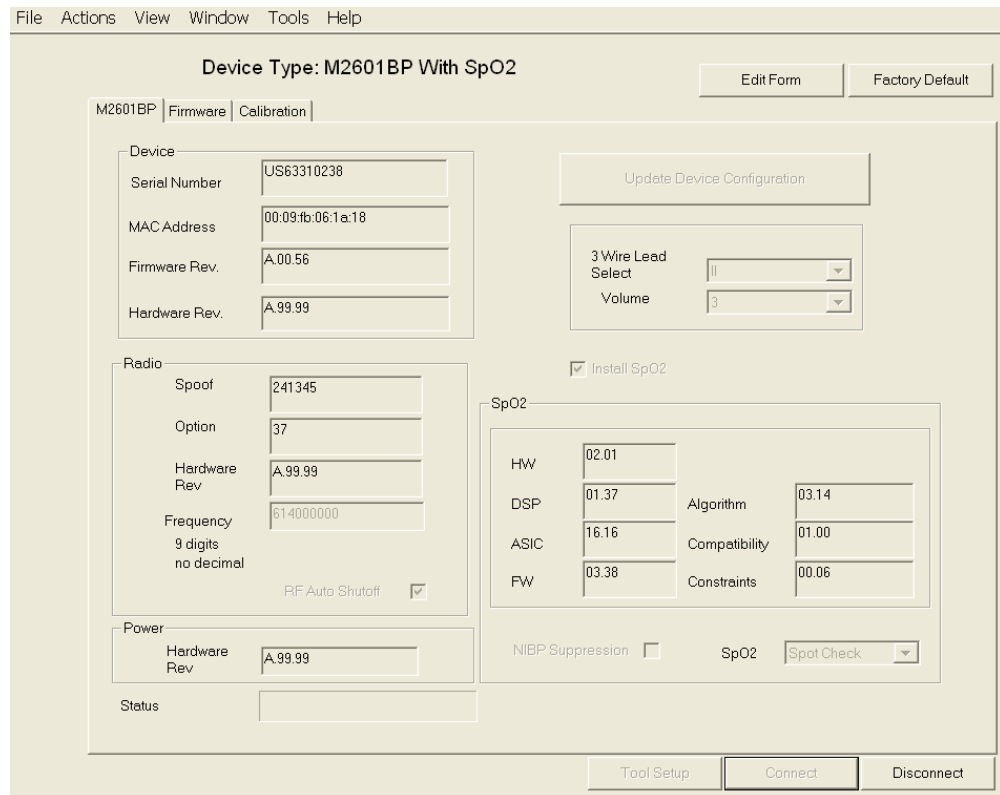
6. Quickly insert the second AA battery into the device before the **Attempting to connect** progress bar reaches 75% of its range.

Device | Firmware | Calibration

Attempting to connect
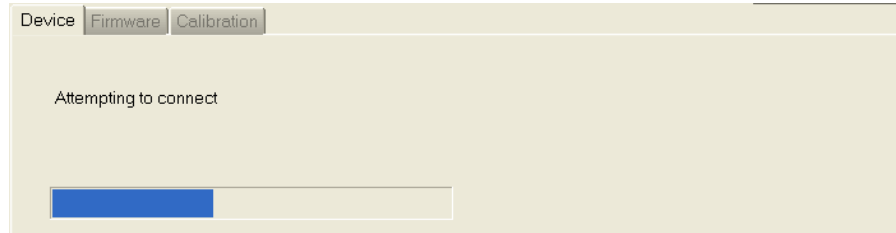
7. If the connection fails, and an error displays, try connecting the transmitter again.

When the connection to the transmitter is complete, the **Device Type** window appears with the description of the connected transmitter. For example, M2601B with SpO$_2$. In addition, the window displays the transmitter firmware revisions and configuration status.
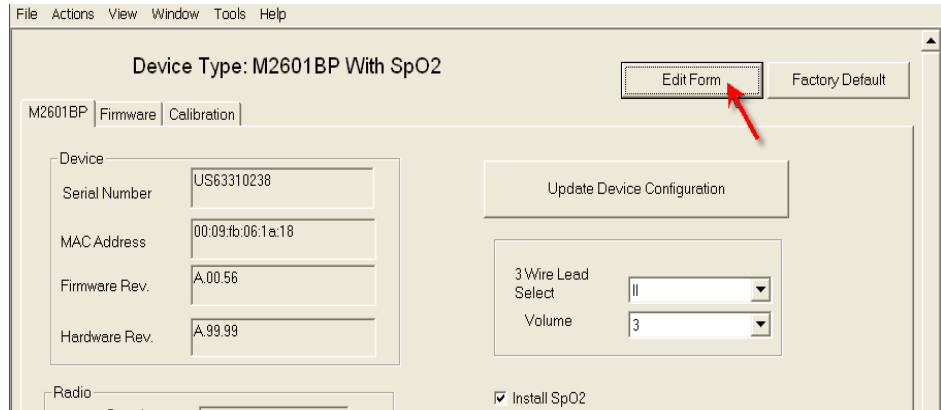
The following is an example; your screen will be device-specific.

File   Actions   View   Window   Tools   Help

### Device Type: M2601BP With SpO2

Edit Form          Factory Default

M2601BP | Firmware | Calibration

Device
Serial Number    US63310238
MAC Address      00:09:fb:06:1a:18
Firmware Rev.    A.00.56
Hardware Rev.    A.99.99

Update Device Configuration

3 Wire Lead Select    II
Volume    3

Radio
Spoof         241345
Option        37
Hardware Rev  A.99.99
Frequency     614000000
9 digits
no decimal

RF Auto Shutoff  ☑

☑ Install SpO2

SpO2
HW    02.01
DSP   01.37       Algorithm      03.14
ASIC  16.16       Compatibility  01.00
FW    03.38       Constraints    00.06

Power
Hardware Rev   A.99.99

Status

NIBP Suppression  ☐       SpO2   Spot Check

Tool Setup    Connect    Disconnect

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**Configuring the Device**

To configure the device:

1. Click on the **Edit Form** button.



2. **Important**: Enter the transmitter frequency with 9 digits and no decimal. For example: enter a frequency of 608.0125 as 608012500.
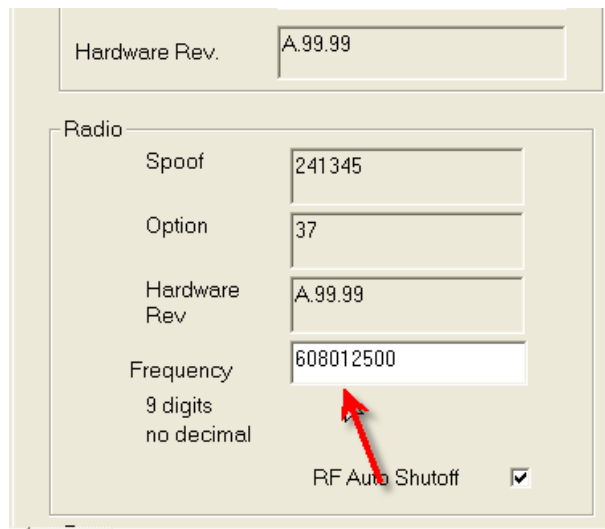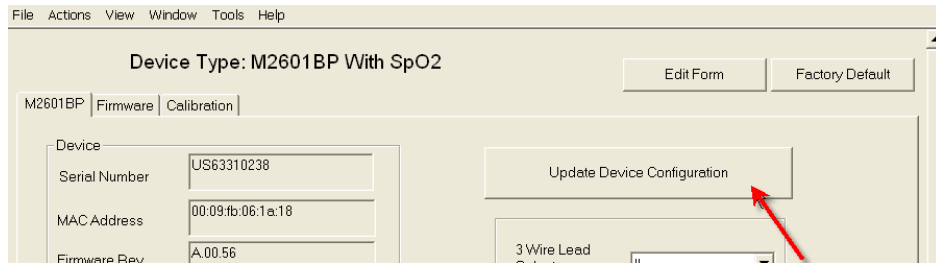


**Caution**

**If you enter the frequency incorrectly, for example with a decimal and/or not enough digits, the power on the self-test will fail.**

**Important**

If the transmitter has an $SpO_2$ option, check the $SpO_2$ function before updating the device

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3. Click **Update Device Configuration**.



An Update Progress bar appears.

4. After the update completes, remove 1 battery from the transmitter and click **Disconnect** on the main window of the Telemetry Configuration Tool.
5. Click **Connect**, installing the 2nd battery before the **Attempting to connect** progress bar reaches 75% of its range.

The main window appears with the new frequency. For example:
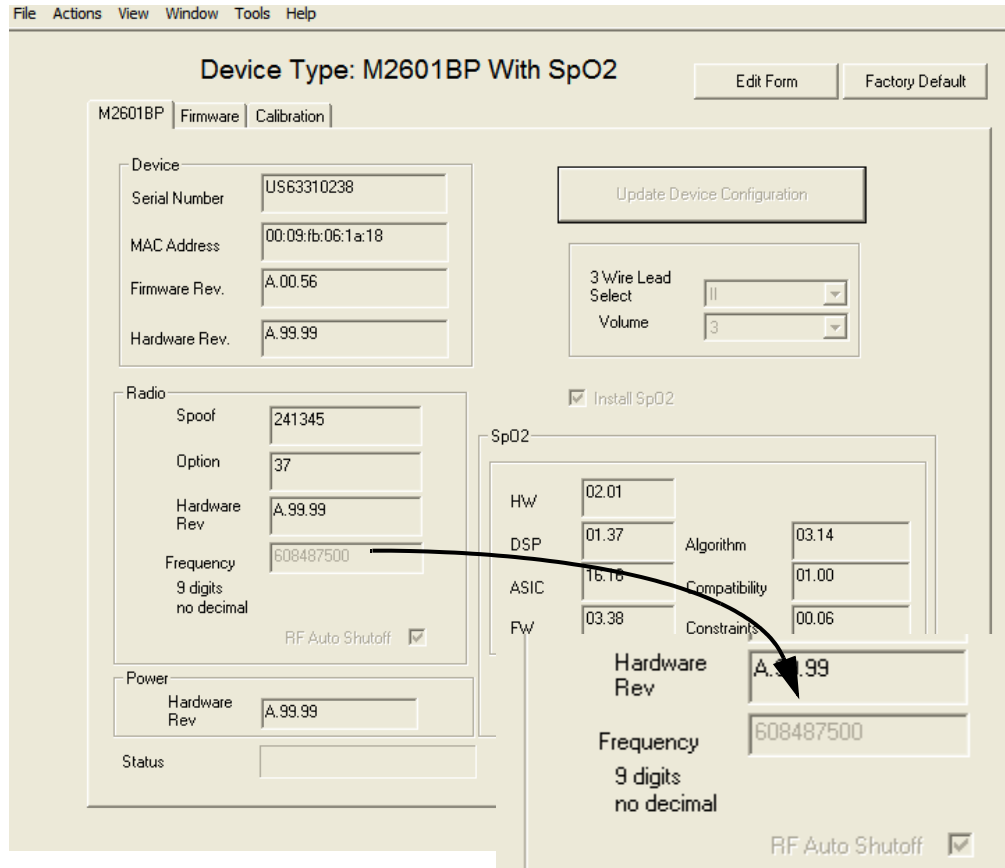


6. Perform the Learn Code procedure on page 10.

## Using TeleMon

To configure a transmitter using the TeleMon B monitor, the transmitter **must** be a series C transmitter. You cannot configure a B series transmitter with TeleMon. Service Mode can be activated during the power-up sequence:

1. Turn TeleMon **ON**. During self-test, the message **Push button for Service** appears above the checkmark button.
2. Press the checkmark button below the display.

When you select **TeleMon and Transmitter Service** from the **Device Setup** menu, you are prompted to enter the password.

To access the **TeleMon and Transmitter Service** menu:

1. Insert the battery into the transmitter and allow the self test to complete.
2. Insert the transmitter into TeleMon
3. Select the transmitter and press **Go**.

A window prompts you for the password:
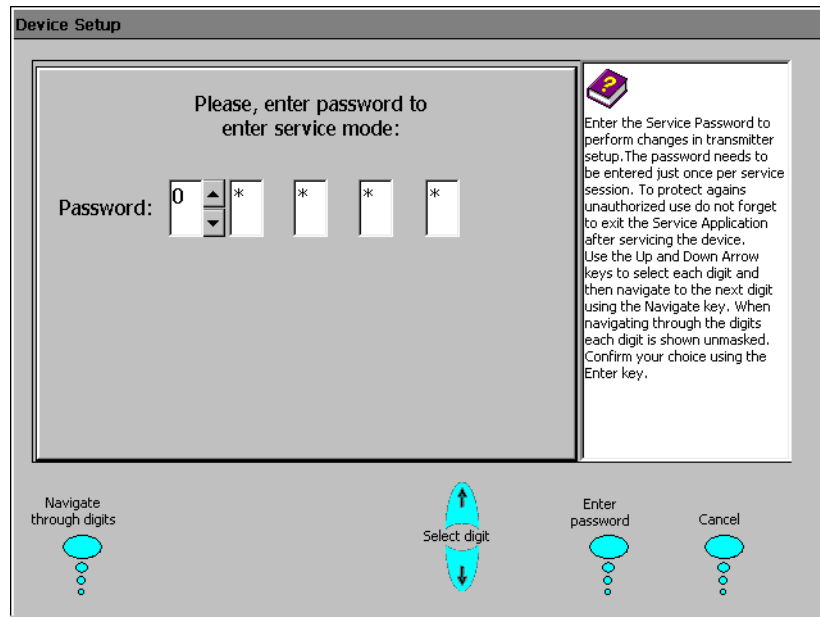


4. Enter the password:
   – Use the **Navigate through digits** button to move the flashing cursor to the next field. Use the **Select digit** arrows to change the number and enter **14432**.
   – Press **Enter password**.

The **TeleMon and Transmitter Service** menu appears.

5. Select **Configure Transmitter** and press **Go**.
6. Stay in the **RF Configuration** and press **Go**.

–   Press the **Adjust frequency** buttons to select the appropriate frequency. **Note: Frequencies jump in increments of 125 KHz**.
–   Press **Done**.

A message appears asking if the changes are OK. Press the **Accept** button to approve the change.

7.   Enter the Check Code (see the section "Using the Frequency Management Data Base (FMDB) Floppy Disk to Find a Check Code"). and press the **Check Code** enter button.
8.   Press the **Done** button.

The frequency is changed.

9.   Turn off the TeleMon monitor to exit Service mode.
10.   Perform the Learn Code procedure on page 10.

## Performing the Learn Code Procedure

You must perform the Learn Code procedure before the transmitter can display ECG waveforms. The Learn Code procedure allows the Information Center to identify the receiver frequency by assigning the transmitter/receiver to a sector. To associate the transmitter with the receiver, you must first have that transmitter/receiver admitted to a sector (No Signal is displayed in the sector).

To perform a Learn Code:

1.   Select **Patient Window** → **All Controls** → **Unit Settings**.
2.   Under **Bedside Unit Settings**, select **Telemetry Freq**.

A password window appears.

3.   Enter the password: **m3150** or **Philips**.
4.   Identify the correct receiver and frequency listed.
5.   Select and highlight the correct receiver and ensure that both batteries are installed in the transmitter.

The sector in the Information Center should be blue and say **INVALID SIGNAL E01**.

6.   Click the **Learn Xmit Code** key. Within one minute, press and hold the nurse call button until the **E01** error goes away.

The transmitter and receiver are now associated.

7.   Perform an operational test to ensure correct system operation. Refer to the transmitter's service manual for instructions.