NHRC
REPEATER CONTROLLERS

NHRC-PXP
Phoenix SX Programmer
User Guide

Software Version: 1.00
User Guide Version: 2004-09-11

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Printed in the U.S.A.

Welcome!

Thank you for your purchase of the NHRC-PXP Phoenix SX Programmer.

We are interested in your feedback about the software and documentation. Please email your questions and comments to software-support@nhrc.net. Telephone support requests will be taken on an as-available basis.

1. INTRODUCTION 7
1.1 Supported Computer Platforms 7
1.2 Supported Radios 7
2. USING THE NHRC-PXP POD 8
2.1 DC Power Connector 8
2.2 EEPROM Socket 8
2.3 LED Indicators 9
2.4 Pushbuttons 9
3. USING THE NHRC-PXP SOFTWARE 10
3.1 Installation 10
3.2 Starting the NHRC-PXP Software 12
3.3 Basic Operation 13
3.3.1 Loading Data 14
3.3.2 Editing Data 15
3.3.3 Saving Data 17
3.4 Printing Radio Program data 18
3.5 Displaying Version Information 19
3.6 Uninstalling the NHRC-PXP Programming Software 19
4. SCHEMATIC 20
5. PARTS LIST 22
6. NHRC LLC LIMITED WARRANTY 23

1. Introduction

The NHRC-PXP Phoenix SX Programmer consists of the NHRC-PXP programming pod and the Windows ™ software to support various radios.

The Phoenix and Phoenix Scan software allows you to easily program General Electric Phoenix SX and Phoenix SX Scan radios, in both VHF and UHF. The software, in conjunction with the programming pod, allow you to read and write X2212 Nonvolatile Static RAM that contains the programming data for the radios. The software can save radio programs to your disk, and print out radio programming sheets.

The NHRC-PXP programming pod can be used without a computer to copy radio programs that are stored on X2212 parts.

The NHRC-PXP communicates with the computer through a serial interface. Only COM1 is supported in the current versions of the software.

1.1 Supported Computer Platforms

The NHRC-PXP Phoenix Programming Software is developed to run on Windows 2000 or Windows XP. It may work in prior versions of Windows, but is not supported on any platforms other than Windows 2000 and Windows XP.

The software requires about 200 Kbytes of disk space. Each saved radio program requires less than 1 Kbyte.

In order to communicate with the NHRC-PXP programming pod, the computer must have a RS-232 port on COM1: available

1.2 Supported Radios

The current release of the NHRC-PXP supports General Electric Phoenix SX radios, with or without scan, on VHF or UHF. Future support for Delta SX is planned.

2. Using the NHRC-PXP Pod

This section of the manual describes how to use the NHRC-PXP Pod in standalone mode.

2.1 DC Power Connector

A mating power connector is supplied with the controller.

DC Power is supplied to the controller at connector "J1," with a 5.5 mm coaxial power connector.

5.5 mm Coaxial Power plug

The inner connector ("Tip") is positive

The outer barrel ("Sleeve") is negative.

⇒ ***Caution:*** Reverse polarity could damage the NHRC-PXP Pod.

J7 12V Connector Pin-out

Pin #		Use
Sleeve	"Outer Barrel"	Ground
Tip	"Inner Connector"	+12 (13.8)

The NHRC-PXP Pod is protected against short circuits with a PolyFuse resetable fuse.

2.2 EEPROM Socket

The NHRC-PXP has a Textool zero-insertion-force (ZIF) socket for the X2212 device to be programmed or read. Note that pin 1 of the X2212 device should be located toward the handle of the socket.

To use the ZIF socket, raise the handle to open the socket. Place the part to be programmed or read into the socket, paying attention to proper orientation of the pins. Lower the handle to lock the part into the socket. When your read or write operation is complete, raise the handle to remove the part.

2.3 LED Indicators

The NHRC-PXP has three LEDs that indicate the status of the pod.

NHRC-PXP LED Indicators

Label	Color	Description	Indication
D2	Red	Power	DC Power is present
D3	Yellow	Status	The Pod is busy
D4	Green	Active	The X2212 device has power applied.

⇒ ***Caution:*** Do not install or remove the X2212 part when the Active LED is lit. Damage the to the NHRC-PXP Pod and/or the X2212 part could occur..

2.4 Pushbuttons

The NHRC-PXP Pod has two pushbuttons that allow the pod to be used without a computer.

NHRC-PXP LED Indicators

Label	Description	Use
SW1	READ	Read the X2212 device into the pod
SW2	WRITE	Write a program stored in the pod into the X2212 device.

To copy a radio program from one X2212 part into another, perform the following steps:

1. Apply power to the pod
2. Insert the X2212 you want to copy *from*.
3. Press “READ.” The “STATUS” and “ACTIVE” LEDs will flash.
4. Insert the X2212 you want to copy *to*.
5. Press “WRITE.” The “STATUS” and “ACTIVE” LEDs will flash. The new part will now have a copy of the data from the first part.
6. Repeat steps 4 and 5 to copy to additional parts

The radio program read from the X2212 in step 3 will be stored in non-volatile memory in the pod. It is possible to read a part, power the pod off, then power up the pod later and write the same program to other parts. The pod can store one radio program in its non-volatile memory. It will keep the last radio program read in standalone mode or the last program written to the pod by the programming software.

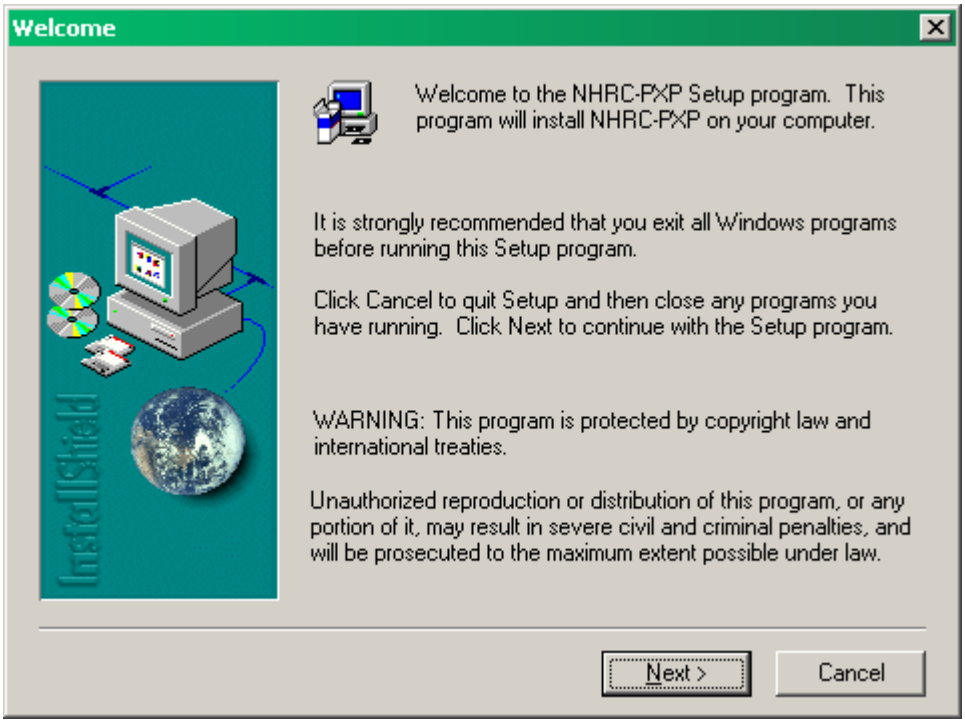
3. Using the NHRC-PXP software

3.1 Installation

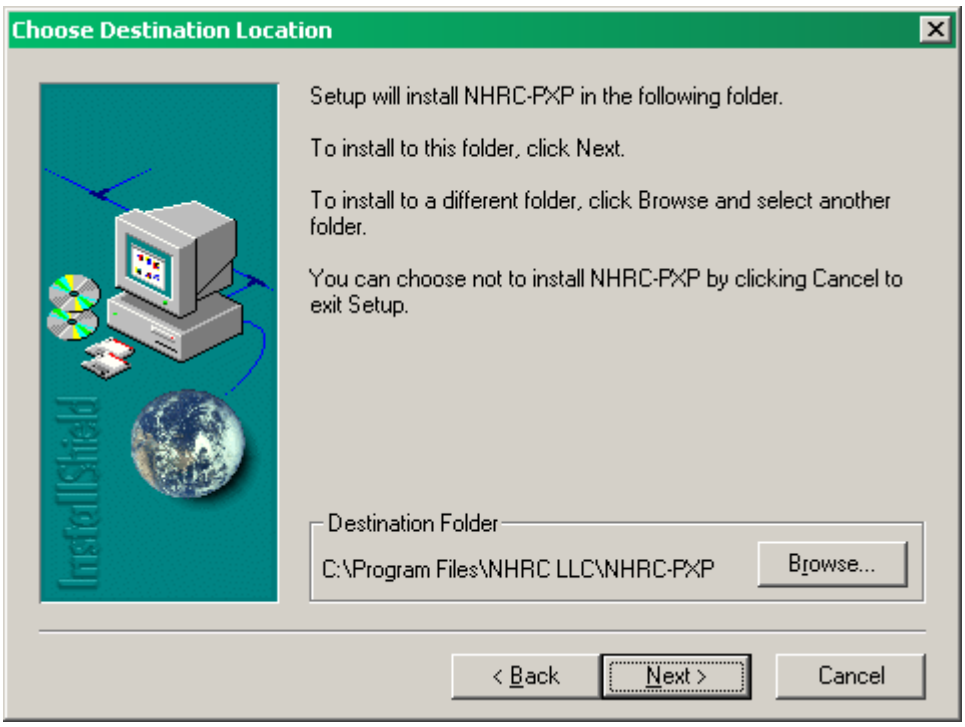
The NHRC-PXP Programming Software is distributed by electronic download or on 1.44 MB floppy. You can either download the executable programs alone, or download an installer program.

If you choose to download the installer, it will arrive on your computer as a zip archive called “pxp-installer.zip”. Unzip the installer to a new directory, then execute the program called “Disk1\Setup.exe”

When you start the setup program, a informational message will be displayed.

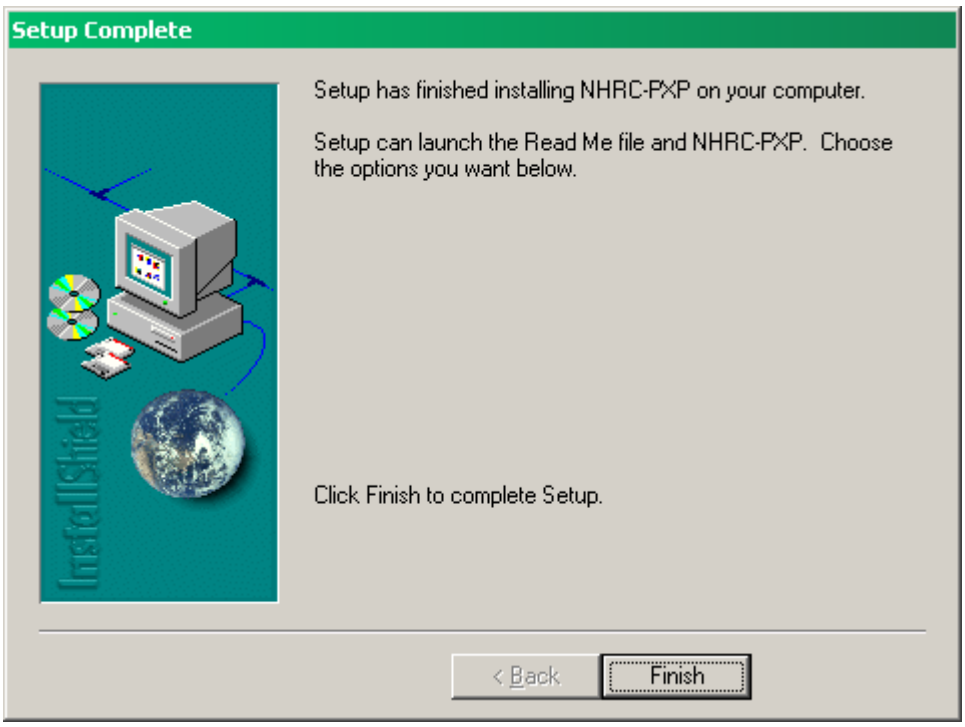


When the installation starts, click the “Next” button to start the installation process. The installer will them prompt you for the location to install the NHRC-PXP software



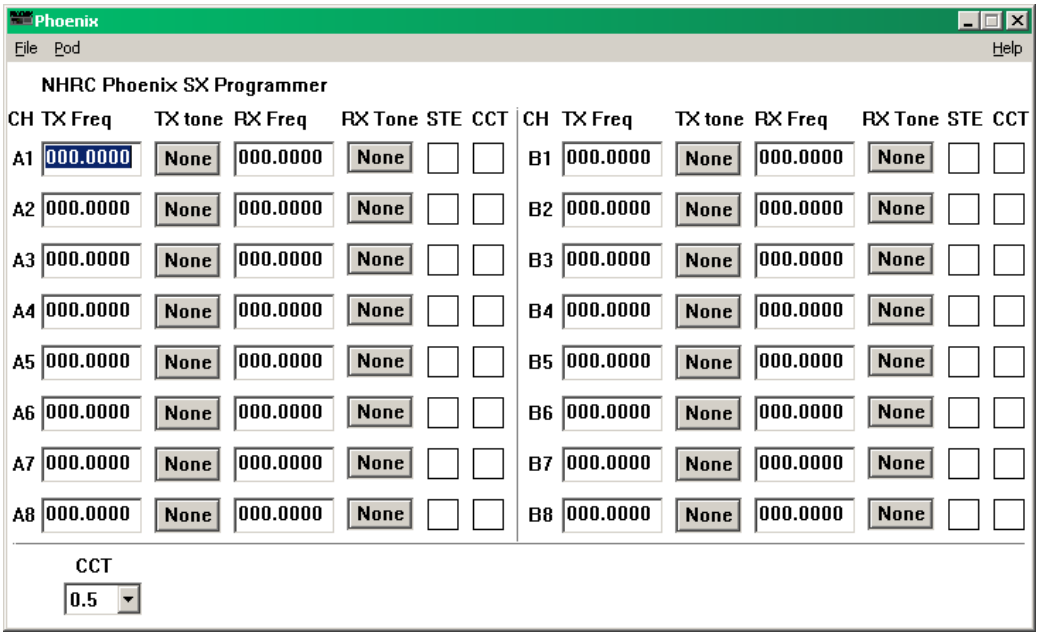
It is quite reasonable to accept the defaults and simply click “Next” on this dialog.

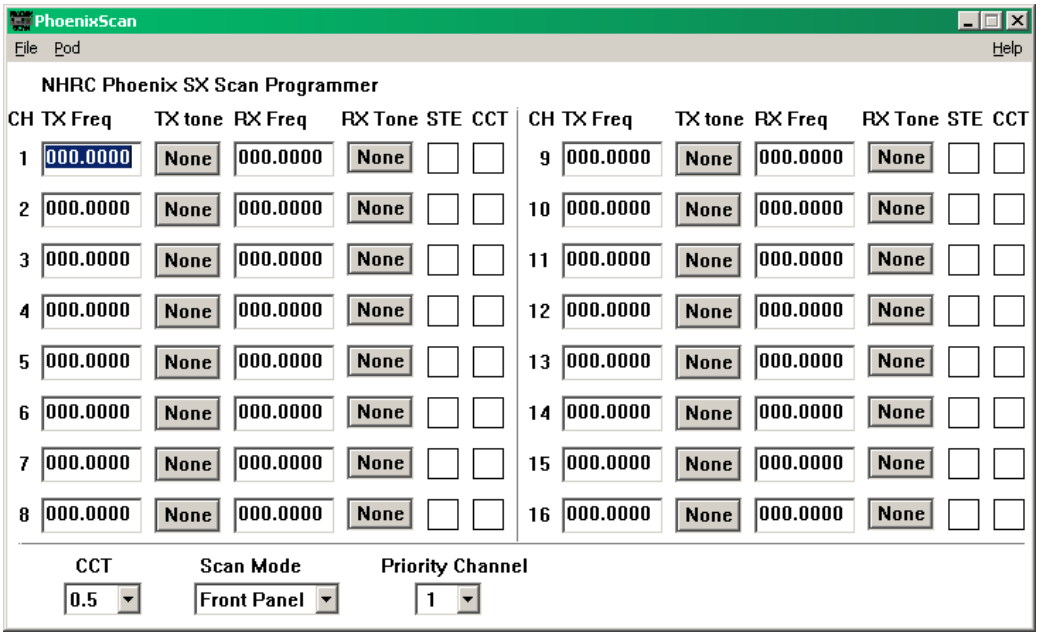
The installer will then install the software. A few more clicks of “Next” and the installation successful message will be shown. Click “Close” to finish the installer.



3.2 Starting the NHRC-PXP Software

To start the NHRC-PXP Programming Software, press the Windows “Start” button. Select “Programs” and navigate to the menu called “NHRC-PXP”, clicking on either the “Phoenix” or “PhoenixScan” selections.





The main window displays all 16 possible channels for the radio, as well as programming information that is common to all channels in the radio, for example the CCT (carrier control timer.)

3.3 Basic Operation

The NHRC-PXP Programmer application is used to edit Phoenix SX radio programs. In order to edit radio programs, the software must first load the data from either a X2212 part containing a radio program or a saved radio program data file stored on the computer.

Once the data is loaded, the program can be used to edit it.

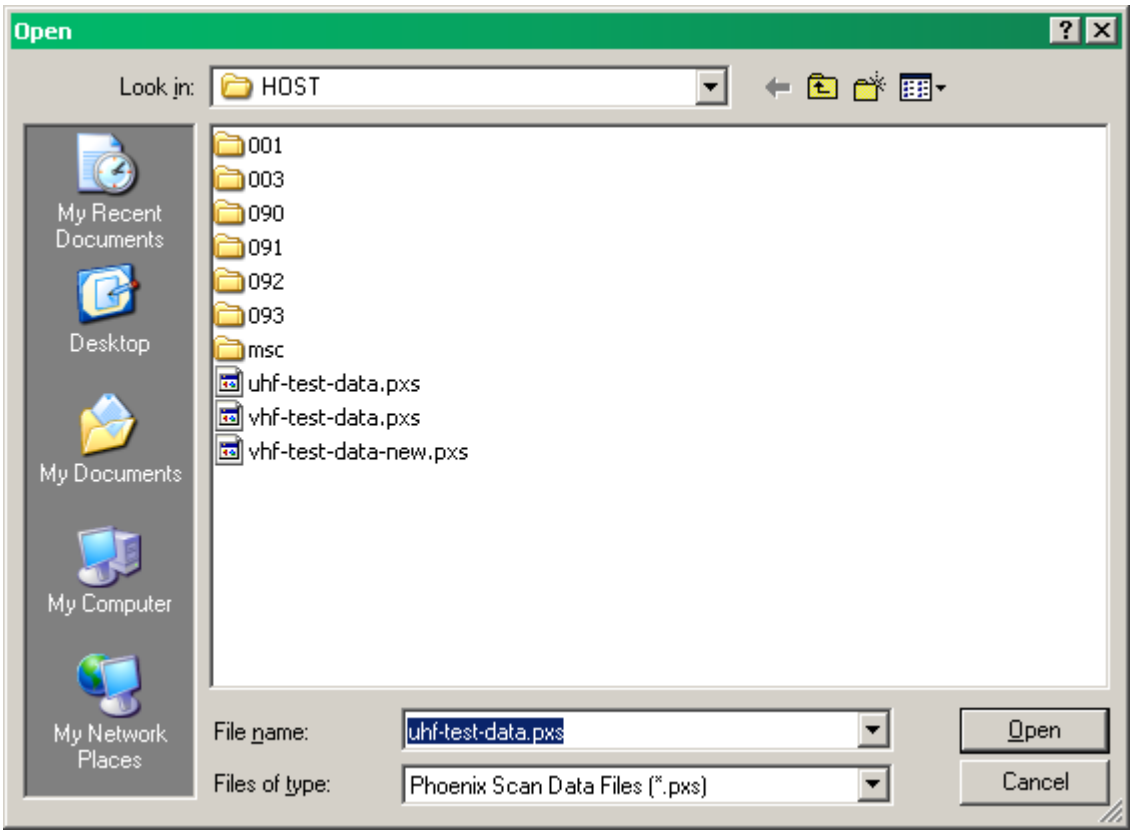
Finally, when the configuration data has been edited, it should be saved to computer disk and/or into a X2212 part.

3.3.1 Loading Data

Radio program data can be loaded from disk files stored on the computer, or loaded from a X2212 in the NHRC-PXP pod.

3.3.1.1 Reading a radio program file from disk

To read radio program files from disk, use the “File” menu “Open…” selection. A Windows file dialog box will appear, and you will be able to navigate to and select the radio program file you want to edit.



When a file is selected and successfully read by the NHRC-PXP Programmer, the filename will appear in the title bar.

3.3.1.2 Reading a radio program from the NHRC-PXP Pod

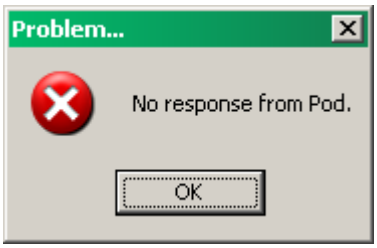
Connect the NHRC-PXP pod to your computer’s COM1 serial port with a straight-through RS-232 cable.

Select the “Pod” menu “Read Device In Pod” option. The “STATUS” and “ACTIVE” LEDs on the pod should flash.

Select the “Pod” menu “Get Program From Pod” option. The “STATUS” LED should flash.

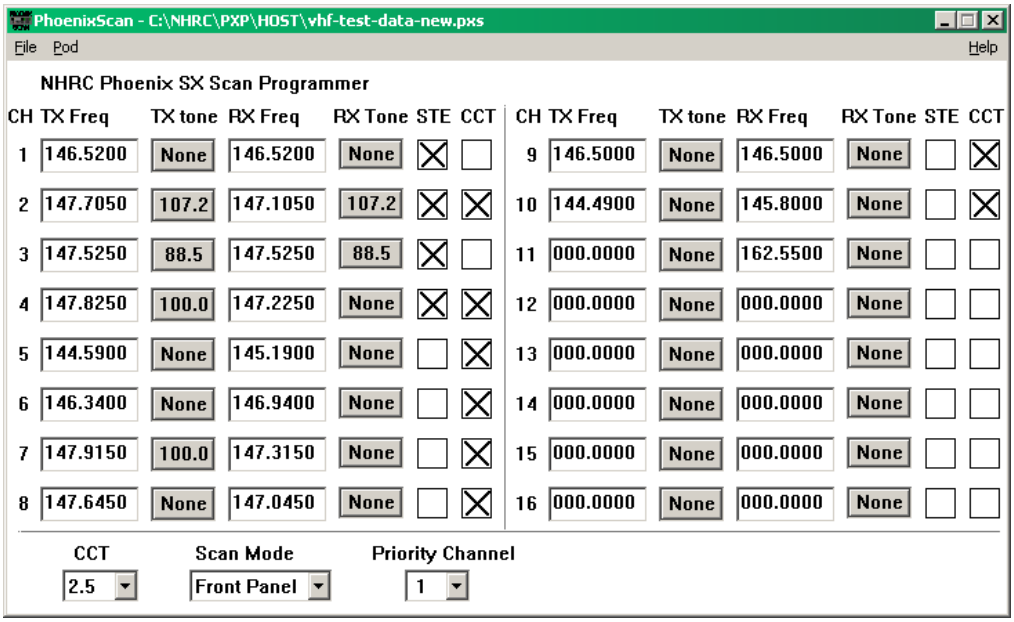
The radio program will be transferred to the programming software, and the radio's program should appear in the window. The data transferred is very small, and the transfer occurs very quickly.

If the pod is not correctly connected, one or more error messages will appear and the data will not be successfully transferred.

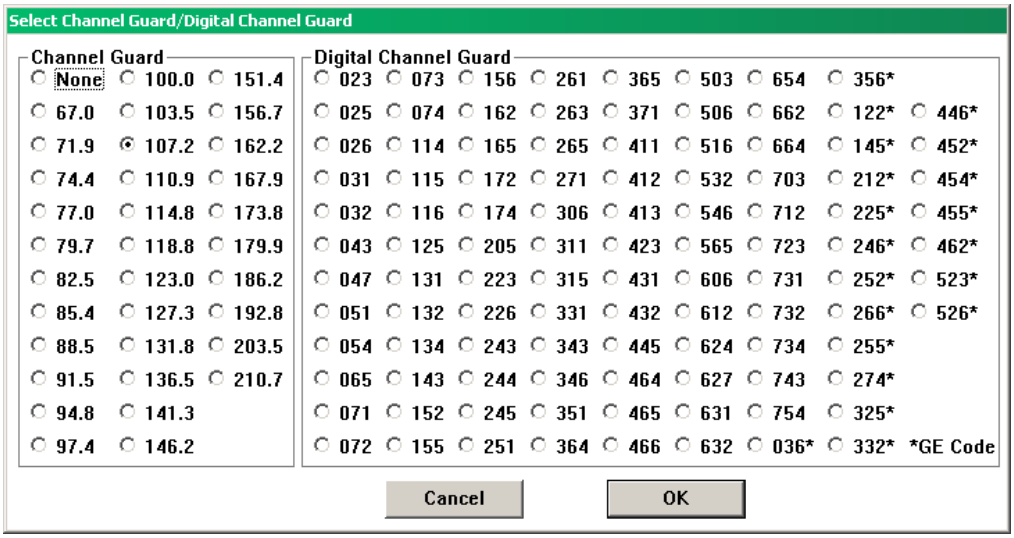


3.3.2 Editing Data

Once a valid radio program into the NHRC-PXP Programming Software, the next step is to edit the data. Each channel can be edited by typing the new frequency into the text field on the screen.



Channel Guard or Digital Channel Guard can be selected for each channel's receive and transmit settings by pressing either the appropriate "TX Tone" or "RX Tone" button.



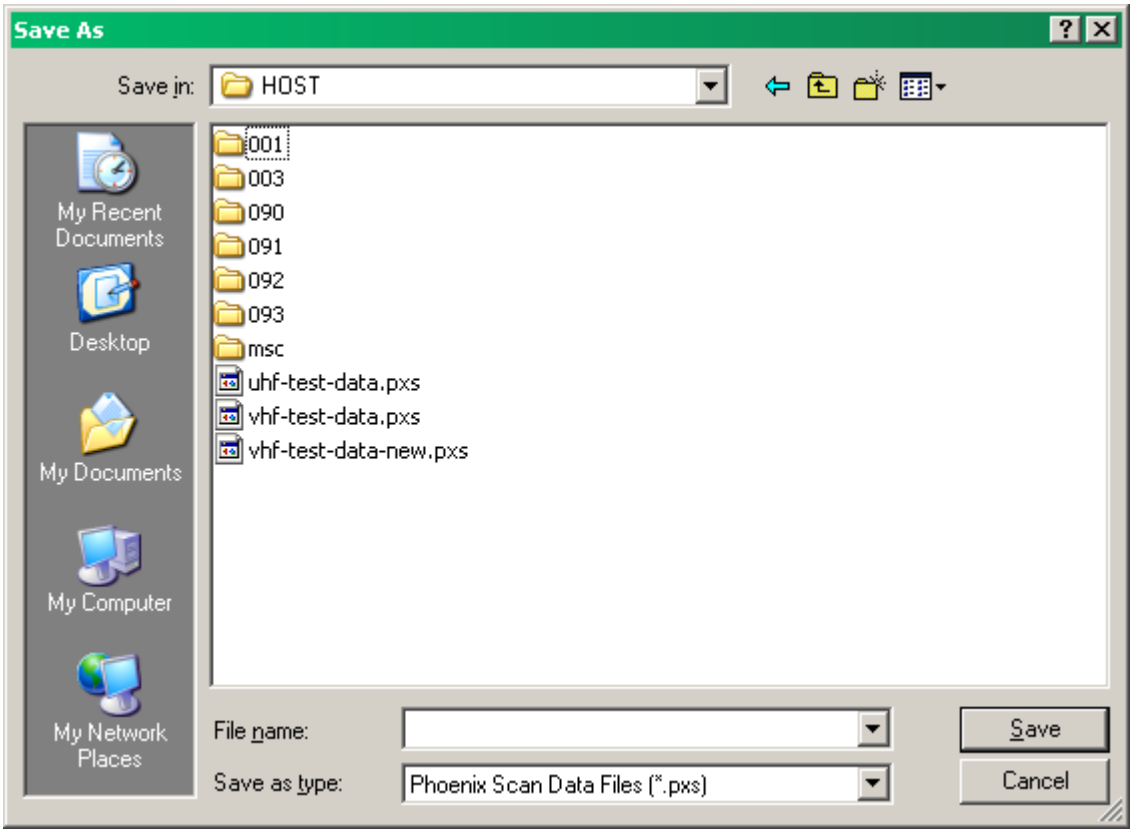
Carrier control timer and Squelch Tail Elimination can be set for each channel by checking the appropriate boxes.

3.3.3 Saving Data

A radio program, once edited, should be saved to a disk file and/or to a X2212 device in the NHRC-PXP pod.

3.3.3.1 Saving a Radio Program to Disk

To save a radio program to disk, select either the “File” menu “Save” or “Save As…” option. The “Save As” choice will cause the “Save As” dialog box to appear. Choose a directory, specify a file name, and click the “Save” button to save the radio program



If you select the “Save” option, and you have already specified a file name (either by previously loading a file, or by using the “Save As…” function) the program will quietly save your data to disk.

If “Save” is selected, and a file name has not already been specified the “Save As” dialog will be shown, and you will have to select a location and filename to save the file.

3.3.3.2 Saving a Radio Program to a X2212 device

To save a radio program to a X2212 device (this is how you program the radio), first connect the NHRC-PXP pod to your computer’s COM1 serial port with a straight-through RS-232 cable.

Select the “Pod” menu “Put Program into Pot” option. The “STATUS” and “ACTIVE” LEDs on the pod should flash. This will transfer the radio program into the pod’s non-volatile memory.

Then, select the “Pod” menu “Write device in pod” option to program the device in the pod. If you want to program multiple devices, you can repeat this step after installing the next part to program.

3.4 Printing Radio Program data

The radio program data can be printed by selecting the “File” menu “Print” option.

NHRC Phoenix SX Scan Programmer

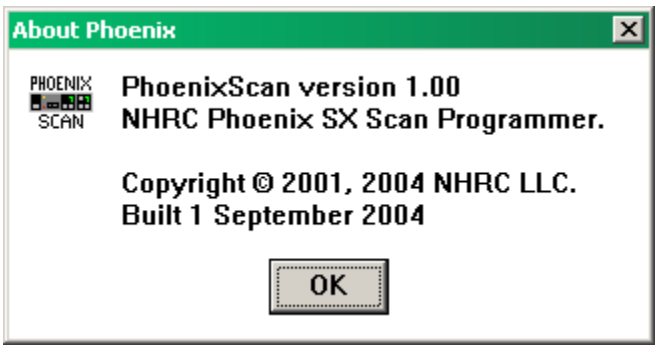
Scan Mode is Front Panel
Priority Channel is 1
Carrier Control Timer is 2.5 minutes.

Ch #	Transmit Freq	Transmit CG	Receive Freq	Receive CG	STE	CCT
1	146.5200	None	146.5200	None	YES	NO
2	147.7050	107.2	147.1050	107.2	YES	YES
3	147.5250	88.5	147.5250	88.5	YES	NO
4	147.8250	100.0	147.2250	None	YES	YES
5	144.5900	None	145.1900	None	NO	YES
6	146.3400	None	146.9400	None	NO	YES
7	147.9150	100.0	147.3150	None	NO	YES
8	147.6450	None	147.0450	None	NO	YES
9	146.5000	None	146.5000	None	NO	YES
10	144.4900	None	145.8000	None	NO	YES
11	000.0000	None	162.5500	None	NO	NO
12	000.0000	None	000.0000	None	NO	NO
13	000.0000	None	000.0000	None	NO	NO
14	000.0000	None	000.0000	None	NO	NO
15	000.0000	None	000.0000	None	NO	NO
16	000.0000	None	000.0000	None	NO	NO

22 April 2004 PhoenixScan version 0.94 Page 1

3.5 Displaying Version Information

The version number and copyright information can be shown by selecting the "Help" menu "About" option.

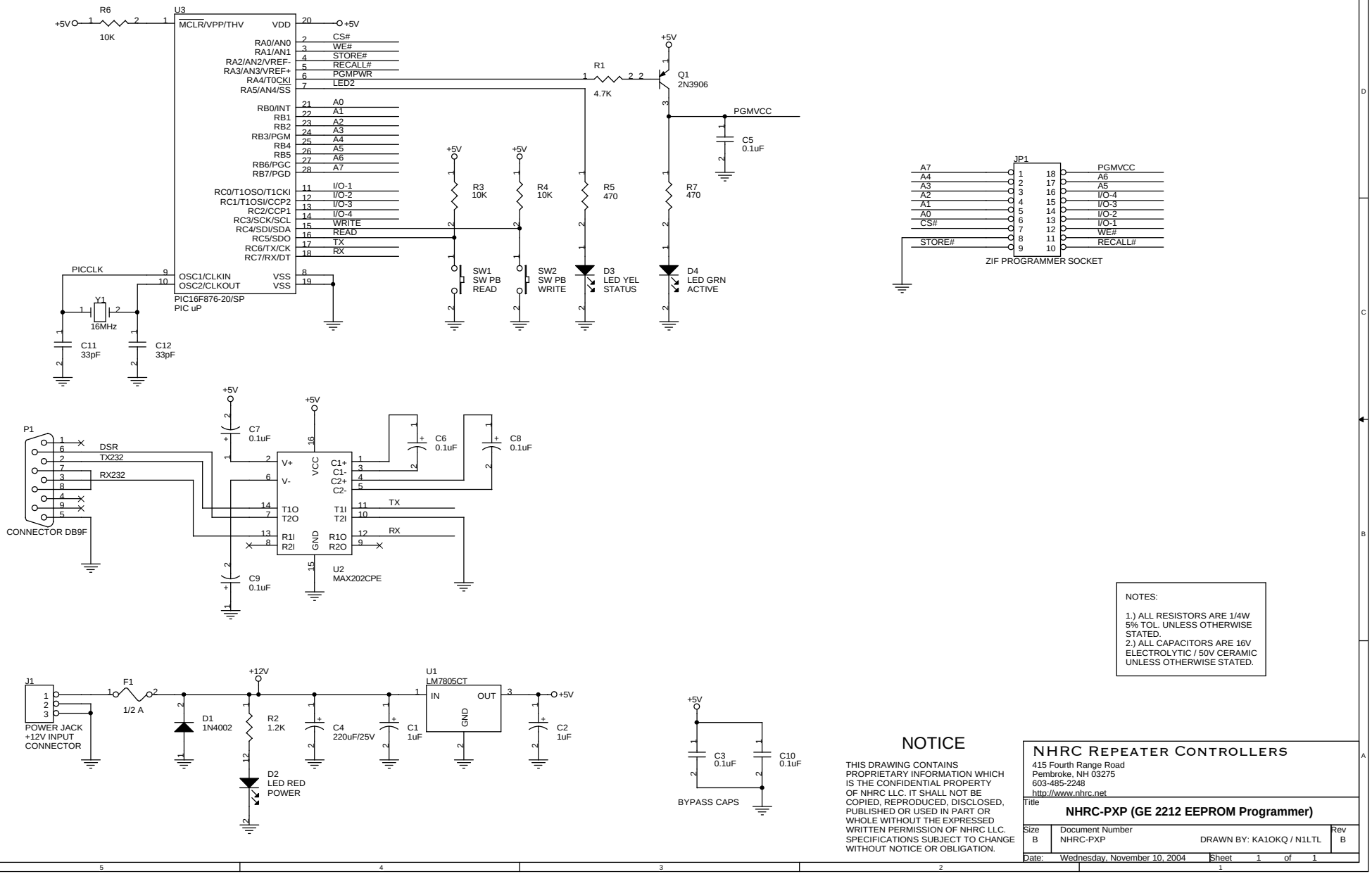


3.6 Uninstalling the NHRC-PXP Programming Software

The NHRC-PXP Programming software can be removed from your computer by using the "Add or Remove Programs" icon in the Windows control panel. Select "NHRC-PXP" from the list of programs in the "Add or Remove Programs" window and press the "Remove" button. Press "Yes" to the "Are you sure you want to remove NHRC-PXP Programmer from your computer, and the program will be uninstalled.

4. Schematic

The next page contains the Schematic for the NHRC-PXP Pod.



NOTES:

1.) ALL RESISTORS ARE 1/4W 5% TOL. UNLESS OTHERWISE STATED.
2.) ALL CAPACITORS ARE 16V ELECTROLYTIC / 50V CERAMIC UNLESS OTHERWISE STATED.

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Title: **NHRC-PXP (GE 2212 EEPROM Programmer)**

Size	Document Number	Rev
B	NHRC-PXP	B

DRAWN BY: KA1OKQ / N1LTL

Date: Wednesday, November 10, 2004 Sheet 1 of 1

5. Parts List

Put the parts list here.

6. NHRC LLC Limited Warranty

NHRC LLC warrants that it's assembled and tested products will be free from defects in materials and workmanship for a period of NINETY DAYS from the date of shipment. During this period, NHRC LLC will repair or replace, at our option, any of our products that fail as a result of defects in materials or workmanship. NHRC LLC's liability will be limited to parts, labor, and return shipping for this period.

NHRC LLC warrants that it's kit products will contain components that are free from defects in materials and workmanship for a period of THIRTY DAYS from the date of shipment. During this period, NHRC will replace any of the components in a kit ONCE. Subsequent replacement of any component any subsequent times is completely at the discretion of NHRC LLC, and may require the complete return of the kit.

In no case will NHRC LLC be liable for products damaged by improper wiring (including, but not limited to, over-voltage or application of reverse polarity), physical damage resulting from misuse and/or abuse of the product, neglect, or acts of God (lightning, floods, etc.).

Unauthorized modification of a NHRC product will void the warranty on the modified product.

In no case will NHRC LLC be liable for any direct, consequential, or incidental loss or damage resulting from the use or inability to use any of it's products.

Some states or countries do not allow the limitation of incidental or consequential damages, so the paragraph above may not apply to you.

This warranty applies only to the original purchaser of the product; proof of purchase must be presented to receive warranty service.

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