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Niles Radio Communications
PRG Programming Software for G.E. Radios

Phoenix, Delta, Rangr, MLS I, and 950/990 control heads

09.05.2000

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Software Users Guide Revision 5.10 - March 1997
PLEASE READ BEFORE USING

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INTRODUCTION

Thank you for your purchase of Niles Radio Communications PRG Programming system. Please take a few moments to familiarize yourself with our programming system. As most shops utilize computers in everyday service activities, the intent of this manual is to facilitate the ease and use of this system and not to teach DOS or any other operating system. Please read through this manual BEFORE installing and using this software. If you have not used DOS and your computer before please have a DOS manual available to review PATHS and DOS COMMANDS. Failure to be familiar with your operating system will inevitably lead to problems that could be easily avoided.

Though the program is operated through on-screen prompts and simple commands, operation of the R.I.B. requires steps that do not specifically appear on the screen. Certain extended functions of the software are also controlled from unseen commands.

IBM G.E. RADIOS PROGRAMMER REQUIREMENTS

The PRG Programming software requires specific hardware and software without which the software or certain features of the software cannot be used. Please make sure that you have the following:

1. IBM PC AT or 100% compatible machine, XT (8088) machines are not recommended.
2. A hard disk with 2 Megabytes free space. Floppy only machines not recommended.
3. 512K Free RAM
4. An available serial port, 1-4 supported.
5. A Printer and Port (optional).
6. Niles Radio R.I.B. Interface (supplied).
7. Niles Radio's or G.E.'s Programming cables (Phoenix and MLS supplied)
8. RS-232 Cable (not supplied)
9. DOS 3.2 or greater, release 6.2 or greater is recommended. Do not use with DOS 4.x.

INSTALLATION

Installation of this software product varies with the type of disks you have been provided.

Software is provided either compressed and requiring installation or ready to run directly from the disks. The software package you have received is described on the diskette envelope. If the software you have been shipped requires installation, follow these steps. Depending on the media size, you may have one or more disks. There may be no difference in the labeling of the diskettes, but all of the diskettes supplied will require installation.

Place the Diskette(s) into an available floppy drive and close the drive door.
Select the appropriate drive.

Type INSTALL <ENTER>   follow all questions and prompts.

The software will now be installed to a newly created or existing directory named PRG on the destination drive. If the software is an updated version, you will be prompted that certain files exist, select yes when prompted to overwrite.

Repeat this procedure with the other diskette(s) if supplied.

Installation of the PRG Programming Software is now complete.

To run the software select the PRG directory on the drive in which the software is placed and type PRG. If this is the first time that the software has been run you will be directed to a short setup routine.

If you have downloaded the software, it is ZIPPED, you will need to un-zip the software prior to use.

Type PKUNZIP PRG.ZIP to unzip. If the software is in the desired directory when it is unzipped, it will then be ready for use. If not, follow the INSTALL procedure as above. INSTALLing from C to C will work correctly.

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VERSION NUMBERS

Throughout the PRG Programming Software you will encounter various version numbers. These numbers will not likely be the same on all of the programs provided. They are there for our purposes only and do not reflect the overall version of the software package provided.

The version number of your PRG Programming Software package is that given in the 'about PRG' menu selection under HELP in the PRG program.

Please ignore all other version and revision numbers unless asked otherwise.

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DISK CONTENTS

After installation of your PRG Programming Software you may want to verify that these various files are in place.

```
PRG.EXE              Master Control Program
PHX_S.EXE           Phoenix S Program Code Editor
PHX_SX.EXE          Phoenix SX, SE Program Code Editor
SCAN.EXE            Phoenix SX SCAN Program Code Editor
DELTA_S.EXE         Delta S Program Code Editor
DELTA _SX.EXE       Delta SX Program Code Editor
DELTA_FS.EXE        Delta S Wideband Program Code Editor
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MLS.EXE	MLS Program Code Editor
RANGR.EXE	Rangr Series Program Code Editor
990_S.EXE	Delta S 950 Program Code Editor
990_SX.EXE	Delta SX 950 Program Code Editor
990_FS.EXE	Delta S Wide 950 Program Code Editor
990_RG.EXE	Rangr Series 950 Program Code Editor
SX128.EXE	Phoenix 128 Program Code Editor.
RANGR800.EXE	800 Mhz Rangr Program Code Editor
990_RG8.EXE	800 Mhz Rang 950 Program Code Editor

The .EXE programs are all driven by the program PRG.EXE and cannot be used alone.

The radio Program Code Editors create, edit, encode, and decode the code only. All other tasks, such as reading to and from the radio and saving files is handled by the program PRG.EXE. The PRG.EXE file must be present for all operations, the program code editors are only needed to create or edit files. Reading and writing is performed by PRG.EXE. This program may be run alone.

If you are upgrading from version 3 of PRG, the files READXXXX.EXE and WRITEXXX.EXE have been eliminated. Be sure to run OPTIONS - DEFAULTS after upgrading your software.

This release of PRG is a direct replacement for ALL previous software versions released by Niles Radio. This software DOES NOT UPGRADE THE R.I.B., the programs for the 950 control and 128 channel Phoenix may require a new or upgraded R.I.B. firmware. Call Niles Radio Communications for information on upgrading your old programmer at a nominal charge.

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COMMAND LINE OPTIONS

When starting the PRG program there are several options that may be selected to determine the display attributes. While the program will auto detect the type of monitor that you have, this may not be the optimum mode for use. These commands will allow you to override the program defaults.

- /? command line option can be used to bring up a list of these options.
- /B forces the Black and White display for four color monitors in a CGA or laptop display that may be hard to see in color mode.

  /M forces the monochrome two color display for monochrome monitors.

  /C forces the 16 color display mode to be selected for CGA, EGA, and VGA monitors.

All of these modes are available for VGA monitors.

If you are operating the PRG Programming Software under DOS 5.0 or later and are using DOSSHELL to run your programs then you must add the following line to your autoexec.bat file:

- PRINT /D:/PRN:

this will load the DOS PRINT driver into memory before DOSSHELL. Failure to do so may cause your computer to lock up upon exiting from the PRG Software. PRINT is a memory resident driver that is called by PRG as is DOSSHELL, which expects to be the last driver loaded.

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PRG DEFAULTS SETUP

When running the program for the first time, or when selected from the options - defaults selection on the PRG menu, the PRG defaults setup window must be completed. The options that can be changed from this window are the path name and serial port selection. For each selection you will be asked to specify new Y/N?. To change a selection type Y. You will then be prompted for a new selection.

When changing the path name, the path will be checked to see if it is valid. If the path is valid but does not exist you will be asked to create directory Y/N?. The path will allow you to save programs in a directory other than the PRG directory. When changing the serial port the port selected must exist, this will not be tested at this time. Valid selections are 1 through 4.

After all changes have been made you will be prompted exit and save all changes. Answering yes will exit the default setup window, answering no will return you to the path selection.

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MAIN MENU BAR

The main menu bar has five selections, four of which are active. File, Program, Options, Help, and one which is inactive until another action calls it, Type. The menu tree is as follows:

File

New Create a New Personality
Open Open an existing Personality
Save Saves the current Personality
Save As Saves the current Personality with a new name
Delete Deletes a Personality
Close Closes the current Personality
Print Prints a Personality
Dos Shell Opens a Dos Shell
Exit Exits the Program

Program

Read Reads a Radio, EEPROM, or R.I.B.
Write Writes a Radio, EEPROM, or R.I.B.

Options

Defaults Changes the Program Defaults
Help Help With Help for Keys
About PRG Current Version and Revision Number

Type

None Select the Radio Personality Type

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MENU ACTIONS

File - New
Creates a New Personality file.
This selection will first direct you to the Radio Type Selection menu. Select the appropriate radio type to be created. The Program Code Editor will then be loaded.

File - Open

Opens an existing Personality file.
This selection will first direct you to the Radio Type Selection menu. Select the appropriate radio type to be opened. The Personality Files of the selected type will then be displayed. Select using the cursor control keys the desired personality then press enter. The Program Code Editor will be loaded and the selected personality will be opened.

File - Save

Saves a Personality that has been newly created, read or edited.
The file will be saved to the selected personality name without prompting overwriting the existing personality of the same name. If a new personality has been created then the personality will be saved with the name NEW.

File - Save As...

Saves a Personality that has been newly created, read, or edited.
Selecting will open the Save As dialog box. Enter the desired personality name, do not use an extension, limit the file name to eight characters or less. If a personality exists with this name and type then the file Exists dialog box appears. Select overwrite yes or no.

File - Delete

Deletes an existing Personality.
This selection will first direct you to the Radio Type Selection menu. Select the appropriate radio type to be deleted. The Personality Files of the selected type will then be displayed. Select using the cursor control keys the desired personality then press enter. The Delete Yes/No dialog box appears, select yes to delete the personality.

File - Close

Closes an open personality without saving any changes.
There is no warning given and the changes that have been made to the open personality cannot be recalled after closing.

File - Print

Prints a personality to the default printer.
This selection will first direct you to the Radio Type Selection menu. Select the appropriate radio type to be printed. The Personality Files of the selected type will then be displayed. Select using the cursor control keys the desired personality then press enter. The selected personality will then be printed.

File - Dos Shell

Opens a Dos Shell allowing other programs to be accessed from PRG without closing the program.
Type EXIT to return to PRG.

File - Exit

Exits the PRG Program.
This selection is valid only after all editing, programming and printing actions have been completed.

Program - Read

Reads a Radio, EEPROM or R.I.B..
This selection will first direct you to the Radio Type Selection menu. Select the appropriate radio type to be read. The Personality Files of the selected type will then be displayed. Select using the cursor control keys the desired personality then press enter. If you will be renaming the personality after reading, it does not matter what personality name is selected.

After selecting the type and personality name to be read, the select operation dialog will be displayed. Select **Read Direct** to read a Radio or EEPROM that is connected to the R.I.B..

Select **Read R.I.B.** to read a personality that has been read in the field or has been stored in one of the memory banks of the R.I.B.. Select Cancel Operation to return to the main menu. Prepare the R.I.B. for operation and press any key to continue.

After the personality has been read successfully, the File menu will be opened with the Save, Save As..., and Close selections being active. Finish the operation by selecting one of the active selections.

Program -Write
Writes to a Radio EEPROM or R.I.B..
This selection will first direct you to the Radio Type Selection menu. Select the appropriate radio type to be written to the Radio, EEPROM, or R.I.B.. The Personality Files of the selected type will then be displayed. Select using the cursor control keys the desired personality then press enter.

After selecting the type and personality name to be written, the select operation dialog will be displayed. Select **Program Direct** to write to a Radio or EEPROM that is connected to the R.I.B.. Select **Program R.I.B.** to write a personality that will be stored into the R.I.B. for programming in the field. If programming the R.I.B. you will be prompted for one of the three banks to store the program into, select one of the banks and then proceed. Select Cancel Operation to return to the main menu. Prepare the R.I.B. for operation and press any key to continue. After the personality has been written successfully, the Main Menu will again be active.

Remaining Menu Functions
All other menu functions are self explanatory and will not be discussed. The **Type Menu** can only be accessed when the PRG program requires you to select a radio type.

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CREATING RADIO PERSONALITIES

When you have selected a personality for editing, a few rules will be common to all Personality Code Editors.

To enter the Frequency Field from the main edit menu, press **RETURN** or **E**. This will place the cursor on channel 1 of the first mode.

To Exit the Frequency Field press the **ESCAPE** key. The code will then be checked for errors.

Channel 1 must ALWAYS have a Transmit AND a Receive Frequency. This is what determines the frequency split to be programmed. Some Personality code editors will require you to specify the intended split.

Do Not skip any channels, if you need a blank channel then you must at least have a receive frequency programmed into that slot. Failure to do so will result in the channels after a blank channel to remain unprogrammed.

Pressing F2 will copy the data in the column above into all remaining columns, use this as a quick auto fill for repetitive data.

If a personality that has been created with a G.E. Suitcase or HEX programmer is read and edited by the PRG software, there may be invalid data in the place of the blank channels. Delete this data with the spacebar, it should not occur again and is of no consequence.

Carrier Control Time can be entered Yes or No where a yes results in a 3 minute time, or a single digit time from 1 to 7 minutes may be entered.

Squelch Tail Eliminator is entered Yes, No, Transmit, or Receive, where yes enables both

transmit and receive.

All radios except the MLS, Rangr, and Delta SX will accept only **EIA standard CTCSS tones**. The Delta SX and RANGR radios will decode any tone for CTCSS from 67 to 255 hz. If the EIA tone is not displayed the tone displayed on the screen is the tone that the radio will produce and may vary from an EIA or intended custom tone by as much as 1.2 hz. although this will not cause any problems, this is simply a limitation of the encoding algorithm.

To enter a DCG code, type the 3 digit octal DCG code into the left 3 character places in the tone column, then place a **D** for digital into the tenths place. Valid DCG are shown in the **appendix A**. If a DCG code fails to work on your repeater system you may need to use the inverted version of the code. To invert a code use the equivalent code shown in the **appendix A**.

Any programmable options will be shown as menu items on the main menu bar while the code editor is runnning. To select the options programming press the first letter of the menu item. Options programming cannot be accessed from the Frequency Field. Options are selected and changed with the **Tab key** and **PageUp** and **PageDown** keys.

Changing modes in multiple mode personality code editors is accomplished with the PageUp and PageDown keys when **out of the EDIT mode and only when all errors within the current mode have been corrected.**

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THE R.I.B. Interface

The R.I.B., or Radio Interface Box is the computers interface with the radio or EEPROM. A simple RS232 cable is all that is required to connect the RIB to your computer. This cable may not be supplied with your programmer.

The ZIF socket is used to program the Phoenix, Delta, and Rangr radios.

The 9 pin socket is used with the appropriate cable for programming Phoenix, MLS, and 950/990 control heads. The 950/990 cable may not be supplied with your programming package unless it was requested.

The 25 pin socket is used to program G.E. radios when using G.E. TQ3310 and TQ3370 series software. This port is compatible with all G.E. IBM compatible software and cables **except when FLASH programming is required**.

The keypad is used to command the RIB when being used in the field. Instructions for field use are printed on the label of the RIB.

The RIB has three programmable memories. The loading and reading of these memories was discussed previously in this manual. When reading a personality in the field using the keypad to initiate the read, the personality is read into bank 3. This is the bank that must be read if the RIB is to be read later or if the RIB is being used for cloning.

When cloning with the RIB always be sure that the radio to be cloned is exactly the same as the radio from which it is being cloned, although some exceptions may be made, such as a 16 channel Phoenix SX may be programmed into a 2 channel Phoenix SX, but not into a 16 channel SCAN Phoenix.

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Niles Radio Communications is a busy Radio Communications Shop in Flagstaff, Arizona. While

we are extremely busy we always have time to assist those with problems with our programming products. Please review this manual and check all that is possible before calling for assistance and have a clear description of the problem and the programmer fired up and ready to go when calling.

Thank You for your purchase.

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APPENDIX A

DCG Codes - Entered with a 'D' in the tenths column

To invert any DCG code, first find the code in the Standard Code column, then enter the code from the Alternate code column to the right.

Standard Code	Alternate Code	Standard Code	Alternate Code	Standard Code	Alternate Code
023	047	251	165	631	606
025	244	261	732	632	624
026	464	263	205	654	743
031	627	265	156	662	466
032	051	271	065	664	311
043	445	306	071	703	565
047	023	311	664	712	114
051	032	315	423	723	431
054	413	331	465	731	155
065	371	343	532	732	261
071	306	346	612	734	371
072	245	351	243	743	654
073	506	364	131	754	116
074	174	365	125	036	172
114	712	371	734	053	452
115	152	411	226	122	225
116	754	412	143	145	274
125	365	413	054	212	356
131	364	423	315	225	122
132	546	431	723	246	523
134	223	432	516	252	462
143	412	445	043	255	446
152	115	464	026	266	454
155	731	465	331	274	145
156	265	466	662	325	526
162	503	503	162	332	455
165	251	506	073	356	212
172	036	516	432	446	255

174	074	532	343	452	053
205	263	546	132	454	266
223	134	565	703	455	332
226	411	606	631	462	452
243	351	612	346	523	246
244	025	624	632	526	325
245	072	627	031		

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APPENDIX B

EIA STANDARD TONES

67.0	71.9	74.4	77.0	79.7	82.5
85.4	88.5	91.5	94.8	97.4	100.0
103.5	107.2	110.9	114.8	118.8	123.0
127.3	131.8	136.5	141.3	146.2	151.4
156.7	162.2	167.9	173.8	179.9	186.2
192.8	203.5	210.7			

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