Programming Guide

KPC-300/400
Portable Radio

ERICSSON

PERSONAL COMPUTER PROGRAMMING

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INTRODUCTION

Ericsson Inc. welcomes you to the world of mobile communications. We believe there is no equal to our products and have made a commitment to our customers to ensure that product satisfaction and reliable service is our number one priority.

Built in the USA, the KPC-300/400 Radio is a lightweight hand held unit designed to give quality performance. An unparalleled level of flexibility and user friendliness is present.

Whether you are a technician experienced in programming other Ericsson units or a first time user, this manual has been written to give you a clear and concise understanding of the KPC-300/400 Radio.

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CHAPTER 1
BEFORE YOU BEGIN

ABOUT THIS MANUAL

This manual is designed to present you with all the necessary information required to connect a KPC-300/400 radio to the computer and program the radio with a unique personality.

It is organized to support you in programming any KPC-300/400 radio and will cover:

- the steps necessary to install the program,
- the procedures to actually program the radio, and,
- offer explanations to error messages.

Each chapter covers specific subject matter:

Chapter 1 - provides information you will need to know prior to running the software. It describes keyboard layout, commonly used terms, and screen/window functionality.

Chapter 2 - contains a list of the contents of this package and instructions for installing the software.

Chapter 3 - is a tutorial that will lead you through the basic operation of the KPC-300/400 PC Programmer. If you are not familiar with programming procedures it is recommended that you take the time to complete the tutorial.

Chapter 4 - will instruct you in the creation of a KPC-300/400 radio personality. The purpose of each screen/window is discussed in detail and, operational functions keys are defined.

Chapter 5 - provides you with instructions on file management options such as changing directories, changing a file extension, and deleting files.

Chapter 6 - is devoted to problem solving. It identifies some of the error messages that you might encounter and provides solutions and alternatives for them.

The Appendices follow Chapter 6 and contain the following reference materials:

A. Glossary - Definitions of frequently used words.

B. Function Keys - A listing of what function keys you will run across and a definition of what function the key will perform.

C. Acceptable Values - The range of values the PC Programmer will accept for a specific field.

D. Primary & Inverted Digital Codes - A table indicating usable Digital Channel Guard codes.

E. Channel Guard Tone Frequencies - A table indicating standard EIA Channel Guard tone frequencies.

F. Work Sheets - Prepared forms to assist you in organizing data prior to entering it in the program.

Screen diagrams are used throughout this manual to help clarify section discussions. Each item being discussed is denoted by a number for easy identification.

Please pay particular attention to NOTES as they contain pertinent information that you should be aware of.

IMPORTANT TERMS

Default Value - The KPC-300/400 radio programming software provides predetermined (default) values in a majority of the data entry fields within the program. Exceptions to this rule are fields requiring variable names, dates, and serial numbers. The default values assume that the radio will be used without optional features. Before changing these default values, we recommend that you be familiar with the operational implications of adding a particular feature or option to the radio being programmed.

Error Messages - Each time data is entered in the program a validity check is made to ensure that reasonable values were entered. In the event that the data does not fall within the acceptable range of values, an error message will be displayed in the center of the screen indicating such.

Field - Refers to the area of the screen/window which allows data entry. When moving the cursor across the screen, this area is readily identifiable by a reverse video bar.

Help - Throughout the KPC-300/400 radio programming software, "Help" denotes or refers to on-line assistance. This can be accessed by pressing the **F9 Help** key from any field or the **Shift F9 Help** key from any window.

Personality - Used generically to refer to information that is stored in the radio that makes one radio perform differently from all other radios. That information can be created, deleted, or modified and stored on a disk for later use or reference.

Prompt Line - A line of text located in the bottom of the window. As the cursor is moved from field to field, this text will change providing instructions for entering data in the field.

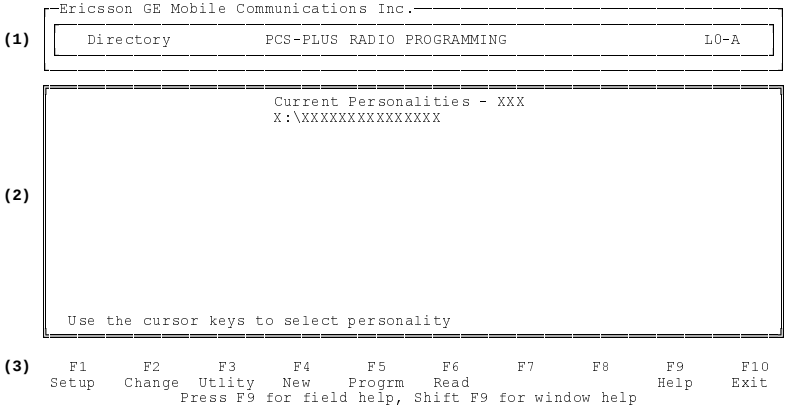
HOW TO USE WORK SHEETS

Work sheets can be found in Appendix F. They are pre-printed forms to assist you in organizing personality information prior to the actual programming of the radio. You are encouraged to make copies of these work sheets and fill them in before beginning programming. Doing so can prevent costly and time consuming mistakes. The work sheets can then be used for future reference.

Empty blocks in the work sheets are provided for you to fill in the desired values. Blocks with information already typed in represent toggle fields in the program where the appropriate response should be circled.

HOW SCREENS WORK

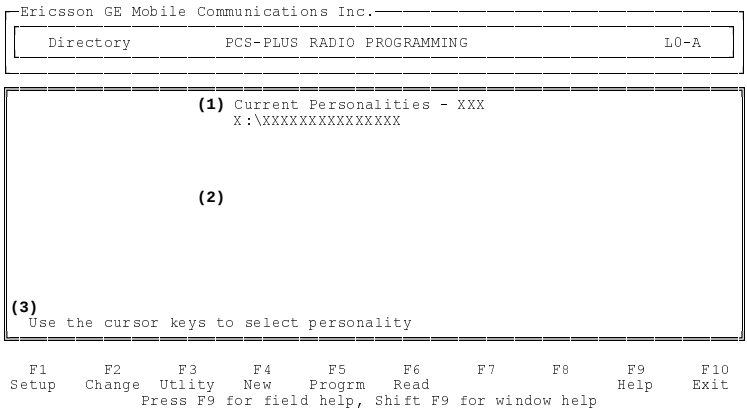
Each screen is divided into three areas: (1) screen title, (2) screen windows, and (3) active function keys. The title tells you where you are in the program hierarchy. Windows provide for input of data to the screen. Active function keys provide access to commands (or actions) available for a particular screen. The function key commands are labeled along the bottom of the screen. Only the function keys with labels are enabled.



A window is a section of a screen that displays previously stored information, enables programming alternatives, or accepts data currently being entered. There may be more than one window within a particular screen. Each window is outlined within the screen presentation.

There are two types of windows: active and passive. The active window is available for data entry or revision and can be identified by its highlighted borders. The passive window is displayed but is unavailable for program execution. If windows have overlapping borders, the active window is presented in the foreground.

Like the screen, windows are divided into three distinct sections. They are: (1) window title, (2) work area, and (3) prompt line. The window title describes the function currently being performed. The work area is the space provided for your input to the window. The prompt line is printed information in the lower portion of the window defining in further detail the action to be taken in the work area.



This program uses a series of presentation screens to guide you easily through the programming of a unit. There are two major categories of data entry screens:

- Current Personalities Screen
- Channel Data Screen

Current Personalities Screen - The Current Personalities Screen lists the file names of all stored radio personalities presently maintained in this directory. From this screen you can create a new personality (file) or make changes to existing personalities. You then have the option of initiating one of the actions indicated by the function keys at the bottom of the screen.

Channel Data Screen - Data defining the radio personality is entered into the Channel Data Screen which can be accessed from the Current Personalities Screen by pressing function keys **F2 Change** or **F4 New**. Within this screen you can define the operational characteristics of the radio.

SCREEN/WINDOW LAYOUT

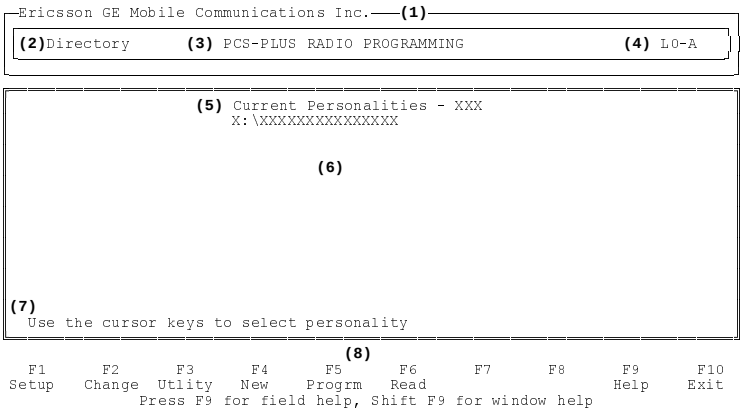


Figure 1-1: Screen/Window Layout

(1)	Division	- indicates Ericsson GE division
(2)	Function	- indicates the current function
(3)	Product Title	- identifies product
(4)	Level Indicator	- window location in software
(5)	Title	- screen title
(6)	Work Area	- area for specific fields
(7)	Prompt Line	- current field instruction line
(8)	Function Keys	- supplies programming options

All screens and windows will have some basic fields that are consistent throughout this document. The overall layout will be the same as shown in Figure 1-1: Screen/Window Layout.

Division (1) The **Ericsson GE Mobile Communications Inc. Division** field indicates the KPC-300/400 radio manufacturer.

This is a "Display Only" field which is always displayed at the top of the screen.

Function (2) The **Function** field is used to indicate which programming function is currently active.

This is a "Display Only" field which indicates the particular programming function of the window.

Product Title (3) The **Product Title** field is used to specify the product name and will identify which radio the programmer is intended to be used with.

This is a "Display Only" field which is always displayed at the top of the screen.

Level Indicator (4) The **Level Indicator** field is used to indicate the window location in the program.

This is a "Display Only" field which indicates the current hierarchy level within the program.

Window Title (5) The **Window Title** field is used to indicate the title of a particular screen/window.

This is a "Display Only" field consistently displayed at the top of each screen/window. This field varies to indicate which window is being displayed.

Work Area (6) The **Work Area** is the area of a screen or window where input fields are defined. Each window is unique in its available fields and each of these fields are identified in the window descriptions.

Entry to these fields will be determined by the purpose and content of each window. In most windows, you can move between fields by using the arrow keys, **Home** and **End** keys, **TAB** and **<enter>** keys. Within a field you can use the arrow keys, space bar, **Delete-Backspace**, **Ctrl-Backspace**, and alphanumeric keys. Sometimes, the field will be "Toggle Only" where the **TAB** key is the only active key in the field and the **<enter>** key will move you between fields. Usually, normal cursor progression is left to right, top to bottom.

NOTES

Throughout this document, the terms screen and window are used interchangeably.

Prompt Line (7) The **Prompt Line** field is used to guide you in the proper course of action for a particular window.

This is a "Display Only" field, displayed at the bottom of a window. As you move from field to field, the prompt line will direct you for input in the particular field.

Function Keys (8) The **Function Keys** are used to provide access to other options pertaining to the window currently being displayed.

Pressing the desired function key will cause the program to perform the indicated function for that particular key. A brief description of the operational function keys follow each window definition.

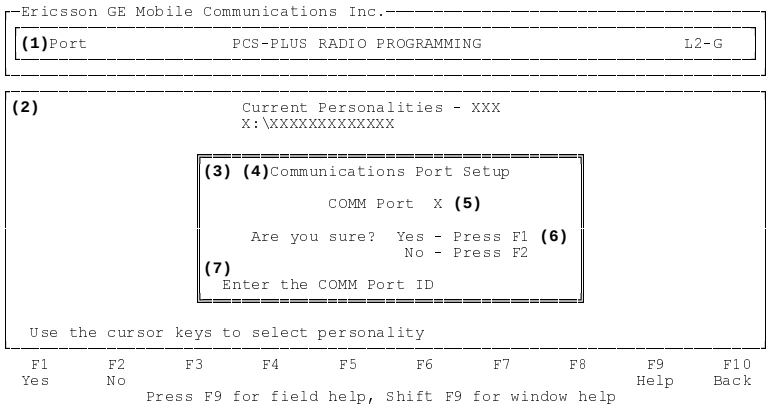


Figure 1-2: "Pop-Up" Window

(1)	Function	- indicates current function
(2)	Main Screen	- indicates the main screen
(3)	"Pop-up" Window	- indicates pop-up window
(4)	Title	- window title
(5)	Work Area	- area for specific field(s)
(6)	Continue Prompt	- continue or abort option
(7)	Prompt Line	- current field instruction line
(8)	Function Keys	- supplies programming options

Occasionally, a window will have a subordinate window that performs related functions. This windows will be smaller in size and is referred to as a "pop-up" window. Figure 1-2: "Pop-Up" Window illustrates a "pop-up" window overlaying a main screen. The highlighted, double border identifies the "pop-up" window as being active and all data entry occurs within this window. Pressing **F10 Back** will always return you to the original window.

Main Screen	(2)	The **Main Screen** is shown as a backdrop to the preceding "pop-up" window. To return to this screen, you must press the **F10 Back** function key.
"Pop-up" Window	(3)	The "**Pop-Up**" **Window** is shown as the front window. This window is laid out in the same manner as the main window.

The title is displayed at the top, fields are in the center and where appropriate, the prompt line is displayed in the lower left corner.

Access is granted in this window as it is active.

Continue Prompt (6) The **Continue Prompt** field allows you to continue with a selection or exit.

By pressing **F1 Yes**, the field selection will be confirmed and the programmer will continue with the operation selected. Selecting **F2 No** indicates that the operation should not be performed and will return you to the previous window.

USING THE KEYBOARD

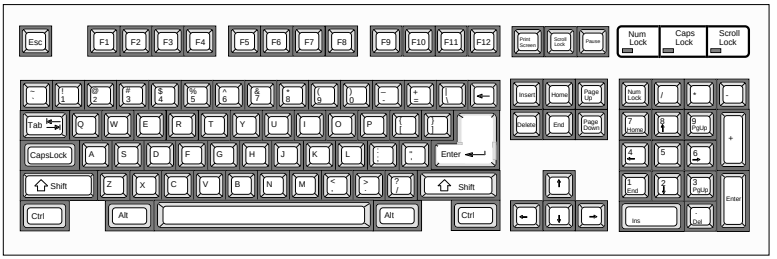


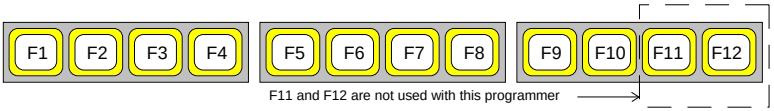
Figure 1-3: Keyboard

It is important that you be familiar with the keyboard of your computer system. Each keyboard is different in relation to the placement of some of the keys. In the PC programming software package, there are categories of operational keys:

- Function
- Character
- Editing
- Movement
- Special Usage

The following sections give an overview of which keys are included in these categories and what their uses are. However, in some screens, such as the Current Personalities Screen, only the use of cursor keys is allowed because selection operation is all that is needed.

Function Keys



The purpose of a particular function key is dependent upon the window that is currently highlighted at any given point in the program. In other words, a function key may be labeled differently from one window to the next. Be sure that you fully understand the purpose for any function key prior to pressing it.

The command, or action, associated with a particular function key is labeled in the lower portion of the window. There are two types of function keys: active and in-active.

Active function keys are labeled. By pressing a particular function, the software executes the action delegated to that particular key.

Inactive function keys are not labeled and do not have operational capabilities during the execution of a given window.

The function keys are alphanumerically labeled F1 - F10. These keys perform specific functions, depending upon which window they appear in. The following Function Key Table represents their functionality in the KPC-300/400 Programming Software.

FUNCTION KEY TABLE

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
A.	Setup	Change	Utilty	New	Progrm	Read			Help	Exit
B.									Help	Exit
C.	Port		Dir		Delete	Print	Ext		Help	Exit
D.	Swap			Text	Progrm	Tone	Option		Help	Exit
E.						SCAN	ANI	DTMF	Help	Exit
F.	Yes	No							Help	Exit
G.									Help	Back

A Current Personalities Screen

B Frequency Range Window

C Utility Window

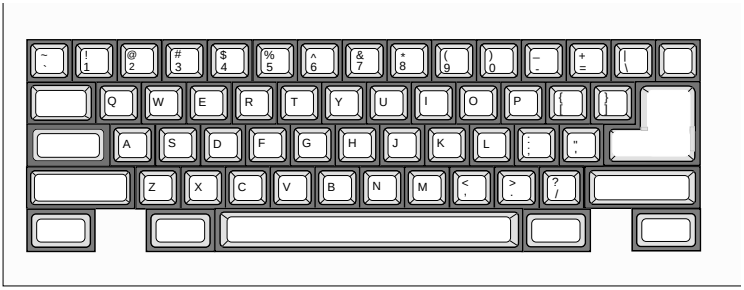
D Channel Data Screen

E Radio Options Window

F Change/edit a File Window, Save Personality Window, Program Radio Window, Read Radio into File Window, Communications Port Setup Window, Change Directory Window, Delete File Window, Print Personality Windows, Change Extension Window

G Text Window, Tone Window, Scan Options Window, A.N.I. Options Programming Window, Automatic Dialing Table Window

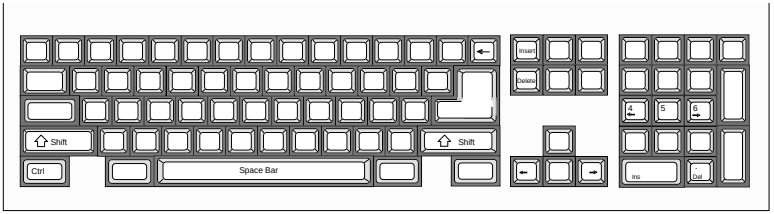
Character Keys



Character keys are used to enter data into a field. When pressed, the software inserts that character in the field position designated by the cursor and then advances to the next available character position. Character keys for the purposes of this PC programming software package are:

- Alphabetic: (a - z) and (A - Z)
- Numeric: (0 - 9)
- Special Characters ~ ‘ ’ " , . ? ! ; : @ # $ % ^ & * | - + = < >
  { } [ ] ( ) \ /
- Space Bar

Editing Keys



Editing keys manipulate the data within a field. These keys are:

Left and Right Arrows: Each time one of these arrows is pressed, the cursor moves one character to the left or right until the left or right most position is reached.

Backspace: As the cursor moves to the left, the character immediately to the left of the cursor is deleted.

Insert: This key toggles the insert operation on and off. The insert operation enables you to insert a character or a string of characters without overwriting any previously typed information.

Delete: This key enables you to delete a character or a string of characters.

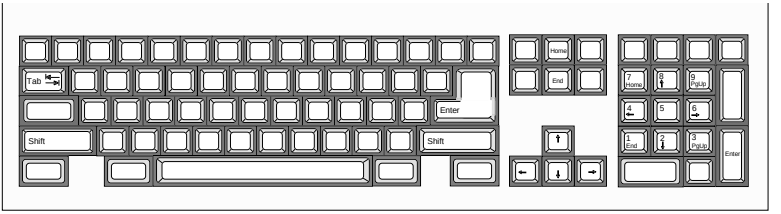
Shift/Caps Lock: Enabled, the Shift and Caps Lock key writes all alphabetic characters in capitalized letters.

Ctrl/Left Arrow: When both keys are simultaneously pressed, the cursor is moved to the left most character in the field.

Ctrl/Right Arrow: When both keys are simultaneously pressed, the cursor is moved to the right most character in the field.

Ctrl/Backspace: By simultaneously pressing both keys, all characters to the left of the cursor are deleted.

Movement Keys



These keys enable cursor positioning on the screen. They are also used to indicate an end of input in the current field.

Enter: The data entered into the present field is accepted and the cursor is advanced to the next field.

Up Arrow: The data entered in the present field is accepted and the cursor is returned to the previous field.

Down Arrow: The data entered in the present field is accepted and the cursor is advanced to the next field.

Home: Moves the cursor to the first field in the window.

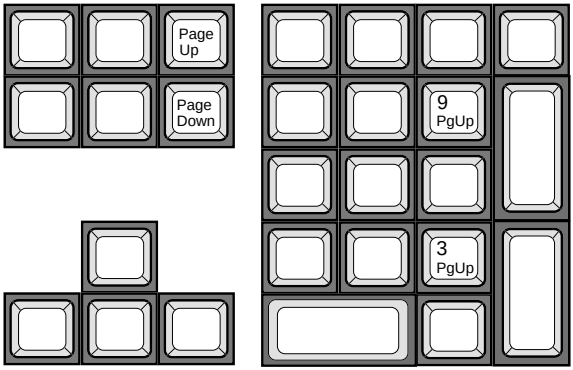
End: Moves the cursor to the final field in the window.

Tab: Toggles to a predetermined field between selections such as "Yes" and "No" responses. May also move the cursor into the next field.

Shift/Tab: Like the Tab key, pressing the Shift and Tab keys simultaneously toggles to a predetermined field between selections, but in this case it toggles in the opposite direction.

Delete: Erases or deletes the character the cursor is presently on.

Special Usage Keys



Two keys are represented in this category:

Page Up (Pg Up): Is used to return you to a previous page in some of the windows. The screen will advance one page at a time until the starting page is presented. **Page Down (Pg Dn)**: Is used to take you to the following page in some of the windows. The screen will retreat one page at a time until the last page is reached.

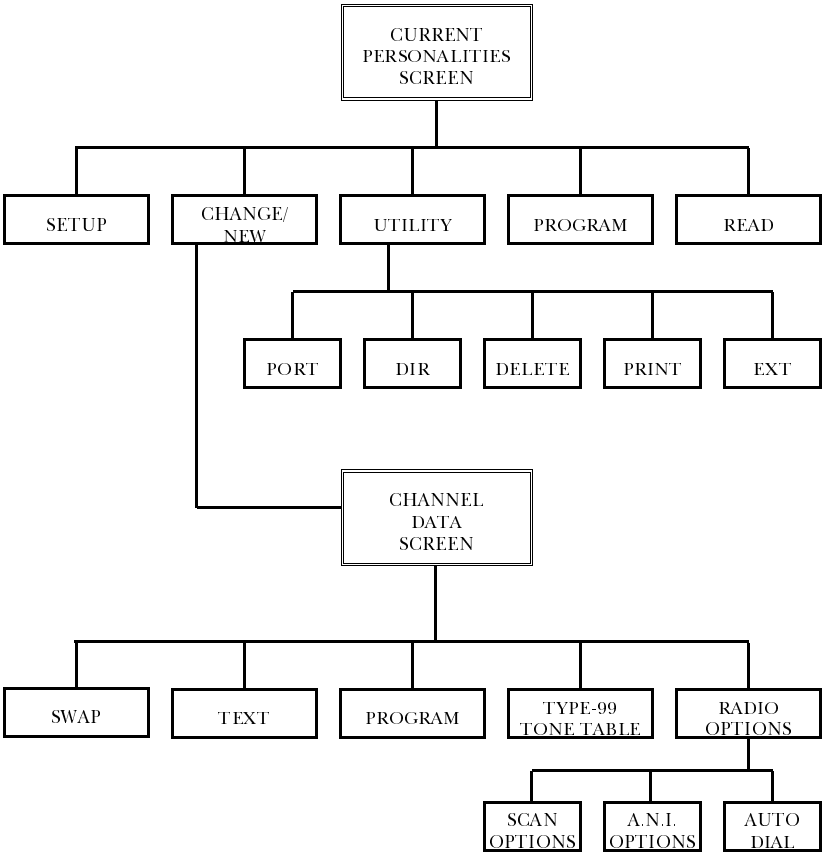


Figure 4 - KPC-300/400 Radio PC Programming Flow Chart

CHAPTER 2
INSTALLATION

UNPACKING

Upon unpacking this package you should be sure you have received the following:

- KPC-300/400 Radio PC Programming Software (AE/LZT 123 1895 R1A), to include:
  One 3-1/2 inch diskette (labeled "Program Disk").

PC PROGRAMMING SOFTWARE REQUIREMENTS

The following hardware and software is required to program a KPC-300/400 Radio:

A. IBM PC XT, AT, or any true compatible with MS-DOS version 3.0 or later, and having the following minimum configuration:

   1. Two Disk Drives; a single 3 1/2" floppy with a fixed (hard) disk drive system.
   2. 640K Internal RAM.
   3. Serial Port.
   4. Parallel Port (recommended) for connection to a printer.

B. Serial Programming Interface Module (TQ-3370) and RS-232 Cable (part #19B235027P1).

C. Radio Programming Cable (TQ-3336).

D. KPC-300/400 Radio Programming Software (CXC 112 1286 R1A).

E. Printer (optional, but recommended).

DISKETTE HANDLING

While working with your diskettes, consider the following handling procedures:

- Always store your diskettes in their envelope.
- Insert diskettes into the drive carefully.
- Use only felt tipped pens to write on diskette labels.
- Store your diskettes at a comfortable room temperature.
- Do not touch the recording surface of the diskette.
- Do not bend the diskettes.
- Do not allow any form of liquid to come in contact with the diskette surface.
- Keep diskettes away from magnetic force fields as found in magnets and electronic equipment.

If you follow these simple guidelines you will receive long service from your diskettes.

MAKING BACKUPS

The KPC-300/400 radio programming software is provided to you on a 3-1/2 inch diskette. This diskette is sensitive and fragile and should be handled with care and stored in a secure area.

Upon receipt of your diskette, copy the original PC Programming Software diskette to another diskette or a fixed disk and store the original in a safe place. This ensures the availability of an accurate program should a copy fail during program application.

NOTE

It is important to use the "DISKCOPY" command when making a backup and not the "COPY" or "XCOPY" commands. Each diskette contains a volume label that is required for the installation process. "COPY" and "XCOPY" do not copy volume labels, so please refrain from using these commands.

SYSTEM HOOK-UP

Connect all peripheral equipment to your computer prior to configuring the PC Programming Software items. Remember to refer to the operating manuals of each device for correct installation procedures.

If your system is already established, check to see that you have all the equipment necessary to execute the program. Isolate all cables connecting computer to devices to prevent tangling, interference, and damage.

Step One:

Refer to Figure 2-1, Programming System Hook-up, and then look at your computer to locate a serial port. This port will usually be located at the rear of the computer. However, since this is dependent upon the design of your computer refer to the computer operator's manual for directions.

The IBM PC XT/AT systems support up to two serial ports. There are two physical standards for the serial port configurations of personal computers. The first standard is a 25 pin RS-232 output that has a DB-25 male connector at the computer. The other standard is a DB-9 male connector at the computer (used on the IBM-AT and many portable lap-top computers). The PC Interface Module, like most data communications equipment, uses a standard RS-232, DB-25, female connector. If your computer uses a DB-9 connector, you will need to purchase a DB-9/DB-25 adapter cable from your local computer dealer.

Please note at this point that the KPC-300/400 radio PC programming software only communicates with the radio through the cable connected to the serial port designated as COM1 or COM2. Your computer references will assist you in determining which serial port is which. Once located, examine the keyed plug on the RS-232 cable for the correct keyed end and insert it carefully into the appropriate serial port on the computer.

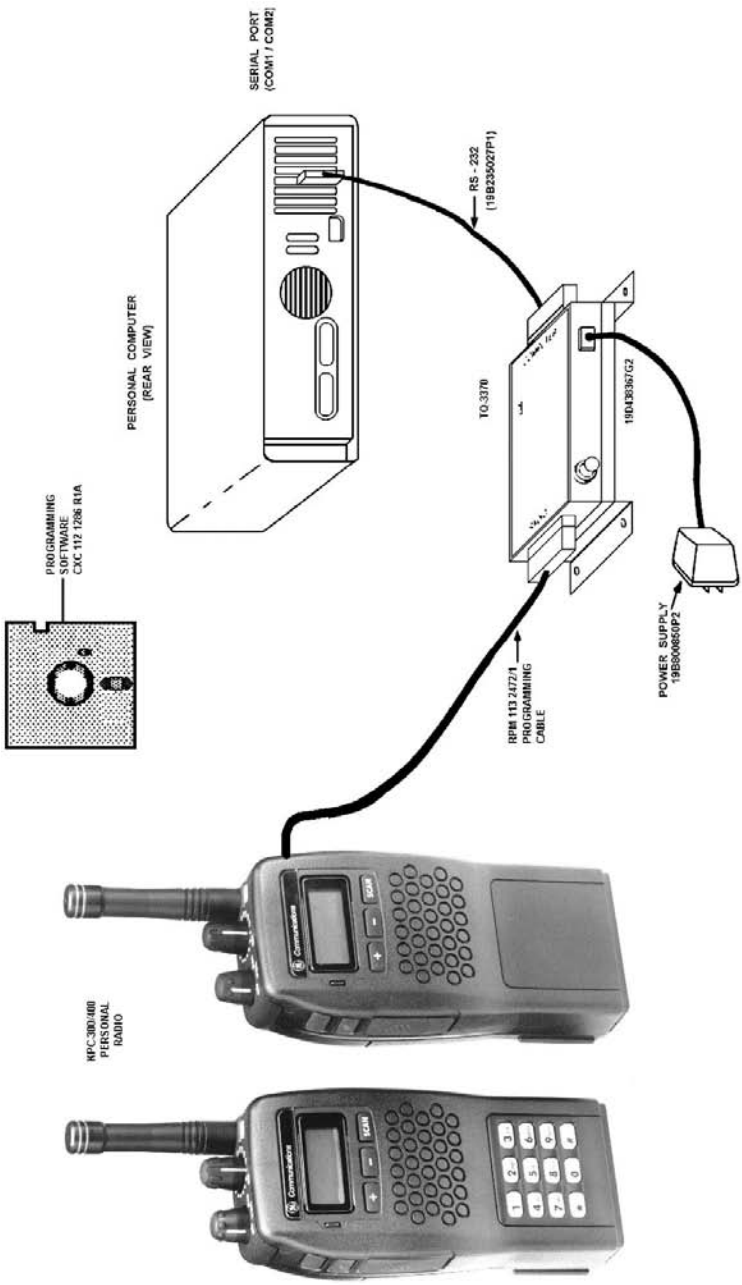


Figure 2-1: KPC-300/400 Programming System Hook-up

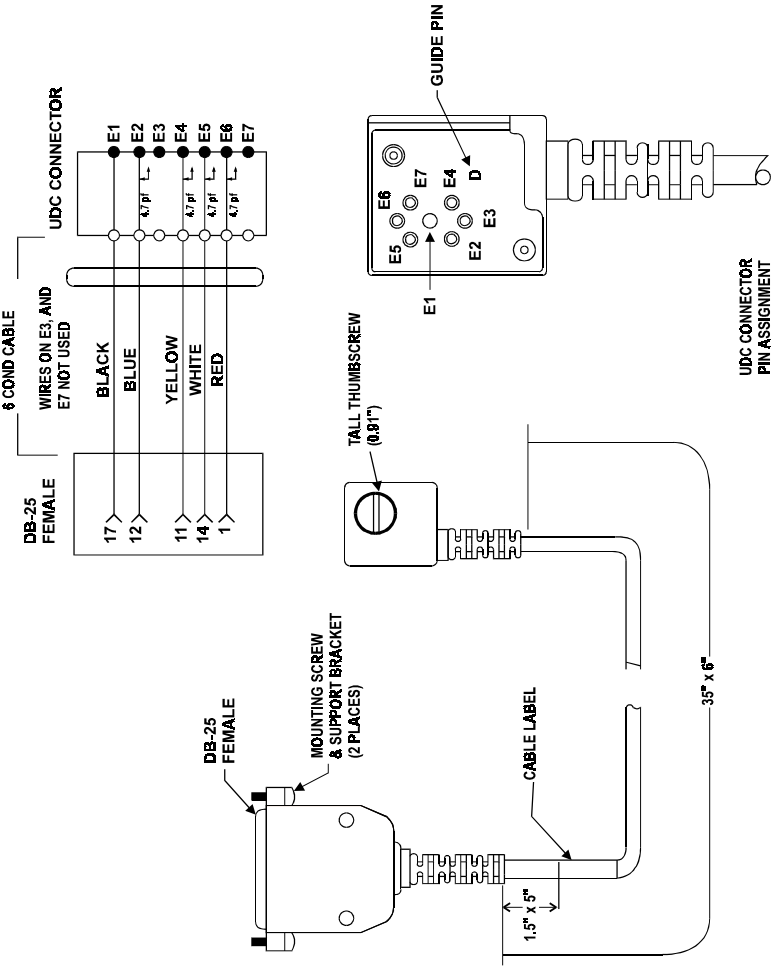


Figure 2-2: KPC-300/400 Programming Cable (RPM 113 2472/1)

Step Two:

The other end of the RS-232 cable should now be connected into the computer receptacle on the PC Interface Module. Check carefully to ensure that plugs are fully seated in the receptacle and, if retaining screws are included, that they are carefully tightened to firmly hold the plug in place. Should the plug not seat correctly to its receptacle, remove the plug and examine the pins to determine if the proper plug was inserted and to determine if pins are aligned and undamaged. Damaged pins and broken connections will cause the PC programming software to fail.

Step Three:

Position the KPC-300/400 radio in a convenient place in your work area. Connect the PC Programming Cable as depicted in Figure 2-1. The Programming Cable is inserted into the receptacle on the back of the unit. Again you should ensure that the plug is fully seated in its receptacle. The cover must be removed before connecting the cable.

LOADING THE SOFTWARE

The programming software can be installed on a fixed drive or run from a floppy diskette in a floppy drive configuration.

Software Installation

This section is for hard drive users only. If floppy drives are being used, skip this section and go on to the Program Entry section.

3-1/2" Diskette:

When using the 3-1/2 inch diskette, the software installation is initiated by inserting the Program Disk in drive A and typing:

INSTALL <enter>

The Installation Screen will appear next. Enter the target drive to indicate which disk drive the program will be loaded to. (It must be a hard drive).

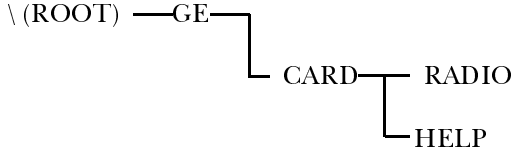
Press **F1 Begin**.

This will cause the program to copy the files from the distribution diskette to your hard drive.

Program Entry

To help you manage your programming software, a directory structure, or filing system, has been created for your programs. This filing system is created whenever any PC programming software is installed on your hard disk and also applies to floppy disk users.

When the KPC-300/400 radio PC programming software is installed, a directory structure consisting of four subdirectories is created. This structure is represented graphically as follows:



The first directory created is the GE directory; the main directory under which all programming software will be stored. This directory will contain a batch file that is used to invoke the programming software. Within this directory, the CARD directory is created. This directory stores all of the executable programs required for the programming of the radio.

The PC programming software is distributed with a number of help files that reside in the Help directory and are used by the program whenever **F9 Help** or **Shift F9 Help** is pressed. These files are only required to support the on-line help facility and may be removed if on-line help is not required. The final directory created is the Radio directory. The purpose of this directory is to hold the personalities created during program operation.

Directories can be used very effectively in organizing your programming personalities. It is highly recommended that you familiarize yourself with directories. Refer to your DOS Users Manual for more information.

Hard Disk:

Once you have completed the installation procedure, the following steps may be taken to access the KPC-300/400 radio PC programming software:

Type: **C: <enter>**	to ensure that the current drive is C: (The drive indicated here should be the letter of the drive specified as the target drive during program installation.)
Type: **cd GE <enter>**	to change directories to the GE directory
Type: **CARD <enter>**	to bring up the programming software application

The KPC-300/400 Radio Programming Software is now loaded into memory and a copyright screen appears briefly before the Current Personalities Screen is displayed.

Dual Floppy:

When the programming software is used in a dual floppy configured computer, several additional steps are required before loading the software.

3-1/2" Diskette:

1. Insert the DOS disk in Drive A and turn on or "boot up" the computer.

2. Place a blank formatted disk in Drive B.

NOTE

The formatted disk in Drive B will become your data disk on which you will store the personality information and data for the radio.

3. Replace the DOS disk in Drive A with the programming software disk labeled Program Disk.

4. At the prompt, type:

   A: <enter>

   cd\GE\CARD <enter>

   CARD <enter>

   This will run the batch file which executes the main program and switches the current directory to Drive B to store and edit the personality files.

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CHAPTER 3
GETTING STARTED

The following brief tutorial is designed to give you an understanding of how the program operates and to also give you some hands on experience before you begin actual programming. We encourage you to explore the program and view all screens and windows during this tutorial. If you need on-line assistance at any point in this program, press **F9 Help** and a help message for the field you are in will appear.

Before you start the tutorial, refer to your hardware set up and ensure that the radio has been set up according to the installation procedures in Chapter 2. Once installation has been completed, follow the Program Entry steps. After you type **CARD** and press **<enter>**, a brief copyright screen will appear followed by the Current Personalities Screen. You are now ready to begin this tutorial.

When programming a radio, it is advised that you first fill out work sheets (located in Appendix F of this manual). These work sheets will assist you while you are programming the radio and serve as reference material should questions arise during radio operation. Work sheets for this tutorial have already been filled out and precede the window you will be working in.

From the Current Personalities Screen, press **F1 Setup**.

This will take you into the Setup portion of the program. Before you can create a personality, the frequency range for the personality you are creating must be defined.

Work Sheet A - Setup

FREQUENCY RANGE:			
VHF -	136 - 153	150 - 174	
UHF -	403 - 440	440 - 470	470 - 512

In the Frequency Range Window, position your cursor on UHF range **403 - 440** and press **F10 Back**.

This will set the band split.

Press **F10 Back**.

This will confirm all Setup settings and return you to the Current Personalities Screen.

In the Current Personalities Screen, select the **F4 New** key.

Now you are ready to begin defining the personality you are creating. Reference the Channel Data Work Sheet, and enter the information in the program.

CHANNEL 1:

Type **405.0125** in the Tx Frequency field and press **<enter>**.

Work Sheet B - Channel Data
Part 1

PERSONALITY **PERS1**

CH	TX. FREQ.	RX. FREQ.	TX CHAN. GUARD	RX CHAN. GUARD
1	405.0125	405.0125	67.0	67.0
2	412.0000	412.0250	073	073

Work Sheet B - Channel Data
Part 2

PERSONALITY **PERS1**

	CHANNEL OPTIONS					TYPE-99 DECODES				
CH	POWER	STE	DTMF	ANI	BUSY	TABLE	INDIV	GROUP	SUPER	QUICK
1	(Hi) Lo	(Yes) No	Yes (No)	Yes (No)	Yes (No)	1 (2)	(Yes) No	Yes (No)	Yes No	(Yes) No
2	(Hi) Lo	(Yes) No	Yes (No)	Yes (No)	Yes (No)	(1) 2	Yes (No)	Yes (No)	Yes (No)	Yes No

Notice that the Transmit Frequency is automatically copied into the Receive Frequency field.

Press **<enter>** to advance to the Tx Chan Guard field. Type **67.0** and press **<enter>**.

Notice that the Transmit Channel Guard is automatically copied into the Receive Chan Guard field.

Press **<enter>** to advance to the Pw field.

No entry is needed in this field as the default entry is the chosen selection.

Press **<enter>** to advance to the STE field. Use the **TAB** key as a toggle switch to toggle the field to **Yes**. Press **<enter>**.

No entry is needed in the DTMF field as the default entry is the chosen selection.

Press **<enter>** to advance to the ANI field.

No entry is needed in the ANI field as the default entry is the chosen selection .

Press **<enter>** to advance to the Bsy field.

No entry is needed in the BSY field as the default entry is the chosen selection .

Press **<enter>** to advance to the Tb field.

The cursor should now be on the Tb field of Channel 1. This is the first field in the Type-99 Decode area. Before you can define Type-99 Decode fields, reference the Type-99 Tone Table Work Sheet.

From the Channel Data Screen, press **F6 Tone** to enter the Type-99 Tone Table Window.

Work Sheet C - Type-99 Tone Table

PERSONALITY **PERS1**

POWER UP MODE:	Selective	Monitor
	TABLE 1	**TABLE 2**
GE FORMAT?	(Yes) No	Yes (No)
TONE A		500.3 Hz
TONE B	488.5	510.5 Hz
TONE C		
TONE D		

For GE Format Table 1, select **Yes** and press **<enter>** to advance to the Table 2 field. Select **No** and press **<enter>** twice to advance to the Tone A field in Table 2.

Type **500.3** and press **<enter>**.

Type **488.5** in the Tone B Table 1 field and press **<enter>**.

Type **510.50** in the Tone B Table 2 field.

You can now go back into the Channel Data Screen and define the Type-99 Decode fields.

Press **F10 Back**.

Using the **TAB** key as a toggle switch, toggle the Tb field to **2**.

Press **<enter>** to advance to the Ind field. Toggle the field to **Yes**. Press **<enter>**.

The work sheet indicates that the Grp field should be set to **No** which is the default for that field.

Press **<enter>** again.

The cursor advances past the Spr field to the Qck field.

Toggle the Qck field to **Yes** and press **<enter>**.

You should now be on the Tx Frequency field for Channel 2.

CHANNEL 2:

In the Tx Frequency field, type **412.0000** press **<enter>**.

Again the Transmit Frequency is automatically copied into the Receive Frequency field. However, for channel 2, you want the Receive Frequency to be different from the Transmit Frequency.

Press the **Ctrl-Backspace** keys together to clear the entry. Type **412.0250** and press **<enter>**.

In the Tx Chan Guard field type **073** and press **<enter>**.

The Transmit Channel Guard field is automatically copied into the Receive Chan Guard field.

Press **<enter>** to advance to the Pw field. The default is the required setting for this field, so press **<enter>** again to advance to the DTMF field. The STE field is skipped, because of the Channel Guard Frequency values being Tone Frequencies.

No further information needs to be entered since your work sheet indicates the remaining fields are to be set according to their default values.

Now that all the channel data information has been entered for this personality, you should save your selections and name the personality.

To do so, press **F10 Back**. The Save Personality Window will appear. Press **Ctrl-Backspace** simultaneously to clear out the file name field. Type **PERS1**.

Your newly created personality has now been named and is ready to be saved to disk.

Press **F1 Yes**.

The new personality will be saved to disk and the personality name will appear in the Current Personalities Screen.

The next step is to program the personality into the radio.

NOTE

Do not attempt the program sequence without ensuring that the Serial Programming Interface Module is properly connected. Failure to attach the Serial Programming Interface Module prior to a program or read operation may result in system lock-up. Should this occur, refer to Chapter 6 of this manual.

From the Current Personalities Screen, position your cursor on **PERS1**. Select **F5 Progrm**.

The Program Radio Window will appear with **PERS1** as the selected file name.

Select **F1 Yes**.

A message will appear on the screen indicating that the personality is being downloaded into the radio. The program operation is finished when the program window disappears from the screen and you are returned to the Current Personalities Screen.

You have now completed the tutorial. You can delete the personality if you like or keep it in your program for future reference.

To delete the personality, position your cursor on **PERS1**. Select **F3 Utilty**, press **F5 Delete**, press **F1 Yes**.

A message window will appear asking you to press **Y** if you are sure you want to delete the personality, or **N** to abort the operation. Remember that deleting a personality will remove it permanently from the data base.

Press **Y** to delete.

The selected personality will be deleted from the disk and will no longer appear in the Current Personalities Screen.

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CHAPTER 4
RUNNING THE PROGRAM

INITIALIZATION

Depending on its manufacturer, your personal computer will have certain unique operating characteristics which make it different from other computers of similar capability. For example, file names and file extensions must conform to the requirements of your disk operating system. We, therefore, recommend that you become fully conversant with your computer's disk operating system and its operating manual prior to beginning this program.

When you turn on your personal computer, it begins an initialization routine which every system must go through to prepare for operation. During initialization, the MS-DOS program is loaded into memory. MS-DOS is the interpreter between keyboard actions and the capabilities of the PC programming software.

Once the PC is initialized and the DOS prompt is displayed, type:

cd\GE <enter>

CARD <enter>

After a brief introductory screen the Current Personalities Screen will appear.

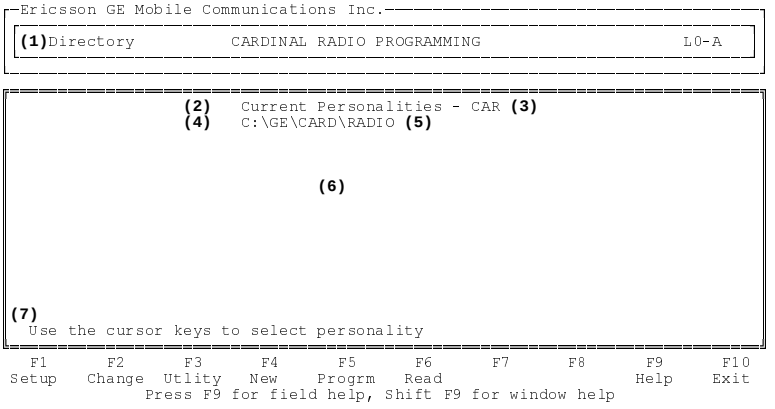

Figure 4-1: Current Personalities Screen

(1)	Function	- indicates directory function
(2)	Screen Title	- current personalities screen
(3)	Default Extension	- designated default extension
(4)	Current Drive	- designated drive
(5)	Current Directory	- designated directory name
(6)	Personality Area	- personalities in current directory
(7)	Prompt Line	- current field instruction line

The Current Personalities Screen, shown in Figure 4-1, is the main screen for the KPC-300/400 Programming Software. From this screen, you will be able to create personalities, program personalities into a radio, and read personalities out of a radio. To access a personality, move the cursor (reverse video bar) across the screen using the arrow keys. There is room available for up to 70 personalities on the screen. If you completed the tutorial and did not delete the files you created, one or two personality file names will already be displayed. Once the screen is full, additional personalities can be accessed by pressing the **Pg Dn** key.

NOTE

1) Throughout this document the term personality is used. Personality is used generically to refer to the information stored in one unit causing it to operate differently from another unit.

2) Whenever the program is initiated, the extension will default to the extension used when the program was last run. Only personalities with the extension identified are listed in this screen.

From the Current Personalities Screen, function key options are:

F1 - Setup Select this option if you want to:
Select personality creation defaults.

F2 - Change Select this option if you want to:
Change or edit an existing personality.

F3 - Utilty Select this option if you want to:
Change the communication port entry, change the directory, delete a personality, print a personality, or change the extension.

F4 - New Select this option if you want to:
Create a new personality.

F5 - Progrm Select this option if you want to:
Program a radio with the personality selected.

F6 - Read Select this option if you want to:
Read the personality out of a radio into the computer.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Exit Select this option if you want to:
Terminate the program and return to the control of DOS.

SETTING UP THE PROGRAM

Before creating a personality you need to select a few default settings to be associated with the personality being created. Select the **F1 Setup** key while in the Current Personalities Screen.

The set up portion of this program consists of the Frequency Range Window. The Frequency Range Window sets the band split default for a particular personality.

Frequency Range

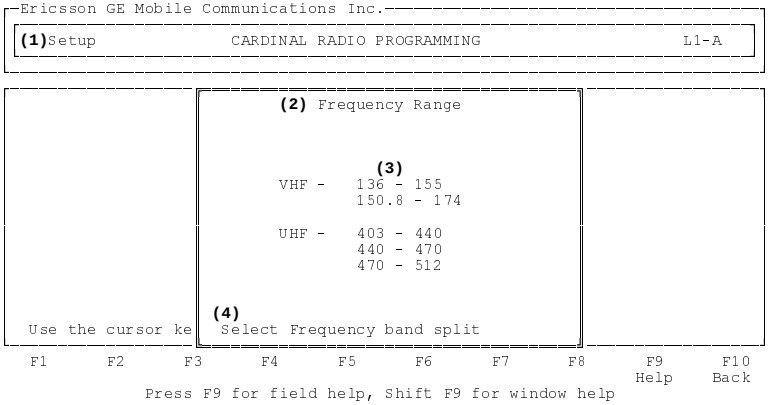

Figure 4-2: Frequency Range Window

(1)	Function	- indicates setup function
(2)	Window Title	- frequency range window
(3)	Band Split Fields	- designates frequency band split
(4)	Prompt Line	- current field instruction line

The Frequency Range Window, shown in Figure 4-2, is accessed by selecting **F1 Setup** while in the Current Personalities Screen. This window is used to select the default band split that the programmer will use for channel data creation.

Band Split (3) The **Band Split** fields indicate the default band split to be used for channel data creation.

To specify a band split, use the cursor keys to move the highlighted video bar over the range desired. Selecting a band split in the VHF area indicates the default VHF band split to be used for channel data creation. Selecting a band split in the UHF area indicates the default UHF band split to be used for channel data creation.

Once the desired range has been selected, press **F10 Back** to return to the Current Personalities Window. The programmer will remember the selected range until it is changed.

From the Frequency Range Window, function key options are:

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Current Personalities Window.

CREATE A PERSONALITY

```
Ericsson GE Mobile Communications Inc.
(1) New                  CARDINAL RADIO PROGRAMMING                       L1-B

                                 (2) Channel Data Screen
                                          UHF  403 - 440 (3)
            (6)               (7)  (8)    (9)  (10)(11)(12)(13)(14)(15)(16)(17)(18)
(4) (5)   Frequency          Chan Guard          Chan Options      Type-99 Decodes
 Ch  Tx          Rx          Tx      Rx        Pw  STE DTMF ANI Bsy Tb  Ind Grp Spr Qck
 1                                             Hi  No  No   No      1   No  No  No
 2                                             Hi  No  No   No      1   No  No  No
 3                                             Hi  No  No   No      1   No  No  No
 4                                             Hi  No  No   No      1   No  No  No
 5                                             Hi  No  No   No      1   No  No  No
 6                                             Hi  No  No   No      1   No  No  No
 7                                             Hi  No  No   No      1   No  No  No
 8                                             Hi  No  No   No      1   No  No  No

  Enter receive frequency in Mhz
  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 Swap                    Text    Progrm  Tone    Option          Help    Back
             Press F9 for field help, Shift F9 for window help
```

Figure 4-3: Channel Data Screen

```
Ericsson GE Mobile Communications Inc.
    New                  CARDINAL RADIO PROGRAMMING                       L1-B

                                    Channel Data Screen
                                          UHF  403 - 440
                                                          (19) (20) (21)
          Frequency          Chan Guard          Chan Options      Rx   Tx
 Ch  Tx          Rx          Tx      Rx        Pw  STE DTMF ANI Bsy Xtal Xtal Spac
 1                                             Hi  No  No   No      No   No   25
 2                                             Hi  No  No   No      No   No   25
 3                                             Hi  No  No   No      No   No   25
 4                                             Hi  No  No   No      No   No   25
 5                                             Hi  No  No   No      No   No   25
 6                                             Hi  No  No   No      No   No   25
 7                                             Hi  No  No   No      No   No   25
 8                                             Hi  No  No   No      No   No   25
 (22)
  Enter receive frequency in Mhz
  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 Swap                    Text    Progrm  Tone    Option          Help    Back
             Press F9 for field help, Shift F9 for window help
```

Figure 4-4: Channel Data Screen

(1)	Function	- indicates new function
(2)	Screen Title	- channel data screen
(3)	Band Split	- designated channel data band split
(4)	Channel	- positional channel indicator
(5)	Tx Frequency	- indicates transmit frequency
(6)	Rx Frequency	- indicates receive frequency
(7)	Tx Chan Guard	- indicates transmit Channel Guard

(8) Rx Chan Guard	- indicates receive Channel Guard
(9) Pw	- indicates channel transmit RF power
(10) Chan Options STE	- squelch tail elimination enable
(11) Chan Options DTMF	- enables DTMF for this channel
(12) Chan Options ANI	- activates auto number identification
(13) Chan Options Bsy	- allows channel busy transmit lock out
(14) Tb	- sets channel's Type 99 tone table
(15) Ind Type-99 Decode	- indicates Type 99 individual decode
(16) Grp Type-99 Decode	- indicates Type 99 group decode
(17) Spr Type-99 Decode	- indicates Type 99 speaker decode
(18) Qck Type-99 Decode	- indicates Type 99 quick call decode
(19) Rx Xtal	- pulls XTAL frequency 250 ppm
(20) Tx Xtal	- shifts microprocessor clock 250 ppm
(21) Spac	- indicates channel spacing
(22) Prompt Line	- current field instruction line

The Channel Data Screen, shown in Figure 4-3, is accessed by selecting **F4 New** or **F2 Change** while in the Current Personalities Screen. From this window you can define channel data for programming the personality. Use the **F1 Swap** key to toggle between screens to access additional fields.

Band Split (3) The **Frequency Set Band Split** field indicates the frequency entries that will be acceptable in defining channel data.

This field is "Display Only" and is not accessible from this window. To select a different Band Split, return to the setup portion of the program.

Channel (4) The **Channel** field is a positional indicator in the Channel Data Screen. The channel number indicates which channel is being defined on the line.

This field is "Display Only" and is not accessible.

Tx Frequency (5) The **Transmit Frequency** field is a numeric field identifying the channel transmit frequency. The value entered here is used to indicate the frequency that the radio will transmit at while tuned to this channel. When defining a new channel, the transmit frequency will be copied over to the Rx Frequency field as a default for VHF and UHF band splits.

Input the frequency that the radio should transmit at while tuned to this channel. Only frequencies within the currently defined band split are acceptable as valid.

- VHF frequencies must be evenly divisible by .005 MHz or .00625 MHz.
- UHF frequencies must be evenly divisible by .0125 MHz in order to assure proper channel spacing.

Rx Frequency (6) The **Receive Frequency** field is a numeric field identifying the channel receive frequency. The value entered here is used to indicate the frequency that the radio will receive at while tuned to this channel. When a new channel is being defined, the transmit frequency is automatically copied over to the Rx Frequency field as a default for VHF and UHF band splits.

Either accept the default band split and press **<enter>** to continue on into the Tx Channel Guard field, or press **Ctrl-Backspace** to clear the field and enter the desired frequency that the radio should receive at while tuned to this channel. Only frequencies within the currently defined band split are acceptable as valid.

- VHF frequencies must be evenly divisible by .005 MHz or .00625 MHz.

- UHF frequencies must be evenly divisible by .0125 MHz in order to assure proper channel spacing.

Tx Chan Guard (7) The **Transmit Channel Guard** field is a numeric field used to enter the transmit Channel Guard for this channel. This field accepts Tone, Primary Digital, and Inverted Digital Channel Guard codes. When a new Tx Channel Guard is entered, it is automatically copied to the Rx Chan Guard field.

Enter the desired transmit Channel Guard code for this channel using either Tone, Primary Digital, or Inverted Digital Channel Guard codes. To specify no Channel Guard, leave the field blank or type **N**.

- Tone Channel Guards are identified by the placement of a decimal point within the field. For example: 67.0 identifies a Tone Channel Guard of 67 Hz. Valid Tone Channel Guard codes are in the range of 67.0 to 210.7 Hz. Standard Tone Channel Guards appear in Appendix E.
- Primary Digital Channel Guards do not have a decimal point within the field. Valid Primary Digital Channel Guard codes appear in Appendix D.
- Inverted Digital Channel Guards are Digital Channel Guard codes preceded by an I. Valid Inverted Digital Channel Guard codes appear in Appendix D.

NOTE

When reading the personality back, Primary Digital codes appear in place of Inverted Digital codes.

Rx Chan Guard (8) The **Receive Channel Guard** field is used to enter the receive Channel Guard for this channel. This field accepts Tone, Primary Digital, and Inverted Digital Channel Guard codes. When a new channel is being defined, the Tx Channel Guard is automatically copied over to the Rx Chan Guard field.

Either accept the default Channel Guard and press **<enter>** to continue on into the Pw field, or press **Ctrl-Backspace** to clear the field and enter the desired receive Channel Guard code for this channel. Use either Tone, Primary Digital, or Inverted Digital Channel Guard codes. To specify no Channel Guard, leave the field blank.

- Tone Channel Guards are identified by the placement of a decimal point within the field. For example: 67.0 identifies a Tone Channel Guard of 67 Hz. Valid Tone Channel Guard codes are in the range of 67.0 to 210.7 Hz. Standard Tone Channel Guards appear in Appendix E.
- Primary Digital Channel Guards do not have a decimal point within the field. Valid Primary Digital Channel Guard codes appear in Appendix D.
- Inverted Digital Channel Guards are Digital Channel Guard codes preceded by an I. Valid Inverted Digital Channel Guard codes appear in Appendix D.

NOTE

When reading the personality back, Primary Digital codes appear in place of Inverted Digital codes.

Pw (9) The **Transmit RF Power** field is used to select the transmitter RF power for this channel.

Using the **TAB** key as a toggle switch, select between "Hi" and "Lo". Selecting "Hi" sets the transmitter RF power level for this channel to high. Selecting "Lo" sets the power level to low.

Chan Options STE (10) The **Channel Options Squelch Tail Elimination** field indicates whether or not squelch tail elimination is to be enabled for this channel.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" indicates that squelch tail elimination is enabled. "No" disables squelch tail elimination.

NOTE

Transmit and Receive Channel Guards should be programmed for proper squelch tail elimination operation.

Chan Options DTMF (11) The **Channel Options DTMF** field is used to enable or disable the DTMF option for this channel. When enabled, the radio will generate DTMF tones for the channel.

NOTE

This field only applies to radios equipped with an optional DTMF pad.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" enables the DTMF option while on this channel. Selecting "No" disables the DTMF option by preventing DTMF tones on this channel.

Chan Options ANI

(12) The **Channel Options Automatic Number Identification** field is used to enable or disable A.N.I. options when set to this channel. When available, these options include enabling emergency and home functions.

Using the **TAB** key as a toggle switch, select between "Yes" and "No" values. Selecting "Yes" will enable A.N.I. options for this channel. "No" disables A.N.I. options when set to this channel.

NOTE

Before activating the Automatic Number Identification field, be sure the A.N.I. Code is defined in the A.N.I. Options Programming Window.

Chan Options Bsy

(13) The **Channel Options Channel Busy Transmit Lock Out** field indicates whether or not the radio can transmit on a busy channel having the wrong Channel Guard.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". When "Yes" is selected, this option will prevent the radio from transmitting on a busy channel that has the wrong Channel Guard. If the correct Channel Guard is found, the transmission will be allowed. When "No" is selected, this option is turned "Off".

NOTE

When Channel Busy Transmit Lockout is enabled, Type-99 Decode fields should be disabled.

Tb (14) The **Type-99 Tone Table** field indicates which Type-99 tone table (**F6 Tone**) corresponds to this channel.

Using the **TAB** key as a toggle switch, select between "1" and "2". Selecting "1" indicates that the tones in table 1 are applied to this channel when performing Type 99 decode. Selecting "2" will identify table 2 as the corresponding call decode reference point.

NOTE

Depending on the selection made in this field and the selection made in the Type-99 Tone Table GE Format fields, entry into the Spr and Qck fields may or may not be denied. Reference individual field descriptions for more information.

Ind Type 99 Decode (15) The **Type-99 Individual Call Decode** field is used to indicate whether or not the Type-99 individual call decoding scheme will apply to this channel. Individual decode is applicable in both GE and non-GE formats.

Ind Type 99 Decode (Cont'd)

(15) Using the **TAB** key as a toggle switch, select between "Yes" and "No" values. A "Yes" value indicates that the radio will decode Type-99 individual calls while on this channel. Tones A and B must be programmed in the selected Type-99 tone table. Selection of "No" disables the Type-99 individual call decode feature.

NOTE

If the Channel Busy Transmit Lockout is enabled, this field must be set to "No".

Grp Type 99 Decode

(16) The **Type-99 Group Call Decode** field is used to indicate whether or not the Type-99 group call decoding scheme will apply to this channel. Group call decoding is applicable in both GE and non-GE formats.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" indicates that the radio will decode Type-99 group calls while on this channel. If the GE format has been selected, Tones A and D must be defined. If the non-GE format has been selected, Tones B and C must be defined. Selection of "No" disables the Type-99 group call decode feature.

NOTE

If the Channel Busy Transmit Lockout is enabled, this field must be set to "No".

Spr Type 99 Decode (17) The **Type-99 Super Group Call Decode** field is used to indicate whether or not the Type-99 super group call decoding scheme will apply to this channel. Super group call decoding is only applicable with the GE format.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" indicates that the radio will decode Type-99 super group calls while on this channel. The GE format must be selected with Tones C and D defined. Selection of "No" disables the Type-99 super group call decode feature.

NOTES

Entry into this field will be denied unless the Tb field selection has the GE Format field, in the Type 99 Tone Table Window, set to "Yes".

If the Channel Busy Transmit Lockout is enabled, this field must be set to "No".

Qck Type 99 Decode (18) The **Type-99 Quick Group Call Decode** field is used to indicate whether or not the Type-99 quick group call decoding scheme will apply to this channel. Quick group call decoding is only applicable with the non-GE format.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" indicates that the radio will decode Type-99 quick group calls while on this channel. The non-GE format must be selected with Tone B defined. Selection of "No" disables the Type-99 quick group call decode feature.

NOTES

Entry into this field will be denied unless the Tb field selection has the GE Format field, in the Type 99 Tone Table Window, set to "No".

If the Channel Busy Transmit Lockout is enabled, this field must be set to "No".

Rx Xtal (19) The **Rx Xtal** field is used to switch a 33 pF capacitor into the crystal oscillator circuit to move or pull the XTAL frequency approximately 250 ppm.

This is done to keep harmonics of the microprocessor ALE line away from the receive channel frequency. Initially set or cleared by the PC programmer when a receive channel frequency is first created, manual override by the user is permitted.

Using the **TAB** key as a toggle switch, select between "Yes" or "No". "Yes" will switch the 33pf capacitor into the crystal oscillator circuit. "No" will keep the 33pf capacitor out of the circuit.

NOTE

Any subsequent change to an entered receive channel frequency will result in the PC Programmer automatically setting or clearing this field.

Tx Xtal (20) The **Tx Xtal** field is to shift the microprocessor clock 250 ppm during transmission to prevent a tone from being heard on the transmission signal caused by the micro-

processor clock and synthesizer interacting.

Using the **TAB** key as a toggle switch, select between "Yes" or "No". "Yes" will shift the clock 250 ppm during transmission to prevent the tone from sound. "No" will not prevent the tone.

Spac (21) The **Channel Spacing** field controls receiver selectivity and transmitter deviation accordingly.

Using the **TAB** key as a toggle switch, select between "12.5" and "25" kHz channel spacing.

From the Channel Data Screen, function key options are:

F1 - Swap Select this option if you want to:
Access additional fields.

F4 - Text Select this option if you want to:
Create lines of text to be stored in the disk file.

F5 - Progrm Select this option if you want to:
Download the personality on the screen into the radio.

F6 - Tone Select this option if you want to:
Identify Type 99 tones to be used for this personality.

F7 - Option Select this option if you want to:
Define the options associated with this personality.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Current Personalities Screen.

Defining Personality Text

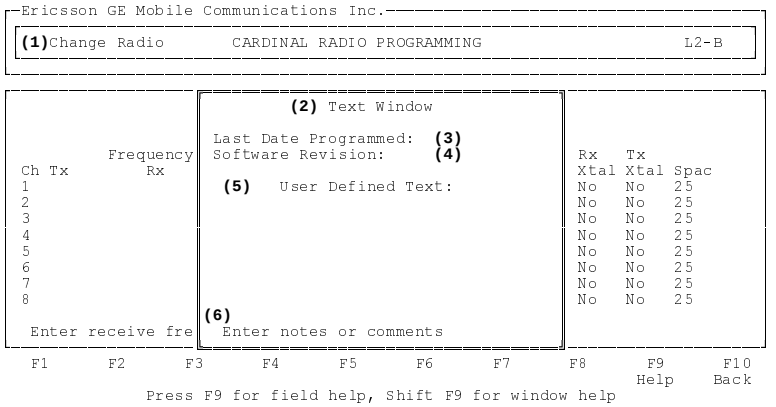

Figure 4-5: Text Window

(1) Function - indicates change radio function
(2) Window Title - text window
(3) Last Date Programmed - last date personality written
(4) Software Revision - current radio software version
(5) User Defined Text - allows user defined text entry
(6) Prompt Line - current field instruction line

The Text Window, shown in Figure 4-5, is accessed by selecting **F4 Text** while in the Channel Data Screen. This window is used to store information regarding the personality being created. If the personality has been loaded into a radio, the display will indicate the current software revision number in the radio and the last date programming took place. Otherwise these fields will be blank.

Last Date Programmed (3) The **Last Date Programmed** field identifies the last date that the personality was written to the radio. When a personality is programmed from the Current Personalities Screen, the programmer will capture the system date and store that date in this field.

This is a "Display Only" field and cannot be accessed. It is automatically updated

when the personality is programmed from the Current Personalities Screen and the write is successful.

Software Revision (4) The **Software Revision** field identifies the current radio software version. Like the Last Date Programmed field, this field is established during the programming process.

This is a "Display Only" field and cannot be accessed. It is automatically updated when the personality is programmed from the Current Personalities Screen and the write is successful.

User Defined Text (5) The **User Defined Text** field is used to enter a few lines of user defined text that will be stored with the personality on disk. Any text you want to enter will be saved.

Enter desired text. You can enter up to seven lines of text using any alpha-numeric character combination.

From the Text Window, function key options are:

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Channel Data Screen.

Type 99 Tone Table

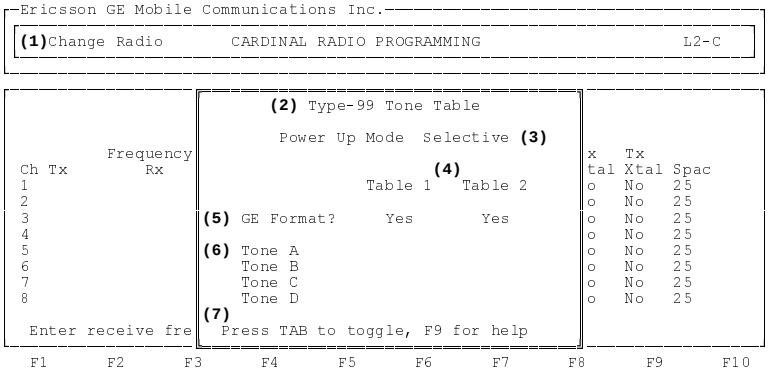

Figure 4-6: Type-99 Tone Table Window

(1)	Function	- indicates change radio function
(2)	Window Title	- Type-99 Tone Table window
(3)	Power Up Mode	- specifies Type 99 power up mode
(4)	Table 1 & 2	- indicates table specification
(5)	GE Format	- enables GE format setting
(6)	Tones A-D	- identifies valid tone for tone tables
(7)	Prompt Line	- current field instruction line

The Type 99 Tone Table Window, shown in Figure 4-6, is accessed by selecting **F6 Tone** while in the Channel Data Screen. This window is used to define Type 99 tone tables. When a two tone signal is decoded, the radio will emit an audible tone indicating a "page".

To prepare the radio for Type 99 decoding, you must follow the following steps:

1. Create the tone tables:

    A. If a channel has a GE or non-GE format tone set with Individual Decode enabled, the corresponding tone set must have Tones A and B defined.

B. If a channel has a GE format tone set with Group decode enabled, the corresponding tone set must have Tones A and D defined.

   If a channel has a non-GE format tone set with Group decode enabled, the corresponding tone set must have Tones B and C defined.

C. If a channel has a GE format tone set with Super Group decode enabled, the corresponding tone set must have Tones C and D defined.

   If a channel has a non-GE format tone set, then no Super Group decode can be enabled. Super Group decode is only applicable with a GE format tone set.

D. If a channel has a GE format tone set, then no Quick Group decode can be enabled. Quick Group decode is only applicable with a non-GE format tone set.

   If a channel has a non-GE format tone set with Quick Group decode enabled, the corresponding tone set must have Tone B defined.

2. Return to the Channel Data Screen.

3. Select which tone table applies to the channel by toggling the Tb field to either 1 or 2.

4. Select the appropriate decode options.

Power Up Mode	(3)	The **Type-99 Power Up Mode** field is used to specify the Type-99 power up mode of the KPC-300/400 radio. Using the **TAB** key as a toggle switch, select between "Selective" and "Monitor".

- "Selective" causes the radio to power up in Selective Mode. In this mode, only the transmission with the correct Type-99 tones (and Channel Guard when enabled) will alert the operator and open the speaker for a message.
- "Monitor" causes the radio to power up in Monitor Mode. In this mode, the speaker is always opened with the presence of any transmission with the correct Channel Guard (when enabled). The operator will only be alerted on transmissions with the correct Type 99 tones (and Channel Guard when enabled).

Table 1 & 2 (4) The **Type-99 Tone Table 1 and 2** fields are used as positional indicators, identifying which Type-99 tone table is being defined.

These fields are "Display Only" and are not accessible.

GE Format? (5) The **GE format** field is used to specify whether or not the tone table is based on the GE format or the non-GE format.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" indicates that the tone table in the selected column is based on the GE format. A "No" value specifies a non-GE format.

This field causes the "Tone D" field to accept or deny entry depending on the state of this field. When "Yes" is selected, the "Tone D" field will accept data. When "No" is selected, this field does not allow entry.

Tones A-D (6) The **Tone A, B, C, and D** fields are used to specify a tone frequency.

Enter a tone frequency in the desired tone table column of the selected tone field. Valid entries are in the range of 288.5 - 2400 Hz. If you leave the field blank, no Type 99 tone will be indicated.

Certain Type-99 Decodes require that specific tone fields are defined:

- Individual decodes require either a GE or non-GE format, with Tones A and B defined.
- Group decodes require either a GE or non-GE format. If GE format is selected, Tones A and D must be defined. If non-GE format is selected, Tones B and C must be defined.
- Super Group decodes require a GE format only, with Tones C and D defined.
- Quick Group decodes require a non-GE format only, with Tone B defined.

NOTE

The "Tone D" field does not allow entry unless "Yes" is selected in the GE format field of the table selected.

From the Type-99 Tone Table Window, function key options are:

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Channel Data Screen.

Radio Options

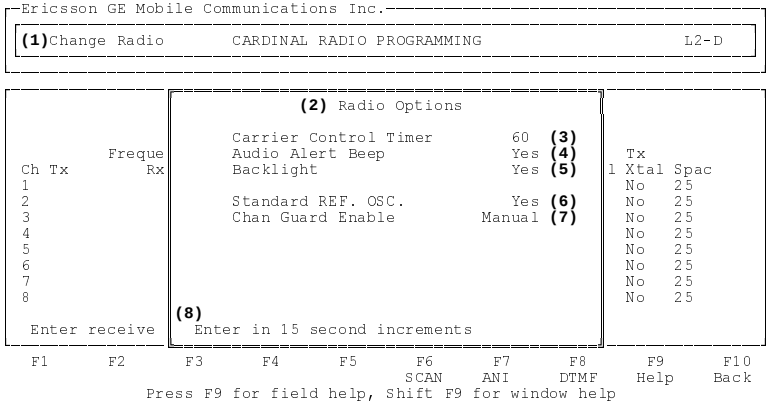

Figure 4-7: Radio Options Window

(1) Function - indicates change radio function
(2) Window Title - radio options window
(3) Carrier Control Timer - time before transmission drops
(4) Audio Alert Beep - enables alert beep
(5) Backlight - enables LCD back light
(6) Standard REF. OSC - enables standard reference oscillator
(7) Chan Guard Enable - sets Channel Guard decode function
(8) Prompt Line - current field instruction line

The Radio Options Window, shown in Figure 4-7, is accessed by selecting **F7 Option** while in the Channel Data Screen. This window is used to define specific options associated with the personality currently being defined.

Carrier Control Timer

(3) The **Carrier Control Timer** field is used to specify how long continuous transmission is allowed to occur. Once this amount of time is reached, the radio will no longer transmit.

Enter a value here in the range of 0 - 225 seconds in 15 second intervals. This value causes the radio to automatically drop the channel if a transmission period exceeds the period specified.

To disable the Carrier Control Timer, enter "0" in this field.

NOTE

The Carrier Control Timer setting will be the same for all channels in the current personality. Ensure that this setting is appropriate for all channel applications.

Audio Alert Beep (4) The **Audio Alert Beep** field is used to enable an alert beep to indicate that the radio status has changed, (i.e., channel change, expired carrier control timer, no transmit channel, etc).

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" causes an alert beep to sound as a warning that the radio status has changed. "No" prevents the audio alert beep function.

Backlight (5) The **Back Light** field is used to enable the LCD back light.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" enables the LCD back light to light when any radio control buttons are pressed, except Push-to-Talk. Once the control button is released, the back light will remain on for another 5 seconds. "No" disables the LCD back light at all times.

Standard REF. OSC. (6) The **Standard Reference Oscillator** field is used to select the reference oscillator that will be installed for proper radio operation.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" indicates that the radio is factory configured with the standard oscillator of 12.8 MHz installed. "No" indicates the receive frequency requires an alternate reference oscillator of 13.2 MHz be used. If so, a message will be shown on the Channel Data Screen. The alternate reference oscillator is used to remove channel spurs.

NOTE

The Standard Reference Oscillator is required when "Yes" is selected and the Alternate Reference Oscillator is required when "No" is selected. Failure to use the proper reference oscillator will cause the radio operation to malfunction.

Chan Guard Enable (7) The **Channel Guard Enable** field is used to select the duration for the Channel Guard Disable status on the KPC-300/400 radio.

Using the **TAB** key as a toggle switch, select between "Manual" and "Auto". Selecting "Manual" requires that the switch be toggled manually in order to re-enable the Channel Guard Decode function. Selecting "Auto" will re-enable the Channel Guard Decode function automatically at the end of transmission. To disable the Channel Guard Decode function, the switch must manually be toggled.

From the Radio Options Window, function key options are:

F6 - SCAN Select this option if you want to:
Define options pertaining to the KPC-300/400 radio.

F7 - ANI Select this option if you want to:
Select Automatic Number Identification options.

F8 - DTMF Select this option if you want to:
Define automatic dialing information.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Channel Data Screen.

Scan Options

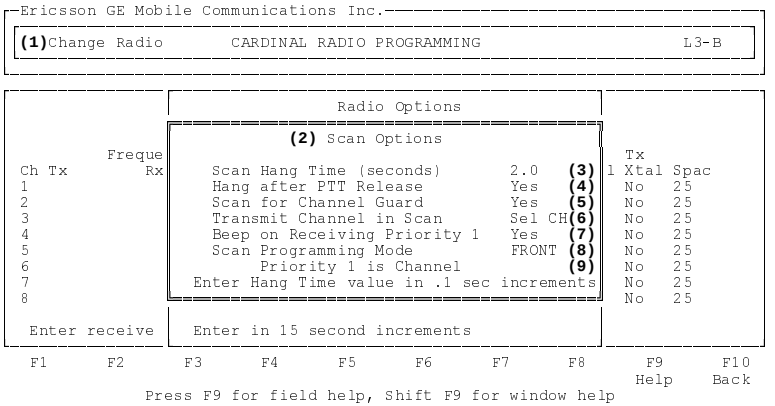

Figure 4-8: Scan Options Window

(1) Function - indicates change radio function
(2) Window Title - scan options window
(3) Scan Hang Time - specifies duration of scan hang time
(4) Hang after PTT Release - enables hang time on PTT release
(5) Scan for CG - allows CG programmed channel scanning
(6) Transmit Channel in Scan - specifies tx channel in scan mode
(7) Beep on Receiving Priority 1 - enables alert beep upon receiving P1
(8) Scan Programming Mode - indicates mode of channel scanning
(9) Priority 1 is Channel - identifies fixed P1 channel number
(10) Prompt Line - current field instruction line

The Scan Options Window, shown in Figure 4-8, is accessed by selecting **F6 Scan** while in the Radio Options Window. This window is used to define specific options associated with the programming of the KPC-300/400 radio.

NOTE

Before access is allowed in the Scan Options Window, the Radio Type must be set to 16 Ch. Scan.

Scan Hang Time (3)

The **Scan Hang Time** field is used to specify the length of the hang time while in the scan mode.

Enter a value here in the range of 0.3 to 5.0 seconds in 0.1 second intervals. Hang time applies to the time after changing channels, after the transmission drops, and upon release of push-to-talk.

Hang After PTT Release (4)

The **Hang after Push-to-Talk Release** field indicates whether or not the scan hang time will apply upon release of push-to-talk.

Using the **TAB** key as a toggle switch, select between "Yes" and "No" values. "Yes" causes the scan hang time to apply upon release of push-to-talk. "No" disables the hang time on release of push-to-talk.

Scan For Channel Guard (5)

The **Scan For Channel Guard** field is used to indicate whether or not to scan all of the programmed channels having Channel Guard.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". Selecting "Yes" causes the radio to scan all programmed channels with Channel Guard. Selecting "No" causes the radio to ignore Channel Guard during Scan (Scan for Carrier only).

Transmit Channel in Scan (6) The **Transmit Channel in Scan** field is used to determine which channel the radio will transmit on while in scan mode.

Using the **TAB** key as a toggle switch, select between "Sel CH" and "Rec CH". Selecting "Sel CH" causes the radio to transmit on the Selected Channel while in scan mode. Selecting "Rec CH" causes the radio to transmit on the Received Channel while in scan mode.

Beep on Receiving Priority 1 (7) The **Priority 1 Alert Beep** field is used to enable the alert beep when receiving the Priority 1 channel in scan mode.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" causes an alert beep to sound as a warning that the radio is receiving the Priority 1 channel while in scan mode. A "No" value will disable the Priority 1 alert beep.

Scan Programming Mode (8) The **Scan Programming Mode** field is used to select how the channels are to be scanned.

Using the **TAB** key as a toggle switch, select "FRONT", "FIXED", or "SELEC" as the mode that will determine how the Non-Priority, Priority 1 and Priority 2 channels in the radio are to be scanned.

- "FRONT" allows the Non-Priority, Priority 1 and Priority 2 channels to be programmed from the front of the radio.
- "FIXED" allows only Non-Priority and Priority 2 channels to be programmed from the front of the radio. The Priority 1 channel is fixed according to selection made during personality creation.

- "SELEC" allows both the Non-Priority and Priority 2 channels to be programmed from the front of the radio. The Priority 1 channel will always follow the selected channel.

Priority 1 is Channel (9) The **Priority 1 is Channel** field is used to indicate the Priority 1 channel. This field will only appear when "FIXED" is selected in the Scan Programming Mode field.

Enter a valid channel number corresponding to a previously defined channel in the Channel Data Screen for this personality.

From the Scan Options Window, function key options are:

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Radio Options Window.

A.N.I. Options

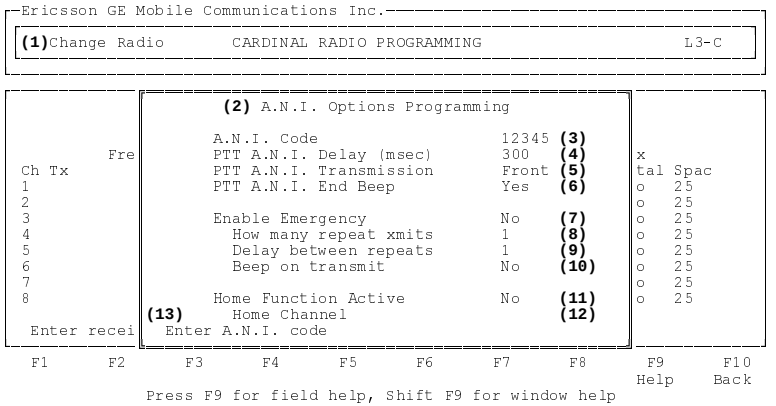

Figure 4-9: A.N.I. Options Programming Window

(1) Function - indicates change radio function
(2) Window Title - ANI options programming window
(3) A.N.I. Code - automatic number identification area
(4) PTT A.N.I. Delay - sets delay period before ANI transmit
(5) PTT A.N.I. Transmission - shows where ANI transmission appears
(6) PTT A.N.I. End Beep - allows alert beep after ANI transmits
(7) Enable Emergency - activates emergency function
(8) How many repeat xmits - specifies number of emerg transmissions
(9) Delay between repeats - time allotted between emerg repeats
(10) Beep on transmit - enables alert beep upon transmission
(11) Home Function Active - activates home function option
(12) Home Channel - identifies home channel number
(13) Prompt Line - current field instruction line

The A.N.I. Options Programming Window, shown in Figure 4-9, is accessed by selecting **F7 ANI** while in the Radio Options Window. This window is used to select Automatic Number Identification (A.N.I.) options associated with KPC-300/400 radios. Fields 7-12 do not apply to 2-channel Radio Types.

A.N.I. Code (3) The **Automatic Number Identification Code** field is used to identify the code number for automatic number identification transmission.

Enter a number in the range of 0 - 16383 to indicate the code number for A.N.I. transmission.

A.N.I. Delay (4) The **Automatic Number Identification Delay** field is used to specify the automatic number identification delay transmission time when ANI is to be transmitted at the beginning of the conversation.

Enter a delay time between 0 and 2000 in 100 msec increments. This delay time is only applicable when the ANI Transmission field is set to "Front".

A.N.I. Transmission (5) The **Automatic Number Identification Transmission** field is used to specify when automatic number identification is to be transmitted.

Using the **TAB** key as a toggle switch, select between "Front" and "End". Selection of "Front" indicates that automatic number identification is to be transmitted at the beginning of the conversation. Selection of "End" indicates that automatic number identification is to be transmitted at the end of the conversation.

A.N.I. End Beep (6) The **Automatic Number Identification End Beep** field is used to indicate whether or not alert beep will be enabled to indicate when ANI transmission has ended.

A.N.I. End Beep (Cont'd) (6) Using the **TAB** key as a toggle switch, select "Yes" or "No". Selecting "Yes" causes the radio to sound a beep whenever ANI transmission has ended at the beginning of a conversation. (The ANI Transmission field must be set to "Front".) Selecting "No" disables this option regardless of the setting in the ANI Transmission field.

Enable Emergency (7) The **Enable Emergency** field is used to specify whether or not the emergency function is to be enabled.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" indicates that the emergency function is enabled. The radio will automatically transmit a modified A.N.I. code with the emergency flags set on either the selected or home channel. The A.N.I. code will be the number shown on the receive display panel.

How many repeat xmits (8) The **How Many Repeat Transmits** field is used to specify the number of emergency transmissions to occur when the emergency function is enabled.

Enter a value in the range of 1 - 15 to indicate the number of times to repeat auto-transmit. Enter "0" for unlimited times to repeat auto-transmit.

Delay between repeats (9) The **Delay Between Repeats** field is used to indicate the number of seconds between each emergency transmission.

Enter a value in the range of 1 - 15 to indicate the input delay time, in seconds, between auto transmit.

Beep on transmit

(10) The **Beep on Transmit** field is used to enable an alert beep when an emergency is declared.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" indicates that the alert beep will be sounded when an emergency transmission occurs. "No" disables the alert beep signal.

Home Function Active

(11) The **Home Function Active** field is used to specify whether or not the radio will automatically tune to the home channel whenever an emergency is declared.

Using the **TAB** key as a toggle switch, select between "Yes" and "No". "Yes" enables the home function. When the home button is pressed, the radio will return to the home channel and also whenever an emergency is declared, the radio will automatically tune in to the home channel.

Home Channel

(12) The **Home Channel** field is used to specify the channel number assigned as the Home Channel when pressing the Home button on the radio.

To define the Home Channel, enter a valid channel number corresponding to a previously defined channel in the Channel Data Screen.

From the A.N.I. Options Programming Window, function key options are:

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Radio Options Window.

Automatic Dialing

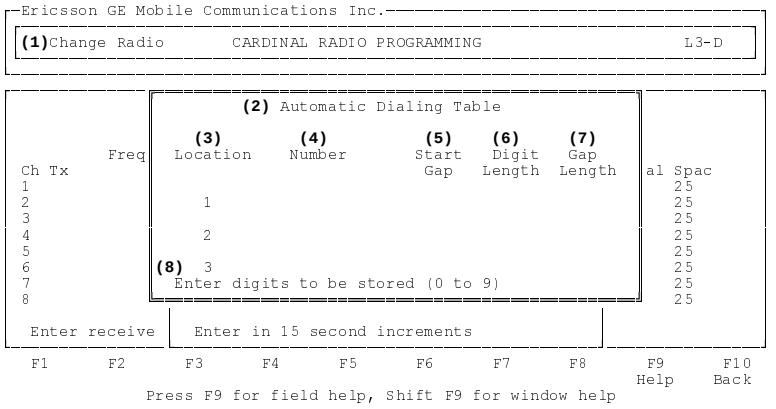

Figure 4-10: Automatic Dialing Table Window

(1) Function - indicates change radio function
(2) Window Title - automatic dialing table window
(3) Location - positional number indicator
(4) Number - identifies number to be auto dialed
(5) Start Gap - gap length between 1st & remain numbers
(6) Digit length - sets digit tone length
(7) Gap Length - sets gap length between digits
(8) Prompt Line - current field instruction line

The Automatic Dialing Table Window, shown in Figure 4-10, is accessed by selecting **F8 DTMF** while in the Radio Options Window. This window is used to store and define automatic dial number information associated with the KPC-300/400 radios.

Location (3) The **Location** field is used as a positional number indicator.

This field is for "Display Only" and cannot be accessed.

Number (4) The **Auto Dial Number** field is used to indicate the number to be automatically dialed upon pressing the automatic dial sequence.

Enter up to twelve numeric digits to specify the number for automatic dialing. This field will not accept blank spaces or characters that are not numeric.

NOTE

The 1st character can be a "*" or a "#" to "wake up" the repeater. A "*" or "#" is not allowed anywhere else in the number.

Start Gap (5) The **Start Gap** field is used to specify the length of the gap between the first DTMF digit transmission and the remaining digits.

Enter a value in the range of 100 - 5000 msecs in 100 msec increments. This value allows the repeater to acquire a dial tone prior to transmitting the remainder of the number.

Digit Length (6) The **Digit Length** field is used to specify the DTMF transmission length for each digit in this Auto Dial location.

Enter a value in the range of 100 - 5000 msecs in 100 msec increments.

Gap Length (7) The **Gap Length** field is used to specify the length of the gap between DTMF digit transmission in this Auto Dial location.

Enter a value in the range of 100 - 5000 msecs in 100 msec increments.

From the Automatic Dialing Table Window, function key options are:

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Radio Options Window.

Programming the Radio Within the Change

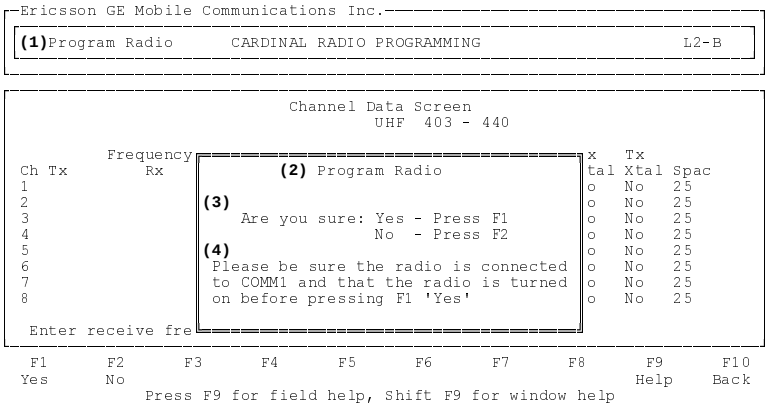

Figure 4-11: Program Radio Window

(1) Function - indicates program radio function
(2) Window Title - program radio window
(3) Continue Prompt - continue or abort option
(4) Note Line - denotes steps necessary to continue

The Program Radio Window, shown in Figure 4-11, is accessed by selecting **F5 Progrm** while in the Channel Data Screen. This window is used to solicit the current personality to program the radio.

NOTE

Before programming the radio from a personality, be sure the cursor is not highlighting a modified field. New field information is not transferred to the personality until the cursor is advanced into the next field.

From the Program Radio Window, function key options are:

F1 - Yes Select this option if you want to:
Program the unit specified.

F2 - No Select this option if you want to:
Discontinue with this procedure.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Channel Data Screen.

Saving a Personality

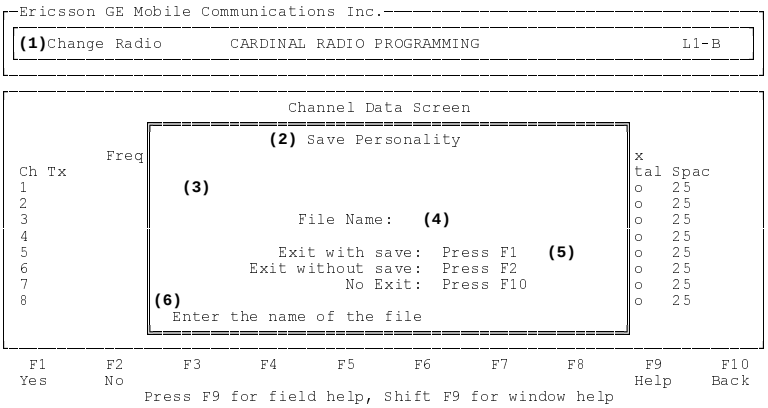

Figure 4-12: Save Personality Window

(1) Function - indicates new function
(2) Window Title - save personality window
(3) Path - indicates path for saving personality
(4) File Name - indicates personality to be saved
(5) Continue Prompt - continue or abort option
(6) Prompt Line - current field instruction line

The Save Personality Window, shown in Figure 4-12 is accessed whenever you try to exit the Channel Data Screen. This window is used to select a personality name for identification when saving the personality.

NOTE

Before saving a personality, be sure the cursor is not highlighting a modified field. New field information is not transferred to the personality until the cursor is advanced into the next field.

Path (3) The **Path** field is used to specify the target path under which the current personality will be saved.

To change the path, cursor up from the file name field and enter the desired target path.

File Name (4) The **File Name** field is used to specify the name under which the current personality is to be saved.

Enter the destination file name. This field will accept up to eight characters in any alphanumeric combination. Alphabetic characters will automatically be converted to upper case. This field will not accept file names that are not acceptable to DOS.

From the Save Personality Window, function key options are:

F1 - Yes Select this option if you want to:
Exit the Channel Data Screen and save personality to disk.

F2 - No Select this option if you want to:
Exit the Channel Data Screen without saving the personality to disk.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Channel Data Screen.

CHANGE/EDIT A PERSONALITY

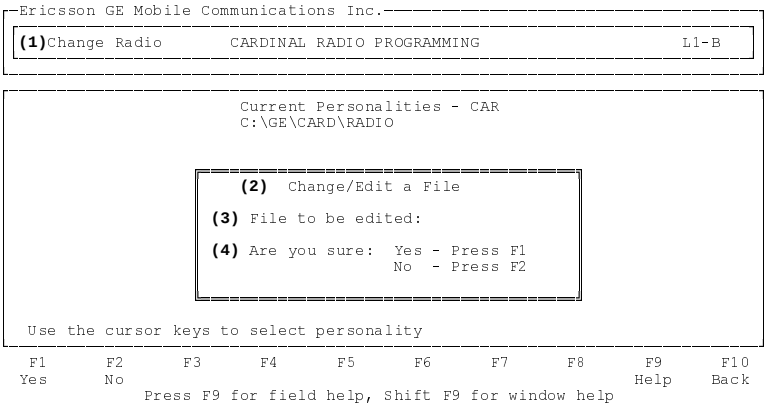

Figure 4-13: Change/Edit a File Window

(1)	Function	- indicates change radio function
(2)	Window Title	- change/edit a file window
(3)	File to be edited	- personality name to be edited
(4)	Continue Prompt	- continue or abort option

The Change/Edit a File Window, shown in Figure 4-13, is accessed by selecting **F2 Change** while in the Current Personalities Screen. This window is used to solicit the personality name to be changed.

File to be edited

(3) The **File to be Edited** field is used to specify the file name of the personality to be edited.

Enter the desired personality name. To be valid, this set must be a currently defined personality. You can use up to eight valid characters in any alphanumeric combination. This field is an upper case field, therefore all characters will be converted to upper case even if entered in lower case. This field will not accept file names that are not acceptable to DOS.

From the Change/Edit a File Window, function key options are:

F1 - Yes Select this option if you want to:
Change the personality selected.

F2 - No Select this option if you want to:
Discontinue with this procedure.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Current Personalities Screen.

PROGRAMMING THE PERSONALITY INTO THE RADIO

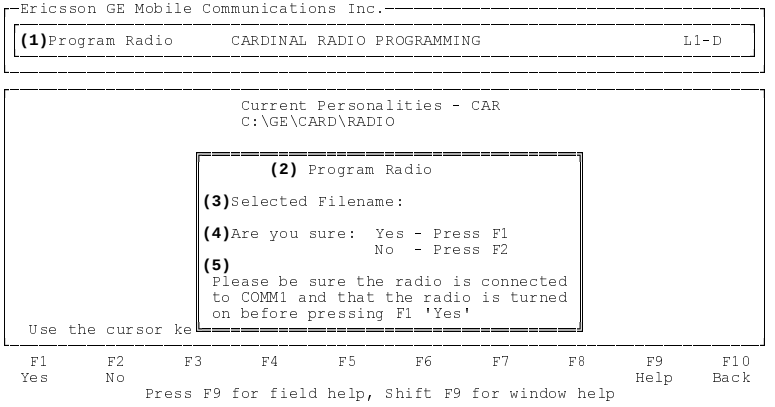

Figure 4-14: Program Radio Window

(1) Function - indicates program radio function
(2) Window Title - program radio window
(3) Selected Filename - name of personality to be programmed
(4) Continue Prompt - continue or abort option
(5) Note Line - denotes steps necessary to continue

The Program Radio Window, shown in Figure 4-14, is accessed by selecting **F5 Progrm** while in the Current Personalities Screen. This window is used to enter the name of the personality to be used for programming the radio.

Selected Filename	(3)	The **Selected File Name** field is used to specify the name of the personality to use for programming the radio. Enter the name of the personality you want to use for the program operation. This field will accept up to eight characters in any alphanumeric combination. Alphabetic characters will automatically be converted to upper case. To be valid, the name must correspond to a currently defined personality.

From the Program Radio Window, function key options are:

F1 - Yes Select this option if you want to:
Program the personality selected into the radio.

F2 - No Select this option if you want to:
Discontinue with this procedure.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Current Personalities Screen.

READING THE PERSONALITY OUT OF THE RADIO

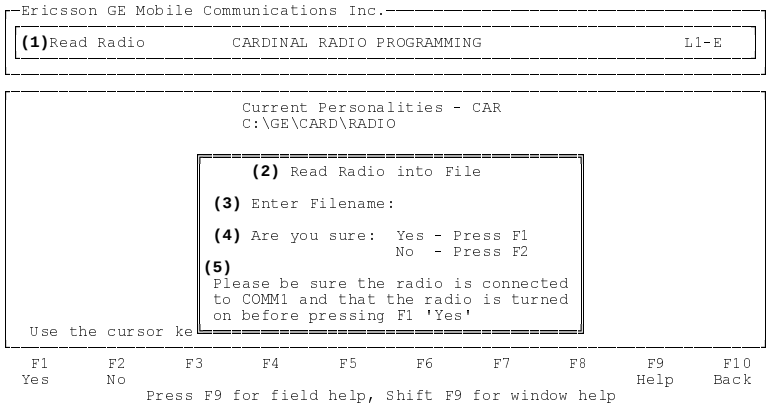

Figure 4-15: Read Radio into File Window

(1)	Function	- indicates read radio function
(2)	Window Title	- read radio into file window
(3)	Enter Filename	- name of personality to be read
(4)	Continue Prompt	- continue or abort option
(5)	Note Line	- denotes steps necessary to continue

The Read Radio into File Window, shown in Figure 4-15, is accessed by selecting **F6 Read** while in the Current Personalities Screen. This window is used to confirm the read operation selection.

Enter Filename (3) The **Enter File Name** field is used to specify the name of the personality to use for the read operation.

Enter the name of the personality you want to use for the read operation. This field will accept up to eight characters in any alphanumeric combination. Alphabetic characters will automatically be converted to upper case. To be valid, the name must correspond to a currently defined personality.

From the Read Radio into File Window, function key options are:

F1 - Yes Select this option if you want to:
Read the radio personality and save under the name selected.

F2 - No Select this option if you want to:
Discontinue with this procedure.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Current Personalities Screen.

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CHAPTER 5
USING THE UTILITIES

UTILITY WINDOW

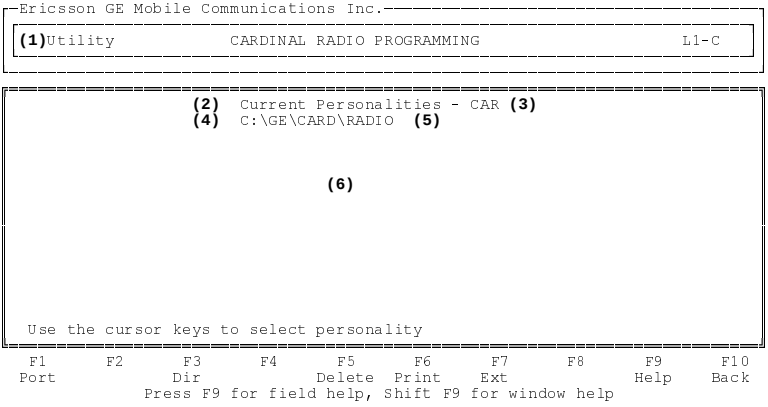

Figure 5-1 - Utility Window

(1) Function - indicates utility function
(2) Window Title - current personalities window
(3) Default Extension - designated default extension
(4) Current Drive - designated drive
(5) Current Directory - designated directory name
(6) Personality Area - personalities in current directory
(7) Prompt Line - current field instruction line

The Utility Window, shown in Figure 5-1, is accessed by selecting **F3 Utilty** while in the Current Personalities Screen. This window allows access to infrequently used functions which have little relationship to the actual programming of a radio. This window and its fields are much like the Current Personalities Screen. Note, however, the Function changes to "Utility" and the Function Key options also change.

From the Utility Window, function key options are:

F1 - Port Select this option if you want to:
Change the port to use for programming radios.

F3 - Dir Select this option if you want to:
Change the current directory.

F5 - Delete Select this option if you want to:
Delete a personality from the disk.

F6 - Print Select this option if you want to:
Print the personality to the printer, screen, or file.

F7 - Ext Select this option if you want to:
Change the current extension.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Current Personalities Screen.

Changing The Communications Port

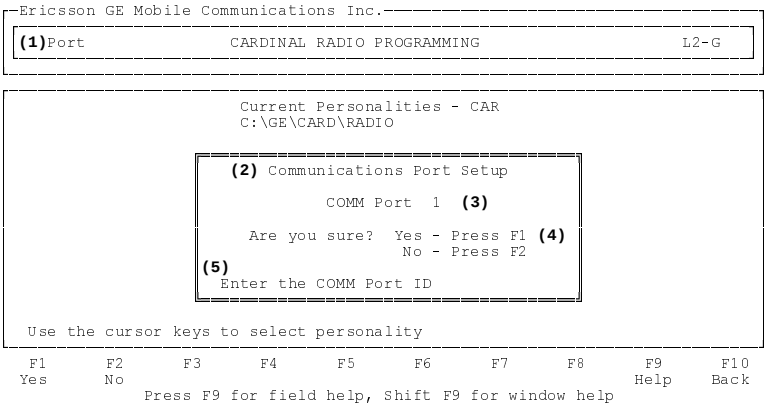

Figure 5-2: Communications Port Setup Window

(1) Function - indicates port function
(2) Window Title - communications port setup window
(3) COMM Port - indicates communications port ID no.
(4) Continue Prompt - continue or abort option
(5) Prompt Line - current field instruction line

The Communications Port Setup Window, shown in Figure 5-2, is accessed by selecting **F1 Port** while in the Utility Window. This window allows you to select the communications port you want to use for radio programming.

COMM Port (3) The **Communications Port Identification** field is used to identify the communications port to use for programming the radio. There are only two ports available for this purpose: COM1 and COM2.

Enter the desired port by selecting a "1" to indicate COM1 or a "2" to indicate COM2. No other numbers will be accepted in this field. After selection has been made, press **F1 Yes** to perform the change.

From the Communications Port Setup Window, function key options are:

F1 - Yes Select this option if you want to:
Continue with this change.

F2 - No Select this option if you want to:
Cancel this procedure.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Utility Window.

NOTE

Once **F1 Yes** is selected, the Setup file is updated to reflect the new selection and that selection will become the default until another selection is made.

Change Directories

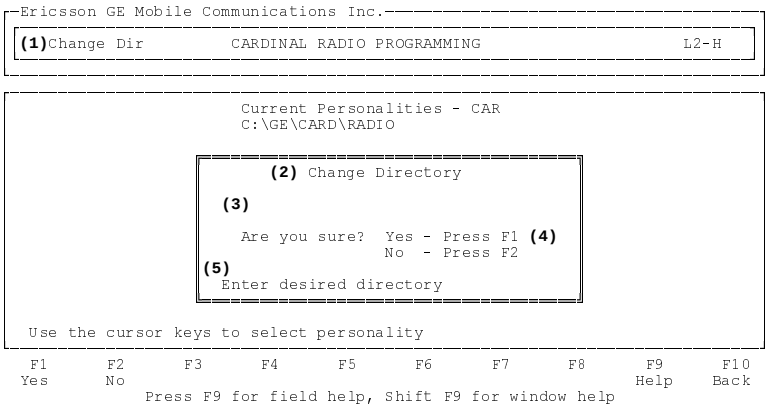

Figure 5-3: Change Directory Window

(1) Function - indicates change directory function
(2) Window Title - change directory window
(3) Change Directory Field - target path for change directory
(4) Continue Prompt - continue or abort option
(5) Prompt Line - current field instruction line

The Change Directory Window, shown in Figure 5-3, is accessed by selecting **F3 Dir** while in the Utility Window. This window allows you to change directories without leaving the program.

Change Directory (3) The **Change Directory** field is used to specify a new target path.

Enter the desired target path. Any valid DOS path identifier with no more than 32 characters will be accepted. To perform the actual change, press **F1 Yes**.

From the Change Directory Window, function key options are:

F1 - Yes Select this option if you want to:
Continue with this change.

F2 - No Select this option if you want to:
Cancel this procedure.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Utility Window.

NOTE

Pressing **F1 Yes** will return you to the Utility Window under the specified directory.

Delete Personality

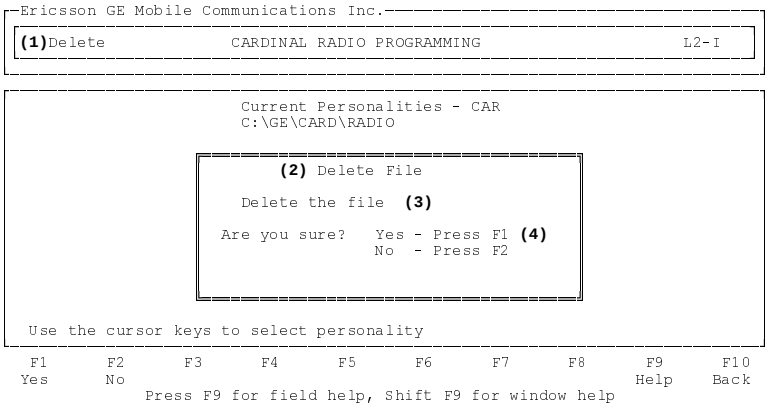

Figure 5-4: Delete File Window

(1) Function - indicates delete function
(2) Window Title - delete file window
(3) Delete the file - name of personality to be deleted
(4) Continue Prompt - continue or abort option

The Delete Personality Window, shown in Figure 5-4, is accessed by selecting **F5 Delete** while in the Utility Window. This window allows you to delete a personality without leaving the program.

Delete the file (3) The **Delete the File** field is used to indicate the name of the personality to delete.

Enter the name of the existing personality you want to delete and press **F1 Yes**. The program will display a confirmation prompt before deletion occurs.

NOTE

Deleting a personality will remove it PERMANENTLY.

From the Delete Personality Window, function key options are:

F1 - Yes Select this option if you want to:
Continue with this change.

F2 - No Select this option if you want to:
Cancel this procedure.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Utility Window.

NOTE

If **F1 Yes** is selected, the personality named will be PERMANENTLY deleted. If you do not wish to delete the personality, select **F2 No**.

Print Personality

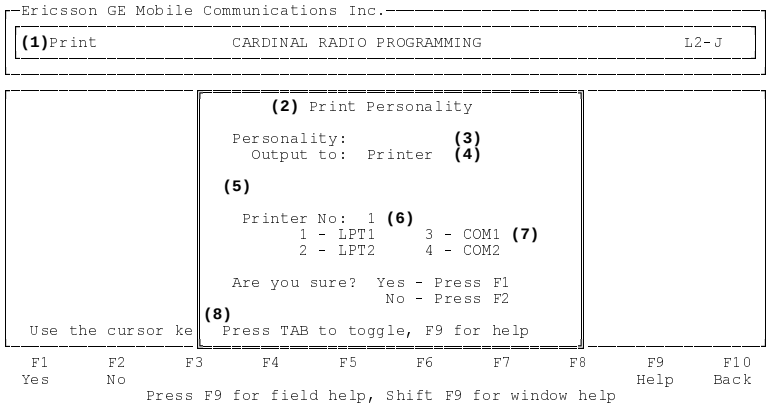

Figure 5-5: Print Personality Window

(1)	Function	- indicates print function
(2)	Window Title	- print personality window
(3)	Personality	- identifies personality to print
(4)	Output to	- personality will print to printer
(5)	Destination	- destination file name to print to
(6)	Printer No.	- identify printer number selection
(7)	Print Que	- que to print option
(8)	Prompt Line	- current field instruction line

The Print Personality Window, shown in Figure 5-5, is accessed by selecting **F6 Print** while in the Utility Window. This window allows you to specify specific print options associated with a personality.

Personality (3) The **Personality** field is used to identify the personality you wish to print. The default personality will be the current personality.

This field automatically defaults to the current personality. To change the file name simply cursor into the field and type in the desired personality.

Output to (4) The **Output To** field is used to identify where you will print the personality.

Using the **TAB** key as a toggle switch, specify the desired printout destination.

- Selecting "Screen" will generate a printout of the personality data to the screen allowing you to page through it.
- Selecting "Printer" will generate a hard copy printout.
- Selecting "File" allows you to set up the personality in an ASCII file format.

Destination (5) The **Destination** field is used to specify the destination file name for the printed output whenever "File" is selected in the "Output to" field.

Enter a valid destination. You can use up to 35 characters in this field.

Printer No (6) The **Printer Number** field is used to identify which printer port you will be printing to whenever "Printer" is selected in the "Output to" field.

Using the **TAB** key as a toggle switch, select the printer port for the printer:

- "1" for printer port LPT1.
- "2" for printer port LPT2.
- "3" for printer port COM1.
- "4" for printer port COM2.

After selecting the appropriate printer port, press **F1 Yes** to generate a hard copy printout.

From the Print Personality Window, function key options are:

F1 - Yes Select this option if you want to:
Print the selected personality.

F2 - No Select this option if you want to:
Cancel the print que and return to the window.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Utility Window.

NOTES

1. Whenever "Printer" is the selected for the "Output to" field and **F1 Yes** is pressed, the PC Programming Software will perform a final edit check notifying you if the printer is not on-line. Once the printer is placed on-line, press **F1 Yes** again to print the file.

2. Whenever "File" is the selected for the "Output to" field and **F1 Yes** is pressed, the PC Programming Software will perform a final edit check to see that you are not overwriting a file with information already stored on it. If you are, a warning will appear to let you know. If no file is being overwritten, a message will indicate that the printout is being generated and return you to the Utility Window.

Change Extensions

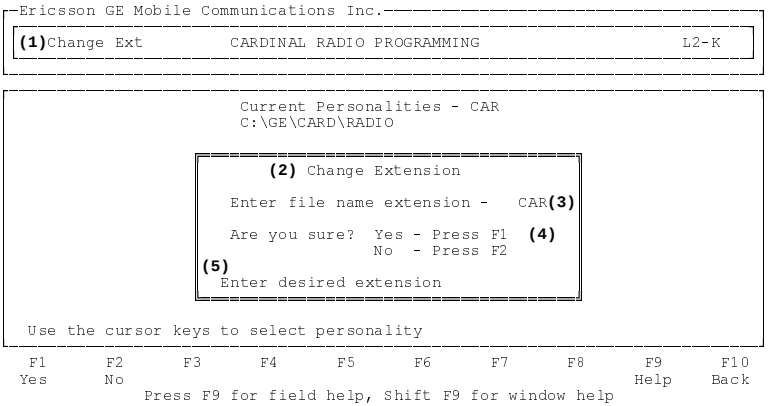

Figure 5-6: Change Extension Window

(1) Function - indicates change extension function
(2) Window Title - change extension window
(3) Enter File Name Exten. - identifies desired extension
(4) Continue Prompt - continue or abort option
(5) Prompt Line - current field instruction line

The Change Extension Window, shown in Figure 5-6, is accessed by selecting **F7 Ext** while in the Utility Window. This window allows you to select the extension where personalities are displayed on the screen.

Enter File Name Extension (3) The **Enter File Name Extension** field is used to enter the new file extension to use as the default. This extension will be displayed at the top of the Current Personalities Screen.

Enter three alphanumeric characters as valid file extensions. After specifying the extension, press **F1 Yes** to perform the change.

From the Change Extension Window, function key options are:

F1 - Yes Select this option if you want to:
Continue with this change.

F2 - No Select this option if you want to:
Cancel this procedure.

F9 - Help Select this option if you want to:
Receive further information pertaining to a field area.

F10 - Back Select this option if you want to:
Return to the Utility Window.

CHAPTER 6
WHEN PROBLEMS ARISE

This chapter is devoted exclusively to explaining the error messages you might encounter and how to rectify the situation while programming the radio. However, should your program lock up and no error message appear, it is best to reboot the system by pressing **Ctrl-Alt-Del** simultaneously. What you have previously programmed will probably be lost, so do not do this unless the keyboard keys no longer function.

A

Problem: "Alt REF.OSC. is selected. Be sure Alt REF.OSC. is installed."

This message will occur whenever the alternate REF. oscillator is selected.

Solution: Check to be sure that the standard reference oscillator has been replaced with an alternate REF. oscillator available from Ericsson GE Mobile Communications. Refer to the Radio Maintenance Manual for information on replacing the standard reference oscillator.

C

Problem: "Cannot execute read - disk full."

This message is an indication that your disk is running out of storage space. You cannot execute the read unless you have enough disk space in which to store a personality.

Solution: You will need to create disk space on your disk or get a new data disk. Refer to your DOS User's Guide for help in deleting files.

Problem: "Cannot save file - disk full."

This message is an indication that your disk is running out of storage space. You will not be able to save the personality unless you have enough disk space in which to store a personality.

Solution: You will need to create disk space on your disk or get a new data disk. Refer to your DOS User's Guide for help in deleting files.

Problem: "CCT range is 0 to 225 seconds."

An attempt was made to enter a carrier control timer value that is outside of the acceptable range.

Solution: Enter a valid carrier control timer value.

Problem: "CCT value is not divisible by 15."

An attempt was made to enter a carrier control timer value that was not divisible by 15.

Solution: Enter a carrier control timer value that is divisible by 15.

Problem: "Could not delete file."

An attempt was made to delete either a personality or a frequency set that could not be deleted, because the file doesn't exist, the drive is write protected, or there is a problem with the diskette.

Solution: Ensure that the personality you are trying to delete actually exists. Next, check to ensure that the diskette is not write protected.

Problem: "Could not open temporary file."

At various times, the PC Programmer creates temporary files for storage. This message is an indication that the program could not read one of the temporary files it created.

Solution: Please contact Ericsson Inc. if you receive this message.

D

Problem: "Directory does not exist."

This is an indication that the directory you tried to change to does not exist.

Solution: Only specify a valid path/directory when attempting to change directories.

F

Problem: "Fail to read. Check connections and recycle radio power."

This message will appear whenever handshaking with the unit fails. There are several reasons for the program being unable to handshake with the unit: power is not applied to the unit, cabling is not properly seated or connected, incorrect communications port has been specified, or the unit is malfunctioning.

Solution: The first step is to try and isolate the cause of the problem. Is the unit malfunctioning? Replace the unit with a known good unit and attempt a read. If the message reappears, then the problem is not with the unit. Is your cabling connected and seated correctly? Refer to the hardware configuration in Chapter 2 for help in making this determination. Lastly, do you have the right port specified? Go into the Utility Window and change the port setup. If the problem still appears you should check your asynchronous card for functionality.

Problem: "File does not exist."

An attempt was made to change/delete or print a personality that does not exist.

Solution: Correct the file name entry before further attempts are made.

Problem: "File exits. Press 'Y' to overwrite, 'N' to quit."

The file named already exists. You can either overwrite the existing file or cancel the execute and redefine the field.

Solution: Select 'Y' if you want to overwrite the file named and execute the command, or select 'N' to re-enter the field for editing.

Problem: "File is not correct type."

An attempt was made to change either a personality and the file selected was not of the correct type.

Solution: Remove or do not use the questionable file.

Problem: "File name invalid, do not specify extension."

An attempt was made to specify a file extension from the change/edit or delete window.

Solution: These windows do not require the addition of a file extension when the file name is specified. Remove the file extension before further attempts are made.

Problem: "File name may not contain an extension."

An attempt was made to specify a file extension from the change/edit or delete window.

Solution: These windows do not require the addition of a file extension when the file name is specified. Remove the file extension before further attempts are made.

Problem: "File not found."

An attempt was made to change/delete or print a personality that does not exist.

Solution: Correct the file name entry before further attempts are made.

Problem: "Frequency is out of range."

An attempt was made to enter a frequency that does not fall within the band split selected.

Solution: Ensure that the frequency specified falls within the band split indicated at the top of the window. Frequencies within 10 MHz at either side of the split can be entered by pressing **Cntrl-E**.

I

Problem: "Incorrect channel spacing."

An attempt was made to enter a frequency that did not fall on the correct channel spacing. VHF frequencies must be evenly divisible by .005 or .00625. UHF frequencies must be evenly divisible by .0125.

Solution: Enter a frequency that is evenly divisible by .005 or .00625 for VHF frequencies, or .0125 for all UHF frequencies.

Problem: "Incorrect file size/type."

An attempt was made to change a personality and the file selected was not of the correct type.

Solution: Remove or do not use the questionable file.

Problem: "Invalid Channel Guard entered."

An attempt was made to enter an invalid Digital Channel Guard or a tone Channel Guard that is outside of the acceptable range.

Solution: Enter a tone channel within the range of 67.0 to 210.7 or refer to Appendix D for a valid Digital Channel Guard.

Problem: "Invalid Device Number."

An attempt was made to enter a printer number that does not exist.

Solution: Enter the number corresponding to the printer port where you want the printout to be sent. There are only four choices available which correspond to LPT1, LPT2, COM1, and COM2.

Problem: "Invalid extension specified."

An attempt was made to specify an extension (from the Change Extension Window) that does not meet the conditions for a valid extension.

Solution: Ensure that the extension specified consists of only alphanumeric characters.

Problem: "Invalid port entered."

An attempt was made to specify a communications port other than COM1 or COM2. The PC Programmer Software only supports COM1 or COM2.

Solution: Use either COM1 or COM2 for programming.

Problem: "Invalid Target Drive Character."

An attempt was made to install the program to an invalid drive.

Solution: Enter the letter of a valid drive and press F1 to install the program, or press F10 to abort the operation.

Problem: "Invalid Tx/Rx pair - please enter Rx frequency."

An attempt was made to define a channel with only a transmit frequency defined. This is a condition not allowed by the programmer.

Solution: Return to the channel in question and enter a receive frequency.

P

Problem: "Printer not on line. Press enter to continue."

An attempt was made to print a personality and the printer was not on line.

Solution: Place printer on line, and press **F1 Yes** to print file.

Problem: "Problem with Print."

An attempt was made to print a personality and the main program could not initiate the print task. There are three common reasons for the print initiate to fail. There is not enough memory available, the print executable is not in the right directory for the initiate, or you are using a version of DOS earlier than version 3.0 or higher.

Solution: First, check to ensure that you are running the right version of DOS. Exit the program and at the DOS prompt, type **VER** <enter>. Typing this command will cause the DOS version to appear on the window. If this number is 1.XX or 2.XX you will need to upgrade to DOS 3.0 or higher. Next, check to ensure that CARDPT.EXE file resides in the same directory as the CARD.EXE file. If the CARDPT.EXE file is not there, copy it from the distribution diskettes. However, if the print is there, then you must be running out of memory. If you have any memory resident programs installed, then remove them before continuing.

Problem: "Problem with Read."

An attempt was made to read the unit and the main program could not initiate the read task. There are three common reasons for the read initiate to fail. There is not enough memory available, the read executable is not in the right directory for the initiate, or you are using a version of DOS earlier than version 3.0 or higher.

Solution: First, check to ensure that you are running the right version of DOS. Exit the program and at the DOS prompt, type **VER** <enter>. Typing this command will cause the DOS version to appear on the window. If this number is 1.XX or 2.XX you will need to upgrade to DOS 3.0 or higher. Next, check to ensure that CARDRD.EXE file resides in the same directory as the CARD.EXE file. If the CARDRD.EXE file is not there, copy it from the distribution diskettes. However, if the read is there then you must be running out of memory. If you have any memory resident programs installed, then remove them before continuing.

Problem: "Problem with Write"

An attempt was made to write a personality and the main program could not initiate the write task. There are three common reasons for the write initiate to fail. First, there is not enough memory available, the write executable is not in the right directory for the initiate or you are using a version of DOS earlier than version 3.0 or higher.

Solution: First, check to ensure that you're running the right version of DOS. Exit the program and at the DOS prompt, type **VER** <enter>. Typing this command will cause the DOS version to appear on the window. If this number is 1.XX or 2.XX you will need to upgrade to DOS 3.0 or higher. Next, check to ensure that CARDWT.EXE file resides in the same directory as the CARD.EXE file. If the CARDWT.EXE file is not there, copy it from the distribution diskettes. However, if the write is there, then you must be running out of memory. If you have any memory resident programs installed, then remove them before continuing.

R

Problem: "Read failed. Check connection."

This message will appear whenever handshaking with the unit fails. There are several reasons for the program being unable to handshake with the unit: power is not applied to the unit, cabling is not properly seated or connected, incorrect communications port has been specified, or the unit is turned off or malfunctioning.

Solution: The first step is to try and isolate the cause of the problem. Is the unit malfunctioning? Replace the unit with a known good unit and attempt a read. If the message reappears, then the problem is not with the unit. Is your cabling connected and seated correctly? Refer to the hardware configuration in Chapter 2 for help in making this determination. Lastly, do you have the right port specified? Go into the Utility Window and change the port setup. If the problem still appears you should check your asynchronous card for functionality.

S

Problem: "Select alternate REF. OSC. (Option F7) for this frequency set."

This occurs when a frequency is entered in the Rx Frequency field that will produce a spur with the standard reference oscillator installed. The following frequencies are known to cause spurs:

In the VHF range:	In the UHF range:
140.785 - 140.815	409.5875 - 409.6125
153.585 - 153.615	422.3875 - 422.4125
166.385 - 166.415	435.1875 - 435.2125
	447.9875 - 448.0125
	460.7875 - 460.8125
	473.5875 - 473.6125
	486.3875 - 486.4125
	499.1875 - 499.2125
	511.9875 - 512.0000

Solution: Replace the standard reference oscillator with an alternate oscillator available from Ericsson GE Mobile Communications. Refer to the Radio Maintenance Manual for information on replacing the standard reference oscillator. Once the oscillator is replaced, go into the Radio/Scan Options Window (**F7 Option**) and, using the **TAB** key as a toggle switch, select "No" in the Standard REF. OSC field.

T

Problem: "Tone A should be programmed in Table X. (F6 TONE)." "Tone B should be programmed in Table X. (F6 TONE)." "Tone C should be programmed in Table X. (F6 TONE)." "Tone D should be programmed in Table X. (F6 TONE)."

An attempt was made to enable a Type 99 Decode option that requires a tone not found in the corresponding Type 99 Tone Table.

Solution: Select **F6 Tone** from the Channel Data Screen and ensure that the tones required for the desired decode are present in the table.

- Where a channel has a GE or non-GE format tone set with Individual Decode enabled, the corresponding tone set must have Tones A and B defined.

- Where a channel has a GE format tone set with Group decode enabled, the corresponding tone set must have Tones A and D defined. However, where the channel has a non-GE format tone set with Group decode enabled, the corresponding tone set must have Tones B and C defined.

- Where a channel has a GE format tone set with Super decode enabled, the corresponding tone set must have Tones C and D defined. However, where the channel has a non-GE format tone set, then no Super decode can be enabled. Super decode is only applicable with a GE format tone set.

– Where a channel has a GE format tone set, then no Quick decode can be enabled. Quick decode is only applicable with a non-GE format tone set. However, where the channel has a non-GE format tone set with Quick decode enabled, the corresponding tone set must have Tone B defined.

V

Problem: "Valid range is 288.5 Hz to 2400.0 Hz."

An attempt was made to enter a Type 99 Tone frequency out of the permissible range of 288.5 Hz to 2400 Hz.

Solution: Either remove the Tone in question, or ensure the Tone Frequency falls within the acceptable range.

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APPENDIX A
GLOSSARY

Cursor Keys - Those keys on the right hand side of the keyboard marked with an arrow (Up Arrow, Right Arrow, Down Arrow and Left Arrow keys). They are used to control the direction of the cursor.

Default Value - The PC programming software provides predetermined (default) values in a majority of the data entry fields within the program. Exceptions to this rule are fields requiring variable names, dates, and serial numbers. The default values assume that the radio will be used without optional features. Before changing these default values, we recommend that you be familiar with the operational implications of adding a particular feature or option to the radio being programmed.

Error Messages - Each time data is entered in the program, a validity check is made to ensure that reasonable values were entered. In the event that the data does not fall within the acceptable range of values, an error message will be displayed in the center of the screen indicating non-acceptance.

Field - Refers to the area of the screen or window which allows data entry. This area is readily identifiable by a reverse video bar when moving the cursor across the screen.

Frequency Set - Refers to a collection of channels that can be saved to disks. These channels must fall within a particular band split.

Function Keys - Function keys are the keys, often found on the left-hand portion of your PC's keyboard, which begin with the prefix F. The function keys are used in the PC programming software to execute a particular command.

Help - Throughout the PC programming software, Help denotes or refers to on-line assistance. This can be accessed by pressing **F9 Help** from any field or **Shift F9 Help** from any window.

PC Programming Software - This term is used to identify the programming software for a KPC-300/400 radio.

Personality - Used generically to refer to information that is stored in the radio that makes one radio perform differently from all other radios. That information can be created, deleted or modified and stored on a disk for later reference.

Prompt Line - Assistance text located on the last line of the window. This line provides directions for entering data and changes when moving from field to field.

Ramp - Refers to rapid channel or volume advancement while depressing a key and holding it.

Screen - Refers to a major or parent data entry process and is used to show position within the program. Each screen is divided into three distinct areas: (1) screen title, (2) screen windows, and (3) active function keys. The title tells you where you are in the program hierarchy. The screen windows are provided for input of data to the screen. The active function keys provide access to the commands (or actions) available within that screen. The function key commands are labeled along the bottom of the screen. Only the function keys with labels are enabled in a given screen or window.

Squelch Tail Elimination - Refers to inverting the phase of the Channel Guard tone in order to mute the audio of the receiving radio while the carrier is diminishing after transmit ends.

Window - A window is a section of a screen that displays previously stored information, enables programming alternatives, or accepts data currently being entered. There may be more than one window within a particular screen. Each window is outlined within the screen presentation.

There are two types of windows: active and passive. The active window is available for data entry or revision and can be identified by its highlighted borders. The passive window is displayed, but is unavailable for program execution. In the case that windows have overlapping borders, the active window is presented in the foreground.

Like the screen, windows are divided into three distinct sections. They are: (1) window title, (2) work area, and (3) prompt line. The window title describes the function currently being performed. The work area is the space provided for your input to the window. The prompt line is printed information in the lower portion of the window defining in further detail the action to be taken in the work area.

APPENDIX B
FUNCTION KEYS

F1

F1 Port - From the Utility Window, the Communications Port Setup key allows you to select a port on your personal computer to be used for communicating with the radio.

F1 Setup - This key allows you to select personality defaults by entering frequency ranges.

F1 Yes - The selected operation will be executed. At times during radio programming, the program will ask if you want to complete an operation. When you press this key, the selected operation will be completed.

F1 Swap - From the Channel Data Screen, the Swap Function Key allows you to access the additional fields.

F2

F2 Change - From the Current Personalities Screen, this function key allows you to change or edit an existing personality. This key, along with the **F4 New** key, provides access to the Channel Data Screen.

F2 No - The selected operation will be canceled. At times during radio programming, the program will ask if you wish to complete an operation. When you press this key, the selected operation will not be executed.

F3

F3 Dir - From the Utility Window, the Change Directory Function Key allows you to change directories without having to exit the program.

F3 Utilty - The Utility Function Key provides access to the Utility Window from the Current Personalities Screen. The Utility Window allows you to select a communications port, change file directories, delete a personality, print a personality, or change the file extension.

F4

F4 New - From the Current Personalities Screen, this key allows you to create a new radio personality.

F4 Text - From the Channel Data Screen, the Text Select Function Key enables access into the Text Window. The Text Window automatically provides the software revision number and the date the current personality was last programmed. Also, this window accepts additional information (in text format) which you may wish to include about a particular personality.

F5

F5 Delete - From the Utility Window, the Delete Function Key can be used to delete or remove a personality from the data base.

F5 Progrm - The Program Function Key is enabled in both the Current Personalities Screen and the Channel Data Screen. In the Current Personalities Screen, this function writes a personality stored in memory to the radio. In the Channel Data Screen, this key will download the personality on the screen into a radio.

F6

F6 Print - From the Utility Window, the Print Function Key allows you to obtain a paper copy of personality data, print personality data to a file, or print personality data to the screen.

F6 Read - The Read Select Function Key is accessed from the Current Personalities Screen. This key provides the capability to read a specific radio personality into a file.

F6 Scan - From the Radio Options Window, the Scan Options Function Key allows you to define additional radio options associated with a KPC Scan radio.

F6 Tone - From the Channel Data Screen, the Type 99 Tone Table Function Key allows you to define tone combinations for a KPC radio.

F7

F7 ANI - From the Radio Options Window, the A.N.I. Options Programming Function Key allows you to define A.N.I. options associated with KPC Scan personalities.

F7 Ext - From the Utility Window, the Extension Select Function Key allows you to define a new three letter default extension.

F7 Option - The Option Select Function Key provides the capability to create or modify channel data options in the Radio Options Window.

F8

F8 DTMF - The DTMF Select Function Key allows you to define the Automatic Dialing Table associated with a KPC Scan personality.

F9

F9 Help - Used to provide assistance from any screen or window. Whenever you have a question about the execution of an operation, select this key. There are two levels of help messages:

Field Level Help messages are provided from any screen or any window by simply pressing **F9 Help** and provide additional information on the field in question.

Window Level Help messages are provided by pressing **Shift-F9 Help** and describe the purpose of the data presented in the window.

F10

F10 Back - When this key is pressed you will return to a previous window, making it active again for further revisions or data entry. In some cases, it will return control of the program to the Current Personalities Screen.

F10 Exit - When selected from the Current Personalities Screen, the program is terminated and you are returned to the control of your disk operating system (DOS).

APPENDIX C
ACCEPTABLE VALUES

Input Field	Acceptable Values	Default Value
Valid Radio		
Display Characters	A-Z, 0-9, -, _, $, %, !, ', ^, &, (,), @, #, {, }, ~	blank
Frequency Range		
	VHF: 136-153, 150.8-174 UHF: 403-440, 440-470, 470-512	UHF 403-440
Channel Data		
Tx Frequency	VHF - In the band split and evenly divisible by .005 MHz or .00625 MHz. UHF - In the band split and evenly divisible by .0125 MHz.	blank
Rx Frequency	VHF - In the band split and evenly divisible by .005 MHz or .00625 MHz. UHF - In the band split and evenly divisible by .0125 MHz.	Tx Frequency
Tx Channel Guard	Tone - 67.0 - 210.7 Hz Digital - see Appendix D Inverted - see Appendix D	blank
Rx Channel Guard	Tone - 67.0 - 210.7 Hz Digital - see Appendix D Inverted - see Appendix D	Tx Channel Guard

Input Field	Acceptable Values	Default Value
Channel Data (Cont'd)		
Pwr	Hi or Lo	Hi
STE	Yes or No	No
DTMF	Yes or No	No
ANI	Yes or No	No
Bsy	Yes or No	No
Tb	1 or 2	1
Ind	Yes or No	No
Grp	Yes or No	No
Spr	Yes or No	No
Qck	Yes or No	No
Rx Xtal	Yes or No	No
Tx Xtal	Yes or No	No
Spac	12.5 or 25	25
Type-99 Tone Table		
Power Up Mode	Selective or Monitor	Selective
GE Format?	Yes or No	Yes
Tones A - D	288.50 - 2400 Hz	Blank
Radio Options		
Carrier Control Timer	0 - 225 in 15 sec intervals	60
Audio Alert Beep	Yes or No	Yes
Backlight	Yes or No	Yes
Standard REF. OSC	Yes or No	Yes
Chan Guard Enable	Manual or Auto	Manual
Scan Options		
Scan Hang Time (secs)	0.3 to 5.0	2.0
Hang after PTT Release	Yes or No	Yes

Input Field	Acceptable Values	Default Value
Scan for Channel Guard	Yes or No	Yes
Transmit Channel in Scan	Sel CH or Rec CH	Sel CH
Beep on Receiving Priority 1	Yes or No	Yes
Scan Programming Mode	FRONT, FIXED, or SELEC	FRONT
Priority 1 is Channel	any valid channel	blank
A.N.I. Options Programming		
A.N.I. Code	0 - 16383	12345
PTT A.N.I. delay (msec)	0 - 2000	300
PTT A.N.I. Transmission	Front or End	Front
PTT A.N.I. End Beep	Yes or No	Yes
Enable Emergency	Yes or No	No (cannot be set to Yes unless 16 Ch. Scan selected)
How many repeat xmits	0 - 15	1
Delay between repeats	1 - 15	1
Beep on Transmit	Yes or No	No
Home Function Active	Yes or No	No (cannot be set to Yes unless 16 Ch. Scan selected)
Home Channel	Channel number that has been previously defined on Channel Data Screen.	blank

Input Field	Acceptable Values	Default Value
Automatic Dialing Table		
Number	1st digit: 0 - 9, * or #, remaining digits: numeric digits - up to 12 (0 - 9)	blank
Start Gap	100 msec - 5000 msec	blank
Digit length	100 msec - 5000 msec	blank
Gap length	100 msec - 5000 msec	blank
Current Personalities Screen Program Radio Window		
Selected Filename	Any eight character alphabetic valid DOS file name that corresponds to a currently defined personality.	Highlighted name in the Current Personalities Screen.
Read Radio into the File		
Enter Filename	Valid DOS file name	blank

APPENDIX D
PRIMARY & INVERTED DIGITAL CODES

PRIM. CODE	INVERTED CODE	PRIM. CODE	INVERTED CODE	PRIM. CODE	INVERTED CODE
023	47	132	317	237	26
025	176	133	54	243	351
026	237	134	223	245	72
031	37	135	213	246	523
032	51	136	114	252	462
036	57	142	74	254	346
037	31	143	127	255	446
043	222	144	363	262	235
047	23	145	274	266	454
051	32	147	71	271	65
053	452	150	307	274	145
054	133	152	115	276	67
056	331	153	231	307	150
057	36	155	447	311	344
060	76	156	171	312	163
065	271	157	162	315	234
066	217	161	324	317	132
067	276	162	157	324	161
071	147	163	312	325	526
072	245	164	227	331	56
073	224	165	236	332	455
074	142	171	156	344	311
075	123	176	25	346	254
076	60	212	356	351	243
104	117	213	135	356	212
107	125	217	66	363	144
114	136	222	43	446	255
115	152	223	134	447	155
117	104	224	73	452	53
122	225	225	122	454	266
123	75	227	164	455	332
125	107	231	153	462	252
127	143	234	315	523	246
130	131	235	262	526	325
131	130	236	165		

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APPENDIX E
CHANNEL GUARD
TONE FREQUENCIES

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

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APPENDIX F
WORK SHEET FOLDER
Work Sheet A - Setup

FREQUENCY RANGE:	
VHF -	136 - 155
	150.8 - 174
UHF -	403 - 440
	440 - 470
	470 - 512

APPENDIX F
WORK SHEET FOLDER
Work Sheet B - Channel Data
Part 1

PERSONALITY _____

CH	TX. FREQ.	RX. FREQ.	TX CHAN. GUARD	RX CHAN. GUARD

APPENDIX F
WORK SHEET FOLDER
Work Sheet B - Channel Data
Part 2

PERSONALITY ____________________

	CHANNEL OPTIONS					TYPE-99 DECODES							
CH	POWER	STE	DTMF	ANI	BUSY	TABLE	INDIV	GROUP	SUPER	QUICK	Rx Xtal	Tx Xtal	Spac
	Hi Lo	Yes No	Yes No	Yes No	Yes No	1 2	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	12.5 25
	Hi Lo	Yes No	Yes No	Yes No	Yes No	1 2	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	12.5 25
	Hi Lo	Yes No	Yes No	Yes No	Yes No	1 2	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	12.5 25
	Hi Lo	Yes No	Yes No	Yes No	Yes No	1 2	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	12.5 25
	Hi Lo	Yes No	Yes No	Yes No	Yes No	1 2	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	12.5 25
	Hi Lo	Yes No	Yes No	Yes No	Yes No	1 2	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	12.5 25
	Hi Lo	Yes No	Yes No	Yes No	Yes No	1 2	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	12.5 25
	Hi Lo	Yes No	Yes No	Yes No	Yes No	1 2	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	12.5 25

APPENDIX F
WORK SHEET FOLDER
Work Sheet C - Type-99 Tone Table

PERSONALITY _____

POWER UP MODE:	Selective	Monitor	
TABLE 1		**TABLE 2**	
GE FORMAT?	Yes No	Yes	No
TONE A _____		_____	
TONE B _____		_____	
TONE C _____		_____	
TONE D _____		_____	

—If a channel has Individual Decode enabled with the GE or non-GE format, the corresponding tone set must have Tones A and B defined.

—If a channel has Group Decode enabled with the GE format, the corresponding tone set must have Tones A and D defined. If a channel has Group Decode enabled with the non-GE format, the corresponding tone set must have Tones B and C defined.

—If a channel has Super Group Decode enabled with the GE format, the corresponding tone set must have Tones C and D defined. A channel with Super Group Decode enabled cannot have the non-GE format.

—If a channel has Quick Group Decode enabled with the non-GE format, the corresponding tone set must have Tone B defined. A channel with Quick Group Decode enabled cannot have the GE-format.

APPENDIX F
WORK SHEET FOLDER
Work Sheet D - Radio Options

PERSONALITY _____

CARRIER CONTROL TIMER	AUDIO ALERT BEEP	BACKLIGHT
	Yes No	Yes No

STANDARD REF. OSC.
Yes No

CHANNEL GUARD ENABLE
Manual Auto

APPENDIX F
WORK SHEET FOLDER
Work Sheet E - Scan Options

PERSONALITY _____

SCAN HANG TIME	HANG AFTER PTT RELEASE	SCAN FOR CHANNEL GUARD
	Yes No	Yes No

TRANSMIT CHANNEL IN SCAN	BEEP ON RECEIVING PRIORITY 1	SCAN PROGRAMMING MODE	PRIORITY 1 IS CHANNEL
Sel CH Rec CH	Yes No	Front Fixed Selec	

APPENDIX F
WORK SHEET FOLDER
Work Sheet F - A.N.I. Options Programming

PERSONALITY _____

A.N.I. CODE	PTT A.N.I. DELAY	PTT A.N.I. TRANSMISSION	PTT A.N.I. END BEEP
		Front End	Yes No
ENABLE EMERGENCY	**HOW MANY REPEAT TRANSMITS**	**DELAY BETWEEN REPEATS**	**BEEP ON TRANSMIT**
Yes No			Yes No

HOME FUNCTION ACTIVE	HOME CHANNEL
Yes No	

APPENDIX F
WORK SHEET FOLDER
Work Sheet G - Automatic Dialing Table

PERSONALITY _____

LOCATION	NUMBER	START GAP	DIGIT LENGTH	GAP LENGTH
1				
2				
3				

Ericsson Inc.
Private Radio Systems
Mountain View Road
Lynchburg,Virginia 24502
1-800-528-7711 (Outside USA, 804-528-7711)

AE/LZT 123 1895 R1A
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