ERICSSON

Mobile Communications
PC Programming

M-PD™

For
IBM PC/XT
Or True PC Compatible

Programming Guide

PERSONAL COMPUTER PROGRAMMING
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CHAPTER 1
PREPARATION

INTRODUCTION

General Electric would like to welcome you to the exciting world of mobile radio communications. It is our belief that there is no equal to GE products and we, the General Electric Mobile Communications Division have made a total commitment to our customers to ensure that product satisfaction and reliable service is our number one priority.

Today, mobile communications technology is keeping pace with the giant steps presently being attained by the computer industry. The two worlds have made a partnership and we at General Electric are extremely proud of the innovative and imaginative advancements that our engineers, programmers, and scientists have provided for our mobile communications products.

The **M-PD VOICE GUARD®** Personal Radio has many of these state of art advancements incorporated in it, making it an extremely high quality, high performance, synthesized, two-way, FM communications unit suitable to high priority environments.

With regard to this particular manual, direct your interests to the programmable features of the M-PD VOICE GUARD Personal Radio and their relationship to servicing. The programmable features of this radio helps the service technician to quickly prepare, efficiently service, correctly troubleshoot, and then retain all the information required to maintain the particular radio personality which has been chosen.

Specifically, this manual is designed to present you with all the necessary information required to

A. Program the personality of the M-PD VOICE GUARD Personal Radio

B. Test and evaluate program information

C. Answer questions regarding program directions

As you are using your personal computer in other facets of your work, the intent of this manual is to facilitate ease of assembly and application. We encourage you to study this manual thoroughly to its conclusion prior to installing the Serial Programming Interface Module and commencing the PC Programming Software in an actual service situation. Once you have familiarized yourself with the application of the system, you are encouraged to practice with the PC Programming Software Manual guiding you step by step through each phase of the program. Though the program contains prompts, which appear on the screen, there are certain keyboard actions which may be required which do not appear and which are only contained in this PC Programming Software manual. Therefore, you are cautioned to work slowly and carefully in the beginning to preclude errors which might degrade the quality of the radio personality and possibly require further detailed and time consuming efforts on your part to correct.

PC PROGRAMMING SOFTWARE REQUIREMENTS

This M-PD VOICE GUARD Personal Radio PROGRAMMING SOFTWARE requires the use of specific hardware and software without which the PC Programming Software may not be executed.

They are as follows:

A. IBM PC/XT/AT or any true compatible with MS-DOS, version 3.1 or later

B. Two drives (dual floppy or one floppy drive and hard disk)

C. 640K Internal RAM

D. A serial port

E. A parallel port

F. Serial Programming Interface Module TQ-3310

G. M-PD Personal Radio Programming Cable TQ-3311

H. RS-232 Cable

I. M-PD Programming Software TQ-3319.

J. Printer (Optional but recommended)

BACKUP SOFTWARE

The M-PD VOICE GUARD Personal Radio PC Programming Software is provided to you on a set of double sided double density 5-1/4 inch diskettes. As these diskettes are very sensitive and fragile they should be handled with extreme care and stored in a secure area.

We recommend that upon receipt of your set of diskettes, that you copy the original set of M-PD VOICE GUARD Personal Radio PC Programming Software Diskettes to another set of diskettes or fixed hard disk and store the original set in a safe place. This ensures the availability of an accurate program should a copy fail during PC Programming Software applications (refer to **APPENDIX A** for additional information).

DISKETTE HANDLING

While working with your diskette you may want to consider the following handling procedures:

A. Always store your diskette in its envelope.

B. Insert the diskette into the drive carefully.

C. Use only felt pens to write on diskette labels.

D. Store your diskette at a comfortable room temperature.

E. Refrain from touching the recording surface.

F. Do not bend the diskette.

G. Do not allow any form of liquid to come in contact with the diskette surface.

H. Keep the diskette away from magnetic force fields as found in electronic equipment.

If you follow these very simple common sense guidelines you is receive long service from your diskette.

INSTALLATION AND CONFIGURATION

Software Management

All M-PD VOICE GUARD Programming Software resides on the fixed disk or diskette. To reference and access this software you are first required to install this software on the hard disk. This hard disk set up is accomplished by the procedures as follows:

STEP 1. Find the diskette labeled **"VG INSTALLATION DISKETTE 1"** and place it in the **A:** drive.

STEP 2. At the **A>** prompt, type:

INSTALL and press **<ENTER>**

STEP 3 The installation program will ask a series of questions to aid you in installing the software. Should questions arise, refer to your **MS-DOS** Reference Manual.

For dual floppy computers
see APPENDIX A.

Personal Computer

Your personal computer, dependent upon its manufacturer, has certain unique operating characteristics which makes it different from other computers of similar capability. We advise you to become fully conversant with your computer's operating characteristics by referring to the manufacturer's operating guide.

Printer Option

We recommend that you have a printer as one of your output devices, but emphasize that it is not required for the M-PD VOICE GUARD Personal Radio PC Programming Software to successfully operate.

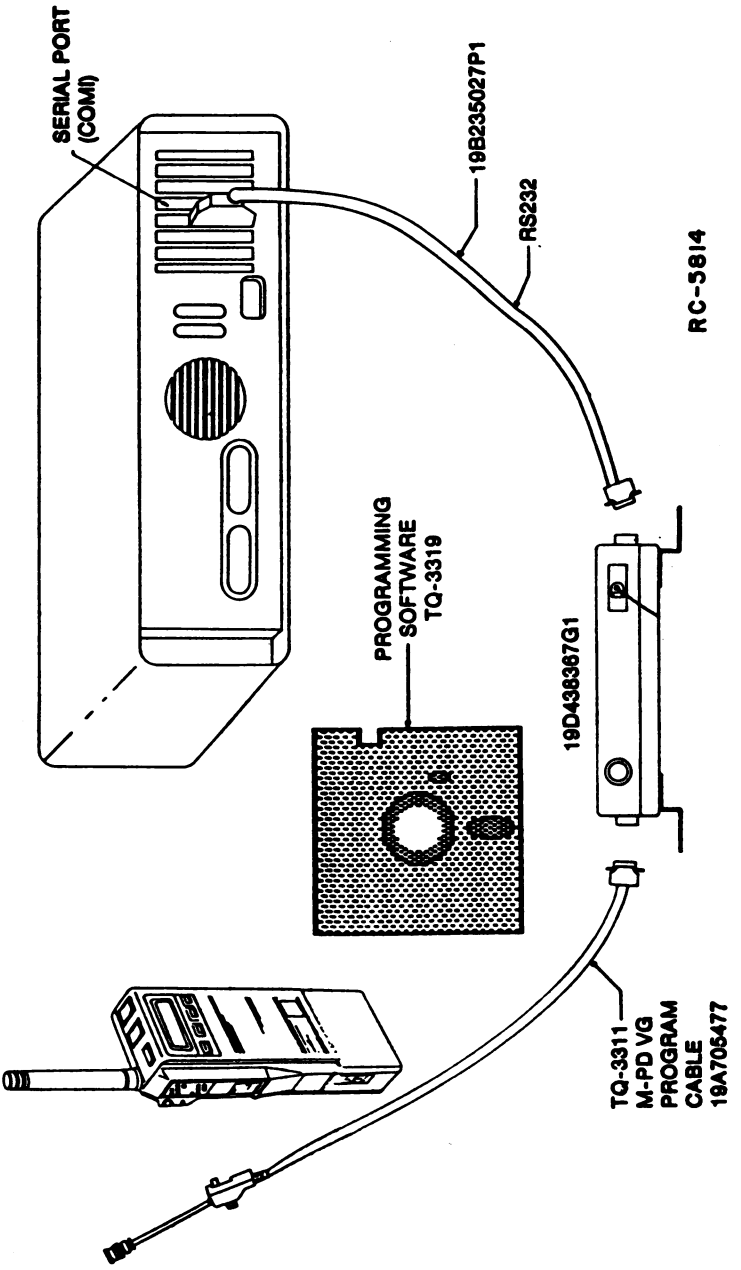


Figure 1 - Programming System Hook Up

Computer Equipment Assembly

Connect all peripheral equipment to your computer prior to configuring the M-PD VOICE GUARD Personal Radio PC Programming Software items. Remember to refer to the operating manuals of each device for correct installation procedures.

However, if your system is established, check to see that you have all the equipment necessary to execute the PC Programming Software. Isolate all cables connecting computer to devices to prevent tangling, interference and damage.

Serial Programming Interface Module Configuration

Now that the preceding is accomplished, you are ready to configure the M-PD VOICE GUARD Personal Radio PC Programming Software Equipment.

First, look at Figure 1 and then, at your computer to locate a serial port, normally located on the rear of the base. Of course, this is dependent upon the design of your computer so 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 "PC's" and clones that emulated the IBM PC/XT/AT's. One is the 25 pin RS-232 output that has a DB-25 male connector at the computer. This configuration will connect directly to the cable provided with the Programming Interface Module. That is, if the cable was ordered with the module. The other standard is a DB-9 male connector at the computer. The DB-9 is the type that is used on the "AT" and most of the portable lap top computers. Even though we at GE are making an effort to configure our Programming Interface Module to work with the different configurations of computers, you may have to get in touch with the representative of your computer to get it properly connected to the Programming Interface Module. The Programming Interface Module uses a standard RS-232, DB-25, female connector like most Data Communication Equipment (i.e., modems).

Please note at this point that the M-PD VOICE GUARD Personal Radio PC Programming Software only communicates with the radio and its interface on the serial port designated as COM1 or COM2. Your computer references assists you in determining which serial port has been so designated. Once located, examine the keyed plug on the RS232 cable for the correct keyed end and insert it carefully into the appropriate serial port on the computer. Then connect the other end into the keyed receptacle on the M-PD VOICE GUARD Personal Radio Serial Programming Interface Module. Carefully check 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 plugs not seat correctly to its receptacle remove the plug and examine the pins, first to determine if the proper plug was inserted, and secondly to determine if pins are aligned and undamaged. Damaged pins and broken connections will cause the PC Programming Software to fail.

The second step in this configuration is just as simple as the first. Position the M-PD VOICE GUARD Personal Radio on your work area in a convenient location. Then connect the M-PD VOICE GUARD Programming Software Cable to the Universal Device Connector (UDC) located on the side of the radio, insuring that the pins in the keyed plug are firmly seated. Then carefully tighten the locking screw. As shown in Figure 1, the opposite end of the M-PD VOICE GUARD Personal Radio Program Cable is inserted into the smaller receptacle on the face of the M-PD VOICE GUARD Personal Radio Serial Programming Interface Module. Again, you should ensure that the

plug is fully seated in its receptacle. The first phase of the PC Programming Software, hardware installation, is completed and now all of the hardware items are ready, awaiting your first PC Programming Software command.

You should be aware of what type computer is available to you to service the M-PD VOICE GUARD Personal Radio and make yourself familiar with how to operate that particular DOS.

SOFTWARE PREPARATION

To protect against the loss, damage or destruction of your M-PD VOICE GUARD Personal Radio PC Programming Software, we previously recommended that you copy the original diskette and then store it in a secure place, thus ensuring that you have an accurate working program readily available. The copy that you have made is used for your daily service tasks and you will refer to it as the "working copy."

Also we discussed that you might encounter a number of computer systems with different disk drive systems. There are the single diskette system, the dual diskette system, and the fixed or hard disk system. Basically the steps in making a "working copy" for each system is the same, but there are some variations you should be aware of. If you have any doubts concerning the procedures, the steps required to make a copy of your M-PD VOICE GUARD Personal Radio PC Programming Software Diskette are contained in **APPENDIX A.**

M-PD VOICE GUARD PERSONAL RADIO PC PROGRAMMING SOFTWARE CHARACTERISTICS

At this point, you have connected all the hardware equipment to the computer, you have a working copy of the M-PD VOICE GUARD Personal Radio PC Programming Software and you are now anxious to see where this technology is going to lead. But let's take a few moments to discuss some important parameters, or if you like characteristics, which will serve you well to know prior to executing the PC Programming Software.

The PC Programming Software simplifies your service assignment by utilizing a sophisticated scheme of program paths and screen presentations. There are four types of transition screens that you should be familiar with. These screens enable you to select a path for your PC Programming Software execution. Each screen is divided into three distinct areas. They are:

- Title
- Work Area
- Active Function Key

The following are the six major categories of M-PD VOICE GUARD PC Programming Software screens:

- Personality Directory Screen
- Utility Screen

- Radio Personality Screen
- Maintenance Screen

Personality Directory Screen

The first PC Programming Software screen presentation is the Personality Directory Screen. This screen lists the file names of all stored M-PD VOICE GUARD Radio personalities presently maintained in this special directory.

Set Up Screen

The Set Up screen permits you to specify the type of radio (Scan or System) and the frequency band of the radio.

Utility Screen

The Utility Screen provides you the ability to execute infrequently used PC Programming Software functions such as changing directories, changing file extensions, deleting files and specifying a communication port for your PC.

Channel Data Screen

This screen simplifies the process of revising a particular radio personality allowing immediate access to all current M-PD VOICE GUARD personalities contained in the M-PD VOICE GUARD Personality Directory.

Screen Windows

A window is a section of a screen that displays previously stored information, enables programming alternatives, or accepts data currently being entered during a service assignment. There may be more than one window to a particular screen. It can be identified by its highlighted outline within the screen presentation. In the event that there is more than one window to a screen, borders may overlap.

There are two types of windows. The passive window is displayed but is unavailable for program execution. The active window is available for data entry or revision and can be identified by its high lighted borders. There may be up to three windows displayed at a time, only one of which is active. 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:

- Window Title
- Work Area
- Prompt Line

The prompt line may be unfamiliar to you. It is printed information in the lower portion of the window defining in further detail the action to be taken in the work area.

Error Detection

The accuracy of information entered into the PC Programming Software is of critical importance. To ensure that the information entered into data fields is correct a validity check operation has been built into this program.

Before the PC Programming Software allows you to execute further data entries, it reviews and validates the current data entry. In the case of incorrect information, a message appears across the screen indicating the problem and the cursor remains stationary at the error field until corrective action is taken.

Although the validity check is a sophisticated way of insuring that no errors find their way into a radio personality, it should not be assumed to be fool proof. You are cautioned to check the accuracy of your work prior to departing a particular screen or window.

PC Programming Software Assistance

During the execution of the PC Programming Software, you may find a point at which you require assistance. This software package maintains help files on the PC's fixed hard disk or on the diskette. By pressing the Help Key during the execution of a particular screen, the software reads the appropriate information to assist you and displays it on the screen.

You are encouraged to be fully familiar with the operation of the software, as the assistance files are limited to specific areas of information and may not cover all details involved in the execution of a specific operation.

Remember that your most useful source of information is this manual. Keep it available at all times.

CHAPTER 2
STARTING UP

The hardware is configured and you now have a working copy of the M-PD VOICE GUARD Personal Radio PC Programming Software. If you are familiar with the various screens used in entering the data for the M-PD VOICE GUARD Personal radio, you may skip to the section **BASIC PROGRAMMING PROCEDURE.** However, if you are not familiar with the type of data to enter and the various screens, be sure to read and study those instructions under the heading **M-PD VOICE GUARD INTRODUCTION TO SCREENS** (refer to the Table of Contents).

You may enter and save data for programming the radio using the PC software without turning on the radio. However, before you can download this data into a radio or read the data from a previously programmed radio, the radio must be turned on. Be sure that you have checked the serial number and model of the radio to ensure that you are servicing the correct radio. When you are not using the radio for M-PD VOICE GUARD Personal Radio program operations, ensure that it is turned off.

PC PROGRAMMING SOFTWARE INITIALIZATION

When you turn on your personal computer, it begins an initialization routine which every system must go through to prepare for operation. During the initialization of your system, the **MS DOS** program is loaded into memory. Remember that **MS DOS** is the interpreter between your keyboard actions and the capabilities of the M-PD VOICE GUARD Personal Radio PC Programming Software.

PC PROGRAMMING SOFTWARE ENTRY

The system is now ready for your first M-PD VOICE GUARD Personal Radio PC Programming Software command.

After inserting you M-PD VOICE GUARD Radio PC Programming diskette into Drive A, you type:

VG then press <Enter>

The M-PD VOICE GUARD Personal Radio PC Programming Software is loaded into memory and an introductory screen appears identifying the program.

KEYBOARD ORIENTATION

It is important for you to be thoroughly familiar with the keyboard of your computer system. As each keyboard is different, depending upon the manufacturer, keys required to execute the M-PD VOICE GUARD Personal Radio PC Programming Software have to be located and identified.

Definitions

The PC Programming Software provides five categories of operational keys. They are:

- Function Keys
- Character Keys
- Editing Keys
- Movement/Acceptance Keys
- Special Usage Keys

Function Keys

Function keys are defined as those keys, normally found on the left-hand portion of your PC's keyboard with the prefix F. There are two types of function keys:

- Active
- Inactive

Inactive function keys have no operational capabilities during the execution of a screen or window where they have been disabled by the software. During the execution of the PC Programming Software, you note that on the lower portion of each screen where the function keys are listed, inactive function keys are not labeled.

Active function keys, on the other hand are labeled, and by pressing a specific function, the software executes the action delegated to that particular key.

The purpose of a particular function key is dependent upon the screen that its labeled operation is related to. Simply, a function key may be labeled differently from one screen to the next. Be sure that you fully understand the purpose for the function key prior to pressing it.

The function keys are alphanumerically labeled F1 - F10. Each function key can take on several software services. The active function keys are displayed at the bottom of each screen along with its function.

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 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: ' ~ ! @ # $ % ^ & * ( ) _ - \ | [{ }] ? / < >

Editing Keys

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

Left Arrow: Each time the arrow is pressed it moves the cursor one character to the left until the left most position is reached.

Right Arrow: Each time the arrow is pressed it moves the cursor one character to the right until the 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 entered information.

Cap Lock: Enabled, the Cap Lock Key writes all alphabetic characters in capitalized letters.

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

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

Control/Backspace: By simultaneously pressing both keys all characters to the left of the cursor are deleted and then all characters opposing the deletion are moved right or left to fill the space.

Movement and Acceptance Keys

These keys enable movement or 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 into the present field is accepted and the cursor is returned to the previous field.

Down Arrow: The data entered into 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 a predetermined field between selections such as a Yes or No response.

Special Usage Keys

Two keys are represented in this category.

Page Up (Pg Up): Used to return to a previous page on the Help Screen. The Help Screen will retreat one page at a time until the beginning page is presented.

Page Down (Pg Dn): Used to advance to the following page on the Help Screen. The Help Screen can be advanced one page at a time until the end page is presented.

This concludes the section related to the keyboard. There are exceptions to the information presented in this section. Some screen such as the Current Personality Screen require that keys other than ones described above be used to move the cursor. On these screen, no editing features are available. As only a selection operation is necessary, the Left, Right, Up and Down arrows are sufficient to provide logical movement within the menu and the appropriate fields.

PROGRAMMER I/O OPTIONS

The M-PD VOICE GUARD Personal Radio PC Programming Software has the capability to store or retrieve M-PD radio data. Essentially this means that as you execute this program to define the personality of a radio, the PC Programming Software stores the information. It also means that if you wish to store the personality of a radio, the PC Programming Software can retrieve the information from the radio through the Serial Programming Interface Module and store it in memory.

It is important to remember the following in the simplest terms. Each M-PD VOICE GUARD Personal Radio contains a PROM (Programmable Read Only Memory) in which is stored the personality of the radio. A PROM can be reprogrammed innumerable times to reflect changing environments or just changing customer preferences.

M-PD VOICE GUARD RADIO PC PROGRAMMING SOFTWARE WORK FOLDER

Prior to initiating any service assignment with a M-PD VOICE GUARD Personal radio, it is important that you organize the procedures involved.

In this regard, we have prepared a work folder to assist you with organizing the data required to complete a service assignment. A service assignment is defined as the period of time that a technician is involved in the creation or revision of one M-PD VOICE GUARD Personal Radio personality. An example of the complete work folder is found in **APPENDIX B**— M-PD VOICE GUARD Personal Radio PC Programming Software Work Folder.

Purpose

The function of this work folder is to ensure that all the information you require to complete your task is prepared and available to you as you enter keyboard data. Secondly, you are able to relate the information in the work sheet to a particular screen as each sheet is designed to provide all the information required to complete a particular screen. Lastly, by maintaining your work folder for each radio, you are able to make individual changes on the work sheet and then to the radio without a great deal of effort.

If you are creating a new personality for the M-PD VOICE GUARD Personal Radio, the completion of the work folder is a good way to prepare you for data entry operations with one exception. All radios contain prescribed tracking data which you want to retain in your records. Following the same approach as with a radio previously programmed is also recommended. In the event a radio has an existing personality, ensure that you have completed the following:

1. Stored the M-PD VOICE GUARD Personal Radio's personality in a file.
2. Examine the key information which must be edited to accomplish the work assignment.
3. Identify specific data entry operations to edit existing information.

The M-PD VOICE GUARD Personal Radio PC Programming Software Work Folder is a collection of prescheduled and predetermined information used to program a particular radio. The work folder will direct you how to enter information. The important point for you to remember is that each work folder sheet is related to a data entry screen provided by the program.Once you have arrived at an appropriate data entry screen, you need only to enter the information contained on the work sheet.

Default Values

The M-PD VOICE GUARD Personal Radio PC Programming Software provides for predetermined values in a majority of the data fields contained in each data entry screen. An exception to this rule are fields requiring variable names, dates, and serial numbers. These predetermined values, known as Default Values, are states of a programmable feature or features during normal operation of the radio. Normal operation of the radio is to be considered, the use of the radio without special features and at a level representative of ordinary use. A service technician should be totally familiar with reason for a specific default value and should exercise extreme caution prior to changing these predetermined values.

Work Folder Procedures

Prior to executing any work folder procedures, you want to ensure that the overall communications system which your service assignment is dedicated to has been completely documented and that you are familiar with its configuration.

Your service assignment may only involve the personality of only one unit, but it is important to remember that each unit within an entire communications system performs an intricate role.

We recommend that you complete each sheet of the work folder in sequential order. Note that the work sheets contain all the information which is required to program either the SCAN or SYSTEM Radio if such data is applicable to that particular radio. In our discussion we try to familiarize you with each work sheet so that you are able to picture the screen as it pertains to a particular work sheet in this work folder.

CHAPTER 3
VG INTRODUCTION TO SCREENS

Screens for M-PD Voice Guard radio personality programming consist of four major data entry screens as follows:

- Personality Directory Screen
- Set Up Screen
- Utility Screen
- Channel Data Screen

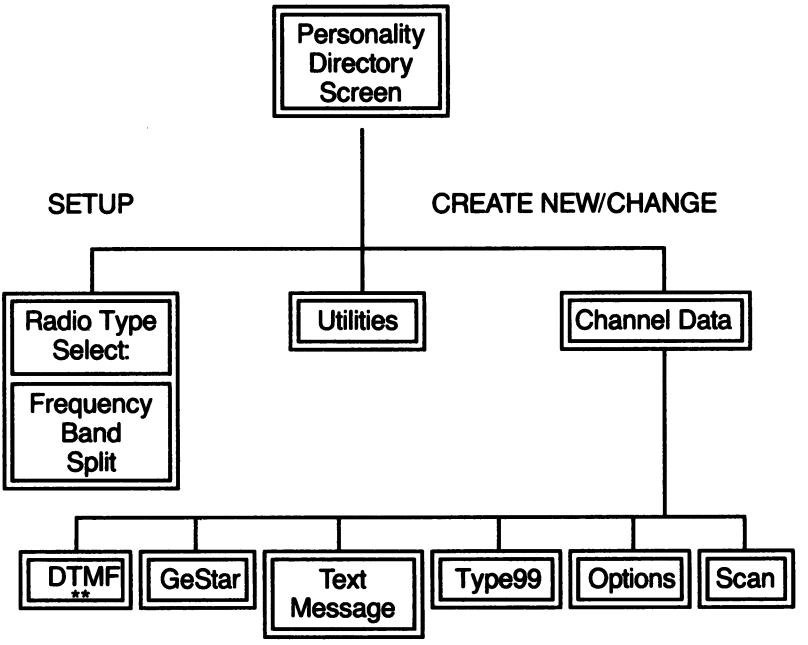
The Set Up, the Utilities and the Channel Data screens are all accessible from the Personality screen (refer to Figure 2). From each of these four screens "pop up" windows are accessible for entering data related to the selected screen. Also, **HELP** messages are provided from any screen or any window by simply pressing the **F9 Help** function key.

From the Personality Directory Screen you can select an existing file or elect to create a new one. You then have the option of initiating one of the actions indicated by the function keys along the bottom of the screen. Only the function keys with labels are enabled.

If you choose the Set Up Screen, you can specify the type of radio (Scan or System) and the frequency band split.

If you choose the Utilities Screen, you can change directories, print a file, add or change a file name extension and delete a file.

If you choose the Channel Data Screen by selecting from the Personality Directory Screen **F2 Change** or **F4** New, you can specify channels and modes which include main channel data such as transmit and receive frequencies, Channel Guard tones and Carrier Control Timer. You can specify CCT time in minutes. From the Channel Data Screen you can access any one of six data entry windows (five for the Scan radio) with the function keys at the bottom of the screen. There is also a function key that brings up a window tor programming the radio.



**—System (16-Key)

Figure 2—Programming Flow Chart

SCREEN DEFINITIONS

PERSONALITY DIRECTORY SCREEN

Upon initiation of the program, the Personality Directory Screen is the first screen displayed. This screen, as shown in Figure 3, lists the file names of all stored personalities in the selected directory.

You can select any particular file in the directory screen simply by using the right/left/up/down arrow cursor keys. The cursor keys move a highlighted bar, so that you know at all times which file is selected. Of all the function keys displayed along the bottom of the screen, only **F2 Change** and **F5 Progrm** apply to the selected file. Pressing either of these function keys causes the specified action to take place on the selected file.

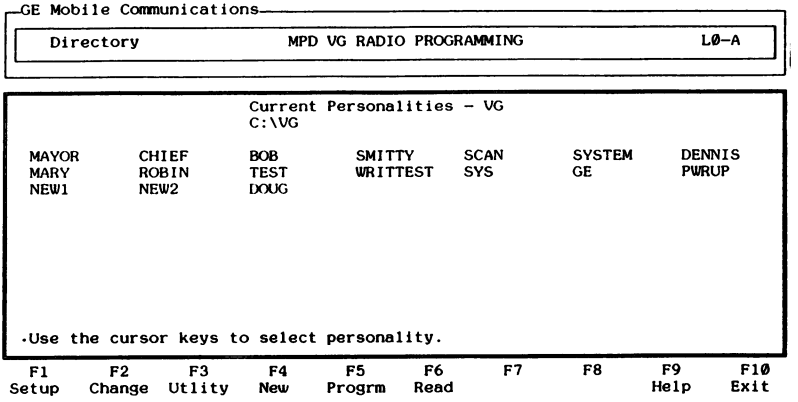


Figure 3—Personality Screen

Function key definitions along with a detailed description of each key for the Personality Screen are as follows:

F1 Setup: Allows you to specify the radio type and frequency band split to be programmed.

F2 Change: You can change a file. The file currently selected will be opened for editing.

F3 Utility: Allows you access to infrequently used functions such as Directory **F3 Dir, F6 Print,** Change Extension **F7 Ext** and **F5 Delete.**

F4 New: You can create a new radio personality using the present information in the set up.

F5 Program: Allows you to program a radio using the selected personality.

F6 Read: Reads the personality from a radio into a file.

F9 Help: Displays any Help messages.

F10 Exit: Exits the Programming software.

Change Window

The change personality "pop-up" window is displayed when you select F2 Change from the current Personality screen (refer to Figure 4). This window asks for the file name of the personality to change. The default name is the file selected when F2 was pressed. Only function keys **F1 Yes, F2 No , F9 Help** and **F10** Back are enabled. When the desired personality has been identified, you can select **Yes** to continue or **No** to cancel. Pressing **F1 Yes** from this change window places you at the Channel Data Screen, to be covered later.

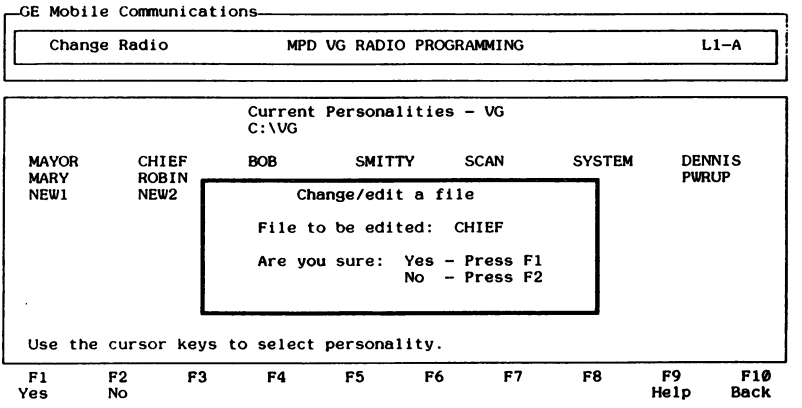


Figure 4—Change Personality Window

Program Radio Window

From this window, you can program a radio without having to enter an "edit" mode. Select the file to be used for programming and then press the **F5 Progrm** key. When F5 is pressed from the Personality Directory Screen, the "pop up" window is displayed as shown in Figure 5.

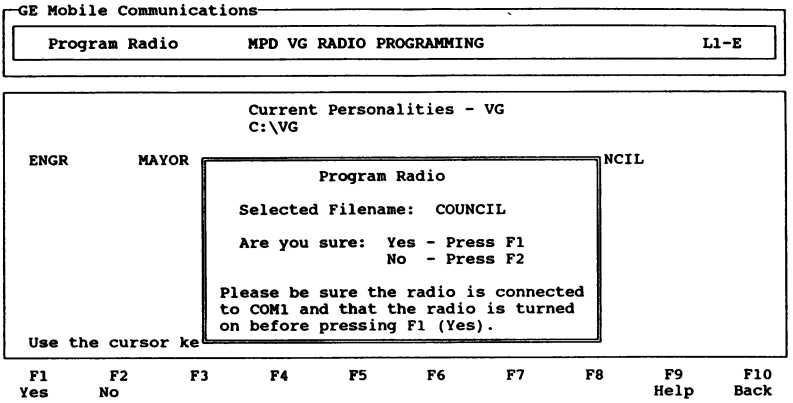


Figure 5—Program Radio Window

The **F1 Yes**, the **F2 No**, the **F9 Help** and the **F10 Back** keys are the only enabled function keys.

Read Radio Personality Window

If you wish to read the personality of a radio into a file for editing, select the Read operation by pressing **F6 Read**. The window will be displayed as shown in Figure 6.

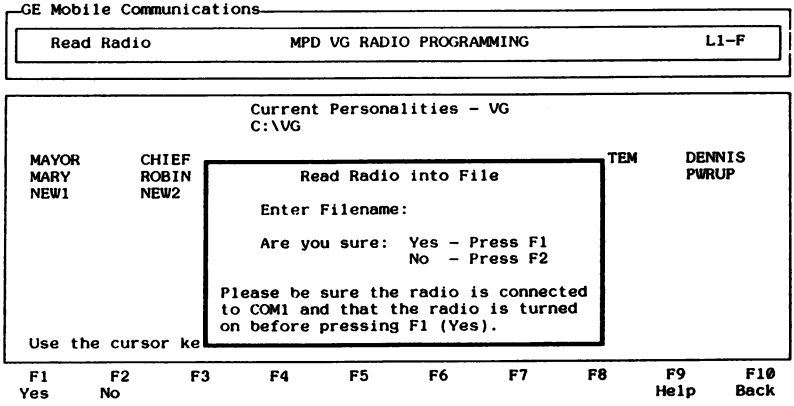


Figure 6—Read Personality Window

The **F1 Yes**, the **F2 No**, the **F9 Help** and the **F10 Back** keys are the only enabled function keys. You need to enter the name of the destination file and then execute the loading procedure by pressing **F1 Yes** or abort the process by pressing **F2 No**.

SET UP SCREEN

The Set Up screen is split with two windows: **Radio Type** and **Frequency Range** (refer to Figure 7).

The **Set Up** Screen permits you to specify the type of radio (Scan or System) and the frequency band of the radio. When the personality data is downloaded to a radio unit, the data is verified against the radio type specified by the target unit.

The window with the highlighted double box is active. Only when the window is active can you make a selection. To select a radio type in the window, use the up/down cursor keys.

The **F1 Switch** key is used to toggle between the two windows.

To select a frequency range in the right hand window, use the up/down cursor keys. After selecting the frequency range, exit the screen by pressing the F10 Back key. The selected radio type and frequency range is now the default. The frequency range specified in this screen is only used when a new personality is being created. The default frequency range is ignored anytime a personality is read from a file.

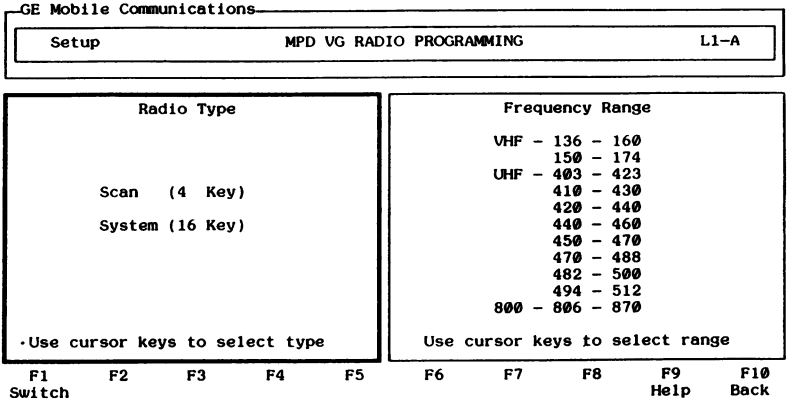


Figure 7—Set Up Screen

UTILITY SCREEN

The Utility Screen allows access to infrequently used functions which have little relationship to actually programming the radio. When the F3 Utility key is pressed from the Personality Directory screen, the personality listing window does not change, but the function keys and the title in the upper left corner do (refer to Figure 8).

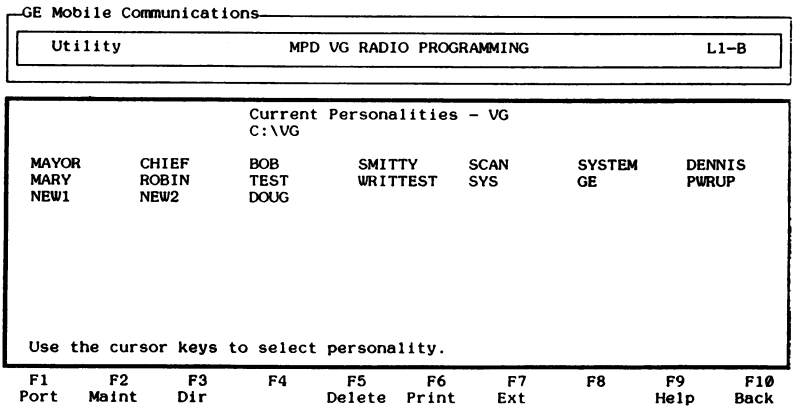


Figure 8—Utility Screen

Select Communication Port Window

The Communication Port Window provides the ability to select a port of your personal computer for communicating with a radio or printer. When the **F1 Port** is selected from the Utility Screen, the "pop-up" window appears as shown in Figure-9. You are prompted to enter the number of a valid port. The default value is "1" the first time displayed. After that it will assume the last value entered. Once the port number has been entered, select the **F10 Back** key to initiate the action.

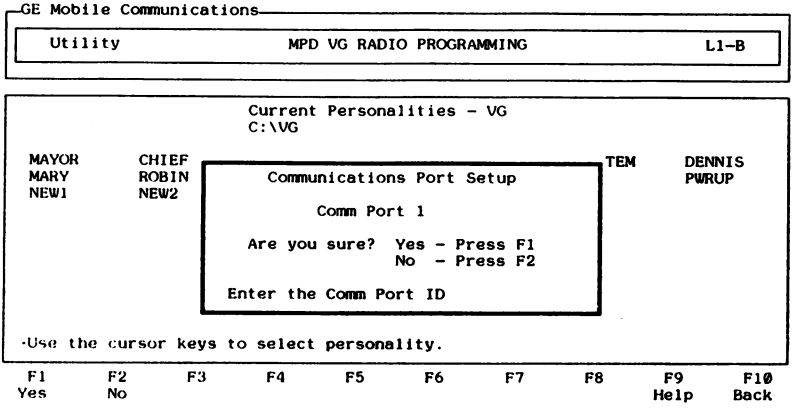


Figure 9—Select Communication Port Window

Maintenance Window

The Maintenance Window provides the ability to reconfigure, calibrate, and set the tracking data for a radio personality. When the **F2 Maint** function key is selected from the Utilities window, the Maintenance window warning is displayed as shown in Figure 10. In the Maintenance window there are five available function keys.

F1 Recon: Allows you to reconfigure the radio.

F2 Calib: Allows you to calibrate a radio.

F3 Track: Allows you to set the tracking data for a radio.

F9 Help: Displays any help messages for field positions.

F10 Back: Exits the Maintenance function and returns to the Utilities Window.

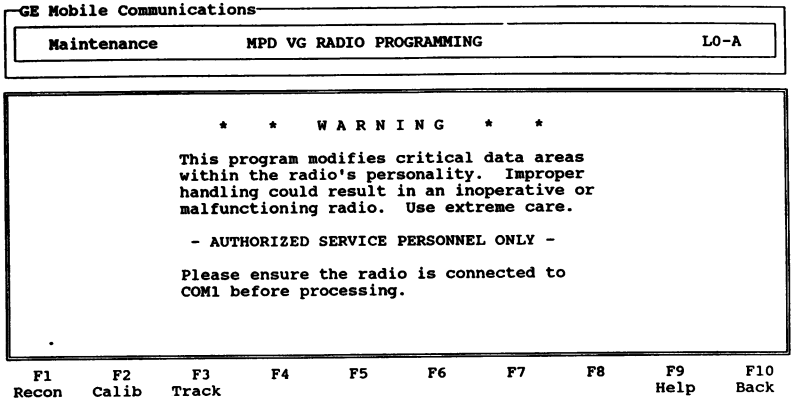


Figure 10—Maintenance Window

Reconfiguration Window

The Reconfiguration window can be selected from the Maintenance window by pressing the **F1 Recon** function key.

The Reconfiguration window allows you to set up a reconfiguration for a radio and program the reconfiguration to the radio. The channels are read in from the radio and the transmit power high, transmit power low, TX modulation levels, squelch opening, and squelch closing levels are available for manipulation during reconfiguration without modifying the radio tracking data. See Figure 11-Reconfiguration Window for details. The radio is programmed by pressing the **F5 Prog** function key.

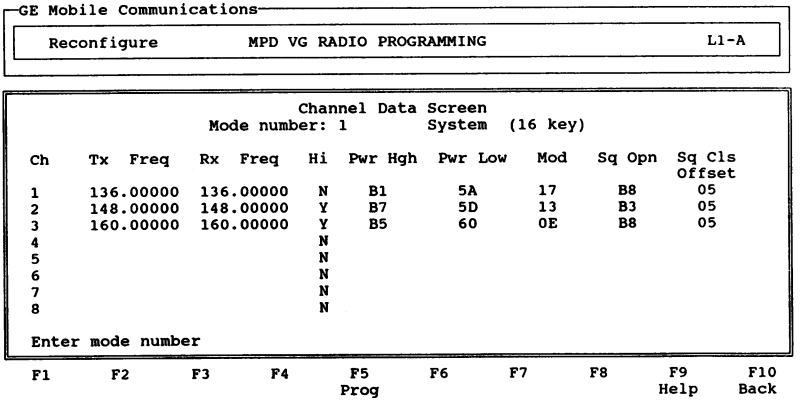


Figure 11—Reconfiguration Window

Calibration Window

The Calibration Window can be selected from the Maintenance Window by pressing the **F2 Calib** function key.

Calibration involves loading a test/calibration personality into the radio. This personality consists of three predefined channels across the frequency split with a full interpolation of the Tracking Data for the power, modulation and squelch levels.

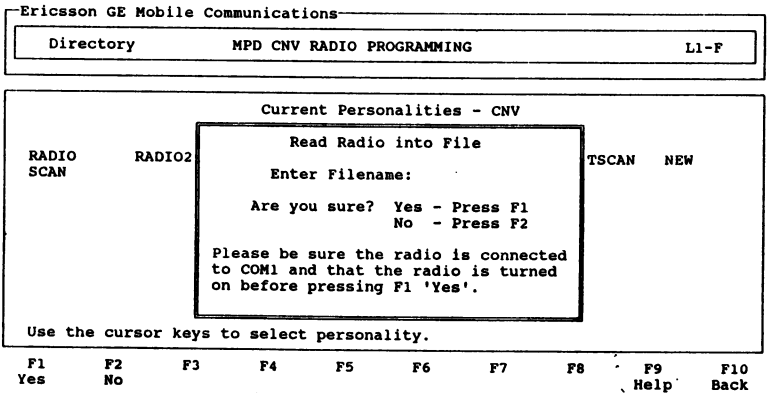


Figure 6 - Read Personality Window

SET UP SCREEN

The **Set Up** screen is split with two windows: **Radio Type** and **Frequency Range** (refer to Figure 7).

The **Set Up** Screen permits you to specify the type of radio (Standard, Scan or System) and the frequency band of the radio. When the personality data is downloaded to a radio unit, the data is verified against the radio type specified by the target unit.

The window with the highlighted double box is active. Only when the window is active can you make a selection. To select a radio type in the window, use the up/down cursor keys. The **F1 Switch** key is used to toggle between the two windows.

To select a frequency range in the right hand window, use the up/down cursor keys. After selecting the frequency range, exit the screen by pressing the **F10 Back** key. The selected radio type and frequency range is now the default. The frequency range specified in this screen is only used when a new personality is being created. The default frequency range is ignored anytime a personality is read from a file.

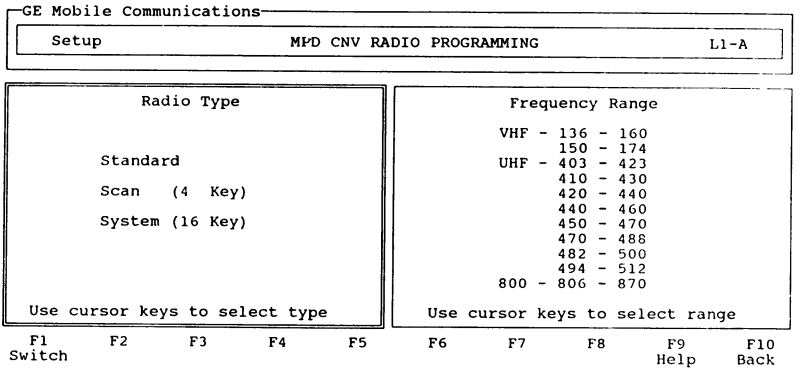


Figure 7 — Set Up Screen

UTILITY SCREEN

The Utility Screen allows access to infrequently used functions which have little relationship to actually programming the radio. When the **F3 Utility** key is pressed from the Personality Directory screen, the personality listing window does not change, but the function keys and the title in the upper left corner do (refer to Figure 8).

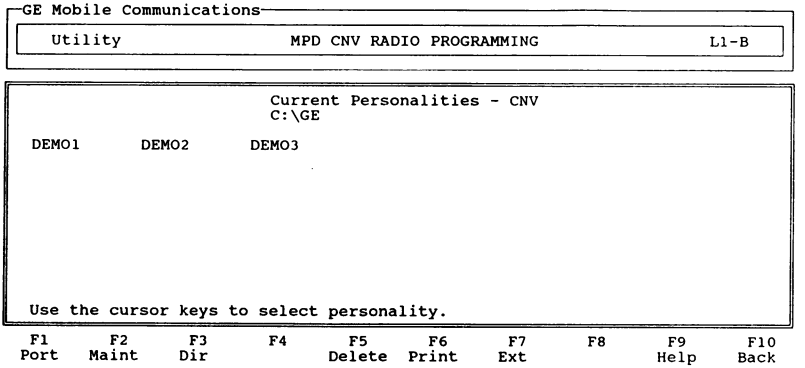


Figure 8 — Utility Screen

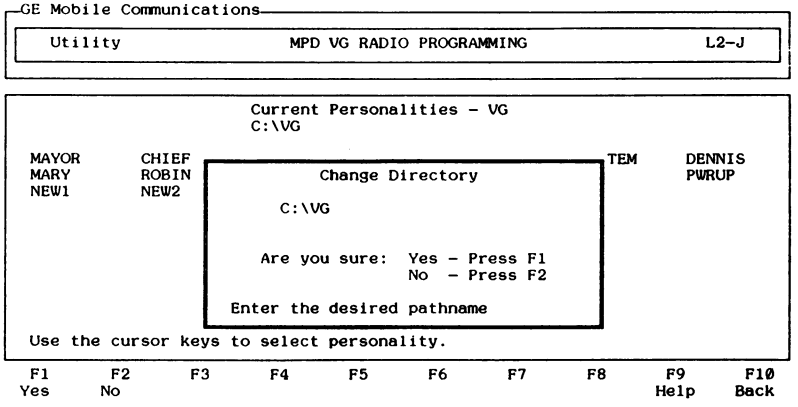


Figure 14—Change Directory Window

Print Window

Pressing the **F6 Print** function key causes the "pop-up" window shown in Figure 15 to be displayed and the **F3 Print, F4 File, F5 Screen, F9 Help** and **F10 Back** function keys to be active.

You may have the option of specifying a personality different from the one selected. The selected personality is the default value in the "pop-up" window. You need to select the destination of the output by pressing either F3, F4, or F5. The F3 key sends the output to the printer, F5 sends the output to a screen and the F4 sends output to a file, the name being specified in another "pop-up" window shown in Figure 16.

The four active function keys with the window shown in Figure 16 are **F1 Yes, F2 No, F9 Help** and **F10 Back.**

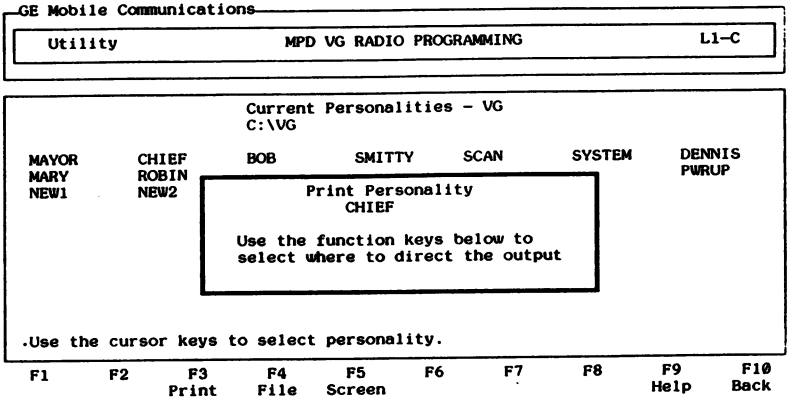


Figure 15—Print Window

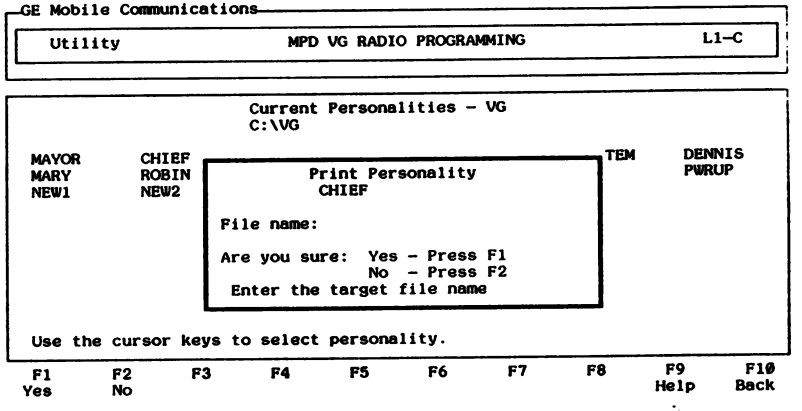


Figure 16—Print Personality File Name Window

Extension Select Window

Pressing the F7 Ext function key gets the extension "pop-up" window which allows you to specify which files are displayed in the Personality Directory Window (refer to Figure 17). Only files with

the specified extension are displayed. Wild card characters (both "*" and "?") are permissible. The specified extension is always displayed at the top of the personality directory screen to the right of "current Personalities".

The selected extension is stored on the disk, so the software remembers the default setting from run to run. The factory default setting is VG.

When the Extension "pop-up" window appears, the current extension is automatically placed in the field. This gives you the ability to see what file extension has been chosen. At this point, you can exit the screen or specify a new extension.

Besides being used for display purposes, the specified extension is the default extension used whenever files are saved with no extension explicitly specified.

The **F1 Yes, F2 No, F9 Help** and **F10 Back** function keys are active.

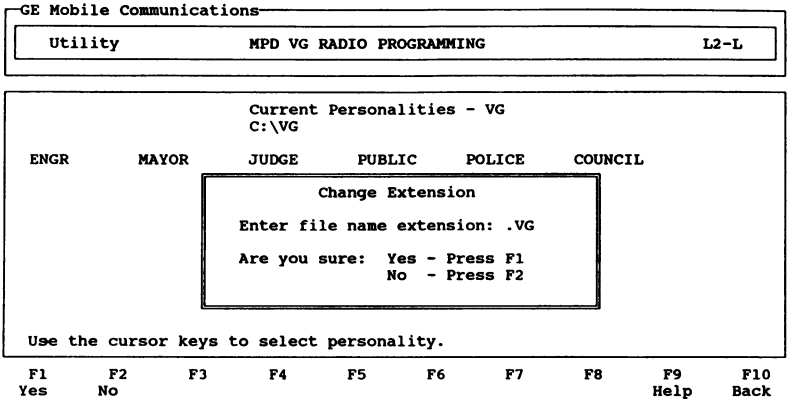


Figure 17—Extension Select Window

Deleting File Window

Personality files can be deleted by pressing the **F5 Delete** function key. The Deleting File Window is displayed as shown in Figure 18. Wild card character capability exists (both "*" and "?"). Nonexisting or illegal file names will be flagged. The **F1 Yes, F2 No, F9 Help** and **F10 Back** function keys are active.

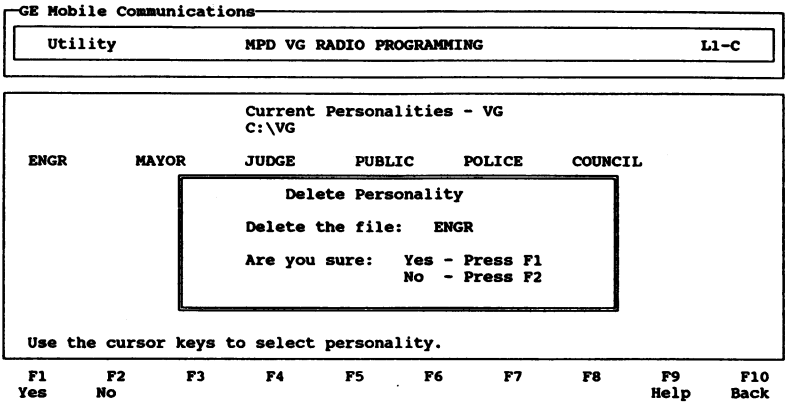


Figure 18—Deleting File Window

Channel Data Screen

The Channel Data Screen is a full screen window which allows you to specify channels and modes which includes main channel data such as transmit and receive frequencies, Channel Guard tones, Carrier Control Timer, Channel Options, Channel Name and Voice Guard Data.

The Channel Data Screen can be entered through two different paths. The first path is by selecting New from the Current Personality Screen. When New is selected, the Channel Data Screen immediately appears. You can then proceed to define channels (refer to Figure 19).

The second path to the Channel Data Screen occurs when you select **F2 Change** also from the Current Personality Screen. Once **Change** is selected, you are presented with a "pop-up" window that solicits the file name to be changed. Once a file is selected, its contents are read and displayed in the Channel Data Screen.

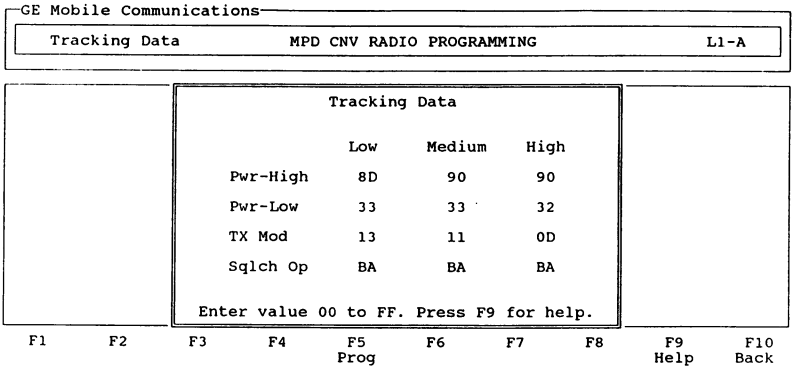


Figure 13 — Tracking Data Window

Change Directory Window

The Change Directory Window provides the ability to switch between working directories. When **F3 dir** is selected from the Utility Screen, the "pop-up" window appears as shown in Figure 14 you are prompted to enter the name of the directory you wish to select, the default being the existing directory. Once the name has been established, select the **F1 Yes** key to initiate the action. If the directory name is illegal, a "pop-up" window will inform you of the error.

Only the **F1 Yes, F2 no, F9 Help** and **F10 Back** function keys are active.

NOTE: pressing the **F1 Yes** key returns you to the Utility Screen under the specified directory. Pressing the **F2 No** key aborts the process, returning you to the Utility screen without changing the directory.

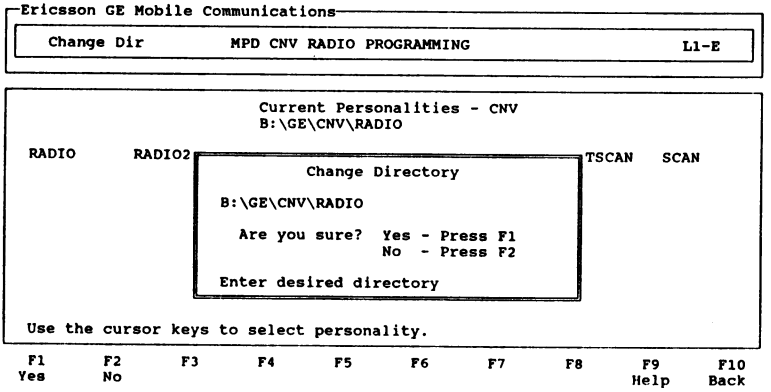


Figure 14 - Change Directory Window

Print Window

Pressing the **F6 Print** function key causes the "pop-up" window shown in Figure 15 to be displayed and the **F1 Yes, F2 No, F9 Help and F10 Back** function keys to be active.

You may have the option of specifying a personality different from the one selected. The selected personality is the default value in the "pop-up" window. You need to select the destination of the output by pressing the **Tab** Key. The output may be sent to the printer, screen, or a file specified in another "pop-up" window shown in Figure 16.

The four active function keys with the window shown in Figure 16 are **F1 Yes, F2 No, F9 Help and F10 Back.**

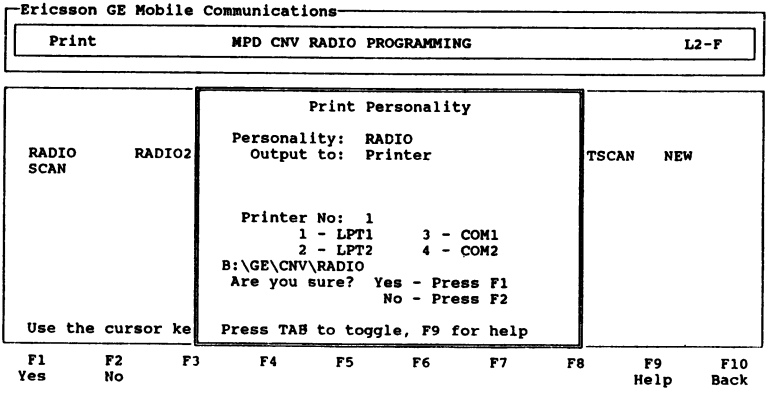


Figure 15 - Print Window

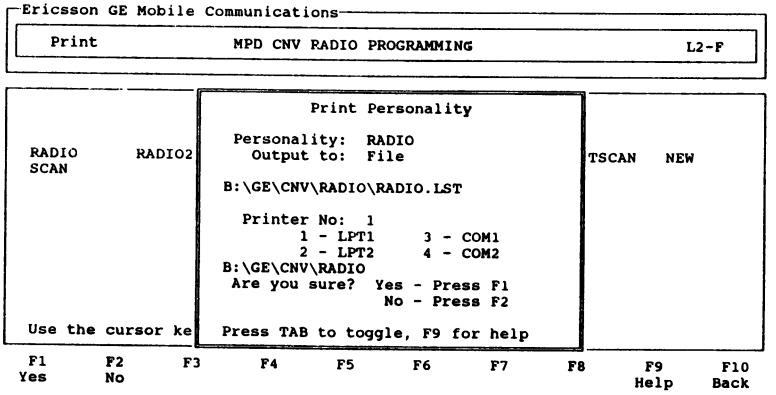


Figure 16 - Print Personality to File Window

Extension Select Window

Pressing the **F7 Ext** function key gets the extension "pop-up" window which allows you to specify which files are displayed in the Personality Directory Window (refer to Figure 17). Only files with the specified extension are

displayed. The specified extension is always displayed at the top of the personality directory screen to the right of "Current Personalities".

The selected extension is stored on the disk, so the software remembers the default setting from run to run. The factory default setting is CNV.

When the Extension "pop-up" window appears, the current extension is automatically placed in the field. This gives you the ability to see what file extension has been chosen. At this point, you can exit the screen or specify a new extension.

Besides being used for display purposes, the specified extension is the default extension used whenever files are saved with no extension explicitly specified.

The **F1 Yes, F2 No, F9 Help** and **F10 Back** function keys are active.

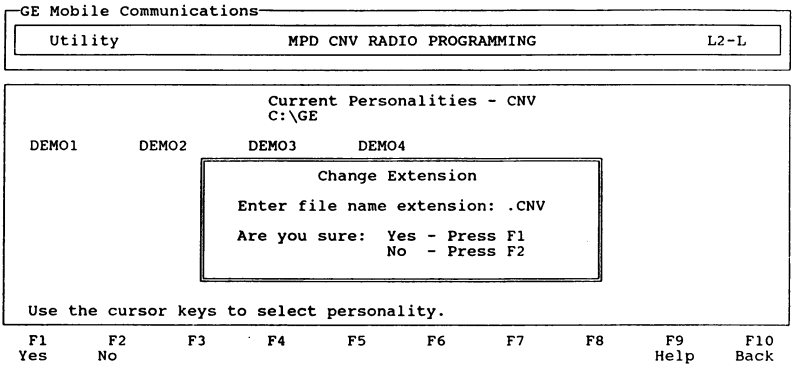


Figure 17 — Extension Select Window

Deleting File Window

Personality files can be deleted by pressing the **F5 Delete** function key. The Deleting File Window is displayed as shown in Figure 18. Nonexisting or illegal file names will be flagged. The **F1 Yes, F2 No, F9 Help** and **F10 Back** function keys are active.

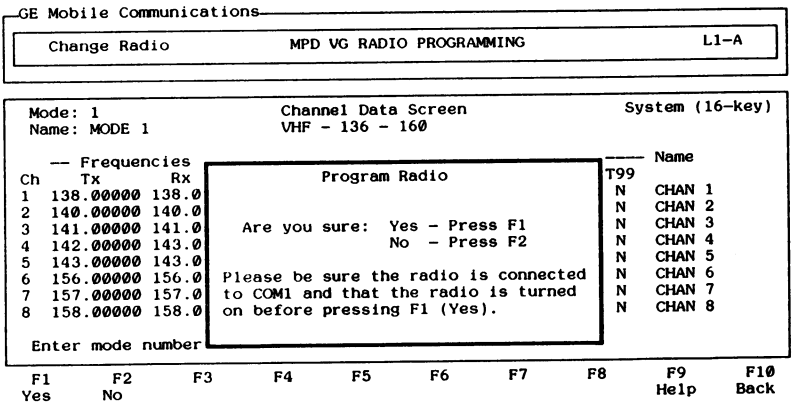


Figure 23—Program Radio Window

Type-99 Window for the Scan Radio

The Type-99 Window is accessed from the Channel Data Screen by pressing the **F6 T-99** function key (refer to Figure 24).

The Type-99 Data Window sets the Type 99 parameters for the Scan radio. This window allows selection of GE or non-GE format. If the format is GE there are four tone selections. If the format is non-GE then there are only three tone selections displayed. The screen also allows selection of T-99 with or without CG, tone frequencies and whether quick call, super decode, group decode or individual call are included on a given Scan radio. The fields can be accessed with the use of the up/down/left/right cursor keys; the **TAB** key is used to toggle between **Yes** and **No** answers.

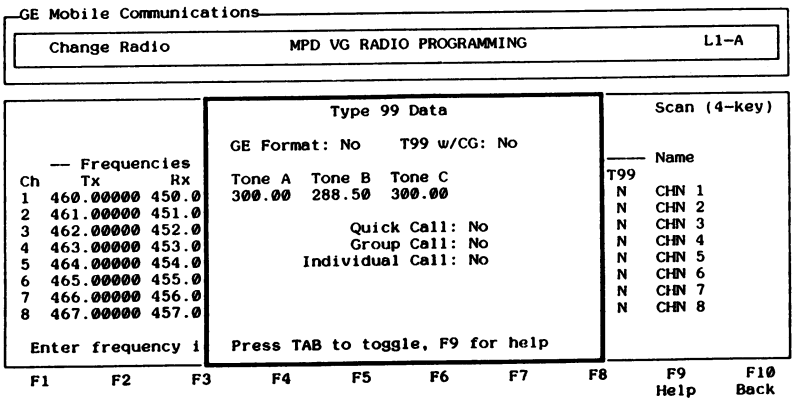
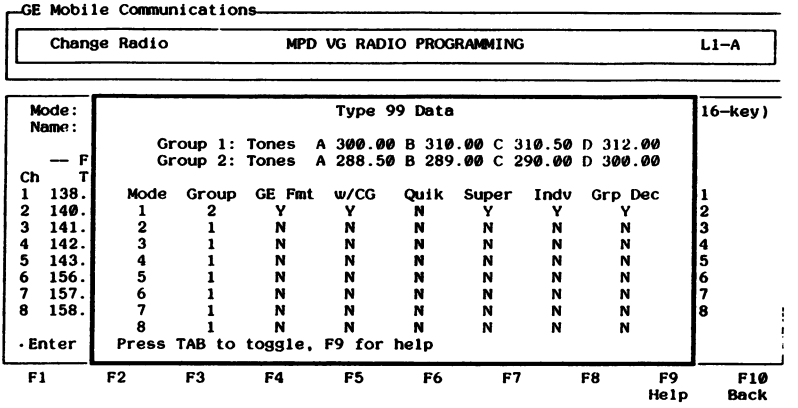


Figure 24—Type-99 Data Window for the Scan Radio

Type-99 Window for the System Radio

The Type-99 Window is accessed from the Channel Data Screen by pressing the **F6 T-99** function key (refer to Figure 25).

The Type-99 Data Window sets the Type 99 parameters for the System radio. In addition to the parameters selected for the Scan version, the System version also allows those selections by mode (1 through 8).



Insert Figure 25—Type-99 Data Window for the System Radio

Radio Option Window for the Scan Radio

The Radio Option Window for the Scan radio is accessed from the Channel Data Screen by pressing the **F7 Option** function key (refer to Figure 26).

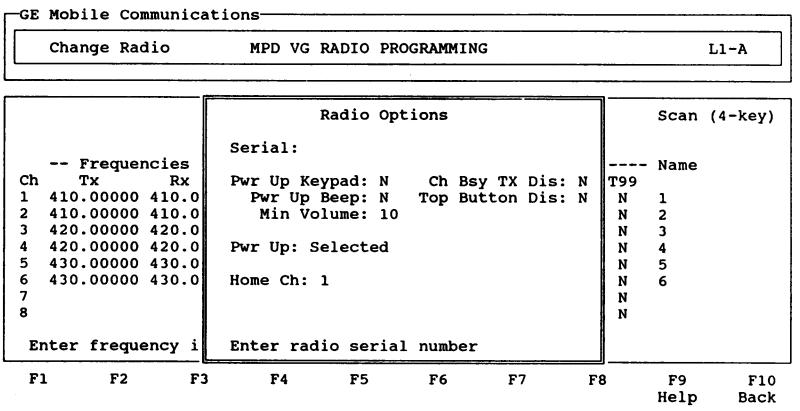


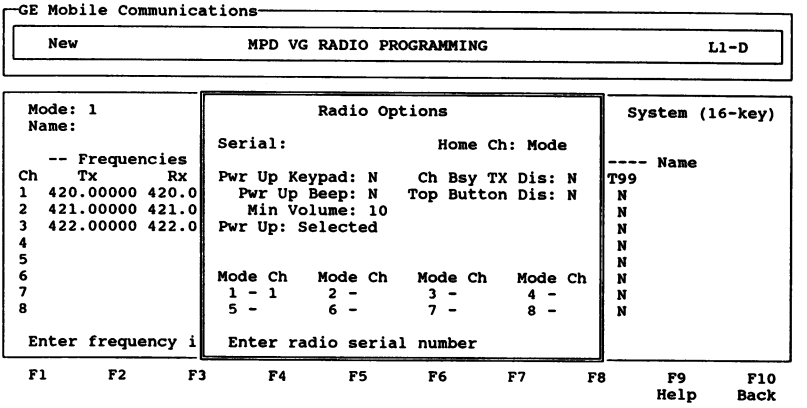
Figure 26—Radio Option Window for the Scan Radio

This window provides you with the ability to modify the radio serial number, power up beep tone, set minimum volume level, selected power up channel, home channel, transmitter lockout when channel busy, the ability to include the home and channel select buttons when the keyboard is locked, and the ability to lockout the front keypad of the radio. The fields are accessed with the use of the up/down/left/right cursor keys. The fields are toggled with the use of the **TAB** key.

Radio Option Window for the System Radio

The Radio Option Window for the System Radio is accessed from the Channel Data Screen by pressing the **F7 Option** function key (refer to Figure 27).

The Radio Option Window provides you with the ability to modify the radio serial number, power up beep tone, set minimum volume level, selected power up channel, home channel, transmitter lockout when channel busy, the ability to include the home and channel select buttons when the keyboard is locked, and the ability to lockout the front keypad. The window also allows you to choose a home channel per mode. It also allows you to select a home channel per radio rather than per mode as above. The up/down/left/right cursor keys allow you to specify different fields. The **Pwr Up** field toggles between **Last Ch** and Selected. The **Home Ch** field toggles between **Radio** and **Mode.** The key used to toggle the fields is the **TAB** key.



27—Radio Option Window for the System Radio

Scan Option Window for the Scan Radio

The Scan Option Window for the Scan radio is accessed by pressing the **F8 Scan** function key (refer to figure 28).

The Scan Option Window provides you with the ability to set the radio to scan with or without channel guard, define RX hang/Scan Resume Delay, set fixed or non-fixed scan list and define the priority channels.

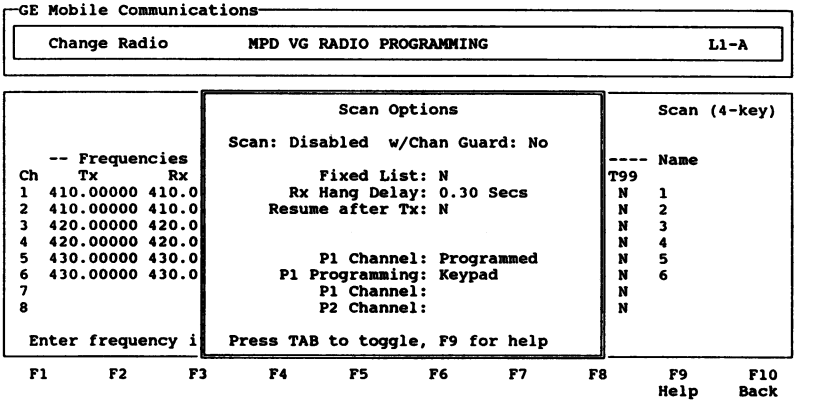


Figure 28—Scan Option Window

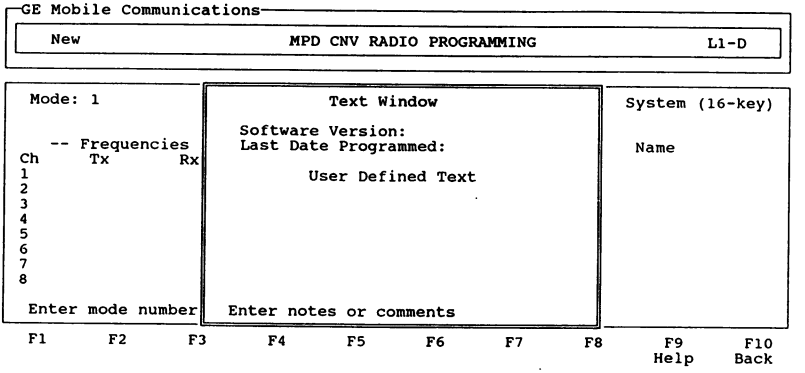


Figure 22 — Text Window

Program Radio Window:

The Program Radio Window is accessed from the Channel Data Screen by pressing the **F5 Progrm** function key. The Program Radio Window is formatted the same for all three types of radios. Once selected, a "pop-up" window shown in Figure 23 will be displayed to remind you to connect the radio before attempting to program it. Function keys **F1 Yes, F2 No, F9 Help** and **F10 Back** are the only active function keys from the Program Radio Window.

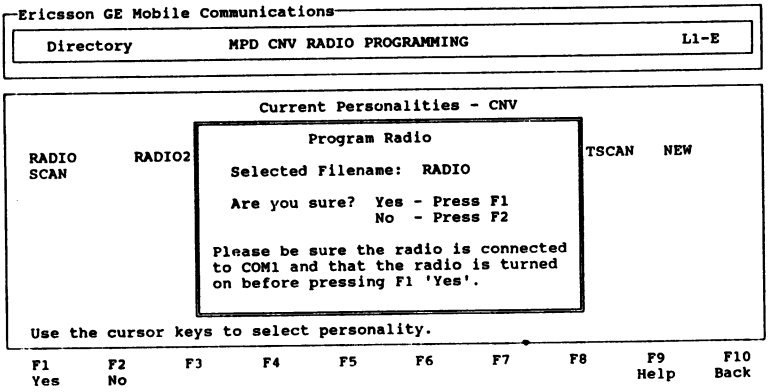


Figure 23 - Program Radio Window

Type-99 Window for the Scan Radio

The Type-99 Window is accessed from the Channel Data Screen by pressing the **F6 T-99** function key (refer to Figure 24).

The Type-99 Data Screen sets the Type 99 parameters for the Scan radio. This screen allows selection of GE or non-GE format. If the format is GE there are four tone selections. If the format is non-GE then there are only three tone selections displayed. The screen also allows choice of two decode options as follows: a) opening of Audio with a decode of Type 99 OR Channel Guard or b) opening of audio with a decode of Type 99 AND Channel Guard, tone frequencies and whether Type 99 is disabled after **PTT**. The fields can be accessed with the use of the up/down/left/right cursor keys; the **TAB** key is used to toggle between **Yes** and **No** answers.

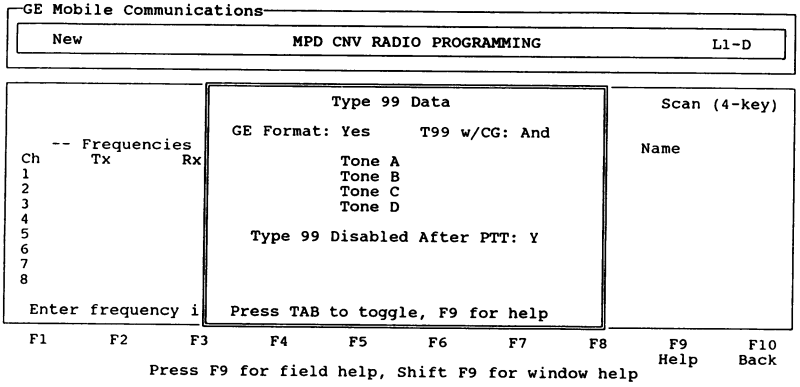


Figure 24 — Type-99 Data Window for the Scan Radio

Type-99 Window for the System Radio:

The Type-99 Window is accessed from the Channel Data Screen by pressing the **F6 T-99** function key (refer to Figure 25).

The Type-99 Data Screen sets the Type 99 parameters for the System radio. In addition to the parameters selected for the Scan version, the System version also allows those selections by mode (1 through 8).

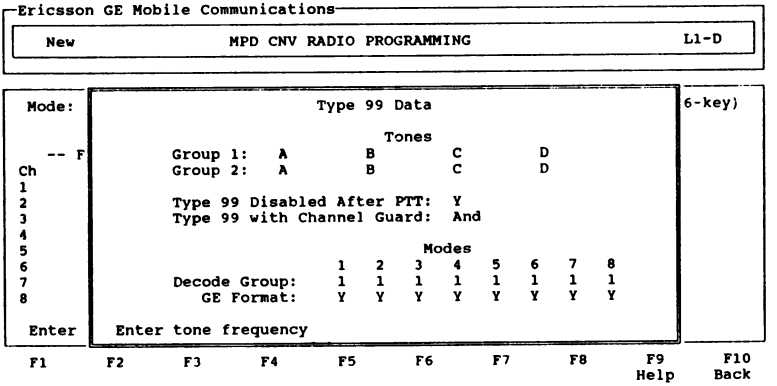


Figure 25 - Type-99 Data Window for the System Radio

Radio Option Window for the Standard and Scan Radio

The Radio Option Window for the Standard or Scan radio is accessed from the Channel Data Screen by pressing the **F7 Option** function key (refer to Figure 26).

This window provides the ability to modify the radio serial number, home key enable, enable/disable power-up beep tone, set minimum volume level, selected power-up channel, home channel, channel ramp around, and power-up volume. The fields are accessed with the use of the up/down/left/right cursor keys. The fields are toggled with the use of the **TAB** key.

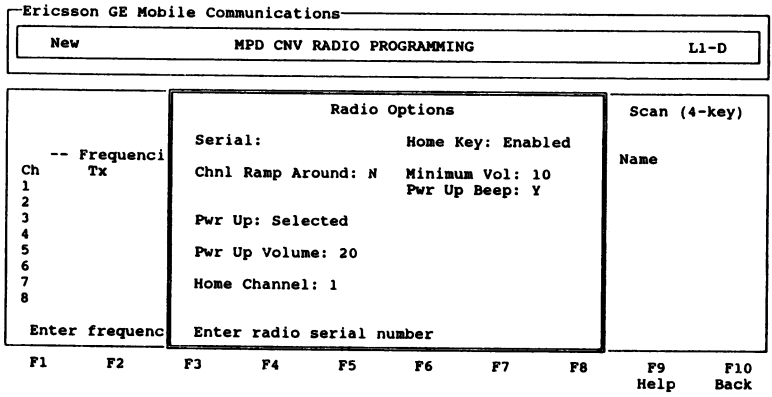


Figure 26 - Radio Option Screen for the Standard and Scan Radio

Radio Option Window for the System Radio:

The Radio Option Window for the System Radio is accessed from the Channel Data Screen by pressing the **F7 Option** function key (refer to Figure 27).

The Radio Option Window provides the ability to modify the radio serial number, enable/disable power-up beep tone, set minimum volume level, selected power-up channel, home key enable, home channel, channel ramp around, and power-up volume level. The window also allows you to choose a home channel per mode. It also allows you to select a home channel per radio rather than per mode as above, and also allows you to select the number of modes you wish for a particular personality to have.

NOTE

The number of modes selected for a radio directly relates to the number of channels a radio can have.

The up/down/left/right cursor keys allow you to specify different fields. The **Pwr Up** field toggles between **Last Ch** and **Selected**. The **Home Ch** field toggles between **Radio** and **Mode.** The key used to toggle the fields is the **TAB** key.

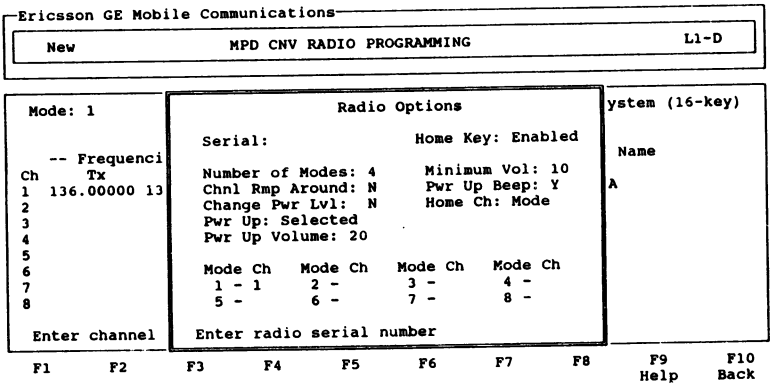


Figure 27 - Radio Option Window for the System Radio

Scan Option Window for the Scan Radio

The Scan Option Window for the Scan radio is accessed by pressing the **F8 Scan** function key (refer to Figure 28).

The Scan Option Window provides you with the ability to select Scan with or without Channel Guard, Rx hang/Scan Resume Delay, whether the radio has a fixed list, whether Priority 1 can be programmed from the keypad, fixed or equal to selected channel and select Priority 1 and Priority 2 channel numbers.

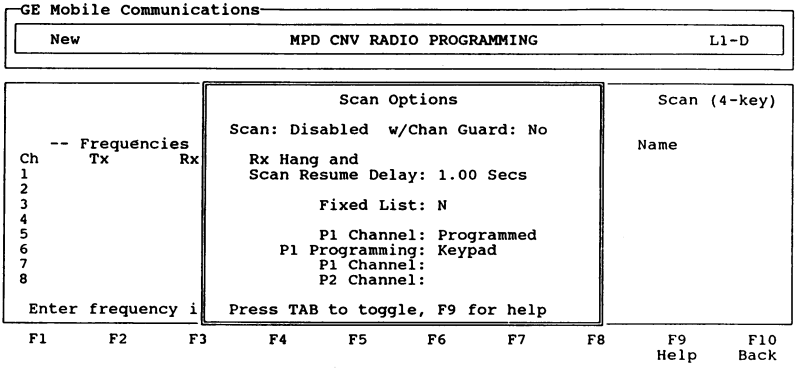


Figure 28—Scan Option Window

Scan Option Window for the System Radio:

The Scan Option Window for the System radio is accessed by pressing the **F8 Scan** function key (refer to Figure 29).

The window provides the ability to change the same information as the Scan radio's Scan Option window with a few added features. The System window provides two priority channels per mode if Scan Across Modes equals NO.

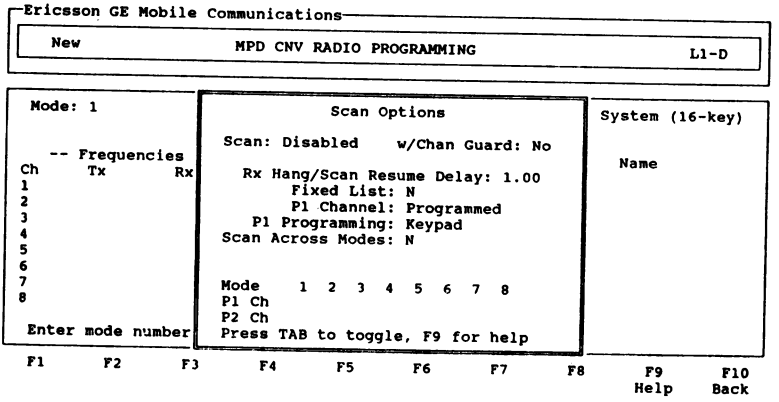


Figure 29 - Scan Option Window (System)

Save Personality Window

This window is used as a prompt for you to name the file where the personality data will be saved (refer to Figure 30). The source file name and path are displayed so you will remember where the file came from. If the edit session was entered using the **F4 New** function key from the Personality Director Screen, the path and file name fields display the current path and the file name "**NEW**". You may enter a new file name and path for this personality file. Function keys **F1 Yes, F2 No, F9 Help and F10 Back** are the only active function keys on the Save File Window.

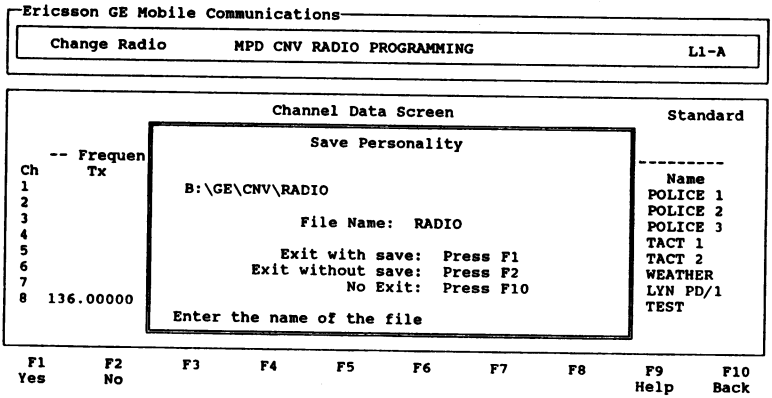


Figure 30 - Save Personality Window

BASIC PROGRAMMING PROCEDURE

When starting the program, by typing **CNV** at the DOS prompt and pressing the **< enter >** key, the first screen up is the Personality Directory Screen. This screen provides a listing of all radio personalities already programmed. You can change or review any one of these personalities as needed. This procedure is covered later in this publication (refer to **Table of Contents** for **CHANGE RADIO**).

Initially you are starting out with a new radio so continue as follows:

NEW RADIO

Set Up

1. From the Personality Directory Screen press the **F1 Set Up** function key to set the radio configuration.

2. Select the Radio Type using the cursor movement.

3. Press the F1 Switch key to toggle to the right hand screen.

4. Select the frequency band split using the cursor movement keys from the right hand screen, Frequency Range.

5. Press the **F10 Back** function key to the Personality Directory Screen.

New

1. Press the **F4 New** function key to enter the data for the radio selected in the Set up procedure. The Channel Data Screen is displayed and you can enter the mode level and mode name (only applicable to the System type radio.)

2. Enter the data in the highlighted boxes for transmit/receive frequencies.

3. Enter the Channel Guard frequencies and Channel Options data.

4. Enter the Name and extra option data by toggling the **F1 Chn Opt/ Name** function key.

5. Press the **F7 Option** function key. The Option window is displayed. You can select and change Option data using the up/down/left/ right cursor movement keys. Press the **F10 Back** function key to return to the previous screen.

6. Press the **F10 Back** function key. The Save Personality Window appears.

7. Enter the file name and path in the Destination field and press the **F1 Yes** or the **F2 No** function key. If the **F1 Yes** is pressed, the data is saved in a file and the Personality Directory Screen is shown with the new file name, if the path selected was to the current directory. If the **F2 No** is pressed, the file is not saved and you are returned to the Personality Directory Screen.

8. You can now program the radio. Go to the program function by pressing the **F5 Progrm** function key, or exit the program by pressing the **F10 Exit** function key.

Program

NOTE

The **F1 Port** function defaults to **COM1.** If the user wishes to use any other port it must be set up before programming any reading a personality from any radio.

APPENDIX B
WORK FOLDER

APPENDIX B
WORKSHEET A

Service Facility _____
Service Technician _____
Date Received \ \
Date Completed \ \
Radio Serial # _____

APPENDIX B MPD Voice Guard Radio Program Work Folder					
WORKSHEET A - 1 System Channel Data Definition					
Chnnl	**TX Freq.**	**RX Freq**	**TX CG**	**RX CG**	**Name**
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

Chnnl	TX Freq	RX Freq	TX CG	RX CG	Name
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					

Chnnl	TX Freq	RX Freq	TX CG	RX CG	Name
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					

APPENDIX B
MPD Voice Guard Radio Program Work Folder

WORKSHEET A - 2
System Channel Data Definition

Chnnl	Cct	Tn	Hi	G*	Scr	Os	Lit	T99	Key	Ta	Ra
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											

Chnnl	Cct	Tn	Hi	G*	Scr	Os	Lit	T99	Key	Ta	Ra
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											

Chnnl	Cct	Tn	Hi	G*	Scr	Os	Lit	T99	Key	Ta	Ra
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											

WORKSHEET B

Service Facility _____
Service Technician _____
Date Received \ \
Date Completed \ \
Radio Serial # _____

APPENDIX B MPD Voice Guard Radio Program Work Folder					
WORKSHEET B - 1 Scan Channel Data Definition					
Chnnl	**TX Freq.**	**RX Freq**	**TX CG**	**RX CG**	**Name**
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

Chnnl	TX Freq	RX Freq	TX CG	RX CG	Name
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					

Chnnl	TX Freq	RX Freq	TX CG	RX CG	Name
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					

APPENDIX B
MPD Voice Guard Radio Program Work Folder

WORKSHEET B - 2
Scan Channel Data Definition

Chanl	Cct	Tn	Hi	G*	Scr	Os	Lit	T99	Key	Ta	Ra
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											

Chnnl	Cct	Tn	Hi	G*	Scr	Os	Lit	T99	Key	Ta	Ra
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											

Chnnl	Cct	Tn	Hi	G*	Scr	Os	Lit	T99	Key	Ta	Ra
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											

WORKSHEET C

Service Facility _____
Service Technician _____
Date Received \ \
Date Completed \ \
Radio Serial # _____

APPENDIX B
MPD VOICE GUARD RADIO PROGRAM WORK FOLDER

WORK SHEET C
Dtmf Definition for System Radio

DTMF OPTIONS

Dtmf: ____ Mode: 1-___ 2-___ 3-___ 4-___ 5-___ 6-___ 7-___ 8-___ .

Audible Tones: ____ 0-9 Tone Length: _____ *,# Tone Length: _____
Dtmf Start Delay: ____ Dtmf Pause Delay: _____ Interdigit Delay: _____

	Phone Numbers		Phone Numbers
1	_____	2	_____
3	_____	4	_____
5	_____	6	_____
7	_____	8	_____
9	_____	10	_____

WORKSHEET D

Service Facility _____
Service Technician _____
Date Received \ \
Date Completed \ \
Radio Serial # _____

APPENDIX B
MPD VOICE GUARD RADIO PROGRAM WORK FOLDER

WORKSHEET D
Type 99 Data Definition for System Radio

Type 99 Data

Group 1 Tones A ____ B ____ C ____ D ____
Group 2 Tones A ____ B ____ C ____ D ____

Mode	Group	GE Fmt	w/CG	Quik	Super	Indv	Grp Dec
1							
2							
3							
4							
5							
6							
7							
8							

WORKSHEET E

Service Facility _____
Service Technician _____
Date Received \ \
Date Completed \ \
Radio Serial # _____

APPENDIX B
MPD VOICE GUARD RADIO PROGRAM WORK FOLDER

WORKSHEET E
Radio Options Definition for System Radio

Radio Options

Serial: _____ **Home Ch: Radio / Mode**

Power up Keypad ___ **Ch Bsy TX Dis** ____
Power up Beep ___ **Top Button Dis** ____
Min Volume ___

Pwr Up: Programmed / Selected

Mode Ch	Mode Ch	Mode Ch	Mode Ch
1 - ____	2 - ____	3 - ____	4 - ____
5 - ____	6 - ____	7 - ____	8 - ____

WORKSHEET F

Service Facility _____
Service Technician _____
Date Received \ \
Date Completed \ \
Radio Serial # _____

APPENDIX B
MPD VOICE GUARD RADIO PROGRAM WORK FOLDER

WORKSHEET F
Scan Options Definition for System Radio

Scan Options

Scan: Enabled / Disabled w/Chan Guard: ____
Fixed List: ____ Rx Hang Delay: _____ Msecs
Resume after Tx: ____ Resume Delay: _____ Msecs

P1 Channel: Programmed / Selected
P1 Programming: Fixed / Keypad

P1 Channel: ____
P2 Channel: ____

Mode	1	2	3	4	5	6	7	8
P1 Ch	___	___	___	___	___	___	___	___
P2 Ch	___	___	___	___	___	___	___	___

WORKSHEET G

Service Facility _____
Service Technician _____
Date Received \ \
Date Completed \ \
Radio Serial # _____

APPENDIX B
MPD VOICE GUARD RADIO PROGRAM WORK FOLDER

WORKSHEET G
GEstar Options Definition

Radio Type : _____

GE Star Options

Ge Star: _____ **Id:** _____

Emerg From Home Key: _____
Lock On Emerg Chan: _____

Emergency Channel: _____
Mode: _____ **Channel:** _____

Start Delay: _____ **Msecs**

WORKSHEET H

Service Facility _____
Service Technician _____
Date Received \ \
Date Completed \ \
Radio Serial # _____

APPENDIX B
MPD VOICE GUARD RADIO PROGRAM WORK FOLDER

WORKSHEET H
Type 99 Data Definition for Scan Radio

Type 99 Data

GE Format: ____ **T99 w/CG:** ____

Tone A	Tone B	Tone C	Tone D
_____	_____	_____	_____

Quick Call: ____
Super Decode: ____
Group Decode: ____
Individual Call: ____

WORKSHEET I

Service Facility _____
Service Technician _____
Date Received \ \
Date Completed \ \
Radio Serial # _____

APPENDIX B
MPD VOICE GUARD RADIO PROGRAM WORK FOLDER

WORKSHEET I
Radio Options Definition for Scan Radio

Radio Options

Serial: _____

Pwr Up Keypad ___ **Ch Bsy TX Dis:** ___
Pwr Up Beep ___ **Top Button Dis:** ___
Min Volume ___

Pwr up: Programmed / Selected
Home Ch: _____

WORKSHEET J

Service Facility _____
Service Technician _____
Date Received \ \
Date Completed \ \
Radio Serial # _____

APPENDIX B
MPD VOICE GUARD RADIO PROGRAM WORK FOLDER

WORKSHEET J
Scan Options Definition for Scan Radio

Scan Options

Scan: Enabled / Disabled w/Chan Guard: ____

Fixed List: ____
Rx Hang Delay: ____ Msecs
Resume after Tx: ____
Resume Delay: ____ Msecs

P1 Channel: Programmed / Selected
P1 Programming: Fixed / Keypad
P1 Channel: ____
P2 Channel: ____

ACCEPTABLE VALUES TABLE

Entry Field	Acceptable Value	Default Value
CHANNEL SCREEN:		
Number of Modes	1	1 (4 key only)
	1 to 8 Maximum	1 (16 key only)
Number of Channels	1 to 64 maximum	
	Variable number of channels per mode and variable number of modes, up to 64 channels total.	
Mode Name	A-Z, 0-9, +, –, (,), *, /, \, (,), @, =, '	Mode 1 (16 key only)
Channel Name	Same as Above	BLANK
TX Frequency and RX Frequency	A 136.0000—160.0000	0
	B 150.0000—174.0000	0
	C 403.0000—423.0000	0
	D 410.0000—430.0000	0
	E 420.0000—440.0000	0
	F 440.0000—460.0000	0
	G 450.0000—470.0000	0
	H 470.0000—488.0000	0
	I 482.0000—500.0000	0
	J 494.0000—512.0000	0
	K 806.0125—824.9875 851.0125—870.9875	0
TX & RX Chan Guard	None or 67—210.7 Hz (Tone) 023—771 (Standard Digital) I023—I771 (Standard Inverted)	NONE
Voice Guard Enabled	YES/NO	Yes
TX Outside Address	01—FF	55
RX Outside Address	01—FF	55
Enable GE-STAR	YES/NO	NO
Oscillator Shift	YES/NO	NO
Enable Type 99	YES/NO	NO
Key Number	1—7	1
Include in Scan List	YES/NO	YES

Entry Field	Acceptable Value	Default Value
High Power Channel	YES/NO	YES
Backlight On	YES/NO	YES
Alert Tone On	YES/NO	YES
CCT in Secs	0—315 (ref Note)	30

NOTE: A zero (0) disables CCT.

OPTIONS WINDOW:

Radio Serial Number	All Printable Characters	BLANK
Transmit Disable When Channel Busy	YES/NO	NO
Beep On Power Up	YES/NO	NO
Key Pad Lock On Power Up	YES/NO	NO (16 key only)
Minimum Volume	0—63	0
Power Up Channel Selection	Selected/Programmed	Selected
Power Up Mode	1 to Number of Modes	1 (16 key only)
Power Up Channel	1 to Number of Channels	1
Top Button Disable	YES/NO	NO
Home Channel	Mode/Radio	Mode (16 key only)
Home Mode	1 to Number of Modes	1 (16 key only)
Home Channel	1 to Number of Channels	1

SCAN OPTIONS WINDOW:

Scan	Enabled/disabled	Disabled
Fixed List	YES/NO	NO

Entry Field	Acceptable Value	Default Value
Scan w/Channel Guard	YES/NO	NO
Scan Hang Delay after Receive	0.3—20	0.3
Scan Resume After Tramsmit	YES/NO	NO
Delay before Resume	1—20	1.1
Priority 1 Channel	Program/Select	Program
Priority 1 Programming	Keypad/Fixed	Keypad
Priority 1 Mode	1—Number of Modes	1 (16 key only)
Priority 1 Channel	1—Number of Channels	0
Priority 2 Mode	1—Number of Modes	1 (16 key only)
Priority 2 Channel	1—Number of Channels	0
GE-STAR WINDOW:		
GE-STAR ID	Enabled/Disabled	Disabled
Emergency	Enabled/Disabled	Disabled
Emergency From Home Key	YES/NO	NO
Lock On Emergency Channel	YES/NO	NO

Entry Field	Acceptable Value	Default Value
GE-STAR Emergency Channel 1	Selected/Programmed	Selected
GE-STAR Emergency Mode	1 to Number of Modes	1 (16 key only)
GE-STAR Emergency Channel	1 to number of Channels	1
GE-STAR ID	0—2047	0
GE-STAR Start Delay	0 or 10—2550	360
TYPE 99 WINDOW:		
GE Format	YES/NO	YES
Tones A, B, C, D	0 or 288.5—1433.4 Hz.	0
Decode Group	1 or 2	1 (16 key only)
Type 99 & Channel Guard	YES/NO	YES
Quick Call Enabled	YES/NO	NO
Super Group Encode Enabled	YES/NO	NO
Group Decode Enabled	YES/NO	NO

Entry Field	Acceptable value	Default Value
Priority 2 Channel	1—Number of Channels	0

;E-STAR WINDOW:

GE-STAR	Enabled/Disabled	Disabled
GE-STAR Emergency	Enabled/Disabled	Disabled
GE-STAR Emergency From Home Key	YES/NO	NO
Lock On Emergency Channel	YES/NO	NO
GE-STAR Emergency Channel 1	Selected/Programmed	Selected
GE-STAR Emergency Mode	1 to Number of Modes	0 (16 key only)
GE-STAR Emergency Channel	1 to number of Channels	0 (16 key only)
GE-STAR ID	0—16383	Blank
GE-STAR Start Delay	0 or 10—2500	360

TYPE 99 WINDOW:

GE Format	YES/NO	YES
Tones A, B, C, D	0 or 288.5—1433.4 Hz	0
Decode Group	1 or 2	1 (16 key only)
Type 99 with Channel Guard	AND/OR	AND

Entry Field	Acceptable Value	Default Value
DTMF OPTIONS WINDOW: (16 key only)		
DTMF	Enabled/Disabled	Enabled
Audible Tones	YES/NO	YES
0-9 Tone Length		54
Tone Length		216
Phone Numbers	1—9	BLANK
DTMF Pause/Start Delay	10000	1000
TRACKING DATA WINDOW:		
PWR-H	0—FF	Current Radio Contents
PWR-L	0—FF	
MOD	0—1F	
SQ/OP	0—FF	
Talkaround (800 MHz only)		
Pwr-H	0—FF	Current Radio Contents
Pwr-L	0—FF	
Mod	0—1F	

Entry Field	Acceptable Value	Default Value
Individual Call Enabled	YES/NO	NO

DTMF OPTIONS WINDOW: (16 key only)

DTMF	Enabled/Disabled	Enabled
Audible Tones	YES/NO	NO
0-9 Tone Length	50—10000	50
Tone Length	50-10000	200
Phone Numbers	29 digits maximum	None
DTMF Start Delay	50—2500	400
DTMF Pause Delay	50-10000	1000
Interdigit Delay	1—75	50

TRACKING DATA WINDOW:

PWR-H	0—FF	Current Radio Contents
PWR-L	0—FF	
MOD	0—1F	
SQ/OP	0—FF	

Talkaround (800 MHz only)

Pwr-H	0—FF	Current Radio Contents
Pwr-L	0—FF	
Mod	0—1F	

CHANNEL GUARD TONE FREQUENCIES

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

PRIMARY AND EQUIVALENT DIGITAL CODES (OCTAL)

Primary	Equivalent	Primary	Equivalent
023	340, 766	155	233, 660
025		156	517, 741
026	566	162	416, 553
031	374, 643	165	354
032		172	057
043	355	174	142, 270
047	375, 707	205	135, 610
051	520, 771	223	350, 475, 750
054	405, 675	226	104, 557
065	301	243	267, 342
071	603, 717, 746	244	176,417
072	470, 701	245	370, 554
073	640	251	236, 704, 742
074	360, 721	261	227, 567
114	327, 615	263	213, 136
115	534, 674	265	171, 426
116	060, 737	271	427, 510, 762
125	172		
131	572, 702	306	147, 303, 761
132	605, 634, 714	311	330, 456 561
134	273	315	321, 673
143	333	331	372, 507
152	366, 415		
343	324, 570	532	161, 345
346	616, 635, 724	546	317, 614, 751

PRIMARY AND EQUIVALENT DIGITAL CODES (OCTAL)

Primary	Equivalent	Primary	Equivalent
351	353, 435	565	307, 362
364	130, 641	606	153, 630
365	107	612	254, 314, 706
371	217, 453, 530	624	075, 501
411	117, 756	627	037, 560
412	127, 411, 711	631	231, 504, 636, 745
413	133, 620	632	123, 657
423	234, 563, 621, 713	654	163, 460, 607
431	262, 316, 730	662	363, 436, 443, 444
432	276, 326	664	344, 471, 715
445	222, 457, 575	703	150, 256
464	237, 642, 772	712	136, 502
465	056, 656	723	235, 611, 671
466	144, 666	731	447, 473, 474, 744
503	157, 312 164,207	732	164, 207
506	224, 313, 574	734	066
516	067, 720	743	312, 515, 663
		754	076, 203

GE Mobile Communications

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