MOTOROLA

HT 1000™ / JT1000™ / VISAR™ Conventional Portable Radios

Radio Service Software User's Guide

Software Part Number: RVN-4098G

Radio Products Group
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Foreword

Release R03.02.01 – RVN 4098G

The HT/JT1000/VISAR Conventional RSS has been revised to add new models which support new VHF frequencies for 12.5 kHz bandwidths. The models added are:

- **H01KDC9AA1DN** – HT 1000, 2 Channel, VHF, with or without keypad
- **H01KDC9AA3DN** – HT 1000, 16 Channel, VHF, with or without keypad
- **H01RDC9AA1DN** – HT 1000, 2 Channel, UHF Range 1, with or without keypad
- **H01RDC9AA3DN** – HT 1000, 16 Channel, UHF Range 1, with or without keypad
- **H01SDC9AA1DN** – HT 1000, 2 Channel, UHF Range 2, with or without keypad
- **H01SDC9AA3DN** – HT 1000, 16 Channel, UHF Range 2, with or without keypad
- **H01UCC6AA3DN** – HT 1000, 16 Channel, 800 MHz, with or without keypad

- **H05KDD9AA4DN** – VISAR, 16 Channel, VHF, no keypad
- **H05KDH9AA7DN** – VISAR, 16 Channel, VHF, keypad
- **H05RDD9AA4DN** – VISAR, 16 Channel, UHF Range 1, no keypad
- **H05RDH9AA7DN** – VISAR, 16 Channel, UHF Range 1, keypad
- **H05SDD9AA4DN** – VISAR, 16 Channel, UHF Range 2, no keypad
- **H05SDH9AA7DN** – VISAR, 16 Channel, UHF Range 2, keypad
- **H05UCD6AA4DN** – VISAR, 16 Channel, 800 MHz, no keypad
- **H05UCH6AA7DN** – VISAR, 16 Channel, 800 MHz, keypad

New features supported are the following:

1. The US Federal Government has opened up over 1200 new frequencies in the VHF range for the 12.5 kHz bandwidth. The radio software and the RSS have both been updated to support these new frequencies.

2. Receive Squelch Tuning: A read-only value has been added to the RSS. This value is displayed on the SQUELCH ALIGNMENT screen for 12.5 kHz and 20 kHz bandwidths and contains the Squelch tuning value programmed into the radio.

3. PL Defeat in Phone Mode: *This new feature applies to VISAR and HT 1000 "D" models only*. When the PL Defeat in Phone Mode feature is enabled, the selected channels' Receive Squelch will be configured to Carrier Squelch (PL Decode defeated) while in phone mode.

Notes

Table of Contents

1 Introduction

Welcome to the HT/JT1000/VISAR Radio Service Software program.

This Radio Service Software (RSS) manual is your guide to customizing and programming a variety of features into a HT 1000, JT1000 or VISAR radio. The HT/JT1000/VISAR RSS is a menu-driven application program developed by Motorola. Its use is restricted to Motorola personnel and licensed customers.

The RSS computer program resides on the diskettes you received in the package with this manual. It allows you to do the following:

- Read a radio codeplug
- Display, change and print a description of the contents of the radio codeplug
- Align certain radio parameters
- Program the radio

Note that the alignment and troubleshooting sections of this manual are intended for use by qualified communications technicians and maintenance personnel ONLY.

> **Note:** The appropriate HT 1000, JT1000 or VISAR Radio Service Manual is needed to align the radio correctly.

Using This Manual

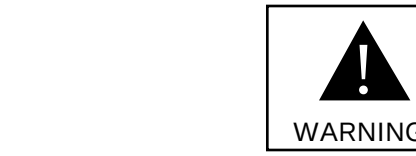
The HT/JT1000/VISAR RSS Manual is designed to teach basic radio feature programming and to speed up access to technical reference information. It is intended for both beginners and advanced users of the RSS. This manual contains information on all of the following:

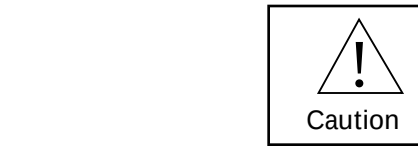
- How to connect the radio and other required hardware to your computer
- How to install the RSS
- How the RSS operates and how the screens are organized
- How to navigate through the menus and screens from the MAIN MENU and use special keyboard commands
- The purpose of each menu and screen, along with detailed descriptions of the functions and data fields relevant to each menu or screen
- How to program a radio using the GET/SAVE and CHANGE/VIEW screens as well as how to service the radio using the SERVICE screens

- How to organize your file directories and specify directory paths for codeplug files
- How to print out radio programming information
- How to clone (or program identical information into several) radios

To locate the information you need, use the Table of Contents and/or the Index. Explanations of technical terms used in this manual can be found in the Glossary.

Watch for WARNINGS, CAUTIONS and NOTES which can be found throughout this manual, the definitions of which are provided below:





Note: An operational procedure, practice, or condition, etc., which is important to emphasize.

What italicized text means: Special notes about field and model dependencies are italicized throughout this manual so that they are easy to locate. An example is reproduced below:

> *A codeplug must be loaded into your computer's memory (using GET/SAVE/PROGRAM MENU functions) before you will be allowed to access the CHANGE/VIEW MENU (**F4**) and related screens.*

For any problem(s) not covered by the Radio Service Software User's Manual or the Radio Service Manual, contact your local Motorola field technical representative.

Prerequisites

To program radios using the RSS, we recommend a basic working knowledge of the following:

- Microcomputers
- The radio's available features (refer to the appropriate Radio Operator's Manual)
- Your customers' needs
- MS-DOS operating system, version 5.0 or later

Equipment Checklist

Listed below are all the equipment required to program a HT 1000, JT1000, or VISAR radio using the RSS.

IBM Personal Computer

It is **strongly recommended** that this RSS be run on an IBM PC, IBM PC compatible or PS/2 computer with the following minimum configuration:

- 80286 CPU or higher;
- An asynchronous communications adapter;
- MS-DOS 5.0 or higher (with DOS running in high memory);
- 4 Megabytes of RAM or greater; and
- At least 512K of free, conventional memory. (The DOS CHKDSK command can be used to determine the amount of free RAM available on your computer.)

Radio Interface Box (RIB)

Part Number **RLN-4008B** (includes internal 9-volt Battery). Allows the computer to communicate with the radio via its asynchronous communications adapter.

Wall-Mounted Power Supply (for RIB)

Part Number **01-80357A57** – 120V AC/DC Converter
Part Number **01-80358A56** – 220V AC/DC Converter
Part Number **60-82728J01** – 9V Battery

Computer Interface Cable

Part Number **30-80369B71** – 25-pin D connector (computer end), 15-pin D connector (RIB end)
Part Number **30-80369B72** – 9-pin D connector (computer end), 15-pin D connector (RIB end)

This hardware connects the computer's asynchronous communications adapter to the RIB.

Program/Test Cable

Part Number **RKN4035D** for HT/JT1000 radios and Part Number **RKN4042A** for VISAR radios. Provides electrical connections to the RIB, Portable Products Test Set, and the radio.

HT/JT1000/VISAR RSS

Part Number **RVN-4098G** (One 3-1/2 inch double-density floppy disk is included.)

Portable Products Test Set

Part Number **RTX-4005B**. Provides the capability to test many transmitter and receiver functions. Transmitter modulation and keying can be tested without disassembling the radio. The Test Set is used in conjunction with the programming/test cable.

Battery Eliminator

Part Number **RLN1014A** for HT/JT1000 and **RLN4327A** for VISAR radios. Replaces the battery pack during servicing.

5 Amp Power Supply (for radio)

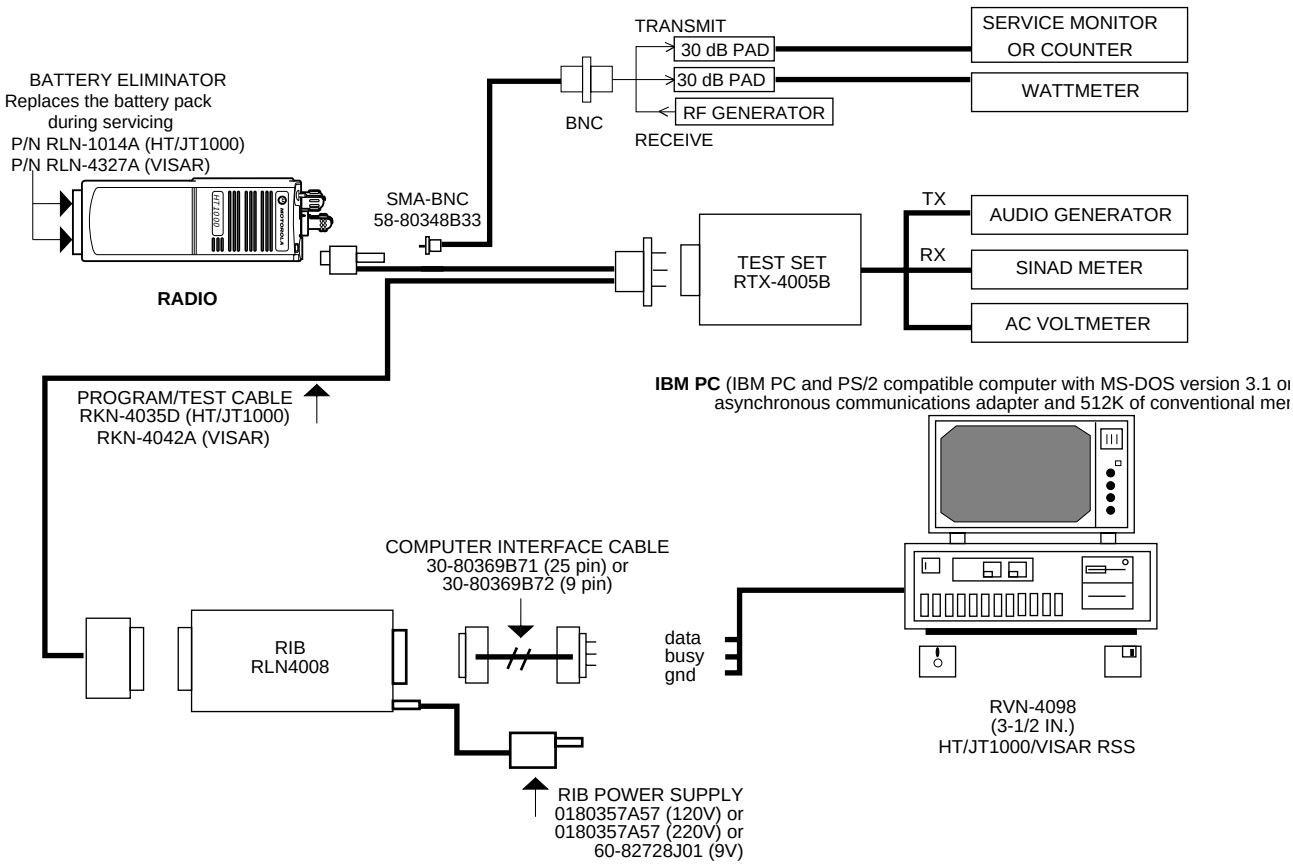
Supplies power to the battery eliminator.

Cloning Cable

Part Number **RLN4036A** for HT/JT1000 radios and Part Number **RKN4043A** for VISAR radios. Used to connect two radios so that the codeplug (personality) of the source radio can be programmed into the target radio.

Assembling The Hardware

The figure below shows how to assemble the required (and optional) equipment used to program an HT 1000, JT1000 or VISAR radio.



Steps to Connect the Hardware

1. Plug the 15-pin connector on the computer interface cable into the RIB.
2. Connect the other end of the computer interface cable to the asynchronous adapter on the computer. The RSS uses COM1 as the default communications port. When both a serial port and a modem are used, it is recommended that COM1 be used as a serial port and COM2 be used for the modem. If COM1 cannot be used for some reason, change the default to COM2 in the main SETUP COMPUTER CONFIGURATION screen (**F9**) and save it.
3. Plug the cable on the wall-mounted power supply into the RIB and the other end into the wall outlet (*optional*).
4. Plug the 25-pin connector on the program/test cable to the RIB. Connect the round 12-pin plug on the program/test cable to the Portable Products Test Set (RTX-4005B). This is not necessary if radio alignment will not be performed.
5. Connect the 13-pin plastic connector on the program/test cable to the HT/JT1000 radio or the 9-pin connector to the VISAR radio as the case may be.

Check the Hardware Connections

After you connect the hardware, turn on the radio by turning the volume control knob clockwise. You will hear one of the following types of tones:

High-pitched, short tone	Hardware is connected correctly and the radio's internal firmware is operating properly. **Note:** This tone may be disabled in the codeplug and may not be heard.
Continuous low tone	Critical failure or radio's internal software malfunction. Contact a service technician immediately. If the error is potentially fatal to the radio, the radio's operation will be inhibited. When a non-fatal error is detected, the tone will indicate that there is a problem, but the radio will continue to operate. The error tone will be of the same duration as the good tone, but will be 300 Hz instead of 900 Hz.

Note: You can install, start or explore the RSS using just the diskettes and your computer if you do not have all the necessary hardware. But you cannot read from or save codeplug data to an actual radio and perform service functions if you do not have the necessary hardware.

Caution

When programming or calibrating a radio, DO NOT disconnect the radio from the RIB when the computer is communicating with the radio. If you do so, the radio may become inoperable. The only recommended time to disconnect the radio is while you are at the MAIN MENU or at any of the GET/SAVE/PROGRAM screens.

Note: If you are using a laptop computer and you plan to use the RSS while the computer is in battery mode, you may need to set the serial/parallel adapter to run on battery power. This can be accomplished using the application diskette supplied by the computer manufacturer. *If this action is not performed, you are likely to receive serial bus errors.*

Note: *If your RIB has a switch and LED, be sure to turn the switch on before each programming session.*

What's On The RSS Diskettes

Below are the files located on the diskette you received with this manual.

File Name	File Type	Description
INSTALL.EXE	Installation file	Used to install the RSS.
INSTALL.DAT	Installation file	Contains installation data.
HT1000.LIB	Executable file	Compressed version of the RSS.
HELP.LIB	Executable file	Compressed version of RSS help files.
DISK.ID	Text file	Contains identification information required for successful installation.

The INSTALL program creates a file named HT1000.BAT. This file is located under the root directory of the hard drive, enabling the RSS to start up from the root directory.

Installing The RSS

Create a Back-up Copy of RSS Diskette(s)

We recommend that you make a back-up copy of the RSS before you install the software. To make a back-up copy, keep an empty (formatted) disk and follow these steps:

1. Insert the RSS diskette you received with this manual into drive A.
2. Type **DISKCOPY A: A:**
3. Press the Return key and follow the instructions that appear on the screen.

Caution

Accidentally reversing the insertion order of the diskettes will erase the contents of the original RSS diskette. DOS will tell you when to insert the source diskette (the original RSS diskette) and when to insert the target diskette (a newly formatted one). Follow the instructions carefully.

4. Keep the original RSS diskettes in a safe place away from magnets, moisture and heat and use the backup as a working copy.

What To Do with Previous Versions of RSS Diskettes

We recommend that you discard previous versions of the RSS so that you always have the most current version available and do not mistakenly program a radio with outdated data. In addition, the latest RSS version has updated codeplug structures which cannot be read by old versions of RSS.

Installing the RSS on your Hard Disk

Install the latest RSS version as soon as you receive it. This ensures that important files are stored in a consistent place for future use. The software installation will take approximately three minutes.

The INSTALL program will:

- Create the MRSS, HT1000, and ARC directories if they do not already exist;
- Create the HT1000.EXE, CONFIG.MOT, README.TXT, HELP.LIB and SETUP.MOT files; and
- Write over old version's program files that have the same names, if they exist.

Note that the INSTALL program will NOT write over your archive files.

You may install the RSS on several personal computers and laptop computers at a single site depending on the terms of your license. If you have additional sites (i.e. a second shop, etc.), you should purchase additional subscriptions.

RSS Hard Disk Installation & Start-Up Procedure

1. Insert the 3 1/2" double-density RSS distribution diskette into the floppy disk drive.
2. Log on to that drive (assuming it is drive A) by typing **A:** (press Return) and type **INSTALL** (press Enter) at the **A:** prompt.

The default installation directory is C:\MRSS\HT1000. Follow directions and answer questions as and when they appear on the display.

The installation utility will also prompt you for permission to create or modify the AUTOEXEC.BAT file. This modification consists of changing the PATH statement so that the RSS can be started from any directory. The change should be allowed unless there are specific reasons not to modify the PATH statement.

> **Note:** Motorola RSS software programs are not compatible with many Terminate-and-Stay-Resident (TSR) utility programs (Side Kick® for example). If you encounter problems when executing the HT/JT1000/VISAR RSS, these programs should be removed.

RSS Start-Up Procedure

After installing the RSS on your hard disk, follow the start-up procedure below:

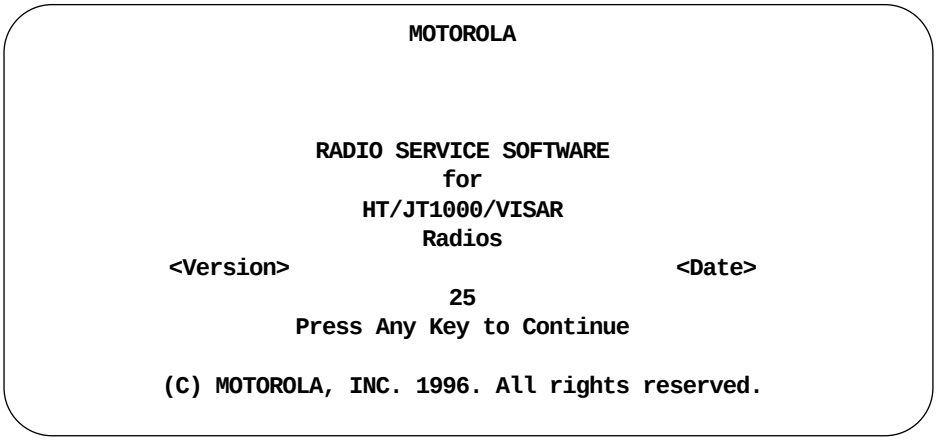
1. At the C:\ prompt, type **CD C:**.
2. Type **C:** and press **Return** to log on to the hard drive.
3. At the C:\ prompt, type **HT1000** and press **Return**.

If the software does not start up correctly, you may hear a tone or see an error message or error code printed on the display. If this happens, verify that the file HT1000.BAT appears under the root directory of Drive C and check for the error code in Appendix A of this manual.

> **Note:** The RSS is NOT a Windows program. If you have Windows loaded, the RSS program will not operate properly.

The Banner Screen

When you start the RSS as described on page 7, you will see a BANNER screen similar to the one below.



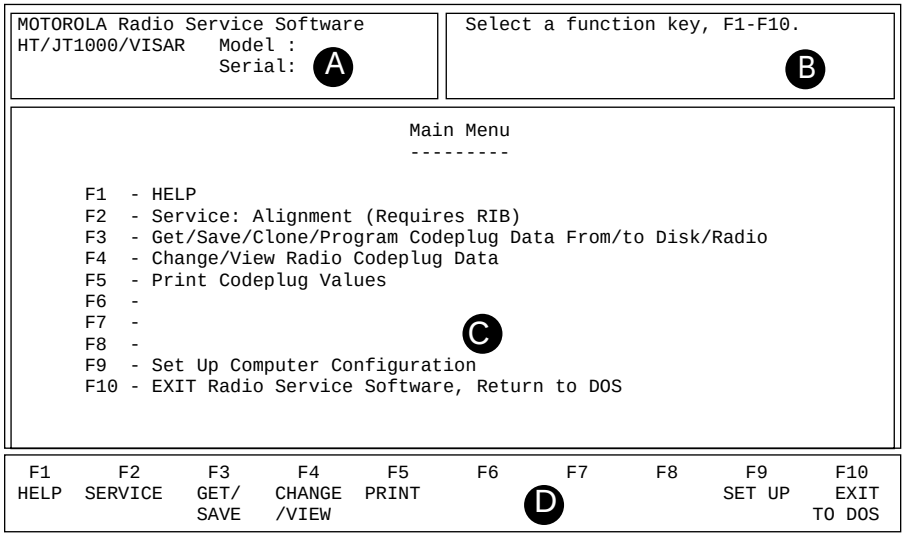
Note: The *Version* and *Date* on the BANNER screen above are not shown here. However, your RSS will show the actual version and date on the BANNER screen.

Press any key to advance to the MAIN MENU. If the CONFIG.MOT file is in the current directory or in the directory where the RSS actually resides, the MAIN MENU will appear. If this file is not found, the SETUP COMPUTER CONFIGURATION screen will appear so that you can specify the default COMport and back-up/archive paths.

Note: Motorola RSS software programs are not compatible with many Terminate-and-Stay-Resident (TSR) utility programs (example: Side Kick®). If trouble is encountered in executing the HT/JT1000/VISAR RSS, these programs should be removed.

Anatomy of a Menu

Within the RSS, there are menus that will take you to other menus and/or to screens where you can change the choice or value of a field. The only difference between a menu and a screen is the information which appears in the *working area*, marked by the letter C in the figure below. A menu or screen has four areas, labelled below as A, B, C and D.



A RSS Location ID Area

In this area you will find the words "MOTOROLA Radio Service Software", the product name (HT/JT1000/VISAR), the radio's model number and a menu or screen path name for the current menu or screen shown on the display.

B Instruction Message Area

As the name indicates, this area suggests specific actions such as "Select a function key, F1-F10", "Use UP/DOWN arrows to scroll value," and so on. This area also contains status messages that indicate the progress of non-interactive functions such as codeplug reading, and provide the range of acceptable values for the current data entry field.

C Working Area

This area of a menu (not a screen) displays a list of functions (menu choices) that you can execute from the current menu. Each menu item is preceded by an F-key (function key). Pressing an F-key from among the available choices advances you to another menu or screen as the case may be.

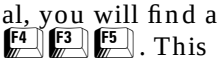
D F-Key (Function Key) ID Area

This area displays the valid F-keys and their corresponding function names for the current menu or screen.

> **Note:** All functions (supported and unsupported) will be displayed in the menu's working area. The unsupported functions (based on the radio's model or options) will, however, NOT be displayed in the F-key area.

Navigating Through The RSS Menus

Every action of the RSS is controlled by you through the use of formatted displays and function keys.

Under each menu or screen title in this manual, you will find a sequence of F-keys (or function keys) such as 

. This sequence represents the path from the MAIN MENU to that specific menu or screen. To access the desired menu or screen, simply press these keys one by one from the MAIN MENU.

The F-keys and other special keys that you can use to communicate with the RSS are listed below along with their various functions.

F1 (Help**)**

Used to display on-line help information on *every* RSS screen and menu. On-line help provides information on how to use the currently displayed menu, screen, line or field. You may also find system setup information in a HELP screen. In many cases, the help information provided is for the specific line of the screen that is currently highlighted.

Within a HELP screen, press **F1** for more help, **F2** for keyboard help, **F5** to print the current help screen, and **F9** for other help (if available). Press **F10** to exit help.

F2 through **F9**

The **F2** through **F9** keys perform special functions and actions which can vary from menu to menu and from screen to screen. For instance, *on some screens*, **F5** will print out the current screen to your printer, **F8** will save the data and options currently displayed, and so on.

F10 (Exit**)**

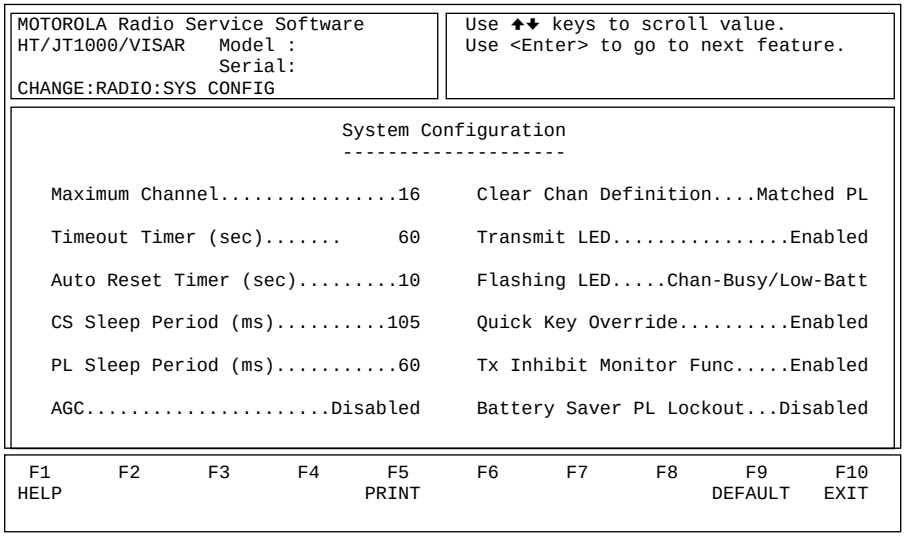
Used to exit to the previous menu or screen. The **F10** key performs this function on *every* menu and screen. At the MAIN MENU, the **F10** key is used to exit the RSS (but you will be asked to confirm the exit before the RSS actually returns you to DOS).

Esc (Return to Main Menu**)**

Used to exit to the MAIN MENU. The **Esc** key performs this function on *every* menu and screen.

Anatomy of a Screen

The only difference between a menu and a screen lies in the contents of the working area.



The working area of a screen contains a list of programmable features called “fields” that can be selected or changed using the arrow, **Tab** or **Return** keys described on page 12.

On some screens, there are features that can be selected for each *individual* channel or mode; these features are selected on a mode-by-mode basis. On other screens, there are features that can be selected for *all* modes of the radio (referred to as “radio-wide” features). And still other screens list those features that perform specific RSS functions such as servicing the radio or printing the personality data.

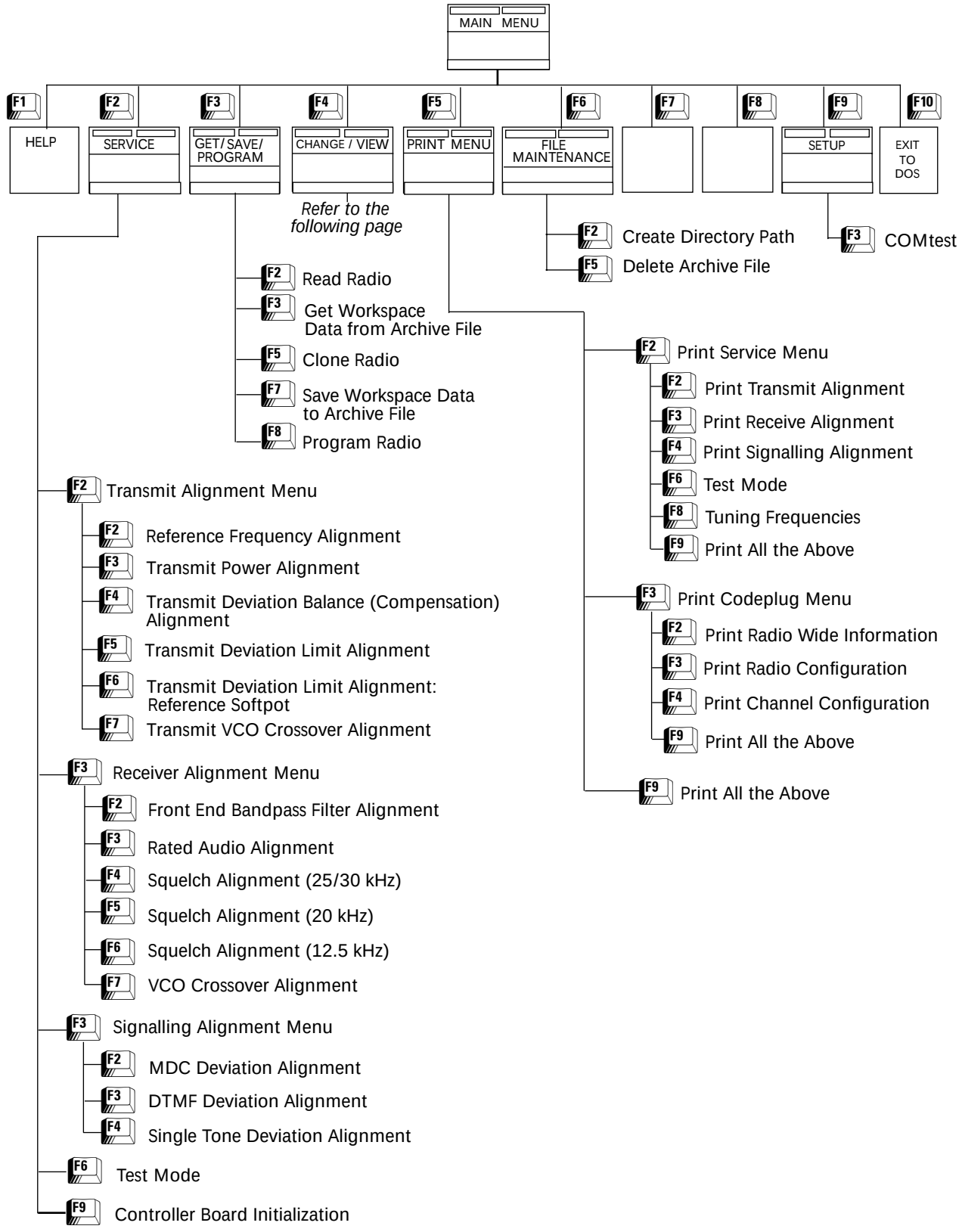
Changing A Field Value

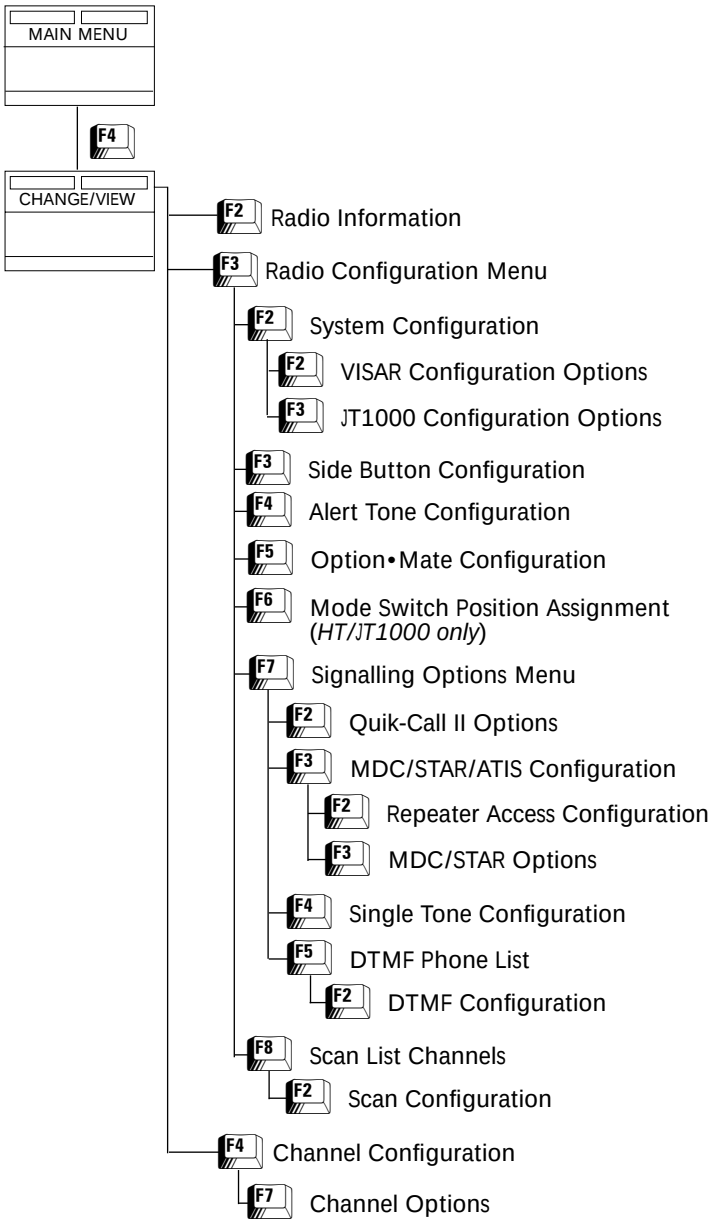
The keys commonly used in the RSS to change a field value and their respective functions are listed below.

Tab or Enter	Used to accept data currently in the field and move the prompt forward one field. If the entry is not accepted (i.e., is probably not a valid value), an error beep will sound. Use **Shift-Tab** to move to the previous field.
Del	Used to erase the current character in a field.
PgUp and PgDn	Used to display the previous/next page of information on the screen. The **Num Lock** key must be off.
UP/DOWN Arrow Keys	Use to increment/decrease a field value or scroll through the available values.
LEFT/RIGHT Arrow Keys	Used to move the cursor within the field.
Backspace	Used to erase the previous character and move the cursor left.
	RSS fields are of three basic types:
Information fields	Non-editable fields which cannot be altered or changed.
Scrollable fields	Contain a range of values or several options from which you can select the desired value/option. To edit or change a choice, press the arrow key(s).
Direct-entry fields	The desired value must be typed in using the keyboard. To edit or change a choice, type in an acceptable value.
	Changing a field's value is typically done either by scrolling through a list of options (in scrollable fields) or by typing in a correct or acceptable value (in direct-entry fields). Scrolling is accomplished using the arrow keys.

Complete Menu Mapping at a Glance

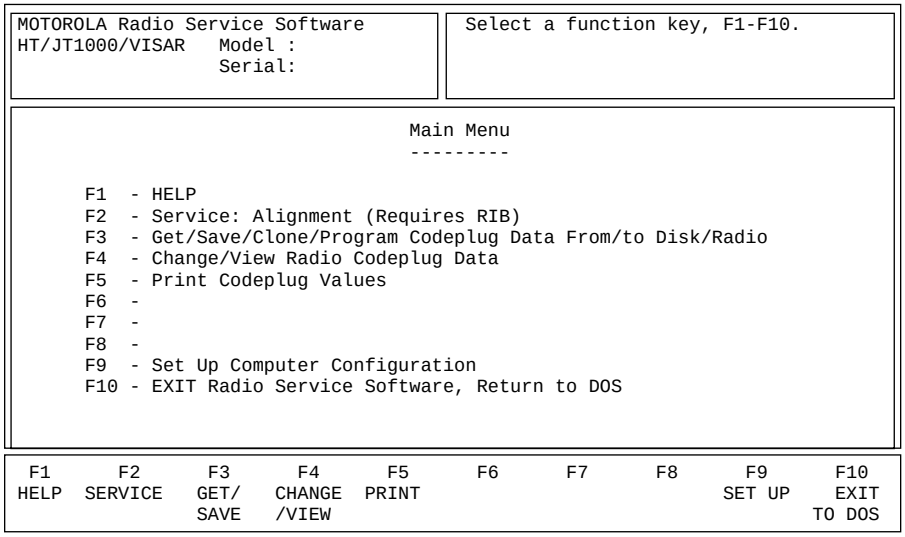
The Menu Map below is a guide through the entire RSS.




MAIN MENU
F4
CHANGE/VIEW
F2 Radio Information
F3 Radio Configuration Menu
F2 System Configuration
F2 VISAR Configuration Options
F3 JT1000 Configuration Options
F3 Side Button Configuration
F4 Alert Tone Configuration
F5 Option•Mate Configuration
F6 Mode Switch Position Assignment (HT/JT1000 only)
F7 Signalling Options Menu
F2 Quik-Call II Options
F3 MDC/STAR/ATIS Configuration
F2 Repeater Access Configuration
F3 MDC/STAR Options
F4 Single Tone Configuration
F5 DTMF Phone List
F2 DTMF Configuration
F8 Scan List Channels
F2 Scan Configuration
F4 Channel Configuration
F7 Channel Options

Main Menu

Press any key at the BANNER screen to access the MAIN MENU.



The MAIN MENU is the starting point of the RSS. All the major programming functions that you can perform using the RSS are listed in the center box or working area of this screen. You can make your selection by pressing the appropriate function key (labeled **F1** through **F10** on the keyboard). You can return to the MAIN MENU at any time from other RSS menus or screens by pressing the **Esc** key.

*You must first load data from a radio (or disk) using the GET/SAVE function (**F3**) before being you will be allowed to access the CHANGE/VIEW (**F4**) and related screens.* Refer to for information on how to retrieve codeplug data.

> **Note:** If you make changes to the codeplug but did not save them and try to exit the RSS, a warning message will be displayed. You will be prompted to press **F2** to exit to DOS, or to press **F10** to continue.

Function Key Descriptions

F1 - HELP

Provides additional information on this screen. Generic help is available within any help screen in the form of the MORE HELP function. Within a HELP screen, press **F1** for more help, **F2** for keyboard help, **F5** to print the current help screen, and **F9** for other help (if available). Press **F10** to exit help.

F2 - SERVICE

A multi-level menu that permits access to all radio service alignments through the service screens. A radio must be connected to the computer via the RIB before access will be permitted to the SERVICE screens. Refer to Section 2 for detailed information on the SERVICE screens.

F3 - GET/SAVE

A multi-level menu used to read codeplug data from a radio and/or retrieve-archived codeplug data from a diskette or hard disk for editing purposes. The GET/SAVE/CLONE/PROGRAM function is also used to program edited codeplug data back into the radio or to create an archive file on a disk. Refer to Section 3 for detailed information on GET/SAVE/CLONE/PROGRAM screens.

F4 - CHANGE/VIEW

A multi-level menu that is used to change or view codeplug features and option configurations. Unlike the SERVICE function, a codeplug must be loaded into the computer's memory using GET/SAVE/CLONE/PROGRAM functions before you will be allowed to access CHANGE/VIEW functions. An archive file can be accessed without a radio being connected. Refer to Section 4 for detailed information on the CHANGE/VIEW screens.

F5 - PRINT

A sub-menu through which you can print various categories of codeplug data. Refer to Section 5 for detailed information on the Print screens.

F9 - SET UP

A screen from which you can customize default disk drives, set up the communication port (COMport) that the computer will use to communicate with the radio, and select screen colors to suit your specific needs. Refer to page 17 in this section for detailed information on the SET UP COMPUTER CONFIGURATION screen.

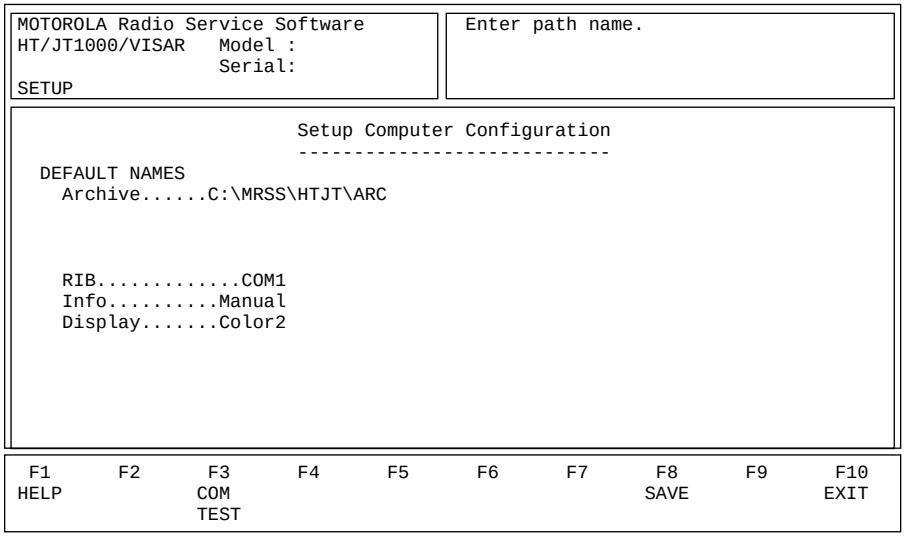
F10 - EXIT TO DOS

Used to quit the program and return to DOS. When you press **F10** at the MAIN MENU, the RSS will prompt you to press **F2** to exit to DOS or **F10** to return to the MAIN MENU.

> **Note:** Make sure that any desired codeplug changes you made have been programmed back to the radio and/or that an archive copy of this information has been made. Once you exit the RSS, *all the information in the workspace will be lost.*

Setup Computer Configuration

To begin configuring RSS defaults, press **F9** at the MAIN MENU. This will bring up the SETUP COMPUTER CONFIGURATION screen.



From this screen, you can set up archive paths, and the serial port (COM1 to COM4) that will be used by the computer to communicate with the radio. Setting the proper defaults eliminates the need to specify this information every time you run the RSS.

Function Key Descriptions

F3 - COM TEST (Communications Test)

Used to verify if your computer is set up correctly and is able to READ and PROGRAM a radio codeplug properly. After the computer and RIB have been connected and the appropriate serial port selected, turn on your radio and execute the COM TEST function by pressing **F3**.

This function will verify if your system is functioning properly by sending commands to the radio and checking for the proper response. No codeplug changes will result from these commands. If the connections are okay, you will hear a beep, and the words "Communications With The Radio Was Successful" will appear in the instruction area.

Otherwise, error messages will be displayed. Make sure that all cables and power supplies are connected according to instructions provided on page 4 of this manual.

Note: A list of computer-to-communication error codes is provided in the Appendix.

F8 - SAVE

Used to save configuration information to a file in the current directory. Every time you use the RSS, the configuration that you saved LAST will be used. The configuration may be modified and saved at any time.

Note: Be sure to save your settings before you exit this screen.

Field Definitions

Archive

Enter the default directory path where archive files are to be located. First enter a drive letter (optional), followed by a colon, and the new archive path name. Letter, number and edit keys are valid while in this field. The GET ARCHIVE and SAVE ARCHIVE functions will default to this path. The archive path cannot be deleted. If you try to do so, the default Archive path name will appear in this field.

> **Note:** If the program is being executed for the first time, the default archive path will be the same directory from which the program is being run. (Refer to the owner's manual that came with your computer for a complete description of directories and path names.)

The archive path may also be changed from the GET/SAVE:GET FILE and GET/SAVE:SAVE FILE screens. But this path will be valid only for the current programming session. *The configuration file can be saved only from this screen.*

> **Note:** *The RSS will NOT allow you to enter an archive path name which points to a directory that does not yet exist.* If you enter such a path name, you will receive an error message to the effect that what you entered is not a valid path name.

RIB

Use the UP/DOWN arrow keys to select the asynchronous communications port (COM 1 through COM4) that the RIB (radio interface box) is connected to.

> ***Note:*** *The RIB MUST be connected to the specified port.*

If you are not sure how your computer is configured or if you have four asynchronous communications ports, first select COM 1 and use the COM TEST (**F3**) function to communicate with a radio. If the test fails, select COM 2 and repeat COM TEST. Do the same for COM3 and COM4. Make sure that all cables and power supplies are connected according to instructions provided on page 4 of this manual.

> **Note:** Refer to the owner's manual that came with your computer for a complete description of asynchronous communications ports and instructions on how to configure them.

Info

This field is used to automatically update archive information on the GET WORKSPACE DATA FROM ARCHIVE FILE screen (**F3/F3**) when scrolling through the list of archives. If the field is set to Manual, you will have to press **F3** (Show Info) to display archive information. This option should be set to Manual when reading archive files from a removable diskette.

Display

This field allows you to choose from a variety of color settings which can be used with LCD displays and monochrome displays. The LCD setting works best with most laptop displays. If your monitor does not support grey-scale color emulation, try "Mono 2".

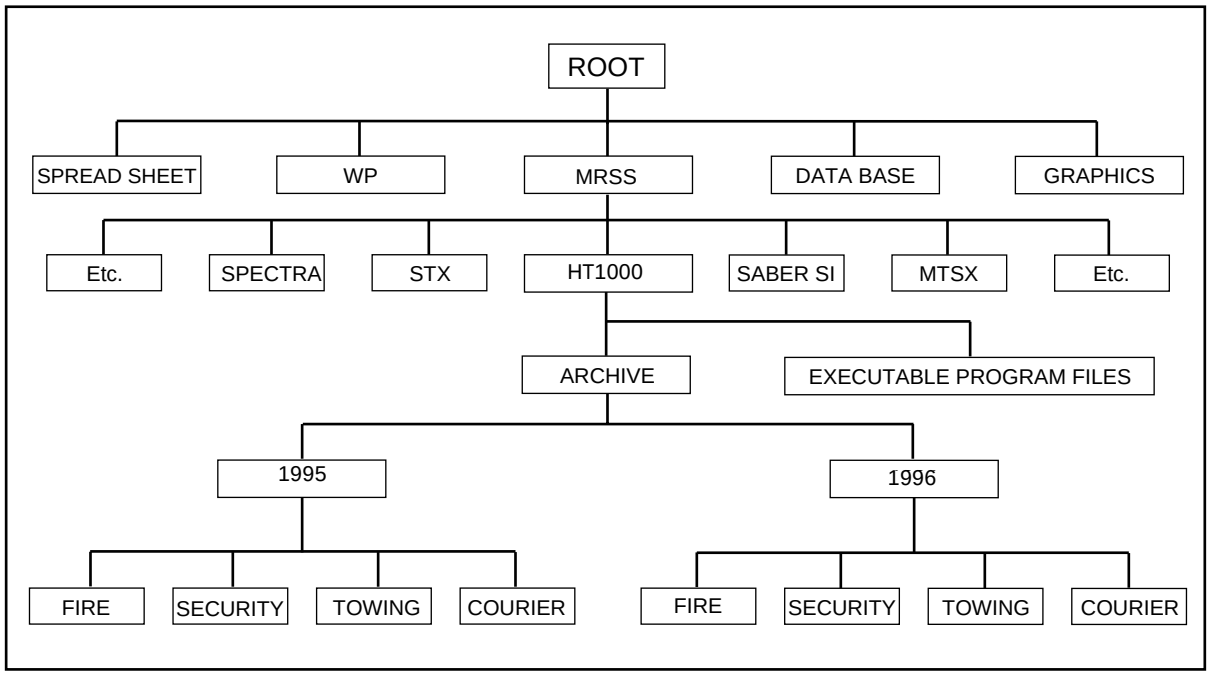
Organizing Your Hard Disk

It is important to spend some time early on deciding which types or groups of files should be located together in the same file directory. File directories can be created using the DOS **MD** or **MKDIR** command.

You may want to organize your directories first by customer area, then by customer name, and finally by radio model type, or perhaps in the reverse order. Consider the different ways in which you operate your business. Do you separate radio files by customer location, by sales revenue, by fiscal year, or perhaps by date of purchase? When deciding how to organize your files and directories, we suggest the following:

- Put as few directories as possible near the top, or root, of your directory tree. The next level of directories would be the *customer names* within each top-level directory.
- Keep the RSS diskette contents in one directory and your archive files in a different directory.
- Storing archive files for different radio models in the same directory can cause a lot of confusion. Have a separate directory name for each radio model, and then store the archive files for that specific model within the appropriate model directory.

Below is a sample directory tree for storing your radio archive files on your computer's hard disk. Though your hard disk directory tree may vary depending on your way of doing business, this setup may be a starting point for you. The installation program will automatically create the MRSS and HT1000 directories for you if they do not already exist.



Exiting The RSS

Before you exit the RSS, always ask yourself these questions:

1. Did you apply the changes to the radio (save to the radio)?
2. Did you apply the changes to a computer file (save archive file)?

Press the **Esc** key to return to the MAIN MENU, and then press **F10** followed by **F2** to exit to the DOS prompt.

Service Menu Functions

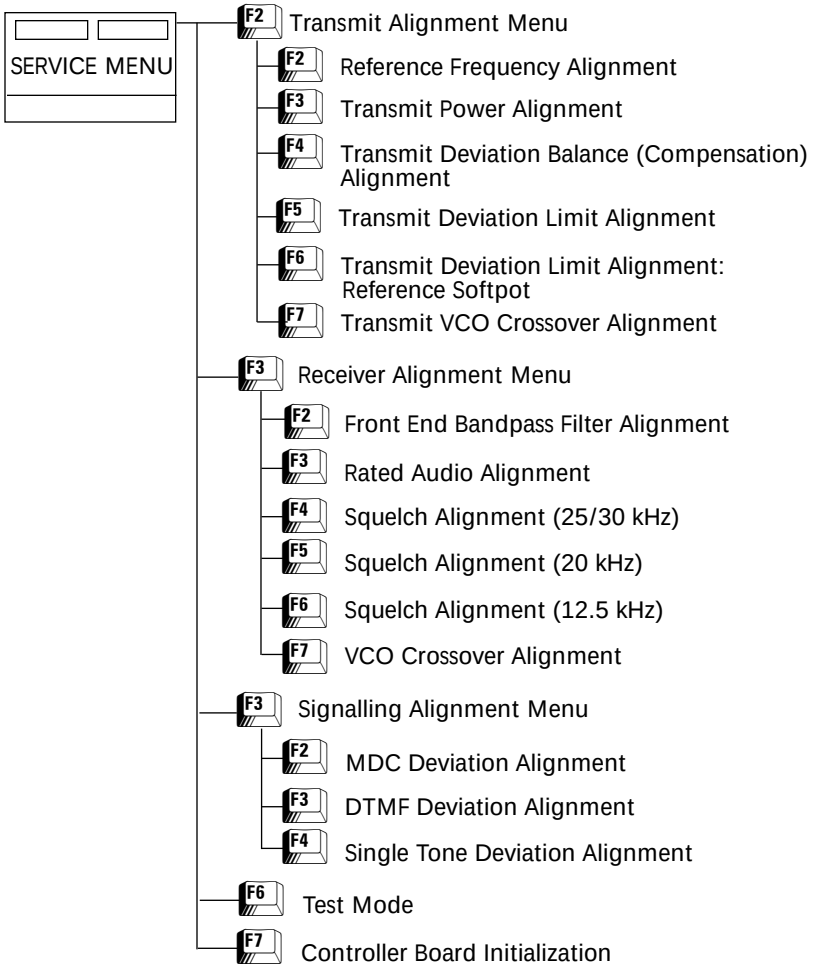
2

Servicing the Radio Using the RSS

This section contains instructions on how to use each of the SERVICE MENU related screens and procedures to align the radio. *Detailed alignment procedures and service instructions are included in the HT 1000, JT1000 or VISAR Radio Service Manual and are therefore not included in this manual.* Refer to the relevant Service Manual for all alignment values and procedures.

> **Note:** All functions (supported and unsupported) will be displayed in the menu's working area. The unsupported functions (based on the radio's model or options) will NOT be displayed in the F-key ID area.

Menu Map



Service Menu

Press **F2** at the MAIN MENU to access the SERVICE MENU.

```
MOTOROLA Radio Service Software          Please made sure <Caps Lock> is not
HT/JT1000/VISAR   Model:                 enabled before pressing F2-F9.
                  Serial:
MAIN:SERVICE

                                SERVICE MENU
                                ------------

          F1  - HELP
          F2  - Transmitter Alignments
          F3  - Receiver Alignments
          F4  - Signalling Alignments
          F5  -
          F6  - Test Mode
          F7  - Controller Board Initialization
          F8  -
          F9  -
          F10 - Exit, Return to Main Menu

   F1     F2       F3       F4       F5       F6       F7       F8       F9       F10
  HELP TRANSMIT RECEIVE SIGNAL             TEST CONTROLLER                     EXIT
       ALIGN    ALIGN  ALIGN              MODE    INIT
```

All radio alignment and board replacement procedures are accessed from the SERVICE MENU.

Note: *A radio must be connected to your computer via a RIB and cables and the radio turned on before you will be permitted to access the SERVICE screens.*

Caution

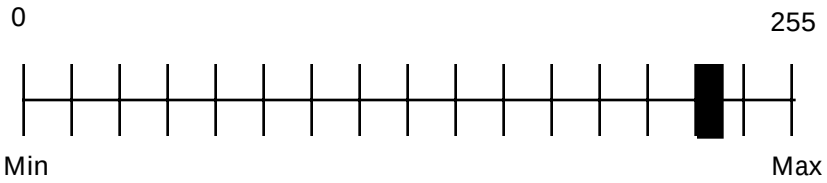
Do NOT switch radios in the middle of any SERVICE procedure. Always use the EXIT function key (**F10**) to return to the MAIN MENU before disconnecting the radio. Improper exits from service screens may leave the radio in an improperly configured state, resulting in seriously degraded radio or system performance. Refer to your Radio Service Manual for detailed service procedures.

All service screens read and program the radio codeplug directly; you do NOT have to use GET/SAVE/PROGRAM MENU functions unless you are modifying or printing data.

The SERVICE screens introduce the concept of a “softpot”, an analog potentiometer controlled by software. As stated earlier, the HT/JT1000/VISAR radios do not contain any internally adjustable components. All RF and tuning adjustments are controlled by the software.

Each TRANSMIT SERVICE screen provides the capability to key up the radio via the **F6** function key, and to increase or decrease the softpot setting using the UP/DOWN arrow keys on the keyboard. A graphic

scale is displayed indicating the minimum, maximum, and current value of the softpot setting, as shown below:



Adjusting the softpot value sends information to the radio to increase or decrease a DC voltage in the corresponding circuit. In all cases, the softpot value is just a relative number, corresponding to a D/A (digital-to-analog) generated voltage or digitally-controlled frequency in the radio. All standard measurement procedures and test equipment are applicable and are NOT affected in any way.

Function Key Descriptions

F2 - TRANSMIT ALIGN (Transmitter Alignment)

Used to perform standard radio transmit alignment procedures. Refer to the appropriate Radio Service Manual for Transmit Alignment procedures.

F3 - RECEIVE ALIGN (Receiver Alignment)

Used to perform standard radio receive alignment procedures. Refer to the appropriate Radio Service Manual for Receive Alignment procedures.

F4 - SIGNAL ALIGN (Signalling Alignment)

Used to perform standard radio signalling alignment procedures. Refer to the appropriate Radio Service Manual for Receive Alignment procedures.

Transmitter, Receiver and Signalling Alignment procedures should only be attempted by qualified service personnel. Failure to perform alignment procedures properly may result in a seriously degraded radio or system performance. Refer to your Radio Service Manual for detailed service procedures.

F6 - TEST MODE

Used to set up specific test conditions (TPL, DPL, MDC, etc.) on specific test frequencies for a quick check of the radio transmit/receive functionality.

F7 - CONTROLLER INIT (Controller Board Initialization)

Used to initialize a replacement Controller Board with the radio serial number that existed in the original factory-programmed board.

Transmit Alignment Menu

From the MAIN MENU, press **F2** twice to access the TRANSMIT ALIGNMENT MENU.

```
MOTOROLA Radio Service Software          Please make sure <Caps Lock> is not
HT/JT1000/VISAR   Model:                 enabled before pressing F2-F9.
                  Serial:
...SERVICE:XMTR ALIGN

                          TRANSMIT ALIGNMENT MENU
                          -----------------------

          F1  - HELP
          F2  - Reference Frequency Alignment
          F3  - Transmit Power Alignment
          F4  - Transmit Deviation Balance (Compensation) Alignment
          F5  - Transmit Deviation Limit Alignment
          F6  - Transmit Deviation Limit: Reference Softpot
          F7  - Transmit VCO Crossover Alignment
          F8  -
          F9  -
          F10 - EXIT

  F1      F2      F3       F4      F5      F6      F7      F8      F9      F10
 HELP    REF   TRANSMIT   DEV     DEV     DEV     VCO                     EXIT
        FREQ     POWER    BAL    LIMIT    REF    XOVER
```

Standard periodic alignment procedures are performed from this menu. From here, you can navigate to six screens where various alignment settings are specified. You should refer to the appropriate (HT 1000, JT1000 or VISAR) Radio Service Manual for specific details of these alignment procedures.

Caution

These procedures should only be attempted by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Signalling deviation for MDC, DTMF, or Single Tone must be checked any time that the radio is serviced and must be adjusted whenever any of the modulation circuitry is replaced. Before adjusting signalling deviation, radio compensation/deviation adjustments must be made. No adjustments are required however for DPL or TPL deviation.

Function Key Descriptions

F2 - REF FREQ (Reference Frequency Alignment)	This screen reads the radio codeplug, and then allows you to align the reference oscillator softpot. Refer to the appropriate Radio Service Manual for details of this procedure. *This procedure should only be attempted by qualified service personnel.*
F3 - TRANSMIT POWER (Transmit Power Alignment)	This function is used to align the radio's transmit power. Refer to the appropriate Radio Service Manual for the Transmitter Power Alignment procedure. *This procedure should only be attempted by qualified service personnel.*
F4 - DEV BAL (Transmit Deviation Balance [Compensation] Alignment)	This function is used to balance the radio's transmit deviation. Refer to your Radio Service Manual for the Transmit Deviation Balance (Compensation) Alignment procedure. *This procedure should only be attempted by qualified service personnel.*
F5 - DEV LIMIT (Transmit Deviation Limit Alignment)	This function is used to perform transmit deviation limit alignment. Refer to your Radio Service Manual for the Transmit Deviation Limit Alignment procedure. *This procedure should only be attempted by qualified service personnel.*
F6 - DEV REF (Transmit Deviation Limit Alignment: Reference Softpot)	This function is used to perform the transmit deviation limit alignment: reference softpot procedure. Refer to your Radio Service Manual for the Transmit Deviation Limit Alignment Reference Softpot procedure. *This procedure should only be attempted by qualified service personnel.*
F7 - VCO XOVER (Transmit VCO Crossover Alignment)	This function is used to perform transmit VCO crossover alignment. Refer to your Radio Service Manual for the Transmit VCO Crossover Alignment procedure. *This procedure should only be attempted by qualified service personnel.*

Reference Frequency Alignment

From the MAIN MENU, press **F2** three times to bring up the REFERENCE FREQUENCY ALIGNMENT screen.

```
MOTOROLA Radio Service Software          Use ↑↓ or <SHIFT>↑<SHIFT>↓keys
HT/JT1000/VISAR  Model:                  to change softpot.
                 Serial:
SERVICE:XMTR ALIGN:REF FREQ

                      REFERENCE FREQUENCY ALIGNMENT
                      -----------------------------
     Test          Current
     Frequency     Value

     519.97500     100          New Softpot Value.....100



                              Transmitter..Off
      0                                                                  215
    MIN |----+----+----+----+----X----+----+----+----+----+----+----+----| MAX

   F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
  HELP                                   TOGGLE          PROGRAM         EXIT
                                          PTT             VALUE
```

Refer to your Radio Service Manual for details of the Reference Frequency Alignment procedure. This function is used to read the radio codeplug and access the reference oscillator softpot.

1. Press **F6** at the TRANSMIT POWER screen to key up the radio. The radio's RF output must be terminated into a 50 ohm load. (A three-minute time-out timer is enabled when the radio is keyed.) If an error occurs, a pop-up message will appear to indicate the type of error. (Appendix A lists computer-to-radio communication error codes.)
2. The radio will transmit on the Test Mode 7 frequency. While it is transmitting, adjust the reference oscillator to the frequency displayed on the screen using the UP/DOWN arrow keys. Use the **Shift**-UP/DOWN arrow keys to increase the adjustment speed.

   Note: A relative TX power value will be displayed, but you must measure the actual RF power from the frequency counter or the service monitor.

3. Press **F6** to de-key the radio and **F8** to program the new value into the radio.

   Note: *The radio internal circuitry must be at room temperature (25 +/- 3 degrees C; 77 +/- 5 degrees F) to properly center the adjustment.* In addition, the radio might be warm from transmitting or operating at a loud audio setting for a long period of time. Turn the radio off and let it cool thoroughly to room temperature before setting the reference oscillator.

Function Key Descriptions

F6 - TOGGLE PTT	Alternately keys and de-keys the radio being serviced (that is, toggles PTT).
F8 - PROGRAM VALUE	Programs the selected value into the radio.

Transmit Power Alignment

From the MAIN MENU, press **F2** twice and then **F3** to access the TRANSMIT POWER ALIGNMENT screen.

```
MOTOROLA Radio Service Software          Use⬆⬇or <SHIFT>⬆<SHIFT>⬇keys to change
HT/JT/VISAR     Model:                   and <ENTER> to go to next softpot.
                Serial:
SERVICE:XMIT ALIGN:XMIT PWR

                        Transmit Power Alignment
                        ------------------------
     Test          Current Value                          New Softpot Value
     Frequency      Power Level                             Power Level
                    High     Low                            High     Low
    450.02500       43       72                             43       72
    465.22500       48       73                             48       73
    475.22500       51       74                             51       74
    485.97500       56       76                             56       76
    500.27500       63       79                             63       79
    511.97500       68       82                             68       82
    519.97500       48       84                             48       84

      0                                                                 127
    MIN |----+----+----+-X--+----+----+----+----+----+----+----+----+----| MAX

   F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
  HELP                                   TOGGLE          PROGRAM          EXIT
                                          PTT             VALUE
```

Refer to your Radio Service Manual for the Transmitter Power Alignment procedure.

> **Caution** This procedure should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Note: *Lower power tuning is not applicable to 800 MHz or low-band models.*

Programming Procedure

1. Press **F6** at the TRANSMIT POWER screen to key up the radio and toggle PTT. The radio's RF output must be terminated into a 50 ohm load. A three-minute time-out-timer is enabled when the radio is keyed.

   Test frequency and current high and low power levels are shown on the left side of the screen. The status bar at the bottom of the screen shows the actual setting in relation to the minimum and maximum settings allowed for transmission power. If an error occurs, a pop-up message will appear to indicate the type of error that occurred. (Refer to the list of computer-to-radio communication error codes in the Appendix.)

2. While the radio is transmitting, modify the TX power softpot setting using the UP/DOWN arrow keys. Use the **Shift**-UP/DOWN arrow keys to increase the adjustment speed.

   Note: A relative TX power value will be displayed, but you must measure the actual RF power with a service monitor.

3. When the values are set correctly, press **F6** to de-key the radio and **F8** to save the new value.
4. Use **Tab** to move between frequency points, repeating steps 1 to 3 for each field.

Function Key Descriptions

F6 - TOGGLE PTT	Alternately keys and de-keys the radio being serviced.
F8 - PROGRAM VALUE	Programs the selected value into the radio.

Field Definitions

New Softpot Value	This is the power attenuation for this frequency. The status bar shows the setting in relation to the minimum and maximum settings.

Transmit Deviation Balance (Compensation) Alignment

From the MAIN MENU, press **F2** twice and then **F4** to access this screen.

```
MOTOROLA Radio Service Software          Use⬆⬇or <SHIFT>⬆<SHIFT>⬇keys to change
HT/JT1000/VISAR Model:                   and <ENTER> to go to next softpot.
                Serial:
SERVICE:XMIT ALIGN:XMIT DEV BAL

            Transmit Deviation Balance (Compensation) Alignment
            ---------------------------------------------------
         Test       Current
         Frequency  Value                          New Softpot Value

        450.02500     30                                 30
        465.22500     30                                 30
        475.22500     30                                 30
        484.97500     45                                 45
        500.27500     45                                 45
        511.97500     45                                 45
        519.97500     45                                 45

     0                                                              64
    MIN |----+----+----+----+----X----+----+----+----+----+----+----| MAX

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                   TOGGLE          PROGRAM         EXIT
                                         PTT             VALUE
```

Compensation alignment balances the modulation sensitivity of the VCO and reference modulation (synthesizer low-frequency port) lines. This procedure is used to correct for deviation sensitivity versus RF frequency variations in the VCO. The transmit and receive bands are divided into frequency zones with a calibration point (value) in each zone.

Note: Balanced compensation alignment is required after replacement or servicing of the Controller board or RF board.

Caution

This procedure should be attempted only by qualified service personnel. Compensation alignment is critical to the operation of signalling schemes that have very low frequency components (i.e., DPL) and could result in distorted wave-forms if improperly adjusted.

The RSS reads the radio codeplug and displays the frequency and current value (determined by reading the radio codeplug) on the left side of the screen. Balance softpot values are displayed on the right side of the screen. A bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings.

Use the UP/DOWN arrow keys to make adjustments according to instructions provided in the appropriate Radio Service Manual. Performing this procedure automatically calculates compensation alignment.

Function Key Descriptions

F6 - TOGGLE PTT	Alternately keys and de-keys the radio being serviced.
F8 - PROGRAM VALUE	Programs the selected value into the radio.

Field Definition

New Softpot Value	This is the balance value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Transmit Deviation Limit Alignment

From the MAIN MENU, press **F2** twice and then **F5** to access the TRANSMIT DEVIATION LIMIT screen.

```
MOTOROLA Radio Service Software          Use⬆⬇or <SHIFT>⬆<SHIFT>⬇keys to change
HT/JT1000/VISAR Model:                   and <ENTER> to go to next softpot.
                Serial:
SERVICE:XMIT ALIGN:XMIT DEV LIM

                     Transmit Deviation Limit Alignment
                     ----------------------------------
        Test         Current
        Frequency    Value                          New Softpot Value

       450.02500     175                                  175
       465.22500     175                                  175
       475.22500     180                                  180
       484.97500     180                                  180
       500.27500     180                                  180
       511.97500     180                                  180
       519.97500     180                                  180

    0                                                                  255
   MIN |----+----+----+----X----+----+----+----+----+----+----+----+----| MAX

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                   TOGGLE          PROGRAM         EXIT
                                         PTT             VALUE
```

This procedure is used to correct for deviation sensitivity versus RF frequency variations in the VCO. The transmit and receive bands are divided into frequency zones with a calibration point (value) in each zone.

> **Note:** Compensation for each of these points must be checked and adjusted if the VCO is replaced.

The status bar at the bottom of the screen shows the relationship between the softpot value for each frequency as a value between the minimum and maximum settings.

Refer to your Radio Service Manual for the Transmit Deviation Limit Alignment procedure.

> **Caution** This procedure should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Programming Procedure

1. Press **F6** to key up the radio. (The radio's RF output must be terminated into a 50 ohm load.)
2. Apply the appropriate signal according to instructions provided in your Radio Service Manual. While transmitting, modify the VCO Attenuator setting with the UP/DOWN arrow keys.
3. Measure the actual RF power with a service monitor.
4. Press **F6** to de-key the radio.
5. Press **F8** to save the new value.
6. Use **Tab** to move between frequency points, repeating steps 1 through 5 for each field.

Function Key Descriptions

F6 - TOGGLE PTT	Alternately keys and de-keys the radio being serviced.
F8 - PROGRAM VALUE	Programs the selected value into the radio.

Field Definitions

New Softpot Value	This is the VCO softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Transmit Deviation Limit Alignment: Reference Softpot

From the MAIN MENU, press **F2** twice and then **F6** to access this screen.

```
MOTOROLA Radio Service Software                 Use⬆⬇or <SHIFT>⬆<SHIFT>⬇keys to change
HT/JT1000/VISAR Model:                          and <ENTER> to go to next softpot.
                Serial:
SERVICE:XMIT ALIGN:XMIT DEV LIM REF

              Transmit Deviation Limit Alignment: Reference Softpot
              -----------------------------------------------------
         Test         Current Value                  New Softpot Value
         Frequency    Channel Spacing                Channel Spacing
                      12.5 kHz  20 kHz               12.5 kHz   20 kHz

        177.97500          87     114                     87      114

     0                                                                127
    MIN |----+----+----+----X----+----+----+----+----+----+----+----+----| MAX

   F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
  HELP                                   TOGGLE          PROGRAM         EXIT
                                          PTT             VALUE
```

Reference Attenuator Alignment is required after replacement or servicing of the Controller Board or the RF Board. This alignment procedure limits the modulation of the baseband signal. It is used for secondary modulation limiting.

The reference frequency is displayed on the left side of the screen. The reference softpot is displayed on the right side of the screen. A bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings.

Refer to the Radio Service Manual for the Transmit Deviation Limit Alignment: Reference Softpot procedure.

Caution

This procedure should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Programming Procedure

1. Press **F6** to key up the radio. (The radio's RF output must be terminated into a 50 ohm load.)
2. Apply the appropriate signal according to instructions in your Radio Service Manual.
3. While transmitting, modify the Reference Attenuator setting using the UP/DOWN arrow keys. To increase the adjustment speed, use the Shift-UP/DOWN arrow keys.
4. A relative Tx power value will be displayed, but you must measure the actual transmitter deviation from the service monitor.
5. Press **F6** to de-key the radio and **Tab** to move between frequency points.
6. Press **F8** to save the new values.

Function Key Descriptions

F6 - TOGGLE PTT	Alternately keys and de-keys the radio being serviced.
F8 - PROGRAM VALUE	Programs the selected value into the radio.

Field Definition

New Softpot Value	This is the balance value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.
12.5 kHz	This is the working Reference Attenuator value. The status bar shows the relationship between this setting and the minimum and maximum settings.
20 kHz	This is the working Reference Attenuator value. The status bar shows the relationship between this setting and the minimum and maximum settings.

Transmit VCO Crossover Alignment

From the MAIN MENU, press **F2** twice and then **F7** to access the TRANSMIT VCO CROSSOVER ALIGNMENT screen.

```
MOTOROLA Radio Service Software          Use ↑↓ or <SHIFT>↑<SHIFT>↓keys
HT/JT1000/VISAR  Model:                  to change softpot.
                 Serial:
SERVICE:XMIT ALIGN:VCO CROSSOVER

                      Transmit VCO Crossover Alignment
                      --------------------------------
     Current
     Value

     161.50500                    New Softpot Value..... 161.50500




                               Transmitter..Off
136.00000                                                        178.00000
     MIN |----+----+----+----+----X----+----+----+----+----+----+----| MAX

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                   TOGGLE          PROGRAM         EXIT
                                         PTT             VALUE
```

This alignment procedure warps the reference oscillator of the radio.

Refer to your Radio Service Manual for details on the Transmit VCO Crossover Alignment procedure.

Caution

This procedure should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Function Key Descriptions

F6 - TOGGLE PTT

Alternately keys and de-keys the radio being serviced (that is, toggles PTT).

F8 - PROGRAM VALUE

Programs the selected value into the radio.

Field Definitions

New Softpot Value

This is the VCO softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Current Frequency

This is the current VCO Crossover Frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

New Frequency

This is the working VCO Crossover Frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Receiver Alignment Menu

From the MAIN MENU, press **F2** and then **F3** to access this screen.

```
MOTOROLA Radio Service Software          Please make sure <Caps Lock> is not
HT/JT1000/VISAR  Model:                  enabled before pressing F2-F9.
                 Serial:
SERVICE:RCVR ALIGN

                          Receive Alignment Menu
                          ----------------------

          F1  - HELP
          F2  - Front End Bandpass Filter Alignment
          F3  - Rated Audio Alignment
          F4  - Squelch Alignment 25/30kHz
          F5  - Squelch Alignment 20kHz
          F6  - Squelch Alignment 12.5kHz
          F7  - VCO Crossover Alignment
          F8  -
          F9  -
          F10 - Exit, Return to Service Menu

  F1       F2       F3       F4        F5        F6       F7      F8       F9     F10
 HELP     FE BP    RATED   SQUELCH   SQUELCH   SQUELCH   VCO                      EXIT
          FILTER   AUDIO 25/30 kHz   20kHz    12.5 kHz XOVER
```

From this menu, you can navigate to six screens where various alignment settings are specified. Standard periodic receiver alignment procedures are performed from this menu. Refer to your Radio Service Manual for Receive Alignment procedures.

> **Caution** These procedures should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Function Key Descriptions

F2 - **F7**

Refer to your Radio Service Manual for these procedures. *These procedures should only be attempted by qualified service personnel.*

Front-End Filter Alignment (*VHF and UHF*)

From the MAIN MENU, press **F2, F3** and then **F2** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ or <SHIFT>↑<SHIFT>↓ to change
HT/JT1000/VISAR  Model:                  and <ENTER> to go to next softpot.
                 Serial:
SERVICE:RCVR ALIGN:FE FL

                          Front End Filter Alignment
                          --------------------------
         Test             Current
         Frequency        Value                    New Softpot Value

         450.02500          92                           92
         465.22500         105                          105
         475.22500         122                          122
         484.97500         138                          138
         500.27500         156                          156
         511.97500         177                          177
         519.97500         191                          191

      0                                                                  255
    MIN |----+----+---X-+----+----+----+----+----+----+----+----+----+----| MAX

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                                  PROGRAM          EXIT
                                                        VALUE
```

This alignment procedure is required every time the RF Board is replaced or serviced. This alignment adjusts the corner frequencies of an RF front-end bandpass filter. It needs to be performed at multiple frequencies to allow for proper alignment across the entire RF band. The RF band is divided into frequency zones with a calibration point (value) in each zone.

The test frequencies and current values are displayed on the left side of the screen. On the right side of the screen, the front-end filter softpot values are displayed. A bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings.

Refer to your Radio Service Manual for the Front-End Filter Alignment (UHF and VHF) procedure.

These procedures should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Programming Procedure

1. Apply the appropriate RF signal to the radio.
2. Modify the Rx Front End Filter Softpot setting using the UP/DOWN arrow keys.
3. Use the **Tab** key to move between frequency points.
4. Press **F8** to save the new values.

Function Key Descriptions

F8 - PROGRAM VALUE	Programs the selected value into the radio.

Field Definition

New Softpot Value	This is the squelch attenuator softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Rated Audio Alignment (Carrier Squelch)

From the MAIN MENU, press **F2, F3** and then **F3** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ or <SHIFT>↑<SHIFT>↓keys
HT/JT1000/VISAR  Model:                  to change softpot.
                 Serial:
SERVICE:RCVR ALIGN:AUDIO

                    Rated Audio Alignment (Carrier Squelch)
                   ----------------------------------------
     Test          Current
     Frequency     Value

     500.27500     215              New Softpot Value.....215



                              Transmitter..Off
      0                                                                  255
    MIN |----+----+----+----X----+----+----+----+----+----+----+----+----| MAX

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                                   PROGRAM         EXIT
                                                         VALUE
```

This procedure adjusts for rated audio power across the radio speaker. The frequency is displayed on the left side of the screen. To the right of it is the audio level in the codeplug. On the far right side of the screen the rated audio volume softpot is displayed. A bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings.

> **Note:** Rx Rated Audio Alignment is required after replacing (or servicing) the RF/Controller Board.

Refer to your Radio Service Manual for the Rated Audio Alignment procedure.

> **Caution** — These procedures should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Programming Procedure

1. Apply the appropriate RF signal to the radio.
2. Modify the Rated Audio Volume Softpot setting using the UP/DOWN arrow keys.
3. Press **F8** to save the new values.

Function Key Descriptions

F8 - Program Value — Programs the selected value into the radio.

Field Definition

New Softpot Value — This is the squelch attenuator softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Squelch Alignment (25/30 kHz)

From the MAIN MENU, press **F2**, **F3** and then **F4** to access this screen.

```
MOTOROLA Radio Service Software          Use ⬆⬇ or <SHIFT>⬆<SHIFT>⬇ to change
HT/JT1000/VISAR   Model:                 and <Enter> to go to next softpot.
                  Serial:
SERVICE:RCVR ALIGN:SQUELCH

                      Squelch Alignment 25/30 kHz
                      ---------------------------
         Test         Current
         Frequency    Value                      New Softpot Value

         136.02500       39                             39
         142.02500       40                             40
         154.22500       39                             39
         160.12500       40                             40
         168.07500       40                             40
         173.97500       40                             40
         177.97500       40                             40

      0                                                              63
    MIN |----+----+----+----X----+----+----+----+----+----+----+----| MAX

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                                  PROGRAM          EXIT
                                                        VALUE
```

This screen reads the radio codeplug, then displays the frequency filter and current squelch softpot values in the codeplug on the left side of the screen. On the right side of the screen, the new squelch softpot frequencies values are displayed. As in previous screens, a bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings.

This screen allows you to adjust the squelch level for each test mode frequency. Use the UP/DOWN arrows to change the value of the squelch. Use the **Tab** key to move between frequency points.

Refer to the Radio Service Manual for the Squelch Alignment procedure.

> **Caution** These procedures should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Programming Procedure

1. Apply the appropriate RF signal to the radio.
2. Modify the Squelch Attenuator setting with the UP/DOWN arrow keys.
3. Press **F8** to save the new value.
4. Press **Tab** to move between frequency points.

Function Key Descriptions

F8 - PROGRAM VALUE — Programs the selected value into the radio.

Field Definition

New Softpot Value	This is the squelch attenuator softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Squelch Alignment (20 kHz)

From the MAIN MENU, press **F2**, **F3** and then **F5** to access this screen.

```
MOTOROLA Radio Service Software          Use↑↓or <SHIFT>↑<SHIFT>↓ to change
HT/JT1000/VISAR   Model:                 and <Enter> to go to next softpot.
                  Serial:
SERVICE:RCVR ALIGN:SQUELCH

                      Squelch Alignment 20 kHz
                      ------------------------
         Test         Current
         Frequency    Value                    New Softpot Value

         136.02500      39                            39
         142.02500      40                            40
         154.22500      39                            39
         160.12500      40                            40    Squelch Adder
         168.07500      40                            40
         173.97500      40                            40        -7
         177.97500      40                            40

      0                                                              63
    MIN |----+----+----+----X----+----+----+----+----+----+----+----| MAX

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                                  PROGRAM          EXIT
                                                        VALUE
```

This screen reads the radio codeplug, then displays the frequency filter and squelch softpot values in the codeplug on the left side of the screen. On the right side of the screen, the squelch softpot frequencies values are displayed. As in previous screens, a bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings.

Refer to your Radio Service Manual for the Squelch Alignment procedure.

Caution

This procedure should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

The squelch attenuator setting is increased or decreased by pressing the UP/DOWN arrow keys respectively. A relative value between 0 and 63 will be displayed on the screen. Adjust the squelch setting to the desired value.

Function Key Description

F8 - PROGRAM VALUE — Programs the selected value into the radio.

Field Definition

New Softpot Value — This is the squelch attenuator softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Squelch Alignment (12.5 kHz)

From the MAIN MENU, press **F2**, **F3** and then **F6** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ or <SHIFT>↑<SHIFT>↓ to change
HT/JT1000/VISAR   Model:                 and <Enter> to go to next softpot.
                  Serial:
SERVICE:RCVR ALIGN:SQUELCH

                      Squelch Alignment 12.5 kHz
                      --------------------------
        Test          Current
        Frequency     Value                      New Softpot Value

        136.02500       39                             39
        142.02500       40                             40
        154.22500       39                             39
        160.12500       40                             40     Squelch Adder
        168.07500       40                             40
        173.97500       40                             40          -3
        177.97500       40                             40

    0                                                              63
  MIN |----+----+----+----X----+----+----+----+----+----+----+----| MAX

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                                   PROGRAM         EXIT
                                                         VALUE
```

The RSS reads the radio codeplug, then displays the frequency filter and squelch softpot values in the codeplug on the left side of the screen. On the right side of the screen, the squelch softpot frequency values are displayed. As in previous screens, a bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings.

Refer to your Radio Service Manual for the Squelch Alignment procedure.

> **Caution** This procedure should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

The squelch attenuator setting is increased or decreased by pressing the UP/DOWN arrow keys respectively. A relative value between 0 and 63 will be displayed on the screen. Adjust the squelch setting to the desired value.

Function Key Description

F8 - PROGRAM VALUE — Program the selected value into the radio.

Field Definition

New Softpot Value — This is the squelch attenuator softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Receiver VCO Crossover Alignment

From the MAIN MENU, press **F2**, **F3** and then **F7** to access this screen.

```
MOTOROLA Radio Service Software          Use ⬆⬇ or <SHIFT>⬆<SHIFT>⬇keys
HT/JT1000/VISAR  Model:                  to change softpot.
                 Serial:
SERVICE:RCVR ALIGN:VCO CROSSOVER

                          Receiver VCO Crossover
                          ----------------------
     Current
     Value

     494.37500                    New Softpot Value..... 494.37500




                              Transmitter..Off
 450.00000                                                      520.00000
    MIN |----+----+----+----+----X----+----+----+----+----+----+----| MAX

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                                    PROGRAM         EXIT
                                                          VALUE
```

This screen reads the radio codeplug, then displays the current crossover frequency on the left side of the screen, and to the right of it the new frequency in the codeplug. A bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings.

Refer to the Radio Service Manual for the Receiver VCO Crossover alignment procedure.

> **Caution** This procedure should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

The squelch attenuator setting is increased or decreased by pressing the UP/DOWN arrow keys respectively. A relative value between 0 and 63 will be displayed on the screen. Adjust the squelch setting to the desired value.

Function Key Description

F8 - PROGRAM VALUE — Program the selected value into the radio.

Field Definition

New Softpot Value — This is the squelch attenuator softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Signalling Alignment Menu

From the MAIN MENU, press **F2** and then **F4** to access this screen.

```
MOTOROLA Radio Service Software          Please make sure <Caps Lock> is not
HT/JT1000/VISAR  Model:                  enabled before pressing F2-F9.
                 Serial:
SERVICE:SIG ALIGN

                              Receive Alignment Menu
                              ----------------------

          F1  - HELP
          F2  -
          F3  - MDC Deviation Alignment
          F4  - DTMF Deviation Alignment
          F5  - Single Tone Deviation Alignment
          F6  -
          F7  -
          F8  -
          F9  -
          F10 - EXIT

  F1      F2      F3      F4       F5       F6      F7      F8      F9     F10
 HELP             MDC     DTMF   SINGLTN                                  EXIT
                  DEV     DEV      DEV
```

This screen allows you to access the deviation alignment screens for MDC, DTMF, and Single Tone Deviation signalling.

> **Caution** These procedures should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Note: The choices available on this screen vary depending on the model of the radio being serviced.

HT 1000 radios with model revisions of "A" are incapable of DTMF signalling. Only HT 1000 "B" and later models, and VISAR "A7" models, and JT1000 models are capable of DTMF signalling and need DTMF signalling alignment.

JT1000 models are incapable of MDC, STAR, and ATIS signalling and do not need MDC alignment.

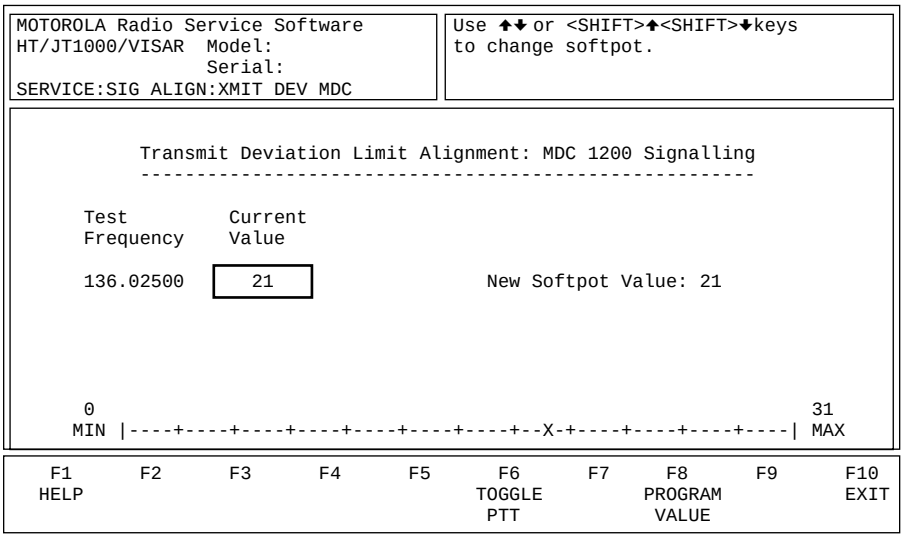
HT 1000 models with model revisions of "A" are incapable of Single Tone signalling. Only HT 1000 "B" and later models, VISAR models, and JT1000 models are capable of Single Tone signalling and need Single Tone signalling alignment.

Function Key Descriptions

F3 - MDC DEV (MDC Deviation)	Refer to your Radio Service Manual for the MDC Deviation Alignment procedure. *This procedure should only be attempted by qualified service personnel.*
F4 - DTMF DEV (DTMF Deviation Alignment)	Refer to your Radio Service Manual for the DTMF Deviation Alignment procedure. *This procedure should only be attempted by qualified service personnel.*
F5 - SINGLTN DEV (Singletone Deviation Alignment)	Refer to your Radio Service Manual for the Singletone Deviation Alignment procedure. *This procedure should only be attempted by qualified service personnel.*

Transmit Deviation Limit Alignment: MDC-1200 Signalling

From the MAIN MENU, press **F2, F4** and then **F3** to access this screen.



This screen reads the radio codeplug, then displays the frequency on the left side of the screen, and to the right of it the MDC-1200 setting. On the far right side of the screen, the MDC-1200 softpot number is displayed. The bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings. Press **F6** to toggle PTT. Press **F8** key to program the value into the radio.

Refer to your Radio Service Manual for the Transmit Deviation Limit Alignment: MDC-1200 Signalling procedure.

> **Caution** These procedures should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Function Key Descriptions

F6 - TOGGLE PTT — Toggles PTT.

F8 - PROGRAM VALUE — Programs the selected value into the radio.

Field Definition

New Softpot Value — This is the squelch attenuator softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Transmit Deviation Limit Alignment: DTMF Signalling

From the MAIN MENU, press **F2** and then **F4** twice to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ or <SHIFT>↑<SHIFT>↓keys
HT/JT1000/VISAR  Model:                  to change softpot.
                 Serial:
SERVICE:SIG ALIGN:DTMF

          Transmit Deviation Limit Alignment: DTMF Signalling
          ---------------------------------------------------

     Test          Current
     Frequency     Value

     136.02500     [ 21 ]              New Softpot Value: 21




      0                                                          31
    MIN |----+----+----+----+----+----+----+--X-+----+----+----+----| MAX

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                   TOGGLE          PROGRAM         EXIT
                                         PTT             VALUE
```

This screen reads the radio codeplug and allows the DTMF Softpot to be set on the right side of the screen. To increase/decrease the softpot value in "fine" mode, use the UP/DOWN arrow keys. For the coarse or Turbo mode, use the **Shift**-UP/DOWN arrow keys. A bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings. **F6** is used to toggle PTT, and **F8** is used to program the new tuning value into the radio.

> **Note:** *HT 1000 radios with model revisions of "A" are incapable of DTMF signalling.* Only HT 1000 "B" and later models and any model with DTMF keypads are capable of DTMF signalling.

Refer to your Radio Service Manual for the Transmit Deviation Limit Alignment: DTMF Signalling procedure.

These procedures should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Function Key Descriptions

F6 - TOGGLE PTT — Toggles PTT.

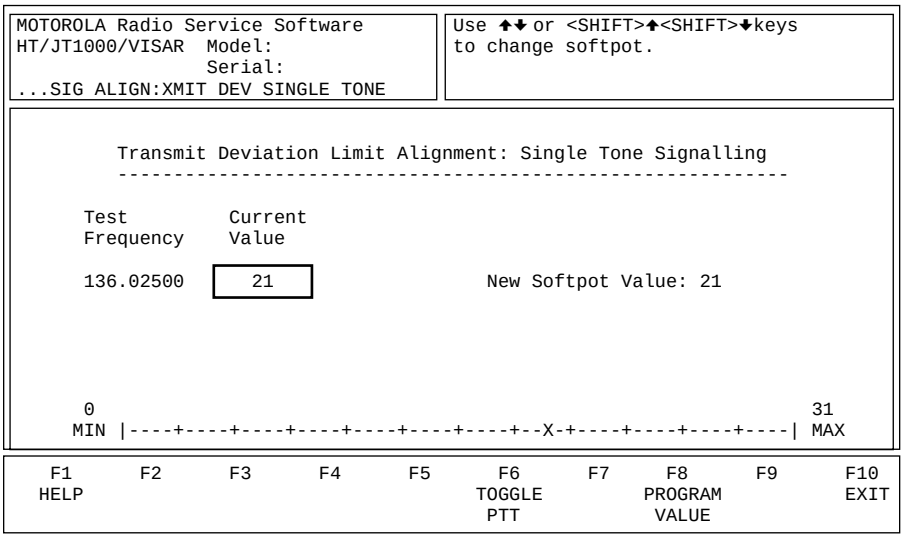
F8 - PROGRAM VALUE — Programs the selected value into the radio.

Field Definition

New Softpot Value — This is the squelch attenuator softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Transmit Deviation Limit Alignment: Single Tone Signalling

From the MAIN MENU, press **F2** and then **F4** twice to access this screen.



This screen reads the radio codeplug, and allows the Single Tone Softpot to be set on the right side of the screen. Use the UP/DOWN arrow keys to increase/decrease the softpot value in fine mode. Use the **Shift**-UP/DOWN arrow keys for coarse or Turbo mode. A bar at the bottom of the screen shows the current setting in relation to the minimum and maximum settings. **F6** is used to toggle PTT, and **F8** is used to program the new tuning value into the radio.

> **Note:** *HT 1000 radios with model revisions of "A" are incapable of Single Tone signalling.* Only HT 1000 "B" and later models and any model with DTMF keypads are capable of Singletone signalling.

Refer to your Radio Service Manual for the Transmit Deviation Limit Alignment: Single Tone Signalling procedure.

> **Caution** These procedures should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Function Key Descriptions

F6 - TOGGLE PTT — Toggles PTT.

F8 - PROGRAM VALUE — Programs the selected value into the radio.

Field Definition

New Softpot Value — This is the squelch attenuator softpot value for this frequency. The status bar shows the relationship between this setting and the minimum and maximum settings.

Test Mode Alignment

From the MAIN MENU, press **F2** and then **F6** to access this screen.

```
MOTOROLA Radio Service Software          Use arrow key to select item and
HT/JT1000/VISAR   Model:                 <Shift><Enter> to go to next feature.
                  Serial:
MAIN:SERVICE:TEST MODE

                                   Test Mode
                                   ---------

 Frequency (MHz)    Signalling Type      (Freq/Code)    Transmit Power

  450.02500         Carrier Squelch      (None/None)         High
  465.22500         TPL                  (192.8 Hz/7A)       Low
  475.22500         DPL                  (None/131)
  484.97500         MDC-1200             (None/None)
  500.27500
  511.97500
  519.97500

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                   Toggle                          EXIT
                                         PTT
```

The radio contains internal test modes that can be accessed from the RSS. Test modes allow the service technician to easily select various frequency, modulation, and transmit power combinations to verify proper operation of the radio. The test modes can be used to check transmit and receive operation.

Programming Procedure

1. When you access the TEST MODE screen, the RSS will read the radio's codeplug. Use any of the four arrow (scroll) keys to move through the frequencies in a circular fashion.
2. Once the desired test frequency is highlighted, press **Shift-Enter** to move to the signalling type selection.
3. Use the four arrow keys move the cursor through the available selections. When the correct selection is highlighted, press **Shift-Enter** to move to the transmit power selection column.
4. Once this selection is made, the radio can be tested in the receive mode by establishing the selected conditions for radio unmuting, or the transmitter can be keyed for transmitter testing using the **F6** key.

Refer to your Radio Service Manual for further information on test modes.

These procedures should be attempted only by qualified service personnel. Failure to perform alignment procedures properly may result in seriously degraded radio or system performance.

Function Key Descriptions

F6 - TOGGLE PTT

Alternately keys and de-keys the radio being serviced.

Field Definition

Frequency (MHz)	This field lists the test mode frequencies in MHz.
Signalling Type	This field indicates the signalling type or each frequency that is listed in the Frequency field.
Freq/Code	This field indicates the code associated with each frequency.
Transmit Power	Indicates whether the transmit power on each frequency is high or low.

Controller Board Initialization

From the MAIN MENU, press **F2** and then **F7** to access this screen.

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR   Model:
                  Serial:
SERVICE:CONTROLLER INIT

                        CONTROLLER BOARD INITIALIZATION
                        -------------------------------

                       Serial Number..

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP                                                   PROGRAM         EXIT
                                                        RADIO
```

This procedure should be performed whenever the radio's Controller Board is replaced. This process will initialize the replaced board with the radio's original serial number.

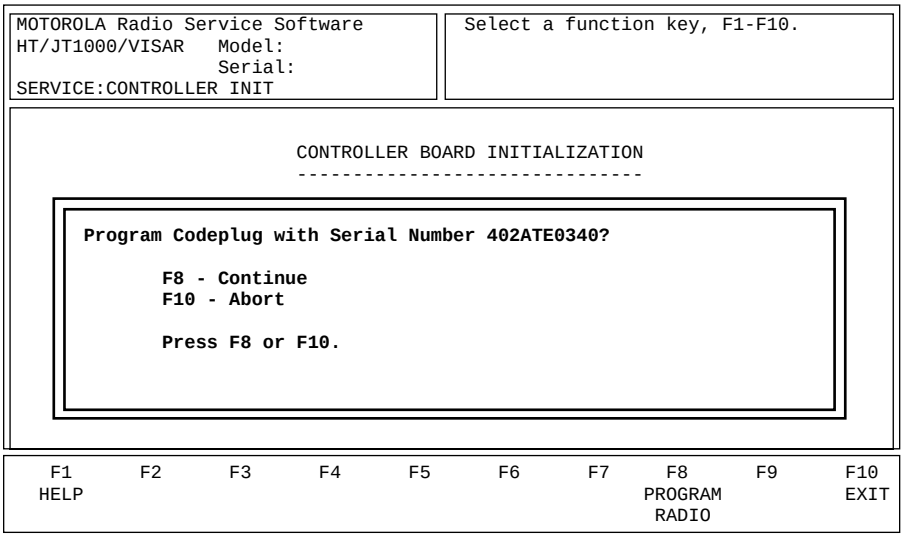
This procedure should be attempted only by qualified service personnel. **You will be allowed to program the serial number ONLY ONCE.** If the serial number conforms to the correct format but contains erroneous digits, the RSS will STILL program the radio. If this happens, you will **NOT** be allowed to re-program the radio with the correct serial number. **Make sure you enter the correct serial number the first time.**

Programming Procedure

1. Enter a valid serial number. *The RSS will NOT accept invalid serial numbers.* Enter the correct ten-digit serial number that is printed on the radio's label.

   Note: Error messages will be displayed if the entered Serial number is invalid, the model number of codeplug and controller respectively do not match, or an attempt to communicate with the radio results in failure.

2. Press **F8**. If the serial number entered is valid, a pop-up window will be displayed as shown on the following page.
3. Press the appropriate key.



When initialization is completed, the radio's codeplug will contain default data. At this point, the radio should be tuned. When tuning is completed, customer data can be programmed back into the codeplug using one of the following methods:

- Cloning, where the customer's feature data alone is replaced.
- Programming, where tuning data is also replaced along with the feature data. If the radio's codeplug (along with tuning data) was saved to an archive file prior to initialization, this archive file can be programmed into the radio after initialization. This process will replace the default tuning data of the radio with data which is valid for the radio's RF board. Nevertheless, tuning should be checked since some fields may need adjustment. This is still easier than having to tune all parameters.

Function Key Descriptions

F8 - PROGRAM RADIO

Programs the radio with the serial number you provided.

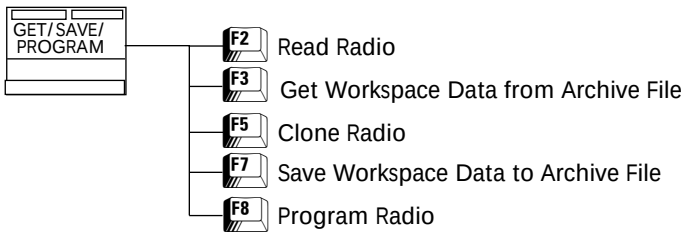
Get/Save/Program Menu Functions

3

This section describes all the functions available from the GET/SAVE/PROGRAM MENU: reading a radio codeplug into the work space, retrieving a codeplug file, saving codeplug information to an archive file, and programming codeplug information into the radio. To guide you through these functions, GET/SAVE/PROGRAM-related menus and screens are shown with their respective programming procedures from the MAIN MENU, function key descriptions and field definitions.

> **Note:** All functions (supported and unsupported) will be displayed in the menu's working area. The unsupported functions (based on the radio's model or options) will NOT be displayed in the F-key ID area.

Menu Map



Get/Save/Program Menu

At the MAIN MENU, press **F3** to bring up this screen.

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR   Model :
                  Serial:
GET-SAVE-CLONE

                              Get-Save-Clone Menu
                              -------------------

      F1  - HELP
      F2  - Read Data from Radio
      F3  - Get Workspace Data from Archive File
      F4  -
      F5  - Clone (Copy) Data to another Radio
      F6  -
      F7  - Save Workspace Data to Archive File
      F8  - Program Data into Radio
      F9  -
      F10 - EXIT, Return to Main Menu

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP    READ    GET             CLONE           SAVE   PROGRAM          EXIT
       RADIO    FILE                            FILE    RADIO
```

From this screen, the following functions can be performed: read a radio's personality into the work space (**F2**), retrieve a personality file from the archive file (**F3**), save the work space to a personality file (**F7**), and/or program a new personality into the radio from the work space (**F8**).

Caution

Do NOT turn off the radio or disconnect it from the computer while attempting to program the codeplug. Interrupting the programming process will destroy the codeplug contents and completely DISABLE the radio!

Function Key Descriptions

F2 - READ RADIO
(Read Radio Codeplug)

A radio and RIB must be properly connected to the computer and power turned on before you attempt the READ function. Reads the information (data) stored in the radio codeplug (EEPROM) and transfers it to the computer's memory. The time required to read a codeplug will depend directly on your computer type and the size of the codeplug you are reading. The status of the READ operation will be displayed at the bottom of the screen.

F3 - GET FILE

Retrieves an archive file from a disk and loads the data into the computer's memory. Once it is retrieved, the file may be modified using CHANGE/VIEW functions or programmed into a radio.

F5 - CLONE

Only radios with the same model number can be cloned. Copies codeplug information from one radio to another.

F7 - SAVE FILE

Creates (or updates) an archive copy of the codeplug information on a disk. An archive copy of every radio installed or serviced is STRONGLY recommended in order to be able to quickly restore customer information in case of a codeplug failure.

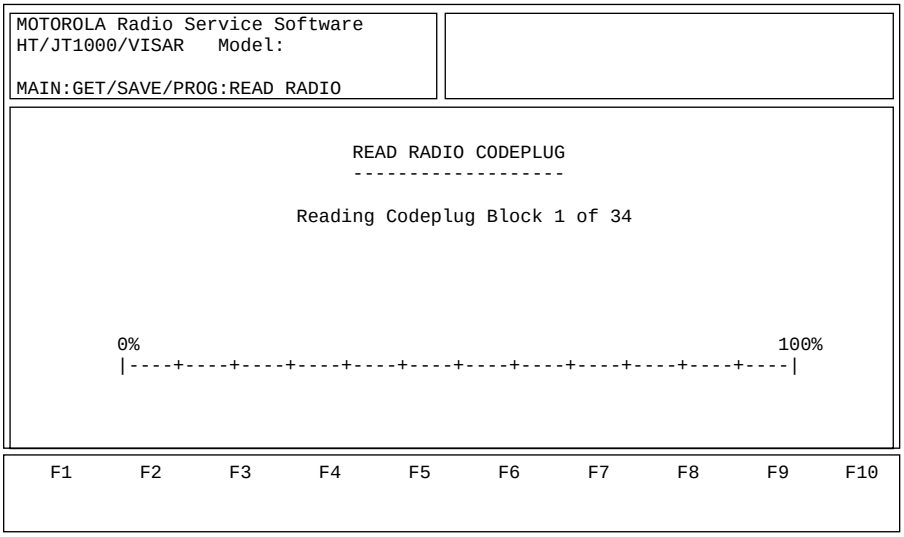
F8 - PROGRAM RADIO

A radio and RIB must be properly connected to the computer and power turned on before you attempt this function. Transfers codeplug information from the computer to the radio codeplug.

The time required to program a codeplug will depend directly on your computer type and the size of the codeplug you are programming. The status of the programming operation is displayed at the bottom of the screen.

Read Data From Radio (***Requires RIB***)

From the MAIN MENU, press **F3** and then **F2** to access this screen.



If the current work space has been changed but not saved, you will be prompted to press **F2** to read the radio. Otherwise, the radio will be read directly. If communication with the radio fails, a pop-up window will be displayed with an error message. (Error codes are listed in Appendix A.)

> **Note:** You may read the codeplug from the radio or from the archive disk. Refer to the following page for instructions on reading codeplug data from an archive disk.

If no errors occur, the center of the screen will display the progress of the codeplug reading activity. The read process will take approximately one minute. (This duration may vary depending on the type of computer being used and the size of the codeplug being read.) After the codeplug is read, you will automatically be returned to the GET/SAVE/PROGRAM MENU. The model number and serial number will be updated upon returning to the GET/SAVE/CLONE screen.

Field Definition

Reading Codeplug Block

This is the number of blocks that have been read. The status bar shows the relative value of the number of blocks read so far compared to the total number of blocks to be read.

Get Workspace Data From Archive File

From the MAIN MENU, press **F3** twice to access this screen.

```
MOTOROLA Radio Service Software          Use edit keys to modify entry.
HT/JT1000/VISAR   Model :                Use <Enter> to go to next feature.
PAGE 1  OF 1      Serial:
GET-SAVE:GET FILE

                    Get Workspace Data from Archive File
                    ------------------------------------
  Archive path: C:\MRSS\HTJT\ARC

  Model no..                Customer...                Date..19-Apr-96

  1KDC9AA1.DN
  1KDC9AA3.DN

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP            SHOW            PRINT   FIND            GET             EXIT
                INFO            ARCHIVE FILE            SELECTED
```

The GET ARCHIVE function is used to retrieve an archive file from a disk. Once retrieved, the file may be modified using the CHANGE/VIEW functions or programmed into a radio. Press **Tab** to select the serial number of the radio to be retrieved. Press **F8** to retrieve the selected file.

The archive path can be changed from this screen, *but only for the current execution of the program*. To change the archive path from this screen, press **Shift-Enter** to navigate to the archive path. Letter, number and edit keys are valid in this field.

Function Key Descriptions

F3 -SHOW INFO

To view the model number and customer information that corresponds to each date and file name, press **F3**. This function can be configured two ways. If Auto is selected, the date, model number, and customer information are displayed for each file name. If Manual is selected, only the date is displayed for each file name. The default is Manual.

F5 - PRINT ARCHIVE

Used to print a list containing the personality file names along with their corresponding model number, customer, and date information.

F6 - FIND FILE

Used to search for a specific file. Enter the file name and press **Enter**. If the file is found in the current archive directory, its file name will be highlighted on the screen. In the event that the list of file names extends to more than one page, the **PgUp/PgDn** keys can be used to move from one page to another.

F8 - GET SELECTED

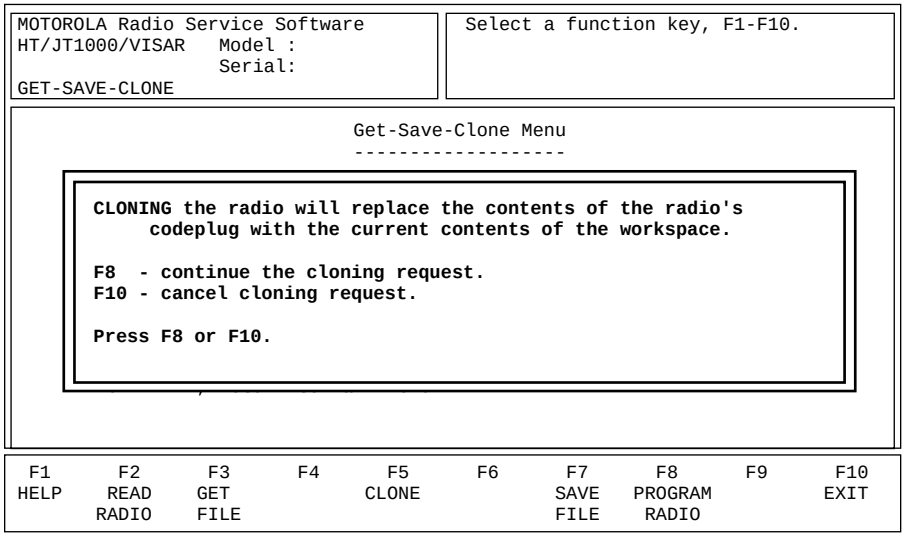
Loads the selected file into the work space. Loading a new file will replace the current contents of the work space with the new personality file. The model number will be updated on the screen when the new personality file is loaded into the work space.

Field Definition

Archive path	This is the DOS name of the file which contains the data for the codeplug. Refer to the owner's manual that came with your computer for a complete description of DOS file names.
Model no.	This *read-only field* displays the model number associated with the retrieved archive file.
Customer	This *read-only field* displays the name of the customer (if you have specified one) associated with the current archive file.
Date	This *read-only field* displays the date that the archive file was last created or modified.

Clone (Copy) Data to Another Radio

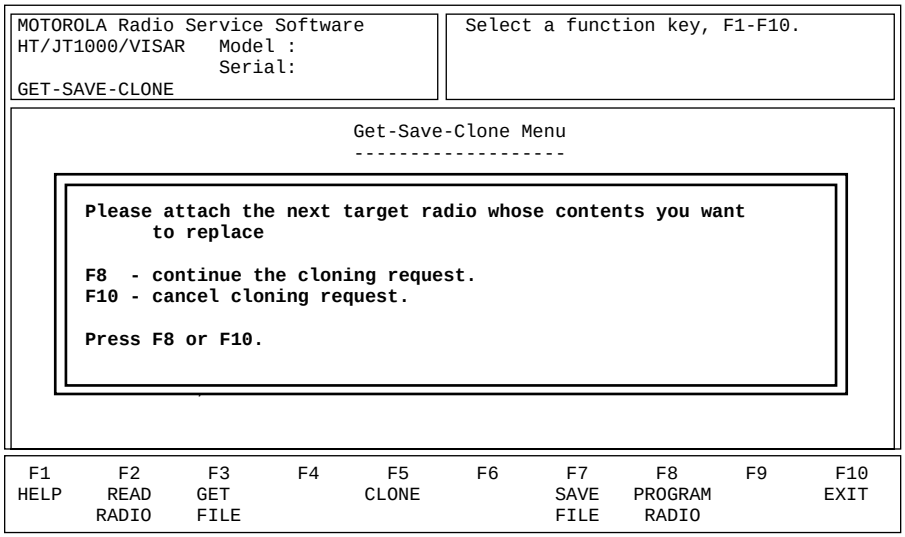
From the MAIN MENU, press **F3** and then **F5** to clone data from one radio to another.



*A radio and a RIB must be properly connected to the computer and the power turned on before you attempt the PROGRAM RADIO (**F8**) function.* The CLONE radio function is used to copy codeplug information from one radio to another. *Only radios with the same model number can be cloned.*

Note: Please read the important notes on Cloning provided on the following page.

Cloning the radio will replace the radio's codeplug with the contents of the current work space. The source of the work space data can be either an archive file or another radio. Pressing **F8** will bring up the screen shown below.



Attach the radio whose contents you want to replace with the current work space, and press **F8** to continue cloning or **F10** to cancel cloning.

Programming Procedure

1. Press **F2** at the GET/SAVE/PROGRAM MENU to read the radio codeplug to be cloned, i.e., the “source” codeplug. An archive file may also be used as the “source” codeplug.
2. Press **F5** at the GET/SAVE/PROGRAM MENU to access the CLONE RADIO screen.
3. Connect the “target” radio to the computer and press **F2** to retrieve the serial number of the “target” radio. The serial number may also be entered directly.
4. Press **F8** to program the source codeplug into the target radio or **F10** to cancel the cloning process. An archive file may also be created using the **F7** SAVE ARCHIVE function and then used to clone the “target” radio.

Function Key Descriptions

F2 - READ RADIO — Allows you to read the serial number of the “target” radio.

F3 - GET FILE — Used to retrieve an archive file that you wish to use as the “source” to clone the target radio.

F5 - CLONE — Used to clone the contents of the current work space (or last retrieved archive file) into the target radio.

F7 - SAVE FILE — Saves the codeplug data to an archive file.

F8 - PROGRAM RADIO — Programs the “target” radio using saved codeplug data.

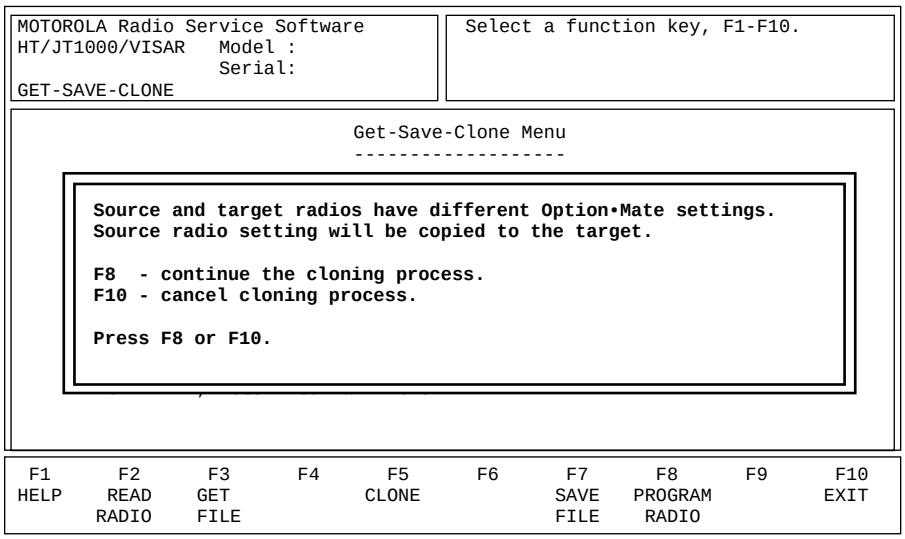
Important Notes on RSS Cloning (***All Radio Models***)

1. Cloning is NOT allowed across models.
2. Cloning is NOT allowed across radio types (e.g. from HT 1000 to VISAR)
3. Cloning is allowed across revisions of the same model (e.g. from a HT 1000 “A” model to a HT 1000 “B” model). If an older model is cloned to a newer model, default values for features added in the new model will be LOST. The fields associated with these features may display invalid data.
4. RSS cloning does NOT copy tuning information, model number or serial number.
5. RSS cloning copies customer information (as of release R03.01).
6. RSS cloning does NOT copy MDC or ATIS IDs, but does copy STAR IDs.
7. RSS cloning is allowed even if Option•Mate settings in the source and target radios are different. The setting in the source radio is copied to the target after a warning has been issued. Radio-to-radio cloning is not permitted in this case.

Special Cloning Instructions (***HT 1000 models only***)

These instructions apply only to cloning processes where an HT 1000 model radio (that is, an Option•Mate-capable radio) is either the source or the target. Refer to Option•Mate Configuration for details on Option•Mate configuration.

If both the source and target radios are HT 1000 revision "C" or later models and their Option•Mate configuration settings are different, a pop-up window will appear.



Radio-to-Radio Cloning

HT 1000 revision "C" radios can be cloned through the direct radio-to-radio cloning process ONLY if their Option•Mate Plug-In Board fields are set to the same value (that is, either "Installed" or "Not Installed").

This is to make sure that audio routing information from an Option•Mate-enabled radio is not cloned to a non-capable (earlier model) radio since this will render the earlier model radio inoperative. For example, if an HT 1000 "C" model is cloned radio-to-radio to a "B" or earlier model, the Plug-In Board field in the "C" model must be set to "Not Installed". Otherwise, cloning will NOT be allowed.

However, *if an HT 1000 "A" model is cloned radio-to-radio to an HT 1000 "C" model which has an Option•Mate Plug-In Board field set to Installed,* the audio routing information WILL BE LOST and must be reprogrammed. RSS Cloning will however be allowed even if the Option•Mate settings are different. The setting in the source radio will be copied to the target radio and a warning will be issued.

Tip

If an earlier model codeplug is to be cloned to a number of Option•Mate-capable radios, the older codeplug should be cloned to one Option•Mate-capable radio. If option boards are to be added, the Option•Mate field can be set to "Installed" for the cloned radio and this codeplug can then be cloned on to the rest of the Option•Mate-capable radios. (For more tips, refer to screen help on the GET/SAVE/CLONE screen.)

Save Workspace Data to Archive File

From the MAIN MENU, press **F3** and then **F7** to access this screen.

```
MOTOROLA Radio Service Software          Use edit keys to modify entry.
HT/JT1000/VISAR   Model :                Use <Enter> to go to next feature.
                  Serial:
GET-SAVE:SAVE FILE

                    Save Workspace Data to Archive File
                    -----------------------------------
 Archive path: C:\MRSS\HTJT\ARC



                              Archive file name: 402ATE03.40

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                                                    SAVE            EXIT
                                                        FILE
```

The SAVE ARCHIVE function is used to create (or update) an archive copy of the codeplug information on a disk. To save the contents of the work space to a personality file, enter the desired name in the Archive file name field, specify the correct archive path, and press **F8**. The RSS will prompt you to press **F8** again to save the work space to the personality file. Press **F10** to cancel the request to save the file.

If a file with the same name already exists in the archive path specified, the RSS will display a warning and request you to press **F8** to overwrite the existing file with the contents of the work space or press **F10** to cancel the request to overwrite the file.

> **Note:** You are STRONGLY encouraged to make an archive copy of every radio installed or serviced in order to be able to quickly restore customer information in case of a codeplug failure.

Function Key Descriptions

F8 - SAVE ARCHIVE

Saves the archive file to the path specified (or to the default path if no path is specified). *Do NOT press **F8** until you have entered the archive file name.*

Field Definitions

Archive Path

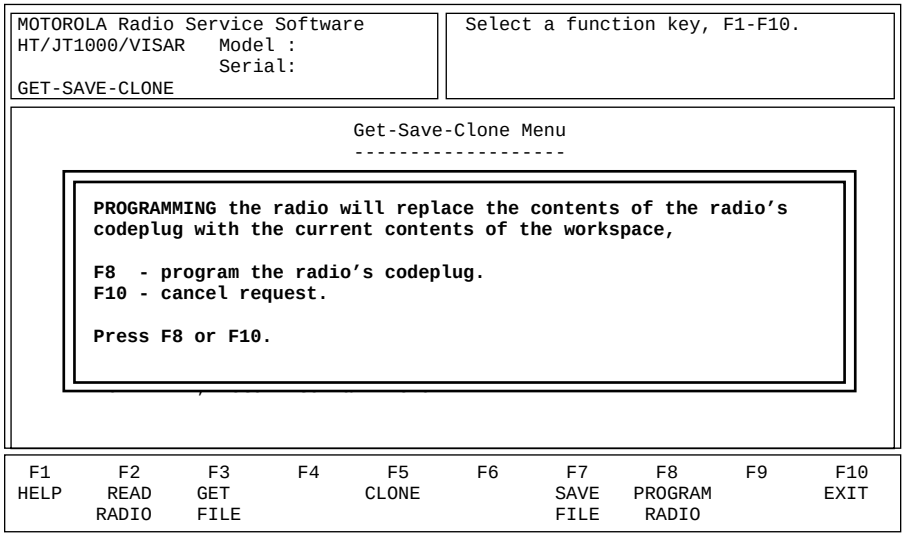
This is the DOS name of the archive file. The standard DOS file naming convention must be used, i.e., one- to eight- character alphanumeric name appended with a one- to three-character alphanumeric extension (xxxxxxxx.yyy). This must be no more than eight characters with a three-character extension. The archive file name may be changed if an alternative radio tracking method is to be used.

Archive file name

Enter the name of the file in which the work space contents should be saved.

Program Radio Codeplug (***Requires RIB***)

From the MAIN MENU, press **F3** and then **F8** to program the radio codeplug.



This screen allows you to program the radio with the contents of the current work space. *A radio interface box (RIB) must be connected to the computer's serial port and the power turned on before you perform this operation.*

The first time you press **F8** in the GET/SAVE/PROGRAM screen, a displayed prompt will request you to press **F8** again to program the radio with the contents of the work space or to press **F10** to cancel the request. If the programming process is successfully completed, you will see the following message: "Radio Was Successfully Programmed". You will then be returned to the GET/SAVE/PROGRAM screen automatically.

> **Note:** The time required to PROGRAM a codeplug will depend directly on your computer type and the size of the codeplug being programmed. The status of the programming operation will be displayed on the screen.

Notes

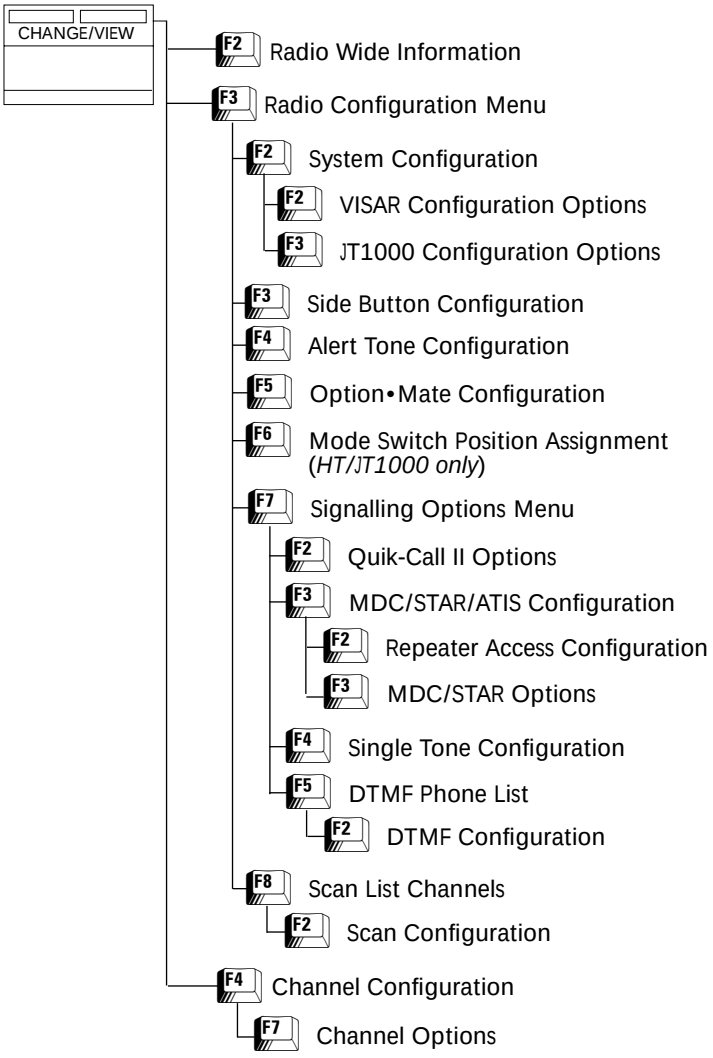
Change/View Menu Functions

4

This section describes all the functions available from the CHANGE/VIEW MENU which is a multi-level menu used to change, view, or modify codeplug features and option configurations. To guide you through these functions, CHANGE/VIEW-related menus and screens are shown with their respective RSS locations from the MAIN MENU, function key descriptions, and field definitions.

> **Note:** All functions (supported and unsupported) will be displayed in the menu's working area. The unsupported functions (based on the radio's model or options) will NOT be displayed in the F-key ID area.

Menu Map



Change/View Menu

Press **F4** at the MAIN MENU to access the CHANGE/VIEW MENU.


```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR   Model :
                  Serial:
CHANGE/VIEW

                              Change/View Menu
                              ----------------

     F1  - HELP
     F2  - Radio Wide Information
     F3  - Radio Configuration Menu
     F4  - Channel Configuration
     F5  -
     F6  -
     F7  -
     F8  -
     F9  -
     F10 - EXIT

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP   RADIO   RADIO  CHANNEL                                          EXIT
        INFO   CONFIG  CONFIG
```

The CHANGE/VIEW MENU is a multi-level menu, the sub-menus of which are used to change or view codeplug features and option configurations. Unlike SERVICE MENU functions, a codeplug must be loaded into your computer's memory (using GET/SAVE/PROGRAM MENU functions) before you can access the CHANGE/VIEW screens. You may change or view an archive file without having a radio connected.

> **Note:** *If the current radio model does not contain a specific feature, you will not be permitted to access the corresponding data field or screen for that feature.* Refer to your radio catalog sheets or Radio Service Manual for radio model descriptions and features.

After all change/view modifications are completed, you MUST return to the GET/SAVE/PROGRAM MENU and program the changes back into the radio or save them to a (new or existing) archive file. *Otherwise, the modifications will be lost when you turn off your computer or load another codeplug into memory.*

> **Note:** The CHANGE VIEW functions do NOT actually modify the radio's codeplug data. Instead, they modify a copy of the data retrieved from the codeplug or archive file retrieved using GET/SAVE/PROGRAM MENU functions.

Function Key Descriptions

F2 - RADIO INFO	Used to change the Customer ID of the radio.
F3 - RADIO CONFIG (Radio Wide Configuration)	Used to change or view radio parameters and options that affect overall radio operation such as button settings.
F4 - CHANNEL CONFIG (Channel Configuration)	Used to configure radio channels.

Radio Information Screen

From the MAIN MENU, press **F4** and then **F2** to access this screen.

```
MOTOROLA Radio Service Software          Use edit keys to modify entry.
HT/JT1000/VISAR  Model : H01KDC9AA3DN    Use <Enter> to go to next feature.
                 Serial: 402ATE0340
CHANGE:RADIO INFO

                              Radio Information
                              -----------------
                    Serial Number.............402ATE0340

                    Customer ID.................MOTOROLA

                    Radio Model.............H01KDC9AA3DN

                    Radio bandsplit.....10 450-520 MHz Tx
                                  ......450 - 520 MHz Rx

                    Software version..............(file)

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                                   EXIT
```

This screen allows you to change the radio's customer ID. The customer ID can be modified using the letter, number and edit keys. This screen also allows you to view the radio's serial number, model number, and radio bandsplit.

Function Key Descriptions

F5 - PRINT — Prints radio information.

Field Definitions

Serial Number — This field displays the serial number of the current radio model.

Customer ID — Enter an alphanumeric string that will help you identify the customer that the archive file is to be associated with. This will prove helpful in future.

Radio Model — This field displays the model number of the current radio or related archive file.

Radio bandsplit — This field displays the radio bandsplit of the current codeplug or archive file.

Software version — This field displays the RSS version using which the archive file was created or modified. *The radio software version can be viewed only when a radio has been read. This information is NOT stored with archive files.*

Radio Configuration Menu

From the MAIN MENU, press **F4** and then **F3** to access this menu.

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR   Model :
                  Serial:
CHANGE:RADIO CONFIG

                          Radio Configuration Menu
                          ------------------------

     F1  - HELP
     F2  - System Configuration
     F3  - Side Button Configuration
     F4  - Alert Tone Configuration
     F5  - Option•Mate Configuration
     F6  - Mode Switch Position Assignment
     F7  - Signalling Options Menu
     F8  - Scan List Channels
     F9  -
     F10 - EXIT

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP   SYSTEM SIDE BTN ALERT   OPTION  SWITCH  SIGNAL   SCAN           EXIT
       CONFIG  CONFIG  CONFIG   MATE   CONFIG   MENU    LIST
```

This menu allows you to access seven other screens where radio features may be modified or adjusted to customize the radio's operation. *Fields for unsupported options will not be visible.*

> ***Note:*** *The MODE SWITCH POSITION ASSIGNMENT screen cannot be accessed for VISAR models and will not be visible when a VISAR codeplug is in memory.*

> ***Note:*** *The OPTION•MATE CONFIGURATION screen can be accessed only for HT 1000 models. This option and function key will NOT be visible for any other models.*

Typically, when you start editing a codeplug, you should access this menu and configure the radio-wide configuration options first by working your way through the sub-menus of this menu. This will allow the options on other screens to reflect radio-wide options.

Function Key Descriptions

F2 -SYSTEM CONFIG (System Configuration)

Brings up a screen from which you can customize the system configuration for the current radio. *This screen will vary depending on the product (HT 1000, JT1000, or VISAR).*

F3 -SIDE BTN CONFIG (Side Button Configuration)

Brings up a screen from which you can configure functions for the radio's side buttons. *This screen will vary depending on the product (HT 1000, JT1000, or VISAR).*

F4 - ALERT CONFIG (Alert Tone Configuration)

Brings up a screen from which you can configure the radio's alert tone operation.

F5 - OPTION MATE (Option•Mate Configuration)

This function will be visible only for HT 1000 radios of model "C" or later. Brings up a screen from which you can configure a model "C" or later HT 1000 radio's Option•Mate Plug-compatible devices. Refer to the Option•Mate Configuration section on page 94 of this manual for details.

F6 - SWITCH CONFIG
(Mode Switch Configuration)

This function will NOT be visible for VISAR models. This screen will vary depending on the product (HT 1000 or JT1000). Brings up a screen from which you can configure the radio's mode switch position assignment.

F7 - SIGNAL MENU
(Signalling Menu)

Brings up a screen from which you can configure the radio's signalling options (Quik-Call II, MDC/STAR/ATIS, Single Tone, and DTMF Phone List).

F8 - SCAN LIST
(Scan List Configuration)

Brings up a screen from which you can configure the radio's scan lists.

Radio System Configuration

From the MAIN MENU, press **F4**, **F3** and then **F2** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to scroll value.
HT/JT1000/VISAR  Model : H05UCH6AA7DN    Use <Enter> to go to next feature.
                 Serial:
CHANGE:RADIO:SYS CONFIG

                            System Configuration
                            --------------------

  Maximum Channel.............16     Clear Chan Definition....Matched PL

  Timeout Timer (sec).....60         Transmit LED.............Enabled

  Auto Reset Timer (sec).....10      Flashing LED.....Chan-Busy/Low-Batt

  CS Sleep Period (ms).....105       Quick Key Override.....Enabled

  PL Sleep Period (ms).....60        Tx Inhibit Monitor Func.....Enabled

  AGC.....................Disabled   Battery Saver PL Lockout...Disabled

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP    VISAR                   PRINT                           DEFAULT  EXIT
       OPTIONS
```

> **Note:** *The VISAR OPTIONS (**F2**) function will be visible only if a VISAR model number is read.* If an HT 1000 or JT1000 model number is read, the VISAR OPTIONS function will not be displayed.
>
> *The JT1000 OPTIONS (**F3**) function will be visible only if a JT1000 model is read.* If an HT 1000 or VISAR model number is read, the JT1000 OPTIONS function will not be displayed.

Press **Tab** to select the desired field, or press the desired function key (**F1 - F10**). If a field is selected, press the UP/DOWN arrow keys to select the desired choice or value.

Function Key Descriptions

F2 - VISAR OPTIONS

This function will be displayed only for VISAR models. Brings up a screen where you can modify additional system configuration options for VISAR radios.

F3 - JT1000 OPTIONS (*Not shown*)

This function will be displayed only for JT1000 models. Brings up a screen where you can modify additional system configuration options for JT1000 radios.

F5 - PRINT

Prints the system configuration for the current codeplug.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Maximum Channel

This is a view-only field (that is, it cannot be edited). This is the maximum number of channels that can be defined for the radio model currently in memory.

The default depends on the model number.

Timeout Timer

Use the UP/DOWN arrow keys to adjust the length of time, in seconds, for which the radio is allowed to transmit. Valid settings range from 15 to 269 seconds in one-second increments. You can also set the Timeout Timer to an unlimited duration.

The default is 60 seconds.

Auto Reset Timer

Use the UP/DOWN arrow keys to adjust the length of time that the radio should remain in Carrier Squelch mode after receiving either an MDC Selective Call or a Quik-Call II page. The timer value will be incremented or decreased by five seconds when you press the UP/DOWN arrow keys respectively. Use the **Shift**-UP/DOWN arrow keys to adjust in increments of one second. You can also enter a value directly.

This timer allows a conversation to occur following a Selective Call without the radio being reset to Page (Signalling Squelch) mode. The timer will automatically resume if the PTT switch is pressed or if carrier is detected during the timer period. The timer will start counting down once activity has ceased on the channel. The radio be reset to Page mode only when the timer finally expires. The range for the auto reset timer is one to 34 seconds in multiples of one second.

The default is 10 seconds.

CS Sleep Period (ms)

Use the UP/DOWN arrow keys to specify a value for CS Sleep Period. This is the “sleep period” for a radio on a Carrier Squelch channel when the Battery Saver feature is active.

During the sleep period, the radio will power down the receiver and synthesizer and will cease to check for activity on the current channel. After the sleep period, the radio will turn back on and remain in the ON state for a period of time sufficient to detect carrier. If an on-channel carrier is detected, the receiver will remain in the ON state and the radio will unmute until carrier disappears. When the timer expires, the radio will resume battery-saving activity by periodically entering sleep mode for the specified period. The sleep period can be adjusted from 5 ms to 1050 ms in 5-ms increments.

> **Note:** As you increase the sleep period, battery life will increase, but the possibility of missing the beginning of a call or transmission will also increase.

The default is 105 ms.

PL Sleep Period (ms)

This field specifies the "sleep period" for a radio on a PL channel when the Battery Saver feature is active. During the sleep period, the radio will power down the receiver and synthesizer and cease to check for activity. After the sleep period, the radio will turn back on and will remain in the ON state for a period of time sufficient to detect carrier. If an on-channel carrier is detected, the receiver will be maintained in the ON state for a period of time sufficient to detect PL.

If no valid PL is detected, the radio will return to sleep mode immediately. If a valid PL is detected, the radio will unmute until the channel unmuting conditions are no longer met. When carrier disappears, the 10-second inactivity timer will be started. When this timer expires, the radio will resume battery-saving activity by periodically entering the sleep mode for the specified period. The sleep period can be adjusted from five to 1050 ms in five-ms increments.

> **Note:** As you increase the sleep period, battery life will increase, but the possibility of missing the beginning of a call or transmission will also increase.

The default is 60 ms.

AGC

AGC is available only on all JT1000 models, all VISAR models, and HT 1000 "B" and later models. Use the UP/DOWN arrow keys to enable/disable the radio microphone AGC circuitry. Automatic Gain Control or AGC has the ability to level out the variations in audio volume due to a radio user speaking too softly, too loudly, or holding the radio too far from his mouth. All messages will be heard at the receiving end at a more pleasant volume level than if AGC were not used.

The default is Disabled.

Clear Channel Definition

This field is used to define the condition for a clear channel before PTT or RAT transmission is permitted along with the Transmit Inhibit on Busy Channel feature in the CHANNEL CONFIGURATION screen (**F4/F4**).

Matched PL	Clear channel is defined as an absence of carrier or a carrier with a matched PL. The user will be inhibited from transmitting if activity is detected on the channel with a PL code other than his/her own, or with no PL.
No Carrier	Clear channel is defined as an absence of carrier only. The user will be inhibited from transmitting if any activity is detected on the channel.

The default is Matched PL.

Transmit LED

Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, the red LED will light up whenever the radio is in the transmit mode.

The default is Enabled.

Flashing LED

Use the UP/DOWN arrow keys to set the field to Disabled, Channel Busy, Low Battery, or Chan-Busy/Low-Batt.

Low Battery	The LED will blink when the battery voltage falls below a predetermined value.
Channel Busy	The LED will blink when a carrier is present on a receive-PL channel.

The default is Chan-Busy/Low-Batt.

Quick Key Override

Use the UP/DOWN arrow keys to enable/disable PTT Quick Key Override mode. If this feature is enabled and two PTT activations occur within one second of each other, this feature will override the transmit inhibit option and allow the radio to transmit over the “Channel Busy” condition.

The default is Enabled.

Tx Inhibit Monitor Function

Use the UP/DOWN arrow keys to enable/disable the normal monitoring of channels when Transmit Inhibit On Busy Channel is enabled.

The default is Enabled.

Battery-Saver PL Lockout

Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, PL will not be decoded when the radio periodically comes out of sleep mode until carrier drops. Therefore, a radio which enters sleep mode while a carrier is on the channel with wrong PL or no PL will not unmute to another call until carrier drops.

> **Note:** This method of operation (not decoding PL) significantly increases battery savings, but can cause problems in some systems. *Use of Battery Saver should be carefully tested in the customer system when the option is enabled.*

The default is Disabled.

VISAR Configuration Options (***Models with Display only***)

At the MAIN MENU, press **F4, F3** and then **F2** twice to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to scroll values.
HT/JT1000/VISAR  Model : H05UCD6AA4AN    Use <Enter> to go to next feature.
                 Serial:
CHANGE:RADIO:SYS CONFIG:VISAR

                          VISAR CONFIGURATION OPTIONS
                          ---------------------------

 Display Power-Up State.........Normal  Channel Wrap-around............Enabled
 Ch. Select Lock/Display Flip.....Lock  Channel Wrap-around Alert......Enabled
 Channel Selector Lock Alert...Enabled  Channel Selector Alert........Disabled
 Auto-backlight................Enabled
 Backlight Timer (sec).............5

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                              PRINT                           DEFAULT  EXIT
```

This menu allows the user to access the systems configuration options *for VISAR radios only. This screen cannot be accessed for HT 1000 or JT1000 models.*

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Display Power-Up State

This field allows you to specify whether the display will be in Normal or Inverted state on radio power-up.

Normal	The display will be readable from the front, as when the radio is held in the hand.
Inverted	The display will be readable from the top, as when the radio is worn on the belt.

The default is Normal.

Ch. Selector Lock/Display Flip

This field allows you to select one of two features activated by pressing both the channel selector controls simultaneously for two seconds. They are:

Lock	Locks the radio on the current channel so that it cannot be inadvertently changed.
Flip	Turns the channel display upside down, so that it may be read while the radio is worn on the hip.

Both features can be deactivated in the same way that it they are activated: by pressing both of the channel selector controls simultaneously for two seconds.

The default is Lock.

Channel Selector Lock Alert

The field allows you to enable/disable the generation of a good key chirp when the channel selector controls are being locked or unlocked.

The default is Disabled.

Auto-backlight

Use the UP/DOWN arrow keys to enable/disable this feature. If this option is enabled and the radio user presses the radio keypad or Channel Up/Down buttons, the display/keypad backlight will be turned on. The backlight will be on for the length of time (in seconds) specified in the Backlight Timer field on this screen. Once the backlight is illuminated, the use of any control with the exception of PTT and volume will reset the timer and extend the backlight illumination time. If this option is disabled, only the side button assigned to the Light function will be turned on or extend the backlight.

The default is Enabled.

Backlight Timer (sec)

Enter a value directly or use the UP/DOWN arrow keys to specify the length of time that the LCD/keypad backlight will remain illuminated without any keypad or control activity. This timer can be set anywhere from one to 255 seconds in one-second increments.

The default is 5 seconds.

Channel Wrap-around

Use the UP/DOWN arrows to select Enabled or Disabled. If this feature is enabled, the active channel will be allowed to wrap around from 16 to 1 (and vice versa) when scrolling through channels.

The default is Enabled.

Channel Wrap-around Alert

Use the UP/DOWN arrows to select Enabled or Disabled. Depending on the setting in the Channel Wrap-around field, the Wrap-around Alert or No Wrap-around Alert option will be enabled.

Enabled	An alert is generated whenever the wrap-around occurs.
Disabled	An alert is generated whenever the user attempts to go beyond the beginning or the end of the Channel list.

The default is Enabled.

Note: *Channel Selector Alert and Channel Wrap-around Alert are mutually exclusive.* You must disable one before enabling the other.

Channel Selector Alert

Use the UP/DOWN arrows to select Enabled or Disabled. When this field is enabled, an alert tone is generated when either of the Channel Selector buttons are pressed.

The default is Disabled.

Note: *The Channel Selector Alert and Channel Wrap-around Alert features are mutually exclusive.* You MUST disable one before enabling the other.

JT1000 Configuration Options

At the MAIN MENU, press **F4, F3, F2** and then **F3** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to scroll values.
HT/JT1000/VISAR  Model : H01SDH9PA3AN    Use <Enter> to go to next feature.
                 Serial:
...RADIO:SYS CONFIG:JT1000 OPTIONS

                          JT1000 CONFIGURATION OPTIONS
                          ----------------------------

 User Programming.............Enabled  Alert Tones...................Enabled
 Programming Password..........581000  Freq. Range Low Limit...........450.0
 Menu Timeout Period (sec).....15      Freq. Range High Limit..........512.0

 Auto-backlight...............Enabled  Display Format.........Channel Number
 Backlight timer (sec)..............5  TX Power w/Alkaline Batt...Always Low

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                              PRINT                           DEFAULT  EXIT
```

This menu allows you to modify the system configuration for *JT1000 radios only. This screen will NOT be accessible for HT 1000 or VISAR radio models.*

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

User Programming

Use the UP/DOWN arrow keys to enable or disable User Programming mode. If this feature is enabled, the radio user will be able to program frequency, squelch coding, power, and bandwidth, and will also be able to use the Multi-Select PL/DPL feature.

Note that user programming can also be enabled/disabled on a channel-by-channel basis by configuring this field on the CHANNEL CONFIGURATION screen (**F4/F4**).

> **Note:** *When User Programming Mode is enabled, Normal Dispatch Operation will be disabled, and the radio will not unmute to channel traffic.* The menu timeout feature will prevent the radio from remaining in this state for an extended period.

The default is Enabled.

Programming Password

This feature allows you to restrict access to programming for frequency, squelch coding, power, and channel bandwidth. The password is limited to 8 numeric characters or less. The minimum password length is one character. To set a password of less than 8 characters, be sure to use the **Del** key to remove any excess digits. *Spaces are not allowed as part of the password.*

The default is 581000.

Menu Timeout Period (sec)

Enter a value directly or use the UP/DOWN arrow keys to specify the desired value. This is the time period after which the radio will exit JT1000 or Multiple Select PL programming mode if it does not detect any keypad activity during this specified period. The timeout period can be set to any numeric value ranging from one to 30 seconds. This field can also be set to Disabled.

Pressing an arrow key changes the value in five-second increments, and pressing **Shift** and an arrow key simultaneously changes the value in one-second increments.

> **Note:** *When User Programming mode is enabled, normal Dispatch operation is disabled, and the radio will not unmute to channel traffic*. The timeout feature prevents the radio from remaining in this state for an extended period of time.

The default is 15 seconds.

Auto-backlight

Use the UP/DOWN arrow keys to enable/disable this feature. If this option is enabled and the radio user presses the radio keypad or Channel Up/Down buttons, the display/keypad backlight will be turned on. The backlight will be on for the length of time (in seconds) specified in the Backlight Timer field on this screen. Once the backlight is illuminated, the use of any control with the exception of PTT and volume will reset the timer and extend the backlight illumination time. If this option is disabled, only the side button assigned to the Light function will be turned on or extend the backlight.

The default is Enabled.

Backlight Timer (sec)

Use the UP/DOWN arrow keys to specify the length of time that the LCD/keypad backlight will remain illuminated without any keypad or control activity. Valid settings range from one to 255 seconds in one-second increments.

The default is 5 seconds.

Alert Tones

Use the UP/DOWN arrow keys to enable/disable this feature. Keypad alert tones can be used to let the user know whether or not a key is valid when it is pressed. A high-pitched tone means the key is valid, and a low-pitched tone means the key is not valid. If this feature is enabled, the radio will emit keypad alert tones and the Multi-selectable PL/DPL (MSPL) accept tones will also sound at the appropriate times.

The default is Enabled.

Frequency Range Low Limit

This field can be used to limit the radio user's programming activities to a frequency range within the bandsplit specified in this field and the Frequency Range High Limit feature on this screen. Enter a value directly or use the UP/DOWN arrow keys to define the lower limit of the allowed user programmable frequency range. Use the arrow key to change the value in 0.5-MHz increments, and the **Shift** and an arrow key simultaneously to change the value in *2.500 kHz for VHF models and 0.1-MHz increments for all other models*. The range of valid values is the range of the entire band which applies to the current radio model (for example, 136.0-178.0 for VHF, 403.0-470.0 for UHF1, and 450.0-512.0 for UHF2).

The default is the lowest frequency of the band for the radio which has been read (for example 136.0 for VHF).

Frequency Range High Limit

This field can be used to limit the radio user's programming activities to a frequency range within the bandsplit specified in this field and the Frequency Range Low Limit feature on this screen. Enter a value directly or use the UP/DOWN arrow keys to define the higher limit of the allowed user programmable frequency range. Use the arrow key to change the value in 0.5-MHz increments, and the **Shift** and an arrow key simultaneously to change the value in *2.500 kHz for VHF models and 0.1-MHz increments for all other models*. The range of valid values is the range of the entire band which applies to the radio that has been read. (For example, 136.0-178.0 for VHF, 403.0-470.0 for UHF1, and 450.0-512.0 for UHF2).

The default is the highest frequency of the band for the radio which has been read, for example 178.0 for VHF.

Display Format

Use the UP/DOWN arrow keys to select one of two formats to display information about the frequency or channel on the radio display. You can choose to display either the frequency and squelch code or the channel number and PL code.

Freq/Squelch Code	Will display the receive frequency in MHz, and the PL code in Hz, for example: 136.0500 123.5. A channel with DPL will display as in this example: 136.0500 #131. A channel with carrier squelch programming will display as in this example: 136.0500 CSQ.
Channel Number	Will display the channel number and the channel squelch coding which is in effect, for example: CH 1 1.

The default is Channel Number.

TX Power w/Alkaline Batt.

Use the UP/DOWN arrow keys to select an option. The transmit power level for each channel on a radio can be specified for that channel on the CHANNEL CONFIGURATION screen (**F4/F4**). If a radio is using an alkaline battery, the setting in this field will control the transmit power level for the selected channel.

Always Low	The radio will always transmit at the low power level regardless of the power level selected on that channel.
Selected	The radio will transmit at the power level specified on the CHANNEL CONFIGURATION screen (**F4/F4**) for the selected channel.

The default is Always Low.

Side Button Configuration (*HT 1000 "A" Revision Models only*)

From the MAIN MENU, press **F4** and then **F3** twice to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to adjust value.
HT/JT1000/VISAR  Model : H01SDC9AA3AN    Use <Enter> key to go to next feature
                 Serial:
CHANGE:RADIO:SIDE BUTTON

                        Side Button Configuration
                        -------------------------

   Permanent Monitor (SB3)..................................... Enabled
     Monitor Long Press Period (sec)..............................5

   Permanent Monitor Definition.........................Open Squelch

   External Mandown Switch..................................... Enabled

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                           DEFAULT  EXIT
```

This screen allows you to modify the side button configuration *for HT 1000 "A" revision models only.*

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Permanent Monitor

Use the UP/DOWN arrow keys to enable/disable this feature. If this option is enabled, the Permanent Monitor feature will be enabled in the radio. In order to enter Permanent Monitor, the radio user will have to hold down the radio's Monitor button for the time period specified in the Monitor Long Press Period field on this screen. The type of operation of Permanent Monitor will be determined by the setting in the Permanent Monitor Definition field. *The Permanent Monitor state is not preserved across channel changes or power cycling.*

The default is Enabled.

Monitor Long Press Period (sec)

This field will be visible only if the Permanent Monitor feature on this screen is enabled. Enter a value directly or use the UP/DOWN arrow keys to select the time period for which the user must hold down the Monitor button in order to engage Permanent Monitor mode. The valid range is one to 16 seconds in one-second increments.

The default is 5 seconds.

Permanent Monitor Definition

Use the UP/DOWN arrows to make your selection. The field is used to specify the squelch mode of the radio during a momentary press of the monitor button or in Permanent Monitor mode. The two options are:

Open Squelch	The radio will be continuously unmuted
PL Defeat	The radio will be in Carrier Squelch during Monitor.

> ***Note:*** *The definitions above do not apply to Monitor during Scan mode. Monitor operation during Scan is controlled by the PL Defeat field on the SCAN CONFIGURATION screen (**F4/F3/F8/F2**).*

The default is Open Squelch.

External Mandown Switch

The External Mandown Switch is used with HT 1000 radios only. Use the UP/DOWN arrows to enable/disable this feature. When this feature is enabled, the radio will send an alarm (including the radio ID) whenever the radio is angled more than 60 degrees from its usual vertical position.

> **Note:** *This operation is only possible when the radio is equipped with an External Mandown Switch accessory. Emergency must be enabled for this feature to work.*

The default is Enabled.

Note that there is no functional programmability associated with the side buttons in HT 1000 "A" models. Side Button 1 is the Select button, used for Nuisance Delete and Scan Programming. Side Button 2 is used only for the MDC Repeater Access (RAT) function. Side Button 3 is always the Monitor button.

> ***Note:*** *If an Advantage™ Board is installed in the radio and Side Button 2 is functionally used by the Advantage Board, that button must be set to "Blank" to prevent dual usage.*

Side Button Configuration (*VISAR only*)

From the MAIN MENU, press **F4** and then **F3** twice to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to adjust value.
HT/JT1000/VISAR  Model : H05SDD9AA4AN    Use <Enter> key to go to next feature
                 Serial:
CHANGE:RADIO:SIDE BUTTON

                          Side Button Configuration
                          -------------------------

   Sidebutton 1 function.................................Light Button
   Sidebutton 2 function.....................................Monitor

   Monitor Long Press Period (sec).....................................5
   Permanent Monitor.....................................Enabled
   Permanent Monitor Definition.........................Open Squelch

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                           DEFAULT  EXIT
```

This screen can be accessed for VISAR models only. It allows you to assign functionality to the side buttons of a VISAR radio.

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Sidebutton Functions

Use the UP/DOWN arrow keys to select the functions for this button. *Not all functions are available on all models.*

> **Note:** *The RSS will NOT allow side button functions to be duplicated on more than one button, or allow you to duplicate a function that is assigned to another control* (for example, Scan on a side button and Channel-Slaved Auto Scan in the same radi. *If Scan is already assigned to another control, Scan-related selections will not be displayed among the choices.*

The possible functions that can be assigned to Sidebuttons 1 and 2 are detailed below:

Blank	No function, no key chirp is sounded.
Monitor	Radio will unsquelch when this button is pressed, allowing you to listen to activity on the channel.
RAT	An MDC Repeater Access Code will be transmitted when this button is pressed.

Scan Programming Status Scroll	Allows the operator to select a channel's status in the scan list by scrolling through three states (Not in List, Non-Priority, Priority) as this button is pressed. The status of the channel is indicated by the bi-color LED. LED OFF indicates “Not in Scan List,” LED Green indicates “Non-Priority Status” and LED Red indicates “Priority Status”.
Monitor/Scan Programming Status Scroll	Combines the Monitor function with Scan Programming Status Scroll while in Scan Programming mode.
Emergency Alarm	An MDC or STAR Emergency Alarm sequence is initiated when this button is pressed.
Phone Encode	Places the radio in Telephone Encode mode, initiating an auto-access sequence if so programmed. *Applicable to keypad models only.*
Select	Allows temporary removal of a channel from the scan list in the Nuisance Delete Function, and performs the Scan Programming Status Scroll function in Scan Programming mode.
Scan/Scan Programming On/Off	A short press will toggle the Channel Scan mode on and off. A long press will place the radio in the Scan Programming mode where the scan list can be modified by the radio operator. **Note**: *In Scan Programming mode, the radio will not unmute to channel traffic.* A tone will sound to remind the operator if the radio was left in Scan Programming mode with no key activity for more than 20 seconds. To complete the Operator Selectable scan functionality, the other side button must be assigned to the Scan Programming Status Scroll function. *Refer to page 87 for scan-related button setups.*
Single Tone #1 and #2 Encode	Initiates transmission of the selected Single Tone.
Scan On/Off	Allows scan to be toggled on and off. *No scan programming is allowed with this setup.*
Light Button	Allows the radio user to toggle the display/keypad backlighting on and off *on keypad-equipped radios only.*

Monitor Long Press Period (sec)

Enter a value directly or use the UP/DOWN arrow keys to select the length of time that the Monitor Button must be held down to engage Permanent Monitor mode. The valid range of values is 1 to 16 seconds.

The default is 5 seconds.

Permanent Monitor

Use the UP/DOWN arrow keys to enable/disable this option. If this option is enabled, the Permanent Monitor feature will be enabled in the radio. To enter Permanent Monitor, the user will have to hold down the radio's Monitor button for the time period specified in the Monitor Long Press Period field on this screen. The operation of Permanent Monitor is determined by the setting in the Permanent Monitor Definition field on this screen.

> ***Note:*** *The Permanent Monitor state will not be preserved across channel changes or power cycling.*

The default is Enabled.

Permanent Monitor Definition

Use the UP/DOWN arrows to make your selection. The field is used to specify the squelch mode of the radio during a momentary press of the Monitor button or in Permanent Monitor mode. The two options are:

Open Squelch	The radio will be continuously unmuted.
PL Defeat	The radio will be in Carrier Squelch during Monitor.

> ***Note:*** *The definitions above do NOT apply to Monitor during Scan mode. Monitor operation during Scan is controlled by the PL Defeat field on the SCAN CONFIGURATION screen (**F4/F3/F8/F2**).*

The default is Open Squelch.

Possible Sidebutton Setups for Scanning

Operator Selectable Scan Only	Sidebutton 1 = Scan/Scan Programming On/Off Sidebutton 2 = Scan Programming Status Scroll
Operator Selectable Scan with Monitor	Sidebutton 1 = Scan/Scan Programming On/Off Sidebutton 2 = Monitor/Scan Programming Status Scroll
Operator Selectable Scan with Nuisance Delete	Sidebutton 1 = Scan/Scan Programming On/Off Sidebutton 2 = Select
Scan On/Off Only	Sidebutton 1 = Scan On/Off Sidebutton 2 = Any other function
Scan On/Off with Nuisance Delete	Sidebutton 1 = Scan On/Off Sidebutton 2 = Select

Side Button Configuration (*HT 1000 "B" and JT1000 Models*)

From the MAIN MENU, press **F4** and then **F3** twice to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to adjust value.
HT/JT1000/VISAR  Model : H01SDC9AA3BN    Use <Enter> key to go to next feature.
                 Serial:
CHANGE:RADIO:SIDE BUTTON

                          Side Button Configuration
                          -------------------------

    Sidebutton 1 function.................................Select Button
    Sidebutton 2 function.....................................Blank
    Sidebutton 3 function....................................Monitor

    Monitor Long Press Period (sec)..................................5
    Permanent Monitor.....................................Enabled
    Permanent Monitor Definition..........................Open Squelch
    External Mandown Switch...............................Enabled

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                           DEFAULT  EXIT
```

Note: *If an Advantage™ Board is installed in the radio and Side Button 2 is functionally used by the Advantage Board, that button MUST be set to "Blank" to prevent dual usage.*

Function Key Descriptions

F5 - PRINT — Prints the current system configuration.

F9 - DEFAULT — Resets the fields on this screen to their default values.

Field Definitions

Sidebutton Functions

Use the UP/DOWN arrow keys to select the functions for this button. *Not all functions are available on all models.*

Note: *The RSS will not allow side button functions to be duplicated on more than one button, or allow you to duplicate a function that is assigned to another control* (for example, Scan on a side button and Channel-Slaved Auto-scan in the same radio). If Scan is already assigned to another control, Scan-related selections will not be displayed on this screen.

The possible functions that can be assigned to Sidebuttons 1, 2 and 3 are:

Blank	No function, no key chirp is sounded.
Monitor	Radio will unsquelch when this button is pressed, allowing you to listen to activity on the channel.
RAT	An MDC Repeater Access Code will be transmitted when this button is pressed. *Available only with HT 1000 models.*

Scan Programming Status Scroll	Allows the operator to select a channel's status in the scan list by scrolling through the three states (Not in List, Non-Priority, Priority) as this button is pressed. The status of the channel is indicated by the bi-color LED. LED OFF indicates “Not in Scan List”, LED Green indicates “Non-Priority Status” and LED Red indicates “Priority Status”.
Monitor/Scan Programming Status Scroll	Combines the Monitor function with Scan Programming Status Scroll while in Scan Programming mode.
Select	Allows the radio user to temporarily remove a channel from the scan list in the Nuisance Delete function, and performs the Scan Programming Status Scroll function in Scan Programming mode.
Scan/Scan Programming On/Off	A short press will toggle the Channel Scan mode on and off. A long press will place the radio in the Scan Programming mode, where the scan list can be modified by the radio operator. **Note:** In Scan Programming mode, the radio will not unmute to channel traffic. A tone will sound to remind the operator if the radio has been left in the Scan Programming mode with no key activity for more than 20 seconds. *To complete the Operator Selectable scan functionality, the other side button must be assigned to the Scan Programming Status Scroll function*. Scan-related button setups can be found on the following page.
MSPL Select	Allows the user entry/exit to the Multiple Selectable PL/DPL entry mode. *Available with JT1000 models only.* **Note:** This function allows the user to substitute the squelch coding on one channel onto another channel. *Available only on Sidebutton 2 of JT1000 models.*
Single Tone #1 and #2 Encode	Initiates transmission of the selected Single Tone.
Scan On/Off	Allows scan to be toggled on and off. *No scan programming is allowed with this setup.*
Light	Allows toggling of the keypad backlighting on and off *on keypad-equipped radios only.*

Monitor Long Press Period (sec)

Enter a value directly or use the UP/DOWN arrow keys to select the length of time that the Monitor Button must be held down to engage Permanent Monitor mode. The valid range of values is 1 to 16 seconds.

The default is 5 seconds.

Permanent Monitor

Use the UP/DOWN arrow keys to enable/disable this option. If this option is enabled, the Permanent Monitor feature will be enabled in the radio. To enter Permanent Monitor, the radio user must hold down the Monitor button for the time specified in the Monitor Long Press Period field on this screen. The operation of Permanent Monitor operates is determined by the setting in the Permanent Monitor Definition field on this screen.

> ***Note:*** *The Permanent Monitor state is NOT preserved across channel changes or power cycling.*

The default is Enabled.

Permanent Monitor Definition

Use the UP/DOWN arrows to make your selection. The field is used to specify the squelch mode of the radio during a momentary press of the Monitor button or in Permanent Monitor mode. The two options are:

Open Squelch	The radio will be continuously unmuted
PL Defeat	The radio will be in Carrier Squelch during Monitor.

> ***Note:*** *The definitions above do NOT apply to Monitor during Scan mode. Monitor operation during Scan is controlled by the PL Defeat field on the SCAN CONFIGURATION screen (**F4/F3/F8/F2**).*

The default is Open Squelch.

External Mandown Switch

Emergency must be enabled for this feature to work. This option enables/disables the radio's capability to initiate the transmission of an emergency alarm sequence (including the ID code) when the radio is tipped more than 60 degrees from its vertical axis. *The Mandown Switch is applicable to HT 1000 models only.*

> **Note:** *This operation is only possible when the radio is equipped with an External Mandown Switch accessory. Emergency must be enabled for this feature to work.*

Possible Side Button Setups for Scanning

Operator Selectable Scan Only	Sidebutton 1 = Scan/Scan Programming On/Off Sidebutton 2 = Scan Programming Status Scroll Sidebutton 3 = Monitor
Operator Selectable Scan with Monitor	Sidebutton 1 = Scan/Scan Programming On/Off Sidebutton 2 = Monitor/Scan Programming Status Scroll Sidebutton 3 = Any other function
Operator Selectable Scan with Nuisance Delete	Sidebutton 1 = Scan/Scan Programming On/Off Sidebutton 2 = Select Sidebutton 3 = Any other function
Scan On/Off Only	Sidebutton 1 = Scan On/Off Sidebutton 2 = Any other function Sidebutton 3 = Any other function
Scan On/Off with Nuisance Delete	SidebButton 1 = Scan On/Off Sidebutton 2 = Select Sidebutton 3 = Monitor

Alert Tone Configuration

From the MAIN MENU, press **F4, F3** and then **F4** again to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to enable/disable feature
HT/JT1000/VISAR   Model :                Use <Enter> to go to next feature.
                  Serial:
CHANGE:RADIO:ALERT TONE CONFIG

                          Alert Tone Configuration
                          ------------------------

 Master Alert Tone Control.....Enabled  Mandown Pre Alert.............Enabled
 Power Up Alert................Enabled  Tx Low Battery Alert..........Enabled
 Illegal Channel Alert.........Enabled  Rx Low Battery Alert.........Disabled
 Timeout Timer Alert...........Enabled
 Timeout Timer Pre-Alert......Disabled  Low Battery Alert Intvl (sec).....120
                                        Alert Volume Tx...................176
 PL Defeat Alert...............Enabled  Alert Volume Rx...................176

 Scan Programming Alert........Enabled
 Priority Chan Lock Alert......Enabled
 PTT Tx Inhibit Alert..........Enabled

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                           DEFAULT  EXIT
```

From this screen, you can configure options for the radio's alert tone operation.

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Master Alert Tone Control

This field allows you to enable/disable all alert tones controlled from this and all other screens, *with two exceptions*. These are tones which cannot be disabled from the RSS: MDC Select Call Alert and Quik-Call II Select Call Alert.

If the Master Alert Tone Control is set to Disabled, none of the Alert Tones can be enabled individually until the Master Alert Tone Control is enabled. If you want to disable all alert tones, only the Master Alert Tone control needs be changed. All individual tones will then be automatically disabled.

> **Note:** There are two actions that will override and reset the state of the Master Alert Tone Control feature. These are:
>
> 1. Use of the **F9** default key on any screen that has alert fields.
> 2. Changing the setting for the Signalling Type field on the MDC/STAR/ATIS OPTIONS screen (**F4/F3/F7/F3**) which sets the new signal type defaults.
>
> When the Master Alert Tone control is re-enabled, all individual tones will still be disabled. Therefore, the desired tones must be turned on individually.

The default is Enabled.

Power-Up Alert	Use the UP/DOWN arrow keys to enable/disable the Power-Up Alert tone that the radio emits when it powers up. The frequency of the Power-Up Alert tone depends on the outcome of the radio's self-test routine. If the radio's circuitry passes the self-test, the Power-Up Alert tone will be sounded at 900 Hz (high tone) for 75 ms. If the self-test fails in a non-fatal fashion, the Power-Up Alert tone will be sounded at 300 Hz (low tone) for 75 ms, and the radio will continue to operate. The default is Enabled.
Illegal Channel Alert	Use the UP/DOWN arrow keys to enable/disable this feature. When this feature is enabled and a non-programmed channel is selected, an alert tone will be emitted to warn the user that it is invalid. The default is Enabled.
Timeout Timer Alert	Use the UP/DOWN arrow keys to enable/disable the transmit Timeout Timer Alert feature. If this feature is enabled, this alert tone will be sounded from the time that the timeout timer (TOT) expires until the time that the PTT button is released. The default is Enabled.
Timeout Timer Pre-Alert	Use the UP/DOWN arrow keys to enable/disable the Timeout Timer Pre-alert feature. If this feature is enabled, a pre-alert tone will be heard four seconds before the timer times out. The default is Disabled.
PL Defeat Alert	Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, the radio will generate an alert before it enters the PL Defeat mode. The radio will enter Permanent PL Defeat mode when the Monitor button is held down for more than five seconds. The default is Enabled.
Scan Programming Alert	Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, an alert will be generated when the radio user enters or exits Scan Programming mode. The default is Enabled.
Priority Channel Lock Alert	Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, an alert tone will be generated while in Priority Scan and unmuting on the priority channel. The default is Enabled.
PTT Tx Inhibit Alert	Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, an alert tone will be generated if the radio user presses the PTT button when the radio's transmission is inhibited (ex. Rx only channel, busy channel, etc.).

Mandown Pre-Alert	*This field is applicable to HT 1000 radios only since the Mandown Switch is an optional external accessory used only with HT 1000 radios.* If this field is set to Enabled, an alert tone will be generated before the radio enters Mandown Emergency alert state. This allows time for the user to return the radio to proper upright position before a Mandown Emergency alert is actually sent (that is, if the tipped angle of the radio was accidental and there was no emergency situation). The default is Enabled.
Tx Low Battery Alert	Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, this alert tone will be generated on PTT de-key only when a low battery condition is detected while the radio is in the transmit mode. The default is Enabled.
Rx Low Battery Alert	Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, an alert tone will be generated periodically when a low battery condition is detected while the radio is in the receive mode. The default is Enabled.
Low Battery Alert Intvl (sec)	Enter a value directly or use the UP/DOWN arrow keys to select the interval of silence between low battery alert tones. The valid range of values is 5 to 155 seconds. The value you enter will automatically be rounded off to multiples of 5 seconds. The default is 120 seconds.
Alert Volume Tx	Enter a value directly or use the UP/DOWN arrow keys to select the fixed volume setting for any alert tone sounded while in Transmit mode. Volume settings for alert tones can range from one to 255 and are fixed at that volume (with one being the minimum volume and 255 being the maximum volume). If you set this field to Volume Knob, the alert volume will be the same as the volume pot setting. The default is 176.
Alert Volume Rx	Enter a value directly or use the UP/DOWN arrow keys to select the fixed volume setting for any alert tone sounded while in Receive mode. Volume settings for alert tones can range from 1 to 255 and are fixed at that volume (with one being the minimum volume and 255 being the maximum volume). If you select Volume Knob, the alert tone will be the same as the volume pot setting. The default is 176.

Option•Mate Configuration (***HT 1000 "C" or Later Models only***)

From the MAIN MENU, press **F4, F3** and then **F5** to access this screen.

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR  Model : H01KDC9AA3CN
                 Serial:
CHANGE:RADIO:CONFIG:OPTION•MATE

                          Option•Mate Configuration
                          -------------------------

 Plug-In Board.....Not Installed

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                              PRINT                           DEFAULT  EXIT
```

Note: *This screen can be accessed from the RADIO CONFIGURATION MENU (**F4/F3**) only if an HT 1000 codeplug has been read into memory.*

This screen contains fields related to the setup and operation of Option•Mate Plug-compatible devices. Most compatible devices can be made to work by setting the Plug-In Board field in this screen to "Installed". However, *some other devices come with separate, customized configuration utilities* which can be used to modify the internal configurations of these devices. Refer to the manufacturer's literature for further information on these utilities. This screen deals **only** with the set up of the radio's circuitry to accommodate such audio-processing devices.

Note: DO NOT set the Plug-In Board field to "Installed" unless an option board has actually been installed. If you do so, the radio will remain muted and no audio will be transmitted.

Note: Special cloning instructions for radios equipped with Option•Mate compatible devices are provided on page 95.

Function Key Descriptions

F5 - PRINT — Prints the current system configuration.

F9 - DEFAULT — Resets the fields on this screen to their default values.

Field Definitions

Plug-In Board

Use the UP/DOWN arrow keys to make your selection. Set this field to "Installed" if an audio-processing option board is installed in the radio. The audio routing path for both Transmit and Receive audio will be modified such that this audio can be processed by the board prior to transmission or reception of the signals.

> **Note: DO NOT set the Plug-In Board field to "Installed" unless an option board has actually been installed. If you do so, the radio will remain muted and no audio will be transmitted.**

The default is "Not Installed".

Special Cloning Instructions

Radio-to-Radio Cloning

It will NOT be possible to clone HT 1000 "C" or later models radios through the direct radio-to-radio cloning process unless their Option•Mate Plug-In Board fields are set to the same value (that is, either "Installed" or "Not Installed").

This is to make sure that audio routing information from an Option•Mate-enabled radio is not cloned to a non-capable (earlier model) radio since this will render the earlier radio inoperative. For example, if an HT 1000 "C" model is cloned radio-to-radio to an HT 1000 "B" or earlier model, the Plug-In Board field in the "C" model must be set to "Not Installed". *Otherwise, cloning will NOT be allowed.*

Radio-to-radio cloning where an HT 1000 "A" model is the source radio is an exception. *If an HT 1000 "A" model is cloned radio-to-radio to an HT 1000 "C" model which has an Option•Mate Plug-In Board field set to Installed, the audio routing information WILL BE LOST and must be reprogrammed.*

RSS Cloning

RSS Cloning will however be allowed even if the Option•Mate settings are different. The setting in the source radio will be copied on to the target radio and a warning will be issued.

> **Note:** For further tips on RSS cloning, refer to screen HELP for the GET/SAVE/CLONE screen (**F3**) and to the "Clone Radio" section in Section 3 of this manual.

Mode Switch Position Assignment (*HT/JT1000 only*)

From the MAIN MENU, press **F4, F3** and then **F6** again to access this screen.

```
MOTOROLA Radio Service Software          Use arrow key to select switch mode.
HT/JT1000/VISAR  Model : H01SDC9AA3AN
                 Serial:
CHANGE:RADIO:MODE SWITCH

                              Radio Mode Switch
                              -----------------

   Scan/Scan Program 1        Squelch Defeat            Scan/Ch.Opt Talkaround
   Scan/Scan Program 2        PAC•RT                    Ch.Opt  Talkaround
   Scan/Talkaround            Hi & Low Pwr              Blank
   Scan/Squelch Defeat        Hi & Low Pwr/Scan         Unsupported Switch
   Scan/PAC•RT                Talkaround/PL
   Talkaround                 Scan


    Function Position A            Position B            Position C
          1
          2  Channel Option Sq     Carrier squelch       Carrier squelch

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                                   EXIT
```

The three-position toggle switch on top of HT/JT1000 radios (also known as the A-B-C Toggle switch) can have two functions assigned to each of its positions. This screen allows you to select the desired combination of functions.

> ***Note:*** *If an Advantage™ Board is installed in the radio and the Mode Switch (ABC Switch) is functionally used by the Advantage Board, that switch must be set to "Blank" to prevent dual usage.*

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Radio Mode Switch

Select a mode by pressing **Enter** and/or **Tab** to navigate between and within the fields. Functions for positions A through C change automatically to reflect the selected mode. The table on page 98 shows the available modes and their associated functions.

The default is Squelch Defeat.

In the table at the bottom of the screen, the columns marked Position A, B and C, correspond to the physical positions of the switch. The rows marked Function 1 and 2 correspond to the functions assigned to those positions. As you navigate through the different function combinations at the top of the screen (using **Enter**, **Tab**, or arrow keys) you will notice the assigned functions changing.

The combination which is highlighted when the screen is entered for the first time is the one that is currently programmed into the radio. If you made any changes, the combination which is highlighted when the screen is exited is the one which will be programmed into the radio.

A combination marked “Blank” is available if it is desired to make the switch non-functional. A combination marked “Unsupported Switch” is also available so that any switch setup not exactly matching one of the choices provided will be preserved. This selection cannot be accessed through keyboard navigation.

> **Note:** *The RSS will NOT allow a toggle switch setup that duplicates functions already assigned to other controls.* Here is an example: assume that Scan has been assigned to the Toggle Switch and Channel Slaved Auto Scan has been programmed in the same radio. If Scan is already assigned to another control, it will not be possible to navigate to Scan-related selections on this screen.
>
> *Conflicts may occur if a Toggle Switch setup is chosen that controls power, and one or more channels are programmed for low power.* The radio will always prioritize the Toggle Switch input over the channel-slaved input. Therefore it is possible that a radio COULD transmit at high power on a channel which has been configured for low power. Please exercise caution in using multiple controls to manipulate power.
>
> *The RSS will NOT allow High/Low Power or High/Low Power/Scan for JT1000 models.* High/Low Power is front-panel programmable. *800 MHz models are always High Power.*

Refer to the following page for a list of available modes and the functions associated with them.

HT/JT1000 Mode Switch Functions

The Mode/Switch functions for HT/JT1000 radios are provided in the table below:

	Mode	Position A	Position B	Position C
1	Scan & Scan Programming 1	Scan Program On Scan Off	Scan Prog. Off Scan Off	Scan Prog. Off Scan On
2	Scan & Scan Programming 2	Scan Prog. Off Scan On	Scan Prog. Off Scan Off	Scan Prog. On Scan Off
3	Scan and Talkaround	Direct Scan Off	Repeat Scan Off	Repeat Scan On
4	Scan/Squelch Defeat	Channel Op. Sq. Scan Off	Carrier Squelch Scan Off	 Scan On
5#	Scan & PAC•RT Operation	Tx PL/Low Pwr Scan Off	Carrier Squelch Scan Off	Carrier Squelch Scan On
6	Talkaround Only	Direct	Repeat	Repeat
7	Squelch Defeat	Channel Op. Sq.	Carrier Squelch	Carrier Squelch
8#	PAC•RT	Tx PL/Low Pwr	Carrier Sq. Tx (PAC•RT)	Carrier Sq. Tx (PAC•RT)
9*	Hi-Low Power	High Power	Low Power	Low Power
10*	Hi-Low Power & Scan	High Power Scan Off	Low Power Scan Off	Channel Op. Power Scan On
11	Talkaround/PL	Channel Option Sq. Repeat	Carrier Squelch Repeat	Carrier Squelch Direct
12	Scan	Scan Off	Scan On	Scan Off
13	Scan/Channel Option Talkaround	Channel Option Talkaround Scan Off	Repeat Scan Off	Repeat Scan On
14	Channel Option Talkaround	Channel Option Talkaround Scan Off	Repeat Scan Off	Repeat Scan On
15	Blank	No function	No function	No function
16	Unsupported Switch	No function	No function	No function

* *Not available on JT1000 models and 800 MHz HT 1000 models.*
\# *Not available on 800 MHz models.*

Note: Where the switch position description says “Channel Option Squelch” or “Channel Option Power”, refer to the setting on the CHANNEL CONFIGURATION screens (**F4/F4**) for the various channels to determine how this option will vary.

Signalling Options

From the MAIN MENU, press **F4, F3** and then **F7** to access this screen.

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR   Model :
                  Serial:
CHANGE:RADIO:SIG OPT

                          Signalling Options Menu
                          -----------------------

     F1  - HELP
     F2  - Quik-Call II Options
     F3  - MDC/STAR/ATIS Options
     F4  - Singletone Configuration
     F5  - DTMF Phone List
     F6  -
     F7  -
     F8  -
     F9  -
     F10 - EXIT

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP    QUIK  MDC/GS/ SINGLE-   DTMF                                    EXIT
      CALL II  AT Opt   TONE    LIST
```

This menu provides access to signalling option configuration screens: Quik-Call II, MDC/STAR/ATIS, Single Tone, and DTMF.

> ***Note:*** *The MDC/STAR/ATIS option (**F3**) will not be visible if a JT1000 codeplug is loaded into the work space.*

Function Key Descriptions

F2 - QUIK-CALL II (Quik-Call II Options)

Brings up a screen from which you can configure Quik-Call II options.

F3 - MDC/GS/AT OPT (MDC/STAR/ATIS Options)

This function will NOT be visible for JT1000 model radios. Brings up a screen from which you can configure MDC/STAR/ATIS options.

F4 - SINGLETONE (Singletone Configuration)

This function will be visible only for VISAR, HT 1000 "B", and JT1000 models. Brings up a screen from which you can configure Single Tone options.

F5 - DTMF LIST (DTMF Phone List)

This function will be visible only for models with DTMF keypad. Brings up a screen from which you can configure DTMF options.

Quik-Call II Options

From the MAIN MENU, press **F4, F3, F7** and then **F2** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to adjust value.
HT/JT1000/VISAR   Model :                Use <Enter> key to go to next feature
                  Serial:
CHANGE:RADIO:SIG:QUIK-CALL II

                              Quik-Call II Options
                              --------------------

                    Frequency     Code                      Frequency     Code

   Tone A.............. 389.0 Hz  113     Tone C..............389.0 Hz  113

   Tone B..............389.0 Hz  113     Tone D..............389.0 Hz  113

   Long Tone B Duration (sec).......6     Auto Reset.................Enabled

   Sleep Period (ms)...............60     QC Select Call LED.........Enabled


 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                                   EXIT
```

From this screen, you can configure options relating to the radio's Quik-Call II signalling operation.

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Tones A-B-C-D

Quik-Call is a *receive-only* function and has four tones associated with it (Tones A, B, C, and D). Use the UP/DOWN arrow keys to scroll through the available Quik-Call frequencies (288.5 to 2468.2 Hz). Quik-Call frequencies between 2468.2 Hz and 3100 Hz can be entered directly.

Scrolling through a Quik-Call frequency will cause the corresponding Quik-Call code to scroll as well. *Tone A and Tone B should not be the same.* In some systems, it is beneficial to have Tone A = Tone C (Common Tone A) or Tone B = Tone D (Common Tone B). These variations are allowed. The Quik-Call frequencies and codes available in the scroll list are shown in the Appendix under the title "Quik-Call II Frequencies and Codes".

> **Note:** The frequencies you enter directly will be rounded off to the nearest encodable frequency. *Codes entered directly will be allowed only if they are in the RSS table of code names.*

Long Tone B Duration (sec)

The duration of Long Tone B may be set from 0 (zero) to 34 seconds in one-second increments.

The default is 6 seconds.

Sleep Period (ms)

Enter a value directly or use the UP/DOWN arrow keys to specify the radio's "sleep period" when it is in battery-saver mode. *For a channel with the Quik-Call II Decode option enabled, the sleep period is related to the first tone and must be programmed so that pages are not lost.* The default sleep period of 60 ms is calculated to be safe for a system with a tone duration of 500 ms or greater. Valid values for Sleep Period range from five to 1050 ms in five-ms increments.

The default is 60 ms.

Auto Reset

Use the UP/DOWN arrow keys to enable/disable this timer. This option allows you to use the Auto-Reset timer for Quik-Call II signalling.

The Auto-Reset timer allows a two-way conversation to follow a Selective Call. When the conversation ends, the radio will automatically be returned to Page mode. The auto reset timer *specified on the RADIO SYSTEM CONFIGURATION screen (**F4/F3/F2***) is initiated after the Selective Call is received and the Alert Tone sequence is sounded. The radio will return to Page mode (signalling squelch) if:

- There is a period of inactivity (no carrier) on the channel for the duration of the Auto Reset timer; and
- No PTT presses occur for the duration of the timer.

If carrier is detected or PTT is pressed, the timer will be reset and restarted.

> ***Note:*** *The timer is common to both Quik-Call and MDC signalling systems.*

The default is Enabled.

QC Select Call LED

Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, the Receive Select Call LED will flash when a Select Call (either a Quik-Call II or MDC Select Call) is received.

The default is Enabled.

MDC Configuration

From the MAIN MENU, press **F4, F3, F7** and then **F3** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to enable/disable feature
HT/JT1000/VISAR   Model :                Use <Enter> to go to next feature.
                  Serial:
CHANGE:RADIO:SIG:MDC CONFIG

                                MDC Configuration
                                -----------------

 Signalling Type..............MDC1200  Call Alert...................Enabled
 Primary ID...................DEEE        Rx Call Alert Light.........Enabled
 Variable ID..................EEE       Rx Select Call Light.........Enabled
 PL Transmit..................Enabled   Repeater Ack Alert...........Enabled
 PTT ID.......................None      Emergency....................Enabled
 PTT Sidetone.................Enabled     Emergency Tx Light.........Enabled
 Emergency Sidetone...........Disabled    Emergency Alert............Enabled
 Remote Monitor...............Disabled    Emergency Ack Alert.........Enabled
 Radio Check..................Enabled     Silent Emergency...........Disabled
 MDC Auto Reset...............Enabled     Silent Emer w/ Voice.......Disabled
 Sticky Revert................Disabled    Channel Revert.............Enabled
 Sticky Revert Alert..........Enabled       Priority Revert Channel.........1

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
 HELP    RAT     MDC             PRINT                           DEFAULT  EXIT
        CONFIG OPTIONS
```

This screen CANNOT be accessed for JT1000 model radios. This screen allows you to enable/disable options in the radio for various MDC configurations. It also allows you to access the REPEATER ACCESS CONFIGURATION screen and the MDC OPTIONS screen.

Function Key Descriptions

F2 - RAT CONFIG (Repeater Access Configuration)

This function will be visible only when the Signalling Type field on this screen is set to MDC1200. It can also be accessed by setting the Signalling Type field to MDC1200 and pressing **F2** in the STAR CONFIGURATION screen (**F4/F3/F7/F3**). Brings up a screen where you can configure Repeater Access Tone (RAT) options.

F3 - MDC OPTIONS

This function will be visible only if the Signalling Type field is set to MDC1200. Brings up a screen from which you can configure various timers and counters specific to MDC.

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Signalling Type

*The RAT CONFIG (**F2**) and MDC OPTIONS (**F3**) function keys will be visible only if this field is set to MDC1200.* Use the UP/DOWN arrow keys to select the signalling type to be used in the transmission of the Unit ID and Emergency packets. The signalling type may be set to one of the following: MDC1200, STAR (E), or STAR (P) – where E stands for Extended and P for Portable.

This feature determines the range of the Unit ID as follows:

MDC1200	0001 - DEEE (Hex - Except Fs)
STAR (P)	0001 - 2047 (Decimal)
STAR (E)	0001 - 9999 (Decimal)

The Unit ID and Emergency decoders will determine whether the Portable or Extended mode is being used. Once the signalling type is set, the screen will reflect the applicable options.

The default is MDC1200.

Primary ID

Enter an ID directly or use the UP/DOWN arrow keys to select the Primary ID. The Primary ID consists of four hexadecimal digits ranging from 0001 to DEEE. *Each radio's Primary ID should be unique in the communication system to ensure ready identification. Most systems use numeric-only IDs.*

The default is DEEE.

Variable ID

Enter an ID directly or use the UP/DOWN arrow keys to select the Variable ID. The Variable ID consists of three hexadecimal digits ranging from 000 to EEE. It is used to group radios so that several radios will decode the same Selective Call or Call Alert.

The default is EEE.

PL Transmit

A valid PL must be selected for the channel for this option to be applicable. Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, PL will be encoded on the PL-enabled channel during MDC transmission. If this feature is disabled, PL will not be encoded on the PL enabled channel during MDC transmission except for PTT-ID transmission.

The default is Enabled.

PTT ID

Use the UP/DOWN arrow keys to make your selection. The setting in this field determines when the radio will transmit its ID number relative to the time that the voice message is transmitted. Valid choices are None, Keyup, Dekey, or Keyup/Dekey. *MDC PTT-ID is incompatible with any other type of PTT-ID signalling, such as DTMF ANI. Only one of these functions can be enabled at any given time.*

The default is None.

PTT Sidetone

Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, a sidetone will be generated during encoding of a Stat-Alert PTT-ID and STAR PTT-ID. *Sidetones are not compatible with PTT-ID on de-key.*

The default is Enabled.

Emergency Sidetone

Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, a sidetone will be generated during encoding of a Stat-Alert Emergency ID.

The default is Disabled.

Remote Monitor

This feature is limited to HT 1000 "B" models and VISAR models with firmware version 2.06 or later. If this field is enabled on a radio having an earlier version firmware or on a JT1000 radio, it will have no effect.

Use the UP/DOWN arrow keys to enable or disable this field. If this field is set to Enabled, the decoding for the MDC Remote Monitor command will be activated. The Remote Monitor command will cause the radio to key up and transmit ambient audio for a period of time that is controlled by the command itself. The time period will be determined by multiplying a value of 20 seconds with the number in the MDC Remote Monitor command's multiplier field.

The default is Disabled.

Radio Check

Use the UP/DOWN arrow keys to enable/disable this option. If this option is enabled, the dispatcher can send a message to a radio which stimulates a specific response, verifying that the radio is turned on and within range of the system.

The default is Enabled.

MDC Auto Reset

Use the UP/DOWN arrow keys to enable/disable this timer. This option enables you to use the Auto-Reset timer for MDC Selective Call signalling.

The Auto-Reset timer allows a two-way conversation to follow a Selective Call. When the conversation ends, the radio will automatically be returned to Page mode. The auto reset timer *specified on the RADIO SYSTEM CONFIGURATION screen (**F4/F3/F2***) will be initiated after the Selective Call is received and the Alert Tone sequence is sounded. The radio will return to Page mode (signalling squelch) if:

- There is a period of inactivity (no carrier) on the channel for the duration of the Auto Reset timer; and
- No PTT presses occur for the duration of the timer.

If carrier is detected, or PTT pressed, the timer will be reset and restarted. *The timer is common to both Quik-Call and MDC signalling systems.* Its duration is set on the *RADIO SYSTEM CONFIGURATION screen (**F4/F3/F2**)* screen.

The default is Enabled.

Sticky Revert

This feature is limited to HT 1000 "B" models and VISAR models with firmware version 2.06 or later. If this field is enabled on a radio having an earlier version firmware, it will have no effect.

Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, the radio will operate in Sticky Channel Revert mode when in an MDC Emergency state. Sticky Revert is characterized by the radio remaining permanently on the Revert channel after the MDC Emergency message has been transmitted and acknowledged. The radio must be powered off and on in order to return to normal channel control.

> **Note:** *The MDC/STAR/ATIS Decode field on the CHANNEL CONFIGURATION screen (**F4/F4**) must be set to Enabled. Only then will the radio be able to decode the Emergency Acknowledgment that is generated from the MDC fixed equipment.* This feature needs to be enabled only on the Emergency Revert channel and only when Emergency Revert or Sticky Revert is in use.

The default is Disabled.

Sticky Revert Alert

This feature is limited to HT 1000 "B" models and VISAR models with firmware version 2.06 or later. If this field is enabled on a radio having an earlier version firmware, it will have no effect.

Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, an alert tone will be generated if PTT is pressed when the radio is on the Sticky Revert Channel. It reminds the user that the radio is transmitting on a channel different from the one indicated by the Channel Selector knob. *On VISAR models alone, the display will correctly indicate the Sticky Revert Channel.*

The default is Enabled.

Call Alert

Use the UP/DOWN arrow keys to enable/disable this option. This per-radio feature is a convenient way for the dispatcher to page a radio user. If this feature is enabled, the radio will emit a continuous series of four beeps and the LED will flash green when a Call Alert (page) is received. The alert will continue until the user acknowledges the page and presses the PTT button, or presses and releases the Monitor button.

The default is Enabled.

Rx Call Alert Light

Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, the radio's LED will flash green when a Call Alert (page) is received.

The default is Enabled.

Rx Select Call Light

Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, the Receive Select Call LED will light up when a Select Call is received and flash for the entire length of the message. The Select Call refers to Quik-Call II, MDC and ATIS Select Call.

The default is Enabled.

Repeater Ack Alert	Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, an alert will sound when the acknowledgment to Manual Repeater Access is received. The default is Enabled.
Emergency	*All the fields listed below will be visible only if this field is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable Emergency operation in the radio. If this field is enabled, the radio will be capable of Emergency operation.
Emergency Tx Light	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, the LED will light up when an emergency message is transmitted. The default is Enabled.
Emergency Alert	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, an alert will be generated when the emergency switch is pressed at a time that the radio is in a non-silent emergency mode. The default is Enabled.
Emergency Ack Alert	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, an alert will be generated when an MDC emergency alarm acknowledgment is received. The default is Enabled.
Silent Emergency	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, both audio and visual feedback from the radio will be inhibited during an emergency silent alarm. The default is Disabled.
Silent Emergency w/Voice	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, the radio will unmute to dispatch traffic only after the silent alarm sequence is completed. No tones will be sounded. The default is Disabled.

Channel Revert

This field will be visible only if the Emergency field on this screen is set to Enabled. Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, emergency channel revert mode operation will be enabled in the radio.

This mode of operation will cause the radio to change from the selected channel to the specified Revert channel when the Emergency button is pressed. After the Emergency message is transmitted and the Acknowledgment is received, the radio will return to the selected channel.

> **Note:** *The MDC/STAR/ATIS Decode field on the CHANNEL CONFIGURATION screen (**F4/F4**) must be set to Enabled in order for the radio to be able to decode the Emergency Ack that is generated from the MDC fixed equipment.* This feature needs to be enabled only on the Emergency Revert channel and only when Emergency Revert is in use.

The default is Disabled.

Priority Revert Channel

This field will be visible only if the Emergency field on this screen is set to Enabled. Use the UP/DOWN arrow keys to make your selection or enter the desired number directly for the channel to be used for emergency transmission when Channel Revert mode is enabled.

The valid range of channels is 1 through the maximum number of channels allowed in the radio. Only channels marked as "Programmed" in the CHANNEL CONFIGURATION screen (**F4/F4**) will be displayed as possible selections.

The default is 1.

> ***Note:*** *If an Advantage™ Board is installed in the radio and the Emergency button (orange top button) is functionally used by the Advantage Board, that button must be set to "Blank" to prevent dual usage.*

Repeater Access Configuration

From the MAIN MENU, press **F4, F3, F7, F3** and then **F2** to access this screen.


```
MOTOROLA Radio Service Software          Use ↑↓ keys to enable/disable feature
HT/JT1000/VISAR   Model :                Use <Enter> to go to next feature.
                  Serial:
CHANGE:RADIO:SIG:MDC:RAT ID

                        Repeater Access Configuration
                        -----------------------------

  Accept Alert.............Enabled     Code 1.............FFF0
                                       Code 2.............FFF1
  Silent Pretime (ms).....510          Code 3.............FFF2
                                       Code 4.............FFF3
                                       Code 5.............FFF4
                                       Code 6.............FFF5
                                       Code 7.............FFF6
                                       Code 8.............FFF7

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                                   EXIT
```

*This screen CANNOT be accessed for JT1000 model radios. For other models, this screen can be accessed only when the Signalling Type field on the MDC CONFIGURATION (**F4/F3/F7/F3**) screen is set to MDC1200.* It may also be accessed by selecting MDC1200 in the Signalling Type field and pressing **F2** in the STAR CONFIGURATION screen (**F4/F3/F7/F3**).

Function Key Descriptions

F5 - PRINT — Prints the current system configuration.

Field Definitions

Accept Alert

Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, the RAT accept tone will be generated when the RAT button is pressed.

The default is Enabled.

Silent Pretime (ms)

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. The setting in this field determines the duration of Repeater Access Pretime which can range from 0 to 2550 ms in 10-ms increments.

The default is 510 ms.

RAT Codes (1 - 8)

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. Each code (consisting of four-character hexadecimal values, 0000-FFFF) represents the 16-bit ID of the Repeater to be selected.

The defaults are FFF0 through FFF7.

MDC Options

From the MAIN MENU, press **F4, F3, F7** and then **F3** twice to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to adjust value.
HT/JT1000/VISAR   Model :                Use <Enter> key to go to next feature
                  Serial:
CHANGE:RADIO:SIG:MDC:OPT

                                  MDC Options
                                  -----------

 Bit Sync Packets.................  0  LTD Patience Duration (sec).........4
 Pretime (ms).....................500
 Interseq Delay Period (ms).........60  DOS Criteria............1200_and_1800
                                       DOS Coast Time (ms).................40
 Number of Polites...................5
 Number of Impolites................15  Auto Timed Mute Duration (ms).....550

 Ack Delay Duration (ms)...........500  Mandown Pre-Alert Delay (sec).......5
 Emerg Long Press Period (sec).......5  Mandown Post-Alert Delay (sec)......5
 Open MIC Duration (sec)......Disabled

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                           DEFAULT  EXIT
```

*This screen CANNOT be accessed for JT1000 model radios. For other models, this screen can be accessed only when the Signalling Type field on the MDC CONFIGURATION (**F4/F3/F7/F3**) screen is set to MDC1200. From* this screen, you can configure various timers and counters specific to MDC signalling.

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Bit Sync Packets

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the number of synchronization packets that will be sent during the specified pretime. Each packet takes 46.67 milliseconds to be sent. Therefore, the number of packets will be adjusted to fit within the pretime duration. The remaining pretime will be silent. Bit Sync during pretime may be an advantage in some systems in that it will cause radios receiving the repeated transmission to DOS Mute sooner.

The default is 0 (that is, no bit sync).

Pretime (ms)

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. Pretime is the period of time between transmitter key-up and the first bit of a data transmission during which the carrier may be modulated or unmodulated.

In the case of MDC transmissions, the default is unmodulated, but the carrier can be modulated if Bit Sync Packets are added as explained above. In case of STAR and ATIS transmissions, the carrier is unmodulated during pretime. The pretime period allows the receiving unit to stabilize so data can be recovered. The duration of the pretime can be set from 0 and 2550 ms in 10-ms increments.

The default is 500 ms.

Interseq Delay Period (ms)

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This field is used to customize the length of time between MDC data packets that are part of the same message. The valid range is 0 to 2550 ms in 10-ms increments.

The default is 60 ms.

Number of Polites

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the number of times the radio will attempt to transmit an MDC emergency message in “polite” fashion. A polite attempt is one where the radio transmits only when no one else is transmitting on that channel. Valid settings range from 0 to 254 in increments of 1. The number of polites can also be set to 255 (Infinite) in which case the radio will stop transmitting only when an acknowledgment is received, or the battery runs down, or the radio is powered off.

The default is 5.

Number of Impolites

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the number of times the radio will transmit in an “impolite” fashion. An impolite transmission is one where the radio transmits regardless of whether or not anyone else is currently transmitting on the channel. The radio resorts to impolite transmissions only if the following conditions are met:

- Polite transmissions have been exhausted without an acknowledgment; or
- The Limited Patience time has expired on a polite transmission.

Valid settings range from 0 to 254 in increments of 1. The number of impolites can also be set to 255 (Infinite) in which case the radio will only stop transmitting when an acknowledgment is received, or the battery runs down, or the radio is powered off.

The default is 15.

Ack Delay Duration (ms)

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the silent pretime duration that will be used when encoding an MDC Acknowledgment. This delay will typically be the same as the MDC Pretime. Valid settings range from 0 to 2550 ms in 10-ms increments.

The default is 500 ms.

Emer Long Press Period (sec)

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the length of time (in seconds) that the Emergency button must be held down in order to terminate Emergency mode. Terminating emergency will cancel any remaining emergency message retries and will remove the radio from the unconditionally muted state in the case of silent emergency. Valid settings range from one to 16 seconds in one-second increments.

The default is 5 seconds.

Open MIC Duration (sec)

This feature is limited to HT 1000 "B" models and VISAR models with firmware version 2.06 or later. If this field is enabled on a radio having an earlier version firmware, it will have no effect.

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This field allows you to specify the time period for which the radio will stay keyed when the MDC Emergency Open MIC feature is active. The Open MIC feature takes control after the MDC Emergency message has been transmitted and acknowledged. At this time, the radio will key up and transmit ambient audio for a period of time specified in this field. The time period can be set from 20 to 140 seconds in 20-second increments. This field can also be set to Disabled in which case the Open MIC feature will be disabled. Open MIC can be used either with the regular Emergency button or the Mandown Accessory Switch.

The default is Disabled.

LTD Patience Duration (sec)

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. When a polite transmission is first initiated, the Limited Patience Timer will be initiated. Before this timer expires, the transmission will be sent out in the "polite" fashion. After the Limited Patience Timer expires, the transmission will be sent out in "impolite" fashion until acknowledged, or until all retries have been exhausted. This timer may be set from one to 127 seconds in one-second increments, and can also be set to Disabled.

The default is 4 seconds.

DOS Criteria

Use the UP/DOWN arrow keys to make your selection. The Data Operated Squelch (DOS) criteria allows the user to select whether the DOS detect algorithm considers 1200 Hz or 1800 Hz alone to be a valid data detect, or whether both 1200 Hz and 1800 Hz are required.

> **Note:** A setting of 1200 Hz_and_1800 Hz in this field will tend to minimize falsing on voice or noise.

The default is 1200_and_1800.

DOS Coast Time (ms)

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. When an MDC signal is detected and then lost, the radio will not immediately unmute for voice. A time delay specified in this field will be executed first. During this delay period, if the MDC signal is detected again, the radio will remain muted and this timer will be terminated and reset. This timer will help prevent temporary loss of DOS mute in areas of poor signal strength or high multi-path distortion. The valid range is 0 (zero) to 500 ms in 10-ms increments.

> **Note:** Setting this field to 0 (zero) implies that the timer has been Disabled.

The default is 40 ms.

Auto Timed Mute Duration (ms)

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the time period for which the radio will be muted automatically after Carrier Detect on an MDC decode channel. *This timer is necessary since MDC data cannot be detected instantaneously, and the DOS mute function operating without this timer will usually allow a small "squeak" of data to be heard through the speaker.*

This timer should be set to as low a value as possible while still muting the entire MDC transmission. When this timer is set to a non-zero value, DOS Mute will automatically be enabled. When it is set to 0 (zero), DOS Mute will automatically be disabled. The range is 10 to 2550 ms in 10-ms increments. A setting of Disabled is also available.

The default is 550 ms.

Mandown Pre-Alert Delay (sec)

This field is applicable to HT 1000 model radios only and require that the radio be equipped with the appropriate Mandown Switch accessory. Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the time delay between closure of the Mandown Switch and initiation of the Mandown Alert Tone which can be set from 0 (zero) to 8 seconds in one-second increments.

> **Note:** Mandown delays can be used if you want to allow the radio user to correct an accidental tipping or fall of the radio.

The default is 5 seconds.

Mandown Post-Alert Delay (sec)

This field is applicable to HT 1000 model radios only and require that the radio be equipped with the appropriate Mandown Switch accessory. Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the time delay between the initiation of the Mandown Alert Tone and the actual transmission of the emergency alarm sequence. This delay can be set from 0 (zero) to 8 seconds in one-second increments.

> **Note:** Mandown delays can be used if you want to allow the radio user to correct an accidental tipping or fall of the radio.

The default is 5 seconds.

STAR Configuration

From the MAIN MENU, press **F4, F3, F7** and then **F3** to access this screen.

```
MOTOROLA Radio Service Software                 Use ↑↓ keys to enable/disable feature.
HT/JT1000/VISAR   Model :                       Use <Enter> to go to next feature.
                  Serial:
CHANGE:RADIO:SIG:STAR CONFIG

                                STAR Configuration
                                ------------------

 Signalling Type.................STAR  Emergency...................Enabled
 Addressing Mode.............Portable    Emergency Tx Light.........Enabled
 PTT ID Code.....................2034    Emergency Alert............Enabled
 Baud Rate..............800 bits/sec    Emergency Ack Alert.........Enabled
 PL Transmit..................Enabled    Silent Emergency...........Disabled
 PTT ID.........................None    Silent Emer w/ Voice.......Disabled
 PTT Sidetone.................Enabled    Channel Revert.............. Enabled
 Emergency Sidetone...........Disabled      Priority Revert Channel.........1
 Auto Timed Mute Duration (ms).....550

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP            STAR            PRINT                           DEFAULT  EXIT
              OPTIONS
```

This screen CANNOT be accessed for JT1000 model radios. From this screen, you can configure GE STAR signalling options.

Function Key Descriptions

F3 - STAR OPTIONS

Brings up a screen from which you can configure additional GE STAR signalling options. *This screen CANNOT be accessed for JT1000 model radios.*

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Signalling Type

Use the UP/DOWN arrow keys to select the signalling type: MDC1200, STAR (GE STAR) or ATIS. Once the signalling type is set, the RSS will update the screen to reflect the appropriate options.

The default is MDC1200.

Addressing Mode

Use the UP/DOWN arrow keys to make your selection. The STAR Addressing Mode can be set to Extended or Portable. For Extended mode addressing, the Unit ID range is 0001 to 9999 (decimal) and for Portable mode addressing, the Unit ID range is 0001 to 2047 (decimal).

The default is Portable.

PTT ID Code

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This field allows you to set the ID Code that is transmitted with PTT-ID and Emergency messages. *Its range depends on the addressing mode.*

The default is 2034.

Baud Rate	Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. The baud rate can be set at 400 bits per second or 800 bits per second when in the Signalling Type field on this screen is set to STAR. The default is 800 bits/sec.
PL Transmit	Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, the PL signal will be transmitted during the transmission of RAT, Emergency, or auto-acknowledgment on a PL channel. *Encoding of PL during the transmission of PTT-ID is not controlled by this field but is always enabled on a PL encoded channel.* When this option is Disabled, the PL signal will not be transmitted during STAR transmissions, except for the PTT-ID transmission. *A valid PL must be selected on the channel for this option to be applicable.* The default is Enabled.
PTT-ID	Use the UP/DOWN arrow keys to select None, Dekey, Keyup or Keyup/Dekey. These choices specify when your radio transmits its ID number relative to the transmission of a voice message. *STAR PTT-ID is incompatible with any other type of PTT-ID signalling, such as DTMF ANI. Only one of these functions can be enabled at any given time.* The default is None.
PTT Sidetone	Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, a sidetone will be generated during encoding of a Stat-Alert PTT-ID and a STAR PTT-ID. If the PTT-ID selection is set to “Dekey”, the PTT Sidetone will be automatically disabled. The default is Enabled.
Emergency Sidetone	Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, a sidetone will be generated during the encoding of STAR Emergency ID. The default is Disabled.
Auto Timed Mute Duration	Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the time duration for which the radio will be muted automatically after Carrier Detect on an STAR Decode channel. *This timer is necessary since STAR data cannot be detected instantaneously, and the DOS mute function operating without this timer will usually allow a small “squeak” of data to be heard through the speaker.* This timer should be set to as low a value as possible while still muting the entire STAR transmission. When this timer is set to a non-zero value, DOS Mute will automatically be enabled. When it is set to 0 (zero), DOS Mute will automatically be disabled. The range is 10 to 2550 ms in 10-ms increments. A setting of Disabled is also available. The default is 550 ms.

Emergency	Use the UP/DOWN arrow keys to enable/disable this option. *If this feature is enabled, the other fields pertaining to Emergency operation will appear on the screen and you will be able to enable/disable them*. These are Emergency Tx Light, Emergency Alert, Emergency Ack Alert, Silent Emergency, Silent Emergency with Voice, and Channel Revert. The default is Disabled.
Emergency Tx Light	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, the LED will light up on transmission of an emergency message. The default is Enabled.
Emergency Alert	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, an alert tone will be generated when the radio's Emergency switch is pressed and the radio is in a Non-Silent Emergency mode. The default is Enabled.
Emergency Ack Alert	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, an alert will generated when a STAR emergency alarm acknowledgment is received. The default is Enabled.
Silent Emergency	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, both audio and visual feedback from the radio will be inhibited during an emergency silent alarm. The default is Disabled.
Silent Emergency w/Voice	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, the radio will unmute audio after the Silent Alarm sequence is completed. The default is Disabled.
Channel Revert	*This field will be visible only if the Emergency field on this screen is set to Enabled.* Use the UP/DOWN arrow keys to enable/disable this option. If this feature is enabled, Emergency operating Channel Revert mode will be enabled/disabled in the radio. This mode of operation will cause the radio to change from the selected channel to the specified Revert channel when the radio's Emergency button is pressed. After the Emergency message is transmitted and an Acknowledgment is received, the radio will return to the selected channel. The default is Disabled.

Priority Revert Channel

This field will be visible only if the Channel Revert field is set to Enabled. Enter a channel number directly or use the UP/DOWN arrow keys to specify the number of the channel to be used for emergency transmission when the Emergency Channel Revert mode is enabled. The valid range of channels is 1 *through the maximum channel allowed in the radio. Only channels which are marked as "Programmed" in the CHANNEL CONFIGURATION screen (**F4/F4**) will be displayed as possible selections*.

The default is 1.

STAR Options

From the MAIN MENU, press **F4, F3, F7** and then **F3** twice to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to scroll value.
HT/JT1000/VISAR   Model :                Use <Enter> to go to next feature.
                  Serial:
CHANGE:RADIO:SIG:STAR:OPT

                                STAR Options
                                ------------

                        Pretime (ms)..................  500

                        Number of Impolites.....15

                        Emerg Long Press Period (sec)...5

                        Mandown Pre-Alert Delay (sec)...5

                        Mandown Post-Alert Delay (sec)..5

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                           DEFAULT  EXIT
```

This screen CANNOT be accessed for JT1000 model radios. From this screen, you can configure additional GE STAR signalling options.

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Pretime

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. Pretime is the period of time between transmitter key-up and the first bit of a data transmission during which the transmitted carrier may be modulated or unmodulated. *In the case of STAR data, the carrier is unmodulated.* This pretime period allows the receiving unit to stabilize so the data can be recovered. The duration of pretime can be set from 0 (zero) and 2550 ms in 10-ms increments.

The default is 500 ms.

Number of Impolites

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the number of times the radio will transmit in an “impolite” fashion. An impolite transmission is one where the radio transmits regardless of whether or not anyone else is currently transmitting on the same channel. This number can range from 0 (zero) to 254 in increments of 1. A value of Infinite is also available in which case the radio will continue to transmit until an acknowledgment is received, the battery runs down, or the radio is powered off.

The default is 15.

Emer Long Press Period (sec)	Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the length of time (in seconds) that the radio's Emergency button must be held down in order to terminate the Emergency mode. Terminating Emergency will cancel any remaining Emergency message retries and remove the radio from the unconditionally muted state in the case of Silent Emergency. The valid range is one to 16 seconds in one-second increments. The default is 5 seconds.
Mandown Pre-Alert Delay (sec)	*This field will not be visible for VISAR models.* Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the time delay between closure of the mandown switch and initiation of the mandown alert tone. The valid range is 0 (zero) to 8 seconds in one-second increments. The default is 5 seconds.
Mandown Post-Alert Delay (sec)	*This field will not be visible for VISAR models.* Enter the desired value directly or use the UP/DOWN arrow keys to make your selection. This is the time delay between the mandown alert tone and the actual transmission of the emergency alarm sequence. The valid range is 0 (zero) to 8 seconds in one-second increments. The default is 5 seconds.

ATIS Configuration

From the MAIN MENU, press **F4, F3, F7** and then **F3** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to adjust value.
HT/JT1000/VISAR   Model :                Use <Enter> key to go to next feature.
                  Serial:
CHANGE:RADIO:SIG:ATIS CONFIG

                              ATIS Configuration
                              ------------------

 Signalling Type..............ATIS     PTT-ID Pretime (ms).................20
 PTT ID Transmission..........Enabled  PTT ID Bit Sync.....................4
 PTT ID...................102006015996
 PTT ID Sidetone..............Enabled  Auto-Timed Mute Duration (ms).....550
                                      DOS Criteria............1200_and_1800
 Kani Group Call Encode.......Disabled DOS Coast Time (ms)..............100
 Select Call LED..............Enabled
 Call Alert LED...............Enabled ATIS Initiator ID.............G00-I01
 Paging Initiation............Disabled ATIS Destination ID...........G00-I00
 Paging Cancel................Disabled ATIS User Code.....................0
 Select Call..................Disabled ATIS Status........................0
 Group Unmute.................Disabled

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                             PRINT                           DEFAULT  EXIT
```

This screen cannot be accessed for JT1000 model radios. Brings up a screen from which you can configure ATIS signalling options.

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Signalling Type

Use the UP/DOWN arrow keys to select the signalling type. The signalling type may be set to one of the following: MDC1200, STAR or ATIS. *Once the signalling type is set, the screen will reflect the applicable options.*

PTT ID Transmission

Use the UP/DOWN arrow keys to enable/disable transmission of the ATIS PTT-ID code.

The default is Enabled.

PTT ID

Enter the desired value directly or use the UP/DOWN arrow keys to make your selection for the ATIS Unit ID. This ID will be transmitted along with every radio transmission. The digits of the ID are assigned as follows:

Digits 1 to 3	Frequency code VHF = 101 UHF = 102
Digits 4 to 6	Manufacturer code: MOTOROLA = 006
Digits 7 to 12	Unit ID (Numeric digits only)

PTT ID Sidetone

Use the UP/DOWN arrow keys to enable or disable this feature. If this field is enabled, a sidetone will be generated during encoding of a Stat-Alert PTT-ID and a STAR PTT-ID.

The default is Enabled.

Kani Group Call Encode

Use the UP/DOWN arrow keys to enable or disable this feature. If this field is enabled, the ATIS Kani Group Call portion of the ATIS signalling data will be encoded. If this field is disabled, the ATIS Kani Group Call portion of the data packet will be omitted from the transmission. This portion of the data packet helps to prevent voice falsing in congested RF environments by requiring Kani Group numbers to match as well as requiring correct squelch coding before the radio will unmute to channel traffic.

The default is Disabled.

Select Call LED

Use the UP/DOWN arrow keys to enable or disable this field. When this feature is enabled, the green LED (*located on top of an HT 1000 radio or the front of a VISAR radio*) will flash when a Select Call is received. The LED will flash for the entire length of the message. This field controls the LED for Quik-Call II, MDC, and ATIS Select Call.

The default is Enabled.

Call Alert LED

Use the UP/DOWN arrow keys to enable or disable this field. When this field is enabled, the green LED (*located on top of an HT 1000 radio or the front of a VISAR radio*) will flash when a Call Alert is received. The LED will flash until the alert tones terminate. This field controls the LED for Quik-Call II, MDC, and ATIS Select Call.

The default is Enabled.

Paging Initiation

Paging Initiation is mutually exclusive with Paging Cancel and Select Call. If Paging Initiation is enabled, these other fields will be disabled. Use the UP/DOWN arrow keys to enable or disable this field. If this option is enabled and an ATIS transmission is sent with Paging Initiation enabled, the destination radio will generate Call Alert beeps if the radio ID matches.

The default is Disabled.

Paging Cancel

Paging Cancel is mutually exclusive with Paging Initiation and Select Call. If Paging Cancel is enabled, these other fields will be disabled. Use the UP/DOWN arrow keys to enable or disable this field. If this option is enabled and an ATIS transmission is sent with Paging Cancel enabled, the destination radio will stop Call Alert beeps if the radio ID matches.

The default is Disabled.

Select Call	*Select Call is mutually exclusive with Paging Initiation and Paging Cancel. If Select Call is enabled, these other fields will be disabled.* Use the UP/DOWN arrow keys to enable or disable this field. If this option is enabled and an ATIS transmission is sent with Select Call enabled, the destination radio will generate Select Call beeps if the radio ID matches. The default is Disabled.
Group Unmute	Use the UP/DOWN arrow keys to enable or disable this field. If this field is enabled and an ATIS signal is received in which the Destination Group ID in the message matches the Initiator Group ID in the receiving radio, the radio will unmute to this message even if the Individual IDs do not match. If Group Unmute is disabled, the receiving radio will unmute/mute based on the Destination Group and Individual ID decoded. The default is Disabled.
PTT-ID Pretime	Enter a value directly or use the UP/DOWN arrow keys to make your selection for the time period that Silent Carrier is transmitted before the ID data is sent. This pretime will allow the receiving unit to stabilize before decoding the ID data. The range of valid values is 0 (zero) to 2550 ms in 10-ms increments. The default is 20 ms.
PTT ID Bit Sync	Enter a value directly or use the UP/DOWN arrow keys to make your selection for the number of bytes of sync pattern to be transmitted after pretime and before the transmission of actual ATIS Unit ID data. This sync pattern allows the receiving unit to synchronize its decoding algorithm with the transmitting unit. The range is 3 bytes to 255 bytes in increments of 1 byte. The default is 4 bytes (32 bits).
Auto-Timed Mute Duration (ms)	Enter a value directly or use the UP/DOWN arrow keys to make your selection for the period of time during which audio will be muted automatically after carrier detection on a channel where signalling decode is enabled on the CHANNEL CONFIGURATION screen (**F4/F4**). *This timer is useful since digital data cannot be detected instantaneously, and the DOS Mute function operating without this timer will allow a small "squeak" of data to be heard through the speaker.* This timer should be set to as low a value as possible while still muting the entire data transmission. A good value to start with is the Pretime value plus 50 ms. When Auto-Timed Mute Duration is set to a non-zero value, DOS Mute will be automatically enabled. The range of valid values is 10 ms to 2550 ms in 10-ms increments. A value of Disabled is also available. The default is 550 ms.

DOS Criteria

Use the UP/DOWN arrow keys to make your selection. The Data Operated Squelch (DOS) criteria allows the user to select whether the DOS detect algorithm considers 1200 Hz or 1800 Hz alone to be a valid data detect, or whether both 1200 Hz and 1800 Hz are required.

> **Note:** Setting the DOS Criteria to 1200 Hz and 1800 Hz tends to minimize falsing on voice or noise.

The default is 1200_and_1800.

DOS Coast Time (ms)

Enter a value directly or use the UP/DOWN arrow keys to make your selection. When a data signal is detected and then lost, the radio will not immediately unmute for voice. A time delay specified in this field will be executed first. During this delay period, if the data signal is detected again, the radio will remain muted and this timer will stop and be reset. The range of valid values is 0 (zero) to 500 ms, in five-ms increments. When this field is set to 0 (zero) , DOS is disabled.

> **Note:** This timer helps prevent temporary loss of DOS Mute in areas of poor signal strength or high multi-path distortion.

The default is 100 ms.

ATIS Initiator ID

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This field consists of the Group ID and the Individual ID. The Group ID ranges from 0 (zero) to 15, and the Individual ID ranges from 1 to 99. These IDs are used when a subscriber unit initiates Group or Individual calls.

The default is 0 (zero) for Group ID, and 1 for Individual ID.

ATIS Destination ID

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This field consists of the Group ID and the Individual ID. The Group ID ranges from 0 (zero) to 15, and the Individual ID ranges from 0 (zero) to 99. These IDs are used to determine whether there is an ID match when a subscriber unit decodes ATIS Group or Individual calls.

The default is 0 (zero) for Group ID, 0 for Individual ID.

ATIS User Code

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This field is used to distinguish groups of users. If two radios are programmed with the same channel frequency, ATIS Initiator ID (Group and Individual), and PL tone, but are used by two different people, the ATIS User Code is used to differentiate the two radios. The user code can range from 0 (zero) to 3.

The default is 0 (zero).

ATIS Status

This field is reserved for future use.

Singletone Options (*JT1000, VISAR and HT 1000 "B" or Later Models only*)

From the MAIN MENU, press **F4, F3, F7,** and then **F4** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to scroll value.
HT/JT1000/VISAR   Model :                Use <Enter> to go to next feature.
                  Serial:
CHANGE:RADIO:SIG:SINGLETONE

                              SINGLETONE OPTIONS
                              ------------------

              Singletone #1                          Singletone #2

 Frequency..................... 299   Hz   Frequency.............3011   Hz


 Duration.....................1056 ms     Side button accept tone...Disabled
 Singletone TX Pretime.........250 ms
 Singletone Sidetone............Enabled

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                              PRINT                           DEFAULT  EXIT
```

This function is applicable to VISAR, HT 1000 "B", and JT1000 models only. From this screen, you can configure Single Tone options.

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Frequency

Enter a value directly or use the UP/DOWN arrow keys to make your selection. The two frequency fields specify the tone frequencies for Singletone #1 and Singletone #2. The frequencies can range from 299 to 3011 Hz.

When you enter a frequency or scroll to a new value and exit the screen, the value may change by a few Hz when you return to this screen. This is because the frequency is encoded and then decoded when you exit and re-enter the screen. The frequency displayed is the nearest encodable frequency to the frequency entered, and will not differ from the frequency entered by more than 0.5% except at the upper end of the frequency range, where it may vary as much as 1.0%. *These are the only fields which apply individually to the two Single Tones.*

Singletone Duration

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the time duration of the Single Tone transmission. The time can range from 132 ms to 33000 ms in 132-ms increments.

The default is 1056.

Singletone TX Pretime

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the time period preceding the transmission of the Single Tone during which silent carrier or carrier with PL (if on a PL channel) is transmitted. This time can range from 0 (zero) to 6375 ms in 25-ms increments.

The default is 250.

Singletone Sidetone

This sidetone applies to Single Tone encode via PTT only. Use the UP/DOWN arrow keys to enable/disable the sidetone feedback during Single Tone encode. The sidetone is a 900 Hz tone which lasts for the duration of the transmitted Single Tone.

The default is Enabled.

Side button accept tone

Use the UP/DOWN arrow keys to enable/disable the Accept Tone that is generated as feedback to the user when a Single Tone is encoded via a side button. The accept tone is a 900 Hz, 75 ms tone.

The default is Disabled.

> ***Note:*** *In order for Single Tones to operate properly, they must be enabled for each channel on the CHANNEL CONFIGURATION screen (**F4/F4/F2**). If Single Tone on a side button is desired, the side button must be assigned on the SIDE BUTTON CONFIGURATION screen (**F4/F3/F3**).*

DTMF Phone List (*JT1000 and VISAR Models only)*

From the MAIN MENU, press **F4, F3, F7**, and then **F5** to access this screen.

```
MOTOROLA Radio Service Software          Use edit keys to modify entry.
HT/JT1000/VISAR   Model :                Use <Enter> to go to next feature.
                  Serial:
CHANGE:RADIO:SIG:DTMF

                                DTMF PHONE LIST
                                ---------------




 DTMF Tx Pre-Time.......... 250 ms     DTMF Access Code.............8888
 DTMF Digit Duration.....152.44 ms     DTMF De-Access Code...........9999
 DTMF Inter-Digit Delay..103.00 ms

  F1      F2       F3       F4       F5       F6       F7       F8       F9       F10
 HELP    DTMF                       PRINT                              DEFAULT   EXIT
        CONFIG
```

This screen can be accessed only for models with DTMF keypads. Brings up a screen from which you can configure DTMF options.

Function Key Descriptions

F2 - DTMF CONFIG — *This function will be visible only for VISAR models.* Brings up a screen from which you can configure additional DTMF options.

F5 - PRINT — Prints the current system configuration.

F9 - DEFAULT — Resets the fields on this screen to their default values.

Field Definitions

DTMF Tx Pre-Time — Enter a value directly or use the UP/DOWN arrow keys to make your selection. The is the time period that carrier or carrier with PL (if on a PL channel) will be sent before the first DTMF digit is transmitted. The value is expressed as a multiple of 25 ms, ranging from 25 ms to 6.375 seconds.

The default is 250 ms.

DTMF Digit Duration — Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the actual time duration for which DTMF tones are transmitted on the channel for a single digit during auto-dial, or manual dial if a timed tone duration is selected. The valid range is 4.12 to 1050.6 ms in 4.12-ms increments. *A value of zero is NOT allowed.*

The default is 152.44 ms.

DTMF Inter-Digit Delay

Enter a value directly or use the UP/DOWN arrow keys to make your selection. The time period that carrier or carrier with PL (if on a PL channel) will be transmitted between DTMF digits during auto dial. The valid range is 4.12 to 1050.6 ms in 4.12-ms increments. *A value of zero is not allowed.*

The default is 103 ms.

DTMF Access Code

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the code used to access fixed end telephone interconnect equipment. Some conventional interconnect systems require a "*" to access the telephone line. Other systems require a multi-digit access code which consists of one to four digits and may or may not contain a "*". Multi-digit access codes are used to prevent unauthorized access to the telephone interconnect system.

DTMF De-Access Code

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the code that causes the telephone interconnect equipment to release the phone connection. It may contain any legal DTMF digit. Release codes are used to improve system loading by eliminating dead air time after interconnect calls are completed.

DTMF Configuration List (***VISAR Models with Keypad only***)

From the MAIN MENU, press **F4, F3, F7, F5** and then **F2** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to enable/disable feature.
HT/JT1000/VISAR  Model : H05RDD9AA7AN    Use <Enter> to go to next feature.
                 Serial:
CHANGE:RADIO:SIG:DTMF:CONFIG

                              DTMF CONFIGURATION
                              ------------------

 Access/De-Access Type.........Automatic   DTMF Pre-Emphasis........Enabled
 DTMF Tone Type...............Continuous   DTMF Sidetone Type.....DTMF Tone
                                          DTMF Hot Keypad.........Disabled

 DTMF ANI Type.....................None
 DTMF ANI Code.................12345678

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                              PRINT                           DEFAULT  EXIT
```

This screen can be accessed only for VISAR models with keypads. Brings up a screen from which you can configure additional DTMF options.

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

F9 - DEFAULT

Resets the fields on this screen to their default values.

Field Definitions

Access/De-Access Type

Use the UP/DOWN arrow keys to make your selection. This field is used to specify whether the radio's Telephone Interconnect access is automatic or manual. If set to Automatic, the radio will automatically send the pre-programmed access code when the radio's Phone button is pressed, and will automatically send the pre-programmed de-access code when the Phone button is pressed to hang up. If set to Manual, the access/de-access codes must be keyed in manually.

DTMF Tone Type

Use the UP/DOWN arrow keys to make your selection. The setting in this field determines whether the DTMF tones transmitted are Continuous or Timed in a manual dial situation.

Continuous	Transmitted as long as the key is held down.
Timed	Transmitted for the length of time specified by the DTMF Digit Duration field on the DTMF PHONE LIST screen (**F4/F3/F7/F5**).

DTMF ANI (Automatic Number Identification) Type

Use the UP/DOWN arrow keys to make your selection. DTMF ANI is a PTT-ID function implemented with DTMF tones. It is available on a channel-by-channel basis, that is, *the PTT-ID field on the CHANNEL CONFIGURATION screen (**F4/F4**) must be enabled for the desired channel*. But it cannot be mixed with any other type of PTT-ID function (MDC or STAR PTT-ID, or Single Tone on PTT) on separate channels. The settings available for this field are:

Key up	ANI code is transmitted when PTT is pressed. User must wait until ANI code is transmitted before speaking.
Dekey	ANI code is transmitted when PTT is released.
Key up/Dekey	ANI code is transmitted upon PTT press and again upon PTT release.
None	DTMF ANI disabled.

DTMF ANI Code

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This field is used to specify the DTMF digits that will be transmitted when DTMF ANI is selected. The code can be a maximum of eight DTMF digits. Any DTMF digit can be used (0 - 9, *, and #).

DTMF Pre-Emphasis

Use the UP/DOWN arrow keys to enable/disable the use of the pre-emphasis circuitry for the encoded DTMF tones.

DTMF Sidetone Type

Use the UP/DOWN arrow keys to make your selection. This field is used to specify the type of sidetone to be used during DTMF digit encode. *The type of sidetone allowed will depend on the setting in the DTMF Tone Type field on this screen and the type of dialing (manual or automatic) used*. The table below summarizes the type of sidetone that can be expected:

DTMF Sidetone Type	DTMF Tone Type	Sidetone for Manual Dial	Sidetone for Auto-dial
900 Hz	Continuous	900 Hz	900 Hz
DTMF Tones	Continuous	DTMF Tone	DTMF Tone
900 Hz	Timed	900 Hz	900 Hz
DTMF Tones	Timed	*Combination is not supported*	*Combination is not supported*

***Note:** When timed DTMF tones are used, DTMF sidetones are not possible. Therefore, the choices are limited by the RSS.*

DTMF Hot Keypad

This feature is limited to VISAR radios with firmware version 2.06 and later. If this field is enabled on a radio having an earlier version firmware, it will have no effect.

Use the UP/DOWN arrow keys to enable/disable this feature. When this feature is enabled, DTMF Digit transmission will be allowed without the use of a radio side button dedicated to the Phone function. When this field is enabled, the user only needs to press and hold the PTT button, and then press the desired keys on the keypad to transmit the corresponding DTMF digits.

Some of the features of the dedicated Phone mode will not be available when this method is used, however. Automatic transmission of access/de-access codes will not be possible, and the VISAR display will not show PH to indicate the dedicated Phone mode.

The default is Disabled.

DTMF Phone List (***HT 1000 "B" or Later Models only***)

From the MAIN MENU, press **F4, F3, F7,** and then **F5** to access this screen.

```
MOTOROLA Radio Service Software          Use edit keys to modify entry.
HT/JT1000/VISAR  Model : H01KDC9AA1DN    Use <Enter> to go to next feature.
                 Serial:
CHANGE:RADIO:SIG:DTMF

                                  DTMF PHONE LIST
                                  ---------------
 Phone #1...........                     Phone #5..........
 Phone #2...........                     Phone #6..........
 Phone #3...........                     Phone #7..........
 Phone #4...........                     Phone #8..........

 DTMF Tx Pre-Time...........250 ms     DTMF Access Code.............8888
 DTMF Digit Duration.....156.56 ms     DTMF De-Access Code...........9999
 DTMF Inter-Digit Delay..107.12 ms

  F1      F2       F3       F4       F5       F6       F7       F8       F9       F10
 HELP    DTMF                       PRINT                              DEFAULT   EXIT
        CONFIG
```

This screen will be accessible only for HT 1000 "B" models. From this screen, you can configure DTMF options.

Function Key Descriptions

F2 - DTMF CONFIG — Brings up a screen from which you can configure additional DTMF options.

F5 - PRINT — Prints the current system configuration.

F9 - DEFAULT — Resets the fields on this screen to their default values.

Field Definitions

Phone #1 - #8 — *Pre-stored phone numbers are features ONLY of the HT 1000 "B" and later models.* Enter the desired phone numbers. These fields allows storage of pre-programmed phone numbers in the radio which can be recalled from memory and auto-dialed. Legal values are any DTMF digit (0 through 9, # and *) or a pause. A pause is created by entering "P", and is represented on the screen by a P. The length of the pause is equal to the DTMF Digit Duration.

DTMF Tx Pre-Time (ms) — Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the time period that carrier or carrier with PL (if on a PL channel) is sent before the first DTMF digit is transmitted. The value is expressed as a multiple of 25 ms, ranging from 25 ms to 6.375 seconds.

The default is 250 ms.

DTMF Digit Duration (ms)

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the actual time that DTMF tones will be transmitted on the channel for a single digit during auto-dial, or manual dial if a timed tone duration is selected. The range is 4.12 to 1050.6 ms in 4.12-ms increments.

Note: *A value of zero is NOT allowed.*

The default is 152.44 ms.

DTMF Inter-Digit Delay (ms)

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the time period that carrier or carrier with PL (if on a PL channel) will be transmitted between DTMF digits during auto dial. The range is 4.12 to 1050.6 ms in 4.12-ms increments.

Note: *A value of zero is NOT allowed.*

The default is 103 ms.

DTMF Access Code

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the code used to access the fixed end telephone interconnect equipment. Some conventional interconnect systems require a "*" to access the telephone line. Other systems require a multi-digit access code which consists of one to four digits and may or may not contain a "*". Multi-digit access codes are used to prevent unauthorized access to the telephone interconnect system.

DTMF De-Access Code

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the code that causes the telephone interconnect equipment to release the phone connection. It may contain any legal DTMF digit. Release codes are used to improve system loading by eliminating dead air time after interconnect calls are completed.

DTMF Configuration (*HT 1000 “B” or Later and JT1000 Models only*)

From the MAIN MENU, press **F4, F3, F7, F5** and then **F2** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to enable/disable feature
HT/JT1000/VISAR  Model : H01KDC9AA1DN    Use <Enter> to go to next feature.
                 Serial:
CHANGE:RADIO:SIG:DTMF:CONFIG

                              DTMF CONFIGURATION
                              ------------------

 Access/De-Access Type.........Automatic   DTMF Pre-Emphasis........Enabled
 DTMF Tone Type...............Continuous   DTMF Sidetone Type.....DTMF Tone
 User Phone List Programming.....Enabled

 DTMF ANI Type.....................None
 DTMF ANI Code.................12345678

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                            PRINT                           DEFAULT  EXIT
```

This screen will be accessible only for HT 1000 “B” and JT1000 models. From this screen, you can configure additional DTMF options.

Function Key Descriptions

F5 - PRINT — Prints the current system configuration.

F9 - DEFAULT — Resets the fields on this screen to their default values.

Field Definitions

Access/De-Access Type — Use the UP/DOWN arrow keys to make your selection. This field is used to specify whether the radio’s Telephone Interconnect access is automatic or manual. If set to Automatic, the radio will automatically send the pre-programmed access code when the radio’s Phone button is pressed, and will automatically send the pre-programmed de-access code when the Phone button is pressed to hang up. If set to Manual, the access/de-access codes must be keyed in manually.

DTMF Tone Type — Use the UP/DOWN arrow keys to make your selection. The setting in this field determines whether the DTMF tones transmitted are Continuous or Timed in a manual dial situation.

Continuous	Transmitted as long as the key is held down.
Timed	Transmitted for the length of time specified by the DTMF Digit Duration field on the DTMF PHONE LIST screen (**F4/F3/F7/F5**).

User Phone List Programming

This feature is only available on HT 1000 "B" revision and later models. Use the UP/DOWN arrow keys to enable/disable the user's ability to modify entries in the pre-programmed phone number list from the keypad, that is, the entries in the Phone #1 through #8 fields on the DTMF PHONE LIST screen (**F4/F3/F7/F5**).

DTMF ANI (Automatic Number Identification) Type

Use the UP/DOWN arrow keys to make your selection. DTMF ANI is a PTT-ID function implemented with DTMF tones. It is available on a channel-by-channel basis, that is, *the PTT-ID field on the CHANNEL CONFIGURATION screen (**F4/F4**) must be enabled for the desired channel.* But it cannot be mixed with any other type of PTT-ID function (MDC or STAR PTT-ID, or Single Tone on PTT) on separate channels. The settings available for this field are:

Key up	ANI code is transmitted when PTT is pressed. User must wait until ANI code is transmitted before speaking.
Dekey	ANI code is transmitted when PTT is released.
Key up/Dekey	ANI code is transmitted upon PTT press and again upon PTT release.
None	DTMF ANI disabled.

DTMF ANI Code

Use the UP/DOWN arrow keys to specify the DTMF digits that will be transmitted when DTMF ANI is selected. The code can be a maximum of eight DTMF digits. Any DTMF digit can be used (0 - 9, *, #).

DTMF Pre-Emphasis

Use the UP/DOWN arrow keys to enable/disable the use of the pre-emphasis circuitry for the encoded DTMF tones.

DTMF Sidetone Type

Use the UP/DOWN arrow keys to make your selection. This field is used to specify the type of sidetone to be used during DTMF digit encode. *The type of sidetone allowed will depend on the setting in the DTMF Tone Type field on this screen and the type of dialing (manual or automatic) used.* The table below summarizes the type of sidetone that can be expected:

DTMF Sidetone Type	DTMF Tone Type	Sidetone for Manual Dial	Sidetone for Auto-dial
900 Hz	Continuous	900 Hz	900 Hz
DTMF Tones	Continuous	DTMF Tone	DTMF Tone
900 Hz	Timed	900 Hz	900 Hz
DTMF Tones	Timed	*Combination is not supported*	*Combination is not supported*

***Note:** When timed DTMF tones are used, DTMF sidetones are not possible, so the choices are limited by the RSS.*

Scan List

From the MAIN MENU, press **F4, F3** and then **F8** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to enable/disable feature.
HT/JT1000/VISAR   Model :                Use <Enter> to go to next feature.
                  Serial:
CHANGE:RADIO:SCAN LIST

                                   Scan List
                                   ---------

                1...........Disabled  9...........Disabled
                2...........Disabled  10..........Disabled
                3...........Disabled  11..........Disabled
                4...........Disabled  12..........Disabled
                5...........Disabled  13..........Disabled
                6...........Disabled  14..........Disabled
                7...........Disabled  15..........Disabled
                8...........Disabled  16..........Disabled

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP    SCAN                    PRINT                                   EXIT
        CONFIG
```

You can specify scan list entries from this screen.

Function Key Descriptions

F2 - SCAN CONFIG (Scan Configuration)

Brings up a screen where you can configure the radio's scan function.

F5 - PRINT

Prints the current system configuration.

Field Definitions

Scan List Entries

Use the UP/DOWN arrow keys to determine whether a channel is included (enabled) or excluded (disabled), from the scan list.

The default is Disabled.

> **Note:** *Only the number of channels appropriate for the particular model will be displayed*. If a channel is marked as "Unprogrammed" in the CHANNEL CONFIGURATION screen (**F4/F4**), it will be removed from the Scan List when you exit this screen. Be sure to set channels to "Programmed = Yes" before adding them to the scan list.

Scan Configuration

From the MAIN MENU, press **F4, F3, F8** and then **F2** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to adjust value.
HT/JT1000/VISAR   Model :                Use <Enter> key to go to next feature.
                  Serial:
CHANGE:RADIO:SCAN:CONFIG

                              Scan Configuration
                              ------------------

 Scan Type...................Priority  Scan Channel Lockout.........Disabled
 PL Scan.................Priority Chan  PL Defeat....................Disabled
 Priority Chan Unmute.........Enabled  Nuisance Delete..............Enabled
 Priority Chan Defin.............Fixed  Sel Chan Unmute..............Disabled
   Fixed Priority Chan...............1  Quik-Call II Scan.............Enabled
 Designated TX Chan...........Disabled  MDC Decode Scan...............Enabled
 Talkback Scan................Enabled    MDC Sel Call Scan...........Enabled
                                        TX/RX Hangtime (sec)................3

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP                              PRINT                                 EXIT
```

For this screen, you can configure several options relating to the scan feature such as scan type.

Function Key Descriptions

F5 - PRINT

Prints the current system configuration.

Field Definitions

Scan Type

Use the UP/DOWN arrow keys to select one of the following scan types:

Non-Priority Scan	The channels in the scan list will be scanned continuously.
Priority Scan	The priority channel is checked in between each non-priority channel. Example: If channel 4 is the priority channel in a list containing channels 1, 2, 3, and 4, the scan order is 1, 4, 2, 4, 3, 4.

PL Scan

Use the UP/DOWN arrow keys to select Disabled, Enabled, and Priority Channel.

Enabled	The scanner will only stop on the non-priority channels in the channel scan list coded with the proper PL or DPL, or the priority channel with carrier activity.
Priority Channel	The scanner will stop on both priority and non-priority channels only if the proper PL is detected.
Disabled	The scanner will stop on any channel in the scan list with carrier activity only.

The default is Priority channel.

Priority Channel Unmute

To enable this feature, Quik-Call Scan and MDC Decode must be enabled to permit scanning of Selective Call on a priority channel. When this feature is enabled, the unmuting logic of the MDC or Quik-Call II decode will be forced to be true on the priority channel.

The unmuting logic is only set if an activity has previously been detected on a non-priority channel. After that, detection of channel activity alone on the priority channel will cause the radio to lock on to the priority channel and drop the non-priority channel. This is to prevent an "audio hole" on a non-priority channel from annoying the user.

The default is Enabled.

> **Note:** *Make sure you consider if Selectable Channel Unmute would be more appropriate for a given situation*. Selectable Channel Unmute is less restrictive and will cause the radio to unmute to more traffic than Priority Channel Unmute.

Priority Channel Definition

Use the UP/DOWN arrow keys to make your selection. The setting in this field determines whether the priority channel is a certain fixed channel or priority follows the selected channel.

The default is Fixed.

Fixed Priority Channel

Use the UP/DOWN arrow keys to make your selection. The setting in this field is used as the priority channel when the priority channel definition is fixed. *Only channels marked as "Programmed" on the CHANNEL CONFIGURATION screen (**F4/F4**) will be shown as valid selections.*

The default is Channel 1.

Designated Tx Channel

Use the UP/DOWN arrow keys to enable/disable this feature. If this option is enabled and if the PTT or Monitor buttons are pressed at any time during scan, transmission or monitoring will occur on this channel. The valid range is 1 to 16, corresponding to channels 1 through 16 respectively. A value of Disabled is also available. *Only channels marked as "Programmed" on the CHANNEL CONFIGURATION screen (**F4/F4**) will be shown as valid selections.*

The default is Disabled.

Talkback Scan

Use the UP/DOWN arrow keys to enable/disable this feature. Talkback scan allows the radio user to “talkback” to a channel that the scanner has locked onto which is not the currently selected channel. If the PTT button is pressed at any time during scan, the channel the radio transmits (or monitors) on will depend on the current radio status as follows:

- Transmits on an active channel if the scanner is locked onto it.
- Transmits on the last active channel if Receive Hang time is in effect.
- Transmits on the channel which it last transmitted on if Transmit hang time is in effect.
- If no activity exists, transmission occurs on the current selected channel. Refer also to Designated Tx Channel on page 136.

The default is Enabled.

Active Channel Tone

This feature is limited to HT 1000 “B” models with firmware version 2.06 and later. If this field is enabled on a radio having an earlier version firmware, it will have no effect.

Use the UP/DOWN arrow keys to enable/disable this feature. If this option is enabled, an Active Channel Tone will be generated. This tone indicates to the user the last channel (to carry traffic) on which the radio unmuted. When the Channel Selector is cycled through the available channels, the tone will be sounded when the last active channel is accessed.

The default is Disabled.

Scan Channel Lockout

Use the UP/DOWN arrow keys to enable/disable this feature. If this option is enabled, the radio will lock out of the scan list any channel where carrier is being received but has the wrong PL or no PL. When the carrier drops, scanning for that channel will resume.

The default is Enabled.

PL Defeat

Use the UP/DOWN arrow keys to enable/disable this feature. If this option is enabled, holding the Monitor button for the preset amount of time during scan will place the radio in the Permanent Monitor mode (PL decode defeated). The state of the Permanent Monitor mode will always default to Carrier Squelch, and is independent from the noise squelch setting in the SIDE BUTTON CONFIGURATION screen (**F4/F3/F3**).

> **Note:** *This option is valid only when the radio is in the channel scanning mode.* For operation of PL defeat during non-scan mode, refer to the description of the SIDE BUTTON CONFIGURATION screen on page 83.

The default is Enabled.

Nuisance Delete

Use the UP/DOWN arrow keys to enable/disable this feature. If this option is enabled, the user will be able to temporarily delete a busy channel from the scan list while the radio is scanning. To delete a busy channel, the user will have to press Side Button 1 (blue button) while the radio is locked on the nuisance channel. The channel will be deleted from the list until scan is shut off. The channel will reappear in the list the next time scan is turned on.

The default is Enabled.

Selectable Channel Unmute

Use the UP/DOWN arrow keys to enable/disable this feature. If this option is enabled, the unmuting logic of the MDC or Quik-Call II decode will be forced to be true during scan for both priority and non-priority channels. Detection of carrier (and PL if enabled) alone will cause the radio to lock onto the channel. The normal decode function of the Quik-Call II or MDC will still be active on a locked-on channel and will generate an alert if a page is received.

> **Note:** *Be sure to consider if the use of the Priority Channel Unmute feature would be more appropriate for a given situation.* Priority Channel unmute is more restrictive and will cause the radio to unmute to less traffic than Selectable Channel Unmute.

The default is Disabled.

Quik-Call II Scan

Use the UP/DOWN arrow keys to enable/disable the scanning of Quik-Call on priority and non-priority channel if the Quik-Call II decode option is enabled on those channels *on the CHANNEL CONFIGURATION screen (**F4/F4**).*

The default is Enabled.

MDC Decode Scan

This feature is not available on JT1000 models. Use the UP/DOWN arrow keys to enable/disable this feature. If this option is enabled, the MDC decoder will be enabled on priority and non-priority channels during scan. *For this feature to work, MDC decode must be enabled on these channels on the CHANNEL CONFIGURATION screen (**F4/F4**).*

> ***Note:** This feature must be enabled if scanning of the MDC Selective Call decode option is required.*

The default is Enabled.

MDC Selective Call Scan

This feature is not available on JT1000 models. Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, the scanning of MDC Selective Call will be enabled on priority and non-priority channels *provided MDC decode is enabled in that channel on the CHANNEL CONFIGURATION screen (**F4/F4**).*

> ***Note:** MDC Decode Scan MUST be enabled if you want to use this feature.*

The default is Enabled.

Tx/Rx Hangtime (sec)

Enter a value directly or use the UP/DOWN arrow keys to make your selection. This is the period of time (in seconds) that the radio's scanner will wait on an active receive channel after loss of carrier, or immediately after transmitter de-key. The scanner will resume scanning if carrier is not detected within this time period. This timer can be set from 1 to 15 seconds in one-second increments.

The default is 3 seconds.

Channel Configuration

From the MAIN MENU, press **F4** twice to access this screen.

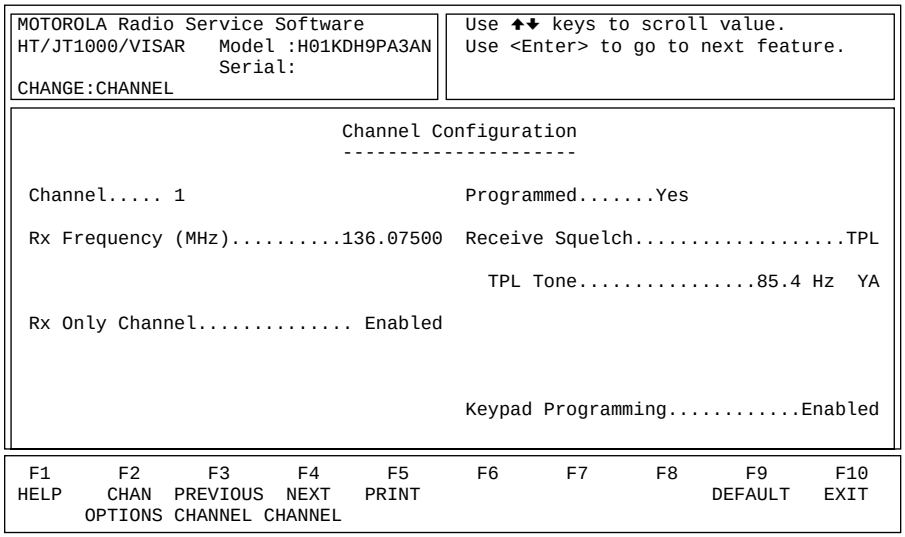
```
MOTOROLA Radio Service Software          Use ↑↓ keys to scroll value.
HT/JT1000/VISAR   Model :H01KDH9PA3AN    Use <Enter> to go to next feature.
                  Serial:
CHANGE:CHANNEL

                            Channel Configuration
                            ---------------------

 Channel..... 1                          Programmed.......Yes

 Rx Frequency (MHz).........136.02500    Receive Squelch..................TPL
 Tx Frequency (MHz).........136.02500
                                           TPL Tone..............85.4 Hz  YA
 Talkaround...................Disabled
 Rx Only Channel..............Disabled    Transmit PL......................TPL
 Tx Inhibit On Busy Chan......Disabled      TPL Tone..............85.4 Hz  YA
                                          Power Level......................High
 PTT ID.......................Disabled
                                          Keypad Programming............Enabled

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP    CHAN  PREVIOUS  NEXT   PRINT                           DEFAULT   EXIT
      OPTIONS CHANNEL CHANNEL
```

CHANNEL CONFIGURATION screen (for JT1000 models only)

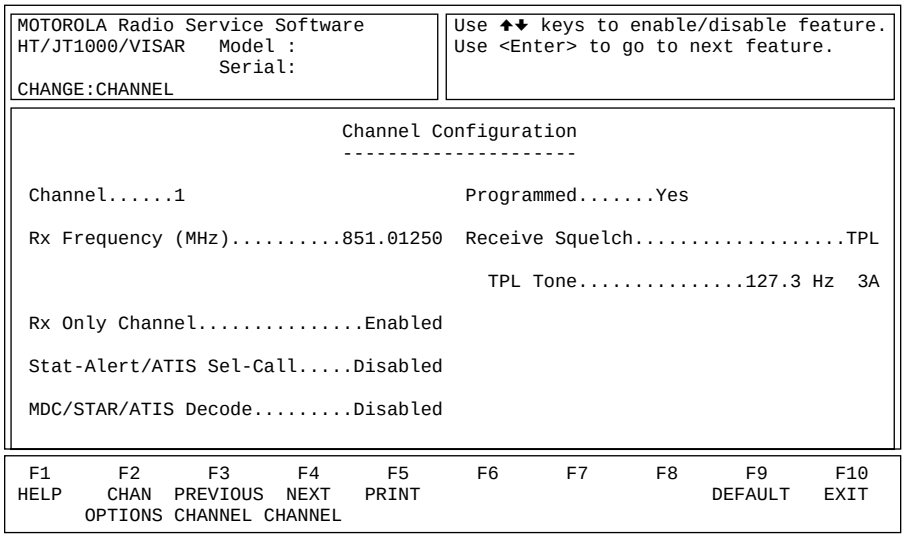
The figures below show the CHANNEL CONFIGURATION screen when different fields are enabled or disabled.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to scroll value.
HT/JT1000/VISAR   Model :H01SDC9AA3AN    Use <Enter> to go to next feature.
                  Serial:
CHANGE:CHANNEL

                            Channel Configuration
                            ---------------------

 Channel..... 1                          Programmed.......Yes

 Rx Frequency (MHz).........450.02500    Receive Squelch..................TPL
 Tx Frequency (MHz).........450.02500
                                           TPL Tone..............67.0 Hz  XZ
 Talkaround...................Disabled
 Rx Only Channel..............Disabled    Transmit PL......................TPL
 Tx Inhibit On Busy Chan......Disabled      TPL Tone..............67.0 Hz  XZ
 Stat-Alert/ATIS Sel-Call.....Disabled    Power Level......................Low
 PTT ID.......................Disabled    Repeater Access..............Disabled
 MDC/STAR/ATIS Decode.........Disabled

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP    CHAN  PREVIOUS  NEXT   PRINT                           DEFAULT   EXIT
      OPTIONS CHANNEL CHANNEL
```

CHANNEL CONFIGURATION screen (for HT 1000 and VISAR models only)



CHANNEL CONFIGURATION screen (for JT1000 models only, with Rx Only Channel field enabled)



CHANNEL CONFIGURATION screen (for (HT 1000 and VISAR models only, with Rx Only Channel field enabled)

This screen allows you to configure channels. It will vary based on the radio model of the codeplug currently loaded into the workspace.

Function Key Descriptions

F2 - CHAN OPTIONS — Brings up a screen from which you can configure additional channel options.

F3 - PREVIOUS CHANNEL — Accesses the previous channel.

F4 - NEXT CHANNEL — Accesses the next channel.

F5 - PRINT — Prints the current system configuration.

F9 - DEFAULT — Resets the fields on this screen to their default values.

Field Definitions

Channel

Use the UP/DOWN arrow keys or the **F3** and **F4** keys to scroll through the available channels.

Programmed

Use the UP/DOWN arrow keys to enable/disable channel positions. When a channel is disabled (i.e. this field is set to Yes) for an HT 1000 or JT1000 radio, the radio will indicate an invalid channel by sounding a continuous alert tone when the radio user selects this channel using the appropriate rotary switch. *A VISAR radio will NOT display a channel or allow unprogrammed channels to be selected.*

When a channel is disabled (that is, this field set to No), navigation to any other field on this screen other than the Channel number and the Programmed/Unprogrammed field will NOT be allowed.

Rx Frequency (MHz)

Enter the Receive Frequency directly in MHz. It must be divisible by 6.25 kHz or 5.0 kHz, or by 2.5 kHz for VHF HT 1000/VISAR models. *The RSS will allow frequencies inside the bandsplit only. DO NOT enter the decimal point. The RSS assumes its presence.*

> **Note:** With the receive frequencies listed below, there is a potential for the HT 1000 or VISAR radio to generate interference which will quiet its own receiver. *The following RECEIVE frequencies should therefore be avoided if possible.* ***If these frequencies are used, radio may performance could be degraded***.

151.0175 MHz	420.0000 MHz	487.2000 MHz
151.2000 MHz	436.8000 MHz	504.0000 MHz
151.0325 MHz	440.1000 MHz	513.4500 MHz
168.0000 MHz	453.6000 MHz	856.8000 MHz
403.2000 MHz	470.4000 MHz	

Tx Frequency (MHz)

The valid range of the Transmit Frequency depends upon the radio's bandsplit. The transmit frequency, in MHz, can be entered directly using the number keys but must be divisible by 6.25 kHz or 5.0 kHz or by 2.5 kHz for VHF HT 1000/VISAR models. *The RSS will allow frequencies inside the bandsplit only. DO NOT enter the decimal point. The RSS assumes its presence.*

Talkaround

Use the UP/DOWN arrow keys to enable/disable this feature. Talkaround is used most often the situation where the radio is set up to be operated on a repeater, but is being used in an area which is out of the repeater's range. In this case, the radios transmit and receive on the same frequency in a simplex (also referred to as Direct) manner.

The Talkaround field allows a radio (on a channel-by-channel basis) to transmit and receive on the repeater transmit frequency instead of transmitting and receiving on different frequencies. Enabling Talkaround on a channel is functionally equivalent to programming the Tx and Rx frequencies to the same value (and the use of HT 1000 toggle switch for switching between Direct and Repeat modes). *Therefore, this field will not be visible for VISAR models.*

If Talkaround is enabled on a channel, that channel will operate in Talkaround mode unless the Toggle Switch is programmed for Direct/Repeat operation and is set in the Repeat position.

> **Note:** O*n HT 1000 and JT1000 models*, using the Talkaround field in conjunction with the toggle switch is quite useful.

Talkaround is incompatible with both PTT-ID and MDC RAT in that these data transmissions will be inhibited on channels where the Talkaround field is enabled. Enabling Talkaround is not necessary if it is acceptable to program the transmit and receive frequencies to the same value (such that no Repeat mode is possible). This is how Talkaround is achieved on VISAR radios.

> ***Note:*** *If you want to have PTT-ID or MDC RAT on a simplex channel, program the Tx and Rx frequencies to be the same and disable Talkaround.*

The default is Disabled.

Rx Only Channel

Use the UP/DOWN arrow keys to enable/disable this feature. Enabling this option prevents the radio from transmitting on the current channel. A continuous alert tone will sound when the PTT button is pressed, indicating to the radio user that this is a receive-only channel. *Other transmit-related fields are hidden when this field is enabled.*

The default is Disabled.

Tx Inhibit on Busy Chan

Use the UP/DOWN arrow keys to enable or disable this field. Enabling this field will prevent the radio from transmitting on a receive-PL channel which has activity. *For this feature to operate correctly, the following conditions must be met:*

- *The Receive Squelch field (on this screen) must be set to PL, DPL, or a combination of PL or DPL and Quik-Call II;*
- *The DPL/TPL Code field (on this screen) must have a have a frequency specified; and*
- *The Clear Channel Definition field (on the SYSTEM CONFIGURATION screen – **F4/F4**) must be set properly, to either Matched PL or No Carrier. The Clear Channel Definition field determines what channel conditions are considered "Busy" and "Clear" so that Transmit Inhibit on Busy can operate as desired.*

If the Quick-Key Override field in the SYSTEM CONFIGURATION screen (**F4/F3/F2**) is enabled, the Transmit Inhibit on Busy can be overridden by pressing the PTT switch again within one second of the first press.

The default is Disabled.

Stat-Alert/ATIS Sel-Call

This field will be visible only for HT 1000 and VISAR radios. This field will NOT be visible for JT1000 radios. Use the UP/DOWN arrow keys to enable/disable this feature. Enabling this field allows the dispatcher to voice-page the radio individually or as part of a group. When a Selective Call is received, two beeps will be sounded and the LED will flash green. The radio will then unmute and a voice message will follow. The green LED will continue to flash for the length of the message. When the voice message ends, the radio will return to normal operation.

> ***Note:*** *MDC/STAR/ATIS Signalling Decode must be enabled for Sel Calls to be received. Signalling decode of any type is incompatible with Quik-Call II decoding on the same channel. It is also incompatible with Battery Saver. Battery Saver will be disabled when this feature is enabled.*

The default is Disabled.

PTT ID

Use the UP/DOWN arrow keys to enable/disable this feature. *This field must be enabled for PTT-ID to be allowed on a particular channel.* PTT-ID is an identification code transmission that is tied to the PTT switch. The code is automatically sent every time the PTT button is pressed. When PTT-ID precedes voice transmission, a sidetone is generated (if enabled) until ID transmission is completed, to prevent talking during transmission of the ID code.

PTT-ID is a generic term which refers to a function which is possible in several signalling formats. PTT-ID variations enabled by this field are MDC, STAR, DTMF ANI and ATIS.

> ***Note:*** *This feature is incompatible with Talkaround. Only one PTT-ID function can be used per radio at any time. In the case of a JT1000 radio, only DTMF ANI applies.*

The default is Disabled.

MDC/STAR/ATIS Decode

This field will be visible only for HT 1000 and VISAR radios. This field will not be visible for JT1000 radios. This feature enables signalling decode for MDC signalling on this channel. It is required to receive Stat-Alert Sel Calls, Radio Checks, as well as Emergency Message Acknowledgments and for Data Operated Squelch to function.

> ***Note:*** *It is incompatible with Quik-Call II decoding on the same channel. It is also incompatible with Battery Saver. Battery Saver will be disabled when this field is set to Enabled.*

The default is Disabled.

Receive Squelch

Use the UP/DOWN arrow keys to set Receive Squelch to one of the following: DPL, TPL, TPL/Quik-Call II, DPL/Quik-Call II, Carrier Squelch, or Quik-Call II. Carrier Squelch unmutes when carrier is detected. DPL and TPL unmute when a carrier with proper coding is detected. Quik-Call II unmutes the radio when the proper tone sequence is detected. Combinations of TPL/DPL and Quik-Call II can also be used.

> **Note:** A low-level hum or buzz in the received audio MAY be experienced when the TPL code OZ (254.1 Hz) is used. This PL code is at the high end of the sub-audible frequency range and may be heard in the audio under certain circumstances. *Use of this code should be avoided if possible.*

The default is Carrier Squelch.

Quik-Call Type

This field will not be visible unless the Receive Squelch field is set to Quik-Call II or PL/QC II. Use the UP/DOWN arrow keys to select the Quik-Call II type. The line under Receive Squelch shows the Quik-Call II type. The Quik-Call II type will be set to one of the following:

Individual Call	Sets the radio to decode only the A-B individual call tone combination.
Long Tone B	Sets the radio to decode the A-B individual call tone combination OR the long tone B group call.
Dual Call	Sets the radio to decode the A-B individual call tone combination OR the C-D group call tone combination.

The default is Individual Call.

> **Note:** The Quik-Call II frequencies and codes table is provided in the Appendix of this manual and are assigned on the QUIK-CALL II OPTIONS screen (**F4/F3/F7/F2**).

PL Code (Receive)

Use the UP/DOWN arrow keys to select the Private Line codes/ frequencies. This field is used to select the Receive PL mode and frequency or DPL mode and code. *This line will be blank unless the Receive Squelch field is set to PL, DPL, or a combination of Quik-Call II with PL or DPL.*

The Receive PL code can be either a DPL code or a TPL code taken from the DPL/TPL tables. The TPL frequency may be entered directly from the keyboard so that TPLs not in the standard table are supported. When a frequency is entered directly, it will be encoded and then immediately decoded and re-displayed.

For both Transmit and Receive TPL, the frequency you entered may change by several tenths of a Hz when you exit this screen and return to it. However, due to differences in the algorithms for encoding and decoding TPL, the Receive TPL frequencies will change less often on re-display than the Transmit TPL frequencies.

This can cause an apparent difference between Transmit and Receive TPL frequencies even when the same information has been entered into both fields! This should NOT cause concern, as the displayed frequency is the nearest encodable frequency to the one entered, and will be accurate within 0.5%. This difference will only occur on non-standard PL codes. DPL codes other than those contained in the standard table cannot be entered directly.

> **Note:** A low-level hum or buzz in the received audio MAY be experienced when the TPL code OZ (254.1 Hz) is used. This PL code is at the high end of the sub-audible frequency range and may be heard in the audio under certain circumstances. Use of this code should be avoided if possible.

The default is Disabled (Default Receive Squelch is CSQ).

Transmit PL

Use the UP/DOWN arrow keys to enable/disable this feature. When this feature is enabled, this option will turn on either Digital Private-Line (DPL) or a Tone Private-Line (TPL) for the channel displayed in the channel entry. Use the UP/DOWN arrow keys to scroll through the choices or enter the frequency directly. Different decode and encode codes are allowed on the same channel.

When this option is enabled for STAR signalling, the PL signal will be transmitted during the transmission of RAT, Emergency, or auto-acknowledgment on a PL channel. When enabled for MDC Signalling, the PL will be encoded on the PL-enabled channel during MDC transmission. *Encoding of PL during the transmission of PTT ID is not controlled by this field but is always enabled on a PL-encoded channel.*

When this feature is disabled, the PL signal will not be transmitted during STAR or MDC transmissions, except for the PTT ID transmission. *A valid PL must be selected on the channel for this option to be applicable.*

The default is Disabled.

PL Code (Transmit)

Use the UP/DOWN arrow keys to make your selection or enter the desired code directly. The transmit PL code can be either a DPL code or a TPL code taken from the DPL/TPL tables in the Appendix. The TPL frequency may also be entered directly so that TPL codes not in the standard table are supported. When a frequency is entered directly, it will be encoded, and then immediately decoded and re-displayed.

In many cases, the frequency you entered may change by several tenths of a Hz when you exit this screen and return to it. However, due to differences in the algorithms for encoding and decoding TPL, the Receive TPL frequencies will change less often on re-display than the Transmit TPL frequencies.

This can cause an apparent difference between Transmit and Receive TPL frequencies even when the same information has been entered into both fields! This should NOT cause concern, as the displayed frequency is the nearest encodable frequency to the one entered, and will be accurate within 0.5%. This difference in frequency will occur only on non-standard PLs. *DPL codes not in the standard table CANNOT be entered directly.*

Note: A low-level hum or buzz in the received audio MAY be experienced when the TPL code OZ (254.1 Hz) is used. This PL code is at the high end of the sub-audible frequency range and may be heard in the audio under certain circumstances. Use of this code should be avoided if possible.

Note: Refer to the screens provided beginning on page 148. These figures show examples of the various possibilities available for Transmit PL and Receive Squelch.

Power Level

Power level changes are not allowed in 800 MHz models. Use the UP/DOWN arrow keys to make your selection. The power level is a low/high power setting based on codeplug information contained in the radio. Choose High power for extended range and Low power for extended battery.

The default is High.

Repeater Access

Use the UP/DOWN arrow keys to enable/disable this feature. This feature allows you to selectively activate repeaters either manually or automatically with MDC signalling. Up to eight repeater access codes can be programmed for each radio.

The default is Disabled.

RAT Code

The RAT code is varied in accordance with the Repeater that is applicable for this channel. Each Repeater Access Table (RAT) code is a two-byte unit ID of the repeaters you may choose from.

The default is Code 1.

Keypad Programming

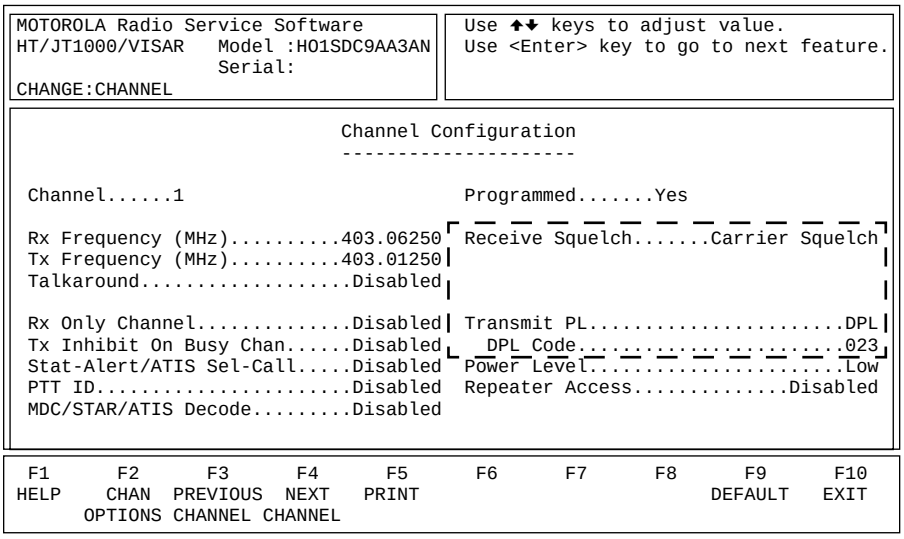
*This field will be visible only for JT1000 radios. This field will NOT be visible for HT 1000 or VISAR radios. Note that there is also a radio-wide User Programming Enable/Disable field on the JT1000 OPTIONS screen (**F4/F3/F2/F3**).*

Use the UP/DOWN arrow keys to enable/disable this feature. Enabling this field allows operators to program frequency, PL code, bandwidth, and power (including MSPL) on the selected channel. When this field is disabled, the operator will be prevented from programming these variables on the selected channel.

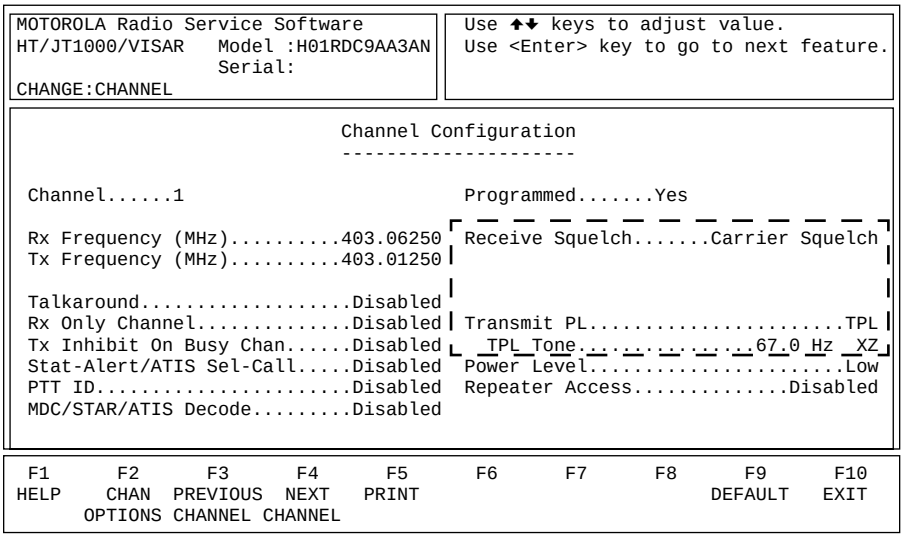
The default is Enabled.

Sample Screens

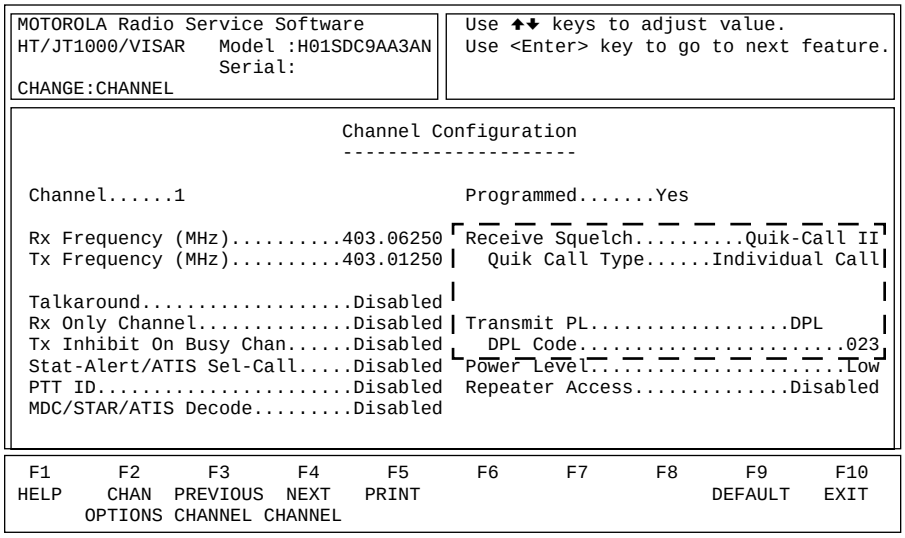
Reproduced on the following pages are several possible screen views for the CHANNEL CONFIGURATION screen. These demonstrate various combinations for Receive Squelch and Transmit PL field settings.



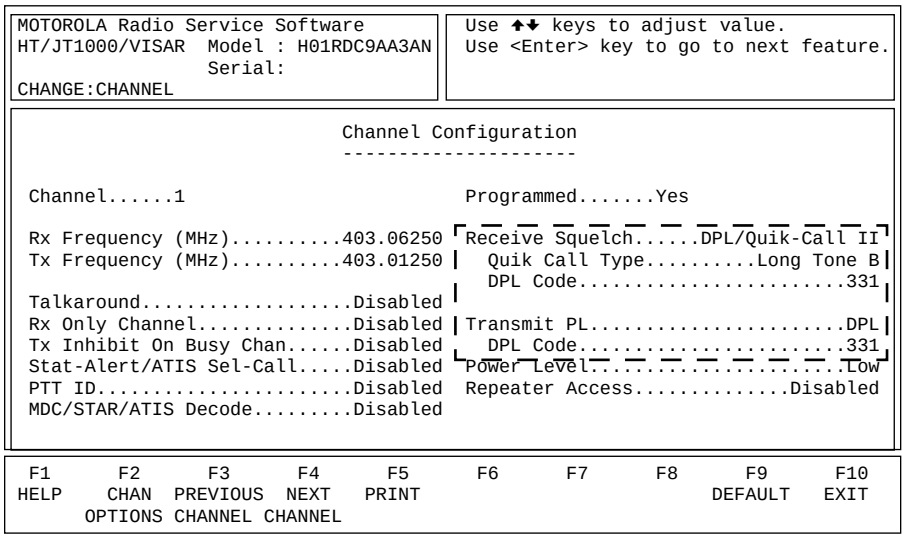
CHANNEL CONFIGURATION screen
(Transmit Coding = DPL, Receive Coding = Carrier)



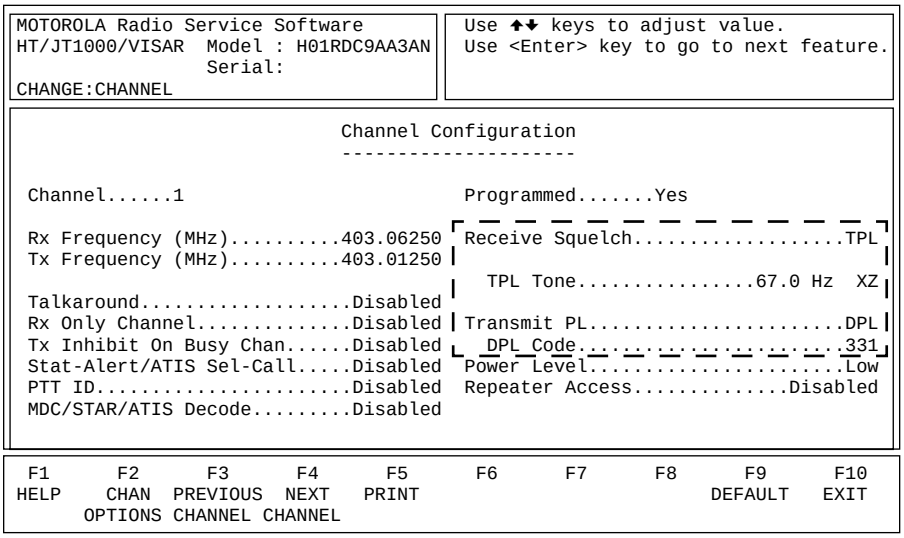
CHANNEL CONFIGURATION screen
(Transmit Coding = TPL, Receive Coding = Carrier)



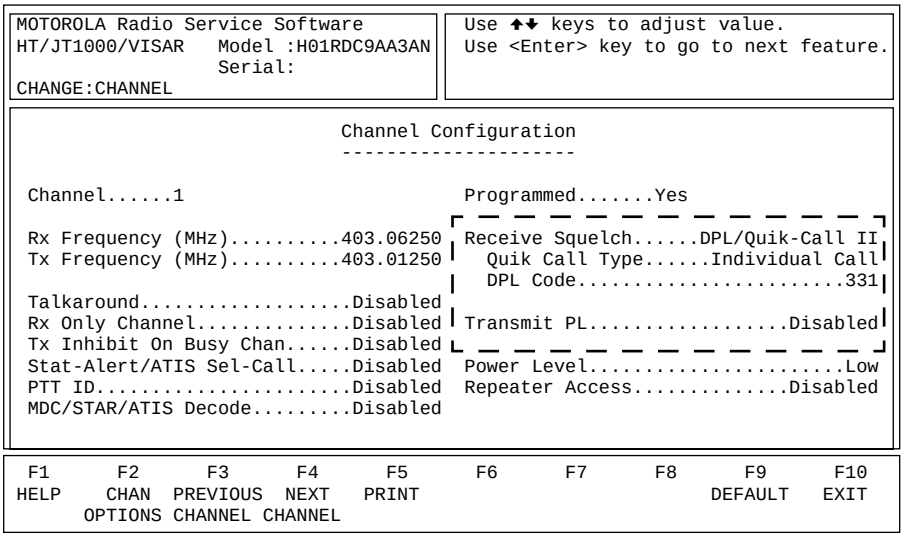
CHANNEL CONFIGURATION screen
(Transmit Coding = DPL, Receive Coding = Quik-Call II)



CHANNEL CONFIGURATION screen
(Transmit Coding = DPL, Receive Coding = DPL + Quik-Call II)



CHANNEL CONFIGURATION screen
(Transmit Coding = DPL, Receive Coding = TPL)



CHANNEL CONFIGURATION screen
(Transmit Coding = Disabled, Receive Coding = DPL + Quik-Call II)

Channel Options

From the MAIN MENU, press **F4** twice and then **F2** to access this screen.

```
MOTOROLA Radio Service Software          Use ↑↓ keys to scroll value.
HT/JT1000/VISAR   Model :H01RDH9PA3AN    Use <Enter> to go to next feature.
                  Serial:
CHANGE:CHANNEL:OPTIONS

                                Channel Options
                                ---------------

 Channel..... 1

 Signalling Muting Condition.......AND  Timeout Timer...............Disabled

 Chan Slaved Auto Scan........Disabled  Battery Saver...............Disabled

 PAC•RT.......................Disabled  Radio Sq. Unmute/Mute.........AND/STD

 IF Bandwidth..................20 kHz  Singletone on PTT............Disabled

                                       Singletone on Side Button....Disabled

  F1      F2      F3       F4      F5      F6      F7      F8      F9      F10
 HELP           PREVIOUS  NEXT    PRINT                           DEFAULT  EXIT
                CHANNEL CHANNEL
```

This screen allows you to configure channel options.

Function Key Descriptions

F3 - PREVIOUS CHANNEL — Accesses the previous channel.

F4 - NEXT CHANNEL — Accesses the next channel.

F5 - PRINT — Prints the current system configuration.

F9 - DEFAULT — Resets the fields on this screen to their default values.

Field Definitions

Channel — Use the UP/DOWN arrow keys or **F3/F4** keys to select the desired channel. The channel may be set between 1 *and the maximum channel available in the current model.*

Signalling Muting Condition

Use the UP/DOWN arrow keys to make your selection. The Voice Selective Call options within the radio (MDC, Quik-Call II, and ATIS) affect the unmuting operation of the radio. The two available unmuting choices are Signalling "AND" and Signalling "OR". *Note that this choice is necessary ONLY if Voice Selective Call is being programmed on this channel.*

Signalling "AND"	The receiving unit will unmute audio when the radio decodes a Voice Selective Call for which it is the target AND the unmute/mute condition shown in the Radio Squelch Unmute/Mute field is met. This setting is typically used where the user wants to listen ONLY to traffic that is addressed to his/her individual unit (i.e., a "paging only" channel position on the radio).
Signalling "OR"	The receiving unit will unmute audio when the radio decodes a Voice Selective Call for which it is the target OR the unmute/mute condition shown in the Radio Squelch Unmute/Mute field is met. This setting should be used when a channel position is utilized for selective call/paging as well as normal dispatch traffic. It is advisable to limit paging functions to a dedicated channel position (that is, use Signalling AND muting) where possible.

Note: *Signalling Unmuting will be forced to OR if no Voice Selective Call options have been selected on a particular channel. Signalling Unmuting will be forced to AND if Voice Selective Call is enabled on a channel with carrier squelch receive.*

Set up the PL/DPL and the Voice Selective Call configuration on the CHANNEL CONFIGURATION screen (**F4/F4**) and the Radio Squelch Unmute/Mute field on this screen for the channel before setting up this field.

- Use Signalling AND unmuting when setting up a channel that will be used for Paging/Voice Selective calling ONLY.
- Use Signalling OR unmuting when setting up a channel that will be used for normal Dispatch and Paging/Voice Selective calling.

This field will be forced is Voice Selective Calling is not enabled, or Voice Selective Call is enabled on a channel with Carrier Squelch.

The default is OR.

Channel Slaved Auto Scan

Use the UP/DOWN arrow keys to enable/disable auto scan for the current channel. It slaves channel scanning to a particular Rotary Switch position, leaving the other controls available for other functions.

Note: *If Auto-Scan is enabled when other controls (toggle switch or side button) are already configured to control scanning, the change will NOT be allowed.*

The default is Disabled.

PAC•RT

Use the UP/DOWN arrow keys to enable/disable the operation of the radio with a PAC•RT on this channel in conjunction with the Mode switch. *The Mode switch MUST be set up for PAC•RT in order for this option to work*. PAC•RT forces PL Transmit, Carrier Squelch Receive, and Low Power.

The default is Disabled.

IF Bandwidth

Use the UP/DOWN arrow keys to select the IF channel bandwidth. Valid settings are 12.5 kHz, 20 kHz, and 25/30 kHz.

The default is 25/30 kHz.

Timeout Timer

Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, radio transmission will be permitted for the time specified in the Timeout Timer field on the SYSTEM CONFIGURATION screen (**F4/F3/F2**). If the radio is transmitting and the time-out timer time runs out, the radio will be automatically de-keyed and a continuous alert tone will be generated for as long as the PTT button is pressed. To continue transmitting, the PTT button must be released and the radio re-keyed.

The default is Disabled.

Battery Saver

Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, battery life will be prolonged because the radio powers down the receiver and synthesizer during periods of no channel activity. If there is no activity, the radio will unmute for a period of 10 seconds and then enter "sleep" mode. During the "sleep period", changes in condition on the channel will not be detected. The radio will exit sleep mode periodically to check the state of the channel. The sleep times which apply to the different channel options are:

1. Carrier Squelch Sleep Period and PL Sleep Period in the SYSTEM CONFIGURATION screen (**F4/F3/F2**).
2. Quik-Call II Sleep Period in the QUIK-CALL II OPTIONS screen (**F4/F3/F7/F2**).

   Note: The default sleep periods are calculated to provide battery savings while minimizing the chances of missing a call. *If sleep periods are increased, battery savings will also increase but the chances of missing a call become significantly greater.*

Another parameter which is important in battery saver is the Battery Saver PL Lockout on the SYSTEM CONFIGURATION screen (**F4/F3/F2**). When this feature is disabled, Battery Saver operates as described above and in the description of PL Sleep Period on page 75.

When Battery Saver PL Lockout is enabled, PL will NOT be decoded when the radio periodically comes out of sleep mode until carrier drops. Therefore, a radio which enters sleep mode while a carrier is on the channel with wrong PL or no PL will not unmute to another call until carrier drops. This method of operation (not decoding PL) significantly increases battery savings but can cause problems in some systems.

The default is Disabled.

Radio Squelch Unmute/Mute

This option defines the conditions for muting and unmuting audio. The three choices are STD/STD, AND/OR, and AND/STD. The first term (before the slash) refers to the unmuting conditions, and the second term (after the slash) refers to the muting conditions.

STD unmuting	The receiving unit will unmute audio when PL/DPL detect is true. This type of unmuting has also been referred to as “Code” or “Squelch Code” in other RSS packages. Using STD unmute will cause the audio to unmute at lower signal levels than AND unmuting. This will allow the user to operate further into the “fringe” areas, or through weak areas in the coverage of the Repeater. In areas like these, the audio may be noisy however.
STD muting	The receiving unit will mute audio when PL/DPL detect becomes false. STD muting, like STD unmuting, allows operation further into the “fringe” areas of the system.
AND unmuting	The receiving unit will unmute audio when PL/DPL detect AND carrier detect are both true. This type of unmuting has also been referred to as “Code and Squelch” in other RSS packages. AND unmuting results in the most reliable operation, minimizing squelch falsing (noise bursts) when PL or DPL is being used. However, as mentioned above, AND unmuting will result in a slightly reduced coverage area.
OR muting	The receiving unit will mute audio when either PL/DPL detect OR carrier detect becomes false. OR muting will cause the radio to mute audio sooner than STD muting (smaller coverage area), but results in more reliable operation (less squelch falsing).

Note: If Carrier Squelch is chosen, STD/STD unmuting/muting will be forced. *PL or DPL decode must be enabled to have AND unmuting or OR muting.*

Make sure you follow the following guidelines:

- Set up the PL/DPL configuration on the CHANNEL CONFIGURATION screen (**F4/F4**) before choosing a setting for this field.
- To maximize coverage area, use STD/STD, but note that audio quality will degrade further in “fringe” areas before the radio ceases to unmute.
- To ensure reliable operation, use AND/OR, but note that “fringe” area range will be slightly reduced. Performance in normal signal strength areas will be identical.

  Note: *This field will be forced to STD/STD if Carrier Squelch Receive has been chosen on this channel.*

The default is AND/STD.

Singletone on PTT

Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, Single Tone 1 will be enabled *as defined on the SINGLETONE CONFIGURATION screen (**F4/F3/F7/F4**)* on this channel whenever PTT is pressed. A sidetone can also be enabled on the SIDEBUTTON CONFIGURATION screen (**F4/F3/F3**) if desired so that the user will not talk while the Single Tone transmission is in progress.

> ***Note:*** *Singletone on PTT is incompatible with PTT-ID functions (MDC, STAR, ATIS, DTMF ANI).*

The default is Disabled.

Singletone on Side buttons

Use the UP/DOWN arrow keys to enable/disable this feature. If this feature is enabled, Single Tone 1 or 2 will be transmitted *as defined on the SINGLETONE CONFIGURATION screen (**F4/F3/F7/F4**)* on this channel by pressing a side button.

> ***Note:*** *This side button must be defined for Single Tone on the SIDEBUTTON CONFIGURATION screen (**F4/F3/F3**).*

The default is Disabled.

Notes

5

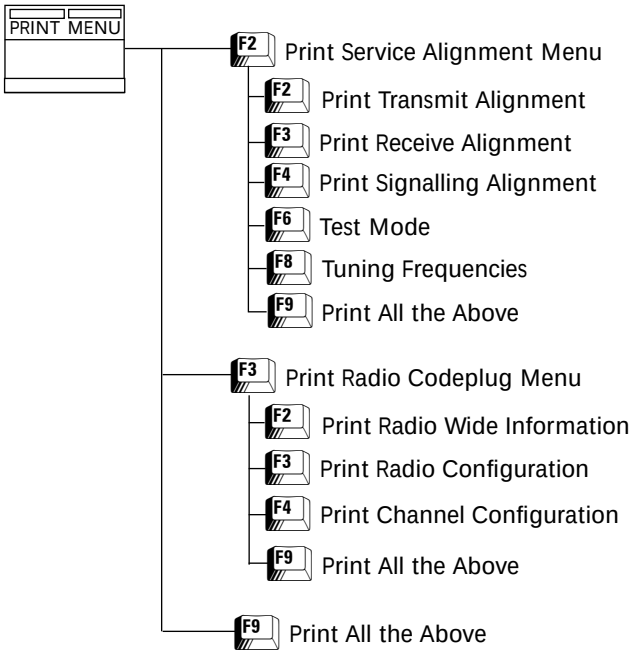
Print Menu Functions

The print function is used to produce paper records of codeplug configurations. A printer is required and should be connected to your computer according to instructions in the user's manual that came with your computer. Graphics capability is NOT required.

In order to print radio configuration data, you must first read or get a codeplug file using the GET/SAVE MENU and related screens.

Each print-out will contain the following data in addition to configuration information: radio model and serial number information, software version numbers, RSS version numbers, and the date and time of the print-out.

Menu Map



Print Menu

At the MAIN MENU, press **F5** to access the PRINT MENU.

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR   Model :
                  Serial:
PRT MAIN

                                Print Main Menu
                                ---------------

     F1  - HELP
     F2  - Print Service Alignment Menu
     F3  - Print Radio Codeplug Menu
     F4  -
     F5  -
     F6  -
     F7  -
     F8  -
     F9  - Print All the Above
     F10 - EXIT

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP   PRINT   PRINT                                            PRINT   EXIT
      SERVICE CODEPLUG                                          ALL
```

The PRINT function is used to produce paper records of codeplug configurations. A printer is required and should be connected to your computer according to instructions in the user's manual that came with your computer. Graphics capability is NOT required.

Make sure you have read a codeplug file using the GET/SAVE functions before you attempt to print configuration information.

> **Note:** When printing, misalignment of page breaks may result if the printer is not set up properly. For best results, configure the printer as an IBM ProPrinter or an Epson FX/MX having factory default settings. The default number of lines per page is 66.

Function Key Descriptions

F2 - PRINT SERVICE — Brings up a menu from which you can print service alignment information.

F3 - PRINT CODEPLUG — Brings up a menu from which you can print codeplug information.

F9 - PRINT ALL — Prints out both service and codeplug data.

Print Service Menu

From the MAIN MENU, press **F5** and then **F2** to access this menu.

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR   Model :
                  Serial:
PRT MAIN:SERVICE

                              Print Service Menu
                              ------------------

      F1  - HELP
      F2  - Transmit Alignment Menu
      F3  - Receive Alignment Menu
      F4  - Signalling Alignment
      F5  -
      F6  - Test Mode
      F7  -
      F8  - Tuning Frequencies
      F9  - Print All the Above
      F10 - EXIT

  F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP    PRINT   PRINT   PRINT           PRINT           PRINT   PRINT   EXIT
         XMIT  RECEIVE   SIG             MODE            FREQ    ALL
```

You must use the GET/SAVE functions to first read or get a codeplug for printing radio configuration data.

Each print-out contains radio model and serial number information, software version numbers, Radio Service Software version numbers, and the date and time of the print-out.

> **Note:** When printing, misalignment of page breaks may result if the printer is not set up properly. For best results, configure the printer as an IBM ProPrinter or an Epson FX/MX having factory default settings. The default number of lines per page is 66.

Function Key Descriptions

F2 - PRINT XMIT — Prints a summary of Transmit Alignment information.

F3 - PRINT RECEIVE — Prints a summary of Receive Alignment information.

F4 - PRINT SIG — Prints a summary of the Signalling Alignment information.

F6 - PRINT MODE — Prints a summary of Mode Alignment information.

F8 - PRINT FREQ — Prints a summary of Frequency Alignment information.

F9 - PRINT ALL — Prints all the above service information subsets mentioned above.

Print Transmit Service Menu

At the MAIN MENU, press **F5** and then **F2** twice to bring up the TRUNKING PRINT MENU.

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR   Model :
                  Serial:
PRT MAIN:SERVICE:TRANSMIT

                          Print Transmit Service Menu
                          ---------------------------

     F1  - HELP
     F2  - Reference Frequency Alignment
     F3  - Transmit Power Alignment
     F4  - Transmit Deviation Balance (Compensation) Alignment
     F5  - Transmit Deviation Limit Alignment
     F6  - Transmit Deviation Limit Alignment: Reference Softpot
     F7  - Transmit VCO Crossover Alignment
     F8  -
     F9  - Print All the Above
     F10 - EXIT

 F1      F2      F3      F4      F5      F6       F7      F8      F9      F10
HELP   PRINT   PRINT   PRINT   PRINT   PRINT    PRINT           PRINT   EXIT
        REF    POWER    BAL    LIMIT  LIMIT REF XOVER           ALL
```

The PRINT function is used to produce permanent records of codeplug configurations. A printer is required and should be connected to your computer according to the instructions in the user's manual that came with your computer. Graphics capability is NOT required.

Each print-out contains radio model and serial number information, software version numbers, Radio Service Software version numbers, and the date and time of the print-out. You must use the GET/SAVE functions to first read or get a codeplug for printing radio configuration data.

> **Note:** When printing, misalignment of page breaks may result if the printer is not set up properly. For best results, configure the printer as an IBM ProPrinter or an Epson FX/MX having factory default settings. The default number of lines per page is 66.

Function Key Descriptions

F2 - PRINT REF — Prints out Reference Frequency Alignment information.

F3 - PRINT POWER — Prints out Transmit Power Alignment information.

F4 - PRINT BAL — Prints out Deviation Balance (Compensation) Alignment information.

F5 - PRINT LIMIT — Prints out Deviation Limit Alignment information.

F6 - PRINT LIMIT REF — Prints out Deviation Limit Alignment: Reference Softpot information.

F7 - PRINT XOVER — Prints out Transmit VCO Crossover Alignment information.

F9 - PRINT ALL — Prints out all the above service information modules.

Print Receive Service Menu

At the MAIN MENU, press **F5, F2** and then **F3** to bring up this menu.

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR   Model :
                  Serial:
PRT MAIN:SERVICE:RECEIVE

                          Print Receive Service Menu
                          --------------------------

     F1  - HELP
     F2  - Front End Bandpass Filter Alignment
     F3  - Rated Audio Alignment
     F4  - Squelch Alignment
     F5  - VCO Crossover Alignment
     F6  -
     F7  -
     F8  -
     F9  - Print All the Above
     F10 - EXIT

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP   PRINT   PRINT   PRINT   PRINT                           PRINT    EXIT
        FEF    AUDIO  SQUELCH  XOVER                           ALL
```

The PRINT function is used to produce permanent records of codeplug configurations. A printer is required and should be connected to your computer according to the instructions in the user's manual that came with your computer. Graphics capability is NOT required.

Each print-out contains radio model and serial number information, software version numbers, Radio Service Software version numbers, and the date and time of the print-out. You must use the GET/SAVE functions to first read or get a codeplug for printing radio configuration data.

> **Note:** When printing, misalignment of page breaks may result if the printer is not set up properly. For best results, configure the printer as an IBM ProPrinter or an Epson FX/MX having factory default settings. The default number of lines per page is 66.

Function Key Descriptions

F2 - PRINT FEF — Prints out Front-End Bandpass Filter Alignment information.

F3 - PRINT AUDIO — Prints out Rated Audio Alignment information.

F4 - PRINT SQUELCH — Prints out Squelch Alignment information.

F5 - PRINT XOVER — Prints out VCO Crossover Alignment information.

F9 - PRINT ALL — Prints out all the above service information modules.

Print Codeplug Menu

At the MAIN MENU, press **F5** and then **F3** to access this screen.


```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR   Model :
                  Serial:
PRT MAIN:CODEPLUG

                              Print Codeplug Menu
                              -------------------

      F1  - HELP
      F2  - Radio Wide Information
      F3  - Radio Configuration Menu
      F4  - Channel Configuration
      F5  -
      F6  -
      F7  -
      F8  -
      F9  - Print All the Above
      F10 - EXIT

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP   PRINT   PRINT   PRINT                                   PRINT    EXIT
        WIDE   CONFIG   CHAN                                    ALL
```

The PRINT function is used to produce permanent records of codeplug configurations. A printer is required and should be connected to your computer according to instructions in the user's manual that came with your computer. Graphics capability is NOT required.

You must first read or get a codeplug using the GET/SAVE functions in order to print radio configuration data.

Each print-out contains radio model and serial number information, software version numbers, Radio Service Software version numbers, and the date and time of the print-out.

> **Note:** When printing, misalignment of page breaks may result if the printer is not set up properly. For best results, configure the printer as an IBM ProPrinter or an Epson FX/MX having factory default settings. The default number of lines per page is 66.

Function Key Descriptions

F2 - PRINT WIDE — Prints out radio wide codeplug information.

F3 - PRINT CONFIG — Brings up the PRINT CODEPLUG CONFIGURATION MENU.

F4 - PRINT CHAN — Prints out channel configuration information.

F9 - PRINT ALL — Prints out all the above codeplug information modules.

Print Codeplug Configuration Menu

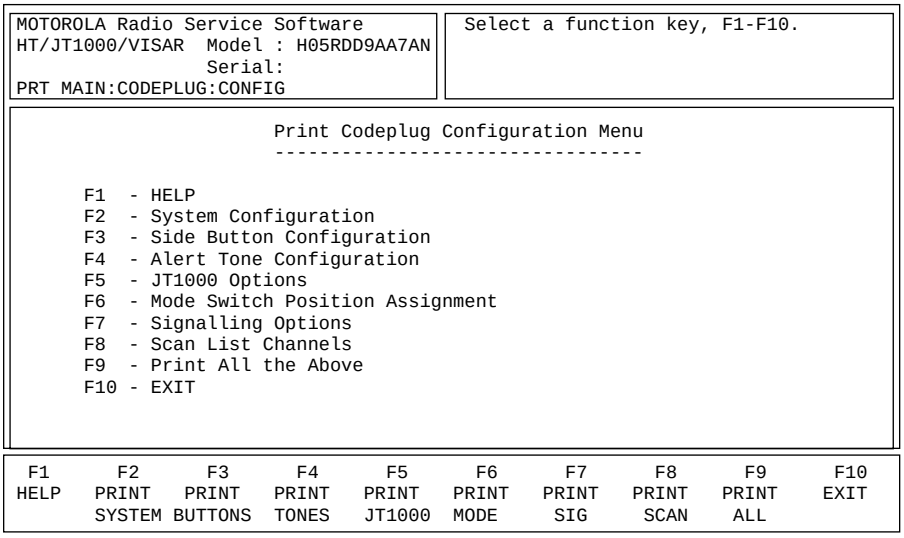
At the MAIN MENU, press **F5** and then **F3** twice to access this screen.

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR  Model : H01RDC9AA3AN
                 Serial:
PRT MAIN:CODEPLUG:CONFIG

                    Print Codeplug Configuration Menu
                    ---------------------------------

     F1  - HELP
     F2  - System Configuration
     F3  - Side Button Configuration
     F4  - Alert Tone Configuration
     F5  -
     F6  - Mode Switch Position Assignment
     F7  - Signalling Options
     F8  - Scan List Channels
     F9  - Print All the Above
     F10 - EXIT

 F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
HELP   PRINT   PRINT   PRINT           PRINT   PRINT   PRINT   PRINT    EXIT
       SYSTEM BUTTONS  TONES           MODE    SIG     SCAN    ALL
```

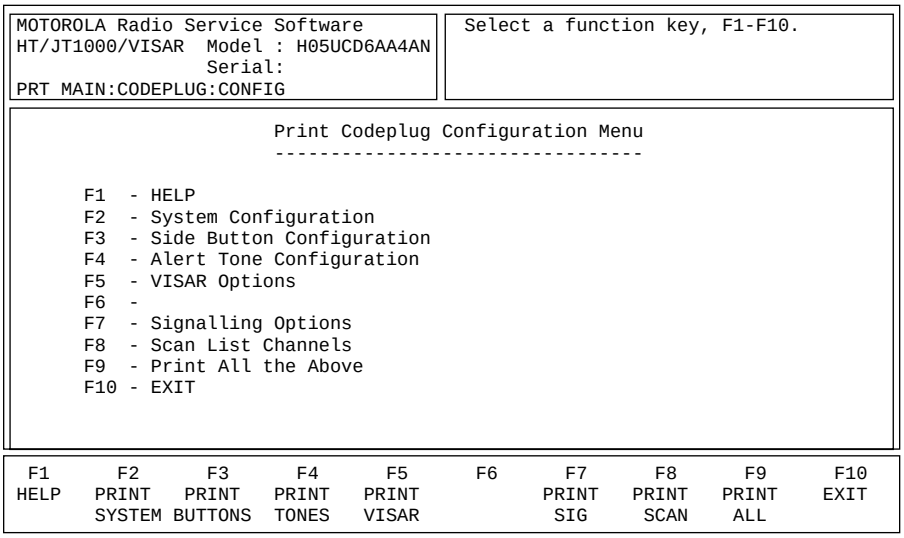
Print Codeplug Configuration Menu (HT 1000 “A” and “B” models only)

```
MOTOROLA Radio Service Software          Select a function key, F1-F10.
HT/JT1000/VISAR  Model : H01RDC9AA3AN
                 Serial:
PRT MAIN:CODEPLUG:CONFIG

                    Print Codeplug Configuration Menu
                    ---------------------------------

     F1  - HELP
     F2  - System Configuration
     F3  - Side Button Configuration
     F4  - Alert Tone Configuration
     F5  - Option•Mate Configuration
     F6  - Mode Switch Position Assignment
     F7  - Signalling Options
     F8  - Scan List Channels
     F9  - Print All the Above
     F10 - EXIT

 F1     F2      F3      F4      F5       F6      F7      F8      F9      F10
HELP  PRINT   PRINT   PRINT   PRINT    PRINT   PRINT   PRINT   PRINT    EXIT
      SYSTEM BUTTONS  TONES OPTION•MATE MODE    SIG     SCAN    ALL
```

Print Codeplug Configuration Menu (HT 1000 “C” models only)



Print Codeplug Configuration Menu (JT1000 models only)



Print Codeplug Configuration Menu (VISAR models only)

The PRINT function is used to produce permanent records of codeplug configurations. A printer is required and should be connected to your computer according to instructions in the user's manual that came with your computer. Graphics capability is NOT required.

You must first read or get a codeplug using the GET/SAVE functions in order to print radio configuration data.

Each print-out contains radio model and serial number information, software version numbers, Radio Service Software version numbers, and the date and time of the print-out.

Note: When printing, misalignment of page breaks may result if the printer is not set up properly. For best results, configure the printer as an IBM ProPrinter or an Epson FX/MX having factory default settings. The default number of lines per page is 66.

Function Key Descriptions

F2 - PRINT SYSTEM	Prints out System Configuration information.
F3 - PRINT BUTTONS	Prints out Side Button Configuration information.
F4 - PRINT TONES	Prints out Alert Tone Configuration information.
F5 - PRINT OPTION•MATE/ VISAR/JT1000	*This function is valid only for HT 1000 "C" version, VISAR or JT1000 models as the case may be.* Prints out Option•Mate, VISAR or JT 1000 options configuration.
F6 - PRINT MODE	*This function is valid only for HT 1000 "A" and "B" model radios or codeplugs.* Prints out Mode Switch Position Assignment information.
F7 - PRINT SIG	Prints out Signalling Options information.
F8 - PRINT SCAN	Prints out Scan List Channels information.
F9 - PRINT ALL	Prints out all the above codeplug information modules.

Notes

Computer-to-Radio Communication Error Codes

A

Error Code	Description	Recommended Corrective Action
01	No response from the radio	Check programming cable connections. Eliminate background routines on the PC. Check power to the RIB.
02	Transmit register time-out	Check serial port.
03	Busy low time-out	Check to make sure that the radio is turned on. Check radio's battery. Check COM port selection on the CONFIGURE PATHS AND PORT screen (**F9/F3**).
04	Communication collision	Retry operation. Check COM port selection on the CONFIGURE PATHS AND PORT screen (**F9/F3**). Check power to the RIB. Check programming cable connections.
05	Programmer not receiving its own transmission	Check COM port selection on the CONFIGURE PATHS AND PORT screen (**F9/F3**). Check RIB-to-PC cable. Check power to the RIB. Check serial card. Eliminate background routines on the PC.
06	Re-transmission not acknowledged (NAKed)	Retry operation.
07	CRC error	Retry operation.
08	CRC error	Retry operation.
09	No Acknowledgment received	Check radio's battery. Check power to the RIB.
11	Busy high after pulled low	Check COM port selection on the CONFIGURE PATHS AND PORT screen (**F9/F3**). Check COM port. Check RIB-to-PC connections. Check power to the RIB.

Note: A low-level hum or buzz in the received audio MAY be experienced when TPL code OZ (254.1 Hz) is used. This PL code is at the high end of the sub-audible frequency range and may be heard in the audio under certain circumstances. *Use of this code should be avoided if possible.*

Notes

TPL Frequencies and Codes

B

Frequency (Hz)	Code	Frequency (Hz)	Code
067.0	XZ	136.5	4Z
069.3	WZ	141.3	4A
071.9	XA	146.2	4B
074.4	WA	151.4	5Z
077.0	XB	156.7	5A
079.7	WB	162.2	5B
082.5	YZ	167.9	6Z
085.4	YA	173.8	6A
088.5	YB	179.9	6B
091.5	ZZ	186.2	7Z
094.8	ZA	192.8	7A
097.4	ZB	203.5	M1
100.0	1Z	206.5	8Z
103.5	1A	210.7	M2
107.2	1B	218.1	M3
110.9	2Z	225.7	M4
114.8	2A	229.1	9Z
118.8	2B	233.6	M5
123.0	3Z	241.8	M6
127.3	3A	250.3	M7
131.8	3B	254.1	OZ

Notes

DPL Codes

C

Code	Code	Code	Code
023	143	315	532
025	152	331	546
026	155	343	565
031	156	346	606
032	162	351	612
043	165	364	624
047	172	365	627
051	174	371	631
054	205	411	632
065	223	412	645
071	226	413	654
072	243	423	662
073	244	431	664
074	245	432	703
114	251	445	712
115	261	464	723
116	263	465	731
125	265	466	732
131	271	503	734
132	306	506	743
134	311	516	754

Notes

Quik-Call II Frequencies and Codes

D

Motorola Codes		Motorola Codes		Type 99 Codes	
Frequency (Hz)	Code	Frequency (Hz)	Code	Frequency (Hz)	Code
0288.5	138	0855.5	158	517.5	B7
0296.5	108	0879.0	128	532.5	C7
0304.7	139	0903.2	159	547.5	A7
0313.0	109	0928.1	129	562.5	B8
0321.7	140	0953.7	160	577.5	C8
0330.5	110	0979.9	130	592.5	A1
0339.6	141	1006.9	161	607.5	B1
0349.0	111	1034.7	131	622.5	C9
0358.6	142	1063.2	162	637.5	A9
0368.5	112	1092.4	189	652.5	B0
0378.6	143	1122.5	190	667.5	C0
0389.0	113	1153.4	191	682.5	A0
0399.8	144	1185.2	192	697.5	B9
0410.8	114	1217.8	193	712.5	C1
0422.1	145	1251.4	194	727.5	A8
0433.7	115	1285.8	195	757.5	A2
0445.7	146	1321.2	196	772.5	C2
0457.9	116	1357.6	197	787.5	B2
0470.5	147	1395.0	198	802.5	A3
0483.5	117	1433.4	199	817.5	C3
0496.8	148	1472.9	170	847.5	A4
0510.5	118	1513.5	171	862.5	C4
0524.6	149	1555.2	172	877.5	B4
0539.0	119	1598.0	173	892.5	A5
0553.9	150	1642.0	174	907.5	C5
0569.1	120	1687.2	175	922.5	B5
0584.8	151	1733.7	176	937.5	A6

Motorola Codes		Motorola Codes		Type 99 Codes	
Frequency (Hz)	Code	Frequency (Hz)	Code	Frequency (Hz)	Code
0600.9	121	1781.5	177	952.5	C6
0617.4	152	1830.5	178	967.5	B6
0634.5	122	1881.0	179		
0651.9	153	1930.2	200		
0669.9	123	1989.1	201		
0688.3	154	2043.8	202		
0707.3	124	2094.5	203		
0726.8	155	2155.6	204		
0746.8	125	2212.2	205		
0767.4	156	2271.7	206		
0788.5	126	2334.6	207		
0810.2	157	2401.0	208		
0832.5	127	2468.2	209		

HT/JT1000/VISAR RSS Cross Reference

E

The following tables list all the fields that affect the more complex features of the HT/JT1000/VISAR radio regardless of screen location.

Quik-Call II Signalling

Field	Function	Location
Tone A Frequency	Set frequency for Tone A	CHANGE:RADIO:SIG:QUIK-CALL II
Tone B Frequency	Set frequency for Tone B	CHANGE:RADIO:SIG:QUIK-CALL II
Tone C Frequency	Set frequency for Tone C	CHANGE:RADIO:SIG:QUIK-CALL II
Tone D Frequency	Set frequency for Tone D	CHANGE:RADIO:SIG:QUIK-CALL II
Auto Reset	Enables Auto-Reset Timer for Quik-Call II	CHANGE:RADIO:SIG:QUIK-CALL II
Long Tone B Duration	Sets duration for a Long Tone B detect	CHANGE:RADIO:SIG:QUIK-CALL II
Sleep Period	Period of time radio will be dormant in Battery Saver	CHANGE:RADIO:SIG:QUIK-CALL II
Auto Reset Timer	Radio-wide setup of Auto-Reset Timer length	CHANGE:RADIO:SYS CONFIG
Receive Squelch	Configures type of call + TPL/DPL required for unmuting	CHANGE:CHANNEL
Signalling Muting Condition	Determines whether radio responds to only Selective Call Signalling or to Normal Dispatch as well	CHANGE:CHANNEL:OPTIONS
Mode Switch	Determines whether Quik-Call II Squelch can be defeated with the Toggle Switch	CHANGE:RADIO:MODE SWITCH
Quik-Call II Scan	Enables Quik-Call II Decoder in Scan on Quik-Call II-enabled channels	CHANGE:RADIO:SCAN:CONFIG

MDC Signalling

Field	Function	Location
Signalling Type	Selects signalling format	CHANGE:RADIO:SIG:MDC CONFIG
Primary ID	Assigns primary MDC ID	CHANGE:RADIO:SIG:MDC CONFIG
Variable ID	Assigns variable MDC ID	CHANGE:RADIO:SIG:MDC CONFIG
PL Transmit	Enables PL Encode during MDC transmission	CHANGE:RADIO:SIG:MDC CONFIG
PTT-ID	Determines when PTT-ID will be transmitted	CHANGE:RADIO:SIG:MDC CONFIG
PTT Sidetone	Enables sidetone during PTT-ID Xmit	CHANGE:RADIO:SIG:MDC CONFIG
Emergency Sidetone	Enables sidetone during Emergency Xmit	CHANGE:RADIO:SIG:MDC CONFIG
Radio Check	Enables Radio Check decode function	CHANGE:RADIO:SIG:MDC CONFIG
MDC Auto Reset	Enables Auto-Reset Timer for MDC Sel Cal	CHANGE:RADIO:SIG:MDC CONFIG
Call Alert	Enables Call Alert decode function	CHANGE:RADIO:SIG:MDC CONFIG
Rx Call Alert Light	Enables Call Alert visual indicator	CHANGE:RADIO:SIG:MDC CONFIG
Rx Sel Cal Light	Enables Select Call visual indicator	CHANGE:RADIO:SIG:MDC CONFIG
Repeater Ack Alert	Enables Alert Tone when RAT Code Acknowledged Alert	CHANGE:RADIO:SIG:MDC CONFIG
Emergency	Enables Emergency alarm encode	CHANGE:RADIO:SIG:MDC CONFIG
Emergency Tx Light	Enables Visual Indicator for Emergency Xmit	CHANGE:RADIO:SIG:MDC CONFIG
Emergency Alert	Enables Alert Tone when Emergency button pressed and Emergency mode is exited	CHANGE:RADIO:SIG:MDC CONFIG
Emergency Ack Alert	Enables Alert Tone when Emer. Ack is received	CHANGE:RADIO:SIG:MDC CONFIG
Silent Emergency	Enables Silent Emergency mode	CHANGE:RADIO:SIG:MDC CONFIG
Silent Emer w/Voice	Enables Silent Emergency with Voice mode	CHANGE:RADIO:SIG:MDC CONFIG
Chan Revert	Enables Channel Revert mode for Emer Xmit	CHANGE:RADIO:SIG:MDC CONFIG
Priority Revert Chan	Channel that radio reverts to for Emer. Xmit	CHANGE:RADIO:SIG:MDC CONFIG
Bit Sync Packets	Sets number of Bit Sync Packets during Pretime	CHANGE:RADIO:SIG:MDC OPT
Pretime	Length of pretime between keyup and first bit	CHANGE:RADIO:SIG:MDC:OPT
Interseq Delay	Length of time between two MDC Packets that are part of the same message	CHANGE:RADIO:SIG:MDC:OPT
Number of Polites	Polite transmissions in Emergency sequence	CHANGE:RADIO:SIG:MDC: OPT
Number of Impolites	Impolite Transmissions in Emergency sequence	CHANGE:RADIO:SIG:MDC:OPT
Ack Delay Duration	Length of Pretime used on MDC Ack	CHANGE:RADIO:SIG:MDC:OPT
Emer Long Press Period	Time Emergency button pressed to exit Emergency	CHANGE:RADIO:SIG:MDC:OPT
Ltd Patience Duration	Wait time before Polite Xmit turns into Impolite	CHANGE:RADIO:SIG:MDC:OPT
DOS Criteria	Signal content which is considered data	CHANGE:RADIO:SIG:MDC:OPT

MDC Signalling

Field	Function	Location
DOS Coast Time	Time that Data Detect can be lost before unmute	CHANGE:RADIO:SIG:MDC:OPT
Auto Timed Mute Duration	Length of auto-mute on Carrier Detect	CHANGE:RADIO:SIG:MDC:OPT MDC OPTIONS DECODE CHANNEL
Auto Reset Timer	Radio-wide setup of Auto Reset Timer length	CHANGE:RADIO:SYS CONFIG
Stat-Alert/ATIS Sel Cal	Enables Select Call for the current channel	CHANGE:CHANNEL
PTT-ID	Enables PTT-ID Encode for the current channel	CHANGE:CHANNEL
MDC/STAR/ATIS Decode	Enables Signalling Decode for the current channel	CHANGE:CHANNEL
Talkaround	Incompatible with PTT-ID and RAT if enabled	CHANGE:CHANNEL
Repeater Access	Enables Repeater Access for the current channel	CHANGE:CHANNEL
Signalling Muting Dispatch	Sets whether the radio responds to only Selective Calls or to normal condition as well	CHANGE:CHANNEL:OPT
Accept Alert	Enables chirp when RAT Side Button is pressed	CHANGE:RADIO:SIG:MDC:RAT ID
Silent Pretime	Sets Pretime between Keyup and first bit of RAT data	CHANGE:RADIO:SIG:MDC:RAT ID
Code 1 - Code 8	Sets Repeater ID to be accessed	CHANGE:RADIO:SIG:MDC:RAT ID
MDC Decode Scan	Enables MDC Decoder in scan on MDC-enabled channels	CHANGE:RADIO:SCAN:CONFIG
MDC Sel Call Scan	Enables scanning for MDC Sel-Cal on MDC-enabled channels	CHANGE:RADIO:SCAN:CONFIG
Remote Monitor	Enables radio to respond to the MDC Remote Monitor command	CHANGE:RADIO:SIG:MDC CONFIG
Sticky Revert	Enables radio to operate in the Sticky Revert Mode when MDC Emergency Revert is used	CHANGE:RADIO:SIG:MDC CONFIG
Sticky Revert Alert	Enables radio to generate Alert Tone whenever Operator keys up on the Sticky Revert Channel, which may be different from the selected channel	CHANGE:RADIO:SIG:MDC:CONFIG
Open Mic Duration	Enables radio to automatically key up with Open Microphone for a programmable amount of time after MDC Emergency Alarm Sequence is completed	CHANGE:RADIO:SIG:MDC:OPT
Mandown Pre-Alert Delay	Length of time from the point that the mandown switch is pressed until the time that an alert is generated	CHANGE:RADIO:SIG:MDC:OPT
Mandown Post-Alert Delay	Length of time between the mandown alert tone and transmission of the Emergency Alarm sequence	CHANGE:RADIO:SIG:MDC:OPT

STAR Signalling

SIGNALLING TYPE	SELECTS SIGNALLING FORMAT	CHANGE:RADIO:SIG:STAR CONFIG
Addressing Mode	Selects Addressing Mode to be used for signalling	CHANGE:RADIO:SIG:STAR CONFIG
PTT-ID Code	Sets ID to be used for PTT-ID and Emergency	CHANGE:RADIO:SIG:STAR CONFIG
Baud Rate	Sets Data Rate	CHANGE:RADIO:SIG:STAR CONFIG
PL Transmit	Enables PL Encode during STAR transmission	CHANGE:RADIO:SIG:STAR CONFIG
PTT-ID	Selects when PTT-ID is transmitted	CHANGE:RADIO:SIG:STAR CONFIG
PTT Sidetone	Enables sidetone during Emergency Transmit	CHANGE:RADIO:SIG:STAR CONFIG
Emergency	Enables Emergency Alarm encode	CHANGE:RADIO:SIG:STAR CONFIG
Emergency Tx Light	Enables visual indicator for Emergency Xmit	CHANGE:RADIO:SIG:STAR CONFIG
Emergency Alert	Enables Alert Tone when Emergency button is pressed	CHANGE:RADIO:SIG:STAR CONFIG
Silent Emergency	Enables Silent Emergency mode	CHANGE:RADIO:SIG:STAR CONFIG
Silent Emer W/Voice	Enables Silent Emergency with Voice mode	CHANGE:RADIO:SIG:STAR CONFIG
Channel Revert	Enables Channel Revert Mode for Emer. Xmit	CHANGE:RADIO:SIG:STAR CONFIG
Priority Revert Chan	Channel that radio reverts to for Emer. Xmit	CHANGE:RADIO:SIG:STAR CONFIG
Pretime	Length of pretime between keyup and first bit	CHANGE:RADIO:SIG:STAR: OPT
Number of Impolites	Impolite transmissions in Emergency sequence	CHANGE:RADIO:SIG:STAR: OPT
Emer Long-press Period	Time Emergency button pressed to exit Emergency	CHANGE:RADIO:SIG:STAR:OPT
Mandown Pre-alert delay	Time between closure of Mandown Switch and Alert	CHANGE:RADIO:SIG:STAR: OPT
Mandown Post-alert Delay	Time between Alert and Emergency Message transmit	CHANGE:RADIO:SIG:STAR:OPT
Auto Reset Timer	Radio wide setup of Auto Reset Timer length	CHANGE:RADIO:SYS CONFIG
PTT-ID	Enables PTT-ID encode for the current channel	CHANGE:CHANNEL
MDC/STAR/ATIS Decode	Enables Signalling decode for the current channel	CHANGE:CHANNEL
Talkaround	Incompatible with PTT-ID if enabled	CHANGE:CHANNEL
Emergency Sidetone	Generation of sidetone during emergency packet transmission	CHANGE:RADIO:SIG:STAR CONFIG
Auto Timed Mute Duration	Duration after which the radio will mute after Carrier Detect	CHANGE:RADIO:SIG:STAR CONFIG

ATIS Signalling

FIELD	FUNCTION	LOCATION
Signalling Type	Selects signalling format	CHANGE:RADIO:SIG:ATIS CONFIG
PTT-ID	Sets transmitted ID	CHANGE:RADIO:SIG:ATIS CONFIG
PTT-ID Pretime	Time between keyup and first bit of data	CHANGE:RADIO:SIG:ATIS CONFIG
PTT-ID Bit Sync	Amount of Bit Sync After Pretime and before ID data	CHANGE:RADIO:SIG:ATIS CONFIG
PTT-ID	Enables PTT-ID encode for the current channel	CHANGE:CHANNEL
Talkaround	Incompatible with PTT-ID if enabled	CHANGE:CHANNEL
PTT-ID Sidetone	Enables sidetone during transmission of PTT-ID	CHANGE:RADIO:SIG:ATIS CONFIG
Kani Group Call Encode	Enables transmission of Kani Group Call portion of ATIS PTT-ID signalling pocket	CHANGE:RADIO:SIG: ATIS CONFIG
Select Call LED	Enables blinking LED when Select Call is received	CHANGE:RADIO:SIG:ATIS CONFIG
Call Alert LED	Enables blinking LED when Call Alert is received	CHANGE:RADIO:SIG:ATIS CONFIG
Paging Initiation	Allows radio to transmit such that receiving radios alert Call Alert tone	CHANGE:RADIO:SIG:ATIS CONFIG
Paging Cancel	Allows radio to transmit such that receiving radios stop Call Alert tones	CHANGE:RADIO:SIG:ATIS CONFIG
Select Call	Allows radio to transmit such that receiving radios generate Select Call tones	CHANGE:RADIO:SIG: ATIS CONFIG
Group Unmute	Allows radio to unmute to Group Calls even if Individual IDs do not match	CHANGE:RADIO:SIG:ATIS CONFIG
Auto Timed Mute Duration	Eliminates “squeak” of data in speaker before DOS detects data	CHANGE:RADIO:SIG:ATIS CONFIG
DOS Criteria	Determines which tones are considered to be data for DOS detection	CHANGE:RADIO:SIG:ATIS CONFIG
DOS Coast Time	Allows radio to remain DOS squelched during fades or temporary signal loss	CHANGE:RADIO:SIG:ATIS CONFIG
ATIS Initiator ID	ID that is considered when the radio initiates Group or Individual calls	CHANGE:RADIO:SIG:ATIS CONFIG
ATIS Destination ID	ID that is considered when radio decodes Group or Individual calls	CHANGE:RADIO:SIG: ATIS CONFIG
ATIS User Code	Allows radio to further distinguish between groups of users	CHANGE:RADIO:SIG:ATIS CONFIG
ATIS Status	Field reserved for future use	CHANGE:RADIO:SIG:ATIS CONFIG
PTT-ID Xmit	Enables transmission of PTT-ID code	CHANGE:RADIO:SIG:ATIS CONFIG

Single Tone Signalling

FIELD	FUNCTION	LOCATION
Frequency	Frequency of transmitted Single Tone	CHANGE:RADIO:SIG:SINGLE TONE
Duration	Duration of transmitted Single Tone (ms)	CHANGE:RADIO:SIG:SINGLE TONE
Single Tone Tx Pretime	Length of time between keyup and tone start	CHANGE:RADIO:SIG:SINGLE TONE
Single Tone Sidetone	Enables sidetone during Single Tone Xmit	CHANGE:RADIO:SIG:SINGLE TONE
Side Button Accept Tone	Enables tone when Single Tone side button press is detected	CHANGE:RADIO:SIG:SINGLE TONE
Single Tone On PTT	Enables Single Tone on PTT for the current channel	CHANGE:CHANNEL:OPTIONS
Single Tone On Side Button	Enables Single Tone on side button for the current channel	CHANGE:CHANNEL:OPTIONS
Side Button Function	Assign Single Tone function to a side button	CHANGE:RADIO:SIDE BUTTON

DTMF Signalling

FIELD	FUNCTION	LOCATION
DTMF Tx Pretime	Time after keyup before DTMF tone begins	CHANGE:RADIO:SIG:DTMF
DTMF Digit Duration	Duration of DTMF Digits in timed tone mode	CHANGE:RADIO:SIG:DTMF
DTMF Inter-digit Delay	Wait Time between DTMF Digits in timed tone mode	CHANGE:RADIO:SIG:DTMF:
DTMF Access Code	Auto-Dialed code that accesses phone services	CHANGE:RADIO:SIG:DTMF:
DTMF De-Access Code	Auto-dialed code that terminates phone services	CHANGE:RADIO:SIG:DTMF:
Access/De-Access Type	Determines the Access/De-access type: Auto or Manual	CHANGE:RADIO:SIG:DTMF: CONFIG
DTMF Tone Type	Selects Timed or Continuous DTMF tones	CHANGE:RADIO:SIG:DTMF: CONFIG
DTMF ANI Type	Determines when the DTMF ANI transmitted	CHANGE:RADIO:SIG:DTMF: CONFIG
DTMF ANI Code	DTMF digits transmitted for user identification	CHANGE:RADIO:SIG:DTMF: CONFIG
DTMF Pre-emphasis	Enables pre-emphasis circuits for DTMF	CHANGE:RADIO:SIG:DTMF: CONFIG
DTMF Sidetone Type	Sets type of sidetone heard when DTMF is being dialed	CHANGE:RADIO:SIG:DTMF: CONFIG
PTT-ID	Enables DTMF ANI encode for the current channel	CHANGE:CHANNEL
Side Button Function	Assign phone encode function to a side button	CHANGE:RADIO:SIDE BUTTON
User Phone List Programming	Enables user's ability to modify the phone number list.	CHANGE:RADIO:SIG:DTMF: CONFIG

Scan Signalling

Field	Function	Location
Scan List Channels	Allows channels to be entered into Scan List	CHANGE:RADIO:SCAN LIST SCAN LIST
Scan Type	Selects whether Scan is priority or not	CHANGE:RADIO:SCAN:CONFIG
PL Scan	Selects how radio scans for PL	CHANGE:RADIO:SCAN:CONFIG
Priority Chan Unmute	Forces Selective Call Logic to true on Priority Channel	CHANGE:RADIO:SCAN:CONFIG
Priority Chan Defn	Selects how the Priority Channel is determined	CHANGE:RADIO:SCAN:CONFIG
Fixed Priority Chan	Selects a specific Priority Channel for Fixed Priority	CHANGE:RADIO:SCAN:CONFIG
Designated Tx Channel	Selects a specific channel for all transmissions in Scan	CHANGE:RADIO:SCAN:CONFIG
Talkback Scan	Enables Scan Talkback	CHANGE:RADIO:SCAN:CONFIG
Scan Channel Lockout	Drops channels from Scan List if they have wrong PL	CHANGE:RADIO:SCAN:CONFIG
PL Defeat	Allows Permanent Monitor while in Scan	CHANGE:RADIO:SCAN:CONFIG
Nuisance Delete	Allows deleting of channels with undesirable activity	CHANGE:RADIO:SCAN:CONFIG
Sel Chan Unmute	Forces Selective Call Logic to true on all Scan channels	CHANGE:RADIO:SCAN:CONFIG
Quik-Call II Scan	Enables Quik-Call II Decoder in Scan on Quik-call II-enabled channels	CHANGE:RADIO:SCAN:CONFIG
MDC Decode Scan	Enables MDC Decoder in Scan on MDC-enabled channels	CHANGE:RADIO:SCAN:CONFIG
MDC Sel Cal Scan	Enables scanning for MDC Sel Cal on MDC-enabled channel	CHANGE:RADIO:SCAN:CONFIG
Tx/ Rx Hangtime (Sec)	Sets time radio hangs on channel after activity Stops	CHANGE:RADIO:SCAN:CONFIG
Side Button Assignment	Assign Scan/Scan Programming functions to side buttons	CHANGE:RADIO:SIDE BUTTON
Chan Slaved Auto Scan	Dedicates Channel Selector position to turn Scan On/Off	CHANGE:CHANNEL: OPT
Scan Programming Alert	Enables tone when entering/exiting Scan programming	CHANGE:RADIO:ALERT TONE CONFIG
Priority Chan Lock Alert	Enables tone when activity detected on Priority Channel	CHANGE:RADIO:ALERT TONE CONFIG

Time-Out Timer

Field	Function	Location
Time-Out Timer	Sets timer duration radio-wide	CHANGE:RADIO:SYS CONFIG
Time-Out Timer	Enables Time-Out Timer for the current channel	CHANGE:CHANNEL:OPTIONS
Time-Out Timer Alert	Enables Alert Tone when timer expires	CHANGE:RADIO:ALERT TONE CONFIG
Time-Out Timer Pre-alert	Enables warning tone four seconds before timer expires	CHANGE:RADIO:ALERT TONE CONFIG

Battery Saver

Field	Function	Location
Battery Saver	Enables Battery Saver for the current channel	CHANGE:CHANNEL:OPTIONS
Sleep Period	Time radio will be dormant in Battery Saver on Quik-Call II channel	CHANGE:RADIO:SIG:QUIK-CALL II
CS Sleep Period	Time radio will be dormant in Battery Saver on CSQ Channel	CHANGE:RADIO:SYS CONFIG
PL Sleep Period	Time radio will be dormant in Battery Saver on PL Channel	CHANGE:RADIO:SYS CONFIG
Battery Saver PL Lockout	Disables decoding of PL until Carrier drops after wrong PL is detected	CHANGE:RADIO:SYS CONFIG

Option•Mate

Field	Function	Location
Plug-in Board	Changes radio's audio routing path to route Tx and Rx audio through Option Board	CHANGE:RADIO:CONFIG:OPTION•MATE

Controller Board Initialization

Field	Function	Location
Serial Number	Inputs serial number during initialization of a replacement Controller Board	SERVICE: CONTROLLER UNIT

Permanent Monitor

Field	Function	Location
Permanent Monitor	Enables entry to Permanent Monitor mode	CHANGE:RADIO:SIDE BUTTON
Monitor Long Press Period	Sets the time that the Monitor button must be held down to enter Permanent Monitor	CHANGE:RADIO:SIDE BUTTON
Permanent Monitor Definition	Sets squelch state in Normal Monitor and Permanent Monitor	CHANGE: RADIO:SIDE BUTTON
Tx Inhibit Monitor	Enables monitoring of channels with Tx Inhibit on Busy	CHANGE: RADIO:SIDE BUTTON

Tx Inhibit on Busy (Smart PTT)

FIELD	FUNCTION	LOCATION
Tx Inhibit On Busy	Enables Tx Inhibit on Busy Per Channel	CHANGE: CHANNEL
Clear Channel Definition	Sets what is defined as a Busy Channel (radio wide)	CHANGE:RADIO: SYS: CONFIG
Quick Key Override	Allows user to override Tx Inhibit on Busy	CHANGE:RADIO:SYS:CONFIG
PTT Tx Inhibit Alert	Enables warning tone when user presses PTT on busy channel	CHANGE:RADIO:ALERT TONE CONFIG

Monitor

Field	Function	Location
Talkaround	Enables channel for direct operation with Mode Switch	CHANGE:CHANNEL
Mode Switch Assignment	Allows switch to be configured for Talkaround	CHANGE:RADIO:MODE SWITCH
PTT-ID	Incompatible with talkaround on the same channel	CHANGE:CHANNEL
Repeater Access	Incompatible with talkaround on the same channel	CHANGE:CHANNEL

Notes

Glossary

Active channel	The channel on which the radio is receiving or transmitting.
Adjustment	A means of tuning a radio parameter to a specified value.
Align	To adjust any parameter that can be tuned to obtain optimum product performance.
Antenna connector	The UHF/VHF RF coax connector located on the top of the radio used to connect the antenna to the radio.
Archive file	The contents of the radio's codeplug. A computer disk or diskette file that contains the personality data of a radio. Archive files are named according to radio serial numbers.
Asynchronous Communication	A method of data communication in which information is transmitted one character at a time, with no specific starting time. Each character is preceded by a start bit and followed by one or more stop bits.
CA	Call Alert.
Call Alert	A Stat-Alert signalling feature that is similar to a tone-only or a tone-and-voice pager. The "page" can leave a persisting indication on the target radio. A Call Alert stops the channel scan until the alert is cleared.
Call light	A visual indicator that flashes when a transmission is received.
Call list	A list of IDs, from one or more signalling formats, used to send a message to individual groups.
Channel	A single path, separated by frequency or time divisions, for transmitting electrical signals. A receive (one-way) or receive-and-transmit (two-way) frequency path.
Cloning	A Radio Service Software function which allows quick duplication programming of one radio's codeplug data to multiple other radios. Electronic tuning/alignment information is the only data not copied.
Cloning cable	A radio-to-radio connector cable used to program one radio's personality into another radio.
Codeplug	The solid-state EEPROM device inside a radio that contains the radio's personality data.
COMport	The logical name of the serial port available on IBM PC computers. They may be COM1, COM2, COM3 or COM4.

Communications port	See COMport.
Database	An organized file containing records or related data.
Data entry screen	Formatted display with highlighted fields for entering data or parameters.
Data Operated Squelch	See “DOS”.
Defaults	Standard settings that the RSS uses for I/O port locations, file locations and display settings.
Default Drive	The disk or diskette drive that the RSS will use to get or save data or files. You can change the default drive from the SERVICE SOFTWARE CONFIGURATION MENU.
Default field value	The values a field will automatically contain if a user does not specifically change it.
Directory	A location for a group of files on a disk/diskette which are similar in content.
Diskette	An alterable, semi-flexible, magnetic storage medium used by microcomputers to store data and files. Also called a disk, floppy disk, or mini diskette. The RSS is delivered on diskettes.
Diskette drive	A disk drive that uses removable magnetic diskettes.
Display	The CRT terminal that the computer displays information on.
DOS	Data Operated Squelch. When enabled, DOS will detect an incoming packet of the same signalling scheme as the radio, and squelch the audio for the duration of the packet. A small blip of data will be heard, but most of the packet will not be heard.
EEPROM	Electronically Erasable Programmable Read Only Memory. Used by the radio microcomputer system to store the radio’s codeplug data (personality).
Emergency Alarm	A feature that triggers an alarm output on a console when an emergency signalling message is received.
Encoder features	Features relating to transmit (or encode) portion of a signalling system or systems.
Error	Any condition that prevents the RSS from functioning normally or any input/response that deviates from what the RSS was designed to accept. The RSS typically displays an error message and the computer “beeps”.
Exit	To leave the current display screen and return to the previous screen. The RSS uses the **F10** function key for all exit operations.
Field	The modifiable area located next to a feature on the screen. The currently selected field is always highlighted.

Field choices	A set of direct-entry values (or values that can be scrolled) from which a user may select to populate a field (feature) on an RSS screen.
File	A collection of data or information stored on a computer disk or diskette that can be read by a computer. If a file is "executable" (a .EXE at the end of a file name), it is sometimes called a command or a program. Also see "Archive file".
Fixed disk	See "Hard Disk".
Floppy disk	See "Diskette".
Floppy disk drive	A disk drive that uses removable magnetic disks.
Frequency	The location of an RF channel operating in the radio spectrum (typically measured in MHz).
Function keys	The ten (or twelve) keys located on the PC keyboard that are labeled **F1** through **F10** (or **F1** through **F12**) that perform specific functions within the RSS.
GET	The computer action that transfers data from a radio codeplug or from a radio archive file to the computer's RAM for use by an RSS user. Synonymous with "read".
Hard disk	An alterable permanent magnetic storage medium with a much larger storage capacity than a diskette, located inside the computer's system unit, not visible from the outside. Typically a microcomputer hard disk can store 10 to 200 million pieces of data, compared to approximately 400,000 to one million pieces for a diskette.
Help	An on-line reference manual accessed using the **F1** function key. Press the **F1** function key at any time for additional information about the current menu or highlighted data field on a screen.
Highlighting	Displaying text on the display by using dark letters on lighter background or vice versa.
Home channel	The channel the user was on prior to pushing the scan button.
Inverse video	Displaying text on the monitor by inverting the video. (For instance, black becomes white and white becomes black.)
kHz	Kilohertz, thousands of cycles per second.
Logic board	The circuit board within the radio that contains the embedded microprocessor and other logic-related components.
Menu	Contains a list of functions that can be selected and performed by pressing a function key. Also see "Screen".
Microcomputer	A personal computer that comprises a keyboard, a monitor, and a system unit (used to program features into and control the functioning of the radio).
MHz	Megahertz, million of cycles per second.

Mode	A mode is a collection of personality values, such as frequency, PL codes and scan lists, and is assigned a number in the Name field.
Mode number	The number assigned to a particular mode.
MS-DOS	Microsoft Disk Operating System. DOS is a group of programs that control the way the computer interfaces with other programs, that instructs the computer how to use, read and return information to and from application programs and how to organize/use information on disks.
Operating System	A computer program that coordinates your computer's activities, such as memory allocation, file management, input and output operations, communications and interfacing to other application software packages, such as the RSS.
Path	The location of a sub-directory on a disk or diskette. Paths start at the root directory of the disk or diskette and end at the directory containing the desired file. For example, the directory path C:\MRSS\GM300\ARCHIVE shows the hierarchy or ordering of directories the computer must descend to reach a file located under the ARCHIVE directory.
Path name	See "Path".
PC	Personal computer.
Personality	A term used to describe the data in the radio's codeplug or in an archive file that contains a set of unique features that is customer specific.
Pop-up window	A message area which overlaps on a data entry/display area; used to indicate a data entry error or to verify destructive commands and provide function key choices for the next course of action. Also known as the Dialog Box.
Port	A parallel or serial hardware interface connection at the back of a computer used to communicate with other hardware devices, such as a radio, a modem or a printer. A port is normally designated by a slot position such as COM1, COM2, COM3 or COM4.
Program	1) A set of computer instructions designed to have the computer perform a specific sequence of actions. 2) A means by which data in the workspace is transferred from the computer to the radio's EEPROM.
Program tree	A figurative term used to describe the organization of a multi-level menu-driven software program.
PTT	Push-To-Talk feature or button.
PTT-ID	Push-To-Talk IDentification. A feature that sends your radio's identification number on each transmission.
Radio Interface Box	See "RIB".

Radio Interface Cable	A cable that allows the radio to be connected (interfaced) with a host computer for programming or tuning.
Radio Service Software	Software purchased by Motorola product resellers through a license agreement that is delivered on a 3-1/2" diskette(s) and used to program two-way radios with a unique set of features called personalities.
RAM	Random Access Memory. A PC's RAM is used to store the contents of the current workspace. The radio's RAM is loaded with a copy of the EEPROM data. The program will sometimes write to the radio's RAM to temporarily change certain features in order to provide the user with immediate feedback. These changes will not become permanent in the radio's codeplug until the radio is programmed.
Read	The means by which a radio's codeplug information is transferred from the radio's EEPROM to the workspace via the RIB.
Receive frequency	The center of the receive channel in MHz.
Restore	File management function which enables copying from one computer file to another existing file (i.e., from back-up to working copy).
RIB	Radio Interface Box. Used to connect a computer system to a radio for the purpose of communication between the radio and the computer. The RIB consists of level-shifting circuits that convert from the standard RS-232 voltage levels of the computer's asynchronous serial interface to the single-ended voltage levels present on the Serial Bus contacts of the radio's feature connector. In conjunction with the RIB, an appropriate RIB-to-radio cable and RIB-to-computer cable must be used.
Root	The highest or topmost directory level of a computer disk or diskette.
RS-232	An asynchronous, serial data transmission standard that defines the required sequencing, timing and hardware interface.
RSS	See "Radio Service Software".
Scan	Scan is the process by which the radio checks receive frequencies stored in a list for activity. If activity is found, then the radio is locked on that frequency until the frequency is no longer active.
Screen	A screen contains four rectangular areas, one of which (the working area) contains a list of fields (features) that can be viewed and programmed by the RSS user by pressing certain keyboard keys. Also see "Menu".
Serial ports	See "Port".
Signalling systems	Systems used to alert radio operators or to perform specific functions using the radio.
Squelch	A radio circuit which eliminates noise from the loudspeaker when a "received" signal is not present.
Sub-directories	A group of related files that are located on a hard disk or diskette. Sub-directories are used to organize your disks. Also see "Path".

Synthesizer	The frequency generating unit of a radio.
Tab	A keyboard key which moves the prompt to the next data entry field.
Talkaround frequency	A frequency used for simplex conversions or radio-to-radio communications without the use of a repeater.
Talkback	Indicates that a call can be answered by pressing PTT and dispatching a response.
Talkback scan	Allows the operator to respond to a call on the same channel as the call during the talkback time in scan.
Time-Out Timer (TOT)	A function that limits the transmission period to a pre-defined time. The radio will automatically stop transmitting when the timer goes off after the pre-defined time and will generate an alert tone to notify you that no transmission is taking place.
Workspace	The contents of the radio's EEPROM transformed into ASCII values and stored in the computer's RAM while the RSS is being used.

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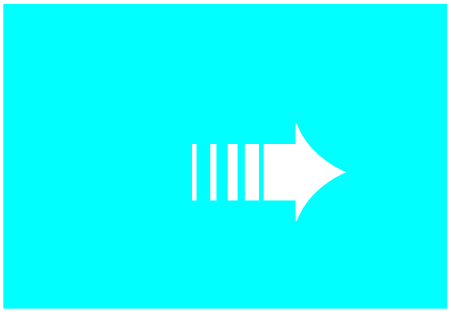

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Notes

RADIO SERVICE SOFTWARE
USER'S GUIDE QUESTIONNAIRE

At Motorola, we believe that comments from users provide valuable information in producing high-quality User's Guides. You can help us improve the next revision of this manual by filling out this form and sending it to us.

With reference to Manual No. 68-81073C55-F

HT/JT1000/VISAR

Use the following scale to answer each question listed below. If you have a specific comment about any section, please write it in the space below the appropriate question.

Strongly Agree	Agree	Disagree	Strongly Disagree
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1. The list of required equipment and the setup procedure are clear and complete.	1	2	3	4
2. The procedure for backing up and installing the software is clear and complete.	1	2	3	4
3. The explanations of keyboard commands and screen arrangement are clear.	1	2	3	4
4. The explanation of Get/Save/Clone/Program procedures is clear and complete.	1	2	3	4
5. The explanation of Change/View procedures is clear and complete.	1	2	3	4
6. The explanation of Programming procedures is clear and complete.	1	2	3	4
7. The explanation of Service/Alignment procedures is clear and complete.	1	2	3	4
8. The explanation of how to print the codeplug is clear and complete.	1	2	3	4
9. The Table of Contents and Index are complete and accurate.	1	2	3	4
10. The illustrations and tables added to the understanding of the explanations.	1	2	3	4
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