Limited Warranty Statement

Infinity warrants this product to be free against defects in materials and workmanship as follows:

- Labor: For a period of two years from date of purchase, if this product is determined by Infinity to be defective, Infinity will repair and/or replace the product with a new or rebuilt unit or repair at no charge. After the warranty period, you must pay for all labor and parts charges. Customer to ship the radio pre-paid via UPS ground to Infinity for evaluation. Infinity then will credit the UPS costs at its sole option. If the radio is found to be defective under warranty, Infinity will repair/exchange per the above policy, sending the unit back freight prepaid to Customer. If found to be a customer caused problem or abused and outside of above warranty, customer to pay for freight charges to and from factory plus repair charges at current published repair rates.
- Parts: If a warranty issue, Infinity to supply at no charge, new or rebuilt replacements for defective parts for a period of two years. After the warranty, standard repair or replacement rates apply.
- SERVICE: To obtain warranty service, you must communicate with Infinity directly, and then once an RMA Return Materials Authorization Number is received, to ship it back in its original carton, or in packaging offering an equal degree of protection, to Infinity, freight prepaid with insurance.
- This warranty does not cover the battery which has a one year prorated warranty, nor does it cover customer instruction, installation, setup, programming, adjustments or signal reception or transmission.
- This warranty does not cover any units which have been previously altered, repaired, or serviced by anyone other than Infinity or used with accessories not approved by Infinity. This warranty does not cover cosmetic damage or damage due to acts of god, accident, misuse, negligence, or modification to any part of the product
- This warranty does not cover products sold AS-IS or with FAULTS.
- No particular merchantability of this product is implied or stated.
- Proof of purchase in form of a bill of sale or receipted invoice, evidence that the unit is within the warranty period and must be presented to obtain warranty service. Warranty is offered only if a WARRANTY REGISTRATION CARD has been filled out and sent to Infinity, either by Mail or Email, with 15 days of purchase. This warranty is invalid if the factory serial number applied has been altered or removed from the Product. Re-Sellers may have additional Warranty Statements

REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. INFINITY SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW. ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICUAL PURPOSE ON THIS PRODUCT IS NOT MADE OR IMPLIED BY INFINITY.

Infinity

P1000/1010/1045
Standard and P Series
VHF or UHF
User's Manual

Note: Pager function is programmed only via programming s/w. Requires additional programming software and cable.

WARNING!

Read the instruction manual completely before use.

-Install the antenna first and then the battery as pictured in the manual.

-Charge the battery 14-24 hrs before use even if the green LED on the charger is present, this to condition the battery. DO NOT OVERCHARGE!

-DO NOT install the battery or use the radio with out the proper antenna attached.

Failure to perform these steps may damage the radio and void the warranty. Warranty card needs to be returned for warranty to be validated.

Kirmuss & Associates
Worldwide Technologies Direct
Infinity Advanced Technologies

1340 West 43rd Drive, Unit 11
Golden, Colorado, USA 80403
tel: 303 263 6353 fax: 303 862 7170

Rev08-04-01

© 2005-2008 Specifications subject to change without notice. Failure to read and following the guidelines established in the manual may void warranty. Restricted to Public Safety, Fire/EMS use. License to operate is required. Customer is solely responsible for full compliance with local, state and federal laws regarding product usage. Tampering or modifying unit voids FCC Approval and Warranty.

To our Valued Customers:

Thank-you for purchasing an INFINITY two way portable transceiver. Designed in the USA, built in Hong Kong, this robust, compact, easy to use radio incorporates the latest technologies, providing reliable performance at an unprecedented low cost. Before operating this radio, please read this manual carefully. Failure to do so may void warranty.

RADIO FREQUENCY ENERGY SAFETY INFORMATION

This transceiver has been tested an complies with both national and international standards in regards to Radio Frequency (RF) energy emitted and guidelines regarding human exposure to RF energy. The radio complies with FCC and IEEE guidelines for occupational use/controlled RF exposure environments, where duty talk cycles should be limited to 50% talk, 50% listen based on recommendations by the National Council on radiation Protection and Measurement as well as the American National Standards Institute.

Reference:
FCC OET Bulletin 65, Edition 97-01 Supplement C;
47 CFR 1.1307; 1.1310 and 2.1093
ANSI C95.1.1992
ANSI C95.3.1992
Ministry of Health Canada Safety Code 6

Controlling your exposure to RF energy

To control your exposure to RF and comply with the maximum exposure limits for occupational/controlled environments, follow these guidelines:

1) Do not talk (transmit) on the radio more than the rated transmit duty cycle. This is important because the radio radiates more energy when it is transmitting than when it is receiving.
2) When listing and talking on the radio, hold it upright in front of your face so that it is at least one inch (2.5 cm) away from any part of your face. Keeping the radio at the recommended distance is important because exposure to RF decreases rapidly the further away the antenna is from your body

Once configured to send out a Page:

1. **Select the channel to the Group or Team or Members that you wish to Page by using the channel selector.**

NOTE: As there are 128 channels available for programming, we suggest that all channels that will be used to send out a page could be entered and programmed as well as identified separately as such. Ex: Channel 30 corresponds to FDPAGE (as seen on the LCD screen for Fire Dept.); Channel 31 corresponds to EMS PG. (for EMS Members). Then perhaps program in Channel positions 1 and 2 these channels with std CTCSS PL tones and use without page feature. (Calling them FIRE and EMS, using them for regular radio traffic)

As a programming consideration, if this radio is to be used to receive traffic from responders answering the page sent out by the user of this radio, these PASGE OUT channel should be set NOT TO DECODE or RECEIVE any pages, this so that the User (in this case Chief) may hear the responders reply to the message or information sent.

>If this is the case, then a separate DECODE/Receive channel should then be set up to act as a paging receiver for the user to receive pages from dispatch or others. That channel in turn will not be set up to ENCODE or send out a page.
Ex. Channel 40 corresponds to FDPGRX (as seen on the LCD Screen); Channel 41 corresponds to EMSPRX

2. To send out a Page and Message:

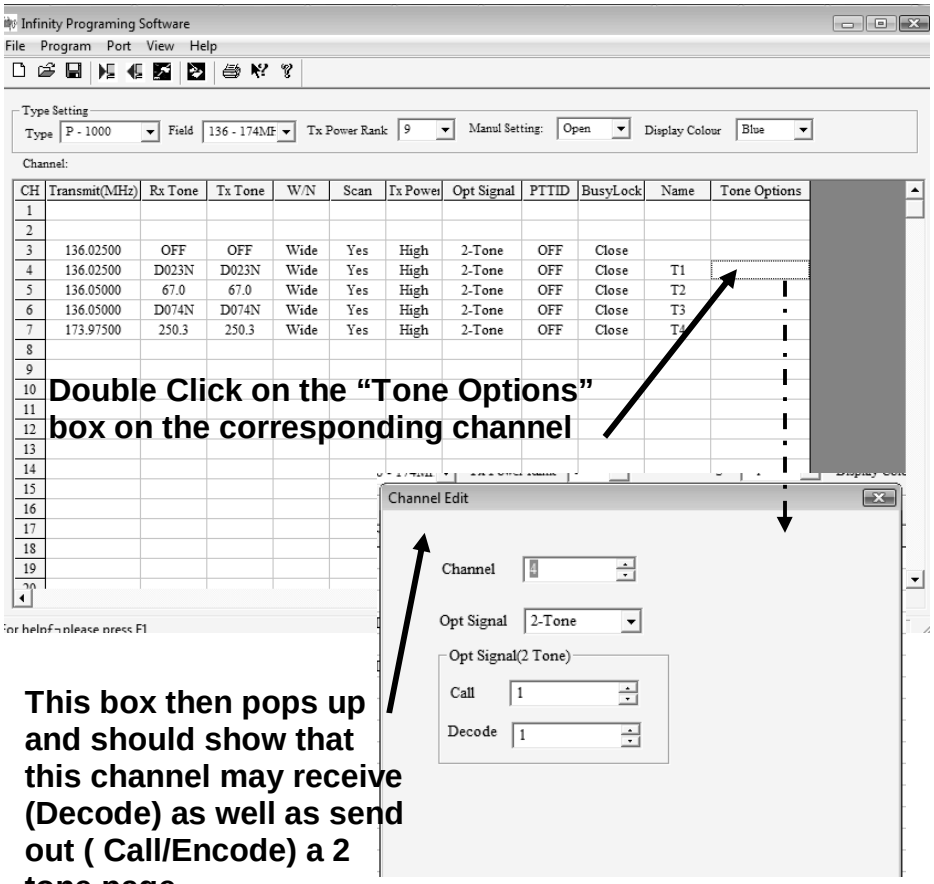
Press and hold down the Orange Button until you hear a “Beep” from the Radio’s speaker.

With the Orange Button being held down, both the RED LED atop the radio and the RF Power Bar meter on the lower part of the LCD will illuminate indicating that your radio is transmitting.

When the “Beep” is heard, the transmitter will shut down. The RED TX LED on the top of the radio and the RF Power Meter on the LCD will turn off. Then use the PTT button and speak normally into the microphone, announcing the details of the page message to all units that were paged that were on that channel.

To Generate a Call (Tone) Group Page (Use by Fire Chief, Command Staff etc.)

First: Your radio must be programmed to send a page (set to encode)



Double Click on the "Tone Options" box on the corresponding channel

This box then pops up and should show that this channel may receive (Decode) as well as send out (Call/Encode) a 2 tone page.

The Tone Frequencies for both Encode (Call) and Decode (Receive) are set up as shown on page 33.

OPERATIONAL INSTRUCTIONS & SAFETY GUIDELINES

RF ENERGY EXPOSURE IS DETERMINED PRIMARILY BY THE DISTANCE TO AND THE POWER OF THE TRANSMITTING DEVICE. In general, RF exposure is minimized when the lowest possible power is used and transmission time is kept to a minimum consistent with effective communications and the antenna is at the furthest possible distance from the body. Users should transmit no more than 50% of the time and follow the guidelines:

To Transmit and Receive: You must be properly licensed by the FCC or your governing radio communications authority to use this radio on the programmed frequencies.

To Transmit, first hold down the MON (Monitor) button for a moment to make sure that the channel is not busy with other traffic that you may not hear this depending on the TONE that may be programmed in shared transceivers if the channel is a shared frequency with other users with different CTCSS/CDS Tones. You may also look at the signal strength meter to ensure that the channel is clear.

To transmit: Push and hold the Push– to-Talk (PTT) Button; speak in a normal voice. There is a 1/4 second delay before the radio transmits as the antenna is tuned to the frequency/channel being used

To Receive, release the PTT button.

Hand-held Transceiver Operation:
Hold the radio in a vertical position with the radio approximately 1.5 to 2.5 " away from your lips.

Body Worn Application:
As in most cases whenever using an approved case and body pack for this transceiver or not, use of this radio with the antenna touching the body may exceed the FCC RF exposure guidelines.

Antennas & Batteries
Use only Infinity supplied and approved antennas and batteries. Use of non approved accessories and attachments as well as user modifications could not only damage the radio and void warranty, but also may void FCC regulations as well as exceed RF exposure limits. DO NOT OVERCHARGE BATTERIES. Consult Infinity or your Authorized Reseller/ Distributor if you have any doubts or questions.

Infinity

About Infinity: Infinity radios are sold only through Infinity or Infinity authorized regional resellers. The radio is also field programmable using the keypad (if enabled by the software), or may be programmed by using a computer loaded with optional Infinity programming software with the appropriate interface cable. The sale and use of these radios is restricted to licensed users only. User takes the responsibility to comply with FCC requirements.

About Infinity performance: Users have remarked that the Infinity radio outperforms most if not all major radio manufacturers in direct radio to radio communications (distance). This is due to the superior design of the radio and the built in antenna tuner used in the transceiver.

User Precautions

The following will assist you in fulfilling any warranty obligations.

- No User Serviceable Parts inside. Refer repair to Factory Authorized Personnel only.
- Do not use the transceiver or charge the battery in an explosive environment.
- Keep the transceiver out of direct sunlight, DO NOT expose the unit to extreme heat or cold.
- Keep the transceiver out of dusty or humid areas. IF IMMERSED IN WATER, TAKE OUT OF WATER AND BLOW AIR ACROSS SPEAKER AND SHAKE ANY WATER THAT MAY BE TRAPPED IN FRONT OF THE SPEAKER GRILL.
- Do Not Transmit without an approved antenna connected to the transceiver. ***Install the battery only after the antenna is connected to the radio.***
- Observe common sense when attempting to transmit in areas such as construction sites, mines, hospitals, hazardous environments, etc..

Using your Paging Radio

Typically your radio will have one paging channel .

When using the radio as a paging receiver, set the radio to that channel.

Turn the volume control up all the way.

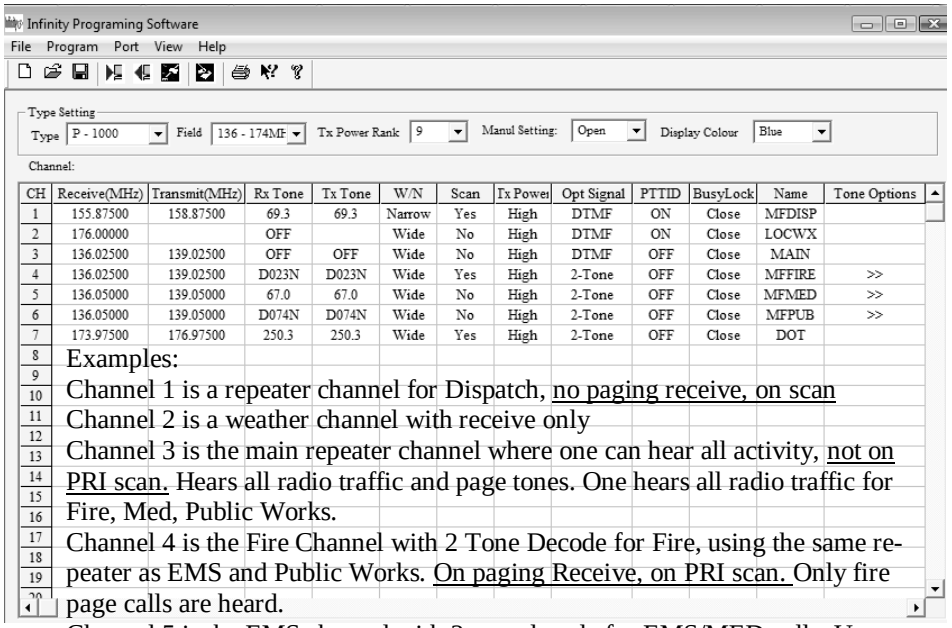
When the radio receives and decodes a valid two tone signal, the radio will emit an audible chime, as well as allow you to hear the message being broadcast by dispatch.

It will continue to allow you to hear the radio traffic until the last transmission occurs or when 20 seconds time of no carrier has elapsed. After 20 seconds of no radio traffic on the channel, the radio will revert back to page receive mode.

How to use your Paging Radio

Once programmed, your radio software programming for the Paging Receive model should look similar to the screens below. This illustration is a sample scenario of a Chief's radio.

It is for illustration purposes only depicting typical radio applications of the P-1000/P1010 P Series radios with paging option.



CH	Receive(MHz)	Transmit(MHz)	Rx Tone	Tx Tone	W/N	Scan	Tx Power	Opt Signal	PTTID	BusyLock	Name	Tone Options
1	155.87500	158.87500	69.3	69.3	Narrow	Yes	High	DTMF	ON	Close	MFDISP	
2	176.00000		OFF		Wide	No	High	DTMF	ON	Close	LOCWX	
3	136.02500	139.02500	OFF	OFF	Wide	No	High	DTMF	OFF	Close	MAIN	
4	136.02500	139.02500	D023N	D023N	Wide	Yes	High	2-Tone	OFF	Close	MFFIRE	>>
5	136.05000	139.05000	67.0	67.0	Wide	No	High	2-Tone	OFF	Close	MFMED	>>
6	136.05000	139.05000	D074N	D074N	Wide	No	High	2-Tone	OFF	Close	MFPUB	>>
7	173.97500	176.97500	250.3	250.3	Wide	Yes	High	2-Tone	OFF	Close	DOT	

Examples:
Channel 1 is a repeater channel for Dispatch, no paging receive, on scan
Channel 2 is a weather channel with receive only
Channel 3 is the main repeater channel where one can hear all activity, not on PRI scan. Hears all radio traffic and page tones. One hears all radio traffic for Fire, Med, Public Works.
Channel 4 is the Fire Channel with 2 Tone Decode for Fire, using the same repeater as EMS and Public Works. On paging Receive, on PRI scan. Only fire page calls are heard.
Channel 5 is the EMS channel with 2 tone decode for EMS/MED calls. Uses same repeater as Fire and Public Works. On paging receive, on PRI scan.
Channel 6 is the Public Works channel with 2 tone decode for Public Works. On paging receive, not on PRI Scan.
Channel 7 is a DOT channel with 2 tone paging receive, not on PRI scan.

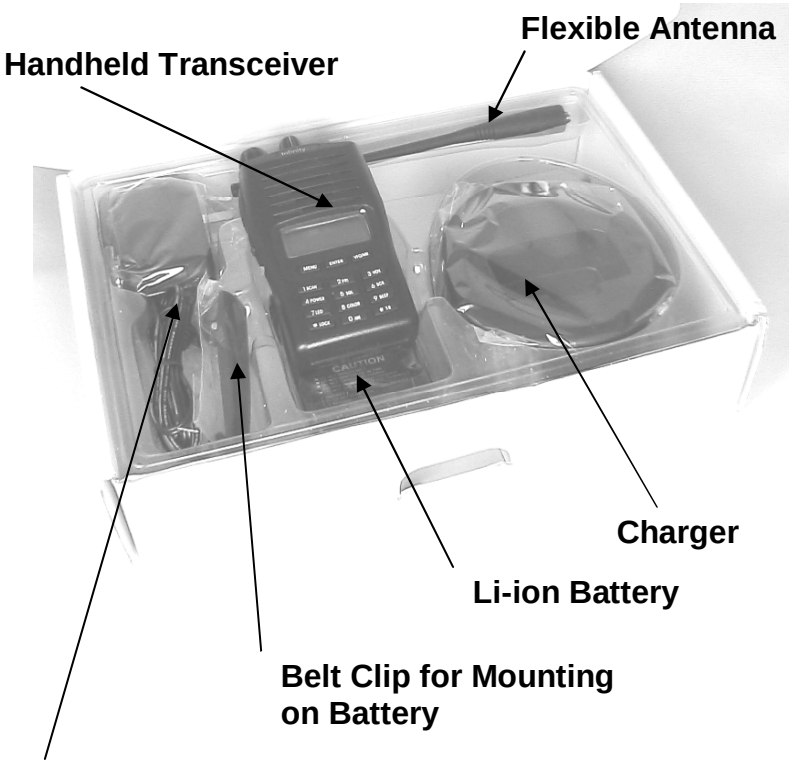
This is the Fire Chief's radio:
-Fire, EMS and Public Works use the same repeater.
-When on PRI scan, his radio scans and listens for pages from both FIRE and EMS. (Channels 4 and 5).
-If he is on Channel 3, he hears all traffic, and all tones generated by the dispatcher 's paging terminal.

>IF THE CHIEF'S RADIO WAS PROGRAMMED TO ENCODE, HE COULD THEN INITIATE A PAGE BY PRESSING AND HOLDING DOWN THE ORANGE BUTTON ON THE RADIO ON THE APPROPRIATE CHANNEL UNTIL HIS RADIO BEEPS AT HIM, INDICATING THAT A PAGE WAS SUCCESFULLY SENT OUT.

Product Features

- 128 channels
- 5 watt (VHF), 4 watt (UHF) power output
- 2 Tone Decode and Encode (P-Option)
- 12.5 KHz narrow/wide band spacing with 2.5 KHz Channel step
- ANI ID code (check compatibility with your radio system)
- VOX operation (for hands free operation)
- LCD display with channel, frequency or English language channel alias
- Scrambler (inverted type) operation (to keep conversations and information secure)
- Three color selectable backlit LCD
- Personal Emergency Alarm
- Programmable by PC or Front Keypad* [*Keypad programming access may be locked out by the software.]
- 50 CTCSS ands 104 DCS Normal/Inverted tones, Selectable
- Time-out-timer
- Busy channel lock-out
- Audible function and channel number (feedback to user if enabled) in English language through radio's speaker

Unpacking (Kit contents)



Unpack carefully the contents of the shipping carton.

Confirm that you have all of the above listed parts in your kit before discarding the box.

You may also have additional accessories inserted in the box, such as an extra rechargeable battery, speaker/microphone, ear mic., PC programming software CD, PC programming cable, manual, etc. depending on your order.

If any items are missing or have been damaged, file a claim first with your carrier, then contact your reseller.

Step 13:
Once all the required parameters have been entered, Click on “File”, then “Save As”, and name the file.

Step 14:
With the radio fully charged, NOW TURN THE RADIO ON.

Step 15:
Click on “Program”, “Write to Radio”, and Start.

A time-line progress bar will appear and indicate that the radio is being uploaded with your data.

IF THIS DOES NOT OCCUR, and an error message appears, there may be a problem with the Port designation (selection of Com Port Number) of your computer. To solve this, click on “Ports”, and change the Port setting, first from “COM 1” to “Com 2” and then try to write to the radio again.

Continue this until the program connects to the radio and writes to the radio.
(You may also read data from the radio).

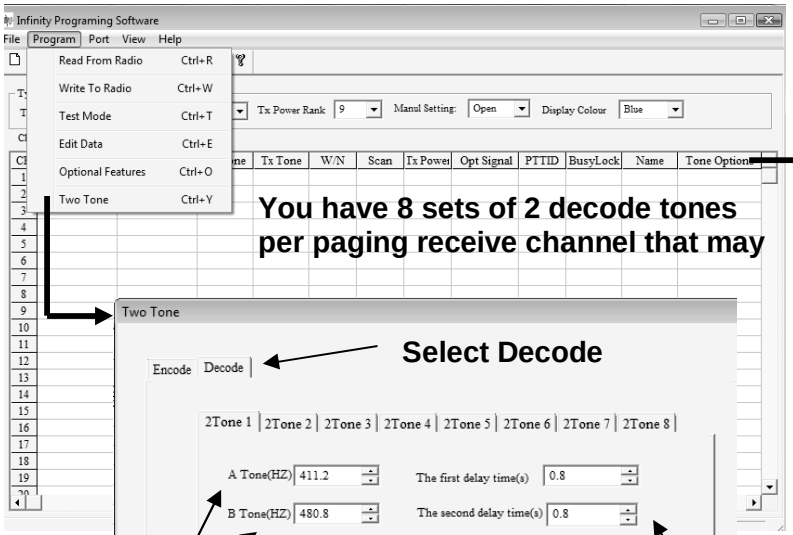
>>>DO NOT USE THE DEBUG OPTION. This may cause problems with writing data to the radio.

Step 16:
After the radio has been programmed, (message appears), you may then turn the radio off and unplug the programming cable. Replace the “SP MIC” plastic cover and you are set to go.

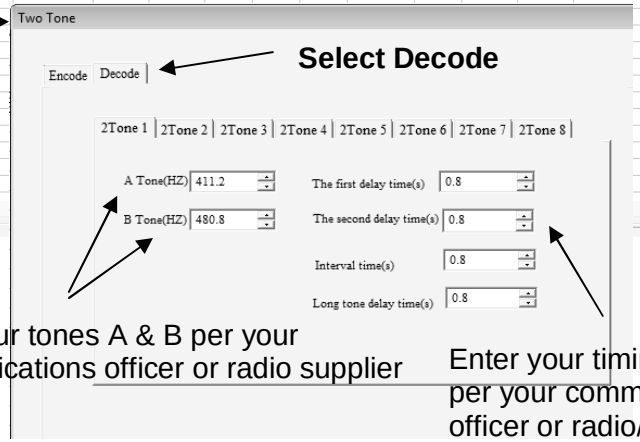
HINT: If you highlight the tabs with your mouse, a pop up will appear telling you what each icon is for.

It is assumed that persons programming the radios are familiar with frequency designations and tones.

Programming 2 Tone Decode (pager function) Only available in P Series Radios Continued.



You have 8 sets of 2 decode tones per paging receive channel that may

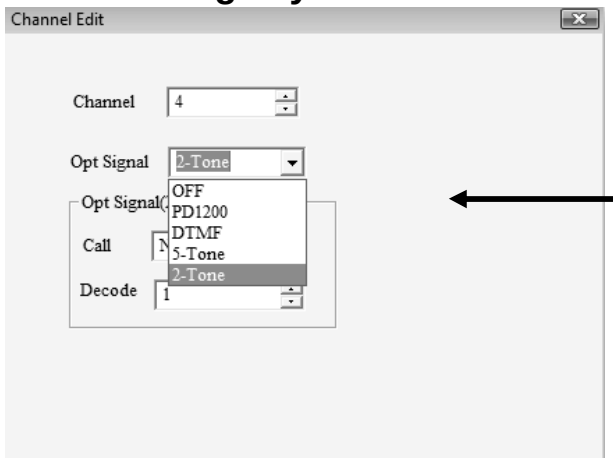


Select Decode

Enter your tones A & B per your communications officer or radio supplier

Enter your timing settings per your communications officer or radio/pager supplier

For all users: This box allows you to set the characteristics of the radio channel: ex: using ANI, 2 tone decode, or having access to a DTMF tone using keyboard.



Transceiver Preparation: IMPORTANT

The factory does not charge the battery before shipping. Follow these instructions precisely. Failure to insert the battery as shown will see the pins on the back of the radio pushed in, causing intermittent contact with the battery. If this occurs, pins need to be pulled out to make contact with the battery pack.

1) Attach the antenna to the transceiver.
2) With the antenna connected, hinge the battery pack as shown below into the bottom of the Transceiver, then snap it in place. Make sure that the battery is properly seated.

HINT: With battery inserted, press down on both sides of the top of the battery against the radio shell to snap the battery into place.

3) You may lock in place the supplied Battery belt clip at any stage. *Depending on the Model of the battery, the clip may already be assembled onto the battery.*

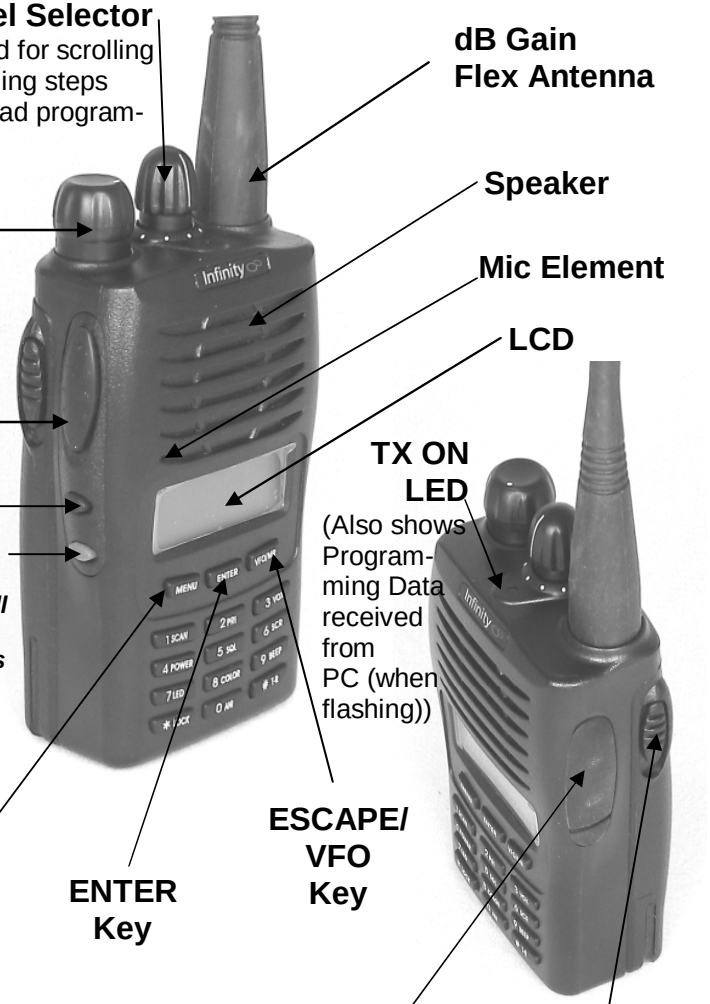
4) Connect the low voltage AC to DC adapter to the Charger Base. The RED LED will flash and then extinguish.

5) Insert the transceiver into the charger. The **RED LED** will light indicating that the battery is charging. The LED will change color to **GREEN** once the battery has reached a useful level. THIS DOES NOT INDICATE THAT THE BATTERY IS FULLY CHARGED. **Continue to charge the battery for another 2 hrs. IMPORTANT: Charge the Battery for 12-14 Hours before using the radio the first time to condition the battery.** NOTE: The Battery may be charged alone, without the radio connected to it. DO NOT OVERCHARGE.

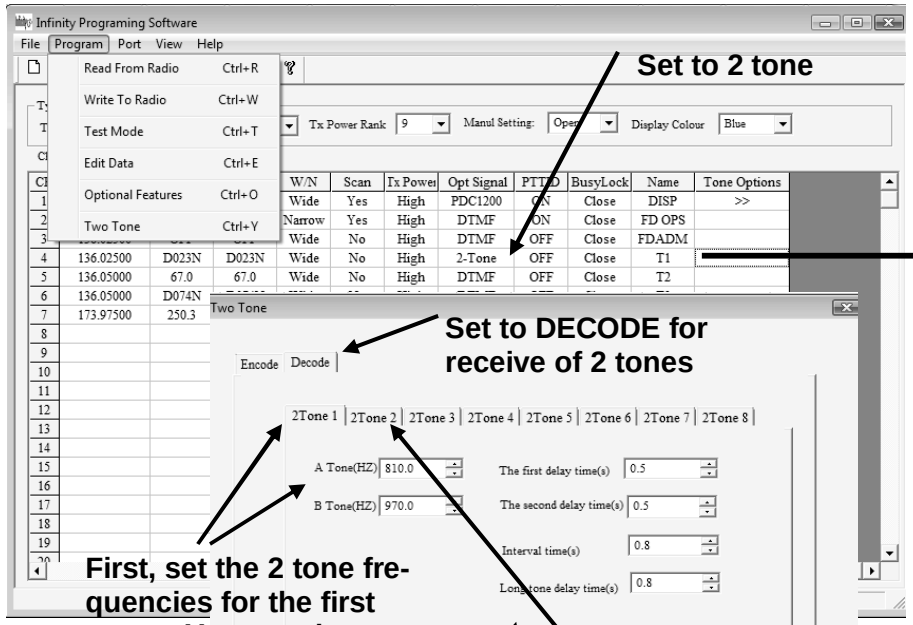
NOTES:

- If the radio is turned on while in the charger, charging times will increase.
- When charging is complete, remove the radio from the charger. Charge the battery for 12-14 hrs the first time.
- When handling the battery or transceiver, do not short the exposed battery connections.

Getting to Know your Radio



Setting the 2 TONE PAGER Receive (Requires P Option radio)



Set to 2 tone

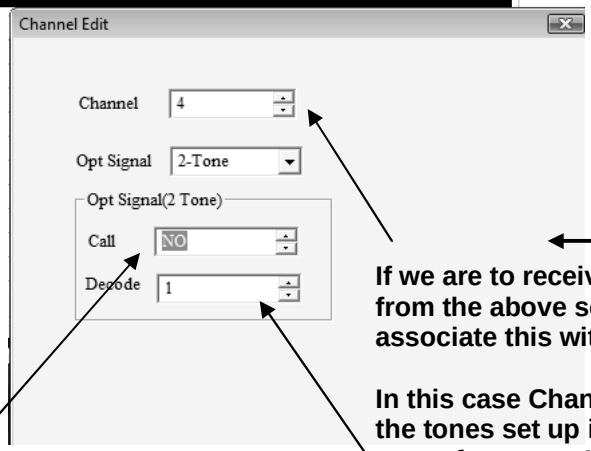
Set to DECODE for receive of 2 tones

First, set the 2 tone frequencies for the first group. You may have more than one group as seen above.

Enter the A and B tones

If you have more than one group, access the tables for the other groups as needed.

SEE PAGE 21 FOR TIMING DETAILS

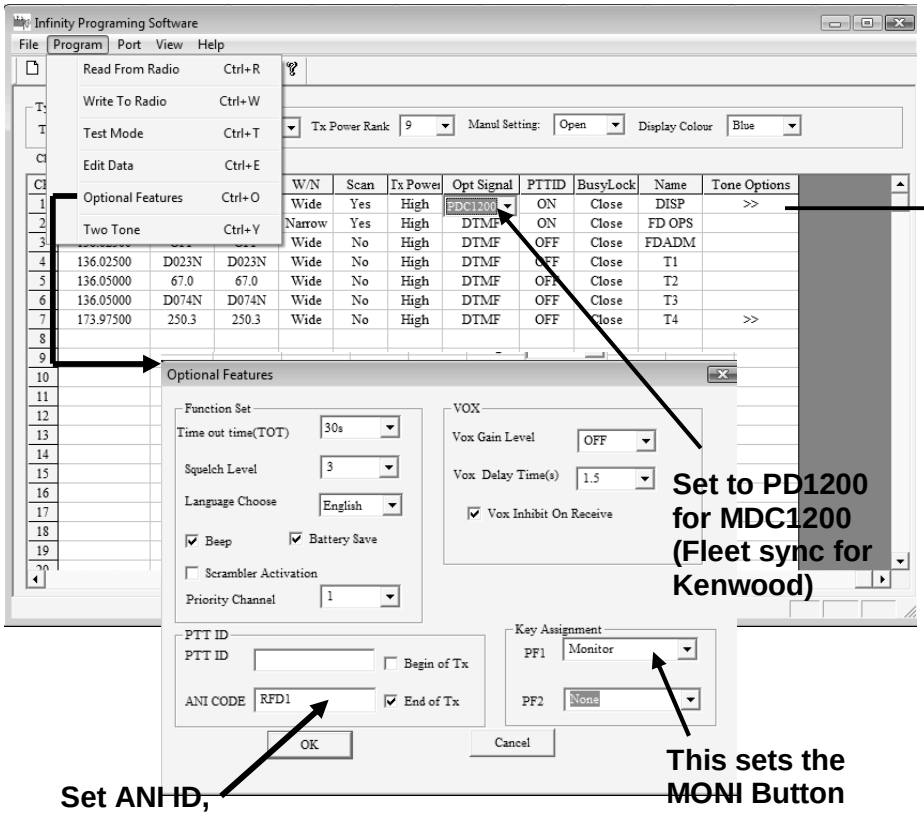


If we are to receive Tone Group 1 from the above screen, we need to associate this with the channel.

In this case Channel 4 is to receive the tones set up in the Decode menu for group 1.

In this situation, this radio user is not allowed to use the orange button to create a 2 tone page call to other radio users.

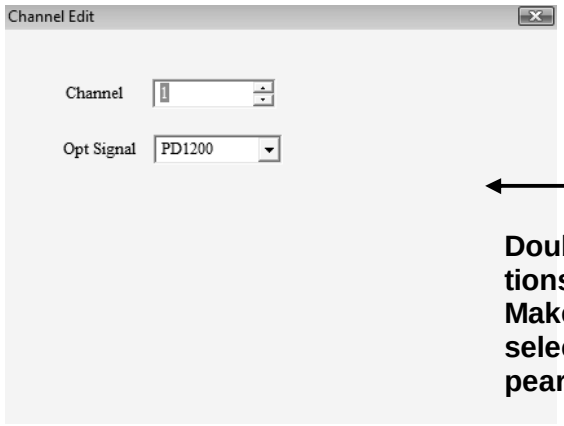
Setting ANI, MONITOR button



Set to PD1200 for MDC1200 (Fleet sync for Kenwood)

Set ANI ID, end or beginning of TX.

This sets the MONI Button function to open up squelch using PF1 button (Page 8) (default)



Double click on Tone Options, this Box appears. Make sure that the Channel selected on the line appears and says PD1200

Protective plastic film on LCD display. This should be removed when radio is placed in service

Li-Ion Battery Pack

Keypad Lock Key

Inverse TX/RX Function Key

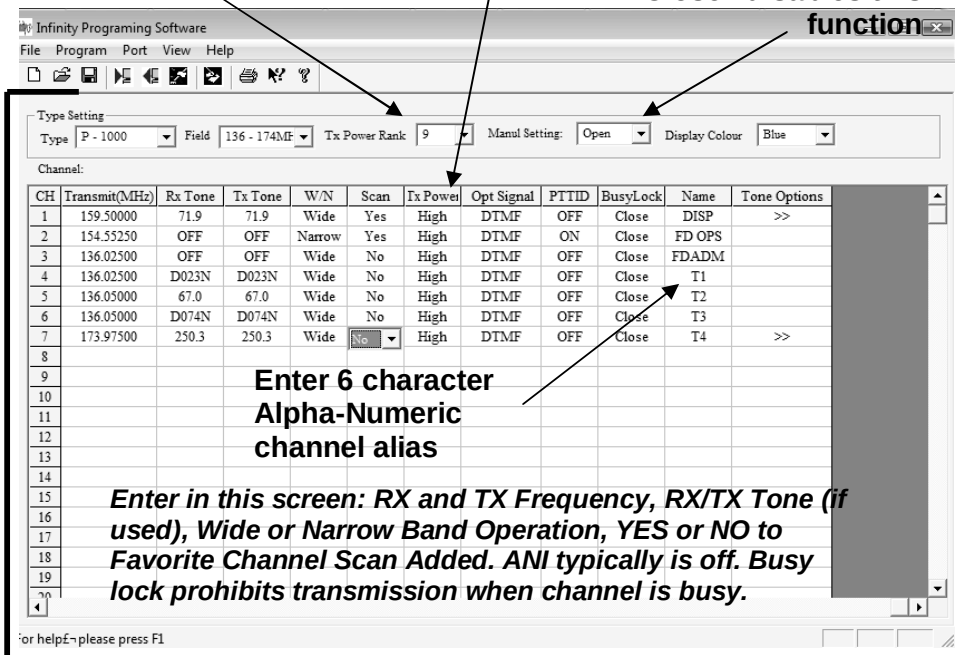
Radio Controls

Power On/Off **Volume Control**	Turns radio On/Off. Adjusts volume.
TX Indicator	Indicates radio is transmitting. Also flashed when in programming mode and using the programming software: flashed when data is being exchanged between the radio and the PC connected to the radio.
Busy Indicator	"Gas gauge" style bar indicator shows received signal strength, and TX power out
PTT Key	Keys the radio's transmitter
MON (Monitor) Key	When pressed, opens up the receivers squelch and removes any CTSS or DCS digital tone
CALL Key **NOTE:** *In the P VERSION for 2 Tone Decode, this key may be configured in the s/w to initiate a Page to all radio users. In this mode when this orange button is pressed and held down until a "beep is heard" from the transmitter, it sends out a page (ENCODE Mode) to all radios on that channel.*	STD: When pressed and held for 2 seconds, sends a sub-audible tone (1750 Hz) over the air, to be heard by another Infinity brand radio. This activates an audible chime on the receiving Infinity radio. Also used to start the "Man Down" Alarm locally and sends an alarm over the air for the duration of the TOT setting heard through the RX and TX radio's main speaker when pressed simultaneously with the MONI key. OPT in P MODE: Sends out a 2 tone page if radio set to ENCODE.
CLR/VFO	Used as "Return" or "Escape" key when programming, as well as other functions when in programming mode.

Max Power = 9
Do Not Change

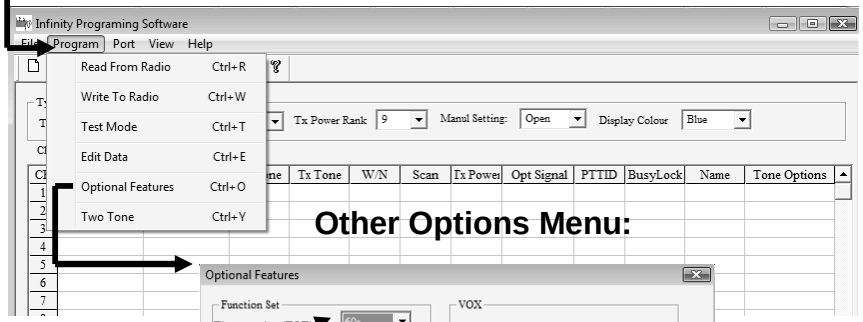
TX Power = Hi
Do Not Change

"Open" allows one to use keypad on radio to program radio, "Close" disables this function

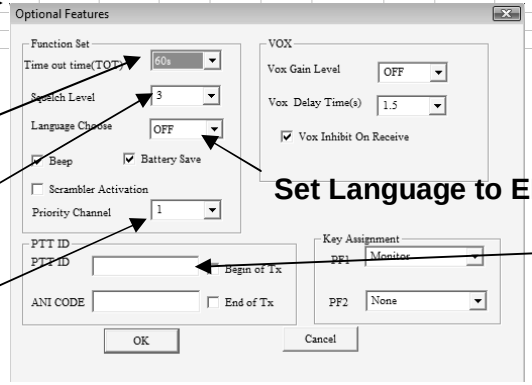


Enter 6 character Alpha-Numeric channel alias

Enter in this screen: RX and TX Frequency, RX/TX Tone (if used), Wide or Narrow Band Operation, YES or NO to Favorite Channel Scan Added. ANI typically is off. Busy lock prohibits transmission when channel is busy.



Other Options Menu:



Set TOT to 60 secs.

Set Squelch to 3

Set Priority Channel to the channel number that you want to home the radio to

Set Language to ENGLISH

For ANI see page 25

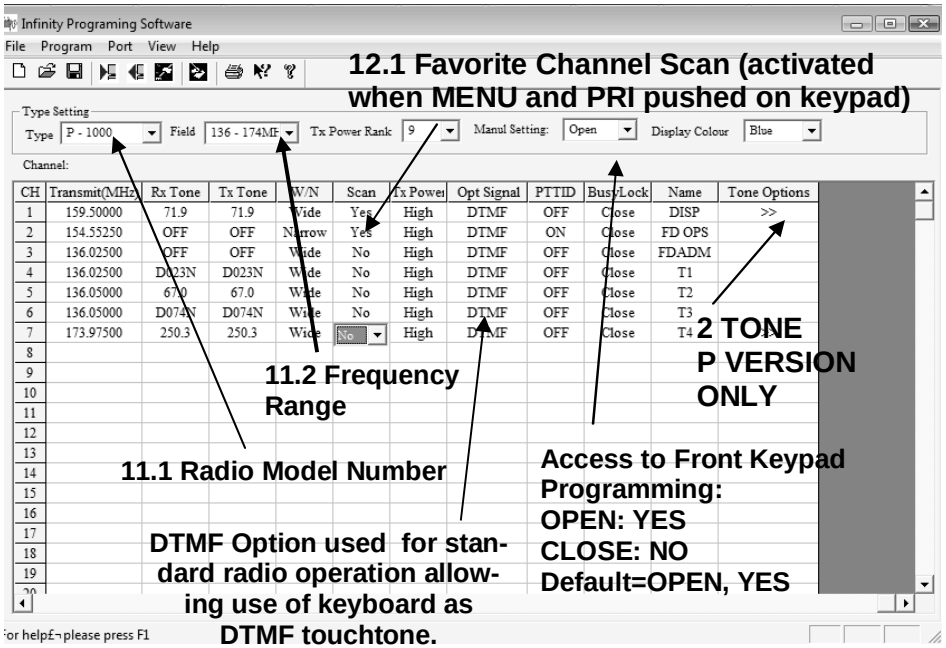
Above diagram represents typical programming for most users

Step 9:
Double click on the “Infinity” icon on the desktop to run the s/w

Step 10:
Once the software is up and running, on the main screen and under the “Type Setting”, select the radio model number in the drag down option.

Step 11:
In the “Field” box, drag down and select the frequency range of your radio. Ex.:136-174 MHz if VHF, etc. depending on model.

Step 12:
Enter all your frequency information and other data; (including RX and TX Tones, wide or narrow band, enter YES or NO for SCAN (this applies only to Priority Channels only accessed on the keypad by the User when one selects PRI function (>do not enter Yes on all channels: “All Channel Scan is automatically selected by the user pressing “MENU and Scan” on the keypad) Typically enter Yes on 3-5 channels to avoid missing key radio activity.



LCD Screen

About Radio Operations. Terminology.

In a wireless Land Mobile Radio (LMR) Communications system, there are two modes of operation: DIRECT (communicating on the same transmit and receive frequency between radio users, sometimes called Radio to Radio); and over a REPEATER (where a portable or mobile radio transmits on one frequency and receives on another).

In DIRECT MODE, there may be obstacles such as buildings or uneven terrain affecting the transmission over long distances of communications between two or more low power (ex. 5 watt) portable radios. In a REPEATER configuration, a radio receiver and high power radio transmitter (example 50 to 150 watts) with two antennas is located on a mountain top or elevated location.

Repeater Operation

Portable Unit 1
Receive: 154.875 MHz
Transmit: 156.090 MHz

Repeater
Receive: 156.090 MHz
Transmit: 154.875 MHz

Portable Unit 2
Receive: 154.875 MHz
Transmit: 156.090 MHz

When it Receives a signal the repeater transmits what it receives simultaneously on the other frequency.

When using a handheld radio, the Repeater due to its better and elevated location receives much better the low power signal of the hand held or other radio units. Once received, the transmitter retransmits simultaneously the received radio transmission from the handheld or mobile radio on a frequency that differs from the received signal. This so-called frequency offset is necessary to prevent the strong transmitted signal from disabling the Repeater's receiver. When strategically located on top of a high building or a mountain top, the Repeater can greatly enhance the performance of a wireless network by allowing communications over distances much greater than would be possible without it. In this case coupled with higher power, the Repeater "repeats" the communications from the hand held or mobile unit that it receives, and increases the range due to the higher power and better antenna and location of this relay station .

Step 5:

Once the installed application is running and you reach the "Customer Information" window, you may enter the serial number of the radio into the serial number field (or the word "infinity". (The serial number for the radio is located on the back of the radio where the battery normally sits.) We suggest entering Infinity as the entry. You may enter "infinity" at all prompts, the s/w is not dependent on passwords or serial numbers.

Step 6:

Once you have gone through successfully the Install Setup Notice, an Infinity icon will be automatically placed on your computer's desktop. The icon will look like the one below, labeled "Infinity".

Infinity.lnk

Step 7:

Locate the programming software cable that was included with your radio. Plug the RS-232 COM connector of the cable (DB9 connector) or the USB connector into one of your available COM or USB ports on your computer. If using a serial cable, remember which COM port it was inserted into….as you will need to know this designation later. Example COM1, COM2, COM3, or COM4.

Note: If using the PG-2 USB Cable and Software, follow the specific software HELP GUIDE that accompanies your USB Software Kit. YOU MUST INSTALL A USB DRIVER TO YOUR PC OR LAPTOP> Follow the USB installation instructions closely. Ensure that device manager sees these ports as such, COM1, COM2 etc…for USB operation.

Step 8:To program:

Insert the other end of the programming software cable plug into the speaker/microphone jack of the radio. To do so you will need to pull back the upper portion of the plastic cover located on the right hand side of the radio labeled "SP MIC", and plug in the connector firmly. **KEEP RADIO POWER OFF AT THIS STAGE.**

Note: Do not confuse the "SP MIC" plastic cover with the PTT key.

2. Using Software to Program the Radio:

To program your radio with software, you will need to order the Model PG-1(serial DB-9 connector to Radio) or PG-2 (USB to Radio) models.

***Minimum Computer System Requirements for Software*:**

Operating System:	Win 2000, XP
Ram:	128MB min
Processor:	850 MHz min

Quick Step Guide

Step 1: Insert the "P1000 Infinity Software" CD into the CD drive bay of your computer.

Step 2:

Once the CD drive folder appears, double click on the folder icon.

Infinity Aug 06 SW.zip

Note: In cases where the file was emailed, the file may be "zipped". Otherwise clicking on the icon extracts the program automatically creating an Infinity Icon on your desktop. It may be either a RAR or ZIP file. In this instance if you do not have a program that can open zipped files, you can go to www.winzip.com or www.rarlabs.com depending on the type of zip file. Once this is done then proceed with the instructions.

Step 3:

Extract the contents of the folder in the recommended directory, or specific directory that you can access easily when using the unzipping program.

Step 4:

Open up the directory/folder that was just created and double click on the executable file inside to run it.

This file will be labeled as "Infinity.exe".

About CTCSS and DCS Tones

Continuous Tone-Coded Squelch System or analog **CTCSS** is a circuit found in a two way radio transceiver that is used to reduce the annoyance of listening to other users on a shared two way radio system, where more than one user group is on the same channel and frequency, (called *co-channel users*). CTCSS filters out other users if they are using a different CTCSS tone or no CTCSS. **DCS is called Digital Coded Squelch, similar to CTCSS.**

Example: One may have both the Fire Dept. and EMS on the same frequency. During standard operations, one may not want to hear the other. The two-way radio receiver's audio turns on only in the presence of the correct sub audible tone that only the radio hears that corresponds to the respective agency's programmed sub-tone. Therefore in this application, Fire uses one sub- tone, EMS another. Conventional radios without CTCSS (or CTCSS turned off, or seeing the User pressing the MONI button on the P-1000) would hear all transmissions from both groups. The Firefighters would have to listen to the radio traffic from EMS while EMS would hear all conversations from Fire.

If the radios are programmed with 2 different CTCSS tones on two different channels using the same frequency, units from each group would only hear radios from their own Department that are programmed to the same CTCSS or DCS code number of their group. Using this also reduces missed messages and the distraction of unnecessary radio traffic from the other Agency. There are many other uses for CTCSS/DCS often called PL TONES (Motorola term) or Channel Guard. (A GE term).

Prior to programming a radio one therefore needs to mark down the following:

- -Receive Frequency
- -Receive Tone (If CSQ is written, there is no tone used)
- -Transmit Frequency
- -Transmit Tone
- -Whether the radio is to operate in narrow or wide band
- -The 6 character description of the radio channel

This information should be available from your communications officer.

Basic Transceiver Operation-Quick Guide

To turn the Transceiver On: With the antenna connected and battery inserted, rotate the power/volume control knob clockwise. All icons on the LCD shall appear momentarily. The screen after self test will then revert to the selected default state: with Channel number and with English Channel Alias name.

Volume and Squelch: The transceiver has a preset squelch level, which may be adjusted (in squelch set up/programming mode in the software or by pressing the MENU key and then selecting squelch when operating the radio in the field.). Lowering this setting opens up the squelch allowing one to hear more distant or noisy stations. This should be set to "3" for normal operation.

Adjust volume as needed using the volume control to your requirement. If there is no one on frequency and nothing is heard from the unit's speaker, you may adjust volume by pressing the MON button (opening up the squelch), and then adjusting the volume level as needed.

Transmitting: It is common practice to hold down the MON button momentarily to open up the squelch or defeat the CTSS tone that may have been programmed to avoid transmitting while another station using another CTCSS or DCS tone is on your radio frequency but not on your tone. If this is the case, you may also consult the "receive signal bar meter" that also shows relative receive signal strength. If another station is on frequency you will see the received signal on this bar graph. If the MONI button would be pushed you would then hear the other station. Consult your communications officer for use of the this formality and see if it applies to your agency. Transmit only when the channel is clear.

Call Tone: Similar to PRS/FRS GPRSM personal family radios, you may ahead of your transmission alert someone audibly of an incoming call. This only works with another P-1000/P-1010 series radio. Press the Orange Call Key and hold it down for 2 seconds. You will see the Red TX LED light up and the TX signal strength meter on the radio's LCD light up, indicating that the radio is transmitting. A "chime" will heard on another Infinity radio tuned into the same channel.

Additional Notes Regarding the Programming of the P-1000 Series Radio
>Entry of Channel Descriptions using Keypad:

You may use either the front keypad to program the radio, or use the Infinity Model PG-1 (serial) or PG-2 (USB) programming cable inserted in the microphone jack which is connected in turn to a PC or laptop using the Infinity programming software. The s/w can lockout the user from accessing the field keypad programmability feature of the radio. CONSULT YOUR AGENCY.

If using the keypad: you may program the English Language channel names (up to 6 alpha or numeric characters). To program manually this channel aliasing using the keypad:

A. Set radio to channel mode (standard operation)
B. With power off, press both "MON" and "MENU" keys, holding the keys down while radio is turned ON.
C. Keep these keys down until you see the word "SELF" appear on the LCD. (This denotes that you are in programming mode)
D. Press "ENTER"
E. "CH—001" appears on the LCD.
F. Rotate the channel selector until you reach the desired Channel number. Press "ENTER"
G. Press "ENTER" repeatedly until you see a series of "_ _ _ _ _ _" (dashes) appear on the LCD, with a small number "10" to the right. This is the line where you can enter a simple channel description. The first "_" line is flashing.
H. Rotate the channel selector until the desired letter or number appears.
I. Press the "#" key to advance to the second character position.
J. Repeat the process using the channel selector to scroll through the numbers and letters.
K. *When finished press "ENTER". Then Press the VFO/MR key twice to exit the program.*

NOTE: With the radio turned on and if the Channel Name does not appear on the LCD screen after programming the channel alias, make sure that the NAME option is turned on. Press the "MENU" button, rotate channel selector to NAME, rotate the channel selector to highlight "ON", press ENTER twice, exit pressing the VFO key. (Page 18, line 15)

Taking Care of your handheld Transceiver

Your transceiver has been designed using the latest in technology along with high temperature flame retardant plastics. Normal regular care an attention will increase the longevity of certain components.

- Handle your radio with care.

- Do not carry the transceiver by either the antenna or the optional external speaker microphone.

- When the speaker microphone or other accessory is not in use, keep the speaker microphone accessory jacks covered by using the rubber flap that is attached to the radio.

- To clean, use a moistened rag with a mild detergent, and with a nearly dried cloth, clean the case, control knobs, and keypad. Never use any chemical to clean the unit.

- Regularly, wipe the battery contacts with a lint-free cloth to remove dirt, grease, or any other materials that may prevent a good electrical connection.

- Never Expose the Radio to direct sunlight, heat or cold for extended periods of time.

Flank Keys

The portable transceiver has the capability to allow the user to create alarms as well as to easily make changes on the go.

LOCAL MAN DOWN AUDIBLE ALARM

- Turn radio on.
- Press both the MON and Orange CALL push buttons simultaneously. A local oscillating tone will be heard through the transceiver's speaker and send a signal for the duration of the TOT time on the channel that the radio was set to, sending out an audible signal over the air. For local speaker, adjust volume as needed.

KEYPAD LOCK

To lock access to the front keypad keys so that they may not be activated or pressed in error with the radio perhaps sitting in the back pocket etc.,

- Press and hold down the ***LOCK** button 2-3 seconds.
- To UNLOCK, press and hold down the ***LOCK** button again for 2-3 seconds.

REVERSE (INVERTED) FREQUENCY OPERATION

For ground operations and to invert the TX frequency split with the RX frequency, press and hold down on # **T-R** key for two seconds until "R" appears on the LCD display. To cancel, press the same button once again for two seconds.

SCANNING: ALL Channels: In Channel Mode: Press the **MENU** button, either rotate the channel selector until you see ***SCAN ?*** displayed on the LCD display. (or press Menu then the number 1 (SCAN) key). Press the **ENTER** button on the keypad. The unit will start its scan going through all channels. To stop, press the **ENTER BUTTON.** When activity is detected, the radio will suspend the scan for 5 seconds unless the **PTT** or **ENTER** key is pressed to end the scan and lock on the active channel.

See next page regarding information on scanning PRIORITY channels.

Flank Keys, con't

PRIORITY (PRI) CHANNEL SCAN: By assigning certain channels during radio programming (using the keypad or s/w) to be considered as PRIORITY channels, press **MENU,** press the **PRI** key, press **ENTER.** The radio will scan the priority channels. (If using s/w to program these PRIORITY channels, mark YES under the SCAN heading; using the keypad for programming, select ADD on line 7.

SELECTING SCAN PARAMETERS: This allows one to change the type of scan. Press **MENU,** use the channel selector and scroll until you see ***SCANS? 13*** on the LCD Display, press **ENTER**, rotate the channel selector until the desired type is seen, press **ENTER.**
***Default is set to "T0".**

T0	Time Operated Scan: After stopping on a channel for a preset time, the radio will continue to scan unless locked in by the User.
CO	Carrier-Operated Scan: Radio will lock onto a busy channel and start its scan once there is no activity on the channel.
SE	Search-Scan: Will lock and stay on the channel until the channel selector switch is moved

To Transmit DTMF (touch-tone) Codes: Press PTT and press the number keys as required on the front keypad. TO NOTE: Alpha keys are entered as follows:

MENU: A **VFO/MR: C**
ENTER: B **Orange CALL BUTTON : D**

SELECTING MODES: Frequency or Channel
With Power turned off, hold down the **ENTER** button and turn the radio ON. The radio will then show FREQUENCY. To revert to Channel Mode: Turn radio off, then hold down the ENTER key while applying power to the radio. When in Frequency mode you may increases, decrease frequency by turning the channel selector. *In Freq Mode: Press the VFO/ MR key to show simultaneously both Channel and Frequency.*

Common Radio Concepts

Understanding Squelch: The radio typically with a clear channel is silenced. Upon reception of a carrier from another transceiver or repeater, and with CTCSS/DCS programmed to accept a programmed and valid tone, only then does the receiver hear the transmission. In rare occasions if the squelch level is set too high, weak signals may not be received properly. To do so you may press the MON button to open up the squelch or "loosen" the squelch.

Receive CTCSS/DCS functions that have been programmed by your dealer or your communications specialist will allow you to hear radio traffic only when the these sub-audible signaling tones have been heard from another similarly programmed radio by your receiver. Only then will the radio allow you to receive a transmission of the same tone. If tone decoding is not used or programmed in the transceiver, then all conversations on the programmed frequency will be heard.

ANI Radio ID is a feature that transmits a unique ID number that has been programmed into your radio. Using the s/w, in the Radio ID field, program all radios with 123 as a radio ID number to be sent at the beginning of the transmission. This allows all radios in this group to see each other. Then program each individual radio with an ANI Code (number that corresponds to the radio call of the user), with end of transmission selected. Each radio has a unique number. Using this feature may or may not affect the receipt of some repeater based ID transmissions and may not work with all Motorola MDC1200 systems. Test first to evaluate the situation.

Reverse TX/RX When this function is enabled by the user in situations where the user does not want to trip the repeater but have local ground operation conversations to local responders and not heard over the repeater network, this may be accomplished by pressing and holding down the "# T-R" key until the "R" appears on the LCD. Radio units that are in close proximity to your area of operations will hear you on the repeaters output frequency. They also, as well as you, will hear the repeater. The corresponding CTCSS/DCS tones will also follow automatically.

DTMF Tones: While pressing the PTT button, and by pressing any of the 10 numeric keys, a corresponding DTMF tone will be

Technical specification

General

Frequency Range	136-174MHz 350-390MHz 400-470MHz
Working Temperate	-20℃ ~ +50℃
Operating Voltage	DC 7.2V
Operate Mode	Simplex or Semi-duplex
Dimension	100mm X 55mm X 32mm (Not included Antenna)
Weight	220g (Including battery)
Antenna impedance	50Ω

Transmitter

Frequency Stability	±2.5ppm
Output Power	≤5W
Max Frequency Deviation	≤5KHz
Audio Distortion	≤3%
Modulation Character	+3dB~-3dB
Adjacent Channel Power	≥65dB
Spurious Radiation	≤7.5μW
Occupied Bandwidth	≤16KHz

Receiver

RF Sensitivity	<0.2μV
Audio Distortion	≤3%
Audio Response	+2dB~-10dB
Adjacent Channel Selectivity	≥60dB
Intermodulation Rejection	≥60dB
Spurious Response	≥60dB
Blocking	≥85dB

2

Note: depending on model, specifications may vary. Specifications subject to change without notice. Consult the web site for latest information

Other:

Audible Voice Feedback: The radio may announce in plain English audibly through the unit's speaker the various functions and channel numbers of the radio to the User. To enable this unique feature: Press **MENU,** then rotate the channel selector until ***VOICE? 14*** is displayed on the LCD. Press **ENTER**, rotate the channel selector until **ON** is seen, press **ENTER**. A voice will say "*Enter On*" through the unit's speaker. Press **ENTER** , then press the **VFO/MR** key TWICE to exit. Turning the channel selector or pressing any key will provide the user with audible feedback of the function accessed by the user.

Backlight Color Selection: Allows you to change the color of the backlight: Press MENU, rotate the Channel Selector switch until ***LED? 07*** is seen on the display. Press ENTER, then rotate the channel selector until the desired background color is seen. Press ENTER, Press the VFO/MR button twice to next (escape).

To select the type of LCD Backlighting (depending on the selection, this may decrease battery capacity): Press **MENU,** rotate the Channel Selector switch until ***LED? 06*** is displayed. Select then from:

AUTO: Display is lit for aprox. 7 seconds when a key is pressed or channel selected.
ON: Display is always lit when radio is turned On.
OFF: Never lights.

Once selection is made, press **ENTER**, then press **VFO/MR** to exit.

Other Selections:

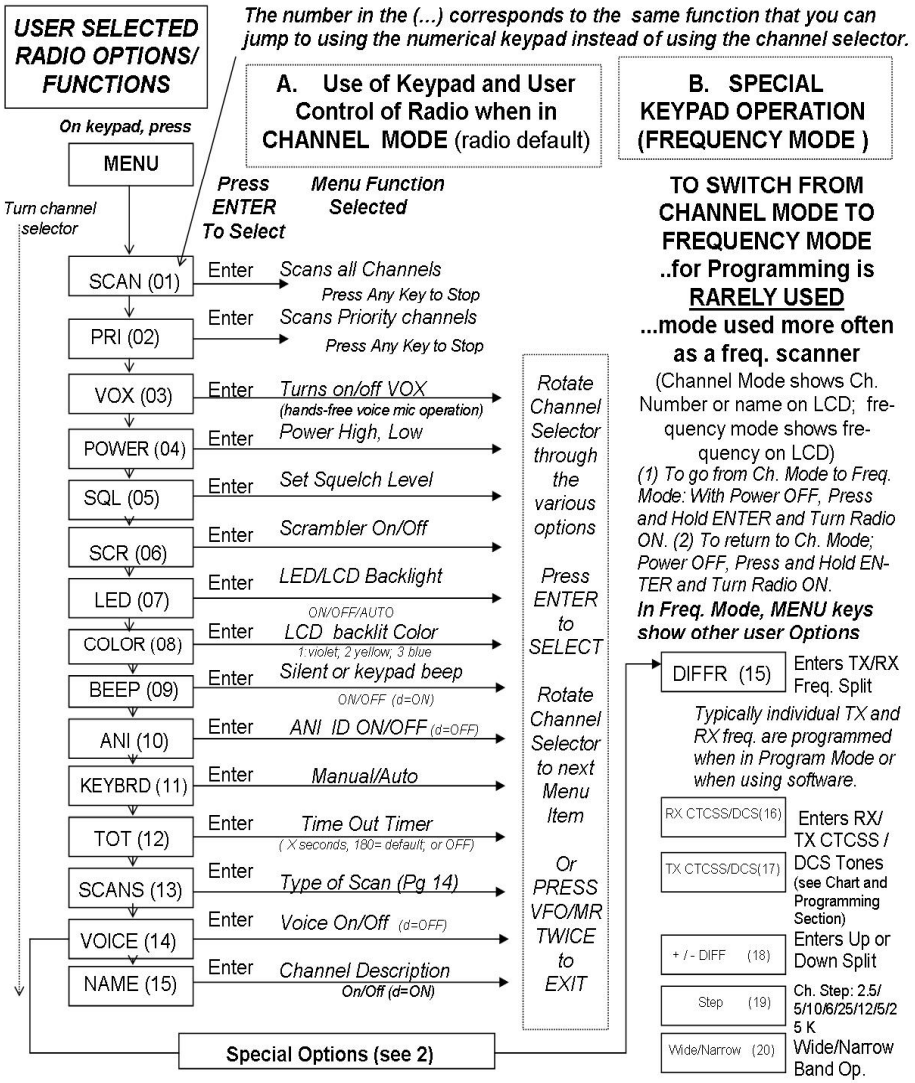
VOX	**POWER (high, low)**
Squelch	**Scrambler**
Beep	**ANI (ID)**
Scans	**Voice**
CTCSS	**DIFFR (freq shift)**
TOT (Tx Time-out)	

All may be selected using the MENU key and rotating the channel selector to the desired function, pressing ENTER once the selection is made, then pressing the VFO/MR button to escape.

USER MENUS FOR RADIO OPERATION

Using the MENU key on the Keypad to access function.

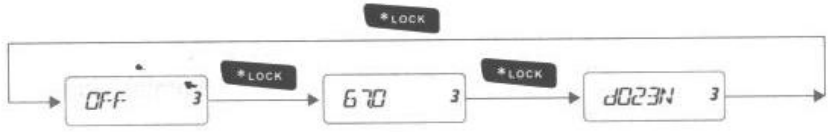
1. Press MENU key.
2. Rotate the channel selector to select the desired menu. (you may also press a number key on the keypad to jump to an identified option)
1. Press ENTER to select the function
2. Rotate the channel selector through the various options.
3. To save, press ENTER, then press VFO/MR key twice to exit the MENU mode.



Note: Regarding the selection of the CTCSS, DCS or NO TX/ RX tone (s), in Tone Menu (line 3), previous page, by pressing the "* LOCK" key toggles you between the options: No Tone, CTCSS Tones, DCS Digital Tones, No Tones, etc.

Once you have selected the desired function feature, (No Tone, CTCSS analog Tone, DCS Digital Tone), Press ENTER, and then Rotate the Channel Selector until to see the appropriate Tone for that Channel, then press ENTER to select.

1. Set Receiving/transmitting codes
   Press *LOCK key to select from OFF/CTCSS/DCS



2. Press # T-R to set DCS Normal/Inverted

Your radio has 50 CTCSS analog Tones and 104+1 Digital DCS Tones that are pre-loaded in the radio's CT Tone library.

Found below is for your convenience is a conversion table from CTCSS tones to Motorola Tone Designators.

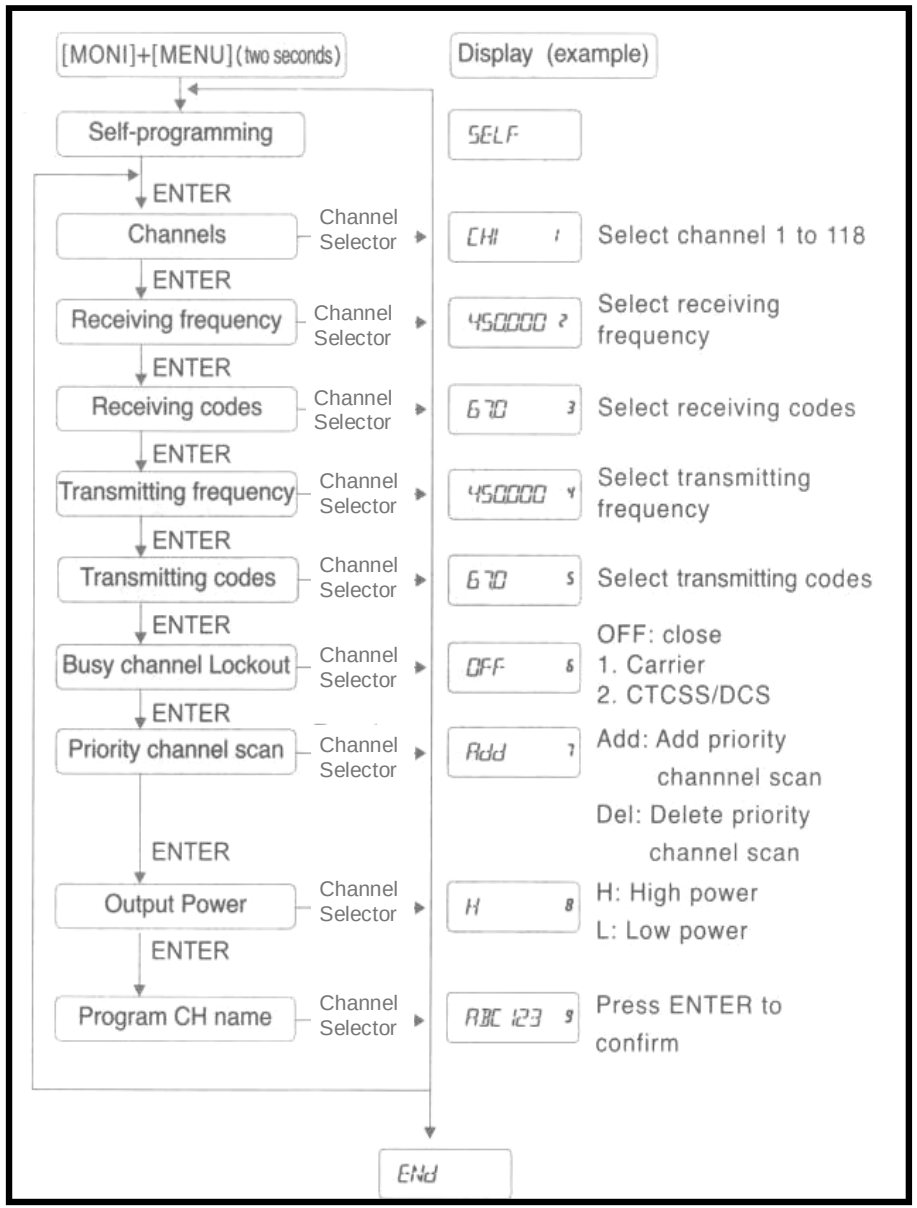
CTCSS	Motorola	CTCSS	Motorola	CTCSS	Motorola
67.0	XZ	71.9	XA	**74.4**	**WA**
77.0	XB	79.7	WB	82.5	YZ
85.4	YA	88.5	YB	91.5	ZZ
94.8	ZA	97.4	ZB	100.0	1Z
103.5	1A	107.2	1B	110.9	2Z
114.8	2A	118.8	2B	123.0	3Z
127.3	3A	131.8	3B	136.5	4Z
141.3	4A	146.2	4B	151.4	5Z
156.7	5A	162.2	5B	167.9	6Z
173.8	6A	NO TONE	CSQ		

USING THE FRONT KEYPAD TO PROGRAM THE RADIO

(For 2 tone decode, programming done using software only)

The tree below guides you through the various line items that you may program per radio channel. Pressing the ENTER key allows you to jump from one line item to another.

TO ENTER PROGRAMMING MODE (Refer to Page 20): 1) Press MONI + MENU keys and HOLD DOWN; 2) TURN RADIO ON WHILE HOLDING DOWN THESE TWO KEYS UNTIL "SELF" APPEARS ON LCD, (aprox 2 secs); 3) THEN PRESS ENTER AND FOLLOW THE GUIDE BELOW



Troubleshooting Notes:

1) If your radio "transmits by itself", make sure that the VOX (voice activated switch) is turned off.
2) If you cannot hear a station using a repeater calling you, yet you may "hit" and trip the repeater, try turning off the ANI function as it may not be compatible with your repeater.
3) If you cannot be heard, and you cannot trigger the repeater, and yet you see the power bar for transmit power activate when you are transmitting as well as when another radio has triggered the repeater, this would indicate that the CTCSS or the DCS digital tones are reversed.
4) You can hear a radio next to you, but cannot be heard, make sure that you have not entered in reverse transmit and receive frequencies.
5) You can hear the repeater but may not access it after checking the above points, if you are using a 2.5 channel step, make sure that the radio has been programmed to accept the 2.5 channel step. To do this, enter the "Frequency mode" of operation, (see page 16). This operation selection is confirmed by seeing the frequency being displayed on the LCD. Then, by pressing menu and accessing the "Step" menu (line 20) and programming in the step (seeing STEP025 appear on the LCD), you have now selected the radio to the 2.5 KHz channel step. Press Enter to save. Then Exit by pressing the VFO/MR key twice. Then return to "Channel Mode Operation." (see page 16 on how to return to Channel Mode).

6) IF USING S/W TO PROGRAM THE RADIO:
At times several models of PC or laptops have added an extra byte, turning the VOX (Hands-free) Voice Operated Switch for transmit to the "ON" position. Before distributing a radio, make sure that the VOX indicator on the LCD is turned off (does not appear).

7) The LCD display on the radio turns itself on or off by itself. This may indicate that the battery is not making contact with the 3 copper pins on the back side of the radio. This may happen if the battery was not inserted properly, by "hinging" the battery in place, bottom first into the radio, as shown on Page 7. To correct an intermittent connection, use your finger and gently pry back the three copper pins on the back of the radio towards you and downwards towards the base of the radio. Then insert the battery into the radio. With the radio turned on and as a test, squeezing the radio between your fingers (front and back of radio) should not see the LCD display or radio turn off.

Entering the Radio Programming Mode using the Front Keypad

Step 1: With the radio turned off, locate the MONI and MENU keys. Position your fingers as shown.
Find a comfortable position.

Step 2: Then, while holding down the MONI and MENU, Keys,

Turn the Radio ON, keeping these 2 keys held down until you see the word "SELF" appear on the LCD Screen.

Step 3: When "SELF" appears on the screen, this lets you know you are entering the Radio's Programming Mode.

Press "ENTER" "Channel 01" appears on the LCD display. This indicates to you that you are ready to program Channel 01. If you wish to Program Channel 01, press "ENTER". NOTE: If you wish to program another Cha other than Channel 1, rotate the Channel s see the desired Channel number, then Pre

When you have completed programming all your channels, press the VFO/MR key twice to exit.

>>Follow the Programming Tree as found on Page 22.

Before Programming your radio:

Ensure that before programming your radio either using the front keypad or software that you first write down on a paper the following information that will be needed, this prior to programming:

1) Receive Frequency

2) Receive PL tone (CTCSS, DCS, or none. NOTE: CSQ on a list denotes that no PL or channel guard tone is used.)

3) Transmit Frequency

4) Transmit PL tone

5) If the frequency used is narrow or wide banded.

For 2 Tone Paging Radio Operation,

either for Decoding (receive) or Encoding (creating a 2 tone transmission), you will need to use the Optional Paging Radio Software, as these functions are <u>not keypad field programmable.</u>

<u>You will need also to find out and make note of the "A" and "B" Tones</u> for your paging system, and their spacing as it applies to your radio system for successful 2 tone decode (or encode) operation.

HINT: For use with commonly used MOTOROLA Minitor paging systems, the following settings should be used:

-First delay: 0.5 (length of first tone)
-Second Delay: 0.5 (length of second tone)
-Interval Time: 2.0 (time between tones A & B)
-Long Delay: 5.0 (when creating a page, (Encode mode only), this is the time that radio waits once PTT is pushed to send out series of A&B tones)

Consult your communications officer or paging communications supplier to ensure that these are the correct timing sequences for your Agency or Department.