



## **CE45 EEPROM PROGRAMMING SOFTWARE REFERENCE MANUAL**

The CE45 Programming Software is used to program the Vertex Standard VX-210A Hand-Held Transceivers. With the CE45 Programming Software, you can quickly and easily program the Vertex Standard VX-210A's channels and configuration from your personal computer. In the event of an accidental memory failure, channel memory and configuration data may be re-loaded in a matter of minutes.

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### **Important Note!**

**Do not work directly with the CE45 programming diskette. Make a copy of it and use the copy when programming the VX-210A. Keep it and the original distribution diskette in a safe place in case you need to make another copy of it later.**

## INSTALLING THE PROGRAM

The **CE45** programming diskette contains the following files:

- ☐ **CE45.EXE**
- ☐ **CE45.HLP**

Before connecting the **VX-210A** for programming, turn off both the computer and the **VX-210A**. Now connect the **CT-42** PC Programming Cable between the computer's serial port and the **VX-210A**'s **MIC/SP** jack.

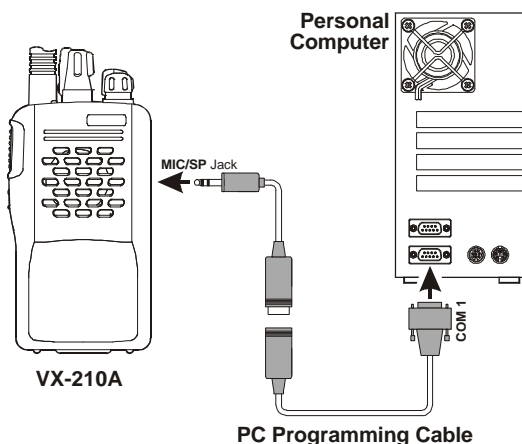
Then it will be safe to restart the computer; turning off the equipment during interconnection avoids the potential for damage to the electronics caused by voltage spikes.

Insert the distribution diskette into your 3½" drive (after booting DOS), and make a copy of the diskette; use the distribution diskette for archive purposes, and use the disk copy for programming.

Place the **CE45** (copy) diskette into your 3½" drive (usually "Drive A"), create a directory in your "C" drive named "**CE45**," then load the contents of the **CE45** diskette into the **CE45** directory, using the **COPY** command (e.g. "**COPY A:\*. \* C:\CE45**").

Now type "**CE45** [ENTER]" to start the program. The introductory screen will appear, and you may press any key to enter the main screen.

Choose the "Help" contents option ([F1] key) from the program's Menu for assistance with channel programming or the setting of parameters.



**VX-210A Programming Setup**

### Important Note!

Before creating new programming data via the **CE45** programming software, upload the current hardware environment data from the transceiver by (Up-load) command. See page 19 for details regarding the Upload command.

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## MAIN SCREEN

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The main channel data screen is made up of four sections:

1. The top line, which contains the main function selections – **Files, Common, Signaling, Help, Radio, and Channel**.
2. The bottom line, which contains [**F**] key functions for the main channel screen, and short Help messages as well as data entry information for advanced functions.
3. The top half of the screen, which contains the hardware configuration, such as frequency band, channel step size, the name of the current file, COM port, and the printer port selection.
4. The bottom half of the screen, which contains the actual channel data.

### Navigation on the Main Screen

Use the [**CURSOR**] keys to move between the channel data items. Pressing the [**SPACE**] bar will toggle items with “flags” such as **Power Saver, Scan, and TOT**. The items that require *values* such as **Receiving Frequency** can be directly entered using the keyboard and the [**ENTER**] key.

### Using the Mouse

Clicking the left mouse button on any channel data item will move the cursor to that item (the position of the cursor is what determines what Help will be displayed when pressing the [**F1**] key). Clicking the *right* mouse button on any item allows you to edit or toggle that item.

**Example:** Clicking the *right* mouse button on **SUB AUDIO Type** toggles among **None** (-----), **C-xxxx** (xxxx: tone frequency), and **D-xxx** (xxx: DCS code). If **C-xxxx** or **D-xxx** is selected, clicking the *right* mouse button allows you to enter the desired tone or code.

### Using the Help Function ([F1] key)

Pressing the [**F1**] key anywhere in the program will invoke the on-line Help feature. The Help displayed will depend on where the cursor is when the [**F1**] key was pressed. If more Help is available, arrow keys will be displayed in the Help window margin and the [**Up/Down**] arrow keys can be used to scroll through the text. Pressing the [**Esc**] key closes the Help window and returns you to normal program operation.

## CHANNEL DATA ITEMS

- Type** (Type Number): This number is used to identify the channel. Channel numbers occur in sequence, and their order can not be changed.  
Press the [SPACE] bar to toggle lock the channel lock between “Enable” and “Disable.” The channel lines displayed in blue are unlocked and enabled, channel lines displayed in gray are locked and disabled.  
**Important note:** This number *is not* channel number for the **CH** knob of the radio. The **CH** knob’s configuration is determined via “**CHANNEL TYPE**” parameter in the “**CHANNEL**” menu; see page 21.
- W/N** (Wide/Narrow): This function selects the channel spacing environment in which the VX-210A operates. Use the [SPACE] bar or *right* mouse button to toggle the channel spacing environment between “Wide (**W**)” and “Narrow (**N**).”  
Wide (**W**) = 25 kHz Channel Spacing,  $\pm 5$  kHz Deviation.  
Narrow (**N**) = 12.5 kHz Channel Spacing,  $\pm 2.5$  kHz Deviation.
- FREQUENCY Receive:** Enter the Receive frequency using the numeric keys. The frequency must be within the operating range of the radio and must also be a multiple of the currently-programmed channel step.
- FREQUENCY Transmit:** When you enter a Receive frequency, the Transmit frequency is automatically inserted based on the default split as displayed in the top half of the screen. To change the frequency, use the numeric keys; the frequency must be in the range of the radio and must be a multiple of the currently-programmed channel step, as above. To change the default split, see the “**MISCELLANEOUS**” parameter in the “**COMMON**” Menu.

### CE45 Main Screen

Files Common Signaling Help Radio Channel

12:00:00

CE45 for VX-210A -- v 1.00 (USA)

Serial No

OC010001

CH Step

5.6.25kHz

Privilege

Dealer

Clock Index

9369

First IF

43.95MHz

File

210a\_u1.c45

Freq Band

UHF1

Ref XTAL

14.50MHz

COM Port

COM1

SW Version

0.00

Split

Simplex

Printer

LPT1

T								S		E					
y	W							C	V	A	n				
p	/	FREQUENCY		SUB AUDIO		Power		Pwr		S					
e	N	Receive	Transmit	Dec	Enc	Save	H	a	T	Lock	Q				
						RX	TX	n	S	Out	I				
											Y				
											Page				
1	W	460.10000	460.10000	----	-----	-	-	H	-	----	4	-	0		
2	W	460.11250	460.11250	C- 88.5	C- 88.5	✓	✓	H	✓	-	5	✓	-	1	
3	W	460.12500	460.12500	C- 97.4	C- 97.4	✓	✓	H	✓	-	BCLO	3	-	-	2
4	W	460.17500	460.17500	C-114.8	C-114.8	✓	-	L	✓	-	BTLO	4	✓	-	3
5	W	460.20000	460.20000	D-023	D-023	✓	-	L	✓	-	BCLO	4	✓	-	4
6	W	460.21250	460.21250	D-143	D-143	✓	-	L	✓	-	----	5	-	-	5
7	W	460.22500	460.22500	----	-----	-	✓	H	✓	-	BCLO	4	-	✓	7
8	W	460.25000	460.25000	C- 88.5	C- 88.5	✓	-	H	✓	-	BTLO	3	-	-	7

F1 for Help

F3 for DCS Complement

F10 for Menus

F1 for Help F3 for DCS Complement F10 for Menus

## CHANNEL DATA ITEMS

5. **SUB AUDIO Dec:** Use the [SPACE] bar or *right* mouse button to select the decoder type between “None (-----),” “C-xxxx (xxxx: tone frequency),” or “D-xxx (xxx: DCS code).” If “C-xxxx” or “D-xxx” is selected, press the [ENTER] key or *right* mouse button to invoke a pop-up “menu of choices. Using the [Up/Down] arrow keys or the mouse, select the desired tone or code. Press the [ENTER] key or the *left* mouse button to select the desired setting.
- | CTCSS | DCS |
|-------|-----|
| 67.0  | 023 |
| 69.3  | 025 |
| 71.9  | 026 |
| 74.4  | 031 |
| 77.0  | 032 |
| 79.7  | 036 |
| 82.5  | 043 |
| 85.4  | 047 |
| 88.5  | 051 |
| 91.5  | 053 |
|       | 054 |
|       | 065 |
6. **SUB AUDIO Enc:** Use the [SPACE] bar or *right* mouse button to select the encoder type between “None (-----),” “C-xxxx (xxxx: tone frequency),” or “D-xxx (xxx: DCS code).” If “C-xxxx” or “D-xxx” is selected, press the [ENTER] key or *right* mouse button to invoke a pop-up menu of choices. Using the [Up/Down] arrow keys or the mouse, select the desired tone or code. Press the [ENTER] key or the *left* mouse button to select the desired setting.
  7. **Power Save RX:** Use the [SPACE] bar or *right* mouse button to toggle this selection “on (✓)” or “off (–).” If this parameter is set to “on (✓),” the Receive Battery Saver will be activated according to the default “sleep” period (time interval setting). To change the default setting of the “sleep” period, see the “POWER SAVING” parameter in the “COMMON” menu.
  8. **Power Save TX:** Use the [SPACE] bar to toggle this selection “on (✓)” or “off (–).” If this parameter is set to “on (✓),” the radio automatically adjusts its Transmit power level according to the signal strength of the last-incoming received signal. If it was relatively weak, the radio will transmit at high power. If it was relatively strong, the radio will reduce its Transmitter power accordingly.
  9. **Pwr H/L:** Use the [SPACE] bar or *right* mouse button to toggle the default Transmit power level “H (High)” or “L (Low).”
  10. **Scan:** Use the [SPACE] bar or *right* mouse button to toggle this selection “on (✓)” or “off (–).”
  11. **VTS (VX-Trunk System):** Use the [SPACE] bar or *right* mouse button to toggle this selection “on (✓)” or “off (–).” The optional **VTP-50** Trunking Logic Board must be installed.
  12. **TOT (Time-Out Timer):** Use the [SPACE] bar or *right* mouse button to toggle this selection “on (✓)” or “off (–).” To set the duration of the TOT, see the “POWER SAVING” parameter in the “COMMON” menu.

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## CHANNEL DATA ITEMS

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13. **Lock Out:** Use the [**SPACE**] bar or *right* mouse button to select the Lock Out Feature between “---- (none),” “**BCLO** (Busy Channel Lock Out),” or “**BTLO** (Busy Tone Lock Out).” The “**BCLO** (Busy Channel Lock Out)” selection inhibits transmission while there is a carrier present. The “**BTLO** (Busy Tone Lock Out)” option inhibits transmission while there is carrier present only when there is also a valid tone present.
14. **SQL** (Squelch Threshold): Use the [**SPACE**] bar or *right* mouse button to select the “Noise SQL Threshold” for each operating channel. Available Values are “0” ~ “12.”
15. **ANI:** Use the [**SPACE**] bar or *right* mouse button to toggle the DTMF ANI Feature “on (√)” or “off (–).”
16. **Encry** (Voice Encryption): Use the [**SPACE**] bar or *right* mouse button to toggle the Voice Encryption Feature “on (√)” or “off (–).” The optional **FVP-25** Encryption/Paging Unit must be installed.
17. **Page:** Use the [**SPACE**] bar or *right* mouse button to select the Receiving Pager Code (determined from the “**PAGING CODE**” parameter in the “**SIGNALING**” Menu) for the DTMF Paging System for each operating channel. Available Values are “0” ~ “9” or “off (–).” The optional **FVP-25** Encryption/Paging Unit must be installed.

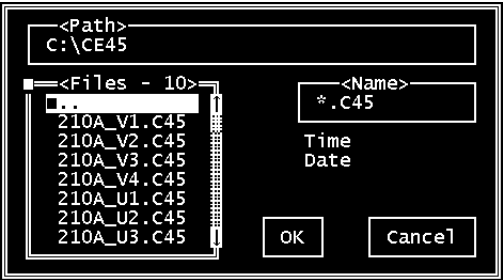
ADVANCED FEATURES (FILES)

The **Files** section of the program allows you to save a programming session to disk, or to recall a previous session that was saved. To access the **Files** menu, press the **[F10]** key plus the **[LEFT/RIGHT]** arrow keys, or click the *left* mouse button on the **Files** menu.



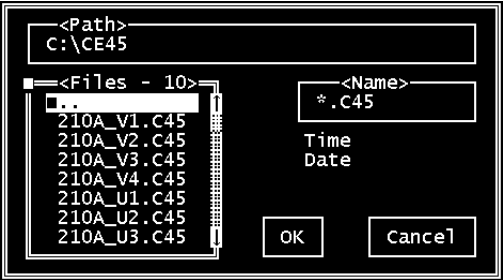
A: Open File

To open a previously-saved configuration from the disk, select the **Open File** menu with the **[Up/Down]** arrow keys and the **[ENTER]** key or the *left* mouse button. A pop-up window appears which shows you all the current files saved in the specified path. The current DOS path that is being searched is in the top box, the list of files is in the left box, and the name of the current file spec is in the right box. To move between the boxes (for instance, to search a different path), press the **[ALT] + [P]** keys for the path, **[ALT] + [F]** keys for the files, or **[ALT] + [N]** keys to change the file spec to search. If in the Files box, use the **[Up/Down]** arrow keys to locate the file to open, and press the **[ENTER]** key to recall it from the disk, or click the *left* mouse button on the file to open it and click the *left* mouse button on the **OK** box. Press the **[Esc]** key or click the *left* mouse button on the **Cancel** box to return to the main menu.



B: Save File

To save a programming session to disk, select the **Save File** menu with the **[Up/Down]** arrow keys and **[ENTER]** key or the *left* mouse button. A pop-up window appears which shows you all the current files saved to the specified path. The current DOS path that is being searched is in the top box, the list of files is in the left box, and the name of the current file is in the right box. To move between the boxes (for instance, to search a different path), press the **[ALT] + [P]** keys for the path, **[ALT] + [F]** keys for the files, or **[ALT] + [N]** keys to enter the name of the file you wish to save. Press the **[ENTER]** key or click the *left* mouse button on the **OK** box to save the file. If the file already exists, you will be prompted before over-writing. Press the **[Esc]** key or click the *left* mouse button on the **Cancel** box to return to the main menu.





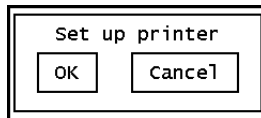
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## ADVANCED FEATURES (FILES)

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### C: Print

To print a configuration to hard copy, select the **Print** menu with the [Up/Down] arrow keys and [ENTER] key or the *left* mouse button. The program will prompt you to ready the printer. Press the [ENTER] key or click the *left* mouse button on the **OK** box to print. Press the [Esc] key or click the *left* mouse button on the **Cancel** box to return to the main menu.

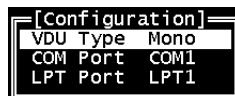


### D: Configure

The **Configure** menu allows you to set up the program according to your computer's configurations.

#### 1. VDU Type

Use the [ENTER] key or *left* mouse button to toggle the display mode between "Color" or "Mono (monochrome)." Press the [Esc] key or click the *right* mouse button to save the new setting and exit.



#### 2. COM Port

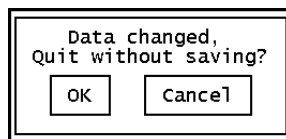
Use the [ENTER] key or *left* mouse button to toggle the communication port which is connected to the PC Programming Cable which is connected to the radio, among "COM 1," "COM 2," "COM 3," and "COM 4." Press the [Esc] key or click the *right* mouse button to save the new setting and exit.

#### 3. LPT Port

Use the [ENTER] key or *left* mouse button to toggle the printer port between "LPT1" or "LPT2." Press the [Esc] key or click the *right* mouse button to save the new setting and exit.

### E: Exit

Select the **Exit** option with the [Up/Down] arrow keys and [ENTER] key or the *left* mouse button to quit the program and return to DOS. If the present configuration has not been saved to disk, you will be asked to confirm whether you wish to save it.



ADVANCED FEATURES (COMMON)

The **Common** menu allows you to program most of the advanced functions of the radio, as well as set up the hardware configuration. Refer to the following sections for a detailed description of each function.

Hardware
Option
Scanning
Power Saving
Marketing
Miscellaneous

*Note:* The bottom line of the screen will indicate what values are accepted, or if you should use the **[ENTER]** key to select the entries.

A: Hardware

These parameters can not be edited in the field. If adjustments to any of these parameters are required, the radio must be returned to VERTEX STANDARD.

1. Freq Band

Indicates the operating band of the radio.

2. Ref XTAL

Indicates the reference oscillator frequency of the radio.

3. 1st IF

Indicates the 1st IF frequency of the radio.

4. Local Offset

Indicates the injection side for the 1st Local Oscillator of the radio.

5. Chan Spacing

Indicates the channel spacing of the radio.

6. DCS RX Data

Indicates the DCS receive data polarity of the radio.

7. DCS TX Data

Indicates the DCS transmit data polarity of the radio.

8. SQ Release Time

Indicates the Squelch Release Time of the radio.

9. SQ Attack Time

Indicates the Noise Squelch Attack Time of the radio.

10. SQ Hysterisis

Indicates the Noise Squelch Hysteresis Level of the radio.

11. Receiver Save Off Time

Indicates the “active” duration for the Receiver Battery Saver.

12. CTCSS Release TIME

Indicates the CTCSS Tone Squelch Release Time of the radio.

[Hardware Parameters]	
Freq Band	UHF1
Ref XTAL	14.50MHZ
1st IF	43.95MHZ
Local Offset	Lower
Chan Spacing	5.6.25kHz
DCS RX Data	Normal
DCS TX Data	Normal
SQ Release Time	160 Msecs
SQ Attack Time	20 Msecs
SQ Hysterisis	12
Receive Save Off Time	100 msec
CTCSS RELEASE TIME	500 msecs

## ADVANCED FEATURES (COMMON)

### B: Option

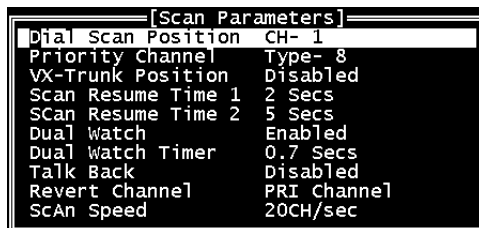
Sets the Sub-CPU which is installed in your radio is installed. Available selections are “FVP-25,” “Encryption HiLEVE,” “ANI,” “VX-Trunk,” and “None.”



### C: Scanning

#### 1. Dial Scan Position

Sets the Scan Start Channel. Press the [ENTER] key or *left* mouse button to select the Scan Start Channel. Available channels are “CH-1” ~ “CH-16” and “Disabled.”



#### 2. Priority Channel

Sets the Priority Channel. Press the [ENTER] key or *left* mouse button to select the Priority Channel. Available channels are “Type-1” ~ “Type-16” and “Disabled.”

#### 3. VX-Trunk Position

Sets the channel position which activates the VX-Trunk feature. Press the [ENTER] key or *left* mouse button to select the channel position which activates the VX-Trunk feature. Available channels are “CH-1” ~ “CH-16” and “Disabled.” This parameter only functions when the optional **VTP-50** Trunking Logic Board is selected (from the “**OPTION**” parameter in the “**COMMON**” menu.)

#### 4. Scan Resume Time 1

Sets the Scan Resume time when the signal drops (and the **PTT** button *has not* been pressed). Press the [ENTER] key or *left* mouse button to increase the Scan Resume time. Available channels are “0.25,” “0.5,” “1,” “2,” “3,” “4,” “5,” and “10” (seconds).

#### 5. Scan Resume Time 2

Set the Scan Resume time when the signal drops (and the **PTT** button *has* been pressed). Press the [ENTER] key or *left* mouse button to increase the Scan Resume time. Available values are “2,” “3,” “4,” “5,” “10,” “15,” “20,” and “30” (seconds).

#### 6. Dual Watch

Use the [ENTER] key or *left* mouse button to select the Dual Watch Feature. Available selections are “Enabled” and “Disabled.”

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## **ADVANCED FEATURES (COMMON)**

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### **7. Dual Watch Timer**

Use the [ENTER] key or *left* mouse button to select the sampling interval time for activity on the priority channel. Available selections are “0.7 Sec” and “1.5 Secs.”

### **8. Talk Back**

Use the [ENTER] key or *left* mouse button to select the Talk Back function while the scanner is on. Available selections are “Enabled” and “Disabled.”

### **9. Revert Channel**

This menu determines the channel to which the radio will revert when the **PTT** switch is pressed while the radio is scanning. The options are:

PRI Channel:            This is the channel when Priority operation is programmed.  
                              This is the default.

Channel Position:    This is the channel that is selected by the **CH** selector knob.

Last Busy Channel: This is the last channel that the radio stopped on before  
going back into scan.

Use the [ENTER] key or *left* mouse button to select from among the above options.

### **10. Scan Speed**

Use the [ENTER] key or *left* mouse button to select the scan speed. Available selections are “15CH/sec” and “20CH/sec.”

## ADVANCED FEATURES (COMMON)

### D: Power Saving

#### 1. Transmit Timer

This is the Time-Out Timer used by the main channel menu. Press the **[ENTER]** key or *left* mouse button to select the desired TOT Time.

Available values are “0.5/1/2/3/4/5/6/7” minutes.

[Power Saving]	
Transmit Timer	3 Mins
Penalty Timer	0 Secs
Release Timer	2 Secs
Receive Save mode	ABS

#### 2. Penalty Timer

If the Time-Out Timer causes the radio to un-key, the user will not be able to re-key the radio until the penalty timer has expired. Attempting to do so resets the timer, thus increasing the penalty time. Press the **[ENTER]** key to or *left* mouse button to select the desired Penalty Time. Available values are “0 (Penalty Timer is off)/6/20/60” seconds.

#### 3. Release Timer

This timer must expire each time the **PTT** switch is released before the user can key the radio again. Pressing the **PTT** switch before Release Timer expiration causes the timer to reset, thus increasing the release time. Press the **[ENTER]** key or *left* mouse button to select the desired Release Time. Available values are “0 (Release Timer is off)/2/3/5” seconds.

#### 4. Receive Save mode

Programs the Save Ratio for the Receive Battery Saver. Press the **[ENTER]** key or *left* mouse button to select the desired Save Ratio. Available values are “1:1/1:1.5/1:2/1:2.5/1:3/1:3.5/1:4” or “ABS.” The ABS (Automatic Battery Saver) automatically selects the most optimum save ratio based on recent receiver activity. The “sleep” period is determined via the “**RECEIVER SAVE OFF TIME**” parameter in the “**HARDWARE**” menu, described previously.

### E: Marketing

#### 1. Production Number

Indicates the production number of the radio (read only).

[Marketing Parameters]	
Production Number	0001
Serial Number	0c010001

#### 2. Serial Number

Indicates the serial number of the radio (read only).

## ADVANCED FEATURES (COMMON)

### F: Miscellaneous

#### 1. Default Split

Programs the transmit offset frequency for semi-duplex operation. Use the [ENTER] key or *left* mouse button to enable programming, enter the desired offset frequency using the numeric keys, then press the [ENTER] key or *right* mouse button to save and exit. Accepted (numerical) values are

[Miscellaneous]	
Default Split	0.0 MHz
Beep	Enabled
Call Times	3 times
Squelch Tail Elim	Rev. Burst
BELL	Disabled
ACC Key [Press]	Monitor
ACC Key [Hold]	Squelch off
Lamp mode	Enabled
Set-to-Set clone	Disabled
External Jack	VC-25
Auto Reset Time	5 secs

“-99.9” (MHz) ~ “+99.9” (MHz). Note that an “excessive” shift (causing transmission outside the allowed frequency range of the transceiver) will cause an “Error” message to be generated when transmission is attempted.

#### 2. Beep

Use the [ENTER] key or *left* mouse button to select the beep function between “On” and “Off.”

#### 3. Call Times

Use [ENTER] key or *left* mouse button to select the number of times that the alert tone will be emitted when a proper CTCSS BELL, DTMF Pager, or 2-Tone Page is received. Available choices are: “Off,” “1 time,” “3 times” and “5 times.” Default is “3 times.”

#### 4. Squelch Tail Elim

Use the [ENTER] key or *left* mouse button to set up the Squelch Tail Elimination function. Available choices are: “Rev. Burst,” “Disabled,” and “No Tone.”

#### 5. Bell

Use the [ENTER] key or *left* mouse button to set the Alert Bell to “Enabled” or “Disabled” when the DTMF Pager System is activated. When this parameter is set to “Enabled,” the bell will ring when the programmed CTCSS or DCS is decoded.

#### 6. ACC Key [Press]

Selects the **ACC** key functions when this key is pressed *momentarily*. The available selections are shown in the list on the next page.

#### 7. ACC Key [Hold]

Selects the **ACC** key functions when this key is *press and held in* for one second. The available selections are shown in the list on the next page.

## ADVANCED FEATURES (COMMON)

### 8. Lamp Mode

Use the [ENTER] key or *left* mouse button to toggle the BUSY/TX LED between “Enable” and “Disable.” Best battery conservation will be accomplished by disabling this parameter.

### 9. Set-to-Set Clone

Use the [ENTER] key or *left* mouse button to set the Set-to-Set (Radio-to-Radio) Cloning Feature to “Enabled” or “Disabled.”

### 10. External Jack

Use the [ENTER] key or *left* mouse button to define the accessory pin of the **MIC/SP** jack of the radio. When the radio is used with the optional **MH-45B4B** Speaker/Microphone, this parameter set to “EXT MONI.” When the radio is used with the optional **VC-25** VOX Headset, this parameter should be set to “EXT VCC.”

### 11. Auto Reset Time

This menu set the Reset time for the 2-Tone Paging System when the signal drops (and the **PTT** button *has* been pressed). Press the [ENTER] key or *left* mouse button to increase the Scan Resume time. Available values are “2 ~ 10,” “15,” “20,” “25,” “30,” “40,” “50,” “60” (seconds), and “off.”

The **VX-210A**’s **ACC** key may be assigned one of the following features:

Monitor	Squelch Off	Low Power	Scan
Follow-Me Scan	Dual Watch	Talkaround	Call/Reset
Speed Dial	TX SAVE Off	ACC 1	ACC 2/Encry Off
None			

ADVANCED FEATURES (SIGNALING)

A: ANI/Speed Dial

1. ANI/Transmit

Use the [ENTER] key or *left* mouse button to select the method of DTMF ANI transmission. Available selections are “PTT Pressed” and “PTT Released.”

[ANI/Speed dial Setting]	
ANI/Transmit	PTT Released
DTMF Delay	100 msec
DTMF Speed	50 msec
DTMF Code	124567890ABCD*#

- PTT Pressed: The ANI will be transmitted when the **PTT** switch is pressed.
- PTT Released: The ANI will be transmitted when the **PTT** switch is released.

2. DTMF Delay

This parameter programs an transmission delay for the DTMF ANI feature. Use the [ENTER] key or *left* mouse button to select the desired delay time. This setting allows shifting of the entire ANI transmission string in time. Available values are “50/100/300/500” (msec).

3. DTMF Speed

This parameter programs the DTMF ANI code sending speed for the ANI feature. Use the [ENTER] key or *left* mouse button to select the desired sending time. Available values are “25/33/50/66” (msec).

4. DTMF Code

This parameter programs the DTMF ANI code used for identification of this radio. Use the [ENTER] key or *left* mouse button to enable programming, type the ANI code (up to 16 digits), then press the [ENTER] key or *right* mouse button to save and exit. The characters to be used include 0 ~ 9, A, B, C, D, \*, and #.

“Signaling” Window

ANI/Speed dial
Paging setting
Paging Code
2Tone
2Tone Table



## ADVANCED FEATURES (SIGNALING)

### B: Paging Setting

This Parameter is only enabled (displayed in yellow) while you are activating the DTMF Paging System. The optional **FVP-25** Encryption/Paging Unit must be installed.

[Paging Setting]	
DTMF Speed	50 msec
Answer Back	Off

#### 1. DTMF Speed

This parameter programs the DTMF code sending speed for the DTMF Paging System. Use the [ENTER] key or *left* mouse button to select the desired sending time. Available values are “50” and “100” (msec).

#### 2. Answer Back

Use the [ENTER] key or *left* mouse button to define whether the Answer Back function shall be “On” or “Off” for the DTMF Paging System. When this parameter is set to “On,” the radio will respond automatically (without operator intervention) to received calls by “paging back” the calling station.

### C: Paging Code

This parameter programs the Receiving Pager Code for the DTMF Paging System. Use the [ENTER] key or *left* mouse button to enable programming, type the Pager Code (three digits), then press the [ENTER] key or *right* mouse button to save and exit. The characters which may be used are 0 ~ 9, A, B, C, D, \*, and #. Press the [SPACE] bar to toggle between “Enabled” (“DEC” displayed) or “Disabled” (none) for each Paging Code. The optional **FVP-25** Encryption/Paging Unit must be installed, and “DTMF Receiver” must have been activated (as determined by the dealer).

[Paging Code]		
PAGE	1	123
PAGE	2	234
PAGE	3	345
PAGE	4	456
PAGE	5	567
PAGE	6	678
PAGE	7	789
PAGE	8	890
PAGE	9	***
PAGE	0	###

ADVANCED FEATURES (SIGNALING)

D: 2Tone

1. Primary Group Call

Use the [ENTER] key or *left* mouse button to set the group code to “1st Tone,” “2nd Tone,” or “Off” for the group call function of the *Primary* 2-Tone Paging System.

[2-Tone Parameters]	
Primary Group Call	1st Tone
Secondary Group Call	2nd Tone
Secondary Page Pair	Pair# 1
Tone Format	Standard

2. Secondary Group Call

Use the [ENTER] key or *left* mouse button to set the group code to “1st Tone,” “2nd Tone,” or “Off” for the group call function of the *Secondary* 2-Tone Paging System.

3. Secondary Page Pair

Use the [ENTER] key or *left* mouse button to select the receiving 2-Tone pair for the *Secondary* 2-Tone Paging System. Available groups are “Pair# 1” ~ “Pair# 6.”

4. Tone Format

This parameter lets the programmer select between the “Standard” tone tables or a “Custom” set. When set to “Custom,” the programmer can use 3-digit tone codes from a printed chart to select any tones from any tables.

E: 2Tone Table

This parameter programs the Receiving 2-Tone pair for the 2-Tone Paging System.

When the “**TONE FORMAT**” parameter (on the “**2TONE**” parameter in the “**SIGNALING**” menu) is set to “Standard,” use the [ENTER] key to invoke a pop-up menu, from which you may select a Tone Group using the [Up/Down] key; press the [ENTER] key to accept the selected Tone Group. If you change the default tone pair of the selected Tone group, use the [Left/Right] key to move the cursor, then press the [ENTER] key to invoke a pop-up menu, from which you may select a desired tone using the [Up/Down] key; press the [ENTER] key to accept the selected tone.

[ 2-TONE EDIT ]			
Pair#	Format	1st	2nd
1	OFF	-----	-----
2	MOTOROLA	5- 584.8	5- 584.8
3	GE/99 GRP	716.1	716.1
4	OFF	-----	-----
5	MOTOROLA	6-1433.4	6-1433.4
6	MOTOROLA	NONE	NONE

Tone Format: “Standard”

[FORMAT]	
OFF	
MOTOROLA	
GE/99 GRP	
ELECTRON	
REACH GRP	

Grp Tone	
1-	330.5
1-	349.0
1-	368.5
1-	389.0
1-	410.8
1-	433.7
1-	457.9
1-	483.5
1-	510.5
1-	539.0
2-	569.1
2-	600.9

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## ADVANCED FEATURES (SIGNALING)

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When the “**TONE FORMAT**” parameter (on the “**2TONE**” parameter in the “**SIGNALING**” menu) is set to “Custom,” press the [**ENTER**] key to enable the programming, use the [**LEFT/RIGHT**] key to move the cursor, then press the [**ENTER**] key and enter the desire tone frequency code from the 2-Tone Code Chart on the page 21.

[ 2-TONE EDIT ]			
Pair#	Format	1st	2nd
1	Custom	000	000
2	Custom	043	043
3	Custom	039	039
4	Custom	000	000
5	Custom	061	061
6	Custom	062	062

Tone Format: “Custom”

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## **ADVANCED FEATURES (HELP)**

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### **A: Get Started**

Indicates basic information for use of this programming software.



### **B: Common Problems**

Indicates typical problems and corrective measures for this programming software.

### **C: About**

Indicates the title and release information for this programming software.

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## ADVANCED FEATURES (RADIO)

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To Upload or Download information to/from a radio, select the **Radio** menu with the [Up/Down] arrow keys and press the [ENTER] key or the *left* mouse button.



### A: Upload

To upload data from a radio, make the proper connections and turn on power before selecting **Upload** from the **Radio** menu. The program will prompt you to make the connections to the radio and turn the power on. Press the [SPACE] bar to proceed. The on-screen window will indicate progress or warn you if a problem exists.



### B: Download

To send information to the radio, select **Download** from the **Radio** menu. The program will prompt you to make the connections to the radio and turn the power on. Press the [SPACE] bar to proceed. The on-screen window will indicate progress or warn you if a problem exists.



## ADVANCED FEATURES (CHANNEL)

### A: Channel Type

This parameter selects the configuration for the **CH** knob of the radio. Use the [ENTER] key or *left* mouse button to select the channel configuration (“Type-1” to “Type-16”) for each **CH** knob position (CH-1 to CH-16).

Channel Type	
CH- 1:	Type- 1
CH- 2:	Type- 2
CH- 3:	Type- 3
CH- 4:	Type- 4
CH- 5:	Type- 5
CH- 6:	Type- 6
CH- 7:	Type- 7
CH- 8:	Type- 8

### B: Primary Pair Select

This parameter selects the receiving 2-Tone Code Pair for the *Primary* 2-Tone Paging System (determined via the “**2TONE TABLE**” parameter in the “**SIGNALING**” menu) for each operating channel. Use the [ENTER] key or *left* mouse button to choose this selection. Available groups are “Pair# 1” ~ “Pair# 6,” and “Disabled.”

PRIMARY	
1: Pair#	1
2: Pair#	2
3: Pair#	3
4: Pair#	4
5: Pair#	5
6: Pair#	6
7: Disabled	
8: Disabled	

### C: Secondary Pair Enable

This parameter sets the *Secondary* 2-Tone Paging System “Enabled” or “Disabled” for each operating channel. Use the [ENTER] key or *left* mouse button to choose this selection.

SECONDARY	
1: Enabled	
2: Enabled	
3: Disabled	
4: Disabled	
5: Disabled	
6: Enabled	
7: Enabled	
8: Disabled	

### D: Channel ARTS

This parameter sets the ARTS Feature “Enabled” or “Disabled” for each operating channel. Use the [ENTER] key or *left* mouse button to choose this selection.

ARTS	
1: Enabled	
2: Enabled	
3: Enabled	
4: Disabled	
5: Disabled	
6: Disabled	
7: Enabled	
8: Enabled	

### “Channel” Window

Channel Type
Primary Pair Select
Secondary Pair Enable
Channel ARTS

## 2-Tone Code Chart

Group Name	Tone Number	Tone Code	Tone Freq. (Hz)	Group Name	Tone Number	Tone Code	Tone Freq. (Hz)	Group Name	Tone Number	Tone Code	Tone Freq. (Hz)
Motorola Quick Call 2 Reed Group 1	0	0	330.5	GE Type 99 Table 1 Group A	0	84	682.5	Plectron Format Tones			
	1	1	349.0		1	85	592.5			171	1598.0
	2	2	368.5		2	86	757.5			172	1669.0
	3	3	389.0		3	87	802.5			173	1743.0
	4	4	410.8		4	88	847.5			174	1820.0
	5	5	433.7		5	89	892.5			175	1901.0
	6	6	457.9		6	90	937.5			176	1985.0
	7	7	483.5		7	91	547.5			177	2073.0
	8	8	510.5		8	92	727.5			178	2164.0
Motorola Quick Call 2 Reed Group 2	9	9	539.0		9	93	637.5			179	2260.0
	0	10	569.1	GE Type 99 Table 1 Group B	0	94	652.5	Reach Two Tone Group A	1	180	2361.0
	1	11	600.9		1	95	607.5		2	181	2465.0
	2	12	634.5		2	96	787.5		3	182	2575.0
	3	13	669.9		3	97	832.5		4	183	2688.0
	4	14	707.3		4	98	877.5		5	184	2807.0
	5	15	746.8		5	99	922.5		6	185	2932.0
	6	16	788.5		6	100	967.5		7	186	3062.0
	7	17	832.5		7	101	517.5		8	187	3197.0
	8	18	879.0		8	102	562.5		9	188	3339.0
Motorola Quick Call 2 Reed Group 3	9	19	928.1	GE Type 99 Table 1 Group C	9	103	697.5		0	189	3487.0
	0	20	288.5		0	104	667.5	Reach Two Tone Group B	1	190	2704.0
	1	21	296.5		1	105	712.5		2	191	2612.0
	2	22	304.7		2	106	772.5		3	192	2532.0
	3	23	313.0		3	107	817.5		4	193	2437.0
	4	24	953.7		4	108	862.5		5	194	2354.0
	5	25	979.9		5	109	907.5		6	195	2274.0
	6	26	1006.9		6	110	952.5		7	196	2196.0
	7	27	1034.7		7	111	532.5		8	197	2121.0
Not Defined	8	28	1063.2	AVCALL 2+2	8	112	577.5		9	198	2049.0
	9	29	1092.4		9	113	622.5		0	199	1980.0
Motorola Quick Call 2 Reed Group 4	—	30	0.0		DJA	114	742.5	Reach Two Tone Group C	1	200	1912.0
	—	31	0.0		A	115	312.6		2	201	1847.0
	0	32	321.7		B	116	346.7		3	202	1784.0
	1	33	339.6		C	117	384.6		4	203	1723.0
	2	34	358.6		D	118	426.6		5	204	1664.0
	3	35	378.6		E	119	473.2		6	205	1606.0
	4	36	399.8		F	120	524.8		7	206	1553.0
	5	37	422.1		G	121	582.1		8	207	1500.0
	6	38	445.7		H	122	645.7		9	208	1449.0
Motorola Quick Call 2 Reed Group 5	7	39	470.5	Plectron Format Tones	J	123	716.1	Reach Two Tone Group D	0	209	1400.0
	8	40	496.8		K	124	794.3		1	210	1608.0
	9	41	524.6		L	125	881.0		2	211	1553.0
	0	42	553.9		M	126	977.2		3	212	1500.0
	1	43	584.8		P	127	1083.9		4	213	1449.0
	2	44	617.4		Q	128	1202.3		5	214	1400.0
	3	45	651.9		R	129	1333.5		6	215	1352.0
	4	46	688.3		S	130	1479.1		7	216	1306.0
	5	47	726.8			131	282.2	Reach Two Tone Group E	8	217	1261.0
Motorola Quick Call 2 Reed Group 6	6	48	767.4	GE Type 99 Table 1 Group D		132	294.7		9	218	1219.0
	7	49	810.2			133	307.8		0	219	1177.0
	8	50	855.5			134	321.4		1	220	1137.0
	9	51	903.2			135	335.6		2	221	1093.0
	0	52	1122.5			136	350.5		3	222	1061.0
	1	53	1153.4			137	366.0		4	223	1025.0
	2	54	1185.2			138	382.3		5	224	990.0
	3	55	1217.8			139	399.2		6	225	956.0
	4	56	1251.4			140	416.9		7	226	923.0
Not Defined	5	57	1285.8	GE Type 99 Table 1 Group E		141	435.3	Reach Two Tone Group F	8	227	892.0
	6	58	1321.2			142	454.6		9	228	862.0
	7	59	1357.6			143	474.8		0	229	832.0
	8	60	1395.0			144	495.8		1	230	804.0
	9	61	1433.4			145	517.8		2	231	776.0
	—	62	569.1			146	540.7		3	232	750.0
	—	63	979.9			147	564.7		4	233	725.0
	0	64	1472.9			148	589.7		5	234	700.0
	1	65	1513.5			149	615.8		6	235	676.0
Motorola Quick Call 2 Reed Group 10	2	66	1555.2	GE Type 99 Table 1 Group F		150	643.0	Spear	7	236	653.0
	3	67	1590.0			151	672.0		8	237	631.0
	4	68	1642.0			152	701.0		9	238	609.0
	5	69	1687.2			153	732.0		0	239	588.0
	6	70	1733.7			154	765.0			240	0.0
	7	71	1781.5			155	799.0			241	0.0
	8	72	1830.5			156	834.0			242	0.0
	9	73	1881.0			157	871.0			243	0.0
	0	74	1930.2			158	910.0			244	0.0
Motorola Quick Call 2 Reed Group 11	1	75	1989.0	GE Type 99 Table 1 Group G		159	950.0			245	0.0
	2	76	2043.8			160	992.0			246	0.0
	3	77	2094.5			161	1036.0			247	0.0
	4	78	2155.6			162	1082.0			248	0.0
	5	79	2212.2			163	1130.0			249	0.0
	6	80	2271.7			164	1180.0			250	0.0
	7	81	2334.6			165	1232.0			251	0.0
	8	82	2401.0			166	1287.0			252	0.0
	9	83	2468.2			167	1344.0			253	0.0
						168	1403.0			254	0.0
						169	1465.0			255	0.0
						170	1530.0				



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