BCH-220 Owner's Manual

By BridgeCom Systems, Inc.

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CHAPTER 1: INTRODUCTION

Welcome

Thank you for purchasing the BCH-220 hand-held two way radio. The goal of the BCH-220 is to provide a cost-effective, feature rich hand held radio for users of the 220 amateur radio spectrum. This Owner's Manual will acquaint you with the features and operation of the BCH-220. Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. Carefully read this manual in order to properly operate the radio before use.

SPECIFICATIONS

General	BCH-220
Number of Channels:	199
Working Voltage:	7.4 V DC
Channel Spacing:	25kHz/12.5kHz
Weight w/Battery & Ant	230g
Frequency Range:	222.0 – 224.995 MHz
Dimensions (W x H x D):	58.5 mm x 110.5 mm x 35.6 mm
Frequency Stability:	+/- 1.5 ppm
Operating Temperature:	-4° F to +122° F (-20° C to +50° C)
Battery Type:	Li-Ion
Antenna Connector:	SMA Male
Antenna Impedance:	50Ω
TRANSMITTER	
RF Output	High Power: 5 Watts / Low Power: 2 Watts
Maximum Deviation:	+/- 5kHz (25 kHz) +/- 2.5 kHz (12.5 kHz)
Antenna Connector:	SMA Male
Antenna Impedance:	50Ω

In our on-going commitment to quality specifications are subject to change without notice.

CHAPTER 2: Unpacking and Preparation

We recommend that you identify the items listed in the following packing list. If you find that all the items are not present, please contact us.

Parts List

Item	Quantity
Rubber Antenna	1
Li-ion Battery Pack	1
Desktop Charger	1
Power Adapter	1
Belt Clip	1
This user's Manual	1
Hand Strap	1

GETTING ACQUAINTED

Antenna

Indicators
Red light at TX.
Green light at RX.
Red light flashes TX
at lower voltage.

Microphone

SK1
Define any
functions needed

Power/Vol Rotator
Power on by rotating
clockwise.
Power off by rotating
counter clockwise
till hear the "Kada"sound.
Vol control by rotating.

Speaker

PTT
Press to TX.
Release to RX.

SK2
Define any
functions needed

SPK/MIC Jack
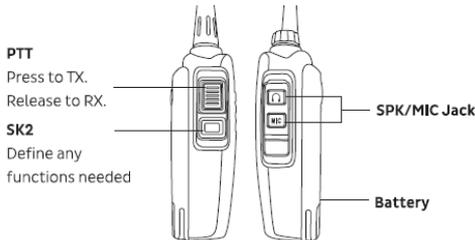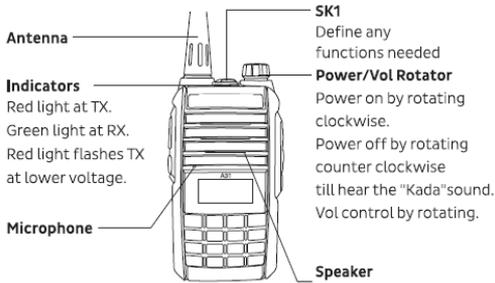
Battery

Charging the Battery

The battery is not completely charged at the factory, therefore the battery will need to be charged before using the radio. After two to three charge / discharge cycles, the operating capacity will increase to its normal capacity. To charge the battery:

1. Fasten the battery pack to the back of the radio. Note: Before charging, it is advised the radio is powered OFF.
2. Using the plied power adaptor, plug the output terminal of the power adapter in the DC jack behind the charger base. The charger LED will indicate ORANGE for about 2 seconds then go out.
3. Place the radio into the charger cradle. When charging, the LED indicator will light RED. Once the battery is fully charged the charger LED will turn GREEN. It normally takes about 5 hours to completely charge an empty battery.

Battery Charger Indicator

Operation	Indicator
Power Connected	Orange LED on 2 seconds then goes out
No battery	NONE
Charging	RED solid
Fully charged	GREEN solid
Fault Condition (Over temp, short circuit, or over discharge)	Red LED flashes

LCD Icons
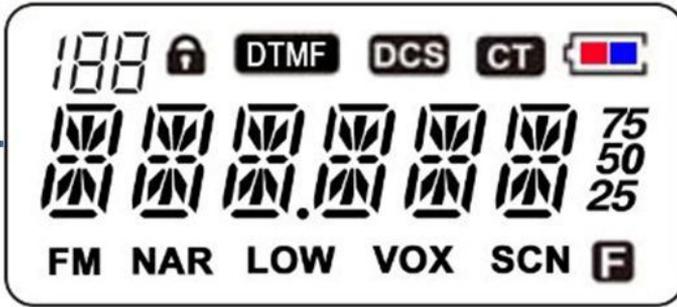
1	*188*	Channel/Menu
2	🔒	Key Lock
3	*DTMF*	DTMF
4	*DCS*	DCS
5	*CT*	CTCSS
6	🔋	Battery
7	FM	FM Radio
8	**NAR**	Narrow Band
9	**LOW**	Low Power
10	VOX	VOX
11	SCN	Scan
12	**F**	Function
13	*75 50 25*	Last Digits at Frequency

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CHAPTER 3: FEATURES AND OPERATION

Switching Power On and Off and adjusting audio volume level
1. With a fully charged battery, connect the antenna to the top of the radio's antenna jack.
2. Rotate the POWER/VOL knob clockwise to turn on the radio. A power up alert will be heard and the current DC supply voltage will be indicated. After about 2 seconds, the display will resume normal operation and display the current operating frequency.
3. To increase/decrease the audio volume level, rotate the POWER/VOL knob.
4. To power down the radio, rotate the POWER/VOL knob fully counter clockwise until clicked and the display goes dark.

After powering up, the radio defaults to the VFO operating mode and the default receive (RX) frequency is displayed.

Keypad Overview:

▲	▼	CLR	F
1 SQL	2 POW	3 REV	# V/M
4 STEP	5 DUP	6 SCN	0 FM
7 R.T	8 T.T	9 SET	*⊸⊙

The BCH-220 sports a 16 button keypad for operating the radio. From the keypad, you will be able to program the radio for how you want it to operate.

CHAPTER 4: QUICK START – GET ME ON THE AIR!

Setting RX Frequency:

To enter the desired RX frequency, simply key the frequency into the radio using the keypad. For example: To enter 224.140 MHz.

Key in 2 – 2 – 4 – 1 – 4 - 0 and the radio will confirm programming with a 'good' beep.

Programming for use with a 220 MHz repeater:

In North America, the general split for most 220 repeaters is 1.6 MHz. Therefore, you'll need to enter the OFFSET from the RX frequency so when you PTT the radio it will apply the OFFSET to the RX frequency and Transmit on the correct Frequency as set by the OFFSET. To enter the OFFSET, follow this procedure:

OFFSET for TX

Press [F] and [9 SET]. Choose OFFSET by pressing [▲] [▼] until the LCD displays OFFSET. Then press [F] and [▲] [▼] to choose desired frequency difference between transmission and receiving. Once the desired OFFSET is on the LCD, press-and-release the [F] to store the value. Another quicker way to program OFFSET is to manually enter the frequency. For example, to enter 1.6 MHz, simply key 0 0 1 6 0 0. The value will automatically be entered. Press [CLR] to cancel setting and back to previous item or press [*↔○] to cancel setting and back to main menu.

DUPLEX OPERATION

Now that the OFFSET is programmed, the radio needs to be told whether it's a positive, negative, or no OFFSET. This is done by using the DUP key. Cycling through the DUPLEX settings is done by using the DUP key. Pressing [F] and then 5DUP will cycle through the DUPLEX settings of NO DUPLEX, NEGATIVE DUPLEX, or POSITIVE DUPLEX. After each [F] and 5DUP press, key the radio and see if the result is NO DUPLEX, POSITIVE, or NEGATIVE. Sequence until the desired DUPLEX setting is achieved.

RX CTCSS/DCS Entry

1. Press [F] , then press 7 R.T. If not set previously, the LCD will display 67.0.

2. Press [*↔○] to switch between CTCSS and DCS: OFF → CTCSS → DCS N → OFF

3. Press [# V/M] to switch DCS Polarity: DCS N → DCS I

4. Press [▲] [▼] to step to the desired CTCSS/DCS or directly input the desired CTCSS/DCS. For example: 102.5Hz for CTCSS.
    a. If necessary press [*↔○] to switch to CTCSS.
    b. Key in: 1, 0, 2, 5
    c. Press [F] to store the setting. A 'good' beep will be emitted and the RX Frequency - will be displayed.

5. If at any time there's an entry error, press [# V/M] to cancel the entry and the radio will revert

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back to displaying the previous CTCSS/DCS tone.   To completely cancel the entry process, press-and-release CLR. You cannot set the RX signaling when the radio is in MEMORY mode.

6. The TX CTCSS/DCS Entry will automatically be set to the same RX CTCSS/DCS Entry.

TX CTCSS/DCS Entry

1. Press F, then press 8 т.т, If the RX signal wasn't set previously, the LCD will display will default to 67.0.

   For TX CTCSS/DCS entry, see above steps 2-6 as indicated for RX CTCSS/DCS entry.

You should now be able to communicate radio-to-raio or on your local 220 MHz repeater! The remainder of this manual will acquaint you with many of the features of the BCH-220. Enjoy!

CHAPTER 5: Basic Operation

■ **TX**

1. Using the monitor button on the left side of the radio, monitor the radio to ensure there is no one transmitting on the chosen channel.

2. Press PTT and face the microphone before talking. The LED should turn RED indicating TX. To ensure good voice quality, the distance between your mouth and the microphone should be between 2.5 and 5 cm.

3. Release PTT to put radio back in receive (RX).

4. When using the earphone and VOX active, users can enjoy hands-free talking. Also users can activate the IVOX function which doe not use the earphone.

■ **RX**

1. Upon power up, the radio defaults to a pre-programmed or default RX Frequency.

2. When radio is receiving a valid call, the speaker un-mutes and the green LED lights.

3. Certain conditions may be required for the radio to un-mute and receive. For example, proper CTCSS/DCS signal decode might be required in order for the radio to un-mute. In addition, the receiving signal must be strong enough to break the squelch (SQL) setting.

4. CTCSS/DCS signaling is a special squelch protocol and can help to ignore unwanted calls on the channel. CTCSS/DCS is programmed on a per channel basis. To communicate using CTCSS/DCS, other radios must have the same signaling in their radios.

Working Modes

1) Memory Mode

While in VFO mode, you can press the #V/M key and this enter memory mode. In this mode you can step up/down through the memory channels and the channel frequencies are displayed.

2) Frequency Mode (VFO)

To change to VFO mode press the #V/M key. Here you can use the keypad to enter the desired RX Frequency on which you would like to communicate.   You can then step up/down in frequency by pressing the ▲ ▼ keys. The step size up and down is determined by STEP programming.

3) Alpha Channel Memory Mode

To change to Alpha Channel MEMORY mode press #V/M key and then turn radio power on. In this mode you can press the ▲ ▼ keys to step through the pre-programmed channels. The names of the channels will be displayed. To go back to Memory or VFO mode, press and hold the #V/M key and turn the radio ON.

4) FM Mode

The BCH-220 supports an FM radio. To change to FM Radio mode press [F] and [0 FM]. While in this mode, you can press ▲ ▼ to change the FM radio frequency. To scan the FM stations, press [CLR] or [F] + [6 SCN].   To scan pre-programmed FM Stations, while in FM Mode press-and-hold the #V/M key.

5) Menu Mode

To enter Menu mode, press [F] and numeric key 9. Press ▲ ▼ to choose desired item. More details please refer to "Menu Operations".

Chapter 6: HOW-TO Function GUIDE:

● **Memory Mode Channel recall / VFO Frequency Entry**

1. In Memory mode or Memory/VFO mode, you can input three numbers to change channels. If the radio has pre-programmed channel numbers assigned then it's a matter of enter the 3-digit channel number to recall the channel. If the channel does not exist, then the current channel is maintained. The following examples illustrate:

   To recall: CH1 (KEY 0 0 1), CH98 (KEY 0 9 8), CH123 (KEY 1 2 3)

2. In VFO mode, simply key in the desired RX Frequency. After keying in the 6 digit frequency, if it's a valid RX Frequency, the radio will begin receiving. If the frequency is invalid, the radio will revert back to the previous working frequency.

   To enter 224.220 MHz – KEY IN: 2 2 4 2 2 0 – A 'good' beep will indicate success.

● **Storing a Channel to Memory**

Channel frequencies are stored in VFO mode only.

1. While the RX frequency to store is displayed, Press [F] and then press [●—○] to start the channel store operation. The word SAVE will be displayed and flash on the screen.

2. Press [▲] [▼] to select which channel number slot to assign to the frequency. You can also key in the 3-digit channel number.

3. Press [F] to store the channel . A 'good' beep will indicate success. Otherwise, press [●—○] or [CLR] to cancel and return to previous frequency screen.

● **Deleting a Channel from Memory**

Deleting a channel is done in VFO/Memory mode.

1. To access VFO/Memory mode, press the [# V/M] key. channel number is displayed in the upper left corner of the display. Next, turn off unit and then turn unit back on while holding the [●—○] key. The word DEL should begin flashing in the LCD display.

2. Press [▲] [▼] to choose desired deleted channel number or directly input channel number and delete ,then press [F] to confirm. The radio will automatically sequence to the next channel. If there is no channel with frequency value ,radio will exit channel delete and resume normal operation.

● Setting SQUELCH (SQL)

The purpose of the squelch control is to mute the speaker when no signals are present. With the squelch level (0-9) correctly set, the speaker will only un-mute when there is a strong signal present. The higher the squelch level, the stronger the signals must be to un-mute the speaker. The appropriate squelch level depends on the ambient RF noise conditions.

1. Press **F** and then KEY 1 SQL. The LCD will display the current SQUELCH level.

2. Press ▲ ▼ to choose desired SQL level.

3. Press **F** to confirm the setting. Press **⊷** or **V/M** to cancel and go back to previous screen. Press **CLR** to cancel the setting.

● Changing Power Level High/Low Power

1. Press **F** and then KEY 2 POW.   The LCD will display the current TX Power Level.

2. Press ▲ ▼ to adjust the High/Low power.

3. Press **F** to confirm the setting. Press **⊷** or **V/M** to cancel and go back to previous screen. Press **CLR** to cancel the setting.

● Changing Frequency Step Size

1. Press **F** and then KEY 4 STEP. The LCD will display the current step size. The step size options are: 2.5K, 5K, 6.25K, 10K, 12.5K, 15K, 20K, 25K, 30K, 50K, and 100K.

2. Press ▲ ▼ to choose desired step.

3. Press **F** to confirm the setting. Press **⊷** or **V/M** to exit the menu. Press **CLR** to cancel the setting.（This feature adjustment is only available in VFO/Memory mode ）

● Changing Frequency Direction for DUPLEX operation

1. Press **F** and then KEY 3 DUP to toggle the frequency reverse function.

2. Repeatedly sequencing the **F** key and Key 3 DUP KEY cycles through the directional settings: No DUPLEX, Positive Duplex, and Negative duplex. There must be an OFFSET programmed to observe the POSITIVE/NEGATIVE duplex change.

   You cannot operate reverse frequency if there is no frequency on the channel.

● Programming the SIDE KEY and TOP KEY

The side key is programmed using the PC BASED programming software. The top key can be set using the programming software or from accessing the TOP KEY entry in the SET menu item list.

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● **Start Channel Scan**

1. Press [F] and numeric KEY 6 scn to start scanning.

2. Press [▲] [▼] to change scanning direction during scanning.

Scanning in VFO mode, the radio will scan by stepping through the channels as determined by the programmed frequency step. Scanning in Channel mode will step through all programmed channels. Scanning in FM Mode, the radio will scan all valid FM Radio frequencies. In Channel mode, scanning will not activate if radio has less than two channels.

● **RX CTCSS/DCS**

1. Press [F], then press 7 r.t. If not set previously, the LCD will display 67.0.
2. Press [*←○] to switch between CTCSS and DCS: OFF → CTCSS → DCS N → OFF
3. Press [#V/M] to switch DCS Polarity: DCS N → DCS I
4. Press [▲] [▼] to step to the desired CTCSS/DCS or directly input the desired CTCSS/DCS. For example: 102.5Hz for CTCSS.
   a. If necessary press [*←○] to switch to CTCSS.
   b. Key in: 1, 0, 2, 5
   c. Press [F] to store the setting. A 'good' beep will be emitted and the RX Frequency will be displayed.
5. If at any time there's an entry error, press [#V/M] to cancel the entry and the radio will revert back to displaying the previous CTCSS/DCS tone. To completely cancel the entry process, press-and-release [CLR]. You cannot set the RX signaling when the radio is in MEMORY mode.

The TX CTCSS/DCS Entry will automatically be set to the same RX CTCSS/DCS Entry. **In addition, the BCH-220 can any non-standard CTCSS tone and DCS code. Simply key in the desired tone/code.**

● **TX CTCSS/DCS**

1. Press [F], then press **8** t.t. If not set previously, the LCD will display 67.0.
2. Press [*←○] to switch between CTCSS and DCS: OFF → CTCSS → DCS N → OFF
3. Press [#V/M] to switch DCS Polarity: DCS N → DCS I
4. Press [▲] [▼] to step to the desired CTCSS/DCS or directly input the desired CTCSS/DCS. For example: 102.5Hz for CTCSS.
   a. If necessary press [*←○] to switch to CTCSS.
   b. Key in: 1, 0, 2, 5
   c. Press [F] to store the setting. A 'good' beep will be emitted and the RX Frequency will be displayed.
5. If at any time there's an entry error, press [#V/M] to cancel the entry and the radio will revert back to displaying the previous CTCSS/DCS tone. To completely cancel the entry process, press-and-release [CLR]. You cannot set the TX signaling when the radio is in MEMORY mode.

The BCH-220 can support any non-standard CTCSS tone and DCS code. Simply key in the desired tone/code.

CHAPTER 7: MENU Items

The BCH-220 supports 19 menu items for setting various parameters that determine the operation of the radio. This chapter details each of these items and how each item works.

To access the menu list, Press [F] and [9 SET]. If the menu list has not been accessed since power up, item 00 – BEEP is displayed. During operation, the menu item displayed will be the last menu item that was displayed when the menu list was exited.

00 – BEEP

This feature turns the KEY press TONE and POWER ON TONE ON/OFF.

Access **BEEP** by pressing the [▲] [▼] keys until the LCD displays BEEP. Then press [F] and [▲] [▼] to choose ON or OFF. Once option is selected, press [F] to confirm and store. Press [CLR] to cancel setting and go back to the previous menu item or press [✱←O] to exit the menu item list.

01 - LIGHT

This feature sets the BACK LIGHT status ON/OFF and the ON duration (in seconds) when a KEY is pressed.

Access LIGHT by pressing the [▲] [▼] keys until the LCD displays LIGHT. Then press [F] and [▲] [▼] to choose ON, 2, 5, 10, 15, 20, 25, or OFF. Store the setting by pressing [F] to confirm and revert back to the menu list. Press [CLR] to cancel and revert back to the previous item or press [✱←O] to cancel setting and exit the menu item list.

02 – KEY LOCK

This feature programs the KEY LOCK feature. The KEY LOCK feature allows for locking out the key pad. The options are: MANU where this option uses the [✱←O] key. The [✱←O] key is pressed and held to LOCK the keypad. AT 5, AT 10, AT 20, AT 30 lock the key pad after 5, 10, 20, or 30 seconds. Once the keypad is locked it remains locked until the [✱←O] is pressed-and-held with UNLOCK displayed. The radio will not remember the key pad is locked upon power cycle. ATS 5, ATS 10, ATS 20, ATS 30 locks the key pad after 5, 10, 20, 30 and STORES the setting so the radio remembers the KEY LOCK status upon power cycle. Access the KEYLOCK feature by pressing the [▲] [▼] keys until the LCD displays LOCK.KEY. Then press [F] and [▲] [▼] to choose MANU, AT 5, AT 10, AT 20, AT 30, ATS 5, ATS 10, ATS 20, ATS 30. Once the selection is made, press [F] to store the selection and revert back to the menu list. Press [CLR] to cancel and revert back to the previous item or press [✱←O] to cancel setting and exit the menu item list.

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03 – BATTERY SAVE

The battery save feature decreases the amount of power used when a signal is not being received and no operations are being performed. This menu item allows for programming the battery save ratio from 1-1 to 1-10. Where 1-1 is the highest battery consumption, and 1-10 is the lowest battery consumption.

Access battery save by pressing the ▲ ▼ keys until the LCD displays SAVE. Then press F and ▲ ▼ to choose OFF, 1-1/1-2/.../1-10 ratio. Once ratio is selected, press F to confirm and revert back to the menu list. Press CLR to cancel and revert back to the previous item or press ✱←● to cancel setting and exit the menu item list.

04 - TOT – Time Out Timer

This function limits how long the user is allowed to PTT before stopping transmit. In the programming software an alarm can be set to emit an alert prior to time-out-timer expiration.

Access TOT by pressing the ▲ ▼ keys until LCD displays TOT. Then press F and ▲ ▼ to choose OFF, 30/.../600 (seconds) r stopping transmission. Once ratio is selected, press F to confirm and revert back to the menu list. Press CLR to cancel and revert back to the previous item or press ✱←● to cancel setting and exit the menu item list.

05 - VOX SWITCH

This function allows for turning ON/OFF the VOX feature. VOX stands for voice activated transmit.

Access VOX SWITCH by pressing ▲ ▼ keys until the LCD displays VOX.SWI. Then press F and ▲ ▼ to choose OFF or ON. Once VOX ON or OFF is selected, press F to confirm and revert back to the menu list. Press CLR to cancel and revert back to the previous item or press ✱←● to cancel setting and exit the menu item list.

06 - VOX LEVEL

This feature allows for setting the audible voice level required to initiate a VOX transmission. The setting is 1 through 10. Where 1 requires loud voice and 10 is for soft voice. When the radio is receiving VOX is not available. The programming software allows for programming **VOX Level Compare Value** and **VOX Delay Time.** VOX Delay time helps provide for proper flow of RX/TX communication. Experiment with this feature to determine optimum value.

Access VOX LEVEL by pressing ▲ ▼ keys until the LCD displays VOX.LVL. Then press F and ▲ ▼ to choose desired VOX level (1-10). Press F to confirm and revert back to the menu list. Press CLR to cancel and revert back to the previous item or press ✱←● to cancel setting and exit the menu item list.

07 - Power On Message

This feature allows for customizing a Power On Message. The options are: NO MSG, DC Voltage, or Custom Message created using the programming software.
Access Power On Message by pressing ▲ ▼ keys until the LCD displays PON.MSG. Then press F and ▲ ▼ to choose OFF, DC, or MSG. Press F to confirm and revert back to the menu list. Press CLR to cancel and revert back to the previous item or press ✱←○ to cancel setting and exit the menu item list.

08 – ROGER

This feature allows for turning on/off the 'ROGER' beep after transmitting. The volume level of the 'ROGER' beep is determined by the setting of the volume control knob.

Access the ROGER item by pressing ▲ ▼ keys until the LCD displays ROGER. Then press F and ▲ ▼ to choose ON or OFF. Press F to confirm and revert back to the menu list. Press CLR to cancel and revert back to the previous item or press ✱←○ to cancel setting and exit the menu item list.

09 - APO / Automatic Power Off

The APO setting will cause the radio to automatically turn off power if there's no operation during the programmed interval. The radio can be powered up by simply pressing any key. The programmed time interval is OFF, and 1 to 24 hours.

Access the APO item by pressing ▲ ▼ keys until the LCD displays APO. Then press F and ▲ ▼ to choose OFF, 1H…24H for the power off timing interval. Press F to confirm and revert back to the menu list. Press CLR to cancel and revert back to the previous item or press ✱←○ to cancel setting and exit the menu item list.

10- OFFSET

OFFSET is used to program the difference from the RX and TX frequency when the radio is used to communicate through a repeater.

Choose OFFSET by pressing ▲ ▼ until the LCD displays OFFSET. Then press F and ▲ ▼ to choose desired frequency difference between transmission and receiving . The up and down presses will step through using the step size setting. Another quicker way to program OFFSET is to manually enter the frequency. For example, to enter 1.6 MHz, simply key 0 0 1 6 0 0. The value will automatically be entered. Press CLR to cancel setting and back to previous item or press ✱←○ to cancel setting and back to main menu.

11 - W/N – Wide Band / Narrow Band

The W/N setting is used for setting the radio to either WIDE or NARROW band operation.

Choose the W/N menu item by pressing ▲ ▼ until the LCD displays W/N. Then press F and ▲ ▼ to choose WIDE or NARR. Press F to confirm and revert back to the

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menu list. Press [CLR] to cancel and revert back to the previous item or press [⊞••○] to cancel setting and exit the menu item list.

12 - SCAN MODE

The Scan Mode menu item allows setting the type of scanning used by the radio. The scanning modes used by the BCH-220 are as follows:

Time Mode (TO): The radio stops scanning after detecting a signal for approximately 5 seconds. Prior to the 5 seconds expiration, the radio will remember the channel and continue to scan. When the 5 seconds has expired and the signal is still present, the radio will stop and rest on the scanned channel.

Carrier Mode (CO): The radio stops scanning when a signal is detected and remains on the same frequency until the signal drops out.

Search Mode (SE): The radio stops at the pre-programmed frequency or channel when detecting a signal.

The radio scans through the frequencies in the programmed step size.

The PC based programmer allows for setting the delay time between RX and Scanning. This timer sets how long the radio remains on a channel prior to resuming scan.

The PC based programmer allows for setting the delay time between the end of TX and resuming Scan

The PC based programmer also allows for setting the Scan Start Beep on/off and Scan Light on/off.

Choose the SCAN MODE menu item by pressing [▲] [▼] until the LCD displays SC.MOD. Then press [F] and [▲] [▼] to choose SE, TO, or CO. Press [F] to confirm and revert back to the menu list. Press [CLR] to cancel and revert back to the previous item or press [⊞••○] to cancel setting and exit the menu item list.

13 - SCAN ADD

For use in MEMORY mode, the SCAN ADD feature allows you to add or delete memory channels from the scan list. This feature does not work in VFO mode.

You must be in MEMORY Mode and on the specific memory channel when using SCAN ADD.

Choose the SCAN ADD menu item by pressing [▲] [▼] until the LCD displays SC.ADD. Then press [F] and [▲] [▼] to choose ADD to add the channel or DEL to delete the channel. Press [F] to confirm and revert back to the menu list. Press [CLR] to cancel and revert back to the previous item or press [⊞••○] to cancel setting and exit the menu item list. If adding the channel the SCN icon will displayed. If deleting the channel, the SCN icon with disappear.

14 – VOICE

The radio supports voice prompts upon numeric key presses and power up. This menu item allows for turning this feature on/off and having voice prompts emitting in either English or Chinese.

Choose the VOICE menu item by pressing ▲ ▼ until the LCD displays VOICE. Then press **F** and ▲ ▼ to choose OFF, ENG, or CHS. Press **F** to confirm and revert back to the menu list. Press **CLR** to cancel and revert back to the previous item or press **✱→O** to cancel setting and exit the menu item list.

15 – ANI (Automatic Number Identication)

The ANI menu item allows for turning on/off the decode and display ANI during RX.

Choose the ANI menu item by pressing ▲ ▼ until the LCD displays ANI. Then press **F** and ▲ ▼ to choose ON or OFF. Press **F** to confirm and revert back to the menu list. Press **CLR** to cancel and revert back to the previous item or press **✱→O** to cancel setting and exit the menu item list.

16 - TOP KEY

The TOP KEY menu item configures what task pressing the TOP KEY will perform. This feature can also be programmed with the PC Based Programming software. See **Appendix B** for available tasks.

Choose the TOP KEY by pressing ▲ ▼ and LCD displays TOP.KEY. Then press **F** and ▲ ▼ to choose one of the items listed in the Appendix B table. Press **F** to confirm and revert back to the menu list. Press **CLR** to cancel and revert back to the previous item or press **✱→O** to cancel setting and exit the menu item list.

17 - PTT ID

The PTT ID menu item allows for chosing when the pre-programmed PTT ID is sent during PTT. The PTT ID can be sent at the beginning of the transmission (BOT), end of the transmission (EOT), or both (BOTH). The various parameters for sending DTMF PTT ID are setup using the PC based programming software.

Choose the PTT ID by pressing ▲ ▼ and LCD displays PTT.ID. Then press **F** and ▲ ▼ to choose OFF, BOT, EOT, or BOTH. Press **F** to confirm and revert back to the menu list. Press **CLR** to cancel and revert back to the previous item or press **✱→O** to cancel setting and exit the menu item list.

18 - RESET

The RESET menu item allows for initializing the radio's settings to default for either VFO or MEMORY mode. When chosing VFO, all settings are reset except memory channels. FULL resets the entire radio.

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Choose the RESET by presing ▲ ▼ and LCD displays RESET. Then press F and ▲ ▼ to choose VFO or FULL. Press F to execute and revert back to the menu list. Press CLR to cancel and revert back to the previous item or press ✱←O to cancel setting and exit the menu item list.

APPENDIX A: CTCSS and DCS Tables

Available standard /non-standard CTCSS Tones

1-67.0	14-103.5	27-159.8	40-199.5
2-69.3	15-107.5	28-162.2	41-203.5
3-71.9	16-110.9	29-165.5	42-206.5
4-74.4	17-114.8	30-167.9	43-210.7
5-77.0	18-118.8	31-171.3	44-218.1
6-79.7	19-123.0	32-173.8	45-225.7
7-82.5	20-127.3	33-177.3	46-229.1
8-85.4	21-131.8	34-179.9	47-233.6
9-88.5	22-136.5	35-183.5	48-241.8
10-91.5	23-141.3	36-186.2	49-250.3
11-94.8	24-146.2	37-189.9	50-254.1
12-97.4	25-151.4	38-192.8	
13-100.0	26-156.7	39-196.6	

Available DCS CODES

023	071	143	225	266	356	452	532	664
025	072	145	226	271	364	454	546	703
026	073	152	243	274	365	455	565	712
031	074	155	244	306	371	462	606	723
032	114	156	246	311	411	464	612	731
036	115	162	245	315	412	465	624	732
043	116	165	251	325	413	466	627	734
047	122	172	252	331	423	503	631	743
051	125	174	255	332	431	506	632	754
053	131	205	261	343	432	516	645	
054	132	212	263	346	445	523	654	
065	134	223	265	351	443	526	662	

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OFF	No function available
DIAL	DIAL is applicable for choosing pre-set code to call someone by with a pre-programmed DTMF sequence. Press "Dial" or PTT then press "dial" to send DTMF code.
CALL	Choose desired number in the pre-programmed list to make. Press 0-9 to choose desired list .
SCAN	Starts/Stops scanning VFO / Memory channels. Press any key except [▲] / [▼] to quit scanning .
VOX	Turn on/off VOX
MONITOR	Stop/Start monitor of CTCSS or DCS while radio when receiving carrier. Radio will un-mute.
POWER	Toggle High/Low power
ALARM	Turn on emergency call function. Press PTT to turn off emergency call.
DTMF IN	Input DTMF code, then press PTT to send out DTMF code .
FM RADIO	Turn on/off FM radio
FIR CH	Quick jump to First channel 1
SEC CH	Quick jump to Second Channel 2
SQL OFF	Function like a monitor button. Defeats SQUELCH. Toggles ON/OFF.
VFO-CH	Toggle between VFO and Memory Mode
LED	LED Switch on/off
SQL MON	During press, momentary SQUELCH defeat.
1750Hz	Press the side-key to send 1750 Hz signal and release to stop sending .

WARRANTY AND SERVICE

Limited Warranty

This product is warranted by BridgeCom Systems, Inc. to be free of defects in materials and workmanship for a period of **one year** from the date of purchase. If a defective part causes this product to operate improperly during the two-year warranty period, we will service it to the original owner free of charge if shipped to BridgeCom Systems at the owner's expense. This warranty does not apply to any parts damaged due to improper use or violation of instructions. It does not extend to damage incurred by misuse or abuse, unauthorized modifications, natural causes such as lightning, fire, floods, and other such catastrophes; nor to damage caused by environmental extremes, such as power surges and/or transients, theft, or accidents.

All warranties must be performed at BridgeCom Systems, Inc. No credit will be given for unauthorized repair work attempted by the customer.

BridgeCom Systems, Inc. will repair or replace the equipment and return to the customer freight pre-paid, within the continental United States. Equipment found not to be defective will be returned at the customer's expense, and it will include the cost to ship, test, and return the equipment.

Equipment returned for repair must have a return merchandise authorization (RMA) number. To obtain an RMA contact our Technical Support Department at (816)-532-8451 or email techsupport@BridgeComSystems.com. All returned equipment must have the RMA number listed on the outside of the shipping container.

Ship all returns to:
    BridgeCom Systems, Inc.
    Attn:Repair
    102 NE State Route 92 Hwy
    Suite C
    Smithville, MO 64089

Out of warranty repairs and service charges are billed at the current hourly rate plus parts.

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Changes or modifications to this device not expressly approved by Bridgecom Systems could voice the user's authorization to operate this device.

FCC Statements

Warning and Compliance Statement:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference including received interference that may cause undesired operation.

WARNING: Modification of this device to receive cellular radiotelephone service signals is prohibited under FCC ruiles and Federal Law.

NOTES:

NOTES:

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