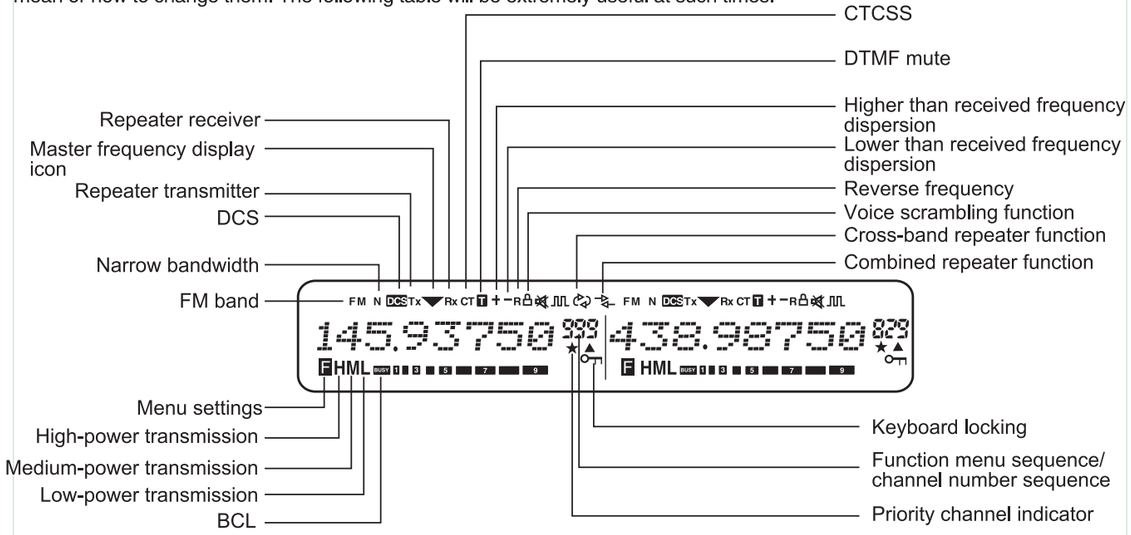
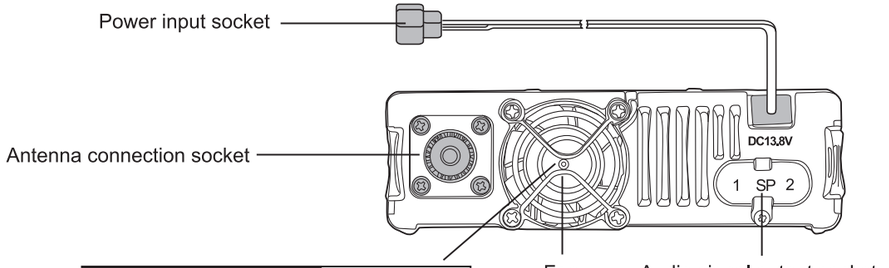
LCD

All kinds of performance parameters can be selected on the LCD screen. Sometimes, you may be unable to think of what they mean or how to change them. The following table will be extremely useful at such times.



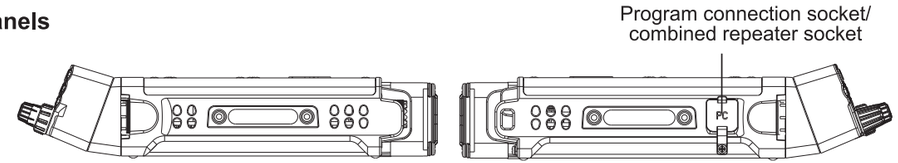
Back panel



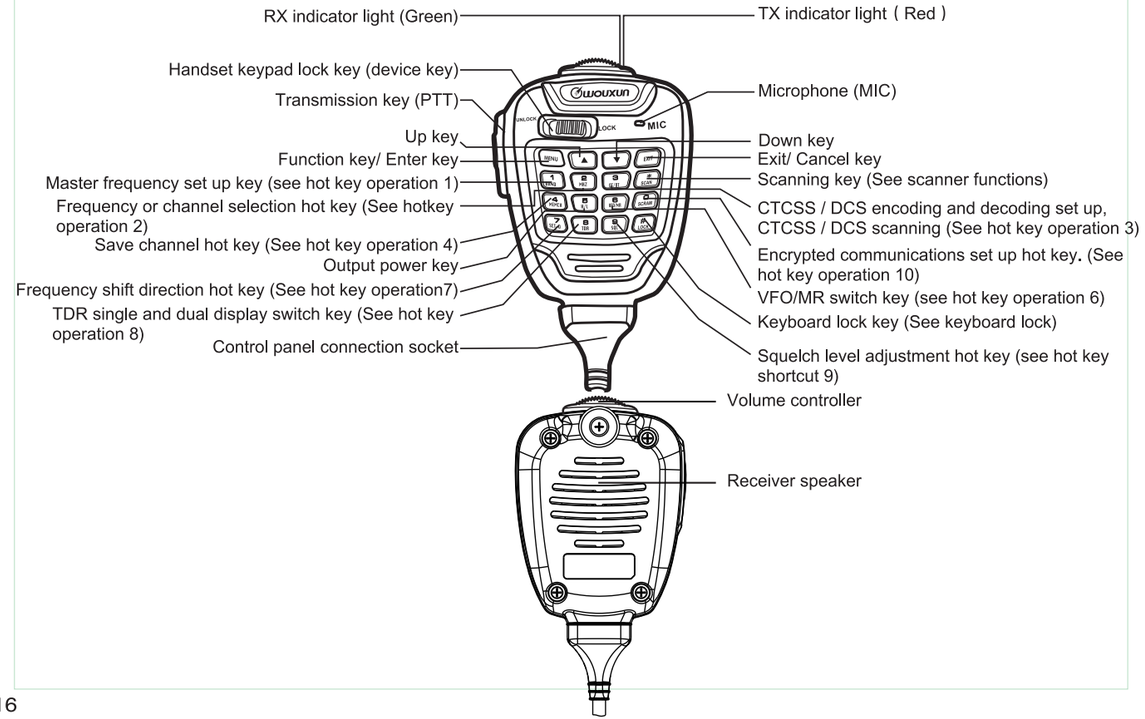
WARNING ⚠

» Hazardous moving parts, keep fingers and other body parts away.

Side panels



Hand microphone



First QSO

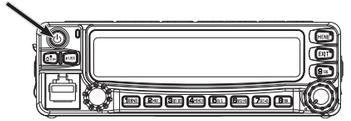
Do you want to hurry up and use your transceiver? After reading these chapters and sections you will know how to broadcast your voice out into the sky. Following is a quick instruction manual. If you encounter any problems or need further explanation, please read the detailed explanation later in this manual.

1.Installing the transceiver. (See pre-usage installation)

2.Installing the antenna. (See pre-usage installation)

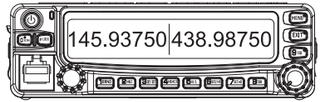
3.Connecting the power source, or vehicle power source. (See pre-usage installation)

4.Press ⏻ to turn on the transceiver，the transceiver will make a long douple beeping tone, the transceivers brand and model will be displayed and the transceiver will enter standby status.



Press the key shown by the arrow

Display brand and model

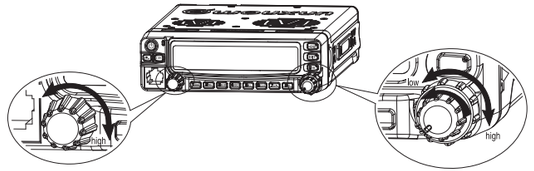


Enter standby status

Adjusting the volume

Rotate the VOL1 and VOL 2 knobs clockwise in order to increase the volume, rotate the knobs counter-clockwise to decrease volume, the cooresponding volume level will be displayed on the LCD.

The volume control knobs have upper and lower control devices. The upper control devices is the channel and frequency RX volume control on the left side of the screen, the lower level control device is the channel and frequency RX volume control on the right side of the screen.



1 2

Turn the volume knob clockwise to increase the volume and the RX volume. The maximum volume is level 16. Turn the knob counter-clockwise to decrease the volume and the RX volume. Continue turning the knob counter-clockwise to shut off.

Selecting Frequency

(1) Frequency mode (VFO)

VFO Mode is the basic mode for changing the operating frequency, through rotating the TURNING (Tuning) control knobs you can change the operating frequency. Turn the knobs clockwise to increase the frequency and counter-clockwise to decrease. You can also enter the desired frequency using the keypad.

Changing the operating frequency using the keypad:

While in standby mode, press the (2) key to enter in the operating frequency selection. After the LCD screeen displays 8 whiffl-etrees, enter in the 6 figures in order which the frequency will automatically confirm according to the “frequency automated co-rrection” verification. And will then display on the LCD screen.

Automatic frequency correction:

An operating frequency has a total of 8 digits, the method for verifying the last two digits after inputing 5 digits using the keyboard is as follows:

When the 5th and the 6th are entered in as “31” or “81” the final two digits will be “25”.

When the 6th digit is entered in as “0” or “5” the last two digits will be “00”.

If the 6th digit is not entered as shown above, it will be automatically corrected to 6.25K step match frequency.

Example frequency 1: 445.95500MHz standby mode:

Press 2 key	Display: `----.---- --`
Input [4]	Display: `4---.---- --`
Input [4]	Display: `44--.---- --`
Input [5]	Display: `445.---- --`
Input [9]	Display: `445.9--- --`
Input [5]	Display: `445.95-- --`
Input [5]	Display: `445.9500`

Example frequency 2: 445.56875MHz : standby mode

Press 2 key	Display: `----.---- --`
Input [4]	Display: `4---.---- --`
Input [4]	Display: `44--.---- --`
Input [5]	Display: `445.---- --`
Input [5]	Display: `445.5--- --`
Input [6]	Display: `445.56-- --`
Input [8]	Display: `445.5687 5`

(2) Channel mode (CH)

Rotate the (TUNING) control knobs in channel mode to change the operating channel in order to get to the selected operating frequency, or use the keypad to select the operating channel.

Changing the operating channel using the keypad:

In standby mode press the [2] key, at this the time hundredth place of the channel number will appear. After entering the desired hundredth digit, the tenth place digit will appear, after entering the 10th place digit, the single place digit will appear, then enter the desired single place digit of the channel.

Example: Selecting Channel CH-901

In standby mode, after pressing [2] , enter “9”, “0”, “1” in sequence.

Example: Selecting Channel CH-088

In standby mode, after pressing [2] , enter “0”, “8”, “8” in sequence

Example: Selecting Channel CH-008

In standby mode, after pressing [2] , enter “0”, “0”, “8” in sequence

Selecting output power

While in standby mode, press the [5] key on the front panel or the [5] key on the encoded handheld microphone, to select the output power. Every time the output power is changed, the sequence will be H→M→L

The transceivers medium output power is M 2, for setup See “Menu 3”(MPOWSET)

Special Reminder: when selecting the output power only do so in relation to the master frequency, See the hotkey operation chart for how to change the master frequency.

Transmitting

(1) In order to transmit signal first grab hold of the handheld microphone, and place about 5 CM away from your mouth, press the [PTT] key, and then speak normally into the microphone. When transmitting, The LCD backlight will change to your set color (For TX backlight color settings see instructions on P39), the LCD display screen will display a TX-LED indicator light. If you press the PTT key while transmitting outside of the coverage area you will hear an error sound.

(2) Release the[PTT]key, to end transmission.

Special Reminder ⚠

» If the transmission time exceeds the “Menu 11 (Transmission time-out timer) set time, you will hear a warning indication tone, the transceiver will also stop transmitting and will limit further transmission. After releasing the [PTT] key, the tone will continue for 10 seconds after which the transmission limitation will be lifted. Note: if you press the [PTT] key anytime within the 10 seconds while the tone is sounding, you will hear a warning tone.

Commonly used basic operations

Squelch settings: Press the [9] key in standby mode, and the muting level will be displayed on the screen, Press the▼ /▲ to choose the desired level of muting, to confrim press the [MENU] key.

Single / dual display: Press the [8] key in standby mode to select single or dual display.

Switching modes: In standby mode, press the [6] key to select VFO frequency mode or MR channel mode. (For detailed operation see hot key 6)

Shortcut operation chart (See P28-33 for explanation)

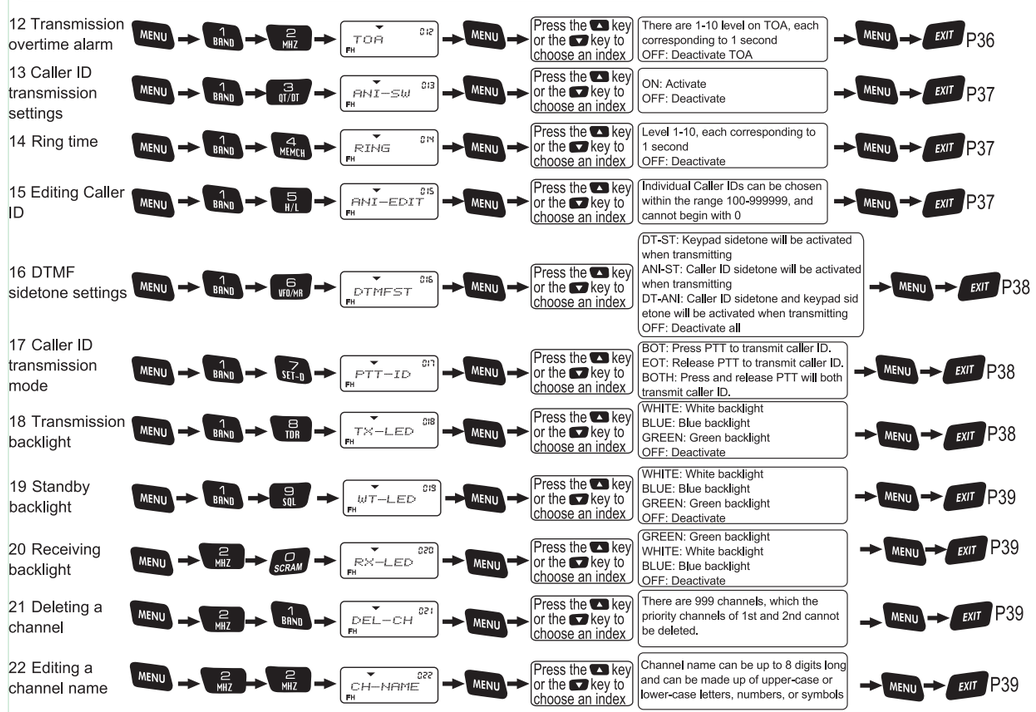
Key name	Function Name	Entering hotkey or operation	Remark
1 BAND	Master frequency settings	In standby mode, press 1 BAND to change master frequency	The LCD display screen will display a▼ icon for the master frequency.
2 MHZ	Selecting channel or frequency	In standby mode, press 2 MHZ to enter the Channel or frequency selection.	See operations P29 “Frequency or channel selection hotkey” instructions
3 QT/DT	CTCSS or DCS settings / CTCSS or DCS scanner	In standby mode, press 3 QT/DT to enter the CTCSS or DCS selection. In RX mode, press 3 QT/DT to enter CTCSS or DCS scanner.	See operations P29 “CTCSS / DCS encoding and decoding setings” instructions
4 MEMCH	Saving channels	In standby mode, press 4 MEMCH to save a channel.	See operations P30 “Save channel hotkey” instructions
5 H/L	Output power level settings	In standby mode, press 5 H/L to change the output power settings.	Press the desired output power to change level of settings, sequence is as H→M→L
6 VFO/MR	Switching frequency mode and channel mode	In standby mode, press 6 VFO/MR to change the display mode.	See P31 “Frequency / Channel switch hotkey”
7 SET-D	Frequency shift direction	In frequency standby mode, press 7 SET-D Frequency shift direction settings. In channel standby mode, press 7 SET-D for reverse frequency or to turn off reverse frequency.	See P31 “Frequency shift direction switch hotkey”
8 TDR	Single and dual display settings	In standby mode, press 8 TDR to enter single display or turn off single display.	Only for secondary frequency set up.
9 SQL	Squelching level settings	In standby mode, press 9 SQL to enter squelching level settings.	See P32 “Squelch level setting hotkey”
0 SCAN / * SCAN	Scanning function	In standby mode, press 0 SCAN / * SCAN to enter the scanning function.	Transceiver panel/Hand microphone key function
0 SCRAM	Scrambler settings	In standby mode, press 0 SCRAM to enter the scrambler settings.	Hand microphone key settings, see P28 “voice scrambler function key (optional) ”
# LOCK	Keypad lock settings	In standby mode, press # LOCK to lock the keyboard or to turn off keyboard lock.	Transceiver panel / Hand microphone key function

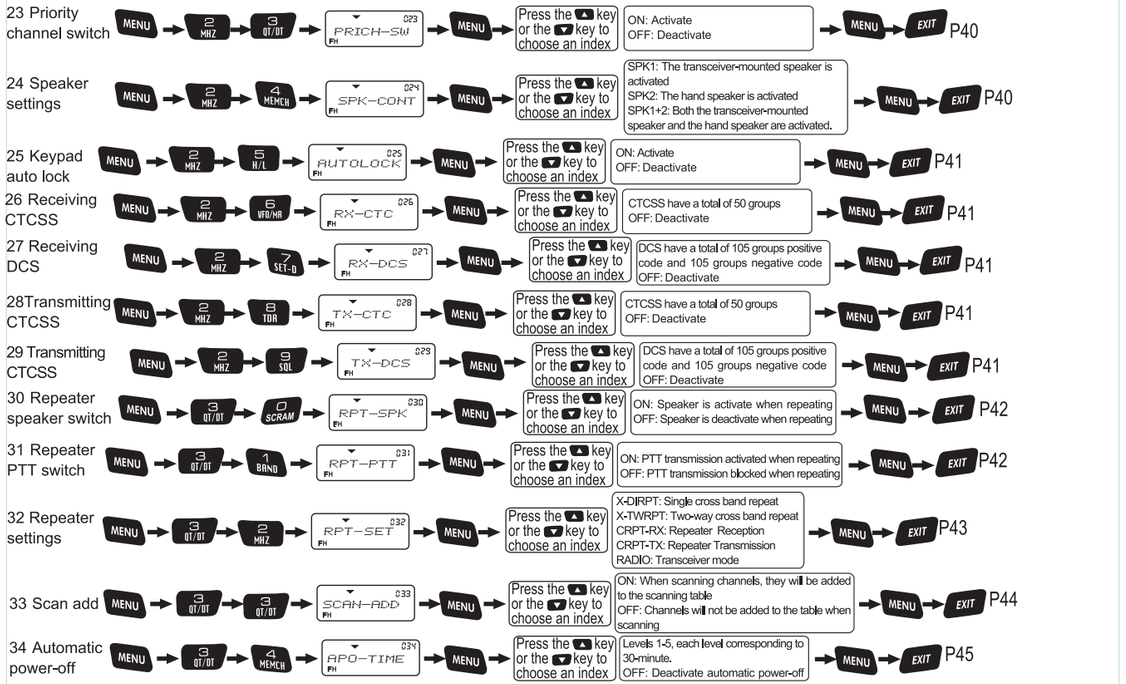
Note: Frequency mode and channel mode are of identical operation (Besides independent indication mode).

Menu operation sheet (See P33-50 for explanation)

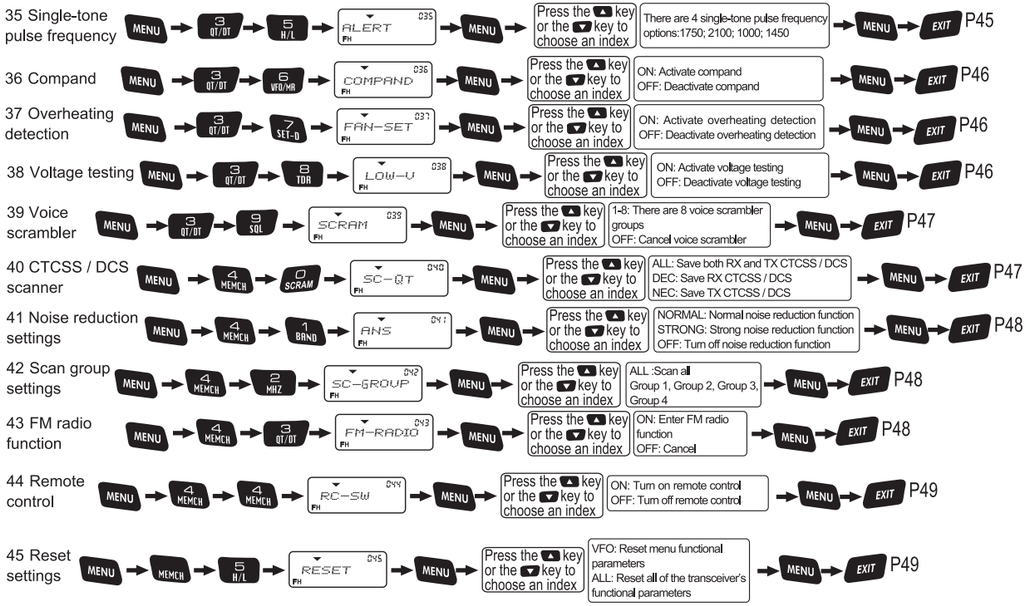
Function Code	Function Name	Enter function set	Screen display	Select parameter	Selectable Parameter Explanation	Confirm	Back	See page
1	Step frequency settings	MENU → 1 BAND	STEP 001 FM	Press the ▲ key or the ▼ key to choose an index	9 types of step frequency: 5.0K, 6.25K, 10.0K, 12.5K, 20.0K, 25.0K, 30.0K, 50.0K, 100.0K	MENU	EXIT	P33
2	Wide/narrow bandwidth settings	MENU → 2 MHZ	WN 002 FM	Press the ▲ key or the ▼ key to choose an index	WIDE: wide bandwidth(25K) NARR:narrow bandwidth(12.5K)	MENU	EXIT	P33
3	Two medium level power settings	MENU → 3 QT/DT	MPOWSET 003 FM	Press the ▲ key or the ▼ key to choose an index	MPOW1: 20W MPOW2: 10W	MENU	EXIT	P33
4	Offset frequency settings	MENU → 4 MEMCH	OFF-SET 004 FM	Press the ▲ key or the ▼ key to choose an index	Selectable in the range 0-599.995	MENU	EXIT	P34
5	Transmission prompt settings	MENU → 5 H/L	ROGER 005 FM	Press the ▲ key or the ▼ key to choose an index	BOT: When the PTT key is pressed, the transmission will prompt. EOT: when the PTT is released, the transmission will prompt. BOTH: When pressing and releasing the PTT key, the transmission will prompt. OFF: Transmission beep will not prompt when off.	MENU	EXIT	P34
6	Beep prompt settings	MENU → 6 VFO/MR	BEEP 006 FM	Press the ▲ key or the ▼ key to choose an index	ON: Activate beep prompt OFF: Deactivate beep prompt	MENU	EXIT	P34
7	Voice prompt settings	MENU → 7 SET-D	VOICE 007 FM	Press the ▲ key or the ▼ key to choose an index	CHINESE: Chinese prompts ENGLISH: English prompts OFF: Deactivate voice prompts.	MENU	EXIT	P34
8	Busy channel lock-out	MENU → 8 TDR	BCL 008 FM	Press the ▲ key or the ▼ key to choose an index	ON: Activate BCL function OFF: Deactivate BCL function	MENU	EXIT	P35
9	Mute settings	MENU → 9 SQL	SP-MUTE 009 FM	Press the ▲ key or the ▼ key to choose an index	There are three squelch settings: QT*DTMF, QT+DTMF, OFF	MENU	EXIT	P35
10	Scan mode	MENU → 1 BAND → 0 SCRAM	SC-REV 010 FM	Press the ▲ key or the ▼ key to choose an index	SE: Carrier wave scanning 2 TO: Time scanning CO: Carrier wave scanning 1	MENU	EXIT	P36
11	Transmission time-out timer	MENU → 1 BAND → 1 BAND	TOT 011 FM	Press the ▲ key or the ▼ key to choose an index	There are 60 levels on TOT, each corresponding to 1 minute	MENU	EXIT	P36

Menu operation sheet (See P33-50 for explanation)





Menu operation sheet (See P33-50 for explanation)



Function description

I. The vehicle transceiver has multiple functions:

(1) Work mode of transceiver

(2) Cross-band repeater work mode

(3) Repeater receiver and repeater transmitter operating mode.

Note: Can be set through Menu 32 (See P43 instructions).

(1) The vehicle transceiver control panel LCD Is divided into two display settings, A and B, displaying the two vehicle transceiver operating frequencies.

The master frequency will be indicated by "▼". This icon is very important. All operating instructions are all concerning the master frequency indicated by this icon If the frequency does not have the" ▼" icon, it will be called a secondary frequency. The master and secondary frequency will be separated by a vertical bar on the display device.

(2) While the vehicle transceiver is in operating mode, only one channel can be set to the FM receiver (65-108MHz) function.

(3) The vehicle transceiver's two operating channels parameters can be set. Before changing the parameter settings, first set the desired channel to the master frequency.

(Master frequency settings see P28 "Master frequency settings")

(4) When the vehicle transceiver is operating in cross-band repeater mode, or repeater reception/ repeater transmission mode, some Transceiver functions will be prohibited.

II. Hotkey function guide.

The settings menu is divided into quick start and operating menu settings, and aside from their shared operating settings, all of the functional operations of work areas A and B are oriented at the master frequency.

Special Reminder ⚠

» The vehicle transceiver operating frequency parameters can be seperatly set. (Example:STEP step frequency, W/N Wide/narrow bandwidth frequency, VFO/MR display mode, OFF-SET frequency, BCL busy channel lockout, SP-MUTE mode operations). As well as system parameters (Example: RX-LED receiver backlight color function etc.) are AB's two operational channels. When setting the main frequency it will change the system parameters.

■ Rapid search function

When using the device or setting any functional parameters you can search the data above or below it by pressing the ▲ or ▼ keys.

(I) Quick operation

(0) SCRAM Voice scrambler function key (Optional)

When the machine is standby, press the SCRAM key to enter voice scrambling settings, then press the ▲ / ▼ key or a number from 1-8 to choose a voice scrambling group, and press the MENU key to confirm, exit settings and return to standby. Voice scrambling has a total of 1 – 8 groups, OFF Shuts down the voice scrambling function. If the vehicle transceiver does not come with this option, pressing this key will be of no effect!

(1) 1 BAND Master frequency settings hotkey

When the transceiver is standby, press the 1 BAND key on the handset or transceiver to switch between master frequency and secondary frequency.

Special Reminder ⚠

» When the A or B Areas or the display screen display an "▼" icon, this indciates that that area is the master frequency, and the other area is secondary frequency, this icon is very important, all of the functional operations are oriented at the master frequency.

(2) 2 MHZ Frequency or channel selection hotkey

■ When the transceiver is standby (frequency mode), press the 2 MHZ key to enter frequency settings, and 8 whiffletrees will appear, just input 6 digits frequency, the last 2 digits will be automatically recognized. This recognition according to the following standards:

(1) When the 6th digit is 0 or 5, then the 7th and 8th digits will be 0.

(2) When the 6th digit is not 0 or 5, the 7th and 8th digits will be 25, 50 or 75 according to the 5th digit's 6.25k step frequency.

During inoutting the 6 digits frequency, if press any other keys except 0-9, it will exit the frequency setting.

(3) 3 QT/DT CTCSS / DCS scanning key

This key has two functions, when the transceiver is in standby mode it is an CTCSS/ DCS encoder and decoder function, and when the transceiver is in RX mode it is an CTCSS / DCSscanner. (The CTCSS / DCS scanning function is only effective in Transceiver operation mode, in Cross-band repeat or repeater recep tion mode ⁄ transmission mode it is ineffective).

■ When the transceiver is standby (channel mode), press the 2 MHZ key on the transceiver or handset to call out the selective channel. The LCD will display CH-XXX (the current channel number), meanwhile, the hundreds channel number will blink, then you can enter the desired callout channel number to operate. If the call-out channel (number) is not available, then it will return to the pre-set channel.

A. CTCSS / DCS encoding and decoding settings

Special Reminder ⚠

» Most transceivers only have the receiving CTCSS/DCS tone but no transmitting tone. Be attention about the CTCSS /DCS settings when in repeater or cross-band repeater mode.

In standby mode, press [3 QT/DT] key to select CTCSS or DCS, the LCD will display: 1CTC&2DT

Press [1 BAND] key to enter CTCSS (CTCSS) settings / press the [2 MHZ] key to enter CDCSS (DCS) settings. After entering the settings, press the [▲] / [▼] keys to choose the needed value, press the [MENU] key to confirm.

B. CTCSS / DCS scanner function

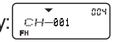
When the vehicle transceiver is in RX mode, press the [3 QT/DT] key to enter select the CTCSS or DCS scanning function, the LCD will then display: 1CTC&2DT

Press the [1 BAND] key to choose the CTCSS scanner / press the [2 MHZ] key to choose the DCS scanner, once the scanner is set correctly, the CTCSS will remain displayed on the LCD screen, press the [MENU] key to save the channel to the corresponding CTCSS parameters. Save the parameters according to Menu 40 instructions.

(4) [4 MEMCH] Save channel hotkey

When the present operating channel is in channel mode (MR), save all parameters of the channel besides that of the channel name.

When the present operating channel is in Frequency mode (VFO) you can set different off-set frequencies (for off-set frequency settings see Menu functions 4) as well as frequency shift direction (for frequency shift direction settings see hotkey operations 7) as well as saving other channel parameters. This way you can set up same-band or different-band channels.

In standby mode, press the [4 MEMCH] key to enter saved channel at this time the LCD will display: 

Enter the Hundredths place tenths , place and single place of the desired channel in sequence to save the channel. Press the [MENU] to confirm.

(5) [5 H/L] Output power settings switch key

H/L function key, is an output power switch hotkey

When the transceiver is standby, the [5 H/L] key will quickly switch power; every time [5 H/L] the key is pressed, the power will shift in the following direction: High power (H) → Medium power (M) → Low power (L)

Medium output power has two levels. for detailed functions see Menu 3 “two medium level output power” instructions

(6) [6 VFO/MR] Frequency / Channel switch hotkey

The vehicle transceiver operating channel can be set as VFO Frequency mode and MR channel mode， Amongst those MR channel mode has three different display types.

A. Channel number mode B. Channel frequency+Channel display mode C. Channel name display mode.The VFO Frequency mode and MR channel mode sometimes are setup with passcode limitations; they need a correct password in order to be able to switch between the two. However the MR channel mode does not need a passcode to switch between the 3 different display modes.

VFO/MR(Frequency / Channel switch) switching is shown below:

VFO → MR (Channel number display) → MR (Channel frequency+Channel number display) → MR (Channel number name)

When the setup is setup with a switch passcode,press the [6 VFO/MR] key, The LCD will display: ————————

At this time enter a 6 digit passcode, if the passcode is correct the mode will switch successfully, If the passcode is incorrect the mode switch will be ineffective, a double tone will follow and you will exit the program. The only way to set up the passcode is through our companies supplied software. If 6 0’s are entered this will turn off the password function.

(7) [7 SET-D] Frequency shift direction switch hotkey

- In FM mode, press the [7 SET-D] key to rapidly switch direction rapidly as shown below:

Positive frequency + → Negative frequency - → Reverse frequency R → Reverse frequency R & positive frequency direction+ → Reverse frequency R &negative frequency direction- → Cancel frequency direction

When rapidly switching frequencies, the frequency direction will be skipped automatically if the frequency direction results in frequency error.

● In channel mode， press the 7 SET-D key this will only set “reverse frequency R” or “turn off reverse frequency R” function.

This function can be prohibited while the vehicle transceiver is in cross-band repeater or repeater receiver or repeater transmitter mode.

(8) 8 TDR Single or dual display switch hotkey

When in standby, press the 8 TDR key, and you can switch between single and dual display.

This function can be prohibited while the vehicle transceiver is in cross-band repeater or repeater receiver or repeater transmitter mode.

(9) 9 SQL Squelch level settings hotkey

The SQL function rapidly switches between squelching settings.

When in standby, press the 9 SQL key and the muting level in the area will be displayed on the screen, then press ▲ / ▼ or directly press 0-9 to choose the desired level of muting, press MENU to confirm, then press EXIT to exit settings.

(10) * SCAN Scanner key

In standby mode, press the handheld microphone * SCAN key or the panel * SCAN key, to start scanning. Frequency mode will start scanning by “step frequency” in intervals， channel mode will start scanning in the current channel, press the ▲ / ▼ keys while scanning to change the scanning direction (higher or lower), press any key to stop scanning. Please see menu 10 SC-REV Scan settings for details of scan types.

This function can be prohibited while the vehicle transceiver is in cross-band repeater or repeater receiver or repeater transmitter mode.

(11) # LOCK Keypad lock key.

When the transceiver is standby, press the # LOCK key locks the keyboard. When the keyboard is locked, both the keypad on the handset and the keypad on the front panel are locked.

(12) ▲ Up key

● In frequency mode， press the ▲ key to set a new frequency: “current frequency” - “step frequency”.

● In channel mode, press the ▲ key to designate one channel as the working channel.

(13) ▼ Down key

● In frequency mode, press the ▼ key to set a new frequency: “current frequency”+“step frequency”.

● In channel mode, press the ▼ key to designate one channel as the working channel.

(14) MENU Confirmation key

MENU key is a confirmation key, as well as a key to enter Menu function setup hotkey.

Menu Operations

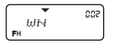
Step frequency settings (STEP) - Menu 1

When the transceiver is standby, press the MENU + 1 BAND keys and the screen will display: 

Pres the MENU key to access the menu, and after pressing the ▲ / ▼ key to select the required step frequency type, press the MENU key to confirm, and the EXIT key to return to standby.

This transceiver has 9 types of step frequency: 5KHz, 6.25K, 10KHz, 12.5KHz, 20KHz, 25KHz, 30KHz, 50KHz, 100KHz.

Wide/Narrow bandwidth settings (W/N) - Menu 2

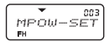
When the transceiver is standby, press the MENU + 2 MHZ keys and the screen will display: 

Press the MENU key， then Press the ▲ / ▼ keys to choose the desired wide/narrow bandwidth set up and press the MENU key to confirm.

Press the EXIT key to return to standby mode.

This transceiver’s bandwidth settings are divided into: wide bandwidth (25KHz) and narrow bandwidth (12.5K).

Two medium level power settings (MPOW-SET) - Menu 3

When the transceiver is standby, press the MENU + 3 DT/DI keys and the screen will display: 

Press the MENU key, then press the ▲ / ▼ to choose the required output level, and press the key to confirm. Press the EXIT key to return to standby mode.

This transceiver has to medium level power set ups separated as MPOW1:20W ; MPOW2:10W.

Special Reminder ⚠

» Medium output power settings is a system setting, after changing these settings, the vehicle transceivers two operating frequencies medium output power settings will simultaneously be set.

Offset frequency settings (OFF-SET) - Menu 4

When the transceiver is standby, press the MENU + 4 T-SCAN keys and the screen will display: 

Press the MENU key to access the menu, and the screen will display: 

And the first digit will simultaneously flash, after inputting the required offset frequency or pressing the ▲ / ▼ keys to increase or reduce the offset frequency, press the MENU key to confirm, and press the EXIT key to return to standby.

The transceiver's frequency range is from 0-599.99500MHz, and the KHz of input offset frequency will be automatically confirmed by step frequency.

This function can be prohibited while the vehicle transceiver is in cross-band repeater or repeater receiver or repeater transmitter mode.

Transmssion prompt settings (ROGER) - Menu 5

When the transceiver is standby, press the MENU + 5 M/L keys and the screen will display: 

Press the MENU key to access the menu, and after pressing the ▲ / ▼ keys to choose the required prompt mode, press the MENU key to confirm, or the EXIT key to return to standby.

The transceiver features 4 kinds of prompt: BOT (beginning of transmission), EOT (end of transmission), BOTH (beginning and end of transmission, and OFF (prompts deactivated).

ROGER Dual tone prompt method, can be set through the supplied programming software. It can be set through (at most 6 digit number) as well as remaining mode or in intervals. (See programming software for help)

Beep prompt settings (BEEP) - Menu 6

When the transceiver is standby, press the MENU + 6 VFO/MR keys and the screen will display: 

Press the MENU key to access the menu， and after pressing the ▲ / ▼ keys to choose the required voice prompt to confirm, press the EXIT key to return to standby mode.

The transceiver has 2 Beep Prompt modes: ON or OFF

Voice prompt settings (VOICE) - Menu 7

When the transceiver is standby, press the MENU + 7 SET-D keys and the screen will display: 

Press the MENU key to access the menu, and after pressing the ▲ / ▼ keys to choose the required prompt mode, press the MENU key to confirm,

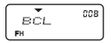
or the EXIT key to return to standby.

This transceiver has 3 voice prompt settings: CHINESE, ENGLISH, and OFF.

Special Reminder ⚠

» If you need to turn all prompts off, you must turn off both the setting of voice prompt (Menu 7) and the beep prompt (Menu 6).

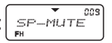
Busy channel lock-out (BCL) - Menu 8

When the transceiver is standby, press the MENU + 8 TDR keys and the screen will display: 

Press MENU the key to access the menu, and after pressing the ▲ / ▼ keys to choose the required prompt mode, press the MENU key to confirm, or the EXIT key to return to standby.

The transceiver has 2 BCL modes: ON (activate) and OFF (deactivate).

Mute settings (SP-MUTE) - Menu 9

When the transceiver is standby, press the MENU + 9 SQL keys and the screen will display: 

Press MENU the key to access the menu, and after pressing the ▲ / ▼ keys to choose the required prompt mode, press the MENU key to confirm, or the EXIT key to return to standby.

Squelch settings: set the conditions which determine when the speaker shall be turned on, these settings are used during selective calling, group calling and all calling.

The Transceiver's mute mode include:

QT: when the transceiver is set to this mode, all signals on the same CTCSS frequency will activate the speaker.

QT+DTMF: only those signals which both satisfy the requirements of CTCSS mode and whose dual-tone multi-frequency carrier wave signal also match the transceiver will activate the speaker in this mode.

QT*DTMF : When this mode is active, only those signals which either meet QT requirements or DTMF requirements will activate the speaker.