A1.0-12/08

AnyTone®

We only do best radio!

Qixiang Electron Science & Technology Co., Ltd.
www.qxdz.cn

AnyTone®

ISO9001
ISO14001

AT-3218G

TWO WAY RADIO

USER' MANUAL

FC CE RoHS COMPLIANT

THANK YOU!

Thank you very much for choosing our AnyTone transceiver. AnyTone transceiver provides you with reliable,clear and efficient communication services.

This transceiver introduces innovative DSP(Digital Signal Processing)baseband processing system,highly integrated, professional multi-functions and excellent stability,reliability.

Fashionable design, smart,easy to carry let it meet the instant communication technology and become a high performance transceiver. This transceiver has DTMF call function (program different DTMF encode and decode through the software), nice timbre, wide LCD display and programmable shortcut keys, to more convenient for user.

MODEL COVERED BY THIS MANUAL

AT-3218G: VHF FM Transceiver 136-174MHz
AT-3218G: UHF FM Transceiver 400-480MHz
EXP: 400-520MHz
PMR/FRS/LPD/GMRS

Programming software: QPS3218G.

NOTE:

- **When programming the transceiver,read the factory initial data first,the rewrite the frequency and signaling etc., otherwise errors may occur because of different frequency band etc.**

◦ SHORTCUT OPERATIONS

Function	Operation	Page
Squelch level setup	●Press [**FUNC**] + [**MHz**] ●Press [▲] or [▼] to choose Squelch ●Press any other key to store and exit.	12
Choose display mode	●Press[**FUNC**] (1 second)+[**DIAL**]	13
Call	●Press [**CALL**]	14
Turn On/Off Call	●Press [**FUNC**] + [**CALL**] ●Can be open or close call function	15
High/Low Power	●Press [**FUNC**] (1 second)+ [**SCAN**]. ●Press [**FUNC**] to choose" PA H ". ●Press [▲] or [▼] to adjust, "H" for high power, " L " for Low power. ●Press any other key to store and exit.	16
Add/Delete Scanning Channel	Channel mode and Frequency+Channel mode. ●Press [**FUNC**] + [**SCAN**] to choose add/delete scanning channel.	20
Scanning ON	●Press [**SCAN**]	20
DTMF Calling	●Press [**DIAL**] ●Press [▲] or [▼] to choose stored numbers ●Press [**PTT**] to transmit the stored numbers ●Press any key except [**PTT**], return to initial mode	21
Keypad Lockout	●Press [**LAMP**] for 4 seconds, repeat to cancel.	22
Keypad Protection	●Hold [**DIAL**] + [**MONI**] at the same time, then turn on radio. ●Press [**SCAN**]to enter keypad protection ●Press [▲] or [▼] to choose, " I " Keypad protecting is ON, " O " is OFF.	22
Backlight	●Press [**LAMP**], repeat to set ON/OFF	23
Backlight color	●Press [**FUNC**] + [**LAMP**] once to choose the color. ●Total 7 colors available	23

Function	Operation	Page
Frequency Reverse	●Press [**FUNC**] + [**DIAL**], repeat to cancel	23
Frequency Step Setup	Frequency Mode ●Press[**FUNC**]+[**P1**] ●Press[▲]or[▼]to choose stepping ●Press any other key to store and exit	24
VOX Transmitting	●Press [**FUNC**] (1 second) + [**MHz**] ●Press [▲] or [▼] to choose VOX gain ●Press any other key to store and exit	24
Adjust CTCSS/ DCS Encode/ Decode	[**FUNC**] (1 second) + [**CALL**] ●Press [**FUNC**] to adjust encode/decode ●Press [**MHz**] to choose CTCSS/DCS/OFF Select DCS ●Press [**DIAL**] to choose positive/inverted code. ●Press [▲] or [▼] to choose signaling, Press any other key to store and exit.	25
Offset frequency	Full range Frequency, [**FUNC**] + [▲] ●Press [**SCAN**] to choose +/- offset frequency ●Press [▲] or [▼] to choose offset frequency value	26
Wide/Narrow Band	[**FUNC**] (1 second) + [**SCAN**]. ●Press [**FUNC**] to choose "W.W 25", ●Press [▲] or [▼] to choose, "25" for wide band, "NC25" for narrow band. ●Press any other key to store and exit.	27
Busy Channel Lockout	[**FUNC**] (1 second) + [**SCAN**]. ●Press [**FUNC**] to choose "B.Y OFF" ●Press [▲] or [▼] to choose "OFF" for set OFF, "0" of carrier wave, "1" for CTCSS/DCS signaling. ●Press any other key to store and exit.	27

◦ SHORTCUT OPERATIONS

Function	Operation	Page
Tone pulse frequency setup	[**FUNC**] (1 second) + [**SCAN**] ●Press [**FUNC**] to choose "1750HZ" ●Press [▲] or [▼] to choose"1000HZ", "1450HZ", "1750HZ", "2100HZ"	28
Choose Rings	[**FUNC**]+[▼] ●Press [**SCAN**] to choose rings (1-5) ●Press any other key except [**MHz**] and [**DIAL**] to store and exit.	29
Save Channel	Full range frequency, [**FUNC**] (1 second) + [▼] ●Press [▲] or [▼] to choose stored channels, ●Press any key to confirm, ●Press [**CALL**] to store and exit while press [**P3**] to exit but not store.	29
Copy Channel	Channel mode and Frequency +Channel mode. [**FUNC**] (1 second) + [▼]. ●Press [▲] or [▼] to choose stored channel. ●Press any key to confirm. ●Press [**CALL**] to store and exit while press [**P3**] to exit but not store .	30
Delete Channel	Channel mode and Frequency +Channel mode. [**FUNC**] (1 second) + [▲]. ●Press [▲] or [▼] to choose deleted channel. ●Press any key to confirm. ●Press [**CALL**] to store and exit while pressing [**P3**] to exit but not stored.	31

Function	Operation	Page
Manual programming (Program without programming software)	Hold [**DIAL**]+[**MONI**] together while turn on radio. ●Press [**FUNC**] to enter auto-program mode. ●press [▲]/[▼] to choose program channel. ●Press [**FUNC**] to set receiving frequency, "R" shown on the down-right corner. ●Press [▲]/[▼] to choose frequency. ●Press [**CALL**] to show default frequency. ●Press[**FUNC**]to set transmitting frequency, "T" shows on the down right corner. ●Press [▲]/[▼] to choose frequency. if no frequncy,press [**CALL**] to show default frequency. ●Press [**FUNC**] to finish setting. ●Press [**FUNC**] again to enter next channel setting. ●Power OFF to exit .	31

◦INSTRUCTION FOR RADIO INDICATORS AND BEEP VOICE PROMPT

The Red indicator flashes when transmitting, but it can still communicate.	Low battery, need to be charged.
The transmitting will stop when the red indicator flashes and “Du” sounds.	The voltage of battery is too low, Please charge at once!
“Da da” sounds at intervals	Out of lock, programmed frequency is out of the range of the transceiver.
After tranmitting for a while, the transceiver will stop transmitting and a“Du” alert will be heard.	TOT alert function is ON. Release [**PTT**] to stop the alert tone.
The transceiver will emit a beep after transmitting for a while, then stop transmit after ting a period of time.	TOT alert function is ON.
You can transmit again after Pre-caution before TOT by a little alter.	TOT Timer setup or the resetting time, it can be transmitting after limited time passed,
When receiving signal from other transceiver, the yellow indicattor is ON. Press [**PTT**] to transmit and “Du” sounds have been heard, then return to receive.	BCL function is ON.

For using this transceiver with high safety and efficiency, please read the following information carefully.

1. Repairing is only for qualified technicans.Please do not disassemble the transceiver causally.
2. Do not modify the transceiver causally.
3. Power off when entering into the flammable and explosive places.
4. Please do not change or charge the battery when under the flammable and explosive circumstances.
5. Please power OFF the transceiver before entering the explosive and detonators areas.
6. To avoid the problem caused by electromagnetism interfering or compatibility, please power OFF when you enter into the places where is not allowed to use the transceiver, such as hospitals and airplanes.
7. Please put the device out of the range of the extension of the airbag in the car.
8. Do not expose the transceiver under sunshine for a long time, nor place it closed to heating appliances.
9. Please keep the antenna at least 2.5cm away from you when transmitting.
10. Do not put the device into the dusty, humid and wet areas, nor put it into the rough surface.
11. If the device smells abnormally or smokes, please power OFF at once, and take out the battery, then contact with the local distributor.

◦ CONTENT

UNPACKING&CHECKING EQUIPMENT 1
Supplied Accessories 1
Standard Accessories 2
Optional Accessories 2
BATTERY INFORMATION 3
Notice for Charging Li-ion Battery 3
How to Store the Battery 3
How to Charge 4
INSTALLING THE ACCESSORIES 5
Installing/Removing the Battery 5
Installing /Removing the Antenna 6
Installing/Removing the Belt Clip 6
Installing the Hand Strap 7
Installing the Additional Speaker/ Microphone 7
GETTING ACQUAINTED ..... 8~10
LCD Screen 11
BASIC OPERATION 12
Power ON/OFF 12
Volume Control 12
Squelch Level Setup 12
Choose Display Mode 13
Choose Channel 13
Choose Frequency 14
Call 14
Turn On/Off Call 15
Transmitting 15
Receiving 15
High/Low Power 16
Turn On/Off FM Radio 16
FM Radio Channel Mode/Frequency Mode Switch 16
Adjust FM Radio Frequency 17
FM Radio Frequency Scanning 17
Adjust FM Radio Channel 17
FM Radio Channel Edit 17
ADVANCED OPERATION 18
Monitor 18
Squelch Off 18
High/Low Power Inquiry 18
Talk Around 18

Battery Capacity Inquiry....19
Temporary Deletion of Interfering Channel....19
FUNCTIONS OPERATION....20
Add/Delete Channel Scanning....20
Channel Scanning....20
Frequency Scanning....21
Transmitting DTMF encode....21
Keypad Lockout....22
Keypad Protection....22
Backlight....23
Reverse Frequency....23
Frequency step setup....24
VOX Transmitting....24
Adjust CTCSS/DCS Encode/Decode....25
Offset Frequency....26
Wide/Narrow Band....27
Busy Channel Lockout....27
Tone Pulse Frequency Selection....28
Choose Rings....29
Store Channel....29
Copy Channel....30
Delete Channel....31
Manual programming....31
BACKGROUND OPERATION....33
Time-Out Timer....33
Time-out Timer Pre-alarm....33
TOT Re-transmitting Time Setup....33
TOT Reset Time....33
MONI Key Setting....33
Battery Save....34
Low Battery Warning....34
Resume Factory Default....34
TECHNICAL SPECIFICATIONS....35
TROUBLE SHOOTING....37
ATTACHED CHART....39
CTCSS Frequency Chart....39
DCS Chart....40

◦ UNPACKING&CHECKING EQUIPMENT

Carefully unpack the transceiver. We recommend that you confirm the items listed in the following table before discarding the packing material. If any items are missing or have been damaged during shipment, contact with the dealer immediately.

Supplied Accessories

Item	Number	Quantity
Antenna	QA06V (136-174MHz)	1
	QA06U (400-480MHz)	
Li-ion Battery (1500mAh)	QB-27L	1
Charger	QBC-27L	1
AC Adaptor	QPS-02	1
Hand strap	GS01	1
Belt Clip	BC05	1
Earphone	HS03	1
Instruction Manual		1

Standard accessories may be changed without notice.

Standard Accessories

Antenna*
QA06V(136~174MHz)
QA06U(400~480MHz) etc.

Li-ion battery
QB-27L

Charger
QBC-27L

AC Adaptor
(5V/500mA)
QPS-02

Belt Clip
(w/screws)
BC05

Instruction
Manual

*** For frequency band of antenna, please refer to label indicated in the bottom of the antenna.**

Optional Accessories

Programming Cable
PC03

Earphone
HS03

Spare battery
QB-27L

Hand Strap
GS01

Programming Software
QPS3218G

◦ BATTERY INFORMATION

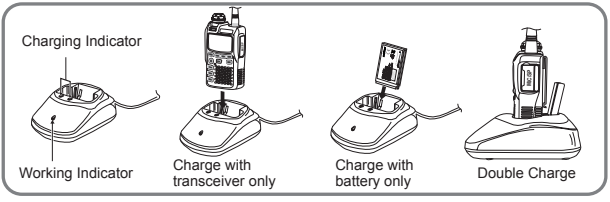
Notice for Charging Li-ion Battery

- ▼Use the specific charger only for this model. Don't modify the battery and charger. We show no responsibility on the faulty causing by modifying without permission of our company.
- ▼The ambient temperature should be between 5℃ and 40℃, the battery outside this temperature range may not charge fully.
- ▼To operate transceiver when charging will cause abnormally charging.
- ▼The battery life is over when its operating time decreases even though it is fully and correctly charged, Please replace the battery.
- ▼Do not charge the Li-ion battery with the charger for Ni-MH. Their charging ways are different, It is easy to cause overcharging. Also do not charge it with other kinds of Li-ion battery charger. Otherwise it will cause overcharging.
- ▼Do not release electricity over max current.
- ▼When it nears to the voltage, which is not allowed to release electricity. It should be charged.
- ▼Do not express, burn or disassemble the used battery. Do not use it out of the temperature range.

How to Store the Battery

- ▼If the battery needs to be stored, the battery should keep in the status of 50% charging.
- ▼It should be kept in low temperature, dry environment.
- ▼Keep away from hot places, including the places where the sunshine is too strong.

How to Charge



1.Plug the AC adaptor into the AC outlet, and then plug the cable of the AC adaptor into the DC jack located on the back of the Charger.
Working indicator---Red, Charging indicator----Green
2.Plug the battery or transceiver into the charger.
A. Make sure that the battery is well connected with charging terminals.
B. Charging indicator---Red.
3.Fully charged. Charging indicator---Green.

Charging process:

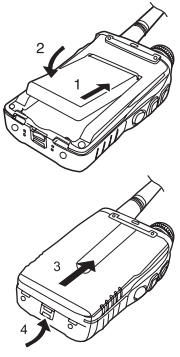
Status	Color of indicator	Time
Start to charge	Red	4 hours
Charged finish	Green	

NOTE:

■ **It takes approximately 4 hours to fully charge the battery（double charger needs 8 hours）. But, the actual charging period depends on the battery capacity. Over charging will shorten the battery life and reduce its performance.**

◦ INSTALLING THE ACCESSORIES

Installing/Removing the Battery

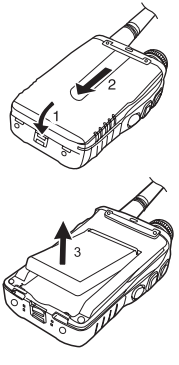


Installing the Battery

▼Parallet the battery with the Aluminium housing on the rear of the transceiver, keep the rear of battery 1 cm from transceiver, and then push it upwards until tightened.

▼Make sure the battery cover is tightened with the Aluminium housing.

▼Lock the battery buckle.



Removing the Battery

▼Push the buckle of the battery cover downwards until it is unlocked.

▼Push the cover of battery backwards smoothly to take it out.

▼Remove the battery by lifting the rear of the battery 1cm.

Installing /Removing the Antenna

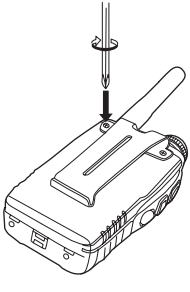
Installing the Antenna:

▼Screw the antenna into the connector on the top of the transceiver and turn clockwise to fasten it.

Removing the Antenna:

▼Turn the antenna counterclockwise to remove it.

Installing/Removing the Belt Clip



Installing the Belt Clip:

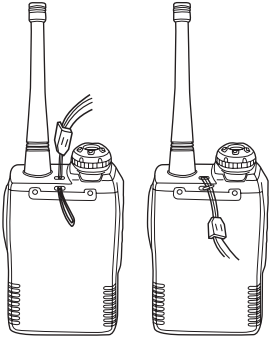
▼Place the belt clip to the corresponding grooves on the back of the transceiver, and then clockwise screw it.

Removing the Belt Clip:

▼Anticlockwise turn the screws to remove the belt clip

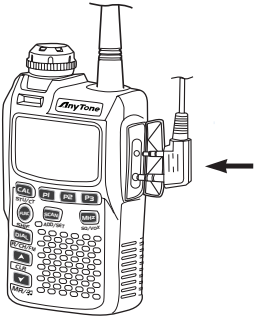
◦ INSTALLING THE ACCESSORIES

Installing the Hand Strap



Slide the loop of the hand strap through the eyelet on the upper rear of the transceiver; then pull the entire hand strap through the loop to secure the hands strap in place and lastly tighten the hands strap.

Installing the Additional Speaker/ Microphone

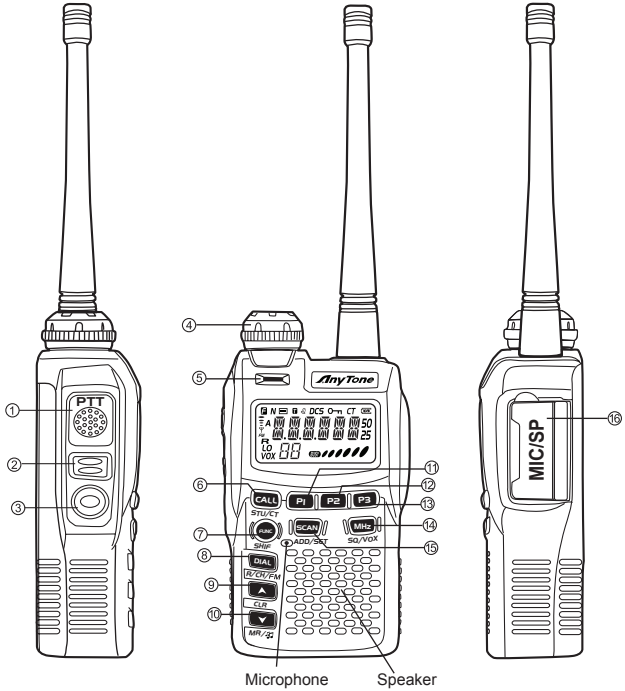


Unveil the MIC-SP jack cover and then insert the Speaker/Microphone plug into MIC-SP jack.

NOTE:

- **The transceiver is not completely waterproof while using the Speaker/ Microphone.**

GETTING ACQUAINTED



◦ GETTING ACQUAINTED

① PTT key

Press the [**PTT**] key, then speak into the microphone to transmit.

② MONI Key

According to how the seller programming of this key. Please refer to page 33 of "**MONI**" setting and also set functions with other function keys.

③ LAMP Key

Set backlight ON/OFF and keypad lock. And set functions with other function keys.

④ Power Switch/Volume Control

Turn clockwise to switch on the transceiver and adjust volume while turning, to switch off transceiver, turn counterclockwise to the end.

⑤ LED Indicator

Lights red while transmitting, Lights green while receiving a signal. Flashes red when the battery voltage is low.

⑥ CALL Key

Press this key to remind the receiver with vibration ring, and also work with function key to set vibration rings on or off and encode/ decode signal.

⑦ FUNC Key

Press this key to active other functions setting.

⑧ DIAL Key

DTMF dialing key, also work with function key to set reverse frequency and switch between the working modes.

⑨ ▲ Key

The up key, and also work with function key to set offset frequency and delete channel.

⑩ ▼ Key

The down key, also work with function key to set rings choice,channel stored and copied.

⑪ P1 Key

Programmable key, can realize different functions through programming,Also work with function key to set the stepping frequency.

⑫ P2 Key

Programmable key, can realize different functions through programming.

⑬ P3 Key

Programmable key, can realize different functions through programming.

⑭ MHz Key

Press this key and [▲]/[▼] to choose frequency or channel quickly, and also work with function key to set squelch level and VOX Transmitting.

⑮ SCAN Key

Begin/Stop scanning, also work with function key to set scan adding or deleting, High/Low power, Wide/Narrow band, Busy Channel lockout and Tone Pulse frequency choice.

⑯ MIC-SP Jack

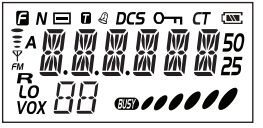
Connect with optional Earphone/Microphone.

Programmabled Keys Default

	P1	P2	P3
Default	Squelch off	Power inquiry	Battery capacity inquiry

◦ GETTING ACQUAINTED

LCD Screen



Icon	Instruction
F	Enter function mode
N	In narrow band
−	Offset frequency
T	Talk around function
	Receiving signals
DCS	DCS
	Key locked function
CT	CTCSS
	Battery level
FM	FM signals
A	Displays when the selected channels are in the scan list while displaying nothing when the channel is out of scan list.
	Displays the working frequency or channel setting function.
50 25	Mantissa of frequency
R	Reverse frequency
LO	In low power
VOX	VOX function is ON
88	Displays different informations according to different function setting.
BUSY	Busy indication
	Indicates power /signal strength

Power ON/OFF

▼**Turn ON transceiver :** Under power off state, turn **[Volume Switch]** clockwisely, after tick sound , the power is ON and sounds “DU” at the same time .

▼**Turn OFF transceiver :** Under power on state, turn **[Volume Switch]** counterclockwisely, when hear tick sounds, the transceiver is power OFF.

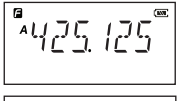
Volume Control

Rotate [**Volume Switch**] to adjust volume level. Turn clockwisely to increase the volume level. Turn counterclockwisely to decrease the volume, press be programmed [**MONI**] to monitor the current volume.

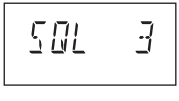
Squelch Level Setup

The squelch level you choose will be decided by surroundings. If the level is too high, you cannot hear weak signal. If the level is too low, you will hear the background noise.

1.Press [**FUNC**]
- “ F ” displays on the LCD screen.



2.Press [**MHz**]
- Display the current squelch level.



3.Press [▲] / [▼] to choose squelch level 0-9: total 10 levels.
- When it on the 0 level ,the squelch always open.

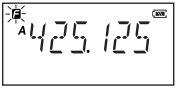
4.Press any other keys to save and exit.

◦ BASIC OPERATION

Choose Display Mode

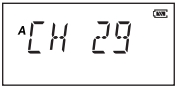
There are 3 kinds of display modes available: Channel mode, Frequency + Channel mode and Frequency mode.

1.Press [**FUNC**] for 1second, " F " flashes on the screen.

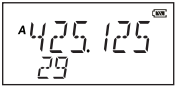


2.Press [**DIAL**] to select display modes.

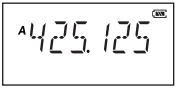
A. Channel mode as shown:
Display channel number



B. Frequency + Channel mode as shown:
Displays Frequency and channel number.



C. Frequency mode as shown:
Displays the current Frequency.



Repeat the above the operations to select display mode in circle.

Choose Channel

This function is valid under Channel and Frequency + Channel mode

1. Press [▲] / [▼] to choose channel, keep pressing [▲] / [▼] to choose channel (increase/decrease)
2. Press [**MHz**], and meanwhile press [▲]/[▼] to choose channel (increase/decrease by 10 channels)
3. The screen displays the choosed channel.

NOTE:

■ **Only programmed channels can be selected. No more than 100 channels can be selected.**

Choose Frequency

This Function is valid under Frequency mode.

1. Press [▲] / [▼] to select.
2. Press [▲] to increase frequency by stepping while pressing [▼] to decrease it.
3. Keep pressing [▲] or [▼] to increase/decrease frequency by stepping quickly.
4. Press and hold [**MHz**], and meanwhile press [▲] / [▼] to increase or decrease frequency by 1MHz step.The frequency you had chosen will display on the screen.

NOTE:

- **For more quickly and correctly choosing frequency, please select stepping frequency first. (Refer to page25 of "Step frequency" setting)**
- **If the frequency is out of its range, it will return to the beginning and increase/decrease by the Stepping setting.**

Call

Press [**CALL**],You can transmit a ring signal to other transceiver, the receiver will play ring music and display "🔔 " icon after receiving that signal. It means someone is calling in.

NOTE:

- **Only the received transceiver has this function can ring out.**
- **The receiving transceiver should be within the communication range.**
- **The DTMF code should be consistent between caller and receiver.**
- **User can set the DTMF code through the software .**

◦ BASIC OPERATION

Turn On/Off Call

In standby mode, press [**FUNC**] screen display " F ", it will open or close call after press [**CALL**] key again.

- When screen displays " C-OFF ", press [**CALL**] is invalid.
- When screen displays " C-ON ",press [**CALL**] is valid, it can use call.

Transmitting

1.Accoding to different settings of [**MONI**], press [**MONI**] to monitor a moment. Confirm no transceiver is transmitting on the selected channel, and ensure it will not interfere the other stations.

2.Please keep the microphone approximately 3-4cm away from your lips, and speak in your normal speaking voice to get best timbre.

NOTE:

- **Press the [PTT] switch, LED lights RED, it means transmitting, release [PTT] to receive signal from transceivers.**
- **The callee should be within the communications range and also the frequency should be the same as your transmitting frequency. Only the transceiver has the same code or no code can receive your callings.**

Receiving

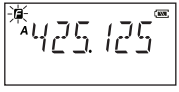
When the working channel is called, LED lights green, and you can receive the call.

NOTE:

- **If the signal is weak while the squelch level is higher, you may miss the call.**
- **If code is programmed, you could only receive callings which have the same code as yours. Other callings cannot be heard.**

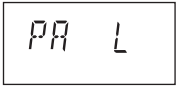
High/Low Power

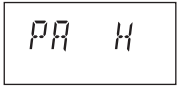
When transmitting in high power, the transceiver would consume much battery power. In short distance communication, you can choose low power transmitting mode to save battery; while using high power in long distance communication.



1. Press [**FUNC**] for 1 second.
- " **F** " flashes on the screen.

2. Press [**SCAN**]
- Low power transmitting displays, "PA L" while high power transmitting displays " PA H ".



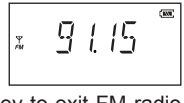


3. Press [▲] / [▼] to choose in circle.

4.Press any key except [**FUNC**] to save and exit.
- Low power transmitting displays " ***LO*** " while HIGH power transmitting displays nothing.

Turn On/ Off FM Radio

- In Standby Mode, Press and hold [**DIAL**], until screen displays FM radio frequency to open FM radio function.



- In FM radio Mode, Press [**P1**] key or [**P2**] key to exit FM radio mode then to return back transceiver mode.

FM Radio Channel Mode/Frequency Mode Switch

1. In FM Radio Frequency mode, press [**CALL**] to switch FM Radio mode to channel mode.
2. Press [**SCAN**] to return to Channel Frequency Mode.

◦ BASIC OPERATION

NOTE:
■ **If Radio channel is not edited, pressing [CALL] is invalid.**

Adjust FM Radio Frequency

In FM Radio Frequency mode, you can adjust the current Frequency mode to which mode you want through pressing [▲] or [▼]. Press [▲] to increase frequency, press [▼] to decrease frequency. Keep Pressing [▲] or [▼] to increase or decrease accordingly.

FM Radio Frequency Scanning

In Frequency Mode, press and hold [▲] / [▼] followed by pressing [**MHz**], then release all the buttons to enter scanning mode. In this state, you can press [▲] or [▼] change scanning direction. When FM radio station is detected, the transceiver will lock it and exit scan automatically.

Adjust FM Radio Channel

In Channel Mode, you can choose the channel you want through pressing [▲] or [▼]. Press [▲] to adjust previous channel, press [▼] to adjust to next channel. Keep pressing [▲] or [▼] to increase and decrease accordingly.

FM Radio Channel Edit

In Frequency Mode, choose the frequency you want then press [**DIAL**], Screen displays " C -- 1 ", press [▲] / [▼] to choose the channel that you want to save, in this state, press [**DIAL**] again, then, press [**CALL**] to save when the screen displays "YES NO" to save. Press [**P3**] to clean data if you do not want to save.

The transceiver's [P1], [P2], [P3] is programmable key, it can realize following functions by programming software.

Monitor

Pressing [**P1**]/[**P2**]/[**P3**] key programmed as Monitor, the transceiver will emit tick sound, then enter monitor state under which the transceiver will ignore CTCSS/DCS decode, so as long as the transceiver receives matched carrier it can monitor the caller's signal. Press [**P1**]/[**P2**]/[**P3**], the transceiver will sound tick and exit monitor state.

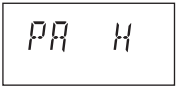
Squelch Off

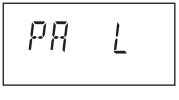
Pressing [**P1**]/[**P2**]/[**P3**] key programmed as Squelch off, squelch circuit is not mute. Then you can hear the background noise. Press the programmed key again, the squelch circuit becomes mute. Then, you can monitor the weak signals that hard to hear.

High/Low Power Inquiry

Press [**P1**]/[**P2**]/[**P3**] key programmed as High/Low power inquiry, the transceiver's screen will displays current High/Low power.

- The screen displays "PA H", it means High power.
- The sreen displays "PA L", it means Low power.





Talk Around

In Standby Mode, pressing [**P1**]/[**P2**]/[**P3**] key programmed as Talk around, current channel will be in Talk Around state after the transceiver emit tick sound. In this state the transceiver will transmit by receiving frequency. Also, the setting code will transmit by decoding signal as encoding signal. Press this key

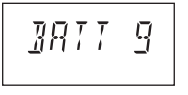
again, the transceiver will tick and exit the Talk Around .

NOTE:

■ **In talk around state, the transceiver can't communicate with other repeater.**

Battery Capacity Inquiry

Press [**P1**]/[**P2**]/[**P3**] key programmed as Battery Inquiry, the transceiver's screen will display the remain battery power at present, 9 levels in total.



- The current battery full when it is in level 9.
- When the battery is low (0 level). the transceiver's LED will flashes Red to remind user to charge battery. And at the same time the transceiver will prohibit transmitting automatically.

Temporary Deletion of Interfering Channel

This function can temporarily delete the interfering channel or occupied channel from scan list. When scan rests on one channel, pressing the key [**P1**]/[**P2**]/[**P3**] programmed as Temporary Deletion of the Interfering Channel, transceiver ticks and temporarily deletes this channel from scan list. Restart the transceiver to add the temporarily deleted channels into scan list again.

NOTE

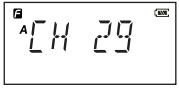
■ **If there is only 1 or 2 channels in the scanning list, the operations is invalid.**

Add/Delete Channel Scanning

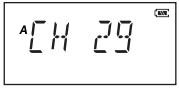
This function is valid under the channel mode and Frequency + channel mode. You can choose channel and add it to scan list or delete it from the scan list.

1. Press [▲] / [▼] to choose the desired add/delete channels.

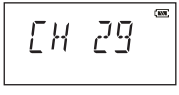
2. Press [**FUNC**]
- " F " icon displayed on the screen.



3. Press [**SCAN**]
- The screen displays "A " icon means that the channel is added into the scan list.



- The screen displays nothing when the channel is deleted out of the scan list. Repeat the above operation, the channel will switch between scan add/delete.



Channel Scanning

This function is valid under the channel mode and Frequency + Channel mode, which is used to monitor each channel signal of the transceiver in the scan list.

1. Press [**SCAN**] to start scanning, "SCAN" is displayed on the screen.

2. Scan starts from current channel to the added scanning channel.
3. Scanning will pause in the channel with signal, the dot between "**CH**" and channel number will flash on the screen.
4. After the signal disappears, the transceiver will resume scanning after 4s.
5. Press any other keys except [**MONI**] to stop scanning.

◦ FUNCTIONS OPERATION

NOTE:

■ **You can only use channel scanning function when programming at least 2 scanning channels of the transceiver.**

Frequency Scanning

This function is valid under Frequency mode. It is used to monitor signal of every communication frequency. When scanning, the transceiver will check signal as per stepping frequency increasing and only stop in the frequency with signal.

1. Press [**SCAN**] to start scanning. The "**SCAN**" is displayed on the screen.
2. Scan starts from current frequency and increases as per stepping frequency.
3. Scan will pause in frequency with signal; the dot between frequencies will flash on the screen.

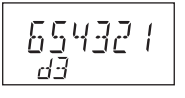
4. Scan will return after signal disappears for 4 seconds,
5. Press any other key except [**MONI**], to stop scanning.

NOTE:

■ **When the increased frequency surpass the transceiver frequency range, it will return to the lowest frequency to increase as per "Stepping frequency" automatically.**

Transmitting DTMF encode

1. Press [**DIAL**] to show the programmed DTMF encode.
2. Press [▲] / [▼] to choose desired transmitting encode.



3.Press [**PTT**] to transmit DTMF encode.

- After choosing desired transmitting DTMF encode, press any other key except [**PTT**] to exit the operation.
- The screen scrolls the stored [**DTMF**] numbers and sounds corresponding [**DTMF**] tone.

4. After transmitting, it will return to the normal operation.

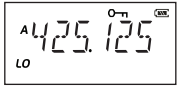
NOTE:

■ **DTMF encode must be edited by programming software, If no DTMF encode is stored in the transceiver, DIAL key is invalid. The product can edit 9 DTMF group number at most.**

Keypad Lockout

This function is used to avoid operating transceiver incorrectly, and lock the transceiver keypad.

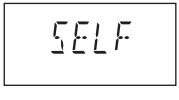
1. Press and hold [**LAMP**] for 4 seconds, to set key locked function ON/OFF.
2. The screen displays " O-n "
3. When key locked function is ON, all the keys are invalid except [**PTT**], [**MONI**] and [**LAMP**].



Keypad Protection

1. Power off the transceiver.
2. Press and hold [**MONI**] and [**DIAL**] key followed by powering on the transceiver, keep pressing 2 seconds, then release the key.
3. Press [**SCAN**] key.
4. Press [▲] or [▼] to choose key protection ON/OFF.

- " 1 " Keypad protection is ON, " 0 " Keypad protection is OFF.



- When key protecting is ON, [**PTT**], [**MONI**], [**LAMP**], [**CALL**], [▲], [▼] is valid key.

NOTE:
■ Only when (CALL) key call function is ON, CALL key can be valid.

5. Power off the transceiver, and exit to save.

Backlight

1. Turn ON/OFF the backlight.
- Press [**LAMP**] once (less than 1 second) to turn ON the backlight.
- Press [**LAMP**] once (less than 1 second) again to turn OFF the backlight.

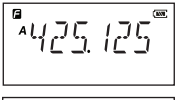
2. Set backlight colors.
- Press [**FUNC**] once (less than 1 second), then press [**LAMP**] to change color, repeat the operation, 7 colors show in circle.
- Press any other key to store the current color as the backlight color.

Reverse Frequency

Transmitting and receiving frequency will be reversed when this function is enabled. It means using transmitting frequency as receiving frequency, and receiving frequency as transmitting frequency. Also, encoding and decoding signal will be reversed too.

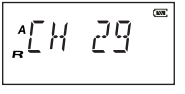
1.Press [**FUNC**],

- " F " displays on the screen.



2.Press [**DIAL**] to set this function ON.

- If reverse frequency is ON, the screen displays " R ".



- If reverse Frequency is OFF, the screen displays nothing.

3. Repeat the above operation, the channel will switch ON/OFF (Reverse Frequency).

● When changing channel/frequency or opening scanning, the reverse frequency function will be OFF.

Frequency step setup

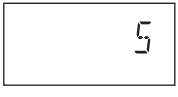
In Frequency Mode,"Step frequency" is effective function, the transceiver will be bound by step frequency when choose frequency or Frequency Scan.

1.Press [**FUNC**],

● LCD displays " F ".

2.Press [**P1**],

● LCD displays the step frequency that set up last time.



3.Press [▲] or [▼] to choose step frequency.

5 Stepping is 5KHz

6.25 Stepping is 6.25KHz

12.5 Stepping is 12.5KHz

25 Stepping is 25KHz

4.Press any other key to store and exit.

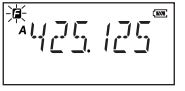
● Restore to original display.

VOX Transmitting

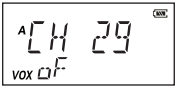
This function allows you to transmit hands-free. When turn on VOX, if microphone's gain is higher than VOX gain, the transceiver will switch to transmitting mode automatically while returning to receiving mode with 2 seconds if microphone's gain is lower. Owing to being switched between transmitting

and receiving, we suggest you set lower VOX gain to disable transmitting when there is too much noise in your surrounding.

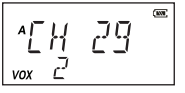
1.Press [**FUNC**] for 1 second.
- " F " flashes on the screen.



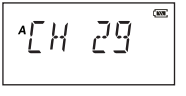
2.Press [**MHz**] key.
- Screen displays "**VOX**" and the last stepping frequency.



3.Press [▲]/[▼] to choose VOX gain.
- " OF " to turn OFF VOX function;
- " 1 " the lowest gain;
- " 9 " the highest gain.



4.Press any other key to store and exit.
- When choosing " 1~9 " VOX gain, the screen displays "**VOX**".
- When choosing " OF ", VOX turns OFF, and screen displays nothing.

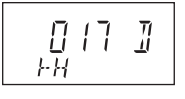


Adjust CTCSS/DCS Encode/Decode

Programming CTCSS/DCS Encode/Decode

Programming CTCSS/DCS code in the frequency can help you ignore (not hear) some unnecessary callings from other transceivers using the same frequency.

1. Press [**FUNC**] for 1 second. " F " flashes on the screen.
2. Press [**CALL**]
- The right down corner displays " T-H " and the decode code set last time.

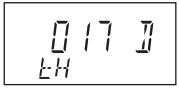


3. Press [**MHz**] to choose CTCSS/DCS or OFF.
- Display " D " before the digits when choosing CTCSS code.
- Displays " D " when choosing DCS, choose " OFF " to delete code.

4. When choosing DCS code, press [**DIAL**] to choose positive or inverted code.
- Inverted code displays "**I**" while positive code displays "**D**" on the screen.

5. Press [▲]/[▼] to choose new CTCSS/DCS code.

6. Press [**FUNC**]
- The right corner of LCD displays " t-H "and encoded code set last time.

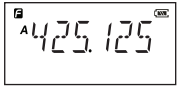


7. Choose code as the operation mentioned in step 3, 4 and 5.
8. Press [**CALL**], [**SCAN**] or [**PF2**] keys to store and exit.

NOTE:
- **Set CTCSS decode, the screen displays "CT" while receiving. Set DCS decode, the screen displays "DCS" while receiving. Set OFF, the screen displays nothing.**
- **Set CTCSS encode, the screen displays "CT" while transmitting. Set DCS encode; the screen displays "DCS" while transmitting. Set OFF, the screen displays nothing.**

Offset Frequency

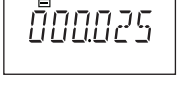
This function is valid under the frequency mode, set the offset frequency between receiving and transmitting.

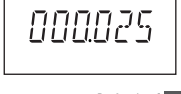


1. Press [**FUNC**]
- " F " displays on the screen.

2. Press [▲]

3. Press [**SCAN**] to choose +/- offset frequency.
- "▭" Displays when it is negative offset frequency, while it is positive offset frequency, nothing displays.





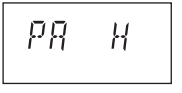
4. Press [▲]/[▼] to choose offset frequency.
- Screen displays the offset frequency.

5. Press any other key to save and exit to normal operation.

Wide/Narrow Band

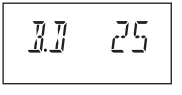
1. Press [FUNC] for 1 second.
" F " flashes on the screen.

2. Press[SCAN]
Screen displays the High/Low power setting.



3. Press[FUNC]
Screen displays the last communicating band.

4. Press [▲]/[▼]to choose communicating band.
- Narrow band (12.5KHz) indicates "3.0 25".
- Wide band (25KHz) indicates "3.0 12.50".

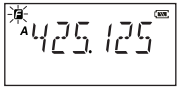


5. Press any other key to store and exit.
- Narrow band displays "***N***" on the screen.
- Wide band no displays "***N***" on the screen.

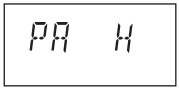
Busy Channel Lockout

When activated, BCL prevents you from interfering with other parties who may be using the same channel that you selected. Pressing the [**PTT**] switch while the channel is in use will cause your transceiver to emit an alert tone and return to receive mode.

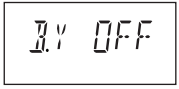
1. Press [**FUNC**] for 1 second.
" F " flashes on the screen.



2. Press [**SCAN**]
- Screen displays the High/Low power setting.



3. Press [**FUNC**].
- Screen displays "BY OFF" and the last busy channel lockout .



4. Press [▲]/[▼] to choose busy channel lockout setting.
- "OFF" for setting off BCL function, the transceiver can transmit at any time.
- "C" for carrier wave, the transceiver cannot transmit when the chose channel is busy.
- " I " for optional signal, when the selected channel is busy and valid code is not matching, the transceiver can't transmit. While, when receiving the corresponding signal, the transceiver can transmit.

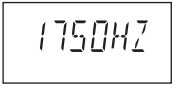
5. Press any other key to store and exit.

Tone Pulse Frequency Selection

This function is used for starting the repeater activated by Tone Pulse. It needs a certain intensity of Tone Pulse to start repeater under sleeping state. In general, as long as the repeater has been start, the repeater system doesn't need this Tone Pulse.
The transceiver have 4 pilot carrier frequency available, in the transmitting state, you can choose the tone pulse signal according to the side key [**MONI**].

1. Press [**FUNC**] key for 1 second, screen displays " F ", and flashes.
2. Press[**SCAN**]key, screen displays High/Low power setting.

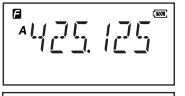
3. Press [**FUNC**] three times, screen displays tone pulse frequency at last time.



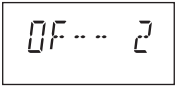
4. Press [▲]/[▼] to choose busy channel setting.
   1000MHz, pilot carrier frequency 1000MHz
   1450MHz, pilot carrier frequency 1450MHz
   1750MHz, pilot carrier frequency 1750MHz
   2100MHz, pilot carrier frequency 2100MHz
5. Press any other key to store and exit.

Choose Rings

1. Press [**FUNC**]
   ● "F" displays on the screen.



2. Press [▼]

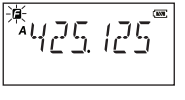


3. Press [**SCAN**] to choose rings(1-5).
4. Press any other key except [**DIAL**] and [**MHz**] to store and exit.
   ● Your transceiver will ring the rings you choose as other transceiver is calling in.

Store Channel

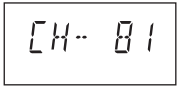
This function is valid under the frequency mode. Please program the channel data when the transceiver has not any exterior equipment.

1. Choose the frequency mode. Set the receiving/transmitting frequency, encode/decode code, etc.
2. Press [**FUNC**] for 1 second.
   ● " F " flashes on the screen.

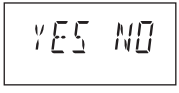


3. Press [▼]
- Screen displays the stored channel.

4. Press [▲]/[▼] to choose stored channel.



5. Press other key to enter stored channel confirmation.
- Press [**CALL**] to store and exit, press [**P3**] to exit but mot store.

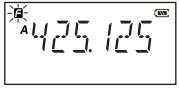


6. Press [**CALL**] to store and exit.
- The programmed data under frequency mode will be stored on the stored channel.

Copy Channel

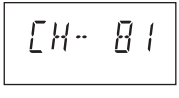
The function is valid under Channel and Channel + Frequency mode. Copy data programmed on one channel in the transceiver to another channel.

1. Choose copy channel.
2. Press [**FUNC**] for 1 second.
- "F" flashes on the screen.

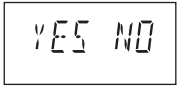


3. Press [▼]
- Screen displays the copy saved channel.

4. Press [▲]/[▼] to choose copy channel.



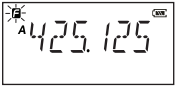
5. Press other keys to confirm copy channel.
- Press [**CALL**] to store and exit
- Press [**P3**] to exit but not store



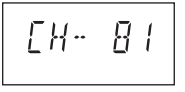
6. Press [**CALL**] to store and exit
- Copy one channel data to another channel, now the copied channel data is the same as the saved channel data.

Delete Channel

Delete data programmed in the channel.



1. Press [**FUNC**] for 1 second.
- " F " flashes on the screen.
2. Press [▲]
- Screen displays the deleting data channel.

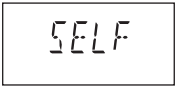


3. Press [▲]/[▼] to choose the channel from which the data will be deleted.
4. Press other keys to enter deleting data channel confirmation.
- Press [**CALL**] to save and exit, press [**P3**] to exit but not store.
5. Press [**CALL**] to exit deleting.
- This channel data deleted and will never display. And you can re-programme it if need.

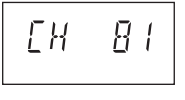
Manual programming

Program transceiver channel data when the transceiver has no any exterior equipment.

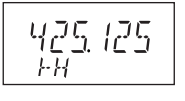
1. Power OFF the transceiver
2. Press [**MONI**] and [**DIAL**] for 2 seconds and Power ON the transceiver, the release the keys.
- Enter to the manual programming status.



3. Press [**FUNC**], enter program channel,Screen displays the program channel.

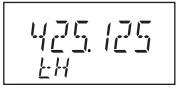


4. Press [▲] or [▼] to choose the program channel you need.
5. Press [**FUNC**]
- Enter program channel to receiving frequency selection



6. Press [▲] or [▼] to choose the receiving frequency of programming channel.
- None frequency, press [**CALL**], and display the default frequency.

7. Press [**FUNC**].
- Enter programming channel to transmitting frequency selection.



8. Press [▲]/[▼] to choose the transmitting frequency of programming channel.
- None frequency, press [**CALL**], and display the default frequency.

9. Press [**FUNC**] to end this setting.
- Press [**FUNC**] again to set next channel.

10. Power OFF the transceiver to store and exit.

◦ BACKGROUND OPERATION

Time-Out Timer

The purpose of the Time-Out Timer is to prevent any caller from using a channel for an extended period of time. If you continuously transmit more than limited time, the transceiver will stop transmitting and an alert tone will sound. User can set TOT timer by programming software.

Time-out Timer Pre-alarm

The alert tone sounds before the limited TOT time of the transceiver. user can program the TOT time that you want by programming software.

TOT Re-transmitting Time Setup

It is interval between overtime transmission and allowed re-transmission. Press [**PTT**], the transceiver will warning during this interval, then return back receiving state.

TOT Reset Time

TOT Resume Time is the time cycle of pre-set TOT Resume Time, when this function is on, you can not transmit of the time circle of receiving do not arrive TOT resume time. Only when resume time arrives, you can transmit again.

MONI Key Setting

MONI key can be set as the following auxiliary functions.

- **Squelch OFF(Default setting)**
  Press to hear the background noise, release to return the normal operation, It is used to get the weak signal in normal operation.
- **None(No function)**
  No operation if you press.

- **Monitor**
  Press to set CTCSS/DCS OFF, press the key again to return normal operation.
- **Monitor Momentary**
  Press to set CTCSS/DCS OFF, release to return the key normal operation.

Battery Save

The battery save function can decrease the amount of power used, While the signal is not busy and no operation is performed, this function will be ON automatically, and while a signal is received or an operation is performed, this function will be OFF automatically.

Low Battery Warning

Low battery warning alerts when the battery needs to be recharged or replaced. While operating the transmitting, if the battery power becomes low, the indicator flashes and it still can transmit continuously. If the voltage becomes too low, the indicator flashes and an alert tone sounds. At last the transceiver stop transmitting. Please replace or recharge the battery.

Resume Factory Default

Once transceiver works abnormally for wrong operations or wrong programming,users can start this function to resume all functions and channels as Factory Default.
In power OFF state, Press and hold [**PTT**] and [**MONI**] at the same time to turn on transceiver, and keep pressing [**PTT**] and [**MONI**] until red light, and screen displays "**RES**", then release [**PTT**] and [**MONI**], the transceiver will resume factory default.

◦ TECHNICAL SPECIFICATIONS

General	
Frequency Range	VHF:136 ~ 174MHz UHF:400 ~ 480MHz, EXP:400 ~ 520MHz PMR446 (Exp:400-480MHZ)
Channel Capacity	100 channels
Channel Spacing	25KHz (Wide Bank), 12.5KHz (Narrow Bank)
Phase-locked Step	5KHz./6.25KHz /12.5KHz/25KHz
Operating Voltage	3.7V DC
Battery Life	More than 12 hours (1500mAh),by 5-5-90 working cycle
Frequency Stability	±2.5ppm
Operating Temperature	-20 ~ +55℃
Size	185mm×55mm×27mm (with battery pack, antenna)
Weight	165g (with battery pack, antenna)

Transmitting Part		
	Wide band	Narrow band
Power Output	2W/0.5W	
Modulation	16KΦF3E	11KΦF3E
Adjacent Channel Power	≥65dB	≥65dB
Hum & Noise	≥48dB	≥40dB
Spurious Emission	≤-36dB	≤-36dB
Audio Response	6dB/per interval	6dB/per interval
Audio Distortion	≤5%	

Receiving Part		
	Wide band	Narrow band
Sensitivity (12dB SINAD)	≤0.25 μV	≤0.3 μV
Adjacent Channel Selectivity	≥65dB	≥60dB
Intermodulation	≥55dB	≥55dB
Spurious Rejection	≥80dB	≥80dB
Audio Response	6dB/per interval	6dB/per interval
Hum & Noise	≥52dB	≥48dB
Audio Distortion	≤5%	
Audio Power Output	500mW (at 10%)	

NOTE:
■ **NO further advise for changing the specification.**

◦ TROUBLE SHOOTING

Problem	Shooting Method
No power	Maybe out of battery, please charge or replace it. Maybe the battery is not correctly installed. Try again!
Unable to talk with others in the same group	Check whether the frequency and CTCSS is same as that of other members, whether other members are in valid communication distance of transceiver.
There is disturbance from other members	Please modify CTCSS, also signal order of other members or to work in other frequency.
The battery life is short even correctly charged	The battery life is over, replace with a new one.
Noisy after being programmed	Squelch is open when programming, nonprofessional users please do not modify parameters causally.
Some regulated "**Da da da**" sounds after being programmed	Some errors happen when program it. Maybe it is out of working frequency range or the type is not the same with transceiver.
The transceiver cannot scan	Haven't programmed the channel into the scan list. (set by professional)
There is no sound after using the earphone for a period	Something wrong with ear bud.(send it to distributor for reparation)

◦ TROUBLE SHOOTING

Problem	Shooting Method
Communication distance is closer and sensitivity become weaker	Whether the antenna and its connector is complete, whether set in low power. (Send it to distributor for reparation)
It can receive but not transmit	Check PTT key. (Send it to distributor for reparation)
Cannot power ON and power OFF often	Check whether the connector of battery is complete.
The voice is too low, and often cut off	Check whether the MIC jack is blocked with something.(Send it to distributor for reparation)
Receiving signal unconsciously, and with big noise	Out of communication distance, or block with high buildings, or using it in the underground building.(Send it to distributor for reparation)
Speaker with "**Ka Ka Ka**" sound or sound becomes weaker and weaker after using for a period of time	Check whether there is something on the cover of speaker. (Send it to distributor for reparation)
No sound from speaker	Check whether it is in Min. volume. (Send it to distributor for reparation)

◦ ATTACHED CHART

CTCSS Frequency Chart

1	67.0	11	94.8	21	131.8	31	171.3	41	203.5
2	69.3	12	97.4	22	136.5	32	173.8	42	206.5
3	71.9	13	100.0	23	141.3	33	177.3	43	210.7
4	74.4	14	103.5	24	146.2	34	179.9	44	218.1
5	77.0	15	107.2	25	151.4	35	183.5	45	225.7
6	79.7	16	110.9	26	156.7	36	186.2	46	229.1
7	82.5	17	114.8	27	159.8	37	189.9	47	233.6
8	85.4	18	118.8	28	162.2	38	192.8	48	241.8
9	88.5	19	123.0	29	165.5	39	196.6	49	250.3
10	91.5	20	127.3	30	167.9	40	199.5	50	254.1

DCS Chart

1	017	21	115	41	223	61	315	81	446	101	627
2	023	22	116	42	225	62	325	82	452	102	631
3	025	23	122	43	226	63	331	83	454	103	632
4	026	24	125	44	243	64	332	84	455	104	645
5	031	25	131	45	244	65	343	85	462	105	654
6	032	26	132	46	245	66	**345**	86	464	106	662
7	036	27	134	47	246	67	346	87	465	107	664
8	043	28	**135**	48	251	68	351	88	466	108	703
9	047	29	143	49	252	69	356	89	503	109	712
10	050	30	145	50	**254**	70	364	90	506	110	723
11	051	31	152	51	255	71	365	91	516	111	731
12	053	32	155	52	261	72	371	92	523	112	732
13	054	33	156	53	263	73	411	93	526	113	734
14	**055**	34	162	54	265	74	412	94	532	114	743
15	065	35	165	55	266	75	413	95	**534**	115	754
16	071	36	172	56	271	76	423	96	546	116	**765**
17	072	37	174	57	274	77	**425**	97	565		
18	073	38	205	58	**305**	78	431	98	606		
19	074	39	212	59	306	79	432	99	612		
20	114	40	**217**	60	311	80	445	100	624		

NOTE:

- **"N" is positive code. "I" is inverted code. Total 232 groups of DCS.**
- **Overstriking marks are non–standard DCS.**