VHF/UHF FM HANDHELD TRANSCEIVER

User Manual

Brand name: ALINCO

Model name: DJ-500T

FCC ID:PH3DJ-500

IC:3070C-DJ500

A1.131031

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CE 0700 ⓘ

IC RoHS

VHF/UHF FM amateur transceiver

RX;136.000~173.995MHz / 400.000~479.995MHz
144.000–148.000MHz / 420.000–450.000MHz

All EU and EFTA member states. Operator license is required.

Printed in China

ALINCO

VHF/UHF FM Transceiver

DJ-500T

Instruction Manual

Thank you for purchasing your new Alinco transceiver. Please read this manual carefully before using the product to ensure full performance, and keep this manual for future reference as it contains information on after-sales service.

In case addendum or errata sheets are included with this product, please read those materials and keep them together with this instruction manual for future reference.

Introduction

Thank you very much for purchasing this excellent Alinco transceiver. Our products are ranked among the finest in the world. This radio has been manufactured with state of the art technology and it has been tested carefully at our factory. It is designed to operate to your satisfaction for many years under normal use.

Please read this manual completely from the first page to the last, to learn all the functions the product offers. It is important to note that some of the operations may be explained in relation to information in previous chapters. By reading just one part of the manual, you may risk not understanding the complete explanation of the function. In addition, please understand that your radio may be programmed by the dealer according to the local regulation, masking some of features mentioned in this manual.Please consult your dealer for details of programming.

Before transmitting

There are many radio stations operating in proximity to the frequency ranges this product covers. Be careful not to cause interference when transmitting around such radio stations.

■ Lightning

Any person is not safe outdoor during thunderstorm and lightning. This condition is getting worse if somebody keeps a hand-held radio; chances of being hit by lightning are doubled since lightning may hit a radio antenna as well. At this time, there is no hand-held radio having any kind of protection against lightning current (which is higher than10 kA.). Note also that no car provides adequate protection of its passengers or drivers against lightning as well. Therefore, Alinco will not take responsibility for any danger associated with using its hand-held radios outdoor or inside the car during lightning.

■ About IP54 rating / Dust and splash resistant

About IP54 rating

5: Dust protected / Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact.

4: Splashing water / Water splashing against the enclosure from any direction shall have no harmful effect. Test duration: 5 minutes / Water volume: 10 litters per minute / Pressure: 80~100 kN/m²

The IP54 designation provides for limited dust and splash proofing of the radio per specified above. This compatibility is factory guaranteed for a period of one year provided all the jack covers are securely in place, any accessories connected must be specified genuine Alinco accessories and the radio has not been disassembled by the customer. The factory has tested and made the equipment compatible to IP54 certification during engineering. However, please understand that this equipment is NOT certified IP54 compliant but is designed to remain operational when used in hard conditions and is in no way stating that you should attempt to wash the radio for cleaning. Warranty will not cover radios that are water/dust damage due to negligence or misuse of the product.

■ Covering ranges

You may expect a range of approx.3km/2 miles or more at high-power when located on a flat, noise-free place like on a beach. However, it may vary drastically depending on how to wear and carry the radios, surrounding locations/conditions and static noise levels (below or near power transmission lines), etc. In urban areas with many buildings or inside a building, such covering range will become drastically short even to several tens of meters.

Features

- Output power selectable 5W
- 200 PC-programmable channels
- Li-Ion battery pack and stand-charger as standard accessories
- Alphanumeric name tags
- FM broadcast 76-108MHz receiver built-in
- Selectable Battery-save parameters
- Busy Channel Lockout
- CTCSS/DCS Encode/Decode, DTMF/ANI, 5-Tone
- VOX built-in
- Emergency Kill/Stun/Revive, Alarm signal, Various scan modes, Key lock, Narrow operations and more at NO extra costs.

Conformity Symbols

CE 0700 ⓘ IC RoHS

Tested to comply MIL-STD-810G

-Shock: Method 514.6/I,IV -Vibration: Method 516.6/I

Alert

■ Environment and condition of use

It is recommended that you check local traffic regulations regarding the use of a radio equipment while driving. Some countries prohibit or apply restrictions for the operation of radios and mobile-phones while driving.

Do not use this product in close proximity to other electronic devices, especially medical ones. It may cause interference to those devices.

Keep the radio out of the reach of children.

In case a liquid leaks from the product, do not touch it. It may damage your skin. Rinse with plenty of cold water if the liquid contacted your skin.

Never operate this product in facilities where radio products are prohibited for use such as aboard aircraft, in airports, in ports, within or near the operating area of business wireless stations or their relay stations.

Use of this product may be prohibited or illegal outside of your country. Be informed in advance when you travel.

The manufacturer declines any responsibilities against loss of life and/or a property due to a failure of this product when used to perform important tasks like life-guarding, surveillance, and rescue.

Do not use multiple radios in very close proximity. It may cause interference and/or damage to the product(s).

Risk of explosion if battery is replaced with an incorrect type. Dispose of, or recycle used batteries according to your local regulations.

The manufacturer declines any responsibilities against loss of life and property due to a failure of this product when used with or as a part of a device made by third parties.

Use of third party accessory may result in damage to this product. It will void our warranty for repair.

■ Handling this product

Be sure to reduce the audio output level to minimum before using an earphone or a headset. Excessive audio may damage hearing.

Do not open the unit without permission or instruction from the manufacturer. Unauthorized modification or repair may result in electric shock, fire and/or malfunction and voids warranty.

Do not operate this product in a wet place such as in a shower room. It may result in electric shock, fire and/or malfunction, This product is splash-proof but not a complete water-proof.

Do not place the product in a container carrying conductive materials, such as water or metal in close proximity. A short-circuit to the product may result in electric shock, fire and/or malfunction.

■ About chargers

Do not use adapters other than having the specified voltage. It may result in electric shock, fire and/or malfunction,Never turn on the radio while charging.

Do not plug multiple devices using an adapter into a single wall outlet. It may result in overheating and/or fire.

Do not handle adapter with a wet hand. It may result in electric shock.

Securely plug the adapter into the wall outlet. Insecure installation may result in short-circuit, electronic shock and/or fire.

Do not use the adapter if the plug or socket contacts are dirty. Overheating and/or short-circuiting may result in fire, electric shock and/or damage to the product.

■ In case of emergency

In case of the following situation(s), please turn off the product, switch off the source of power, then remove or unplug the power-cord. Please contact your local dealer of this product for service and assistance. Do not use the product until the trouble is resolved. Do not try to troubleshoot the problem by yourself.

- **When a strange sound, smoke and/or strange odor comes out of the product.**
- **When the product is dropped or the case is broken or cracked.**
- **When a liquid penetrated inside.**
- **When a power cord (including DC cables, AC cables and adapters) is damaged**

For your safety, turn off then remove all related AC lines to the product and its accessories from the wall outlet if a thunderstorm is likely.

■ Maintenance

Do not open the unit and its accessories. Please consult with your local dealer of this product for service and assistance

⚠ Alert

■ Environment and condition of use

- Do not use the product in proximity to a TV or a radio. It may cause interference or receive interference.
- Do not install in a humid, dusty or insufficiently ventilated place. It may result in electric shock, fire and/or malfunction.
- Do not install in an unstable or vibrating position. It may result in electric shock, fire and/or malfunction when/if the product falls to the ground.
- Do not install the product in proximity to a source of heat and humidity such as a heater or a stove. Avoid placing the unit in direct sunlight.
- Be cautious of a dew formation. Please completely dry the product before use when it happens.

■ About transceiver

- Be cautious of the whip antenna when carried in your shirt-pocket etc. It may make contact with your eye and cause injury.
- Do not connect devices other than specified ones to the jacks and ports on the product. It may result in damage to the devices.
- Turn off and remove the power source (AC cable, DC cable, battery, cigar cable, charger adapter etc.) from the product when the product is not in use for extended period of time or in case of maintenance.
- Never pull the cord alone when you unplug AC cable form the wall outlet.

Use a clean, dry cloth to wipe off dirt and condensation from the surface of the product. Never use thinner or benzene for cleaning.

Check with your local waste officials for details on recycling or proper disposal in your area.

PC PROGRAMMING

NOTE: The utility software may be available to distributors/dealers only. USB programming cable is required. The manufacturer will not release the software to unauthorized party so please contact your dealer for details.

This product may be blocked for operation in default state and only dealers can program to make it working. Manufacturer is not available for reprogramming or modifying the dealer-programmed setting. VFO(frequnecy) mode may not be available due to regulation.

Please consult your dealer for technical supports of this product.

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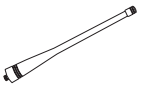
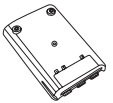
Standard Accessories

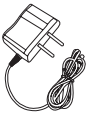


Antenna



Battery

Charger



AC Adaptor

Belt Clip

Instruction Manual

Hand Strap

NOTE: Accessories may differ depending on the version you have purchased. Please contact your local dealer for details of standard accessories and the warranty–policy before purchase.

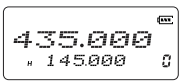
○ OPERATION MODE (AMATEUR TRANSCEIVER OR PROFESSIONAL TRANSCEIVER)

ALINCO

The transceiver is a high performance amateur transceiver with dual band, dual standby, dual display and other kinds of functions. According to practical application, you can set the radio operates as Amateur Transceiver or Professional Transceiver. There are also 3 levels operation menu to set functions as per you need. It is easy and convenient.

1. **Operation Mode:**

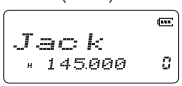
A. **By programming software:** In PC software's "General Setting"menu to choose "Display Mode", channel mode works as Professional transceiver, other two modes as Amateur transceiver.



(Pic 1)

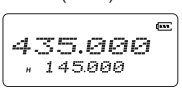
B. **By manual setup:** Please refer to "Display Mode" in Page 46.

2. **Amateur Transceiver Mode:** Except setting as CH mode, others considered as Amateur transceiver mode. Under this mode, press [C] key to switch between Channel mode and VFO.



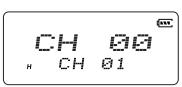
(Pic 2)

A. **Frequency + Channel mode:** At this mode, When set display as "FREQ", it enters into Frequency+Channel mode, new setting of channel operation and shortcut operation can be temporarily used by user. Once the radio is turned off or switched to another channel, the temporary setting will be erased and back to initial settings.(As pic 1)



(Pic 3)

B. **Channel+Name Tag Mode:** When set display as "NAME", it enters into Channel +Name Tag Mode. At this mode, it will display corresponding channel name when the current channel is edited with name. Otherwise, it will display frequency + channel. Its operations are the same as frequency + channel mode. (As pic 2)



(Pic 4)

C. **VFO Mode(Frequency mode):** This mode shows only frequency on the display.

○ WORKING MODE (AMATEUR TRANSCEIVER OR PROFESSIONAL TRANSCEIVER)

Shortcut operation and Channel setting will be changed & stored as the latest value permanently. Once the radio is turned off or changed to new VFO frequency, the value is remained until next change.(As pic 3)

3. **Professional Transceiver Mode:**When set display mode as "CH", it enters into Professional Transceiver mode. At this mode,except scan,DTMF encode or editing, and keypad lock,other functions should be set by PC software (As pic 4).

NOTE:If transceiver programmed transceiver as professional mode and locked, you can't return to amateur transceiver mode by manually from Background operations setting.

4. Under every mode, background operations can be changed and saved.

Charging Operation

The battery is not charged at the factory, please charge it before use. Charge the battery for the first time after purchase or extended storage (more than 2 months) may not bring the battery to its normal operating capacity. After repeating fully charge / discharge cycle for two or three times, the operating capacity will reach the best performance. The battery life is over when its operating time decreases even though it is fully and correctly charged. Replace the battery.

Battery Charger Type

Please use our company's designated charger, other models may cause explosion and injure people. After installing the battery, if the radio red light twinkles and remind changing battery, please charge the battery.

Notice for Charging Battery

- ▲ Do not shortcircuit our company designated charger. Never attempt to remove the casing from the battery, we show no responsibility on the faulty caused by modifying freely without permission of our factory.
- ▲ The ambient temperature should be between 5℃ and 40℃ in charging. Charging outside this range may not fully charge the battery.
- ▲ Always switch off the transceiver equipped with a battery before charging. Otherwise, it will interfere with correct charging.
- ▲ To avoid interfering the charging procedure, please do not cut off the power or take out the battery during charging.

◦BATTERY INFORMATION

▲ Do not recharge the battery if it is already fully charged. This may shorten the life of the battery or damage the battery.

▲ Do not charge the battery or transceiver if it is damp. Dry it before charging to avoid danger.

WARNING:
When keys or ornamental chains and other electric metals contact with the battery terminals, the battery may cause damage or hurt bodies. If the battery terminal short circuit, it will generate a lot of heat, please be careful when you bring or use the battery, please put battery or radio into insulated container. Do not put it into metal container.

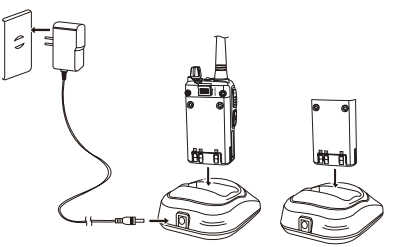
How to Charge

1.Plug the AC adaptor into the AC outlet, then plug the cable of AC adaptor into the DC jack, the indicator lights orange for 1s and turns into GREEN---waits to charge.

2.Slide the battery or transceiver with battery into the charger; make sure the battery terminals are in contact with the charging terminals well. LED turns into twinkling RED ---pre-charging begins.

3.Pre-charging for about 5 minutes, LED twinkles stop then charging begins.

4.It takes about 4 hours to fully charge the battery, when LED turns into GREEN—full charged



NOTE: When charging a power−on transceiver equipped with battery, the LED will not turn into green to show the full charge status. Only when turn off the transceiver, the LED can indicate normally.
Because when the transceiver is power on, it would consumes energy, the charger cannot detect when battery has been fully charged, the charger will charge battery in voltage consumption and fail to indicate correctly.

5.Charging Process:

Status	LED
Standby (self-examine orange lights 1second when power on)	Green light
Pre-charging (pre-charging stage)	Red light twinkles for about 5 minutes
Charging (charge in constant currency)	RED light lightens for about 4 hours
Full charged (charge in constant voltage)	Green light

6.LED Indicator:

STATUS	self-examine when power on	(No battery)	Pre-charging	Charge normally	Full Charged	Trouble
LED	Orange (for 1 second)	Green	Red light twinkles for 5 minutes	Red	Green	Red twinkles for a long time

NOTE: Trouble means battery heating, battery short−circuit or charger short−circuit.

○ BATTERY INFORMATION

Charging Prompt

1.Self-examination: When charging, ORANGE light twinkles for 1 second and goes out. That means the charger has passed its self-examination and it can charge the battery normally. If the light remains orange or the red light twinkles, which means the charger can not pass its self-examination or charge the battery.

2.Trickle pre-charging: when the battery has been inserted into the charger and red light twinkles, which means the remnant voltage is low, the charger trickle charge the battery (pre-charging status), until the battery reaches a certain electric quantity, the charger automatically turns into normal charging. And if the red light stop twinkling, which means the remnant voltage meets a certain electric quantity, the charger will charge the battery normally.

NOTE:The time for Trickle pre–charging is not exceed 30m.After 30m,the red indicator is still twinkling,it means it is unable to charge battery. Please kindly check battery and charger.

How to Store the Battery

1.If the battery needs to be stored, the battery should be kept in the status of 50% discharge.

2.It should be kept in low temperature, dry environment.

3.To keep away from hot places and direct sunlight.

WARNING

▲Do not short circuit battery terminals.

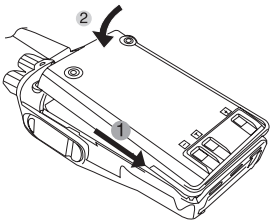
▲Never attempt to remove the casing from the battery pack.

▲Never assemble the battery in dangerous surroundings, spark may cause explosion.

▲Do not put the battery in hot environment or throw it into fire, it may also cause explosion.

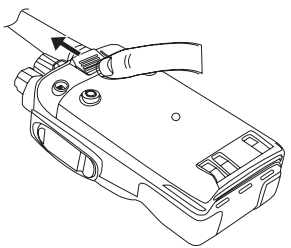
Installing / Removing the Li-ion Battery

1.Match the three grooves of the battery pack with the corresponding guides on the back of the transceiver and push.



2.Press the battery pack and transceiver firmly together until the release latch on the top of the transceiver locks. After hearing a "click" sounds, the battery has been locked.

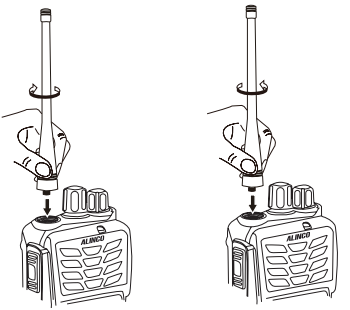
3.To remove the battery pack, slide up the release latch and remove the pack away from the transceiver.



Installing / Removing the Antenna

■ **Installing the Antenna:**
Screw the antenna into the connector on the top of the transceiver by holding the antenna base and turning it clockwise until secure.

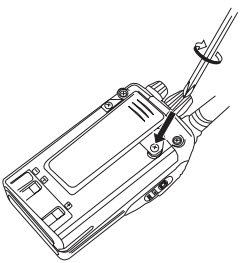
■ **Removing the Antenna:**
Turn the antenna anticlockwise to remove it.



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.

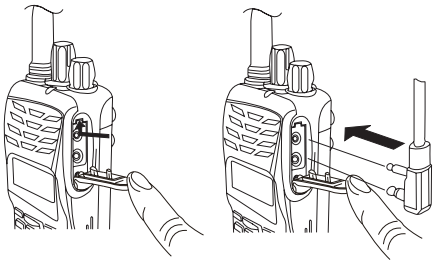
■ **Removing the Belt Clip:**
Anticlockwise turn screws to remove the belt clip.



Installing Optional Speaker / Microphone

■ **Installing the Antenna:**
Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.

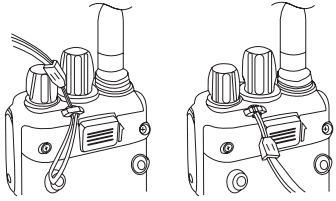
■ **Removing the Antenna:**
Anticlockwise turn the antenna to remove it.



Installing / Removing the Belt ClipInstalling the Antenna

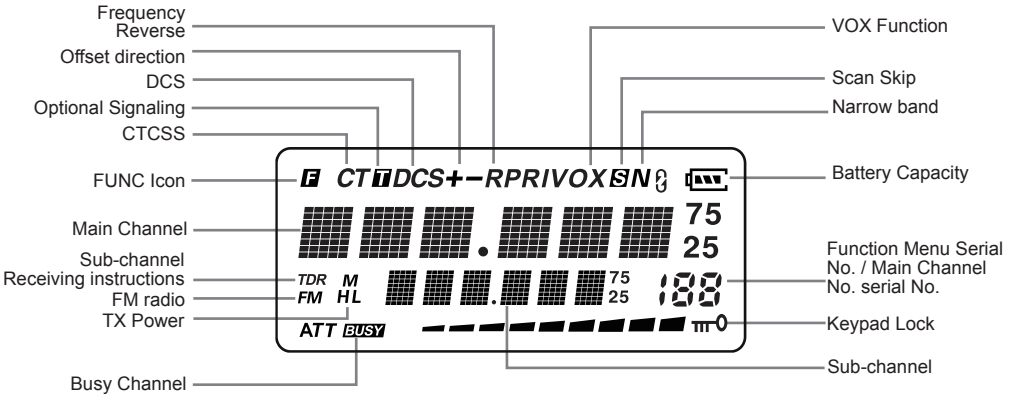
■ **Installing the Belt Clip:**
Place the belt clip to the corresponding grooves on the back of the transceiver, and then clockwise screw it.

■ **Removing the Belt Clip:**
Anticlockwise turn screws to remove the belt clip.



LCD Display

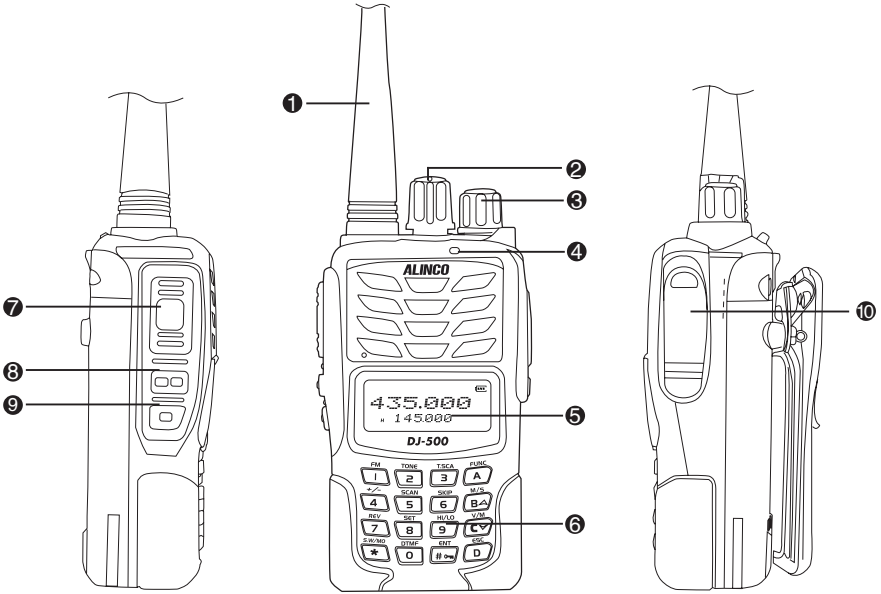
On LCD display screen, you will see various icons which stand for the selected functions and sometimes you may forget the meaning of them. Here you will find the following table extremely useful.



NOTE:

Battery capacity indicator(full) — **No power, replace battery pack or charge battery**

Battery capacity remnant — **Real time display receiving signal strength/Power Indicator**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ALINCO
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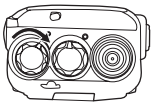
○ GETTING ACQUAINTED

❶ Antenna
❷ Selector Knob
❸ Power / Volume switch
Rotate it clockwise to turn on transceiver, rotate it anticlockwise until heard "click" to turn off the transceiver.
When transceiver is power on, rotate it clockwise to increase volume, anticlockwise to reduce volume.
❹ TX/RX indicator, RX is GREEN, TX is RED.
❺ LCD display
Displays current frequency/channel and operations
❻ Keypad
Enters desired frequency/channel or operations by keypad
❼ PTT key
Press PTT key to talk, release this key to receive.
❽ PF1 key
❾ PF2 key
❿ Speaker/Microphone jack, programming software jack

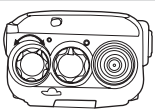
Turn the Radio On & OFF



Under power-off state, please turn [**POWER**] / [**VOLUME**] clockwise to turn on the transceiver.

Under power-on state, please turn [**POWER**] / [**VOLUME**] anticlockwise to turn off the transceiver.

Adjusting Volume



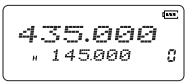
Under power-on state, turn [**POWER**] / [**VOLUME**] to adjust volume. Clockwise-up, anticlockwise-down.
When adjusting the volume, user can press the key programmed as Squelch Off to monitor current volume firstly.

NOTE:
Press the side key programmed as Squelch Off Momentary to monitor the background noise. Turn [POWER]/ [VOLUME] to control the volume.The volume you need can be adjusted more correctly when communicating with the other party.

○ BASIC OPERATIONS

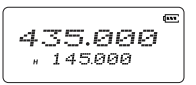
Switch between Main band and Sub band

Under standby state, press [B▲] key to switch channel between Main band and Sub band.



Switch between Channel mode and VFO mode

Under standby state, press [C▼] key to set main band as Channel mode or frequency mode(VFO).



Channel Adjusting

When transceiver in Channel mode or FM radio channel mode, rotate channel switch to adjust channel. Rotate channel switch clockwise to enter the downward channel, anticlockwise to enter the upward channel.

NOTE: If there is a null channel between two channels, transceiver will skip null channel, enter into next channel directly.

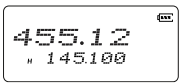
Frequency Adjusting

When transceiver in VFO mode or FM radio frequency mode, rotate channel switch to adjust frequency. Rotate channel switch clockwise to increase frequency, anticlockwise to decrease frequency. Every rotate can add or reduce one stepping value.

Frequency Input by Keypad

Under frequency mode or FM radio frequency mode, you can directly enter frequency through keypad.

1. When your transceiver is under Channel mode, press (C) key to switch into VFO.



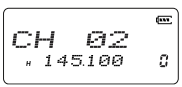
NOTE: When your transceiver is under Channel mode, the display will show the channel number in the lower right corner.

2.Enter the desired frequency by keypad.

NOTE: The frequency input of main channel or FM radio is relevant to the stepping and transceiver frequency range. If frequency setup is beyond range or not matching with step size, the input is unavailable. Under the FM radio mode, the frequency step size input by numeric keys is 100k.

Channel Input by Keypad

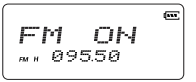
Under channel mode of transceiver or FM radio, you can switch to desired channel by entering three numbers (001-199). If the entered channel is not in edited channel range, the transceiver will emit beep to prompt wrong input and return to current channel. For example, entering 001 is channel 1, 030 is channel 30, 125 is channel 125.



○ BASIC OPERATIONS

FM Channel Searching

When transceiver in FM radio mode, press [A] key, LCD displays FUNC icon, then press [5] to start FM searching. When one station is sought, LCD displays current station frequency, you can listen to current station.



Squelch Off Momentary / Squelch Off

Side key [PF2] can be setup for Squelch off Momentary or Squelch off function by programming software.

1. Squelch off: Press [PF2] key, squelch circuit is not mute, back-ground noise can be heard. Press [PF2] key again, squelch circuit is mute.
2. Squelch off Momentary: Press and hold [PF2] key, squelch circuit is not mute, back-ground noise can be heard. Release [PF2] key, squelch circuit is mute.

NOTE: The above functions are only available after [PF2] key setup in programming software.

Receiving

When your transceiver is called, the LED lights will light up, the main channel receives display a green, (Sub-channel receives display blue and the TDR Mark will flash following), and you can hear the received call.

NOTE: You may not receive the calling when your transceiver is set at high squelch level. If current channel is programmed with decode signal, only the same signaling call can be heard.

Transmitting

According to the different settings for [PF2] side key, holding down [PF2] key to monitor a moment, to ensure the main channel is not busy, holding down the PTT key, speak into the microphone.
Please keep the distance between mouse and speaker to be 2.5-5CM, speak in normal tone to get the best acoustic fidelity.

NOTE: When press and hold PTT key, transceiver is transmitting if the red LED light is on, release PTT key to receive calls.

Emergency Alarm

Under standby state, press and hold alarm key until LCD displays "**ALARM**", Emergency alarm function is started. This transceiver has 4 Alarm modes for optional, can be setup in programming software. Power off transceiver to exit Alarm.

Side Key【PF1】function instruction

1. Battery capacity inquiry: Under standby, press [PF1] key, LCD displays current battery capacity, press this key again to exit.
2. Transmit tone pulse frequency: Press and hold PTT key, then press [PF1] key to transmit selected tone pulse frequency.

NOTE: The tone pulse frequency can be set to 1750Hz, 1450Hz, 1000Hz or 2100Hz in programming software.

Side key [PF2] function instruction

1. Squelch off: Press [PF2] key, squelch circuit is not mute, back-ground noise can be heard. Press [PF2] key again, squelch circuit is mute.
2. Squelch off Momentary: Press and hold [PF2] key, squelch circuit is not mute, back-ground noise can be heard. Release [PF2] key, squelch circuit is mute.
3. Transmit DTMF/5TONE signaling: Press and hold [PTT] key, then press [PF2] key to transmit selected DTMF/5TONE signaling.

NOTE: The optional signaling of current channel is DTMF or no optional signaling, the operation will transmit DTMF signaling, otherwise will transmit 5TONE signaling.

4. Press and hold [PF2] key to turn on transceiver, until transceiver emits “DU” beep, transceiver enter into general functions setup.

Edit channel

1. Under frequency mode (VFO), enter desired frequency and settings, press (A) key, the top left corner of LCD displays “ F ” icon, press (C) key to switch into channel mode, channel number flashes.
2. Rotate channel switch to select desired editing channel number.
3. Press (A) key, the top left corner of LCD displays “ F ” icon, press and hold (C) key until transceiver emits “DUDU” beep, channel is stored successfully.

Delete channel

1. Under standby state, press [A] key, the top left corner of LCD displays " F " icon, press [C] key to switch into channel mode, channel number flashes.
2. Rotate channel switch to select desired deleting channel number.
3. Press [A] key, the top left corner of LCD displays " F " icon, press and hold [B] key until transceiver emits "DUDU" beep and clear up frequency information of current channel, deletion is successful.

NOTE: This process can be applied for deleting FM radio channels.

Programming scan

Setup the frequency of L1 channel, U1 channel, L2 channel and U2 channel will realize VFO frequency scanning border limited. L1 & L2 is starting frequency, U1 & U2 is end frequency. When VFO frequency between L1~ U1 or L2 ~ U2, transceiver will scan frequencies between L1 ~ U1 or L2 ~ U2. When VFO frequency is lower than L1 or L2, transceiver will scan frequencies higher than L1 or L2. When VFO frequency is lower than U1 or U2, transceiver will scan frequencies higher than U1 or U2.

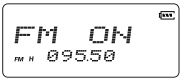
1. In VFO mode, enter desired frequency and relative setup, press [A] key, the top left corner of LCD displays " F " icon, then press [C] key switch into channel mode, channel number flashes
2. Rotate channel switch to choose desired channel number.
3. Press [A] key, the top left corner of LCD displays " F " icon, then press [C] key until transceiver emits "DUDU" beep, channels are saved successfully.

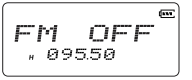
NOTE: To make this setup, L1 and U1 must in same frequency band, L1 must lower than U1. L2 and U2 must in same frequency band, L2 must lower than U2.

○ SHORTCUT OPERATIONS

Turn On/ Off FM Radio

Under standby state, press [A] key, the top left corner of LCD displays " F " icon, then press [1] key, LCD displays "FM ON" and current FM radio frequency, FM radio function is on. When FM radio is on, press [B▲] key, LCD displays "FM OFF", FM radio is mute.



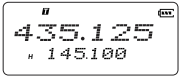


When FM radio is on, press [A] key, the top left corner of LCD displays " F " icon, press [1] key to turn off FM radio and return to transceiver state. Re-start transceiver also can exit FM radio function.

NOTE: When the radio is on, the Sub−channel receives will turn off. To use FM radio function, user must set RADIO function on 31th menu to be ON, otherwise can not use FM radio function normally.

Add/Cancel Optional signal decode function

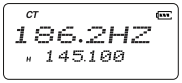
Under standby state, press [A] key, the top left corner of LCD displays " F " icon, press [2] key, LCD displays " T " icon, it means current channel add DTMF signal decode function. Repeat above operation, LCD still displays " T " icon, it means current channel add 5TONE signal decode function. Repeat above operation, " T " icon disappears, optional signal decode function is cancelled.



NOTE: When this function is on, user must setup 11th menu to be TONE option, then DTMF/5TONE can be used.

CTCSS/DCS Scan

Press [A] key, the top left corner of LCD displays " F " icon, press [3] key to enter into CTCSS/DCS scan. Under this state, rotate channel switch to change scan direction. When scan the matching CTCSS/DCS signaling, it will stay 5seconds and then go on scanning. Press any other keys except [A], [*], [#] key to exit.

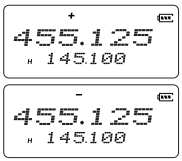


NOTE: This function is invalid when transceiver works in professional mode or the main channel no setting CTCSS/DCS signaling.
In main channel, if signaling set as CTCSS, it will scan CTCSS, if sets as DCS, will scan DCS.

Offset Frequency Direction Setup

Under standby state, press [A] key, the top left corner of LCD displays " F " icon, press [4] key to choose offset frequency direction. There are 3 options, Positive offset, Minus offset, shut off offset.

1. (+) Positive offset: Indicates TX frequency is higher than RX frequency. When enable reverse function, the RX frequency is higher than TX frequency.
2. (-) Minus offset: Indicates TX frequency is lower than RX frequency. When enable reverse function, the RX frequency is lower than TX frequency.
3. None: Indicates shut offset off.



Under frequency mode (VFO) or channel mode, press [A] key then press [4] key to choose positive offset direction(+), minus offset direction (-) , shut offset off one by one (Please refer to offset frequency setup).

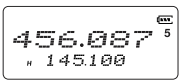
NOTE: This function is unavailable in professional transceiver mode.

○ SHORTCUT OPERATIONS

Frequency/Channel Scan

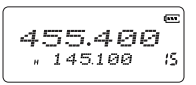
Under corresponding mode, press [A] key, the top left corner of LCD displays " F " icon, then press [5] key to start frequency scan or channel scan.

Under VFO mode, frequency scan is available. This function is used for monitoring signal of various communication frequency by transceiver 'step' setup, press numeric key or [D] key to exit.



Channel Scan

Under channel mode, this function is used for monitoring signal of each channel in this mode. Press numeric key or [D] key to exit.

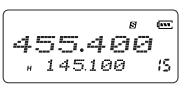


NOTE:

- **Frequency scan is of all bands scan, it scans upwards as your STEPPING setting.**
- **In channel scan, the skipped channel is not in the line of scanning. Scan upwards as per channel no. (please refer to channel scan skip).**
- **Frequency/channel scan can change scan direction by rotating channel switch, when find a matching carrier wave and signaling, the transceiver will stay 5 seconds then go on scanning. (Please refer to scan setup)**

Channel Scan Skip

Under corresponding mode, press [A] key, the top left corner of LCD displays " F " icon, then press [6] Key, to set the current channel to be skipped while channel-scanning, Repeat the operations to cancel channel scan skip setting.

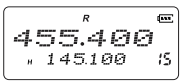


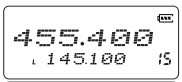
1. LCD displayed " S " means the current channel will not be scanned.
2. " S " icon disappeared means the current channel will be scanned.

Frequency Reverse

Under standby state, press [A] key, the top left corner of LCD displays " F " icon, then press [7] to set the current channel to Reverse function, Repeat the operations to cancel channel Reverse function.

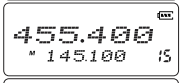
1. When LCD displays "**R**" icon, it means current arrow directed channel open the frequency reverse function, the TX frequency and RX frequency is interchanged, if CTCSS/DCS signaling is set, it will also interchange.
2. When "**R**" icon disappears, it means reverse function is close.

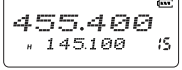


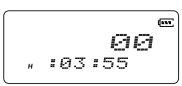


Stopwatch function

1. Under standby state, press [A] key, the top left corner of LCD displays " F " icon, then press [*] to enter into stopwatch function.
2. Press [*] key to start timing. Under this state, press [#] key to pause timing. When timing is pause, press [*] key to continue timing.





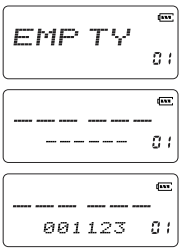


3. Press [PF1], [PF2] or [D] key to exit stop watch function.

NOTE: During timing, press [*] key to stop timing and displays current data, press this key again to clear timer.

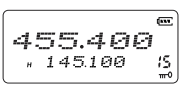
DTMF code Transmit and Enquiry

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [0] key, LCD displays DTMF data and group number (total 16groups) of current group.
2. Rotate channel switch to choose desired group and DTMF data, press PTT key to transmit selected DTMF signaling. If current group not edit DTMF data, LCD displays "**EMPTY**".
3. When current group displays "EMPTY", press [A] key, the top left corner of LCD displays " F " icon, press and hold [0] key until transceiver emits "DU" beep, transceiver enters into DTMF edit state, LCD displays "_____", now you can enter desired DTMF data by keypad.
4. When finished editing, press side key [PF2] to save DTMF signaling.



Keypad lock

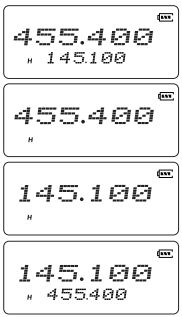
In order to prevent wrong operation, user can make use of keypad lock function.
Under standby state, press [A] key, the top left corner of LCD displays " F " icon, then press and hold [#] key until transceiver emits "DU" beep, LCD displays "LOCK" icon, keypad is locked.
Repeat above operation, "LOCK" icon disappears, key lock function is cancelled.



Single-band waiting

In order to reduce the working main channel suffer from sub-channel interference, can quickly close the sub-channel.

1. In standby mode, press the [*] key, the transceiver shows main channel and close the sub-channel.
2. Press the [*] key again, the transceiver main channel will become to show the original sub-channels
3. After clicking [*] button, return to the dual-band radio show.



○ FUNCTION MENU SETUP

Menu 1-14 of this transceiver are channel operations.Channel operations temporarily changed the functions of current channel. When power off or channel has been changed, the relevant setup will be erased. Only under VFO mode, the channel operations will be saved until next change. Menu 15-31 is background operation, it is valid for all channels, the relevant setup will be saved until next change.

The operating methods are as follows:

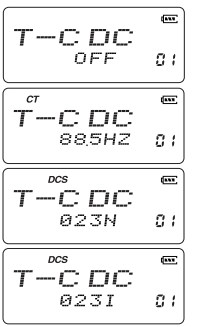
1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key to enter function menu.
2. Press [B▲] / [C▼] key to choose desired function.
3. Rotate channel switch to choose desired setting.
4. Press [D] key or [#←] key to confirm and exit.

CTCSS/DCS Encode Setup

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key to enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 01 function item, it shows "**T-CDC**" on LCD.
3. Press [1] key to choose CTCSS,DCS or OFF, when DCS signaling is selected, press [*] key to choose DCS positive or inverse code.
4. Rotate channel switch to choose desired CTCSS/DCS code.

   CTCSS: 62.5HZ-254.1HZ, 51groups in total, and 1 group user-defined code.

   DCS: 000N-777I, 232 groups in total. "N" stands for positive code, "I" stands for inverse code.



Note: User–defined CTCSS encode must be setup by programming software.

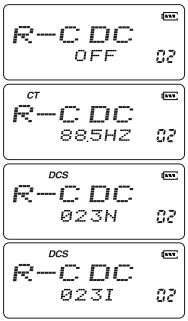
5. Press [D] or [#] key to confirm and exit.

CTCSS/DCS Decode Setup

If this function is enabled, you can ignore (can not hear) other unrelated call at the same frequency.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key to enter into function menu.
2. Press [B]/[C] key to choose NO. 02 function item, it shows "**R-CDC**" on LCD.
3. Press [1] key to choose CTCSS,DCS or OFF, when DCS signaling is selected, press [*] key to choose DCS positive or inverse code.
4. Rotate channel switch to choose desired CTCSS/DCS code.

   CTCSS:62.5HZ~254.1HZ, 51 groups in total, and 1 group user-defined code.DCS: 000N-777I, 232 groups in total. "N" stands for positive code, "I" stands for inverse code.
5. Press [D] or [#] key to confirm and exit.

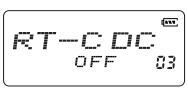


Note: User–defined CTCSS decode must be setup by programming software.

CTCSS/DCS Encode / Decode Synchronous Setup

This function is for adjusting CTCSS/DCS encode/decode synchronous.

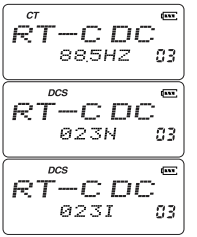
1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key to enter into function menu.
2. Press [B]/[C] key to choose NO. 03 function item, it shows "**RT-CDC**" on LCD.



◦FUNCTION MENU SETUP

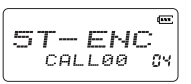
3. Press [1] key to choose CTCSS,DCS or OFF, when DCS signaling is selected, press [*] key to choose DCS positive or inverse code.
4. Rotate channel switch to choose desired CTCSS/DCSencode/decode.

   CTCSS: 62.5HZ~254.1HZ, 51groups in total, and 1 group user-defined code.DCS: 000N-777I, 232 groups in total. "N" stands for positive code, "I" stands for inverse code.
5. Press [D] or [#] key to confirm and exit.



5TONE/2TONE encode group selection

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key to enter into function menu.
2. Press [B] / [C] key to choose NO. 04 function item, it shows "**5T-ENC"/"2T-ENC**" on LCD.
3. Rotate channel switch to choose desired 5TONE encode group.
   CALL00~CALL99, 100 groups in total for optional.
4. Press [PTT] key to transmit selected 5TONE encode, press [D] key or [#] key to confirm and exit.



5TONE encode must be programmed by software, only the groups with editing 5TONE can be selected. When 5TONE encode is editing with name, transceiver will display name, otherwise will display " CALL XX " .

Default configuration is 5TONE, 2TONE can be customized according to different market requirements.

Optional signaling setup

DTMF and 5TONE functions are similar to CTCSS/DCS, it has special call functions, such as ANI, PTT ID, All call, Alarm, remotely kill, remotely stun and remotely waken, etc..

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key to enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 05 function item, it shows "**TONDEC**" on LCD.
3. Rotate channel switch to choose desired optional signaling.

   DTMF: current optional signaling is DTMF

   5TONE/2TONE: current optional signaling is 5TONE/2TONE

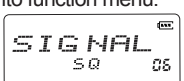
   OFF: close optional signaling
4. Press [D] key or [#↩] key to confirm and exit.

Default configuration is 5TONE, 2TONE can be customized according to different market requirements.

Squelch mode setup

This function is used for setting squelch mode to prevent receiving unrelated singals.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 06 function item, it shows "**SIGNAL**" on LCD.
3. Rotate channel switch to choose desired squelch mode.



○ FUNCTION MENU SETUP

SQ: When current channel received matching RF signals, transceiver can hear the talking from the other party.

CT/DCS: When current channel received matching RF signals and matching CTCSS/DCS signaling, transceiver can hear the talking from the other party.

TONE: When current channel received matching RF signals and matching optional signaling, transceiver can hear the talking from the other party.

CT&TO: When current channel received matching RF signals + matching optional signaling + matching CTCSS/DCS signaling, transceiver can hear the talking from the other party.

CT/TO: When current channel received matching RF signals, or matching optional signaling, or matching CTCSS/DCS signaling, transceiver can hear the talking from the other party.

4. Press [D] key or [#] key to confirm and exit.

Frequency step size setup

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B]/[C] key to choose NO. 07 function item, it shows "**STEP**" on LCD.
3. Rotate channel switch to choose desired step size.
   Stepping: 12.5K.
4. Press [D] key or [#] key to confirm and exit.

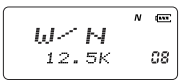
NOTE: This function item will hide automatically when main band and sub main band are under channel mode.

Wide / Narrow Band Selection

According to the national conditions of various countries, it can be set for communication by wide band or narrow band.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 08 function item, it shows "**W/N**" on LCD.
3. Rotate channel switch to choose desired setup.

   12.5K: Narrow band
4. Press [D] key or [#↩] key to confirm and exit.

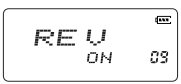


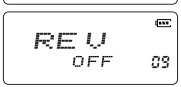
Frequency Reverse

1. Press [A] key, the top left corner of LCD displays" F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 09 function item, it shows "**REV**" on LCD.
3. Rotate channel switch to choose desired setup.

   ON: Turn on Frequency reverse function, TX and RX frequency of current channel will be interchanged. If CTCSS/DCS signaling is set, it also will be interchanged.

   OFF: Close Frequency reverse function.
4. Press [D] key or [#↩] key to confirm and exit.





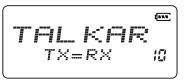
Talk Around ON/OFF

When this function is on, transceiver will cut communication with repeater.

1. Press [A] key, the top left corner of LCD displays" F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 10 function item, it shows "**TALKAR**" on LCD.
3. Rotate channel switch to choose desired setup.

   TX-RX: Turn on Talk Around function, current channel will transmit at RX frequency, if CTCSS/DCS signaling is set, it will interchange decoding CTCSS/DCS as encoding.

   OFF: Close Talk Around function.
4. Press [D] key or [#←] key to confirm and exit.

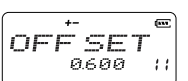


Offset Frequency setup

This function works through repeater. When repeater receives signals at one frequency, it transmits at the other frequency. The offset between these two frequencies is called offset frequency.

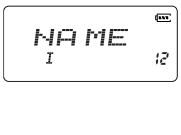
1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 11 function item, it shows "**OFFSET**" on LCD.
3. Rotate channel switch to choose desired offset frequency.

   Frequency range is 00-70MHZ.
4. Press [D] key or [#←] key to confirm and exit.



Editing Channel name

1. Press [A] key, the top left corner of LCD displays" F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 12 function item, it shows "**-**" on LCD.
3. Rotate channel switch to choose desired character, press [1] key to confirm current character and move shift to next character. Press [4] key back to the previous character.
4. Press [D] key or [#↩] key to confirm and exit.



Busy Channel Lockout

BCLO function is used for prohibit transmitting on busy channel, it can prevent disturbing other transceivers operating in same frequency. If you press PTT, the radio will beep as warning and get back to receiving state.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 13 function item, it shows "**RPLOCK**" on LCD.
3. Rotate channel switch to choose desired setup.
   BUSY: Carrier wave lock, transmitting is prohibited when received matching carrier wave.
   REPEAT: Signaling lock, transmitting is prohibited when received matching carrier but with unmatching CTCSS/DCS.
   OFF: Close BCLO function.
4. Press [D] key or [#↩] key to confirm and exit.

○ FUNCTION MENU SETUP

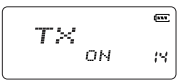
TX OFF

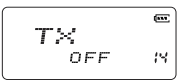
When this function is on, [PTT] key is unavailable. Current channel of transceiver only works under receiving mode.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 14 function item, it shows "**TX**" on LCD.
3. Rotate channel switch to choose desired setup.

   ON: TX OFF is enabled.

   OFF: TX OFF is disabled.
4. Press [D] key or [#] key to confirm and exit.





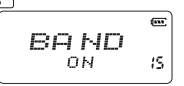
Band Limit

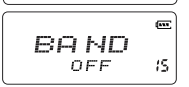
When this function is on, inputting frequency or Scanning frequency under VFO is limited in current VFO frequency band.

1. Press [A] key, the top left corner of LCD displays " F " i con, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 15 function item, it shows "**BAND**" on LCD.
3. Rotate channel switch to choose desired setup.

   ON: Band limit is enabled.

   OFF: Band limit is disabled.

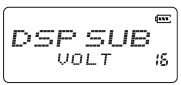




4. Press [D] key or [#] key to confirm and exit.

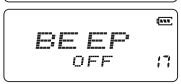
Sub Band Display Setup

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B] / [C] key to choose NO. 16 function item, it shows "**DSPSUB**" on LCD.
3. Rotate channel switch to choose desired setup.
   FREQ: Display sub band frequency or channel.
   VOLT: Display current battery voltage.
   OFF: Sub band display is disabled.
4. Press [D] key or [#] key to confirm and exit.



Keypad Voice Prompt Setup

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B] / [C] key to choose NO. 17 function item, it shows "**BEEP**" on LCD.
3. Rotate channel switch to choose desired setup.
   ON: Keypad Voice Prompt is enabled.
   OFF: Keypad Voice Prompt is disabled.
4. Press [D] key or [#] key to confirm and exit.



○ FUNCTION MENU SETUP

Time-Out-Timer (TOT)

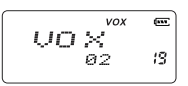
The purpose of Time-out-Timer is to restrict transceiver for continuous long-term transmission. When the continuous transmission time is beyond the preset time, transceiver is forced to stop transmitting and make a beep sound.

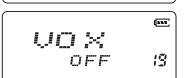
1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 18 function item, it shows "**TOT**" on LCD.
3. Rotate channel switch to choose desired setup.
   1~27 minutes, total 27minutes of TOT for optional, each interval is 1minute.
4. Press [D] key or [#] key to confirm and exit.

Voice Operated Transmission (VOX) Setup

When this function is on, the transmitting can be started by voice, no need to press [PTT] key.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 19 function item, it shows "**VOX**" on LCD.
3. Rotate channel switch to choose desired setup.
   1~10 : Total 10 VOX levels for optional.
   OFF: VOX function is disabled.
4. Press [D] key or [#] key to confirm and exit.





VOX Delay Setup

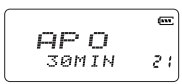
If transceiver returns to receive mode instantly after VOX calling, it may cause calling voice missing. To avoid this problem, user can set a suitable delay time.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 20 function item, it shows "**VDELAY**" on LCD.
3. Rotate channel switch to choose desired setup.
   0.5S-3S: Total 27 levels for optional, each interval is 0.1S
4. Press [D] key or [#←] key to confirm and exit.

Automatic Power Off Time setup

When this function is on, transceiver will automatic power off when reach the preset time.

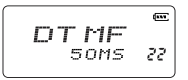
1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 21 function item, it shows "**APO**" on LCD.
3. Rotate channel switch to choose desired setup.
   30minutes ~ 2hours: Total 3 levels for optional.
   OFF: Automatic Power Off Time is disabled.
4. Press [D] key or [#←] key to confirm and exit.



◦FUNCTION MENU SETUP

DTMF Transmitting Time Setup

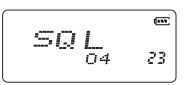
1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 22 function item, it shows "**DTMF**" on LCD.
3. Rotate channel switch to choose desired setup.
   50MS: Each DTMF signal transmits 50ms, interval 50ms
   100MS: Each DTMF signal transmits 100ms, interval 100ms
   200MS: Each DTMF signal transmits 200ms, interval 200ms
   300MS: Each DTMF signal transmits 300ms, interval 300ms
   500MS: Each DTMF signal transmits 500ms, interval 500ms
4. Press [D] key or [#↩] key to confirm and exit.



Squelch level setup

This function is used for setup intensity of receiving signals, transceiver will hear calls when receiving signal intensity achieve preset data, otherwise, transceiver will keep mute.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 23 function item, it shows "**SQL**" on LCD.
3. Rotate channel switch to choose desired setup.
   00~09: 10 levels of squelch in total for optional, "00" is minimum setup value (normally open)
4. Press [D] key or [#↩] key to confirm and exit.



Scan Dwell Time Setup

There are three kinds of scan dwell time for optional.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 24 function item, it shows "**SCAN**" on LCD.
3. Rotate channel switch to choose desired setup.

5ST: When scanning matched signal, transceiver will stop scaning for 5seconds then resume.

10ST: When scanning matched signal, transceiver will stop scaning for 10seconds then resume.

15ST: When scanning matched signal, transceiver will stop scaning for 15seconds then resume.

2SP: When scanning matched signal, transceiver will stop scaning, 2seconds after signal disappeared, then resume.

4. Press [D] key or [#←] key to confirm and exit.

Function Icon Stay Time Setup

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 25 function item, it shows "**FTIME**" on LCD.
3. Rotate channel switch to choose desired setup.

FUNCT: When finished function setting or enter into function menu, icon disappeared.

1SEC: When finished function setting or enter into function menu, icon stay 1second then disappeared

○ FUNCTION MENU SETUP

2SEC: When finished function setting or enter into function menu, icon stay 2seconds then disappeared

3SEC: When finished function setting or enter into function menu, icon stay 3seconds then disappeared

ALWAYS: Function icon is always display, only when pressing function key again, the icon will disappear.

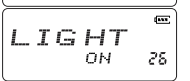
4. Press [D] key or [#] key to confirm and exit.

NOTE: When function icon is staying, user can setup desired functions continuously, no need press function key every time.

LCD Backlight Setup

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [B] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 26 function item, it shows "**LIGHT**" on LCD.
3. Rotate channel switch to choose desired setup.

AUTO: Backlight will automatic closed after a period.



OFF: Always off.

ON: Always on.

4. Press [D] key or [#] key to confirm and exit.

LCD Backlight Color Setup

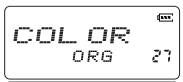
There are three kinds of backlight color for optional.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 27 function item, it shows "**COLOR**" on LCD.
3. Rotate channel switch to choose desired setup.

   ORG: Orange backlight

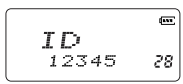
   SAKURA: Pink backlight

   WHITE: White backlight
4. Press [D] key or [#←] key to confirm and exit.



Self ID inquiry

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 28 function item, it shows "**ID**" on LCD.
3. Rotate channel switch to choose desired setup.
   The ID code displaying on LCD is transceiver self ID code.
4. Press [D] key or [#←] key to confirm and exit.



NOTE: When current channel add 5TONE to be optional signaling, LCD displays 5TONE self ID code, otherwise displays DTMF self ID code.

◦FUNCTION MENU SETUP

Tone Pulse Frequency Selection

This function is used for waking up sleeping repeater, it needs a certain intensity of Tone Pulse to wake up sleeping repeater. In general, as long as the repeater has been waked up, no need to transmit Tone Pulse again in preset time.

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 29 function item, it shows "**TBST**" on LCD.
3. Rotate channel switch to choose desired setup.
   1750HZ, 2100HZ, 1450HZ, 1000HZ, 4 kinds of Tone Pulse for optional
4. Press [D] key or [#↵] key to confirm and exit.

Battery Save Setup

User can setup battery save ratio according to requirements. The standby time can be extended when enable battery save function, but if save ratio setting too high, it may cause voice missing.

1. Press [A] key, the top left corner of LCD displays" F "icon, then press [8] key enter into function menu.
2. Press [B▲] / [C▼] key to choose NO. 30 function item, it shows "**SAVE**" on LCD.
3. Rotate channel switch to choose desired setup.

   OFF: Battery Save is disabled.

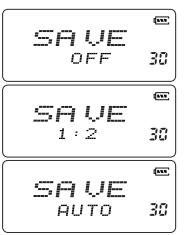
   1:2 The standby time between normal working state and battery saving mode is 1:2

   1:3 The standby time between normal working state and battery saving mode is 1:3

   1:5 The standby time between normal working state and battery saving mode is 1:5

   1:8 The standby time between normal working state and battery saving mode is 1:8

   AUTO: Battery save ratio is adjusting automatically.



4. Press [D] key or [#] key to confirm and exit.

FM radio

1. Press [A] key, the top left corner of LCD displays" F " icon, then press [8] key enter into function menu.
2. Press [B] / [C] key to choose NO. 31 function item, it shows "**RADIO**" on LCD.
3. Rotate channel switch to choose desired setup.
   ON: FM radio function is enable.
   OFF: FM radio function is disable.
4. Press [D] key or [#] key to confirm and exit.

NOTE: Only when this function is setting ON, FM radio can be normally used.

Remind: When single band UHF or VHF in standby, proposed setup is 1:8, when dual band VV,UU or UV in standby, proposed setup is 1:2.

○ SENIOR FUNCTION OPERATIONS

Display Mode Setup

There are three kinds of display modes for optional.

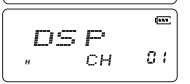
1. Press [PF2] key to turn on radio, hold [PF2] key until transceiver emits beep.
2. Press (B▲) / (C▼) key to choose No. 01 function item, it shows "**DSP**" on LCD.
3. Rotate channel switch to choose desired setup.

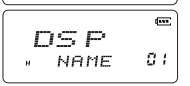
   FREQ: Frequency + Channel mode, transceiver displays current channel name + frequency, press (C▼) key to switch into VFO mode.

   CH: Channel mode, 1~21 items of function menu will hide automatically, user can only operate some functions. It is unable to switch into VFO by pressing (C▼) key. This model can be used for Amateur mode.

   NAME: Channel + Name Tag mode, transceiver displays current channel number + channel name, press (C▼) key to switch into VFO mode.

4. Press (D) key or (#↵) key to confirm and exit.





Resume Factory Default

You can make all the settings of transceiver return to the factory default settings when transceiver can not work normally because of wrong operation or error setup.

1. Press [PF2] key to turn on radio, hold [PF2] key until transceiver emits beep.
2. Press (B▲) / (C▼) key to choose No. 02 function item, it shows "**RESTOR**" on LCD.
3. Rotate channel switch to choose desired setup.

   OFF: No operations.

FACT: Resume all items to factory default, including channel and background settings.

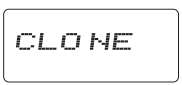
INIT: Resume background settings to factory default, channel operations are keeping.

4. Press [D] key to exit current selection
5. Press [#] key to confirm current selection.

Cable Cloning

With this function, you can copy the programming data of the transceiver to another one; it can copy parameters and memory programming data to another transceiver.

Connection: Use wire cloning cable (optional accessory) to connect main transceiver with sub-transceiver through reading / writing programmable interface.



Setup: main transceiver party

1.Hold **[PF1]** side key to power on, LCD displays **"CLONE"**, main transceiver enters into copy mode.

2.Press **[PF1]** key, LCD displays **"CLONE XX"**, **XX** means the transmitted data quantity.

3.After data copies completely, LCD displays **"CLONE OK"**.

4.Main transceiver stays in this mode preparing to next copy, restart main transceiver to exit copy mode.

Setup: sub-transceiver party.

1.When receiving data, LCD displays "**CLONE XX** ", XX means the received data quantity.

2.After data received sub-transceiver returns to normal mode.

3.Power off, take over cable line and link to another sub-transceiver which you want to copy.

If data can not transfer successfully, power off main transceiver and sub-transceiver, check the cable line and repeat the process.

○ TECHNICAL SPECIFICATION

General		
Frequency Range (T ver)	RX	136~174MHz 400~480MHz 144-148MHz 420-450MHz
Channel Capacity		200 channels
Channel Spacing		12.5KHz
Phase-locked Step		0.1KHz
Operation Voltage		7.4V DC ±20%
Battery Life		More than 12 Hours(1500mAh),by 5-5-90 working cycle
Frequency Stability		±2.5ppm
Operation Temperature		-20℃~ +55℃
Size		240×56×30mm (with battery, antenna)
Weight		210g (with battery, antenna)

Receiving Part	
	Band
Sensitivity (12dB SINAD)	≤0.35μV
Adjacent Channel Selecitvity	≥60dB
Intermodulation	≥60dB
Spurious Rejection	≥70dB
Hum & Noise	≥40dB
Audio Distortion	≤5%
Audio Power Output	1000mW/10%

Transimitting Part	
	Band
Power Output	5W
Modulation	11KΦF3E
Adjacent Channel Power	≥60dB
Hum & Noise	≥40dB
Spurious Emission	≤-36dB
Audio Distortion	≤5%

Problem	Corrective Action
No power	A.The battery may be exhausting. Recharge or replace the battery. B.The battery may not be installed correctly. Remove the battery and install it again. C.The power switch is broken; send it to local dealers to repair. D.Battery touch is broken; send it to local dealers to repair.
Battery power dies shortly after charging.	The battery life is finished. Replace the battery pack with a new one.
Transceiver cannot scan	The channels are not in scan list. (Professionals set it.)
All band noisy after programmed	Turn on squelch when programmed. Non–professionals are advised not rammed to adjust this function.
No sound after using earphone. for a while	Earphone jack is broken. Please contact with local dealers to repair.
Communication distance becomes short, and Low sensitivity	A.Check whether the antenna is in good conduction and the antenna base do not come adrift. B.Antenna connector is broken or not or with sundries.Whether it has set in low power output. (Please contact with local dealers to repair.)
Cannot talk or hear other members in your group	A.Different frequency or channel, please change it. B.Different CTCSS / DCS / DTMF, please reset it. C.Out of communication range.

○ TROUBLE SHOOTING GUIDE

Can not power on or frequent power off	Check weather the battery touch is out of sharp or broken.
The receiving sound gets low or intermittent	Check weather the MIC is stoppage. Otherwise, please contact with local dealers to repair it.
Receiving intermittent with in big noise	A.Out of communication range or obstruct by tall buildings or in big noise. B.450 filter is broken, Please contact with local dealers to repair.
Loudspeaker become lower or with "ka ka" sound after using a certain time	Check whether the loudspeaker is broken, Iron powder or sundries is in the loudspeaker. Please contact with local dealers to repair.
Receive voice from the other party but can not transmit	Check [PTT] key.
Receiving indicator with green light but no sound	A.Low volume, please clockwise to turn on. B.Loudspeaker is broken, please contact with local dealers to repair. C.Earphone jack is broken, please contact with local dealers to repair. D.Volume switch is broken.

CTCSS Frequency Chart

1	62.5	12	94.8	23	136.5	34	177.3	45	218.1
2	67.0	13	97.4	24	141.3	35	179.9	46	225.7
3	69.3	14	100.0	25	146.2	36	183.5	47	229.1
4	71.9	15	103.5	26	151.4	37	186.2	48	233.6
5	74.4	16	107.2	27	156.7	38	189.9	49	241.8
6	77.0	17	110.9	28	159.8	39	192.8	50	250.3
7	79.7	18	114.8	29	162.2	40	196.6	51	254.1
8	82.5	19	118.8	30	165.5	41	199.5	52	user-defined
9	85.4	20	123.0	31	167.9	42	203.5		
10	88.5	21	127.3	32	171.3	43	206.5		
11	91.5	22	131.8	33	173.8	44	210.7		

1024 groups DCS frequency chart

000	001	002	003	004	005	006	007
010	011	012	013	014	015	016	017
020	021	022	023	024	025	026	027
030	031	032	033	034	035	036	037
040	041	042	043	044	045	046	047
050	051	052	053	054	055	056	057
060	061	062	063	064	065	066	067
070	071	072	073	074	075	076	077
100	101	102	103	104	105	106	107
110	111	112	113	114	115	116	117
120	121	122	123	124	125	126	127
130	131	132	133	134	135	136	137
140	141	142	143	144	145	146	147
150	151	152	153	154	155	156	157
160	161	162	163	164	165	166	167
170	171	172	173	174	175	176	177
200	201	202	203	204	205	206	207
210	211	212	213	214	215	216	217
220	221	222	223	224	225	226	227
230	231	232	233	234	235	236	237
240	241	242	243	244	245	246	247
250	251	252	253	254	255	256	257

260	261	262	263	264	265	266	267
270	271	272	273	274	275	276	277
300	301	302	303	304	305	306	307
310	311	312	313	314	315	316	317
320	321	322	323	324	325	326	327
330	331	332	333	334	335	336	337
340	341	342	343	344	345	346	347
350	351	352	353	354	355	356	357
360	361	362	363	364	365	366	367
370	371	372	373	374	375	376	377
400	401	402	403	404	405	406	407
410	411	412	413	414	415	416	417
420	421	422	423	424	425	426	427
430	431	432	433	434	435	436	437
440	441	442	443	444	445	446	447
450	451	452	453	454	455	456	457
460	461	462	463	464	465	466	467
470	471	472	473	474	475	476	477
500	501	502	503	504	505	506	507
510	511	512	513	514	515	516	517
520	521	522	523	524	525	526	527
530	531	532	533	534	535	536	537

540	541	542	543	544	545	546	547
550	551	552	553	554	555	556	557
560	561	562	563	564	565	566	567
570	571	572	573	574	575	576	577
600	601	602	603	604	605	606	607
610	611	612	613	614	615	616	617
620	621	622	623	624	625	626	627
630	631	632	633	634	635	636	637
640	641	642	643	644	645	646	347
650	651	652	653	654	655	656	657
660	661	662	663	664	665	666	667
670	671	672	673	674	675	676	677
700	701	702	703	704	705	706	707
710	711	712	713	714	715	716	717
720	721	722	723	724	725	726	727
730	731	732	733	734	735	736	737
740	741	742	743	744	745	746	747
750	751	752	753	754	755	756	757
760	761	762	763	764	765	766	767
770	771	772	773	774	775	776	777

NOTE: N stands for positive code. I stands for inverted code. 1024 groups of DCS in total.

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.