ALINCO

VHF/UHF FM Transceiver

DJ-500

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.

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/2.5W/1W
- 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, 5-Tone
- VOX built-in
- Emergency, Alarm signal, Various scan modes, Key lock, Wide/Narrow operations and more at NO extra costs.

Conformity Symbols

FC CE 0700 ! IC RoHS

Tested to comply MIL-STD-810G

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

NOTICE / Compliance Information Statement

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 instruction manual, 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.

Tested to Comply
With FCC Standards

FOR HOME OR OFFICE USE

Information in this document is subject to change without notice or obligation. All brand names and trademarks are the property of their respective owners. Alinco cannot be liable for pictorial or typographical inaccuracies. Some parts, options and/or accessories are unavailable in certain areas. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

144/440MHz FM amateur radio handheld transceiver DJ-500T

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.

For Customers in Canada:

MODEL:3070C-DJ500T

Le présent apareil 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, mème si le brouillage est susceptible d'en compromettre le fonctionnement.

CE Conformity Information

This device is in compliance with the essential requirements of R&TTE Directive 1999/5/EC.

A copy of the certificate by the notified body can be reviewed at http://www.alinco.com/usa.html.

DJ-500E

VHF/UHF FM amateur radio handheld transceiver

144.000~145.995MHz, 430.000~439.995MHz

CE 0700 !

This device is authorized for use in all EU and EFTA member states.

An operator's license is required for this device.

Manufacturer:

Alinco, Inc. Electronics Div. Yodoyabashi-Dai Bldg 13F, 4-4-9, Koraibashi, Chuo-ku, Osaka 541-0043 Japan

⚠ Alert

■ Environment and condition of use

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

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 of the electronics product, battery-packs and accessories in your area.

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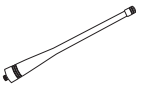
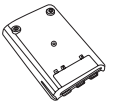
○ STANDARD ACCESSORIES

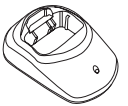
Standard Accessories



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.

Charging Operation

The battery is not charged at the factory, so 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 and it must be replace to new one.

Battery Charger Type

Please use Alinco's designated charger, other models may cause explosion. After installing the battery, when the radio displays low battery, please charge the battery.

Notice for Charging Battery

▲Do not shortcircuit the charger. Never attempt to remove the casing from the battery, otherwise the warranty is void and you risk serious damage to yourself and properties.

▲The ambient temperature should be between 5℃ and 40℃ while charging. Charging outside this range may not charge the battery.

▲Always switch off the transceiver before charging. Otherwise, it may not charge correctly.

▲To avoid interfering the charging procedure, please do not cut off the power or take out the battery during charging.

▲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 when wet. Dry it before charging to avoid danger.

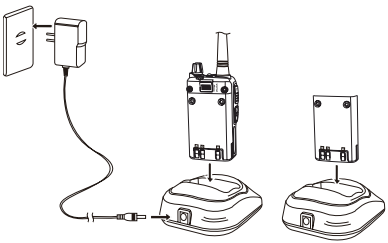
○ BATTERY INFORMATION

Caution

- Risk of explosion, generation of heat or leak of chemicals inside if the battery is replaced by an incorrect type or reverse polarity. Use always the recommended types of batteries in this manual only.
- The battery pack isn't fully charged when shipped. It must be charged before use.
- Charging should be conducted in a temperature range of +5ºC to +40ºC (+41ºF to +104ºF).
- Don't modify, dismantle, incinerate or immerse the battery pack in the water as this can be dangerous.
- Never short-circuit the battery pack terminals, as this can cause damage to the equipment or lead to heating of the battery which may cause burns.
- Unnecessary prolonged charging (overcharging) can deteriorate battery performance.
- The battery pack should be stored in a dry place where temperature is in -10ºC to +45ºC (-14ºF to +113ºF) range. Temperatures outside this range can cause the battery liquid to leak. Exposure to prolonged high humidity can cause corrosion of metal components.
- Battery-packs are a consuming part. When its operating time becomes considerably short after a normal charge, please consider that the pack is exhausted and replace it with a new one.
- The battery pack is recyclable. Check with your local waste officials for details on recycling options or proper disposal in your area.
- Use specified genuine chargers only to charge battery packs. Use of other chargers may cause damage to products, you and your property.
- Never carry battery packs together with conductive articles such as metals in a same bag to prevent from short-circuiting. Put the packs only in nylon bags to carry them safely.
- Even if you do not use the battery pack for a long time, charge it at least once every three months to prevent deterioration.

How to Charge the battery pack

1.Plug the AC adaptor into the AC outlet, then plug into the DC jack, the indicator lights orange for 1 second and goes out---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. 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, and LED turns to green when the charge is complete.



Warning: Never charge while the radio is turned on. When turned on, the charger can't detect the charging voltage properly and LED fails to indicate charge status correctly.

5. Charging Process:

Status	LED
Stand-by (self-examine orange lights 1second when power on)	None
Pre-charging (pre-charging stage)	Red light twinkles for about 5 minutes
Charging (charge in constant current.)	RED light lightens for about 4 hours
Fully charged (charge in constant voltage)	Green light

○ BATTERY INFORMATION

6. LED Indicator:

STATUS	self-examine when power on	(No battery)	Pre-charging	Charge normally	Fully Charged	Trouble
LED	Orange (for 1 second)	None	Red blinks for 5 minutes	Red	Green	Red blinks alternatively

NOTE:

- ▲ **Trouble means battery heating, short–circuit or charger malfunction. Remove the battery pack from the charger immediately and contact to your local dealer for services.**
- ▲ **The max trickle pre–charging time is 30 minutes. In case the red indicator continues to blink longer, please stop charging and consult with your local dealer for services.**
- ▲ **It is known that Li–Ion battery packs heat up over 400℃ by itself when kept in a temperature of over 80℃ for extended period of time. Although the packs are protected against overheating with a protective circuit, never leave the battery packs in a car or similar locations in hot seasons.**
- ▲ **Li–ion packs may deteriorate by over 30% regardless of conditions after 3 years. This is a nature of Li–ion pack and not a defect of the product.**
- ▲ **The charger is to charge the battery pack only. It is not an AC adapter to operate the radio. Never attempt to transmit the radio with using the charger as it will cause the damage to the charger and a repair/replace may become necessary.**
- ▲ **The charge should be conducted in an ambient temperature with a proper air–conditioning in an extremely hot or cold seasons.**
- ▲ **Try charging the battery pack only when having trouble charging with the radio.In case the radio may have troubles, the charge can't be conducted properly. If the battery pack can be charged alone, please take the radio to your local dealer for services.**

How to Store the Battery

1.The battery should be kept in the status of 50% discharge when storing.

2.It should be kept in cool, dry environment and remove it from the transceiver.

3.Keep away from source of heat and direct sunlight.

NOTE: Incorrect storage will damage both the battery pack and the radio. Please always remove the battery pack from the radio when not in use.

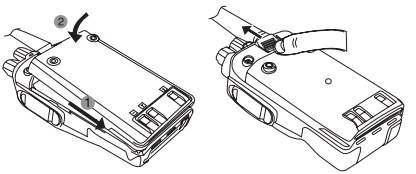
○ INSTALLATION & CONNECTION

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, then push it.

2.Press the battery 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, slide up the release latch and remove the pack away from the transceiver.



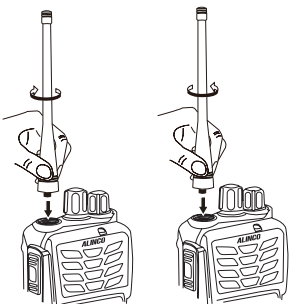
Installing / Removing the Antenna

Installing the Antenna:

1. Hold the antenna by its base.
2. Align the grooves at the base of the antenna with the protrusions on the antenna connector.
3. Slide the antenna down and turn it clockwise until it stops.
4. Confirm that the antenna is securely connected. Check the connection from time to time.

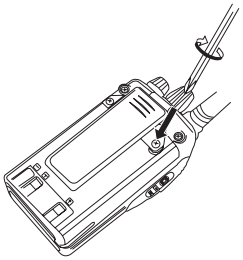
Removing the Antenna:

Turn the antenna counter-clockwise to disconnect the antenna.



NOTE: Do not use third−party antenna as it may radiate more RF that exceeds SAR limit guidances.

Installing / Removing the Belt Clip



Installing the Belt Clip:

1. Put the belt clip on the back of the unit, and the screw clockwise until it stops.
2. Confirm that the belt clip is securely attached.

* Tighten up the screw occasionally.

Removing the Belt Clip:

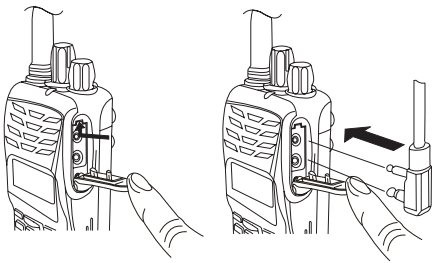
Turn the screw counter-clockwise to remove the belt clip.

Caution: Use the screws of specified size only. Others may cause damage to the product. (screws size PM Φ 2.5mm x 3mm)

Accessories

Open the jack cover and insert the accessory plug into the jack, as shown.

When the accessory is not used, please be sure to put on cover with securely.



○ INSTALLATION & CONNECTION

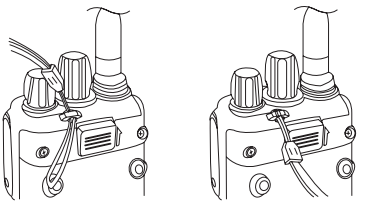
NOTE:

1.To keep the radio dust and splash resistant, the cover must be closed properly with the original supplied cover.

2.The radio is not dust and splash resistant while using the optional accessory risking that the water may penetrate inside through the plug.

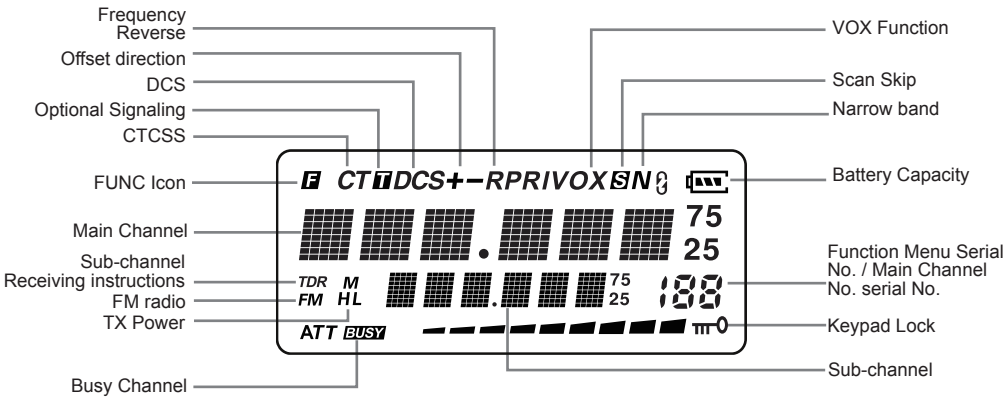
Installing the Hand Strap

Attach the hand strap as shown.



LCD Display

Following are the meaning of the icons and signs shown on the display.



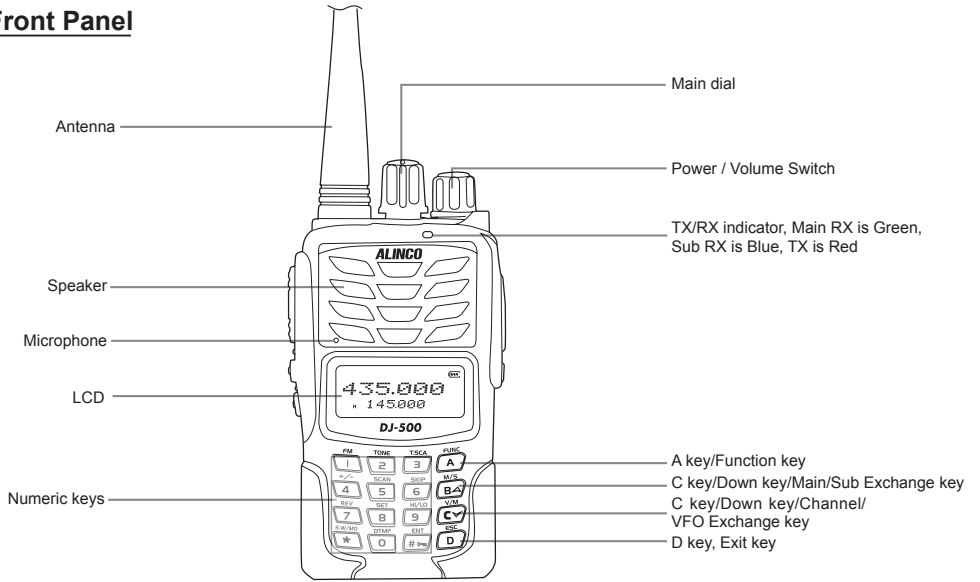
NOTE:

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

Battery capacity remnant — **Real time display receiving signal strength/Power Indicator**

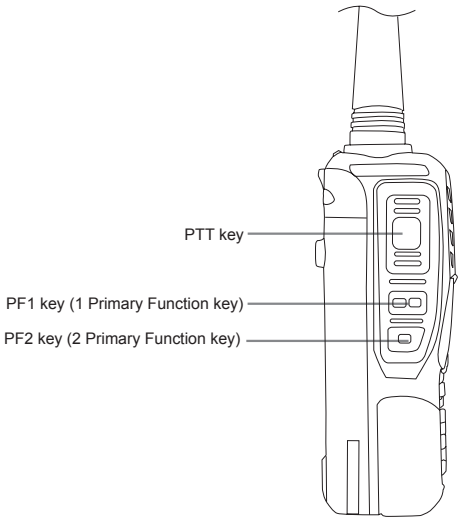
○ GETTING ACQUAINTED

Front Panel

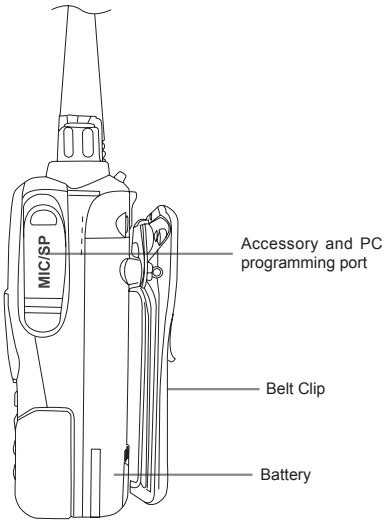


NOTE: Please do not close the microphone hole.

Side Panel



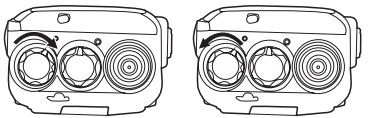
Left Panel



Right Panel

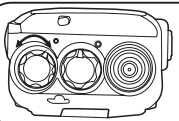
○ BASIC OPERATIONS

Power On and off



Turn【**POWER**】/【**VOLUME**】dial clockwise to power on.
Turn it counterclockwise to power off.

Adjusting Audio output level



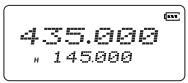
Press and hold 【**PF2**】 key to monitor white noise to refer to the current audio level.

Turn【**POWER**】/【**VOLUME**】dial clockwise to increase the audio level, counterclockwise to decrease.

CAUTION:
NEVER USE EARPHONE while adjusting audio level. The max audio output is 1W, and it's loud enough to hurt your eardrums.
You may feel a static shock when wearing an earphone in a dry atomosphere but it's not a defect of product but a cause of nature.It is the same shock you feel typically when opening a door of a car in certain conditions.

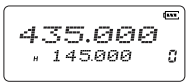
Switch between Main band and Sub band

Press (B) key to switch between Main band and Sub band.



Switch between Channel mode and VFO mode

Press (C) key to switch between channel mode or frequency mode(VFO).



Change Frequency / Channel Through Main Dial

In VFO mode, you can change the current frequency to desired one through main dial; turn clockwise to increase frequency; counter-clockwise turn to decrease, every click will increase/decrease one step.

NOTE: This transceiver has 10 step size: 2.5, 5, 6.25, 8.33, 10, 12.5, 20, 25, 30 and 50 KHz, channel steps.

In channel mode, you can change the current channel to desired one through main dial, turn clockwise to the next channel, counter-clockwise turn to the last channel.

Frequency Input by Keypad

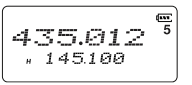
In VFO mode or FM radio receiver, You may directly enter frequency through numeric keys.

1.Press 【C】 to switch to VFO.

2.Enter the desired frequency in 6-digit by numeric keys.

○ BASIC OPERATIONS

Example: To enter 435.0125, press [4][3][5][0][1][2] then 5 appears and sets automatically. To enter 435.100, press [4][3][5][1][0][0]. By pressing the last [0], a dot appears after the MHz unit and the frequency is set. When an invalid numbers are entered, the display will return to the current state and an error beep sounds.



NOTE: This product operates in accordance with legally assigned frequnecy only. In the FM receiver mode, the frequency step size input by numeric keys is 50KHz.

Channel Input by Keypad

In Frequency + Channel or Channel + Name Tag mode, you may select the channel by entering three channel digits (000-199). If the entered channel has not been preprogrammed, a beep sounds to alert you that input is wrong and then return to current channel.

Monitor / Squelch Off

In case the receiving signal is weak and the audio is intermittently cut off by the squelch, press and hold [PF2] key. As long as this key is pressed, the squelch including TSQ/DCS unmutes making the audio easier to hear.

Receiving

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

NOTE: Please be aware of the squelch level and selective–calling settings such as CTCSS and DCS as you may risk not hearing the receiving signal.

Transmitting

1. Select the frequency by using the dial or keypad.
2. Press the PTT key. The red TX indicator turns on while transmitting.
3. While holding down the PTT key, speak into the unit at normal voice from the distance of 5cm (2").
4. Release the PTT key to receive.

Before transmitting, it is recommended to monitor the channel you are going to use to ensure it is not busy by pressing and holding [PF2] key.

Alarm

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.

NOTE: Please use programming software to choose the Alarm mode or close Alarm.

Side Key【PF1】function

The Side [PF1] key can realized functions as below:

1.In receiving mode, press to check current voltage.

2.In receiving mode, press and hold to alarm.(you can shut off this function by software)

3.In transmitting mode, press to transmitting selected Tone-pulse signaling.

4.Press this key to power on transceiver, and get into wire cloning mode.

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

Side key [PF2] function

Monitor function (squelch off or momentary off per preprogramming).

1. Turn the main dial while pressing and holding this key to set the squelch level.
2. While transmitting, press this key to transmit preprogrammed 5-tone or DTMF tone signaling.
3. Pressing and holding this key while turning on for 2 seconds to enter to the parameter setting mode.
4. Turn on with this key and key pressed together to perform the factroy reset.

Channel Edit

1. In main channel frequency mode or sub-channel frequency mode, enter the frequency and signaling as desired, after pressing (A) key, the top left corner of LCD displays " F ", then press (C), the channel number twinkling means getting into store/delete channel mode.
2. Turn main dial to select the desired channel address to store.
3. Press (A) key, and then hold (C) for 2 seconds, after two "beep" sounds, this channel has been stored.

Delete channel

1.In Standby state, after pressing [A] key, the top left corner of LCD displays " F ", then press [C∨], the channel number twinkling means getting into store/delete channel mode.

2.Turn selector knob to select the channel which you want to delete.

3.Press [A] key, and hold [B∧] key for 2 seconds, the frequency disappear with in two "beep" sounds, the channel has been deleted.

Programming scan

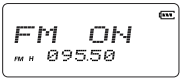
Setup the frequency of L1 channel, U1 channel, L2 channel and U2 channel will realize VFO frequency scanning border limited. L1 & L2 is starting frequency, U1 & U2 is end frequency. When VFO frequency between L1~ U1 or L2 ~ U2, transceiver will scan frequencies between L1 ~ U1 or L2 ~ U2. When VFO frequency 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.(L1, U1, L2, U2)
3. Press [A] key, and then hold [C∨] for 2 seconds, after two "beep" sounds, this channel has been stored.

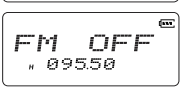
NOTE: To make this setup, L1 and U1 must in same frequency band, L1 must lower than U1. L2 and U2 must in same frequency band, L2 must lower than U2.

○ ADVANCED OPERATIONS

FM Radio Receiver



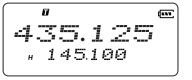
1. In standby state, after pressing [A] key, while **F** icon is displayed on the top left corner, then press [1] key again, LCD displays "FM" icon and "FM ON", FM radio function is on.



2. While "FM ON" is indicated on the display, press [B▲] key to turn on/off FM radio function, FM radio is on when LCD displays "FM ON", FM radio is off when LCD displays "FM OFF".
3. When FM radio is on, press [A] key firstly, then press [5] key to scan broadcasting stations,when meeting stations, scan will stay 5 seconds then resume.
4. Press [D] key to exit FM radio mode.

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 or Cancel DTMF, 5TONE Signaling

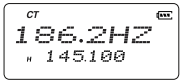


In standby state, press [A] key, the top left corner of LCD displays "**F**" icon, press [2] key, LCD displays "**T**" icon, it means current channel add DTMF signal decode function. Repeat above operation, LCD still displays "**T**" icon, it means current channel add 5TONE signal decode function. Repeat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

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

CTCSS/DCS Scan

After pressing [A] key, the top left corner of LCD displays "F", then press [3] to enter CTCSS / DCS scan. When signaling scanned matches the setting of the transceiver, stop for 15 seconds then scan again. Press any keys except [A], [*], [#] to exit scanning.



NOTE: This function is invalid when the main channel is in channel display mode or current mode without signaling setup. Scan CTCSS when the current channel is set to CTCSS, scan DCS when the channel is set to DCS.
Turn main dial to change the CTCSS / DCS scan direction.

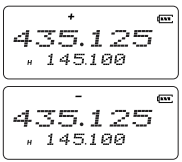
Offset Direction

In standby state, press [A] key, the top left corner of LCD displays "F" icon, press [4] key to choose offset direction.

(+): Positive offset, TX frequency is higher than RX frequency.

(-): Negative offset, TX frequency is lower than RX frequency.

Select OFF for simplex operation.



Frequency Scan, Channel Scan or FM Search

While receiving, after pressing [A] key, while F icon is displayed on the top left corner, press [5] key to begin frequency scan or channel scan. Scan-resume condition can be set in the set mode that will be

explained later. Default is timed and resumes scanning after 5 seconds regardless of receiving state.

1.Frequency Scan

In VFO mode, it scans in accordance with the channel step. Press any key except [*] or [#] keys to stop scanning.

2.Channel Scan

In channel mode, it scans in accordance with preprogrammed channels. Press any key except [A], [*] or [#] keys to stop scanning.

3.FM Search

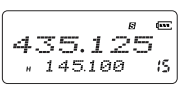
In FM broadcast receiver mode, it scans in accordance with 100KHz step. Press any key except [A], [*] or [#] keys to stop scanning.

NOTE:

- **Turn the main dial clockwise or counter−clockwise to change scan direction.**
- **Channels selected as "skip channels" won't be scanned during the channel scanning.**

Scan Channel Skip

In Channel mode, after pressing [A] key, press [6] key to set the current channel to be skipped while channel-scanning, and **'S'** icon appears to indicate the channel is set as the skip. Repeat the operations to cancel channel scan skip setting. The S icon will dessapear.

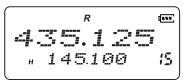


NOTE: This feature is available only in the Channel modes.

Frequency Reverse

In 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.



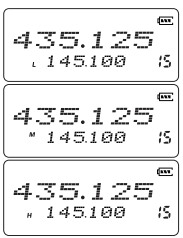
TX Power selection

In standby state, press [A] key, the top left corner of LCD displays "**F**" icon, then press [9] key to choose High/Low power for current arrow directed channel.

L: Power is 1W.

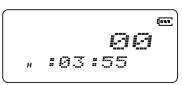
M: Power is 2.5W.

H: Power is 5W.



Stopwatch function

1. In 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.

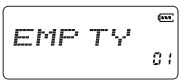


○ ADVANCED OPERATIONS

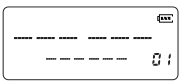
NOTE: During timing, press [*] key to stop timing and displays current data, press this key again to clear timer.

DTMF Code Searching And Setup

After pressing [A] key, the top left corner of LCD displays "F" then press [0] key, it displays the current DTMF group. (16 groups in total)



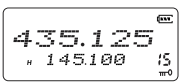
1. Turn main dial to select the desired group and DTMF data, and press PTT to transmit the desired DTMF data. It displays EMPTY when DTMF data is not programmed yet.



2. Press [A] key, the top left corner of LCD displays "F", press and hold [0] key for 2 seconds to enter DTMF editing menu. Use numerical keys to enter DTMF characters. Press **[PF2]** key to transmit the tones, save the data and exit.

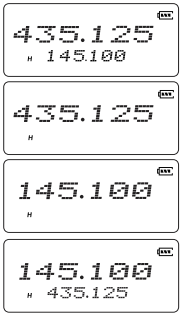
Keypad lock

Keypad lock function is useful to prevent from wrong operation, In stand-by state, after pressing [A] key, while "F" icon is displayed on the top left corner, press and hold [#] key for 2 seconds to start keypad lock function. Repeat to cancel the key lock function.



NOTE: When keypad is locked, only PTT / PF1 / PF2 / A key are usable.

Switch between Dual mode and Single mode



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.

- For VFO or Memory channel mode users, temporary changes in preset channel parameter may be available. Such temporary changes won't be held in the memory and will be deleted when a channel is changed or turn off the radio.
- This feature is not available to dealer-programmed Channel mode users.

Please ask your dealer for details of programming.

1.After pressing [A] key, the top left corner of LCD displays "F" then press [8] key to enter function menu.

2.Press [B] / [C] key to select the menus to be set.

3.Turn main dial to choose the parameter.

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

○ ADVANCED OPERATIONS

CTCSS/DCS Encode Setup

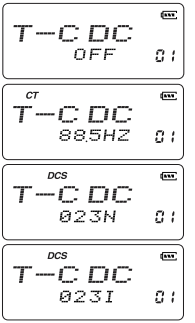
1.After pressing A key, the top left corner of LCD displays "**F**" then press [8] key.

2.Press [8▲] / [C▼] key to choose menu 01 and display "**T-CDC**".

3.Press [1] key to choose CTCSS, DSC or OFF. When DCS is selected, press [*] key to choose positive or inverse code.

4.Turn main dial to choose the desired CTCSS / DCS encodeing tone. See appendix for details of available tones.

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



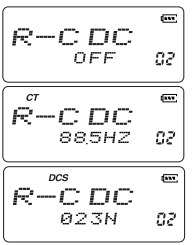
CTCSS/DCS Decode Setup

By using this function with CTCSS/DCS encode feature, you hear only signals that are sent with matching tones. (Such operations are often reffered to as Tone-Squelch or DCS squelch)

1.After pressing [A] key, the top left corner of LCD displays "**F**" then press [8] key.

2.Press [8▲] / [C▼] key to choose menu 02 and display " **R-CDC** ".

3.Press [1] key to choose CTCSS, DSC or OFF. When DCS is selected, press [*] key to choose positive or inverse code.



4.Turn main dial to choose the desired CTCSS / DCS decodeing tone. See appendix for details of available tones.

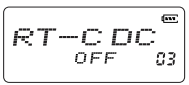
5.Press [D] key or [#] key to confirm and exit.

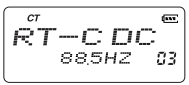
Note: You may set the encoding and decoding tones separately.

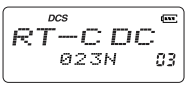
CTCSS/DCS Encode / Decode Synchronous Setup

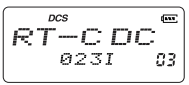
This function is for adjusting CTCSS/DCS encode/decode synchronous.

1. Press [A] key, the top left corner of LCD displays "**F**" icon, then press [8] key.
2. Press [B]/[C] key to choose menu 03 and display "**RT-CDC**".
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. Turn main dial to choose the desired CTCSS / DCS encodeing/decodeing tone. See appendix for details of available tones.
5. Press [D] or [#] key to confirm and exit.









○ ADVANCED OPERATIONS

Choose To Transmit 5TONE

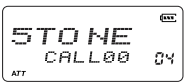
By preprogramming the 2-Tone setting in advance, you may select the tone and transmit it.

1.After pressing [A] key, the top left corner of LCD displays "**F**" then press [8] key.

2.Press [B▲] / [C▼] key to choose menu 04 and display "**5TONE** ".

3.Turn main dial to choose the desired 5-Tone signal. Press PTT to transmit the tone. Up to 100 tones are programmable.

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



Add or Cancel DTMF, 5TONE Sgnaling

This function is DTMF and 5TONE setting

1.Press [A] key, the top left corner of LCD displays "**F**" icon, then press [8] key.

2.Press [B▲] / [C▼] key to choose menu 05 and display "**TONDEC**".

3.Rotate channel switch to choose desired optional signaling.

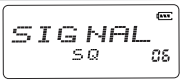
DTMF: current optional signaling is DTMF

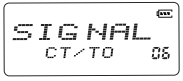
5TONE: current optional signaling is 5TONE

OFF: close optional signaling

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

Signaling Combination





You may combine the signaling functions of different system.

1.After pressing [A] key, the top left corner of LCD displays "**F**" then press [8] key.

2.Press [8▲] / [C▼] key to choose menu 06 and display "**SIGNAL**".

3.Turn main dial to choose the desired signaling combinations mentioned below.

SQ: Hear all communications regardless of the signaling tones.

CT/DCS: Hear only the signals with matching CTCSS or DCS tones.

Tone: Hear only the signals with matching DTMF, 5-Tone tones.

CT&TO: Hear only the signals with matching CTCSS, DCS, DTMF, 5-Tone tones.

CT/TO: Hear only the signals with matching any one of CTCSS, DCS, DTMF, 5-Tone tones.

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

Frequency Step

1.After pressing [A] key, the top left corner of LCD displays " **F** " then press [8] key.

2.Press [8▲] / [C▼] key to choose menu 07 and display "**STEP**".

3.Turn main dial to choose the desired step mentioned below.

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

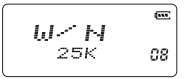
Available steps are 2.5K, 5K, 6.25K, 10K, 12.5K, 20K, 25K, 30K and 50KHz.

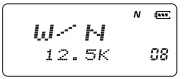
This parameter is not available when the radio is in the Channel mode.

ADVANCED OPERATIONS

Wide/ Narrow FM Mode

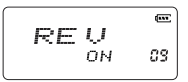
1.After pressing [A] key, the top left corner of LCD displays "**F**" then press [8] key.
2.Press [B▲] / [C▼] key to choose menu 08 and display " **W/N**".
3.Turn main dial to choose the desired bandwidth frequnecy.
Available parameters are 12.5(narrow) and 25KHz(wide).
4.Press [D] key or [#↵] key to confirm end exit.

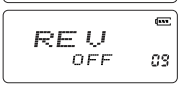




Frequency Reverse

This function temporary reverses the transmitting and receiving frequencies and signaling tone settings.
1.After pressing [A] key, the top left corner of LCD displays "**F**" then press [8] key.
2.Press [B▲] / [C▼] key to choose menu 09 and display "**REV**".
3.Turn main dial to choose the desired parameter.
ON: enable frequency reverse.
OFF: disable frequency reverse.
4.Press [D] key or [#↵] key to confirm end exit.
This function is not available when Talk Around function is activated.

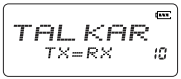




Talk Around

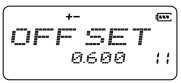
1.After pressing [A] key, the top left corner of LCD displays " **F** " then press [8] key.
2.Press [B▲] / [C▼] key to choose menu 10 and display "**TAL KAR**".

3.Turn main dial to choose the desired parameter.
TX=RX: talk around enables
OFF: talk around disables
4: Press [D] key or [#] key to confirm end exit.



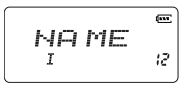
Offset Frequency

1.After pressing [A] key, the top left corner of LCD displays " F " then press [8] key.
2.Press [B] / [C] key to choose menu 11 and display "**OFF SET**".
3.Turn main dial to choose the desired Offset frequnecy.
Available parameters are 0.00 to 69.9975MHz in step size selected in menu 07.
4.Press [D] key or [#] key to confirm end exit.



Editing Channel name

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key.
2. Press [B] / [C] key to choose menu 12 and display "**NAME**".
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.



NOTE: This feature is available only in the Channel modes.

○ ADVANCED OPERATIONS

Busy Channel Lockout

This function prohibits the transmitting when the channel is busy.

1.After pressing [A] key, the top left corner of LCD displays " F ", then press [8] key.

2.Press [B▲] / [C▼] key to choose menu 13 and display "**RPLOCK**".

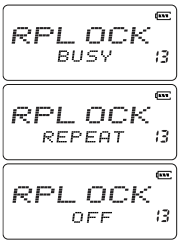
3.Turn main dial to choose the desired parameter.

REPEAT: Signaling busy lock. It suspends transmitting when receives a matching carrier but incorrectsignaling tones.

BUSY: Carrier busy lock. It suspends transmitting when receives any carrier signal.

OFF: PTT operation is always possible without busy channel lockout.

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



Prohibits transmitting

1.After pressing [A] key, the top left corner of LCD displays" F " then press [8] key.

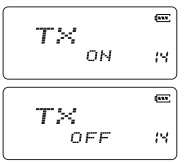
2.Press [B▲] / [C▼] key to choose menu 14 and display "**TX**".

3.Turn main dial to choose the desired parameter.

ON: Transmitting is allowed

OFF: Transmitting disabled

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



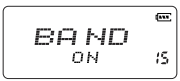
Band Limit

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**" icon, then press [8] key.
2. Press [B▲] / [C▼] key to choose menu 15 and display "**BAND**".
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

1. Press [A] key, the top left corner of LCD displays "**F**" icon, then press [8] key.
2. Press [B▲] / [C▼] key to choose menu 16 and display "**DSP SUB**".
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.

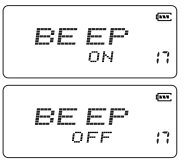
○ ADVANCED OPERATIONS

Beep sounds

1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key.
2. Press [B▲] / [C▼] key to choose menu 17 and display "**BEEP**".
3. Rotate channel switch to choose desired setup.

   ON: Beep sounds is enabled.

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

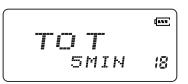


Time-Out-Timer (TOT)

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.
2. Press [B▲] / [C▼] key to choose menu 18 and display "**TOT**".
3. Rotate channel switch to choose desired setup.

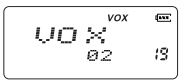
   1~27 minutes, total 27minutes of TOT for optional, each interval is 1minute.
4. Press [D] key or [#] key to confirm and exit.



Voice Operated Transmission (VOX)(An optional earphone-microphone is necessary)

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.
2. Press [B▲]/[C▼] key to choose menu 19 and display "**VOX**".
3. Rotate channel switch to choose desired setup.
   1~10 : Total 10 VOX levels for optional.
   OFF: VOX function is disabled.
   1 is most sensitive, 10 is less sensitive that requires more voice level to activate VOX.
4. Press [D] key or [#] key to confirm and exit.



NOTE: VOX is not usable in noisy areas as it may start transmitting by the back noise.

Voice Operated Transmission (VOX) Delay Time

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.

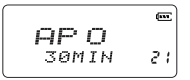
1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key.
2. Press [B▲]/[C▼] key to choose menu 20 and display "**VDELAY**".
3. Rotate channel switch to choose desired setup.
   0.5S-3S: Total 27 levels for optional, each interval is 0.1S
4. Press [D] key or [#] key to confirm and exit.

○ ADVANCED OPERATIONS

Automatic Power Off Time

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.
2. Press [B▲]/[C▼] key to choose menu 21 and display "**APO**".
3. Rotate channel switch to choose desired setup.
   30MIN: Automatic Power-Off after 30 minutes.
   1HOUR: Automatic Power-Off after one hour.
   2HOUR: Automatic Power-Off after two hours.
4. Press [D] key or [#] key to confirm and exit.



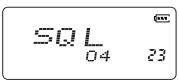
DTMF Transmitting Time

1. Press [A] key, the top left corner of LCD displays "**F**" icon, then press [8] key.
2. Press [B▲] / [C▼] key to choose menu 22 and display "**DTMF**".
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

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.

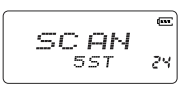
1. Press [A] key, the top left corner of LCD displays " F " icon, then press [8] key.
2. Press [B▲] / [C▼] key to choose menu 23 and display "**SQL**".
3. Rotate channel switch to choose desired setup.
   00~09: 10 levels of squelch in total for optional, “00” is minimum setup value (normally open)
4. Press [D] key or [#] key to confirm and exit.



Scan Dwell Time

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 .
2. Press [B▲] / [C▼] key to choose menu 24 and display "**SCAN**".
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.



○ ADVANCED OPERATIONS

Function Icon Stay Time

1. Press [A] key, the top left corner of LCD displays "**F**" icon, then press [8] key.
2. Press [B▲] / [C▼] key to choose menu 25 and display "**FTIME**".
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

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

1. Press [A] key, the top left corner of LCD displays "**F**" icon, then press [8] key.
2. Press [B▲] / [C▼] key to choose menu 26 and display "**LIGHT**".
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.

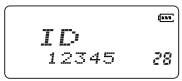
LCD Backlight Color

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.
2. Press [B▲] / [C▼] key to choose menu 27 and display "**COLOR**".
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.
2. Press [B▲] / [C▼] key to choose menu 28 and display "**ID**".
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.

Tone Pulse Frequency

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.
2. Press [B] / [C] key to choose menu 29 and display "**TBST**".
3. Rotate channel switch to choose desired setup.

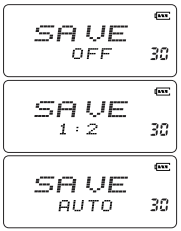
   1750HZ, 2100HZ, 1450HZ, 1000HZ, 4 kinds of Tone Pulse for optional
4. Press [D] key or [#] key to confirm and exit.

Battery Save

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.
2. Press [B] / [C] key to choose menu 30 and display "**SAVE**".

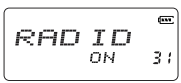
3. Rotate channel switch to choose desired setup.
   OFF: Battery Save is disabled.
   1:2 The standby time between normal working state and battery saving mode is 1:2
   1:3 The standby time between normal working state and battery saving mode is 1:3
   1:5 The standby time between normal working state 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.



NOTE: The Battery Save function is temporarily suspended when a key is operated or a signal is received.

FM radio

1. Press [A] key, the top left corner of LCD displays "F" icon, then press [8] key.
2. Press [B] / [C] key to choose menu 31 and display "**RADIO**".
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.

○ SET MODE OPERATIONS

Display Mode

This parameter determines the LCD display mode. This parameter may not be available for dealer-programmed radios.

1.Pressing and holding **[PF2]** key to turn on the radio to enter the Set mode.

2.Press [B] / [C] key to choose menu 01 and display "**DSP**".

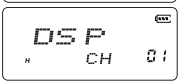
3.Turn the main dial to select the desired parameter.

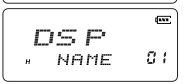
FREQ: channel frequency + channel number display

CH: channel number display.

NAME: Channel name+ Channel number display

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





RESET

In case the radio is malfunctioning or you may resume the default conditions of the radio, please perform this factory reset.

1.Pressing and holding [PF2] key to turn on the radio to enter the Set mode.

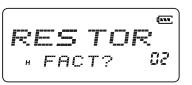
2.Press [B]/[C] key to choose menu 02 and display "**RESTOR**".

3.Turn the main dial to select the desired parameter.

FACT: Restore factory default

INIT: Restore custom parameters only to default leaving the memory

OFF: Do not perform reset



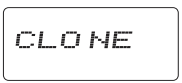
4. Press [D] key to exit.
5. Press [# ←] key to perform the reset.

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 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.

○ DEFAULT SETTINGS

VFO Frequency	435MHz/145MHz
Memory Channel	CH0:435MHz CH1:145MHz CH2-CH199:Blank
TX Power	Hi
Keylock	OFF
CTCSS/DCS Decode/Encode	OFF
Optional Signaling	OFF
Frequency Step	12.5KHz
Channel Spacing	25KHz
Frequency Reverse	OFF
Talk Around	OFF
Offset Frequency(UHF/VHF)	5MHz/0.6MHz
Busy Channel Lockout	OFF
TX Function	ON
Band Limit	ON
Sub Band Display	Frequency
Beep sounds	ON
Time-Out-Timer	3min
VOV setup	OFF
VOX Delay	0.5sec
Automatic Power Off	OFF

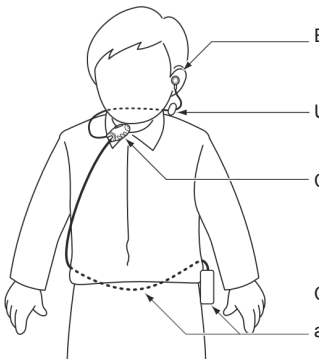
DTMF Transmitting Time	50msec
Squelch level	3
Scan Dwell Time	5sec
Function Icon Stay Time	Function
LCD Backlight	Auto
LCD Backlight Color	Orange
Tone Pulse Frequency	1750Hz
Battery Save	1:2
FM Radio	ON

○ OPTIONAL ACCESSORIES

ALINCO

EA-228	**VHF/UHF & FM radio Antenna**
EBC-34	**Belt Clip**
EBP-87	**Li-ion Battery Pack (DC 7.4V 1500mAh)**
EBP-88	**Li-ion Battery Pack (DC 7.4V 1700mAh)**
EDC-189	**Li-ion Battery Charger**
EDC-190E	**AC Adaptor (220V Linear type)**
EDC-191E	**AC Adaptor (220V)**
EDC-191T	**AC Adaptor (120V)**
EME-56A	**Earphone Microphone**
EMS-76	**Speaker microphone**

○ RECOMMENDED INSTALLATION OF EARPHONE MICROPHONE



Earphone

Use a clip to fix with collar.

Clip the PTT unit closer to your mouth.

Carry the radio on the side or the back of your body,
and the cable should go around the back as shown.
Clamp the excessive length of cable at your waist

Technical Specifications

General		
Frequency Range (T ver)	TX	144~148MHz 420~450MHz
	RX	136~174MHz 400~480MHz FM radio
Frequency Range (E ver)	TX	144~146MHz 430~440MHz
	RX	144~146MHz 430~440MHz FM radio
Modulation		F3E(16K0F3E/11K0F3E / RX only WFM)
Programmable channels		200 channels
Operation Voltage		DC7.4V(Battery only)
Battery Life		More than 12 Hours(1500mAh), by 5-5-90 working cycle
Frequency Stability		±2.5ppm
Temperature range		Operating:-20 ~ +55℃(-4 ~ 131°F) / Charging:+5 ~ +40℃ (+41 ~ 104°F)
Dimensions (Projections not included/approx.)		59(W) x 98(H) x 35(D) mm 2.32"(W) x 3.86"(H) x 1.38"(D)
Weight *approx		227g or 8.01oz (with battery pack and antenna)

○ TECHNICAL SPECIFICATION

Receiver		
Sensitivity(12dB SINAD)	wide -12dBu, Narrwo -9dBu	
Selectivity	- 6dB: 12kHz or more /- 60dB: 30kHz or less	
Audio output power	1W (10% distortion)	

Transmitter		
Output power (Approx.)	high	5W
	middle	2.5W
	low	1W
Spurious emissions	- 60dB or less	
Max.deviation(Wide/Narrow)	±5kHz / ±2.5kHz	

* All specifications are subject to change without notice or obligation.
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○ TROUBLE SHOOTING GUIDE

ALINCO

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 life is end; contact to local dealers to replace.
Battery power dies shortly after charging.	The battery is exhausted. Replace the battery pack with a new one.
Transceiver cannot scan	Squelch is open. Adjust the level.
All band is noisy	Adjust squelch level.
No sound when using earphone.	Earphone or the jack is broken. Please contact with local dealers for inspection.
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 may be broken. Consult your local dealer for services.
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.
Can not power on or frequent power off	Check if the battery pack is securely attached.

○ TROUBLE SHOOTING GUIDE

The receiving sound level is low or intermittent	Consult with local dealers for inspection.
Receiving signal is intermittent.	A.Out of communication range or obstruct by walls, buildings etc. Change position to transmit. B.4Internal components may be in trouble, please contact with local dealers to repair.
Loudspeaker sounds lower or with dry noise after certain time of usage.(Speaker magnet attracts iron powders)	Check whether the loudspeaker is broken, Iron powder or dusts is in the loudspeaker. Please contact with local dealers to repair.
Receive voice from the other parties and can not transmit	Interference is being received. BCLO activated.
Receiving indicator with green light but no sound	A.Low volume, increase the audio level. B.Volume switch or loudspeaker is broken, please contact with local dealers to repair. C.Earphone jack is broken, please contact with local dealers to repair.

NOTE: Alinco guarantees the supply of minimum−necessary spare parts such as battery−packs, components and mechanical parts for at least 5 years after the production of this product is terminated except in case of accidents beyond control.

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		

○ ATTACHED CHART

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

ATTACHED CHART

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	647
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

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FC CE 0700 ⓘ

IC RoHS

VHF/UHF FM amateur transceiver
144.000~145.995MHz / 430.000~439.995MHz
All EU and EFTA member states. Operator license is required.

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