ICOM

INSTRUCTION MANUAL

UHF TRANSCEIVER

IC-U80
IC-U80E

Icom Inc.

FOREWORD

Thank you for purchasing this fine Icom product. The IC-U80/IC-U80E UHF TRANSCEIVER is designed and built with Icom's superior technology and craftsmanship. With proper care, this product should provide you with years of trouble-free operation.

We appreciate you making the IC-U80/IC-U80E your radio of choice, and hope you agree with Icom's philosophy of "technology first." Many hours of research and development went into the design of your IC-U80/IC-U80E.

FEATURES

❍ *Dust-protection/Splash-resistant construction (IP54*)*

*Only when the battery pack or case, antenna and jack cover are attached.

❍ *Built in VOX circuit enabling the VOX operation* (voice operated transmission)*

*To use the VOX operation, an optional headset and a plug adapter cable are required.

EXPLICIT DEFINITIONS

WORD	DEFINITION
⚠ **DANGER!**	Personal death, serious injury or an explosion may occur.
⚠ **WARNING!**	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	Recommended for optimum use. No risk of personal injury, fire or electric shock.

IMPORTANT

READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL— This instruction manual contains important operating instructions for the IC-U80/IC-U80E.

PRECAUTIONS

⚠**DANGER! NEVER** short the terminals of the battery pack.

⚠**DANGER!** Use and charge only specified Icom battery packs with Icom radios or Icom chargers. Only Icom battery packs are tested and approved for use with Icom radios or charged with Icom chargers. Using third-party or counterfeit battery packs or chargers may cause smoke, fire, or cause the battery to burst.

⚠**WARNING RF EXPOSURE!** This device emits Radio Frequency (RF) energy. Caution should be observed when operating this device. If you have any questions regarding RF exposure and safety standards, please refer to the Federal Communications Commission Office of Engineering and Technology's report on Evaluating Compliance with FCC Guidelines for Human Radio Frequency Electromagnetic Fields (OET Bulletin 65).

⚠**WARNING! NEVER** hold the transceiver so that the antenna is very close to, or touching exposed parts of the body, especially the face or eyes, while transmitting. The transceiver will perform best if the microphone is 5 to 10 cm (2 to 4 inches) away from the lips and the transceiver is vertical.

⚠**WARNING! NEVER** operate the transceiver with a headset or other audio accessories at high volume levels. Hearing experts advise against continuous high volume operation. If you experience a ringing in your ears, reduce the volume level or discontinue use.

⚠**WARNING! NEVER** operate the transceiver while driving a vehicle. Safe driving requires your full attention—anything less may result in an accident.

⚠**WARNING! NEVER** operate or touch the transceiver with wet hands. This may result in an electric shock or may damage the transceiver.

CAUTION: MAKE SURE the antenna and battery pack are securely attached to the transceiver, and that the antenna and battery pack are dry before attachment. Exposing the inside of the transceiver to water will result in serious damage to the transceiver.

DO NOT operate the transceiver near unshielded electrical blasting caps or in an explosive atmosphere.

DO NOT push **[PTT]** unless you actually intend to transmit.

BE CAREFUL! The transceiver will become hot when continuously operating it for long periods of time.

DO NOT use or place the transceiver in direct sunlight, or in areas with temperatures below –20°C (–4˚F) or above +60°C (+140˚F).

Place the unit in a secure place to avoid inadvertent use by children.

PRECAUTIONS

DO NOT use harsh solvents such as benzine or alcohol when cleaning, as they will damage the transceiver's surfaces.

DO NOT disassemble or modify the transceiver for any reason.

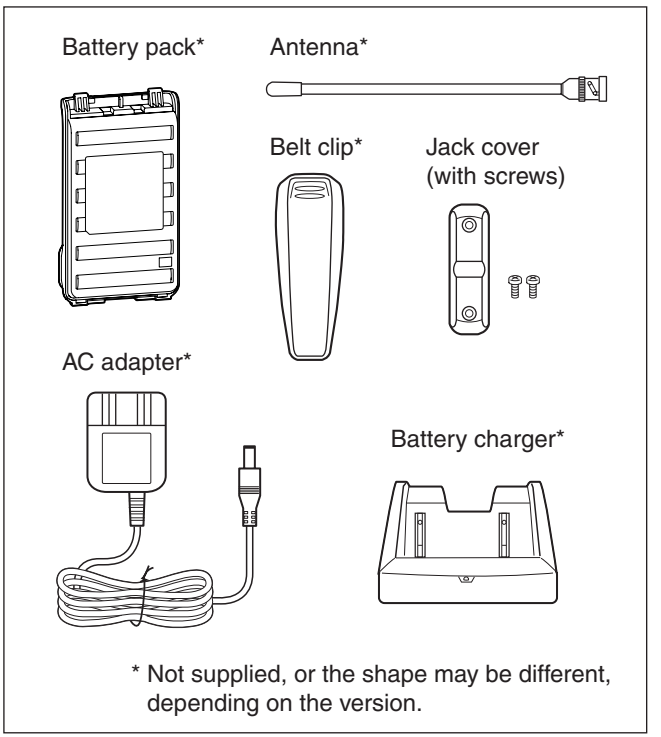
KEEP the transceiver away from heavy rain, and never immerse it in water. The transceiver meets IP54* requirements for dust-protection and splash resistance. However, once the transceiver has been dropped, dust-protection and splash resistance cannot be guaranteed because of possible damage to the transceiver's case or the waterproof seal.

* Only when the battery pack or case, antenna and jack cover are attached.

Even when the transceiver power is OFF, a slight current still flows in the circuits. Remove the battery pack or batteries from the transceiver when not using it for a long time. Otherwise, the installed battery pack or batteries will become exhausted, and will need to be recharged or replaced.

SUPPLIED ACCESSORIES

The following accessories are supplied with the transceiver.



* Not supplied, or the shape may be different, depending on the version.

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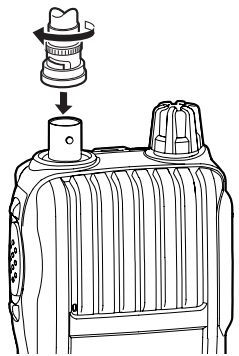
■ Antenna

Insert the antenna into the antenna connector, and then twist the antenna base to lock it in place.

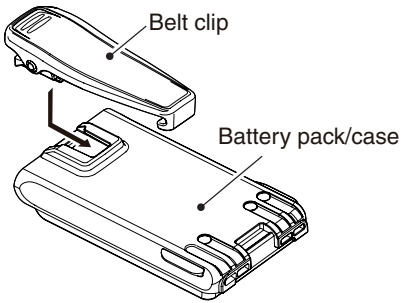


CAUTION:
- **NEVER HOLD** just the antenna when carrying the transceiver.
- Transmitting without an antenna will damage the transceiver.

■ Belt clip

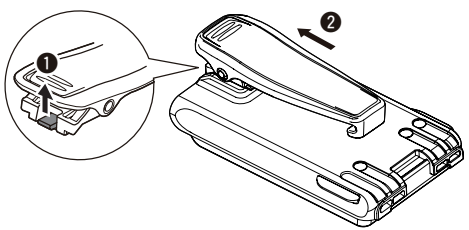
To attach the belt clip:

Slide the belt clip in the direction of the arrow until the belt clip locks in place, and makes a 'click' sound.



To detach the belt clip:

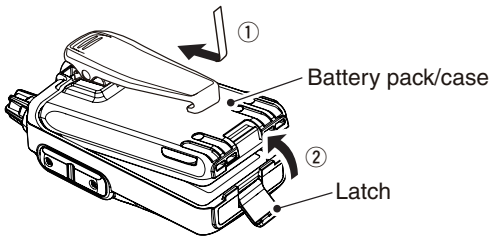
① Remove the battery pack or case from the transceiver, if it is attached. (p. 2)
② Lift the tab up (❶), and slide the belt clip in the direction of the arrow (❷).



■ Battery pack or case

To attach the battery pack or case:

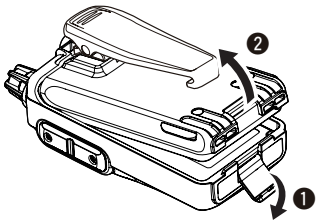
① Fit the battery pack or case in the direction of the arrow, then close it.
② Hook the latch until it makes a 'click' sound.



To remove the battery pack or case:

Be careful! The latch is tightly locked, so use caution when releasing it. **DO NOT** use your finer nail. Use the edge of a coin or screwdriver tip to carefully release it.

❶ Unhook the latch.
❷ Lift up the battery pack or case in the direction of the arrow.



NEVER remove or attach the battery pack or case when the transceiver is wet or soiled. This may result in water or dust getting into the transceiver/battery pack or case, and may result in them being damaged.

NOTE: Keep the battery terminals clean. It's a good idea to clean the battery terminals once a week.

■ Jack cover

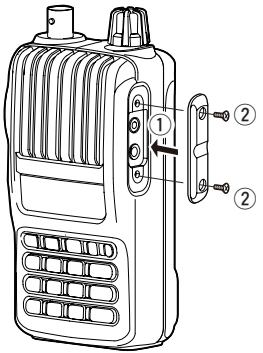
Attach the jack cover when optional equipment is not used.

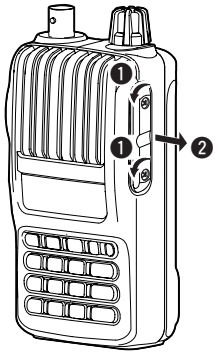
To attach the jack cover

①Attach the jack cover to the [SP MIC] jack.
②Tighten the screws.

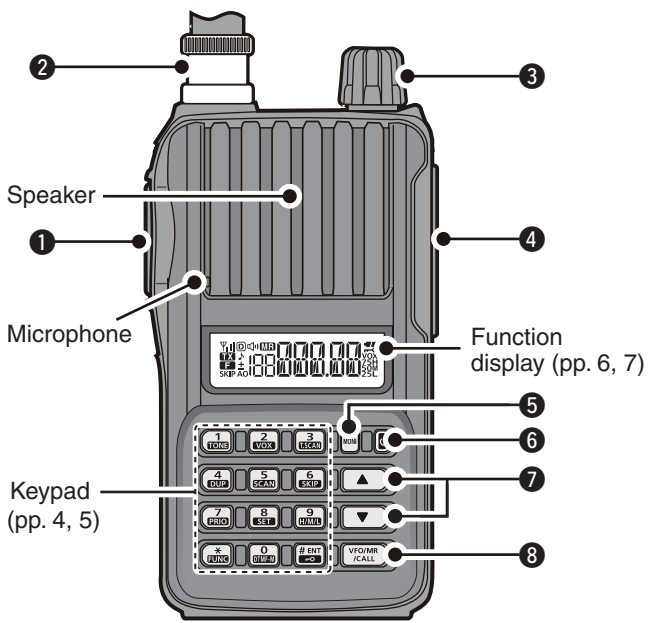
To detach the jack cover

❶Remove the screws with a phillips screwdriver.
❷Detach the jack cover to connect optional equipment.





■ Front, top and side panels



❶PTT SWITCH [PTT]
Hold down to transmit, release to receive. (p. 19)

❷ANTENNA CONNECTOR
Connect the antenna here. (p. 1)

❸CONTROL DIAL [VOL]
- ➥ Adjust the volume level. (p. 15)
- ➥ During the Set mode, or Initial Set mode, rotate to select a desired option or value. (pp. 39, 44)

❹EXTERNAL SPEAKER/MICROPHONE JACKS [SP MIC]
Used to connect an optional speaker-microphone, plug adapter cable or cloning cable. The internal microphone and speaker will not function when an option is connected. See page 53 for a list of available options.

Be sure to turn OFF the transceiver power before connecting or disconnecting optional equipment to or from the **[SP MIC]** jack.

❺MONITOR KEY [MONI]
- ➥ Hold down to temporarily open the squelch to monitor the operating frequency. (p. 15)
- ➥ While holding down this key, push **[▲]** or **[▼]** to adjust the squelch level. (p. 15)
- ➥ Enters or sends the DTMF code ‘A.’ (pp. 36, 37)

■ Front, top and side panels (Continued)

❻POWER KEY [⏻]

Hold down for 1 second to turn the transceiver power ON or OFF. (p. 15)

❼UP/DOWN KEYS [▲]/[▼]

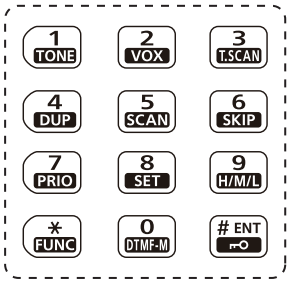
- ➥ Push to change the operating frequency. (p. 17)
- ➥ During memory mode operation, push to select a memory channel. (p. 25)
- ➥ While scanning, push to change the scanning direction. (pp. 30, 31, 32, 35)
- ➥ While holding down **[MONI]**, push to set the squelch level. (p. 15)
- ➥ While in the Set mode, or Initial Set mode, push to select a desired setting item. (pp. 39, 44)
- ➥ **[▲]** enters or sends the DTMF code 'B.' (pp. 36, 37)
- ➥ **[▼]** enters or sends the DTMF code 'C.' (pp. 36, 37)

❽VFO/MEMORY/CALL KEY [VFO/MR/CALL]

- ➥ Push to sequentially select the VFO mode, memory mode or a Call channel. (p. 16)
- ➥ After pushing **[FUNC]**(＊), push to enter the memory programming mode.
- ➥ After pushing **[FUNC]**(＊), hold down for 1 second to copy a channel contents to a memory channel, or to the VFO mode. (p. 27)
- ➥ Enters or sends the DTMF code 'D.' (pp. 36, 37)

The functions of **[VOL]** and **[▲]/[▼]** can be exchanged. See page 20 for details.

◇ KEYPAD



- ➥ Push to input numbers for frequency input and to select memory channels.
- ➥ Push to enter or send the DTMF code. (pp. 36, 37)
- ➥ Pushing these keys, after pushing **[FUNC]**(＊), activates the key's second function.

[1] • [TONE](1)

- ➥ Numeric input and sends DTMF code: '1'
- ➥ After pushing **[FUNC]**(＊), selects the Tone function. (p. 34)

[2] • [VOX](2)

- ➥ Numeric input and sends DTMF code: '2'
- ➥ After pushing **[FUNC]**(＊), turns the VOX function* ON or OFF. (p. 55)

* Only when an optional headset and plug adapter are connected.

[3] • [T.SCAN](3)
➥ Numeric input and sends DTMF code: '3'
➥ After pushing **[FUNC]**(∗), starts a tone scan. (p. 35)

[4] • [DUP](4)
➥ Numeric input and sends DTMF code: '4'
➥ After pushing **[FUNC]**(∗), selects minus duplex, plus duplex, or simplex operation. (p. 22)

[5] • [SCAN](5)
➥ Numeric input and sends DTMF code: '5'
➥ After pushing **[FUNC]**(∗), starts a scan. (pp. 30, 31)

[6] • [SKIP](6)
➥ Numeric input and sends DTMF code: '6'
➥ After pushing **[FUNC]**(∗), sets or cancels the Memory Skip scan setting. (p. 31)

[7] • [PRIO](7)
➥ Numeric input and sends DTMF code: '7'
➥ After pushing **[FUNC]**(∗), starts the Priority watch. (p. 32)

[8] • [SET](8)
➥ Numeric input and sends DTMF code: '8'
➥ After pushing **[FUNC]**(∗), enters the Set mode. (p. 39)

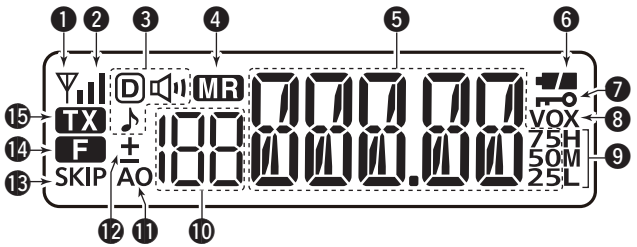
[9] • [H/M/L](9)
➥ Numeric input and sends DTMF code: '9'
➥ After pushing **[FUNC]**(∗), sets the output power to High, Mid or Low. (p. 19)

[0] • [DTMF-M](0)
➥ Numeric input and sends DTMF code: '0'
➥ After pushing **[FUNC]**(∗), enters the DTMF memory mode. (p. 36)

[∗] • [FUNC](∗)
➥ Sends DTMF code: '∗ (indication: E)'
➥ Push to access the second function of other keys.

[# ENT] • [🔑](ENT)
➥ Sends DTMF code: '**#** (indication: F)'
➥ After entering a frequency, stores it. (p. 17)
➥ Push to exit the Set mode or Initial Set mode. (pp. 39, 44)
➥ After pushing **[FUNC]**(∗), hold down for 1 second to turn the Key Lock function ON or OFF (p. 18)

■ Function display



❶BUSY ICON

➥ Appears when a signal is being received, or the squelch is open.

➥ Blinks while the monitor function is ON. (p. 15)

❷SIGNAL ICONS

➥ Shows the strength of the received signal. (p. 18)

Weak ⇦ RX Signal level ⇨ Strong

➥ While transmitting, shows the output power level. (p. 19)

Low Mid High

❸TONE ICONS

➥ "♪": While the repeater tone encoder is ON. (p. 21)

➥ "◁": While the tone squelch function is ON. (p. 34)

➥ "▯": While the DTCS squelch function is ON. (p. 34)

➥ "▯" and "♪": While the DTCS encoder is ON. (p. 34)

➥ "ıı" and "◁" or "▯": While the pocket beep function (with CTCSS or DTCS) is ON. (p. 34)

❹MEMORY ICON

Appears when the memory mode is selected. (pp. 16, 25)

❺FREQUENCY READOUT

➥ Displays the operating frequency, memory channel, Set modes contents and a variety of other information.

• The decimal point blinks during scan.

➥ During memory mode operation, the programmed memory name is displayed.

❻BATTERY ICONS (p. 14)

➥ "▬▮" (battery icons) appear when the battery pack or case is attached.

➥ "▬" appears when the battery is nearing exhaustion. Charging the battery pack, or replacing the batteries in the case is necessary.

❼KEY LOCK ICON

Appears when the Key Lock function is ON. (p. 18)

❽VOX ICON

Appears when the VOX function is ON. (p. 55)

❾ POWER ICONS (p. 19)
- ➥ “H” appears when High power is selected.
- ➥ “M” appears when Mid power is selected.
- ➥ “L” appears when Low power is selected.

❿ MEMORY CHANNEL NUMBER
- ➥ Displays the selected memory channel number. (p. 25)
- ➥ “C” appears when the Call channel is selected. (p. 25)

⓫ AUTO POWER OFF ICON
Appears when the Auto Power-OFF function is ON. (p. 45)

⓬ DUPLEX ICONS (p. 22)
- ➥ “+” appears when plus duplex is selected.
- ➥ “–” appears when minus duplex is selected.

⓭ SKIP ICON
Appears when the selected memory channel is set as a Skip channel. (p. 31)

⓮ FUNCTION ICON
Appears when the second function is accessed.

⓯ TRANSMIT ICON
Appears while transmitting. (p. 19)

3 BATTERY CHARGING

■ Caution (for the BP-264 Ni-MH battery)

⚠ **DANGER! NEVER** short the terminals (or charging terminals) of the battery pack. Also, current may flow into nearby metal objects such as a necklace, so be careful when placing battery packs (or the transceiver) in handbags, etc.

Simply carrying with or placing near metal objects such as a necklace, etc. may cause shorting. This may damage not only the battery pack, but also the transceiver.

⚠ **DANGER! NEVER** incinerate used battery packs. Internal battery gas may cause an explosion.

⚠ **DANGER! NEVER** immerse the battery pack in water. If the battery pack becomes wet, be sure to wipe it dry **BEFORE** attaching it to the transceiver.

CAUTION: Always use the battery within the specified temperature range, –5˚C to +60˚C (+23˚F to +140˚F). Using the battery out of its specified temperature range will reduce the battery's performance and battery life.

CAUTION: Shorter battery life could occur if the battery is left completely discharged, or in an excessive temperature environment (above +55˚C; +131˚F) for an extended period of time. If the battery must be left unused for a long time, it must be detached from the radio after charging. Keep it safely in a cool dry place at the following temperature range:

–20˚C to +45˚C	(–4˚F to +113˚F)	(up to a month)
–20˚C to +35˚C	(–4˚F to +95˚F)	(up to six months)
–20˚C to +25˚C	(–4˚F to +77˚F)	(up to a year*)

* We recommend charging the battery pack every 6 months.

Clean the battery terminals to avoid rust or misscontact.

Keep the battery terminals clean. It's a good idea to clean the battery terminals once a week.

If your Ni-MH battery pack seems to have no capacity, even after being charged, completely discharge it by leaving the power ON overnight. Then, fully charge the battery pack again. If the battery pack still does not retain a charge (or only very little charge), a new battery pack must be purchased. (p. 53)
Prior to using the transceiver for the first time, the battery pack must be fully charged, for optimum life and operation.

- Recommended temperature range for charging: between +10°C (+50˚F) and +35°C (+95˚F) (rapid charge: with BC-191, BC-197) or between 0°C (+32˚F) and +45°C (+113˚F) (regular charge: with BC-192)
- Use only the supplied charger or optional charger (BC-191, BC-197 for rapid charging, BC-192 for regular charging). **NEVER** use other manufacturers' chargers.

The battery pack contains a rechargeable battery.
Charge the battery pack before first operating the transceiver, or when the battery pack becomes exhausted.
If you want to prolong the battery life, the following points should be observed:

- **DO NOT** overcharge the battery pack. The charging time period should be less than 48 hours.
- Use the battery pack until it becomes almost completely exhausted, under normal conditions. We recommend battery charging after transmitting becomes impossible.

■ Caution (for the BP-265 Li-ion battery)

Misuse of Li-ion batteries may result in the following hazards: smoke, fire, or the battery may rupture. Misuse can also cause damage to the battery or degradation of battery performance.

⚠ **DANGER! NEVER** short the terminals (or charging terminals) of the battery pack. Also, current may flow into nearby metal objects such as a necklace, so be careful when placing battery packs (or the transceiver) in handbags, etc.

Simply carrying with or placing near metal objects such as a necklace, etc. may cause shorting. This may damage not only the battery pack, but also the transceiver.

⚠ **DANGER!** Use and charge only specified Icom battery packs with Icom radios or Icom chargers. Only Icom battery packs are tested and approved for use with Icom radios or charged with Icom chargers. Using third-party or counterfeit battery packs or chargers may cause smoke, fire, or cause the battery to burst.

◇ Battery caution

⚠ **DANGER! DO NOT** hammer or otherwise impact the battery. Do not use the battery if it has been severely impacted or dropped, or if the battery has been subjected to heavy pressure. Battery damage may not be visible on the outside of the case. Even if the surface of the battery does not show cracks or any other damage, the cells inside the battery may rupture or catch fire.

⚠ **DANGER! NEVER** use or leave the battery pack in areas with temperatures above +60˚C (+140˚F). High temperature buildup in the battery, such as could occur near fires or stoves, inside a sun heated car, or in direct sunlight may cause the battery to rupture or catch fire. Excessive temperatures may also degrade battery performance or shorten battery life.

⚠ **DANGER! DO NOT** expose the battery to rain, snow, seawater, or any other liquids. Do not charge or use a wet battery. If the battery gets wet, be sure to wipe it dry before using.

⚠ **DANGER! NEVER** incinerate a used battery pack since internal battery gas may cause it to rupture, or may cause an explosion.

⚠ **DANGER! NEVER** solder the battery terminals, or **NEVER** modify the battery pack. This may cause heat generation, and the battery may burst, emit smoke or catch fire.

⚠ **DANGER!** Use the battery only with the transceiver for which it is specified. Never use a battery with any other equipment, or for any purpose that is not specified in this instruction manual.

⚠ **DANGER!** If fluid from inside the battery gets in your eyes, blindness can result. Rinse your eyes with clean water, without rubbing them, and see a doctor immediately.

⚠ **WARNING!** Immediately stop using the battery if it emits an abnormal odor, heats up, or is discolored or deformed. If any of these conditions occur, contact your Icom dealer or distributor.

⚠ **WARNING!** Immediately wash, using clean water, any part of the body that comes into contact with fluid from inside the battery.

⚠ **WARNING! NEVER** put the battery in a microwave oven, high-pressure container, or in an induction heating cooker. This could cause a fire, overheating, or cause the battery to rupture.

CAUTION: Always use the battery within the specified temperature range, –20˚C to +60˚C (–4˚F to +140˚F). Using the battery out of its specified temperature range will reduce the battery's performance and battery life.

CAUTION: Shorter battery life could occur if the battery is left fully charged, completely discharged, or in an excessive temperature environment (above +50˚C; +122˚F) for an extended period of time. If the battery must be left unused for a long time, it must be detached from the radio after discharging. You may use the battery until the battery icon shows half-capacity, and then keep it safely in a cool dry place at the following temperature range:

–20˚C to +50˚C	(–4˚F to +122˚F)	(up to a month)
–20˚C to +35˚C	(–4˚F to +95˚F)	(up to three months)
–20˚C to +20˚C	(–4˚F to +68˚F)	(up to a year)

◇ Charging caution

⚠ **DANGER! NEVER** charge the battery pack in areas with extremely high temperatures, such as near fires or stoves, inside a sun-heated vehicle, or in direct sunlight. In such environments, the safety/protection circuit in the battery will activate, causing the battery to stop charging.

⚠ **WARNING! DO NOT** charge or leave the battery in the battery charger beyond the specified time for charging. If the battery is not completely charged by the specified time, stop charging and remove the battery from the battery charger. Continuing to charge the battery beyond the specified time limit may cause a fire, overheating, or the battery may rupture.

⚠ **WARNING! NEVER** insert the transceiver, with the battery attached, into the charger if it is wet or soiled. This could corrode the battery charger terminals or damage the charger. The charger is not waterproof.

CAUTION: DO NOT charge the battery outside of the specified temperature range: BC-193/BC-197 (+10˚C to +40˚C; +50˚F to +104˚F). Icom recommends charging the battery at +20˚C (+68˚F). The battery may heat up or rupture if charged out of the specified temperature range. Additionally, battery performance or battery life may be reduced.

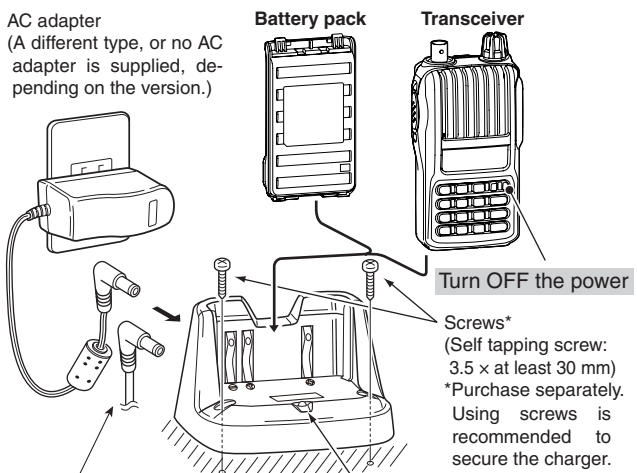
The supplied battery pack, charger, and AC adapter differ, or no supplied depending on the version.
Prior to using the transceiver for the first time, the battery pack must be fully charged for optimum life and operation.

■ Battery chargers

◇ Using the BC-191 to rapid charge the BP-264

The BC-191 provides rapid charging of only the BP-264 Ni-MH battery pack. Never use it to charge any other battery pack.
Charging time: Approximately 2 hours

The following item is additionally required:
• An AC adapter (not supplied with some versions) or the OPC-515L or CP-23L DC power cable.

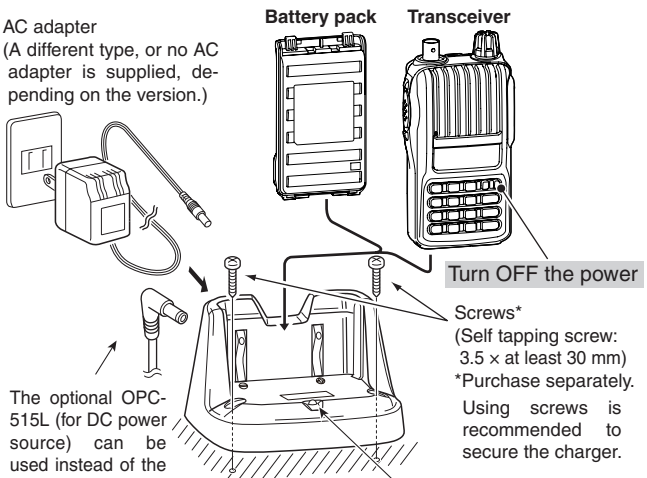


Charge indicator
• Lights orange : While charging
• Lights green : Charging is completed.

◇ Using the BC-192 to regular charge the BP-264

The BC-192 provides regular charging of only the BP-264 Ni-MH battery pack. Never use it to charge any other battery pack.
Charging time (with the BC-147S): Approximately 16 hours

The following item is additionally required:
• An AC adapter (not supplied with some versions) or the OPC-515L DC power cable.



Charging time period differs, depending on the input voltage.
12 V : Approximately 36 hours
13.8 V : Approximately 21 hours
16 V : Approximately 16 hours

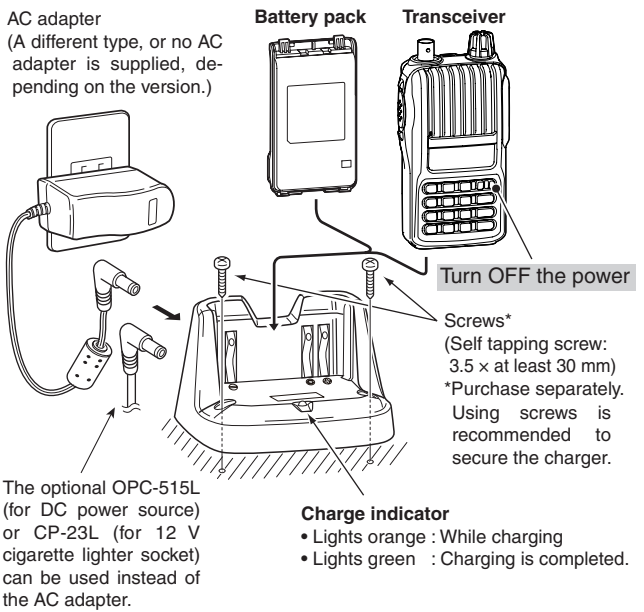
Charge indicator
• Lights green while charging.

NOTE:
The charge indicator will not go out even after a battery pack is fully charged.

◇ Using the BC-193 to rapid charge the BP-265

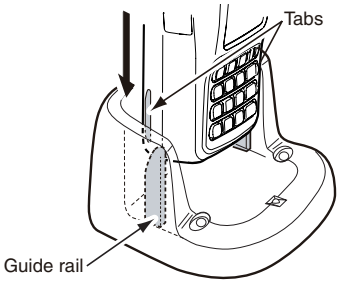
The BC-193 provides rapid charging of only the BP-265 Li-ion battery pack. Never use it to charge any other battery pack.
Charging time: Approximately 2.5 hours

The following item is additionally required:
• An AC adapter (not supplied with some versions) or the OPC-515L or CP-23L DC power cable.



IMPORTANT: Battery charging caution

Ensure the tabs on the battery pack are correctly aligned with the guide rails inside the charger.



CAUTION: When using the OPC-515L DC power cable

NEVER connect the OPC-515L to a power source using reverse polarity. This will ruin the battery charger.

White line: ⊕ Black line: ⊖

◇ Using the BC-197 to rapid charge the BP-264 or BP-265

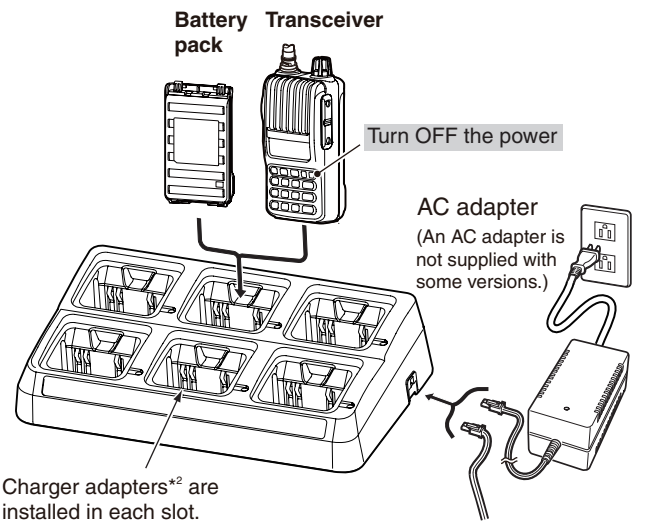
The BC-197 rapidly charges up to six battery packs.
Charging time for BP-264: Approximately 2 hours
Charging time for BP-265: Approximately 2.5 hours

The following additional item is required:
• An AC adapter (not supplied with some versions) or the DC power cable (OPC-656)

There are two types of BC-197 chargers for the IC-U80 or IC-U80E; one is for Ni-MH batteries, and the other is for Li-ion batteries.
Before you purchase a BC-197, check the type of battery you are using, and then be sure to choose the suitable charger.

BC-197 Charger Type	Chargeable Battery
With AD-120*[1] charger adapters	BP-264 Ni-MH battery
With AD-121*[1] charger adapters	BP-265 Li-ion battery

*[1] The type of the charger adapter, AD-120 or AD-121 is printed on the inside bottom of the charger adapter, and the type of battery it holds is printed on the top right corner of the adapter.



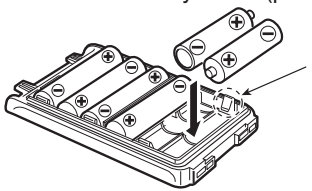
*[2] The shape of charger adapter depends on the version of the BC-197.

■ Battery case (BP-263)

When using the BP-263 battery case, install 6 × AA (LR6) size alkaline batteries, as described below.

① Remove the battery case if it is attached. (p. 2)
② Install 6 × AA (LR6) size alkaline batteries.
- Install only alkaline batteries.
- Be sure to observe the correct polarity.

③ Attach the battery case. (p. 2)



Be careful! The negative terminals of the battery case protrude from the body, so pay attention not to injure your fingers when inserting the batteries.

CAUTION:
- When installing batteries, make sure they are all the same brand, type and capacity. Also, do not mix new and old batteries together.
- Keep the battery terminals clean. It's a good idea to clean the battery terminals once a week.
- Never incinerate used battery cells since the internal battery gas may cause them to rupture.
- Never expose a detached battery case to water. If the battery case gets wet, be sure to wipe it dry before using it.
- Never use batteries whose insulated covering is damaged.

NOTE: When the BP-263 battery case is attached, the battery protection function must be turned OFF in the Initial Set mode (p. 49).

■ Battery information

◇ Battery life

Battery pack/case	Voltage	Capacity	Battery life*1
BP-263	Battery case for AA (LR6) × 6 alkaline		—*2
BP-264	7.2 V	1400 mAh	14.5 hrs.
BP-265	7.4 V	1900 mAh (min.) 2000 mAh (typ.)	17.5 hrs.

*1 When the power save function is set to "P–S.At," and the operating time is calculated under the following conditions;
TX : RX : standby = 5 : 5 : 90
*2 The average operating life depends on the alkaline cells used.

Even when the transceiver power is OFF, a small current still flows in the transceiver. Remove the battery pack or case when it won't be used for a long time. Otherwise, the battery pack or the batteries in the case will become exhausted.

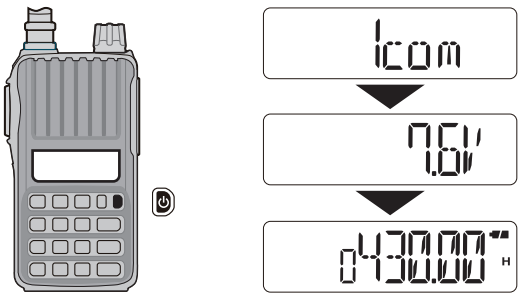
◇ Battery indication

The battery icons, "▬■," appears when a battery pack or case is attached to the transceiver.

Icon	Battery condition
▬■	The battery has ample capacity.
▬	The battery is nearing exhaustion. Charging the battery pack, or replacing the batteries in the case is necessary.

■ Power ON

Hold down **[⏻]** for 1 second to turn ON the power.
• Hold down **[⏻]** for 1 second to turn OFF the power.



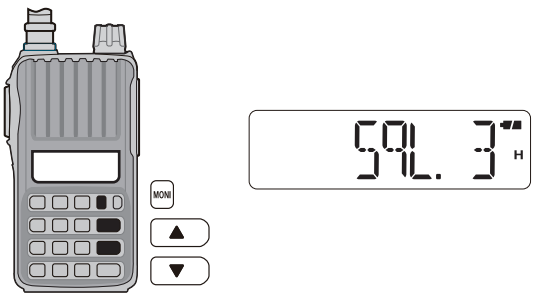
The voltage indication can be turned OFF in the Initial Set mode (p. 48).

■ Adjusting the volume level

Rotate **[VOL]** to adjust the volume level.
• If the squelch is closed, hold down **[MONI]** while adjusting the volume level.
• The display visually shows the volume level while adjusting.

■ Adjusting the squelch level

While holding down **[MONI]**, push **[▲]** or **[▼]** one or more times to adjust the squelch level.
• "SqL 1" is loose squelch (for weak signals) and "SqL10" is tight squelch (for strong signals). "SqL 0" is open squelch.



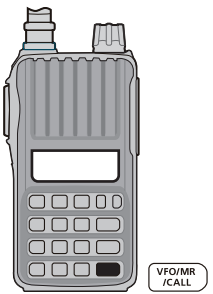
■ Monitor function

This function is used to listen to weak signals or to open the squelch manually. You can use it without disturbing the squelch setting, even when mute functions such as the tone squelch are in use.

Hold down **[MONI]** to monitor the operating frequency.
• "▽" blinks while the Monitor function is ON.

■ Mode selection

Push **[VFO/MR/CALL]** one or more times to sequentially select the VFO mode, memory mode and Call channel mode.



◇ VFO mode

The VFO mode is used to set the operating frequency.

• VFO mode display

What is VFO?

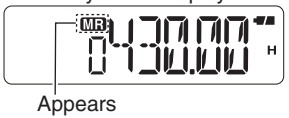
VFO is an abbreviation of Variable Frequency Oscillator. Frequencies for both transmitting and receiving are generated and controlled by the VFO.

◇ Memory mode

The memory mode is used for operating on memory channels, which store programmed frequencies.

• "MR" appears when the memory mode is selected.

• Memory mode display



◇ Call channel mode

The Call channel is used for quick recall of the most often-used frequency.

• "C" appears instead of the memory channel number when the Call channel mode is selected.

• Call channel mode display

■ Operating mode selection

Operating modes are determined by the modulation of the radio signals. The transceiver has both FM and FM-N modes. The mode selection is independently stored for each memory channel.

①Push **[FUNC]**(∗) then **[SET]**(8) to enter the Set mode.
②Push **[▲]** or **[▼]** to select the operating mode item. (W/n)
③Rotate **[VOL]** to set the operating mode to FM or FM-N.

FM mode

FM-N mode

④Push **[# ENT]** to exit the Set mode.

■ Setting a tuning step

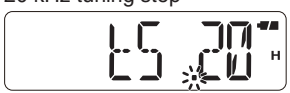
The transceiver has 8 tuning step options;

• 5 kHz • 10 kHz • 12.5 kHz • 15 kHz • 20 kHz
• 25 kHz • 30 kHz • 50 kHz

The tuning step can be selected in the Set mode.

①Push **[FUNC]**(∗), and then **[SET]**(8) to enter the Set mode.
②Push **[▲]** or **[▼]** to select the tuning step item. (tS)
③Rotate **[VOL]** to select the desired tuning step.
④Push **[# ENT]** to exit the Set mode.

20 kHz tuning step



■ Setting a frequency

◇ Using [▲] or [▼]

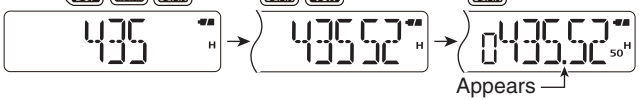
①Push **[VFO/MR/CALL]** one or more times to select the VFO mode.
②Push **[▲]** or **[▼]** to select the desired frequency.
• The frequency changes in the preset tuning steps. See the previous topic to set the tuning step.

◇ Using the keypad

①Push **[VFO/MR/CALL]** one or more times to select the VFO mode.
②To enter the desired frequency, enter 6 digits, starting from the 100 MHz digit.
• Entering one to five digits, and then pushing **[# ENT],** also sets the frequency.
• If a frequency outside the frequency range is entered, the previously displayed frequency is automatically recalled.

• Example 1— entering 435.525 MHz

Push [4 DUP] [3 TSCAN] [5 SCAN] → [5 SCAN] [2 VOX] → [5 SCAN]



• Example 2— entering 434.800 MHz

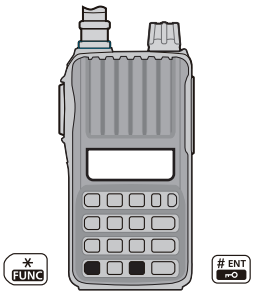
Push [4 DUP] [3 TSCAN] [4 DUP] → [8 SET] → [# ENT]

■ Key lock function

To prevent accidental frequency changes, or unnecessary function access, use the Key Lock function.

Push **[FUNC]**(∗), and then hold down **[🔑]**(# ENT) for 1 second to turn the Key Lock function ON or OFF.

- " 🔑 " appears while the Key Lock function is activated.
- **[⏻]**, **[VOL]**, **[MONI]**, **[PTT]** and **[FUNC]**(∗) + **[🔑]**(# ENT) are still operable while the Key Lock function is ON.



Appears

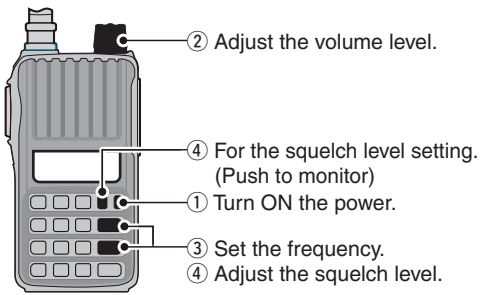
■ Receiving

Make sure the BP-264 or BP-265 battery pack is fully charged, or the BP-263 battery case has brand new alkaline batteries (pp. 11–14).

① Hold down **[⏻]** for 1 second to turn ON the power.
② Rotate **[VOL]** to set the desired volume level. (p. 15)
- The volume level is displayed on the LCD while adjusting.

③ Set the receive frequency. (p. 17)
④ Set the squelch level. (p. 15)
- While holding down **[MONI]**, push **[▲]** or **[▼]**.
- The squelch level is displayed on the LCD while setting.
- "SqL 1" is loose squelch (for weak signals) and "SqL10" is tight squelch (for strong signals). "SqL 0" is open squelch.
- Hold down **[MONI]** to open the squelch manually.

⑤ When a signal is received:
- The squelch is opened and the audio is heard.
- The signal icons show the relative signal strength level.



■ Transmitting

CAUTION: Transmitting without an antenna will damage the transceiver.

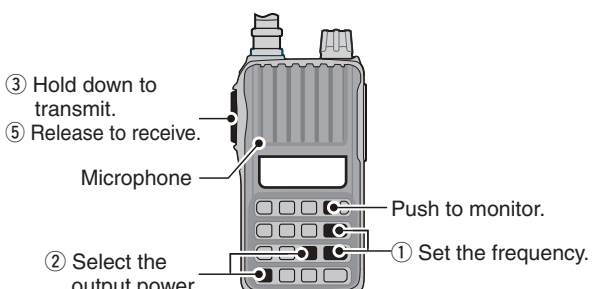
NOTE: To prevent interference, hold down **[MONI]** to listen on the frequency before transmitting.

① Set the operating frequency. (p. 17)
② Push **[FUNC]**(∗), and then push **[H/M/L]**(9) to set the output power to High (4 W), Mid (2 W) or Low (0.5 W).
- "H," "M," or "L" appears, depending on to the selected output power.

③ Hold down **[PTT]** to transmit.
- "TX" appears while transmitting.
- The signal icons show the output power level.

④ Speak into the microphone using your normal voice level.
- DO NOT hold the transceiver too close to your mouth or speak too loudly. This may distort your speech.

⑤ Release **[PTT]** to return to receive.

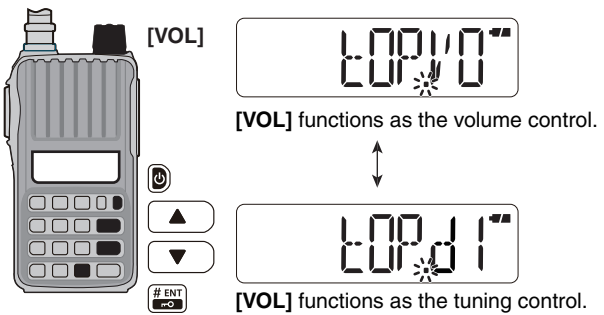


⚠ **WARNING!** When using the BP-263 battery case, frequent or continuous transmissions can cause the batteries to overheat, and may cause a burn. To prevent this, the default time-out timer is set to 5 minutes (p. 45). Be careful when the time-out timer function is turned OFF or set to a long time period, and transmission is made for long periods.
- We recommend using the Mid or Low power setting.

■ [VOL] function assignment

[VOL] can be used as a tuning control instead of **[▲]** and **[▼]**, to suit your preference. However, when **[VOL]** functions as a tuning control, **[▲]** and **[▼]** function as volume controls.

①While holding down both **[▲]** and **[▼]**, turn ON the power to enter the Initial Set mode.
②Push **[▲]** or **[▼]** to select the dial assignment item. (tOP)
③Rotate **[VOL]** to select an option.
④Push **[# ENT]** to exit the Initial Set mode.

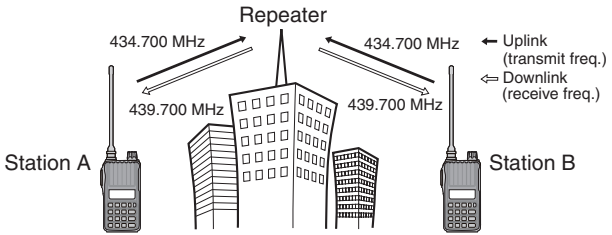


[VOL] and **[▲]/[▼]** function as described below, depending on the selected option.

Option	[VOL]	[▲]/[▼]
tOP.VO	Volume control	Tuning controls
tOP.dI	Tuning control	Volume controls

■ Repeater operation

When using a repeater, the transmit frequency is shifted from the receive frequency by the frequency offset (p. 22). This is called duplex operation. It is convenient to program repeater information into memory channels (p. 26).

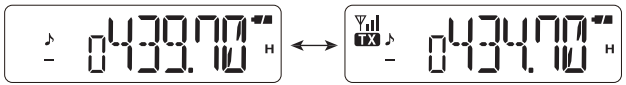


① Set the receive frequency (the repeater output frequency).
② Push **[FUNC]**(∗), and then **[DUP]**(4) one or more times to set the shift direction of the transmit frequency. ("–" or "+"; see page 22 for details.)
③ If desired, push **[FUNC]**(∗) and then **[TONE]**(1) one or more times to activate the subaudible tone encoder.
- "♪" appears.
- Select the desired subaudible tone frequency. (p. 23)

④ Hold down **[PTT]** to transmit.
- The displayed frequency automatically changes to the transmit frequency (repeater input frequency).
- If "OFF" appears, check the frequency offset and shift direction (p. 22).

⑤ Release **[PTT]** to receive.

While receiving / While transmitting



⑥ Hold down **[MONI]** to check whether the other station's transmit signal can be directly received or not.
- When the other station's signal can be directly received, move to a non-repeater frequency to use simplex. (duplex OFF)

■ Duplex operation

◇ Setting the frequency offset

①Push **[FUNC]**(∗), and then **[SET]**(8) to enter the Set mode.
②Push **[▲]** or **[▼]** to select the offset item.
• "±" blinks, and the current frequency offset appears.
③Rotate **[VOL]** to select the frequency offset.
• The offset is selected in the same step as the frequency tuning step.
• The unit of the frequency offset is "MHz."

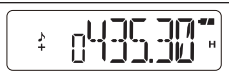
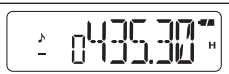
5.0 MHz offset

④Push **[# ENT]** to exit the Set mode.

◇ Setting the duplex direction

Push **[FUNC]**(∗), and then **[DUP]**(4) to select "–" (negative offset) or "+" (positive offset).
• "–" or "+" indicates the transmit frequency is shifted up (+) or down (–) from the receive frequency.
• A blinking "–" or "+" indicates the Reverse Duplex function is ON, as described to the right.

• Example— When the frequency offset is 5.0 MHz

Duplex	While receiving	While transmitting
+ (up)		
– (down)		

◇ Reverse Duplex function

When the Reverse Duplex function is ON, the receive and transmit frequencies are reversed. The function can be turned ON in the Set mode.

①Push **[FUNC]**(∗), and then **[SET]**(8) to enter the Set mode.
②Push **[▲]** or **[▼]** to select the Reverse Duplex function item (REV).
③Rotate **[VOL]** to turn the function ON or OFF.
④Push **[# ENT]** to exit the Set mode.

The receive and transmit frequencies are shown in the table below, with the following configurations:

Input freq. : 435.300 MHz
Direction : – (down)
Offset : 5.0 MHz

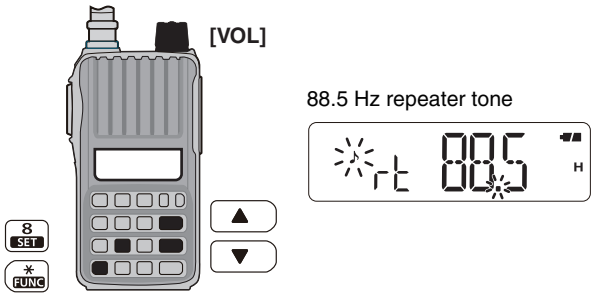
Reversed	RX freq.	TX freq.
OFF	435.300 MHz	430.300 MHz
ON	430.300 MHz	435.300 MHz

• "–" or "+" blinks when the Reverse Duplex function is ON.

■ Subaudible tones

To be accessed, some repeaters require subaudible tones. Subaudible tones are superimposed over your normal signal, and must be set first.

①Push **[FUNC]**(∗) then **[SET]**(8) to enter the Set mode.
②Push **[▲]** or **[▼]** to select the repeater tone item. (rt)
③Rotate **[VOL]** to select the desired subaudible tone.



④Push **[# ENT]** to exit the Set mode.

• Available subaudible tone frequencies (unit: Hz)

67.0	79.7	94.8	110.9	131.8	156.7	171.3	186.2	203.5	229.1
69.3	82.5	97.4	114.8	136.5	159.8	173.8	189.9	206.5	233.6
71.9	85.4	100.0	118.8	141.3	162.2	177.3	192.8	210.7	241.8
74.4	88.5	103.5	123.0	146.2	165.5	179.9	196.6	218.1	250.3
77.0	91.5	107.2	127.3	151.4	167.9	183.5	199.5	225.7	254.1

◇ Tone information

To be accessed, some repeaters require a different tone system.

DTMF TONES
While pushing **[PTT]**, push the desired DTMF keys, **[0]** to **[9]**, [MONI] for A, [▲] for B, [▼] for C, [VFO/MR/CALL] for D, [∗] for E, and [# ENT] for F, to transmit their assigned DTMF codes.
• The transceiver has 16 DTMF memory channels (p. 36).

1750 Hz TONE
To access some European repeaters, the transceiver must transmit a 1750 Hz tone burst.
While pushing **[PTT]**, hold down either the **[▲]** or **[▼]** for 1 or 2 seconds. See page 37 for details.

DTCS CODES
Push **[FUNC]**(*), and then **[TONE]**(1) one or more times to activate the DTCS encoder, and then push **[PTT]**.
• "D" and "♪" appear.
• The specified DTCS code is superimposed over your transmitted signal.
• See page 33 for DTCS code setting details.

✔ CONVENIENT!
Tone Scan function:
If you don't know the subaudible tone used for a repeater, the tone scan is convenient for detecting the tone frequency.

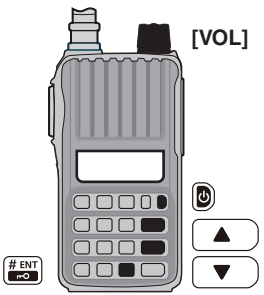
Push **[FUNC]**(∗), and then **[T.SCAN]**(3) to start a tone scan.
• When the required tone frequency is detected, the scan pauses, and the tone frequency is temporarily set.
• See page 35 for details of the tone scan function.

■ Lockout function

The Lockout function helps prevent interference to other stations by inhibiting transmitting when the channel is busy.
The function can be set in the Initial Set mode.

①While holding down **[▲]** and **[▼]**, turn ON the power to enter the Initial Set mode.
②Push **[▲]** or **[▼]** to select the lockout item. (RLO)
③Rotate **[VOL]** to set the lockout option to OFF, Repeater Lockout, or Busy Lockout.
- "RLO.OF" : Allows transmitting, even if signals are received.
- "RLO.RP" : The Repeater Lockout function inhibits transmitting when the channel is busy, except while receiving a signal that includes a matched subaudible tone.
- "RLO.bU" : The Busy Lockout function inhibits transmitting while receiving a signal.

④Push **[# ENT]** to exit the Initial Set mode.



The repeater lockout function is ON.

■ General description

The transceiver has 207 memory channels, including 6 scan edge memory channels (3 pairs), and 1 Call channel, for storage of often-used frequencies.

◇ Memory channel contents

The following information can be programmed into a memory channel:

- Operating frequency (p. 17)
- Operating mode (p. 17)
- Duplex direction (+ or –) with frequency offset (p. 22)
- Reverse Duplex function ON/OFF (p. 41)
- Subaudible tone encoder (p. 21), tone squelch or DTCS squelch ON/OFF (p. 34)
- Subaudible tone frequency (p. 23), tone squelch frequency or DTCS code with polarity (pp. 33, 34)
- Skip setting (p. 31)
- Tuning step (p. 17)
- Output power (p. 19)
- TX permission (p. 42)

■ Selecting a memory channel

◇ Using [▲] or [▼]

①Push **[VFO/MR/CALL]** one or more times to select the memory mode.
- "MR" appears.

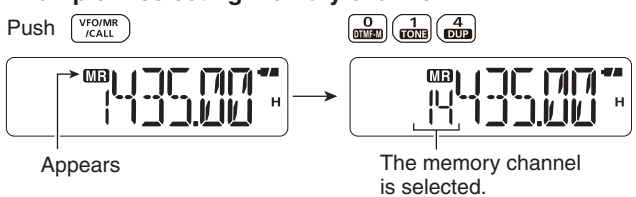
②Push **[▲]** or **[▼]** to select a desired channel.
- Only programmed channels are selectable.

◇ Using the keypad

①Push **[VFO/MR/CALL]** one or more times to select the memory mode.
- "MR" appears.

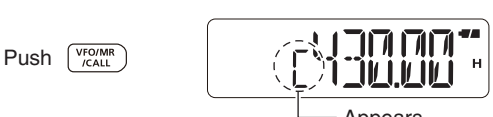
②To select a desired channel, enter the three digits of the channel number using the keypad.
- Blank channels are also selectable.
- Entering one or two digits, and then pushing **[# ENT]** also selects a memory channel.

• Example— selecting memory channel "14"



■ Selecting the Call channel

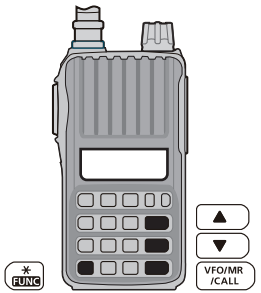
➥ Push **[VFO/MR/CALL]** one or more times to select the Call channel.
- "C" appears instead of the memory channel number.



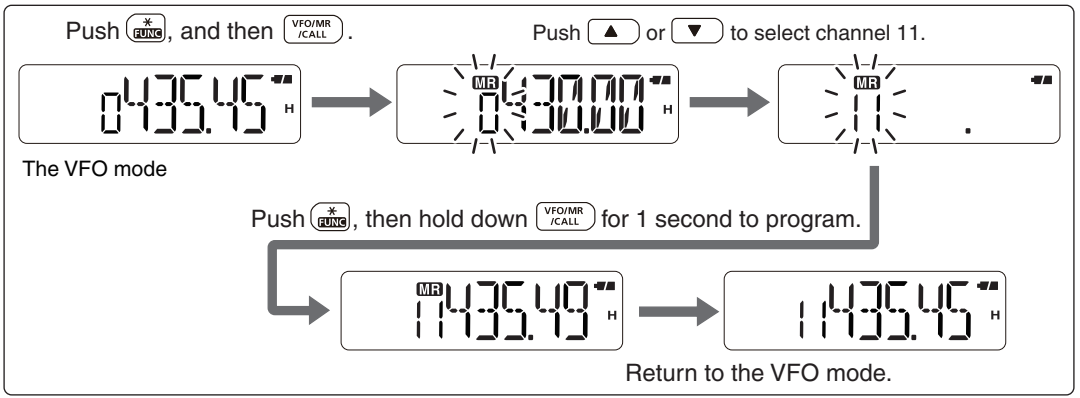
■ Programming channels

①Push **[VFO/MR/CALL]** one or more times to select the VFO mode.
②Set a desired frequency. (p. 17)
If desired, set other data (e.g. frequency offset, duplex direction, tone squelch, etc.).
③Push **[FUNC]**(∗), and then **[VFO/MR/CALL]**.
• "MR" and the memory channel number blink.
• Select the Call channel mode to program the Call channel.
④Push **[▲]** or **[▼]** to select a desired channel.
• Select "1A/1B" to "3A/3B" to program a scan edge channel.
⑤Push **[FUNC]**(∗), and then hold down **[VFO/MR/CALL]** for 1 second to store the entry.
• Three beeps sound.
• If you continue to hold down **[VFO/MR/CALL]** for 1 second after programming, the memory channel number automatically increases.

NOTE: To cancel programming, push **[VFO/MR/CALL]** before storing the entry in step ⑤.



• Example— programming 435.450 MHz into memory channel 11 (a blank channel).



■ Copying memory/Call contents

This function copies a memory channel's contents to the VFO (or another memory/Call channel). This is useful when searching for signals around a memory channel frequency and for recalling the frequency offset, subaudible tone frequency etc.

◇ Memory/Call⇨VFO

①Select a memory (Call) channel to be copied.
Push **[VFO/MR/CALL]** one or more times to select the memory or Call channel mode, and then push **[▲]** or **[▼]** to select a desired channel.

②Push **[FUNC]**(∗), and then hold down **[VFO/MR/CALL]** for 1 second to copy the selected memory contents to the VFO mode.

• The VFO mode is automatically selected.

◇ Memory/Call⇨memory/Call

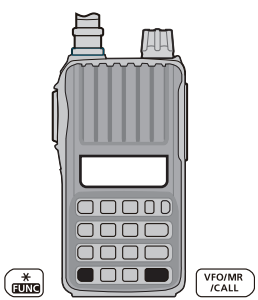
①Select a memory or Call channel to be copied.
Push **[VFO/MR/CALL]** one or more times to select the memory or Call channel mode, and then push **[▲]** or **[▼]** to select a desired channel.

②Push **[FUNC]**(∗), and then push **[VFO/MR/CALL]**.

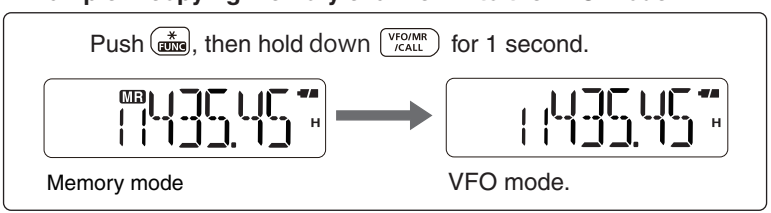
• "MR" and "--" blink.
• Do not hold **[VFO/MR/CALL]** for more than 1 second, otherwise the memory contents will be copied to the VFO mode.

③Push **[▲]** or **[▼]** to select the target memory or Call channel.

④Push **[FUNC]**(∗), and then hold down **[VFO/MR/CALL]** for 1 second to copy.



• Example— copying memory channel 11 to the VFO mode.

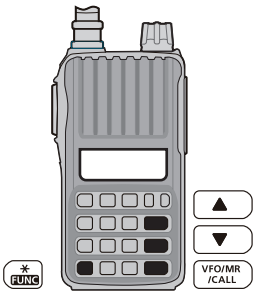


■ Clearing memory contents

The contents of programmed memories can be cleared (erased).

①Push **[FUNC]**(∗), and then push **[VFO/MR/CALL]**.
②Push **[▲]** or **[▼]** to select a channel to be cleared.
③Perform the following operation within 1.5 seconds, otherwise the transceiver returns to the memory mode without clearing memory.
➥ Push **[FUNC]**(∗), and then momentarily push **[VFO/MR/CALL]**.
➥ Push **[FUNC]**(∗), and then hold down **[VFO/MR/CALL]** for 1 second.
• The channel contents are cleared.
④Push **[VFO/MR/CALL]** to return to the previous mode.

NOTE: Be careful!— the contents of cleared memories CANNOT be recalled.



■ Display type

During memory mode operation, the transceiver has three display types to suit your operating style.
Set the display type in the Initial Set mode. (p. 46)

"Frequency display"

Displays the programmed frequency.

"Channel number display"

Displays the memory channel number. Only programmed channels are displayed, and modes other than the memory mode cannot be selected.

• When the channel number display type is selected, only the following functions can be performed.
- Scan function (p. 31)
- Out put power setting (p. 19)
- DTMF memory function (p. 36)
- Key lock function (p. 18)
- The scan pause timer setting, the function key timer setting, the LCD backlight setting, the VOX-related settings, the microphone gain setting, and the DTMF TX key setting in the Set mode.

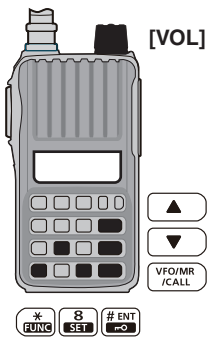
"Channel name display"

Displays the channel name you have assigned. Only programmed channels are displayed.

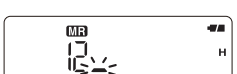
• If no channel name is programmed, the programmed frequency will be displayed.
• Push **[MONI]** to display the operating frequency.

■ Programming a channel name

Each memory channel can be programmed with an alphanumeric name for easy recognition and can be displayed independently by channel. Up to five characters can be used for a channel name.



①While holding down **[▲]** and **[▼]**, turn ON the power to enter the Initial Set mode.
②Push **[▲]** or **[▼]** to select the channel name display item. (dSP)
③Rotate **[VOL]** to select the channel name display type, "dSP.nm."
④Push **[# ENT]** to exit the Initial Set mode.
⑤Push **[VFO/MR/CALL]** one or more times to select the memory mode.
• Select the Call channel to program a Call channel name.
⑥Push **[▲]** or **[▼]** to select a desired channel.
⑦Push **[FUNC]**(∗), and then **[SET]**(8) to enter the channel name programming mode.
• A cursor blinks for the first character.



⑧Rotate [VOL] to select a desired character.
• The selected character blinks.
• Push **[▲]** to move the cursor right, push **[▼]** to move the cursor left.

⑨Repeat step ⑧ until the desired channel name is programmed.
⑩Push **[# ENT]** to exit the programming mode.

◇ Usable characters

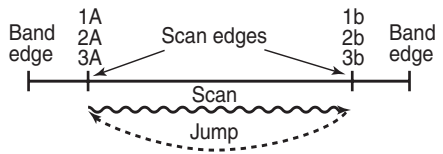
A (A)	b (b)	C (C)	d (d)	E (E)	F (F)	G (G)	H (H)	I (I)	J (J)	k (k)	L (L)	m (m)
n (n)	O (O)	P (P)	q (q)	R (R)	S (S)	t (t)	U (U)	V (V)	W (W)	X (X)	y (y)	Z (Z)
1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	0 (0)			
+ (+)	- (-)	= (=)	∗ (*)	/ (/)	((()	) ())	: (:)	(Space)				

7 SCAN OPERATION

■ Scan types

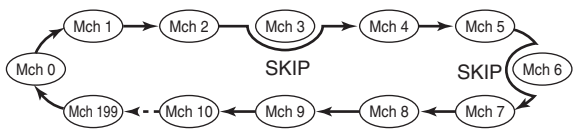
A scan automatically searches for signals, and makes it easier to locate new stations for contact or listening purposes.

PROGRAMMED SCAN (See the topic to the right)



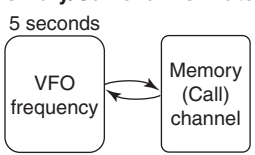
The Programmed scan P1 scans between 1A and 1b, P2 scans between 2A and 2b, and P3 scans between 3A and 3b frequencies.

MEMORY (SKIP) SCAN (p. 31)

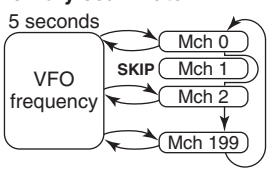


PRIORITY WATCH (p. 32)

• Memory/Call channel watch



• Memory scan watch



■ Programmed scan

A programmed scan repeatedly scans between two user programmed frequencies (memory channels “1A–3A” and “1b–3b”), or scans between upper and lower band edges. This scan is useful for checking for signals within a specific frequency range, such as repeater output frequencies, etc.

① Push **[VFO/MR/CALL]** one or more times to select the VFO mode.

② Push **[FUNC]**(∗), and then **[SCAN]**(5) to start a scan.

③ Push **[FUNC]**(∗), and then **[SET]**(8) one or more times to set the desired scan type to “P1,” “P2,” “P3” or “AL.”

- “AL” for full scan, “P1,” “P2” and “P3” for programmed scan between the programmed scan edge channels “1A”–“1b,” “2A”–“2b” and “3A”–“3b.”
- To change the scan direction, push **[▲]** or **[▼]**.

④ To cancel the scan, push any key except **[⏻]**, **[▲]/[▼]**, [**MONI**] or **[FUNC]**(∗).

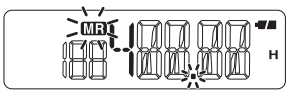
NOTE: Scan edge channels, 1A–3A/1b–3b, must first be programmed. Program them in the same manner as regular memory channels. (p. 26)
If identical frequencies are programmed into the scan edge channels, the programmed scan will not function.

■ Memory Scan

A memory scan repeatedly scans memory channels, except those set as Skip channels.

①Push **[VFO/MR/CALL]** one or more times to select the memory mode.
- "MR" appears.

②Push **[FUNC]**(∗), then **[SCAN]**(5) to start the scan.
- To change the scan direction, push **[▲]** or **[▼]**.



③To cancel the scan, push any key except **[⏻]**, **[▲]/[▼]**, [**MONI**] or **[FUNC]**(∗).

■ Setting Skip channels

In order to speed up the scan rate, you can set the memory channels you don't want to scan as Skip channels.

①Select a memory channel to be skipped.
Push **[VFO/MR/CALL]** one or more times to select the memory mode, and then push **[▲]** or **[▼]** to select a desired channel.

②Push **[FUNC]**(∗), and then **[SKIP]**(6) to turn the skip setting ON or OFF.
- "SKIP" appears when the channel is set as a Skip channel.

■ Scan resume setting

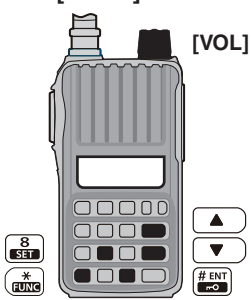
When a signal is received during a scan, the scan resume setting determines what action the transceiver takes. The transceiver has two scan resume settings, as described below. Select the one which best suits your needs in the Set mode.

①Push **[FUNC]**(∗), and then **[SET]**(8) to enter the Set mode.
②Push **[▲]** or **[▼]** to select the scan pause timer item (SCt, or SCP).
③Rotate **[VOL]** to select a desired scan pause option.

• Pause scan
The scan pauses until the received signal disappears, and then resumes after 2 seconds.

• Timer scan
The scan pauses for the selected 5 seconds, 10 seconds or 15 seconds, and then resumes.

④Push **[# ENT]** to exit the Set mode.



Pause scan

Timer scan (15 second)

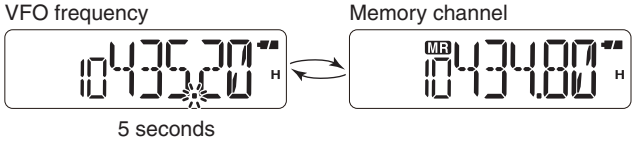
■ Priority watch

A priority watch checks for signals on “priority channels” while operating on a VFO frequency.

◇ Memory or Call channel watch

While operating on a VFO frequency, the memory or Call channel watch checks for signals on the selected channel every 5 seconds.

①Select a desired memory channel or the Call channel.
②Push **[FUNC]**(∗), and then **[PRIO]**(7) to start the watch.
- The decimal point “.”, on the frequency readout blinks.
- When a signal is detected on the channel, the watch resumes according to the scan resume setting. (p. 31)

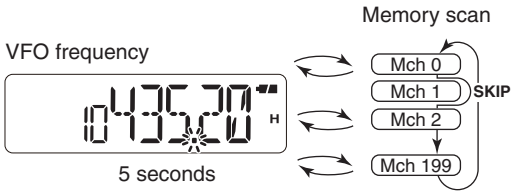


③To cancel the watch, push any key except **[⏻]**, **[▲]/[▼]**, **[MONI]**, **[FUNC]**(∗), or **[PTT]**.

◇ Memory scan watch

While operating on a VFO frequency, a memory scan watch checks for signals on each memory channel in sequence, every 5 seconds.

①Push **[VFO/MR/CALL]** one or more times to select the memory mode.
②Push **[FUNC]**(∗), and then **[SCAN]**(5) to start a memory scan.
③Push **[FUNC]**(∗), and then **[PRIO]**(7) to start the watch.
- The VFO mode is selected, and the decimal point “.”, on the frequency readout blinks.
- When a signal is detected on a channel, the watch resumes according to the scan resume setting. (p. 31)



④To cancel the watch, push any key except **[⏻]**, **[▲]/[▼]**, **[MONI]**, **[FUNC]**(∗), or **[PTT]**.

■ Tone/DTCS squelch and pocket beep

◇ Tone squelch and DTCS squelch

The tone squelch (CTCSS) or DTCS squelch opens only when receiving a signal that includes a matched CTCSS tone or DTCS code, respectively. You can silently wait for calls using the same tone or code. Separate tone frequencies can be set for repeater and tone squelch/pocket beep operation.

◇ Pocket beep

The pocket beep function uses subaudible tones or DTCS codes for calling, and can be used as a “common pager” to inform you that someone has called while you were away from the transceiver.

• Recommended CTCSS tones (unit: Hz)

67.0	79.7	94.8	110.9	131.8	156.7	186.2	225.7
69.3	82.5	97.4	114.8	136.5	162.2	192.8	233.6
71.9	85.4	100.0	118.8	141.3	167.9	203.5	241.8
74.4	88.5	103.5	123.0	146.2	173.8	210.7	250.3
77.0	91.5	107.2	127.3	151.4	179.9	218.1	

• Recommended DTCS code

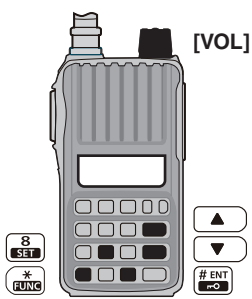
023	051	114	143	174	251	315	371	445	532	631	723
025	054	115	152	205	261	331	411	464	546	632	731
026	065	116	155	223	263	343	412	465	565	654	732
031	071	125	156	226	265	346	413	466	606	662	734
032	072	131	162	243	271	351	423	503	612	664	743
043	073	132	165	244	306	364	431	506	624	703	754
047	074	134	172	245	311	365	432	516	627	712	

◇ Setting CTCSS tone or DTCS code

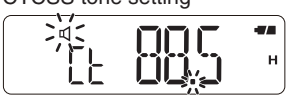
①Push **[FUNC]**(∗), and then **[SET]**(8) to enter the Set mode.
②Push **[▲]** or **[▼]** to select the CTCSS tone item (Ct) or the DTCS code item (dt).
- “🔊” blinks when selecting the CTCSS tone item, and “D” blinks when selecting the DTCS code item.

③Rotate **[VOL]** to select a desired CTCSS tone or DTCS code.
- The recommended CTCSS tone or DTCS code are shown to the left.

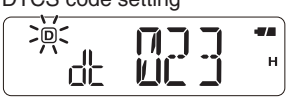
④Push **[ENT]** to exit the Set mode.



CTCSS tone setting



DTCS code setting



◇ Setting DTCS polarity

For DTCS operation, the polarity setting is also configurable, as well as the code setting. If the polarity is different, the DTCS squelch will never open, even when receiving a signal that includes a matched DTCS code.

①Push **[FUNC]**(∗), and then **[SET]**(8) to enter the Set mode.
②Push **[▲]** or **[▼]** to select the DTCS polarity item (dtP).
③Rotate **[VOL]** to set the desired polarity setting to "dtP.nn" (normal), "dtP.nR" (TX: normal, RX: reverse), "dtP.Rn" (TX: reverse, RX: normal) or "dtP.RR" (reverse).


TX/RX: Normal polarity


TX: Normal, RX: Reverse


TX: Reverse, RX: Normal


TX/RX: Reverse polarity

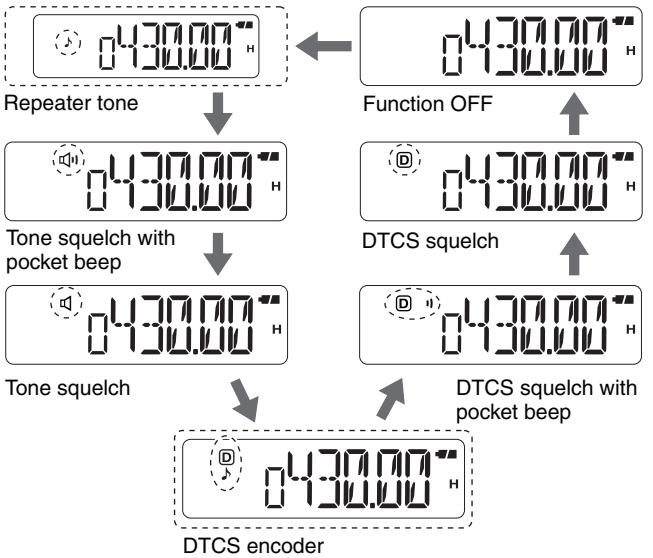
④Push **[# ENT]** to exit the Set mode.

NOTE: When you use the DTCS encoder, the DTCS polarity setting affects only transmitting.

◇ Operation

①Set a desired operating frequency, and then a CTCSS tone or a DTCS code.
②Push **[FUNC]**(∗), and then **[TONE]**(1).
• Repeat step ② one or more times to activate a desired tone function.

: Push [FUNC], and then [TONE].



③Operate the transceiver in the normal way.

④ When receiving a signal that includes a matched tone or code, the squelch opens and the signal can be heard.
- When the pocket beep function is activated, beep tones sound and "ıı" blinks. To stop the beeps and blinking, push any key.
- When the received signal's tone/code does not match, the squelch does not open. However, the signal icons show the signal strength.
- To open the squelch manually, hold down **[MONI]**.

⑤ Push **[PTT]** to reply.

✔ ***For your information***

Squelch burst:

While using the tone squelch, noise may be heard just when the received signal disappears.

To eliminate the noise, the IC-U80/IC-U80E has the Squelch Burst function.

See page 49 for details.

■ Tone scan

By monitoring a signal from a repeater, pocket beep or squelch function operation, you can determine the subaudible tone required to access the repeater or open the squelch.

① Set a frequency to be checked for a tone frequency or DTCS code.

② Push **[FUNC]**(∗), and then **[TONE]**(1).
- Repeat step ② one or more times to activate a desired tone function.
- The tone scan can be made even if the tone function is not selected.

③ Push **[FUNC]**(∗), and then **[T.SCAN]**(3) to start a tone scan.
- To change the scan direction, push **[▲]** or **[▼]**.

④ When a tone frequency or DTCS code is matched, the squelch opens and the tone frequency or code is temporarily programmed into the selected mode.
- The decoded CTCSS tone frequency or DTCS code is used according to the selected tone function type in step ②.
  - No indication : Cannot be used for operation.
  - "♪" : Repeater tone encoder
  - "ıı" : CTCSS tone encoder/decoder
  - "D" : DTCS code encoder/decoder
  - "♪" and "D" : DTCS code encoder

⑤ To cancel the scan, push any key except **[⏻]**, **[▲]/[▼]**, **[MONI]** or **[FUNC]**(∗).

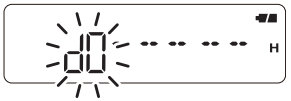
9 DTMF MEMORY

■ Programming a DTMF code sequence

The DTMF codes are used for autopatching, accessing repeaters, controlling other equipment, and other operations. The transceiver has 16 DTMF memory channels (d0–d9, dA, db, dC, dd, dE, dF) for storage of often-used DTMF code sequence of up to 24 digits.

① Push **[FUNC]**(∗), and then **[DTMF.M]**(0) to enter the DTMF memory mode.

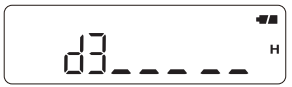
Push [FUNC], and then [0 DTMF.M].



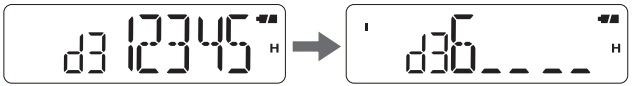
② Push **[▲]** or **[▼]** to select a desired DTMF memory channel.
- If programmed, the previously programmed DTMF code is displayed.

③ Push **[FUNC]**(∗), and then hold down **[DTMF.M]**(0) for 1 second to enter the programming mode.
- "_ _ _ _ _" appears.
- Programmed memory will be cleared by this operation.

Push [FUNC], and then hold down [0 DTMF.M] for 1 second.



④ Push the keypad keys to input a desired DTMF code sequence of up to 24 digits.
- **[0]**–**[9]** inputs "0"–"9," **[MONI]** inputs "A," **[▲]** inputs "B," **[▼]** inputs "C," **[VFO/MR/CALL]** inputs "D," **[∗]** inputs "∗ (E)" and **[# ENT]** inputs "# (F)."
- If a digit is mistakenly input, push **[PTT]** momentarily, then repeat from step ③.



The next page appears when the 6th digit has been input.

⑤ Repeat step ④ until the desired code is input.

⑥ Push **[PTT]** to store the DTMF code sequence and exit the programming mode.
- After the 24th digit is input, the transceiver automatically stores the code sequence and returns to step ②.

⑦ Push **[VFO/MR/CALL]** to exit the DTMF memory.

• Programming mode indication

The programming mode consists of 5 pages.

Page	Digits	Indication
1st	1st to 5th	No indication.
2nd	6th to 10th	" ▮ " appears.
3rd	11th to 15th	" ▮▮ " appears.
4th	16th to 20th	" ▮▮▮ " appears.
5th	21st to 24th	" ▮▮▮ " blinks.

■ Transmitting a DTMF code sequence

The transceiver has three methods of transmitting a DTMF code sequence. Select a desired option in the Set mode.

① Push **[FUNC]**(∗), and then **[SET]**(8) to enter the Set mode.
② Push **[▲]** or **[▼]** to select the DTMF TX key item (dmt).
③ Rotate **[VOL]** to select a desired option.

- dmt.k : Transmits the appropriate DTMF code assigned to a pushed key.
- dmt.m : Transmits the programmed DTMF code sequence in the DTMF memory channel assigned to a pushed key.
- dmt.t : No DTMF code can be transmitted. However, while holding down **[PTT]**, pushing either the **[▲]** or **[▼]** transmits a 1750 Hz tone burst signal.

④ Push **[# ENT]** to exit the Set mode.

◇ Manual DTMF code transmission

First, set the DTMF TX key to “dmt.k” in the Set mode.

➥ While holding down **[PTT]**, push the desired keys to transmit a DTMF code sequence manually.
- Push **[0]–[9]** for “0”–“9,” **[MONI]** for “A,” **[▲]** for “B,” **[▼]** for “C,” **[VFO/MR/CALL]** for “D,” **[∗]** for “∗,” and **[# ENT]** for “#.”

◇ Using a DTMF memory channel

First, set the DTMF TX key to “dmt.m” in the Set mode.

➥ While holding down **[PTT]**, push one of the keys to transmit the programmed DTMF code sequence in the DTMF memory.
- Pushing **[0]** to **[9]**, **[MONI]**(A), **[▲]**(B), **[▼]**(C), **[VFO/MR/CALL]** (D), **[∗]**(E), or **[# ENT]**(F) transmits a DTMF code channel (d0–d9, dA, dB, dC, dD, dE or dF) respectively.

◇ 1750 Hz tone

To access some European repeaters, the transceiver must transmit a 1750 Hz tone burst signal.
- This tone can be used as a ‘Call signal’ in countries out of Europe.

First, set the DTMF TX key to “dmt.t” in the Set mode.

➥ While holding down **[PTT]**, hold down either the **[▲]** or **[▼]** for 1 or 2 seconds to transmit a 1750 Hz tone burst signal.
- The tone is transmitted until you release the key.

■ Confirming a DTMF memory

A DTMF memory can be confirmed with visual display on the LCD and hearing the tones.

①Push **[FUNC]**(＊), and then **[DTMF.M]**(0) to enter the DTMF memory mode.
②Push **[▲]** or **[▼]** to select a desired DTMF memory channel.
③Push **[MONI]** to see and hear the DTMF memory contents.
- The programmed DTMF code sequence is displayed and the code can be heard.
- After the last tone, the transceiver exits the DTMF memory mode.

The programmed DTMF code sequence sounds and is displayed.

Exits the DTMF memory mode.

■ Setting DTMF transfer speed

When slow transmission speeds are required with DTMF memory transmission (as for some repeaters), the transceiver's transmission rate can be adjusted in the Initial Set mode.

①While holding down **[▲]** and **[▼]**, turn ON the power to enter the Initial Set mode.
②Push **[▲]** or **[▼]** to select the DTMF speed item. (dtd)
③Rotate **[VOL]** to select a desired speed.
- dtd. 1 : 100 milliseconds interval; 5.0 cps rate
- dtd. 2 : 200 milliseconds interval; 2.5 cps rate
- dtd. 3 : 300 milliseconds interval; 1.6 cps rate
- dtd. 5 : 500 milliseconds interval; 1.0 cps rate

(cps=characters per second)

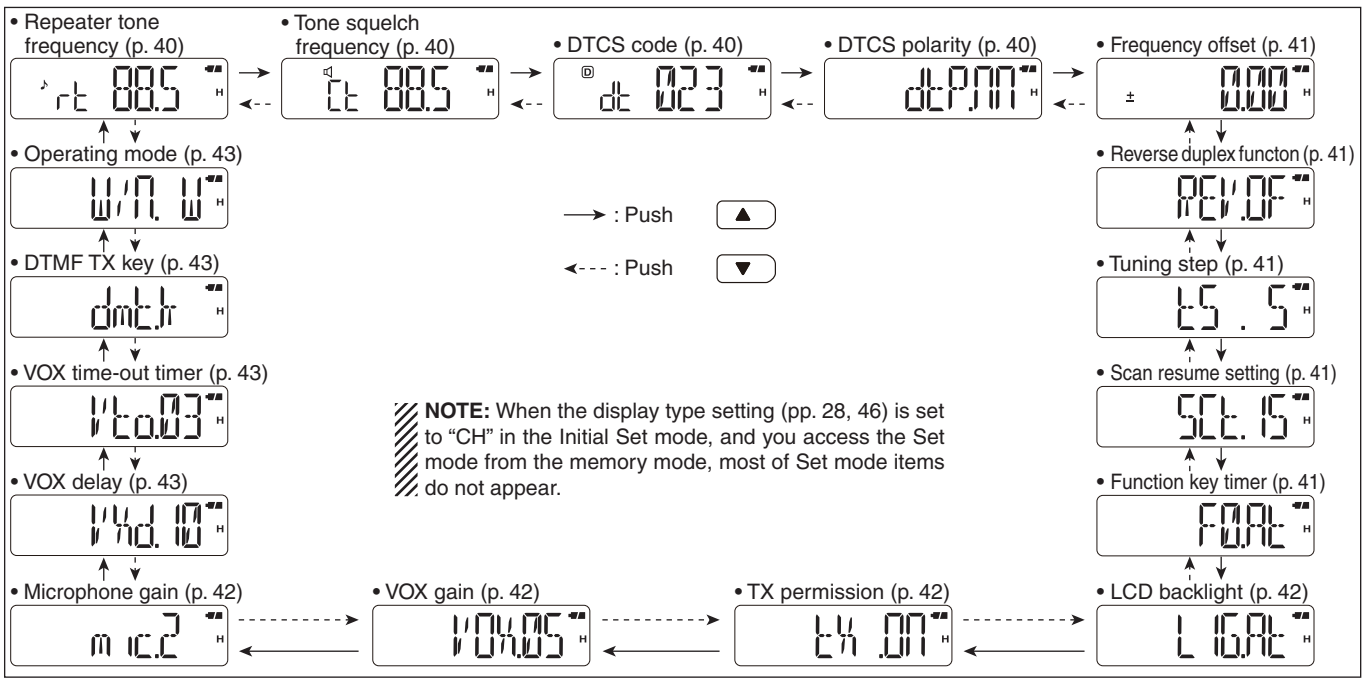
④ Push **[# ENT]** to exit the Initial Set mode.

■ Set mode programming

The Set mode is used to change the settings of the transceiver's functions.

◇ Set mode operation

①Push **[FUNC]**(∗), and then **[SET]**(8) to enter the Set mode.
②Push **[▲]** or **[▼]** to select the desired item.
③Rotate **[VOL]** to select the option or value.
④To exit the Set mode, push **[# ENT]**.



■ Set mode items

◇ Repeater tone frequency

Selects one of 50 subaudible tone frequencies used to access the repeaters.

• 67.0–254.1 Hz (default: 88.5 Hz)

◇ Tone squelch frequency

Selects one of tone frequencies for tone squelch or pocket beep operation.

• 67.0–254.1 Hz (default: 88.5 Hz)

• Usable subaudible tone frequencies (unit: Hz)

67.0	79.7	94.8	110.9	131.8	156.7	171.3	186.2	203.5	229.1
69.3	82.5	97.4	114.8	136.5	159.8	173.8	189.9	206.5	233.6
71.9	85.4	100.0	118.8	141.3	162.2	177.3	192.8	210.7	241.8
74.4	88.5	103.5	123.0	146.2	165.5	179.9	196.6	218.1	250.3
77.0	91.5	107.2	127.3	151.4	167.9	183.5	199.5	225.7	254.1

The transceiver has 50 tone frequencies, and consequently their spacing is narrow compared with units having 39 tones. Therefore, some tone frequencies may receive interference from adjacent tone frequencies.

◇ DTCS Code

Selects one of 104 DTCS (both encoder/decoder) codes.

• 023–754 (default: 023)

• Available DTCS codes

023	054	125	165	245	274	356	445	506	627	732
025	065	131	172	246	306	364	446	516	631	734
026	071	132	174	251	311	365	452	523	632	743
031	072	134	205	252	315	371	454	526	654	754
032	073	143	212	255	325	411	455	532	662	
036	074	145	223	261	331	412	462	546	664	
043	114	152	225	263	332	413	464	565	703	
047	115	155	226	265	343	423	465	606	712	
051	116	156	243	266	346	431	466	612	723	
053	122	162	244	271	351	432	503	624	731	

◇ DTCS Polarity

Sets the DTCS polarity to “dtP.nn” (normal), “dtP.nR” (TX: normal, RX: reverse), “dtP.Rn” (TX: reverse, RX: normal) or “dtP.RR” (reverse). (default: dtP.nn)

The DTCS code’s polarity for transmitting or receiving can be independently set by this item.

TX/RX: Normal polarity

TX/RX: Reverse polarity

◇ Frequency offset

Sets the frequency offset to between 0 and 20 MHz, for repeater operation.
The frequency offset means the difference between the transmit and receive frequencies.

(default: differs depending on the version)


◇ Reverse duplex function

Turns the Reverse Duplex function ON or OFF. (default: OFF)


◇ Tuning step

Selects the tuning step from 5, 10, 12.5, 15, 20, 25, 30 and 50 kHz. (default: differs, depending on the version)


◇ Scan resume setting

Sets the scan resume setting to SCt. 5, SCt. 10, SCt. 15, or SCP. 2.
When a signal is received during a scan, the scan pauses and then resumes according to the scan resume setting.

- SCt. 5/10/15 : The scan pauses for 5, 10 or 15 seconds, and then resumes. (default: SCt. 15)
- SCP.2 : The scan pauses until the received signal disappears, and then resumes after 2 seconds.


◇ Function key timer

Push **[FUNC]**(∗) to enter the Function mode, and then push a keypad key to activate its second function.
• During the Function mode, "F" is displayed on the LCD.

Set the time between when Function mode is entered, and how long it remains activated after you push the keypad key to activate its second function.

- F0.At : Exits the Function mode immediately after a key is pushed to activate its second function. (default)
- F1/2/3.At : The Function mode remains activated for the selected period after a key is pushed to activate its second function.
- F .m : The Function mode remains activated until **[FUNC]**(∗) is pushed again, even after a key is pushed to activate its second function.


◇ LCD backlight

Selects the LCD backlight function.

- LIG.OF : Turns OFF the backlight function.
- LIG.ON : Lights continuously while the transceiver is ON.
- LIG.At : Turns ON when an operation occurs, and turns OFF after 5 seconds. (default)

◇ TX permission

Selects whether or not to allow transmitting.

- tX .OF : Inhibits transmitting. (Receive only)
- tX .ON : Allows transmitting. (default)

◇ VOX gain

Sets the VOX gain to between 1 and 10. Higher values make the VOX function more sensitive to your voice.
To turn OFF the VOX function, select “VOX.OF.”

(default: VOX.05)

NOTE: Set the microphone gain before setting the VOX gain. See page 55 for details of the VOX function.

◇ Microphone gain

Sets the microphone gain to between 1 and 4 to suit your preference. Higher values make the microphone more sensitive to your voice. (default: mic.2)

NOTE: When using the VOX function, we recommend setting the microphone gain to 3. However, you can adjust it to suit your operating environment (including your headset performance).

◇ VOX delay

Sets the VOX Delay to “VXd.05” (0.5 seconds), “VXd.10” (1 second), “VXd.15” (1.5 seconds), “VXd.20” (2 seconds), “VXd.25” (2.5 seconds) or “VXd.30” (3 seconds).
The VOX Delay is the amount of time the transmitter stays ON after you stop speaking. (default: VXd.10)


◇ VOX time-out timer

Sets the VOX time-out timer to 1, 2, 3, 4, 5, 10 or 15 minutes to prevent accidental prolonged transmission for the VOX function.
To turn OFF the function, select “Vto.OF.” (default: Vto.03)


The VOX time-out timer must be set shorter than the time-out timer, otherwise this timer will not be activated.

◇ DTMF TX key

Selects the method to transmit a DTMF code sequence. While holding down **[PTT]**, push **[0]** to **[9]**, **[MONI]**(A), **[▲]** (B), **[▼]**(C), **[VFO/MR/CALL]**(D), **[∗]**(E), or **[# ENT]**(F).

- dmt.k : Transmits the appropriate DTMF code assigned to the key. (default)
- dmt.m : Transmits the programmed DTMF code sequence in the DTMF memory channel assigned to the key.
- dmt.t : No DTMF code can be transmitted. However, while holding down **[PTT]**, push either the **[▲]** or **[▲]** to transmit a 1750 Hz tone burst signal.


◇ Operating mode

Set the operating mode to FM or FM-N. The operating mode is determined by the width of the modulation of the radio signals. (default: W/n. W)


FM mode

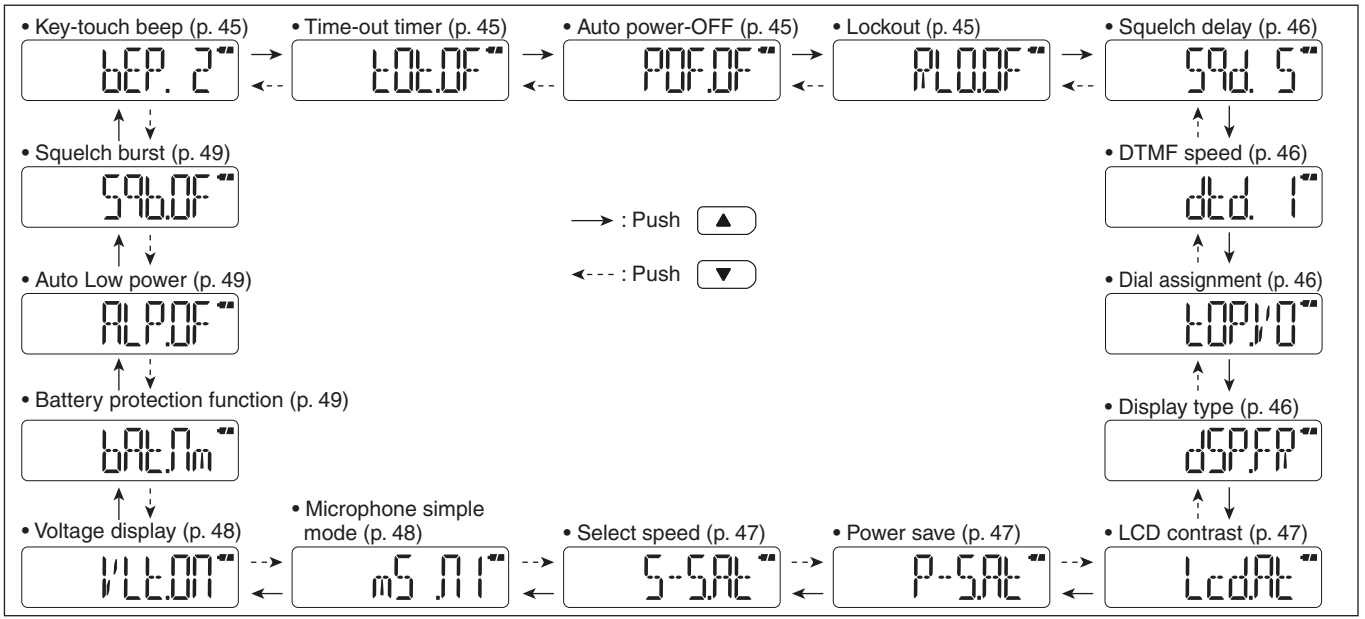
FM-N mode

■ Initial Set mode programming

The Initial Set mode can be accessed at power ON and allows you to set seldom-changed settings, to suit your preference and operating style.

◇ Initial Set mode operation

①While holding down **[▲]** and **[▼]**, turn the power ON to enter the Initial Set mode.
②Push **[▲]** or **[▼]** to select the desired item.
③Rotate **[VOL]** to select the option or value.
④To exit the Initial Set mode, push **[# ENT]**.



■ Initial Set mode items

◇ Key-touch beep

Sets the key-touch beep to level 1 to 3 or OFF.

• When changing the beep level, beeps sound at the level.

(default: bEP. 2)

◇ Time-out timer

To prevent accidental prolonged transmission, the transceiver has a time-out timer. This function cuts transmission OFF after 1 to 30 minutes of continuous transmission.

To turn OFF the function, select “tot.OF.” (default: tot. 5)

• tot.OF : Turns OFF the function.
• tot. 1 to 30 : If continuous transmission exceeds the selected period, the transmission will be cut off.

Approximately 10 seconds before the Time-out timer is activated, the transceiver emits a beep tone as a warning.

Be careful! When using the BP-263 battery case, the batteries will become hot if this Time-out timer function is turned OFF or set to a long time period, and transmission is made for long periods.

◇ Auto power-OFF

The transceiver can be set to beep and automatically turn OFF, when no key operation occurs during a specified period.

• POF.OF : Turns OFF the function. (default)
• POF.30/1H/2H : The transceiver is automatically turned OFF when no operation occurs during the selected period.

NOTE: The setting is maintained even after the transceiver is turned OFF by the Auto Power-OFF function. To cancel the function, select “POF.OF.”

◇ Lockout

Sets the lockout type to repeater, busy or OFF.

• RLO.OF : Turns OFF the function (default).
• RLO.RP : The Repeater Lockout function inhibits transmitting when the channel is busy, except while receiving a signal that includes a matched tone.
• RLO.bU : The Busy Lockout function inhibits transmitting while receiving a signal.

◇ Squelch delay

Sets the squelch delay to short or long. The delay prevents the squelch from repeatedly opening and closing while receiving the same signal.

- Sqd. S : Sets the squelch delay to short (default).
- Sqd. L : Sets the squelch delay to long.


◇ DTMF speed

Selects a desired DTMF transfer speed.

- dtd. 1 : 100 milliseconds interval; 5.0 cps rate (default)
- dtd. 2 : 200 milliseconds interval; 2.5 cps rate
- dtd. 3 : 300 milliseconds interval; 1.6 cps rate
- dtd. 5 : 500 milliseconds interval; 1.0 cps rate

(cps=characters per second)


◇ Dial assignment

Selects whether or not to use **[VOL]** as a tuning control instead of **[▲]** and **[▼]**. When **[VOL]** functions as a tuning control, **[▲]** and **[▼]** function as volume controls.

- tOP.VO : Audio volume control (default)
- tOP.dl : Tuning dial


[VOL] and **[▲]/[▼]** function as described below, depending on the option.

Option	[VOL]	[▲]/[▼]
tOP.VO	Volume control	Tuning control
tOP.dl	Tuning control	Volume control

◇ Display type

Selects the display type for memory mode operation.

- dSP.FR : Displays the programmed frequency. (default)
- dSP.CH : Displays the memory channel number. Operable functions, configurable items in the Set mode, and selectable modes will be restricted.
- dSP.nm : Displays the channel name. If no memory name is programmed, the programmed frequency will be displayed.


◇ LCD contrast

Selects the LCD contrast.

- Lcd.LO : Sets the contrast to low.
- Lcd.At : Sets the contrast to high. However, if the transceiver is exposed to high temperatures, it automatically sets the contrast to low. (default)

◇ Power save

The power save function allows you conserve battery life by reducing the duty cycle of the receiver. Select the ratio of the power save time to the standby time.

To turn OFF the function, select “P–S.OF.”

- P–S.OF : Turns OFF the function.
- P–S. 2 : Sets the duty cycle to 1:2. (ON: 0.1 seconds, OFF: 0.2 seconds)
- P–S. 8 : Sets the duty cycle to 1:8. (ON: 0.1 seconds, OFF: 0.8 seconds)
- P–S.16 : Sets the duty cycle to 1:16. (ON: 0.1 seconds, OFF: 1.6 seconds)
- P–S.At : Automatically sets the duty cycle. (default)
  When no operation occurs, and no signal is received for 5 seconds, the transceiver enters the Power Save mode, and sets “1:2” as the duty cycle. After 60 seconds of no activity, it sets “1:16” as the duty cycle.

◇ Select speed

The tuning speed acceleration automatically speeds up the tuning speed when rotating **[VOL]** rapidly.

- S–S. m : Turns OFF the tuning speed acceleration.
- S–S. At : Turns ON the tuning speed acceleration. (default)

◇ Microphone simple mode

Microphone simple mode is used to assign the essential operations to the four switches (S1 to S4) on a user supplied remote control unit.

• mS .Sm

S1	Selects the Call channel.
S2	Turns the Monitor function ON or OFF.
S3	Selects memory channel 0.
S4	Selects memory channel 1.

• mS .n1 (default)

S1	Toggles the VFO mode and the memory mode.
S2	Selects the Call channel.
S3	Frequency or memory channel 'UP.'
S4	Frequency or memory channel 'DOWN.'

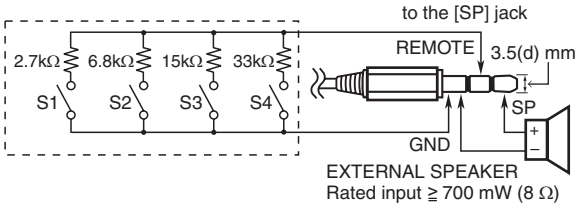
• mS .n2

S1	Toggles the VFO mode and the memory mode.
S2	Turns the Monitor function ON or OFF.
S3	Frequency or memory channel 'UP.'
S4	Frequency or memory channel 'DOWN.'

The VFO mode cannot be selected via the remote control unit when "mS .Sm" is selected.

• User remote control unit

The circuit below is for reference only.



◇ Voltage display

The voltage of the battery is displayed at power ON. This display can be turned ON or OFF.

• VLt.OF : The battery voltage display is skipped.

• VLt.On : The battery voltage is displayed at power ON. (default)

◇ Battery protection

When the battery voltage decreases, the battery protection function automatically turns OFF the transceiver. Select the function according to your battery type.

(default: differs depending on the version)

- bAt.OF : Turns OFF the function. Select when you use the BP-263 battery case.
- bAt.nm : Select when you use the BP-264 Ni-MH battery pack.
- bAt.LI : Select when you use the BP-265 Li-ion battery pack.

NOTE: BE SURE to select the appropriate option according to your battery type.

◇ Auto Low power

Turns the Auto Low power function ON or OFF.

When the temperature goes below 0°C (+32°F), the function automatically sets the output power to Low.

In that case, the transmit power selections (Hi/Mid) are also disabled. (default: ALP.OF)

◇ Squelch burst

The squelch burst function stops transmitting a subaudible tone before your transceiver stops transmitting RF, to eliminate noise. The squelch burst will be effective only when the other station uses the tone squelch function.

- Sqb.OF : The squelch burst is OFF. (default)
- Sqb.On : The squelch burst is ON.

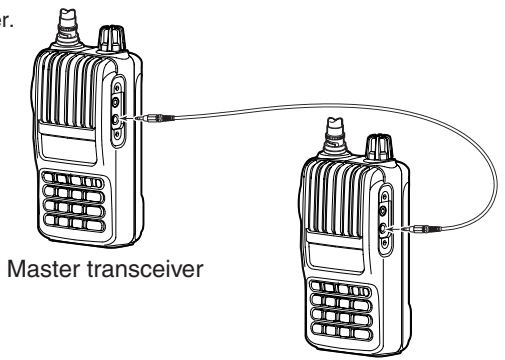
■ Cloning operation

Cloning allows you to quickly and easily transfer the programmed contents from one transceiver to another.

◇ Transceiver-to-transceiver cloning

①Turn OFF the transceiver's power, and then connect an optional OPC-474 cloning cable to the **[SP]** jacks of the master transceiver and the sub transceiver.

- The master transceiver is used to send data to the sub transceiver.



②While pushing **[FUNC]**(∗) and **[▲]**, turn ON the master transceiver to enter the cloning mode.

- "CLOnE" appears

③Turn ON the sub transceiver.

④Push **[PTT]** on the master transceiver.

- "CL Out" appears on the master transceiver's display, and the signal icons show the data is being transferred to the sub transceiver.
- "CL In" appears on the sub transceiver's display, and the signal icons show the data is being received from the master transceiver.

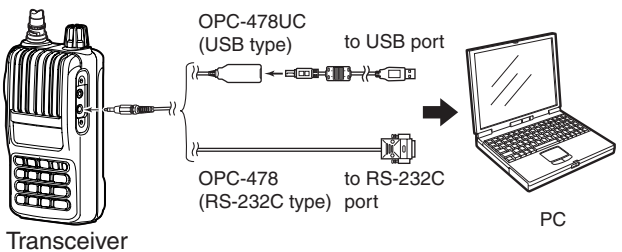
⑤When cloning is finished, turn OFF both the transceivers. Then turn them ON again to exit the cloning mode.

NOTE:

- DO NOT push **[PTT]** on the sub transceiver while cloning. This will cause a cloning error.
- DO NOT disconnect the cloning cable or turn OFF the power while cloning. This will cause a cloning error.

◇ Cloning using a PC

The CS-U80 cloning software is also used to clone/edit contents with a PC (for Microsoft® Windows® XP, Windows Vista®, Windows® 7) using ICF format files.
Refer to the INSTRUCTIONS and the Help file that come with the CS-U80, for details.



■ Resetting

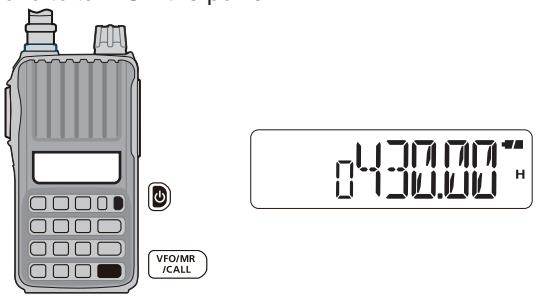
The LCD may occasionally display erroneous information (e.g. when first applying power). This may be caused by external static electricity or by other factors. If this problem occurs, turn OFF the power. After waiting a few seconds, turn ON the power again. If the problem persists, perform either or both of the procedures below.

◇ Partial reset

If you want to reset the operating settings (VFO frequency, VFO settings, and Set modes contents) without clearing the memory contents, use the partial reset.

①Hold down **[⏻]** for 1 second to turn OFF the power.

②While holding down **[VFO/MR/CALL]**, hold down **[⏻]** for 1 second to turn ON the power.



NOTE: No message appears on the display after the partial reset is completed.

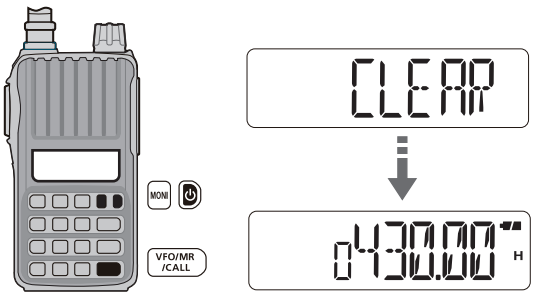
◇ All reset

The All reset clears all programming and returns all settings to their factory defaults.

①Hold down **[⏻]** for 1 second to turn OFF the power.

②While holding down **[MONI]** and **[VFO/MR/CALL]**, hold down **[⏻]** for 1 second to turn ON the power.

• "CLEAR" appears when resetting the CPU.



CAUTION: The All reset returns all programmed contents to their default settings.

13 TROUBLE SHOOTING

If your transceiver seems to be malfunctioning, please check the following points before sending it to a service center.

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
The transceiver does not turn ON.	• The battery is exhausted. • The battery polarity is reversed. • Loose connection of a battery pack or case.	• Charge the battery pack, or replace the batteries. • Correct the reverse polarity. • Clean battery terminals.	pp. 11–14 p. 14 p. 14
No sound comes from the speaker.	• The audio volume is too low. • An external speaker or a cloning cable is connected to the [SP] jack.	• Rotate **[VOL]** to adjust to a desired audio level. • Check the external speaker connection or remove the cloning cable.	p. 15 –
Transmitting is impossible.	• The battery is exhausted. • TX permission is inhibited.	• Charge the battery pack, or replace the batteries. • Set the TX permission setting to “ON” in the Set mode.	pp. 11–14 p. 42
Transmitting using the VOX function is impossible.	• The VOX gain is set to OFF or too low. • The microphone gain is too low.	• Set the VOX gain to a suitable level. • Set the microphone gain to a suitable level.	pp. 42, 56 p. 42
Contacting with another station is impossible.	• A different tone or code is used for the tone/DTCS squelch.	• Check the tone/DTCS by performing a tone scan.	p. 35
Frequency cannot be set.	• The Key Lock function is activated. • The memory mode or Call channel mode is selected.	• Push **[FUNC]**(∗), then hold down **[ ]**(# ENT) for 1 second to cancel the Key Lock function. • Push **[VFO/MR/CALL]** one or more times to select the VFO mode.	p. 18 p. 16
A programmed scan does not start.	• The memory mode or Call channel mode is selected. • The same frequency has been programmed in the scan edge channels, “XA”–“Xb.”	• Push **[VFO/MR/CALL]** one or more times to select the VFO mode. • Program different frequencies- in the scan edge channels.	p. 16 p. 26
A memory scan does not start.	• The VFO mode or Call channel mode is selected. • Only one or no memory channel has been programmed.	• Push **[VFO/MR/CALL]** one or more times to select the memory mode. • Program two or more memory channels.	p. 16 p. 26
The displayed frequency is erroneous.	• The CPU has malfunctioned. • External factors have caused a fault.	• Reset the transceiver. • Remove and re-attach the battery pack or case.	p. 51 p. 2

• **BP-263** BATTERY CASE
Battery case for LR6 (AA) × 6 alkaline batteries.

• **BP-264** NI-MH BATTERY PACK
7.2 V/1400 mAh (Typ.) Ni-MH battery pack. Battery life: 13 hrs. (approximately; FM, High power, Tx : Rx : Standby = 5:5:90)

• **BP-265** LI-ION BATTERY PACK
7.4 V/1900 mAh (Min.)/2000 mAh (Typ.) Lithium ion battery pack. Battery life: 19 hrs. (approximately; FM, High power, Tx : Rx : Standby = 5:5:90)

• **BC-191** DESKTOP CHARGER**+BC-123S** AC ADAPTER
For rapid charging of the BP-264 Ni-MH battery pack. An AC adapter may be supplied with the charger, depending on the version.
Charging time: approximately 2 hours for the BP-264.

• **BC-192** DESKTOP CHARGER**+BC-147S** AC ADAPTER
For regular charging of the BP-264 Ni-MH battery pack. An AC adapter may be supplied with the charger, depending on the version.
Charging time: approximately 16 hours for the BP-264.

• **BC-193** DESKTOP CHARGER**+BC-123S** AC ADAPTER
For rapid charging of the BP-265 Li-ion battery pack. An AC adapter may be supplied with the charger, depending on the version.
Charging time: approximately 2.5 hours for the BP-265.

• **BC-197** MULTI-CHARGER
For rapid simultaneously charging of up to six battery packs. An AC adapter may be supplied with the charger, depending on the version. There are two types of BC-197 chargers for the IC-U80 or IC-U80E.

BC-197 Charger Type	Chargeable Battery	Charging time
With AD-120*	BP-264 Ni-MH battery	Approx. 2 hrs.
With AD-121*	BP-265 Li-ion battery	Approx. 2.5 hrs.

*Either AD-120 or AD-121 charger adapters are installed in the BC-197, depending on the chargeable battery pack.

• **CP-23L** CIGARETTE LIGHTER CABLE
For charging of the battery packs through a 12 V cigarette lighter socket. (For only BC-191/BC-193)

• **OPC-515L/OPC-656** DC POWER CABLE
For charging of the battery packs using a 12 V DC power source instead of the AC adapter. (OPC-515L for BC-191/BC-192/BC-193, OPC-656 for BC-197)

• **MB-124** BELT CLIP
Exclusive alligator-type belt clip.

• **FA-B70C** UHF ANTENNA
The same antenna that is supplied with the transceiver.

• **HM-153L** EARPHONE-MICROPHONE
Ideal for hands-free operation: clip the HM-153L (with integrated PTT switch) to your lapel or breast pocket.

14 OPTIONS

- **HM-158L/HM-159L** SPEAKER-MICROPHONE
  Combination speaker-microphone that provides convenient operation while the transceiver is attached to your belt.
- **HS-94/HS-95/HS-97** HEADSET**+OPC-2004** PLUG ADAPTER CABLE
  HS-94 : Ear hook type
  HS-95 : Neck & arm type
  HS-97 : Throat microphone
  OPC-2004 : Allows you to connect the HS-94/HS-95/HS-97 to the transceiver. After connecting, the VOX function can be used.
- **CS-U80** CLONING SOFTWARE
  +OPC-478/OPC-478UC CLONING CABLE
  Provides quick and easy programming of such settings as memory channels and Set modes contents.
- **OPC-474** CLONING CABLE
  For transceiver-to-transceiver cloning.

Approved Icom optional equipment is designed for optimal performance when used with an Icom transceiver.
Icom is not responsible for the destruction or damage to an Icom transceiver in the event the Icom transceiver is used with equipment that is not manufactured or approved by Icom.

Some options may not be available in some countries. Please ask your dealer for details.

■ VOX function

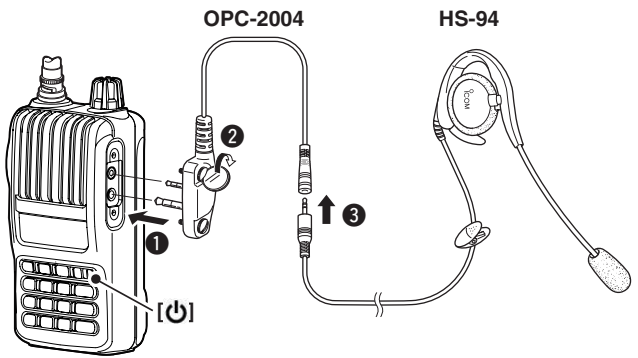
The transceiver has a VOX function, which allows hands-free operation.

An optional HS-94, HS-95 or HS-97 headset and the OPC-2004 plug adapter cable are also required for operation.

- The VOX (voice operated transmission) function starts transmission when you speak into the microphone, without needing to push **[PTT]**; automatically returns to reception when you stop speaking.

◇ Optional unit connection

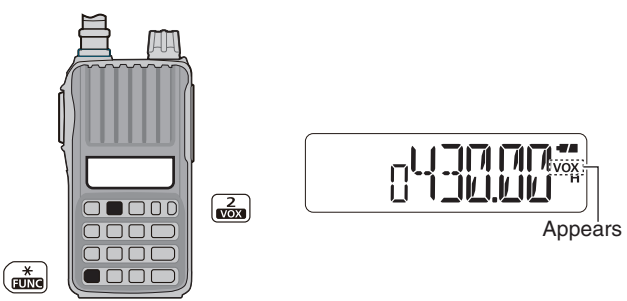
①Hold down **[⏻]** for 1 second to turn OFF the power.
②Remove the jack cover. (p. 2)
③Connect the optional HS-94, HS-95 or HS-97 and OPC-2004, as illustrated below.



◇ Turning the VOX function ON or OFF

①Connect an optional headset and plug adapter cable to the transceiver, and then turn ON the power.
②Push **[FUNC]**(＊), and then **[VOX]**(2) to turn the VOX function ON or OFF.
- "VOX" appears when the VOX function is ON.

NOTE:
- When using the VOX function, adjust the microphone gain and the VOX-related settings (p. 56) to suit your operating environment (including your headset performance).
- Set the microphone gain before setting the VOX gain in the Set mode (p. 42). We recommend setting the microphone gain to 3.
- When the TX permission is set to "OFF" in the Set mode, you cannot transmit using the VOX function. (p. 42)



◇ VOX-related settings

The VOX gain, the VOX delay, and the VOX time-out timer can be set in the Set mode.

①Connect an optional headset and plug adapter cable to the transceiver, and then turn ON the power.
②Push **[FUNC]**(∗), and then **[VOX]**(2) to turn ON the VOX function.
③Push **[FUNC]**(∗), and then **[SET]**(8) to enter the Set mode.
④Push **[▲]** or **[▼]** to select the VOX gain (VOX), the VOX delay (VXd), or the VOX time-out timer (Vto) item.
⑤Rotate **[VOL]** to select a desired option.
⑥Push **[# ENT]** to exit the Set mode.

The VOX function does not activate transmission while in the Set mode.

• VOX gain

The VOX gain level can be adjusted between 1 (minimum) and 10 (maximum), or turned OFF. Higher values make the VOX function more sensitive to your voice. (default: VOX.05)

The VOX function is turned OFF.

The VOX gain is set to 10 (maximum).

While speaking into the headset microphone, adjust the VOX gain until “On” continuously appears on the LCD.

Appears

If “On” is intermittent, be sure the VOX delay is set long enough to allow normal pauses in speech, but keep the VOX ON until you finish speaking.

✔ CONVENIENT!

While transmitting using the VOX function, you can adjust the VOX gain simply by rotating **[DIAL]**.

• VOX delay

Sets the VOX delay to between 0.5 and 3.0 seconds (in 0.5 seconds steps). The VOX delay is the amount of time the transmitter stays ON after you stop speaking. (default: VXd.10)

The VOX delay is set to 1 second.

The VOX delay is set to 3 seconds.

• VOX time-out timer

Sets the VOX time-out timer to 1, 2, 3, 4, 5, 10 or 15 minutes, to prevent accidental prolonged transmission for the VOX function.
To turn OFF the function, select “Vto.OF.” (default: Vto.03)

The VOX time-out timer must be set shorter than the time-out timer, otherwise this timer will not be activated.

◇ General

- Frequency coverage : 400.000–470.000 MHz
- Mode : FM, FM-N
- Number of memory channels : 207
  (incl. 6 scan edges and 1 Call channel)
- Usable temperature range : –20°C to +60°C; –4°F to +140°F
- Tuning steps : 5, 10, 12.5, 15, 20, 25, 30 and 50 kHz
- Frequency stability : ±2.5 ppm
  (–20°C to +60°C; –4°F to +140°F)
- Power supply : Icom specified battery pack or case
- Current drain (at 7.2 V DC: typical)

Transmit	at 4 W (High)	: 1.4 A
	at 2 W (Mid)	1.0 A
	at 0.5 W (Low)	0.5 A
Receive	standby	: 58 mA
	power save	32 mA
	max. audio	280 mA (internal speaker)
		160 mA (external speaker)

- Antenna connector : BNC (50 Ω)
- Dimensions : 58(W)×112(H)×30(D) mm;
  (projections not included) $2\frac{9}{32}$(W)×$4\frac{13}{32}$(H)×$1\frac{3}{16}$(D) in
- Weight (approximately)
  (without battery pack/case and ant.) : 140 g; 4.9 oz

◇ Transmitter

- Modulation system : Variable reactance freq. modulation
- Output power (at 7.2 V DC) : High 4 W, Mid 2 W, Low 0.5 W.
- Max. frequency deviation : FM (wide) ±5.0 kHz
  FM (narrow) ±2.5 kHz
- Spurious emissions : Less than –65 dBc
- External mic. connector : 3-conductor 2.5 (d) mm ($\frac{1}{10}$″)/2.2 kΩ

◇ Receiver

- Receive system : Double-conversion superheterodyne
- Intermediate frequencies : 1st: 46.35 MHz, 2nd: 450 kHz
- Sensitivity (at 12 dB SINAD) : 0.2 µV typ.
- Squelch sensitivity (threshold) : 0.11 µV typ.
- Selectivity : FM (wide) 70 dB typ.
  FM (narrow) 60 dB typ.
- Spurious and image rejection : 70 dB typ.
- Intermodulation : 70 dB typ.
- Audio output power (at 10% distortion)
  Internal speaker : 0.75 W typ. with a 16 Ω load
  External speaker : 0.4 W typ. with a 8 Ω load
- External speaker connector : 3-conductor 3.5(d) mm; ($\frac{1}{8}$″)/8 Ω

All stated specifications are subject to change without notice or obligation.

Count on us!

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