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2 UNPACKING AND CHECKING EQUIPMENT

Carefully unpack the transceiver. We recommend that you identify the items listed in the following table before discarding the packing material. If any items are missing or have been damaged during shipment, file a claim with the carrier immediately.

SUPPLIED ACCESSORIES

Item	Quantity
Antenna	1
Charger(with adaptor)	1
Li-ion battery pack	1
Belt clip	1
User's manual	1
Hand strap	1

3 BATTERIES

CHARGING WARNINGS:

Initially charging the battery pack after purchase or extended storage (longer than 2 months) will not bring the battery pack to its normal operating capacity. After repeating the charge/discharge cycle two or three times, the operating capacity will increase to normal. Please replace or charge the battery pack while low power alarm.

AVAILABLE BATTERIES

Please use our specified battery to charge transceiver, if using other brand batteries, it may explode and damage nearby subjects or people.

Notice:

1. Do not short the battery terminals or dispose of the battery by fire. Never attempt to remove the casing from the battery pack.
2. The ambient temperature should be between 5 and 40°C while charging is in progress. Charging outside this range may not fully charge the battery.
3. Always switch OFF the transceiver equipped with a battery pack before charging. Using the transceiver while charging its battery pack will interfere with correct charging.
4. Do not plug/unplug the AC adaptor and battery during charging, to avoid interfering the charging program.
5. The battery pack life is over when its operating time decreases even though it is fully and correctly charged. Please replace the battery pack.
6. Do not recharge the battery pack if it is already fully charged. Doing so may cause the life of the battery pack to be shortened or the battery pack may be damaged.

3 BATTERIES

7. Do not charge transceiver while the battery or any units were wet.

Ought to dry it with cloth before charging, avoid damaging the unit.

Note: All batteries can cause property damage and/or bodily injury such as burns if a conductive material such as jewelry, keys, or beaded chains touches exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

CHARGE OPERATION

If a battery is in place while the transceiver lights red and there are three beeps sounding each 30 seconds, it means low in power, please start to charge the transceiver.

Please use our specified charger for battery charging, the charger LED display charger cause.

LED appears	Status	Battery Type
Red	Charging	Li-ion battery
Green	Fully charged	Li-ion battery

TO CHARGE BATTERY PACK, PERFORM THE FOLLOWING STEPS:

1. Plug the AC adaptor cable into the adaptor jack located on the rear of the charger.
2. Slide the battery pack or transceiver with a battery pack into the charger.
3. Plug the AC adaptor into AC outlet.

3 BATTERIES

4. Make sure the battery pack is in contact with the charging terminals, the charger LED lights red and charging begins.
5. When the supplied charger LED lights green, charging is completed. Remove it or the transceiver equipped with it from the charger.

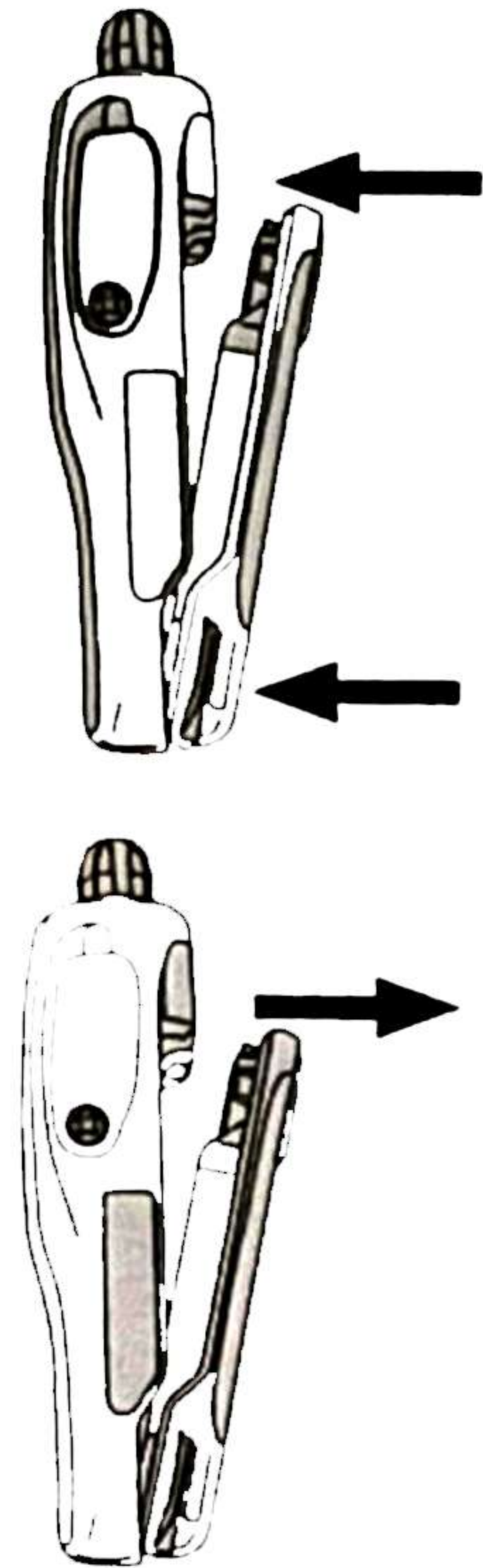
Note:

1. The charger LED flashes before plugging in the battery pack, it is normal.
2. When replace a battery pack to the charger, please wait until LED is steady.
3. The charger lights red while charging the battery, while if the LED flashing means the battery is damaged or the surrounding temperature is too high or low.

4 PREPARATION

INSTALLING/REMOVING THE BATTERY PACK

The battery pack is not charged at the factory; Charge it before use.



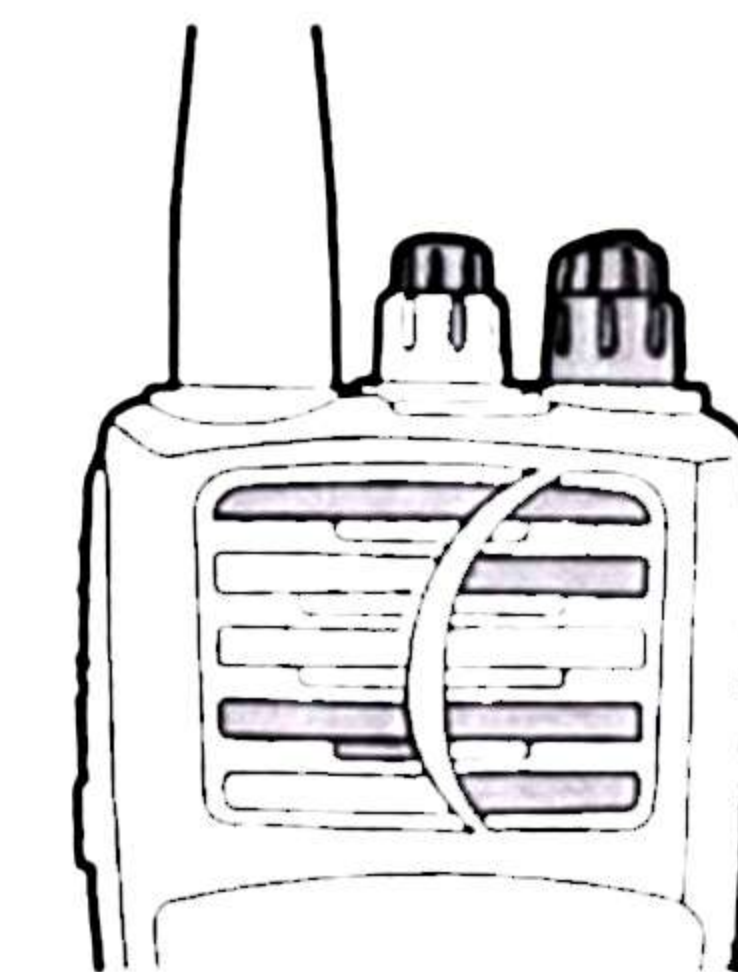
1. Match the two bulges of the battery pack with the corresponding guides on the back of the transceiver, then press the battery pack and transceiver firmly together until the release latch on the base of the transceiver locks.

2. While pressing the release latch, pull the battery pack away from the transceiver.

INSTALLING THE ANTENNA

Screw the antenna onto the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.

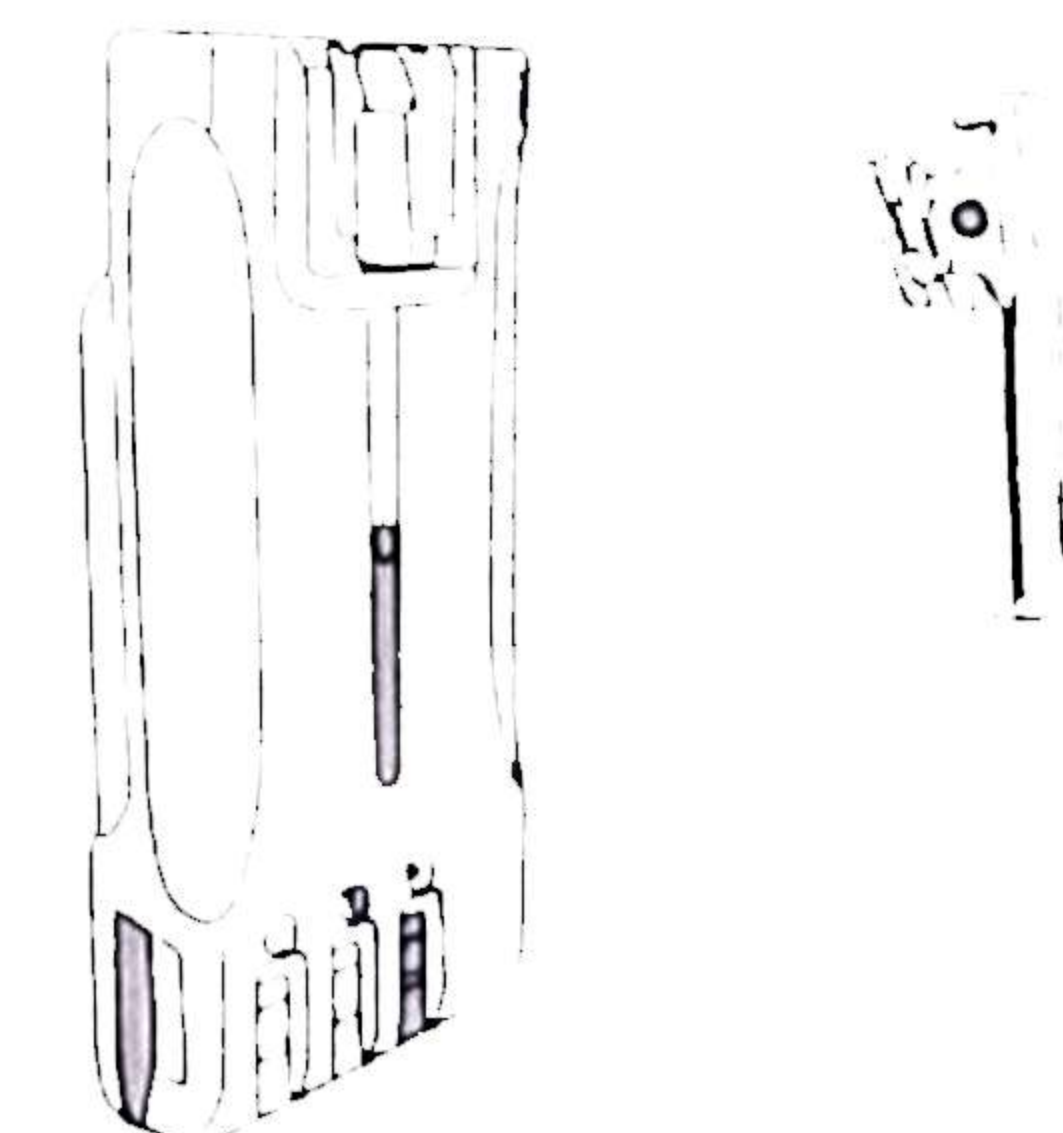
Note: The antenna is neither a handle, a key ring retainer, nor a speaker/microphone attachment point. Using the antenna in these ways may damage the antenna and degrade your transceiver's performance.



INSTALLING THE BELT CLIP

If necessary, attach the belt clip to the clip slot on the back of the battery pack.

Caution: Do not use glue which is designed to prevent screw loosening when installing the belt clip, as it may cause damage to the transceiver. Acrylic ester, which is contained in these glues, may crack the transceiver's back panel.

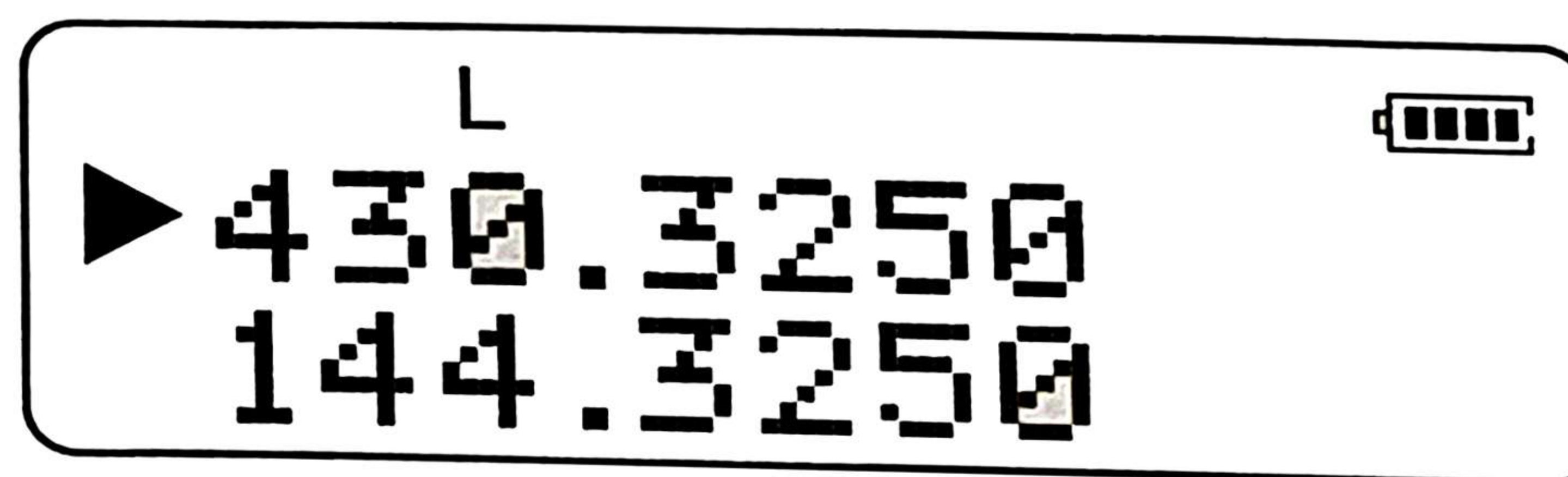


5 YOUR FIRST QSO

FIRST QSO

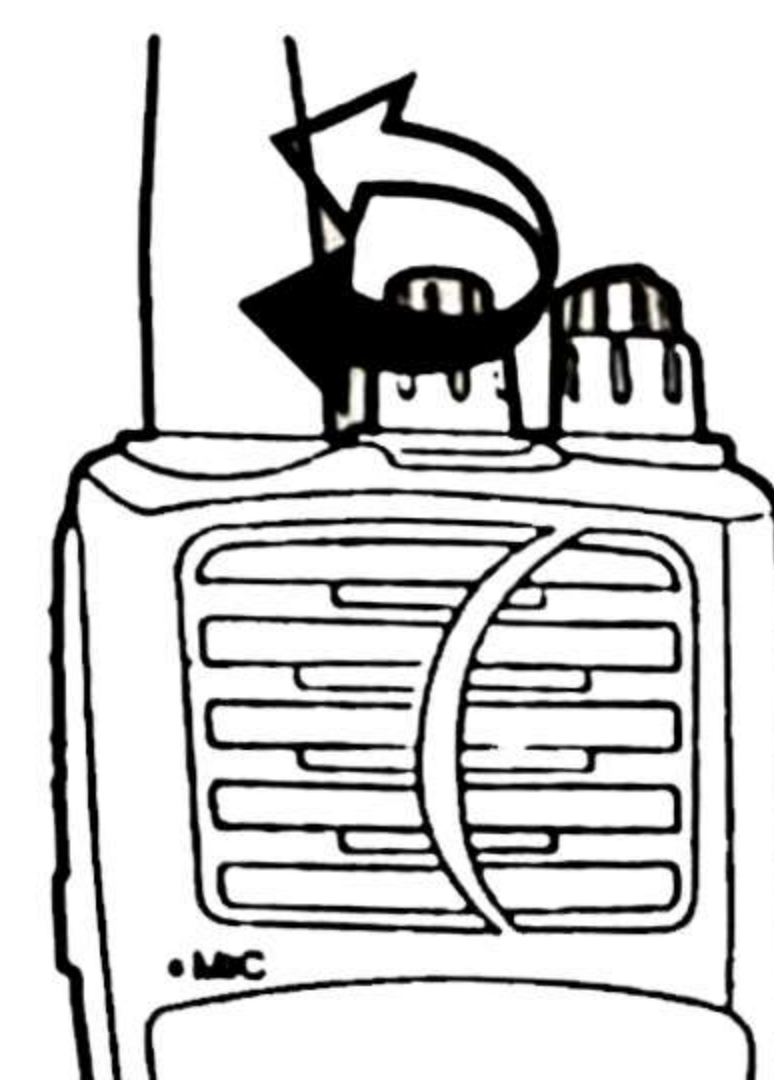
Are you ready to give your transceiver a quick try? Reading this chapter should get your voice on the air right away. The instructions below are intended only for a quick guide. If you encounter problems or there is something you would like to know more, read the detailed explanations given later in this manual.

1. Turn on the transceiver, example shown below.



- A high pitch double beep sounds and a Programmable Greeting Message appears momentarily. The various indicators and the current operating frequency appear on the LCD.
- The transceiver stores the current parameters when it is turned OFF and automatically recalls these parameters the next time you turn the transceiver ON.

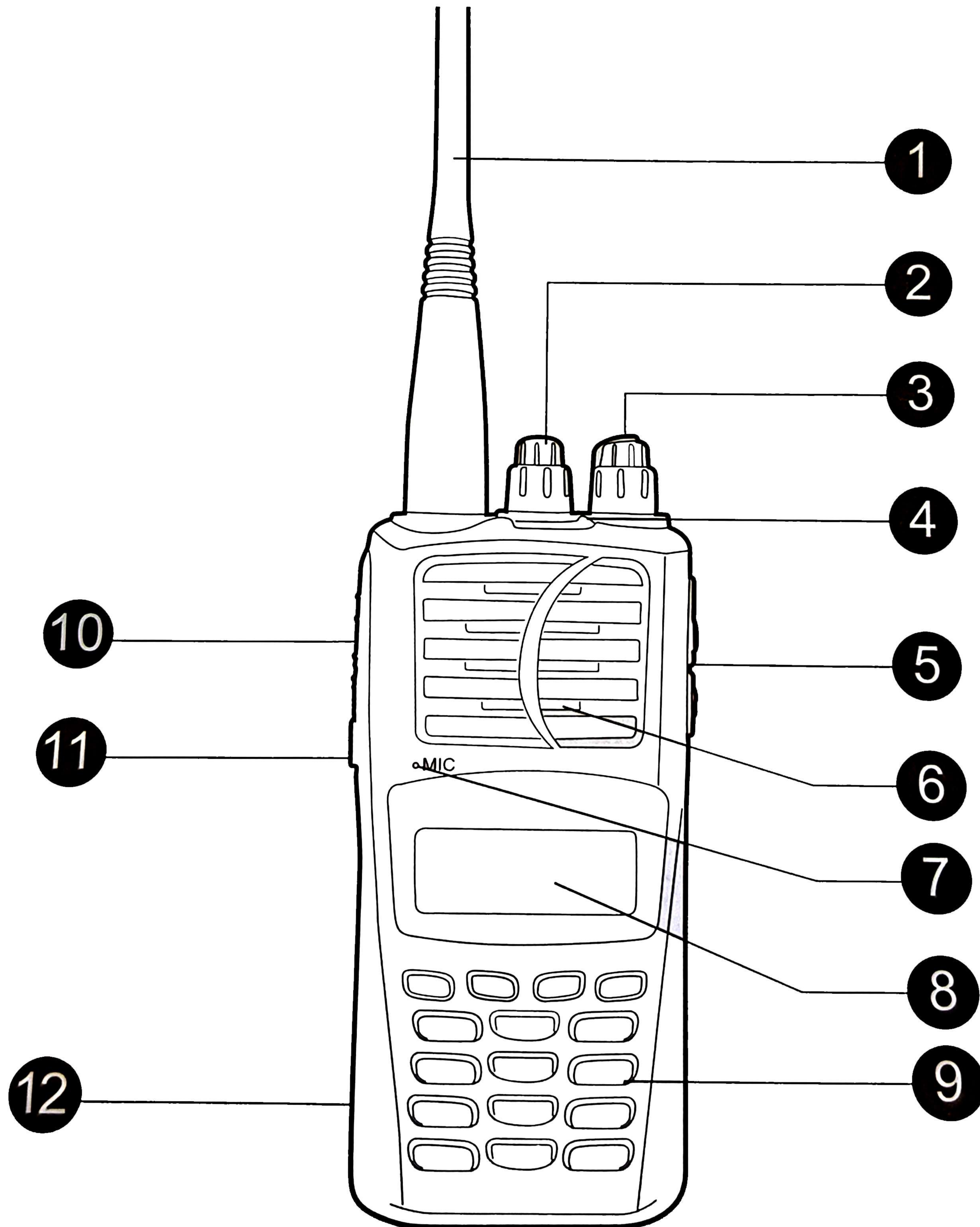
2. Turn the **PWR/VOL** control clockwise.



3. Rotate the channel knob ENC to select a reception frequency.
 - You may further turn the **PWR/VOL** control to adjust the volume level of the signal.
4. To transmit, hold the transceiver approximately 5 cm (2 inches) from your mouth.
5. Press and hold **【PTT】**, then speak in your normal tone of voice.
6. Release **【PTT】** to receive.
7. Repeat steps 4, 5 and 6 to continue communication.

6 GETTING ACQUAINTED

KEYS AND CONTROLS

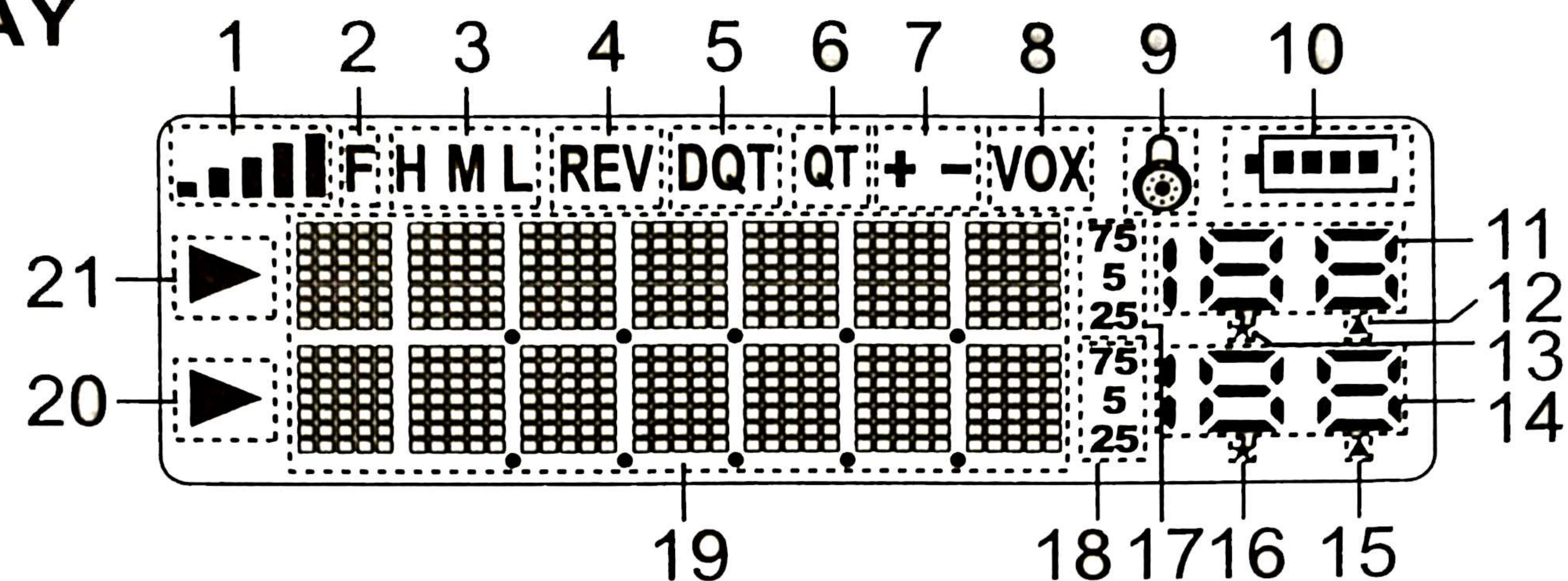


6 GETTING ACQUAINTED

1. Antenna
2. Power & Volume control knob.
Turn clockwise to switch ON the transceiver. To switch OFF the transceiver, turn counterclockwise until a click sounds. Rotate the knob to adjust the volume level.
3. Channel knob(ENC)
Rotate the channel knob ENC to select channel 1-199,or coordinate with other functions.
4. LED indicator
Lights red while transmitting. Lights green while receiving a signal.
Flashes red when the battery voltage is low while transmitting.
5. Speaker jack
Microphone jack
6. Speaker
7. Microphone
8. LCD display
9. Keypad
10. PTT button
Press and then speak into the microphone to call a station. Release to receive.
11. LAMP / MONI (monitor) key
Press and hold **【MONI】** key ,squelch function is turned off. You will hear background noise. Release **【MONI】** key,squelch function is turned on again.
12. Battery Pack

6 GETTING ACQUAINTED

DISPLAY



1. S-meter(RX) signal strength indicator. When the transceiver is transmitting, it is output power indicator.
2. Appears when Menu key be pressed.
3. H appears when high power transmission is selected, M appears when medium power is selected, and L appears when low power is selected.
4. Appears when the reverse function is activated.
5. Appears when the DCS function is activated.
6. Appears when the CTCSS function is activated.
7. Appears when the repeater shift function is activated.
8. Appears when the VOX function is ON.
9. Appears when the "keypad lockout" function is ON.
10. Displays the battery power level.
11. Displays band A channel NO.
12. When band A stores channels, there is already memory channel.
13. Displays when A band receive signal.
14. Displays band B channel NO.
15. When band B stores channels, there is already memory channel.
16. Displays when B band receive signal.
17. Band A frequency mantissa indicating zone.
18. Band B frequency mantissa indicating zone.
19. Working frequency, menu information indicating zone.
20. Working band or operated menu indication
21. Working band or operated menu indication

7 BASIC OPERATION

SWITCHING THE POWER ON/OFF

Switch **ON** the transceiver by turning the **POWER & VOLUME CONTROL** knob clockwise.

- A high pitch double beep sounds, full display appears and a **POWER ON** message appears briefly followed by the frequency and other indicators.
- To switch the transceiver **OFF** by turning the **POWER & VOLUME CONTROL** knob anticlockwise.

The transceiver stores the current frequency and parameters when it is turned **OFF** and recalls their parameters the next time you turn the transceiver **ON**.

ADJUSTING THE VOLUME

- Turn the **POWER & VOLUME CONTROL** knob clockwise to increase the audio output level and anticlockwise to decrease the output level.
- If you are not receiving a signal, press and hold **【MONI】** key to un-mute the speaker, then adjust the **POWER & VOLUME CONTROL** to a comfortable audio output level.

ADJUSTING THE SQUELCH

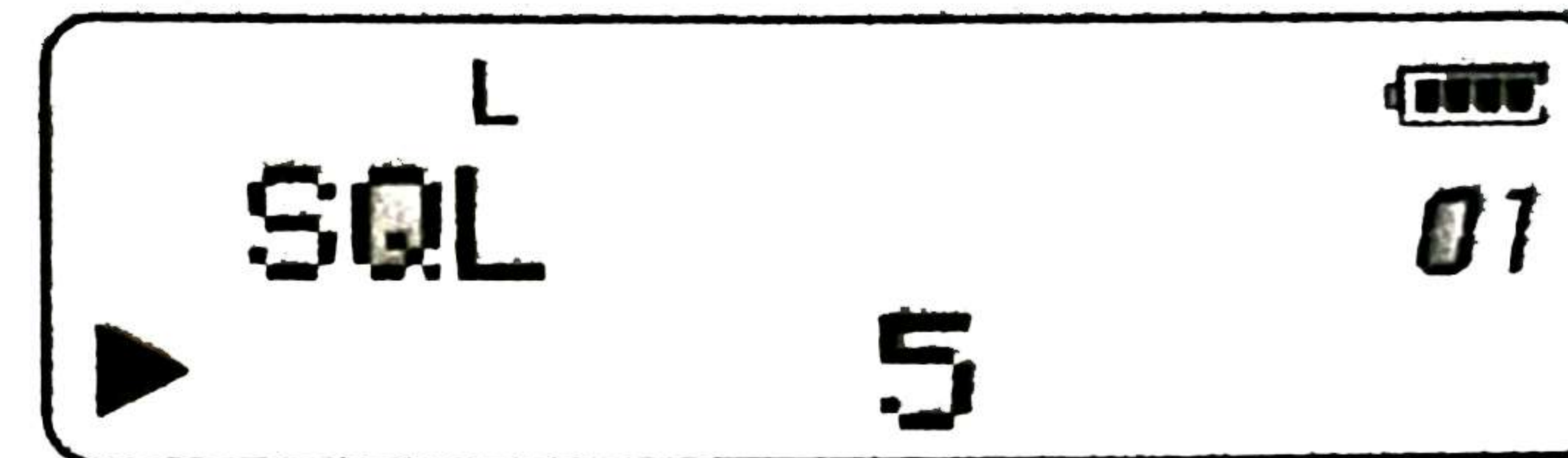
The purpose of squelch is to mute the speaker when no signal is present. With the squelch level correctly set, you will hear sound only when actually receiving signals. The higher the selected squelch level, the stronger the signal must be in order to receive it.

The appropriate squelch level depends on the ambient RF noise conditions.

7 BASIC OPERATION

1. Press **【MENU】** key twice , and then press **【MENU】** again.

The current squelch level appears.



2. Rotate the channel knob ENC to adjust the level.
 - Select the level at which the background noise is just eliminated when no signal is present.
 - The higher the level, the stronger the signals must to be received.
 - 9 different levels can be set (0: minimum, 9: Maximum, Default value: 5) .
3. Press **【MENU】** key to store the new setting and continue to set other functions. Or press **【 A/B 】** key to store the new setting and exit Menu mode.

A/B SWITCHING

In the whole frequency mode ,you can use **【A/B】** key to select what you need to use the U-band or V-band.

TRANSMITTING

1. To transmit, hold the transceiver approximately 5 cm (2 inches) from your mouth, then press and hold **【PTT】** and speak into the microphone in your normal tone of voice.
 - The LED lights red and the bar-graph meter appears.
2. When you finish speaking, release **【PTT】** .

Note: If TOT function is activated, continuously transmit for longer than the time specified, the internal time out timer generates a warning beep and the transceiver stops transmitting. In this case, release **【PTT】** and let the transceiver stop for a while, then press **【PTT】** again to resume transmission.

7 BASIC OPERATION

SELECTING AN OUTPUT POWER

Selecting a lower transmission power is the best way to reduce battery consumption, if communication is still stable and reliable. You can configure different power levels for transmission.

1. Press **【MENU】** key twice.
2. Rotate the channel knob ENC to select Menu No. 10 (POW) .
3. Press **【MENU】** key.

Appears on the display.



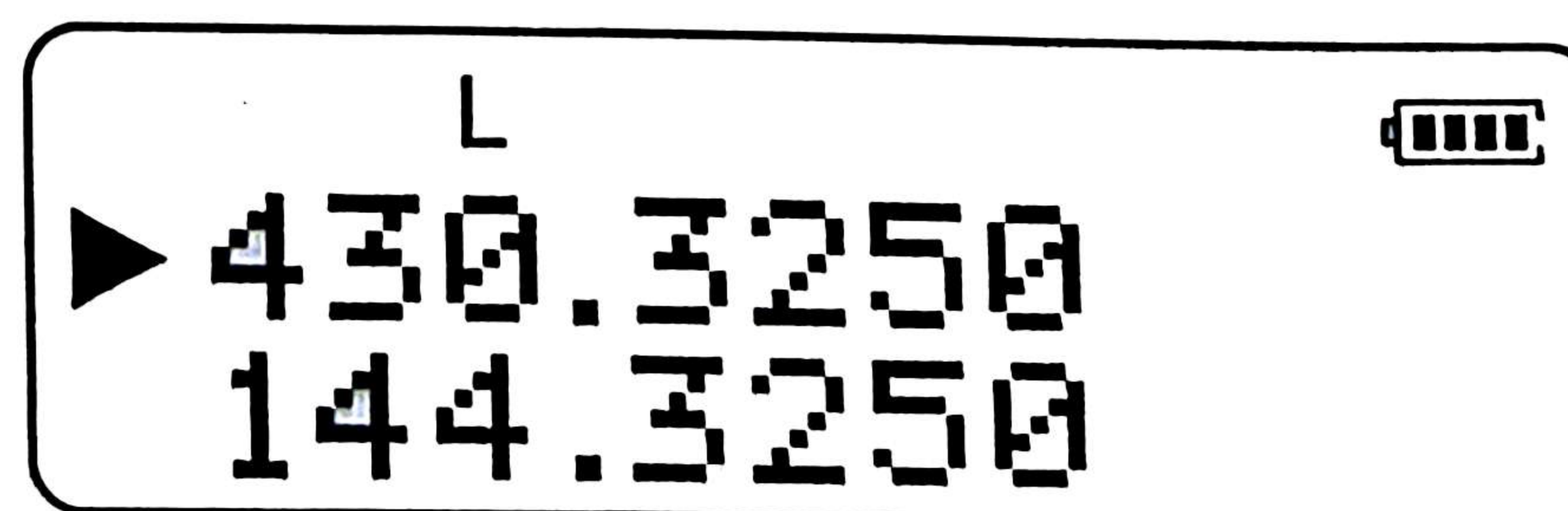
4. Rotate the channel selector to select the output power; it can switch between H (high power), M (medium power) and L (low power).
5. Press **【MENU】** key to store the new setting and continue to set other function. Or press **【 A/B 】** key to store the new setting and exit Menu mode

SELECTING A FREQUENCY

◆ VFO Mode

This is the basic mode for changing the operating frequency.

Rotate the channel knob ENC to increase or decrease the frequency.



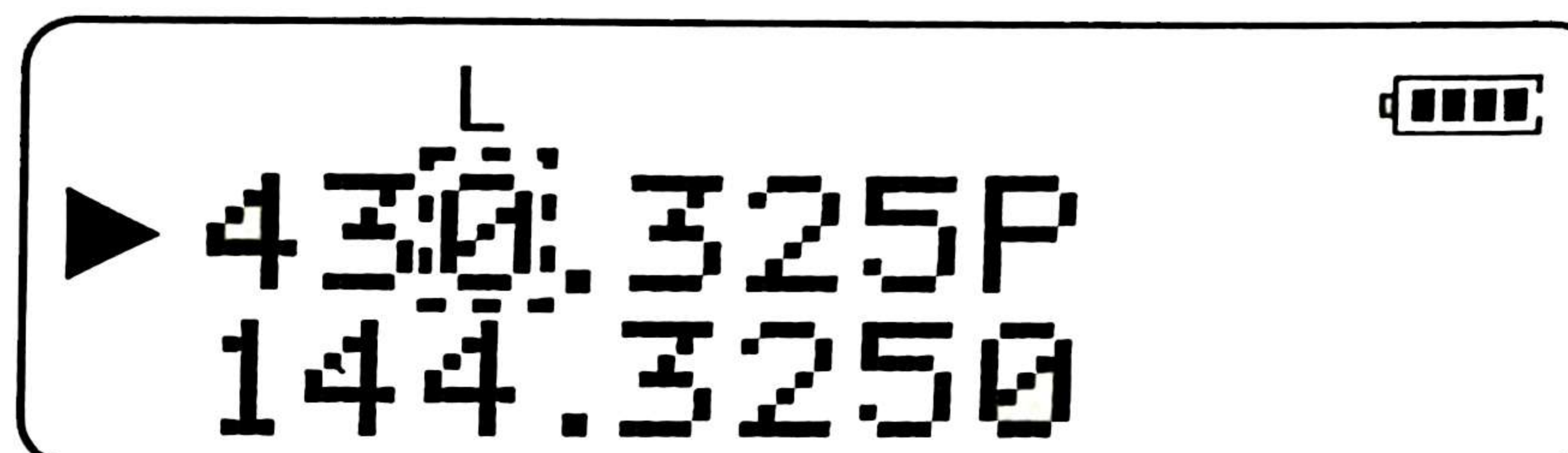
7 BASIC OPERATION

◆ MHz Mode

If the desired operating frequency is far away from the current frequency, it is quicker to use the MHz Tuning Mode to adjust the MHz digit:

1. Press **【MENU】**

■ The MHz digit blinks.



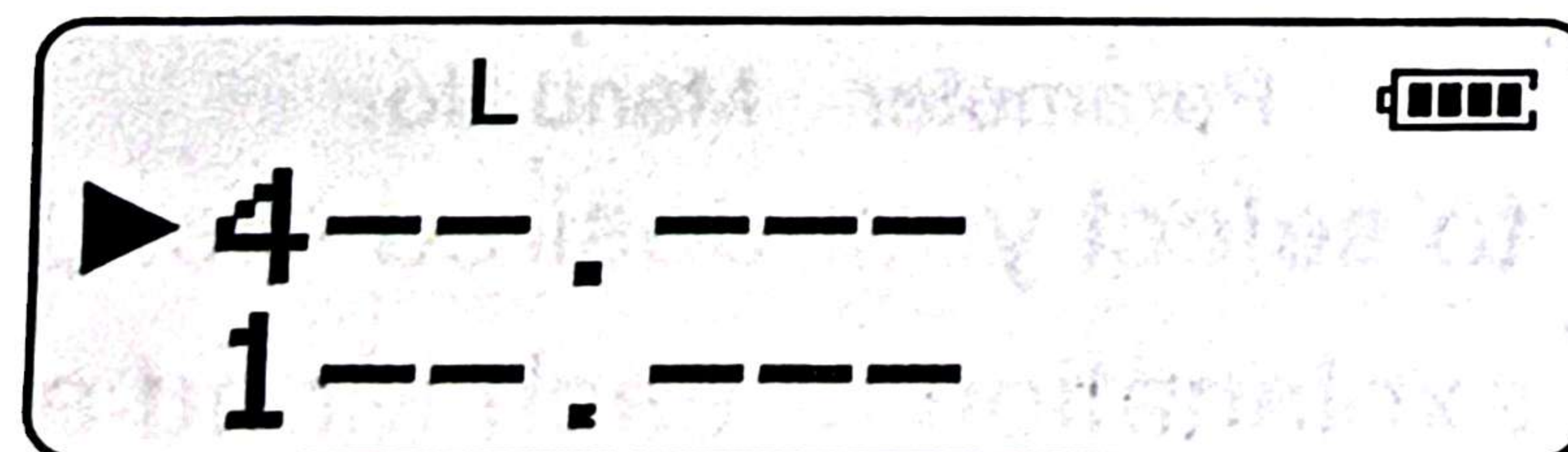
2. Rotate the channel knob ENC to select the desired MHz value.

3. After selecting the desired MHz value, press **【A/B】** to exit the mode and return to normal VFO Mode.

4. Continue adjusting the frequency if necessary, using the ENC key.

◆ Direct Frequency Entry

In addition to rotating channel knob ENC, there is another way to select the frequency. When the desired frequency is far away from the current frequency, you can directly enter a frequency using the numeric keypad.



when in UHF directly enter

when in VHF directly enter

1. Press the numeric keys (**【0】** to **【9】**) to enter your desired frequency.

2. Press **【MONI】** key to delete if you enter wrong number.

Note:

■ If the entered frequency does not match the current frequency step size, the frequency is automatically rounded down to the next available frequency.

■ When the desired frequency cannot be entered exactly, confirm the frequency step size.

■ If you rotate channel knob ENC while entering the frequency, the transceiver clears the entry and changes to the next available frequency.

8 MENU SETUP

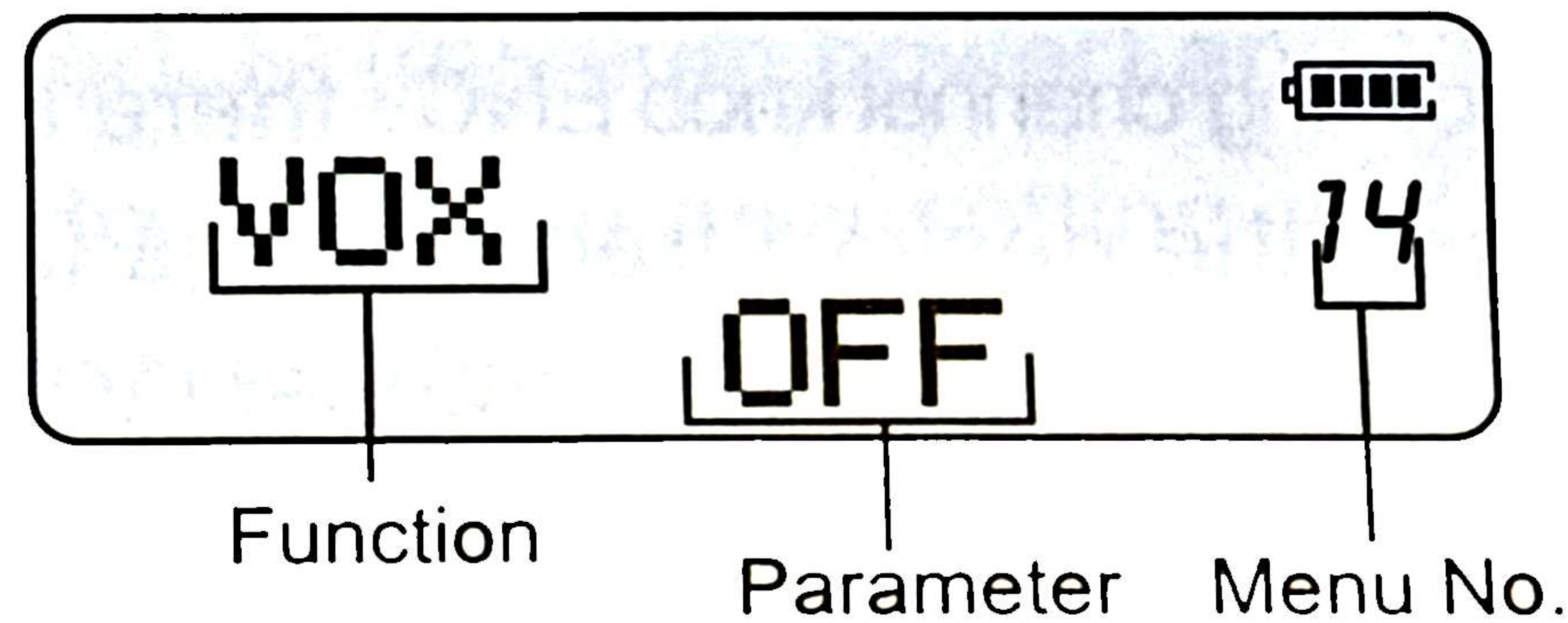
MENU DESCRIPTION

Many functions on this transceiver are selected or configured via a software-controlled Menu rather than through the physical controls of the transceiver. Once you become familiar with the Menu system, you will appreciate its versatility. You can customize the various timings and programming functions on this transceiver to meet your needs without using many controls and switches.

MENU ACCESS

1. Press **【MENU】** key twice.

A brief explanation of the Menu, and the setting and Menu No. appear on the display.



2. Rotate the channel knob ENC to select your desired Menu. As you change the Menu No., a brief explanation of each Menu appears along with its current parameter.

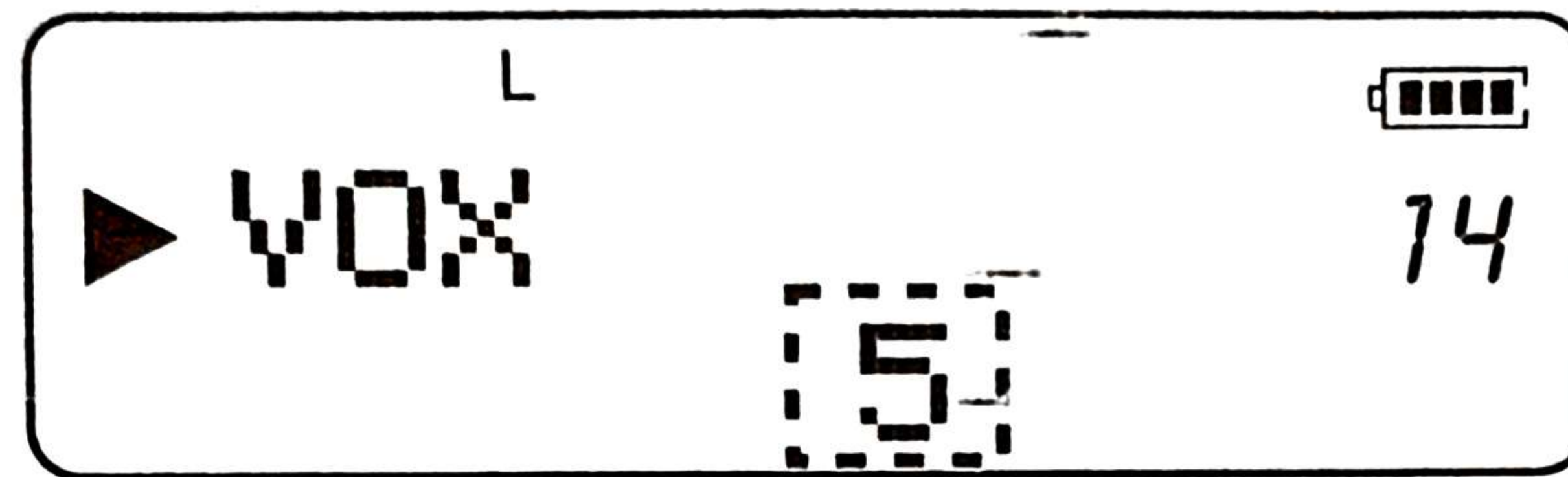


3. Press **【MENU】** to configure the parameter of the currently selected Menu No.



8 MENU SETUP

4. Rotate the channel knob ENC to select your desired parameter.



5. Press **【MENU】** to store the new setting. rotate channel selector to continue to select other Menu, or press **【 A/B 】** key to store the new setting and exit Menu mode.

8 MENU SETUP

MENU FUNCTION LIST

On the display	Menu No	Function	Selections	Default	Description
SQL-LE	1	Squelch Setting	0 to 9	5	5 level
STEP	2	Frequency step	5,6.25,10,12.5,25KHz	10KHz	25KHz
DW	3	Monitor the message of receiver	OFF/ ON	ON	ON
R-CTC	4	RX CTCSS setting	61.0 – 254.1Hz	OFF	OFF
T-CTC	5	TX CTCSS setting	61.0 – 254.1Hz	OFF	OFF
CTCSS	6	RX/TX CTCSS setting	61.0 – 254.1Hz	OFF	OFF
R-DCS	7	RX DCS setting	017N – 754N 017I – 754I	OFF	OFF
T-DCS	8	TX DCS setting	017N – 754N 017I – 754I	OFF	OFF
DCS	9	RX/TX DCS setting	017N – 754N 017I – 754I	OFF	OFF
TX-POW	10	TX power selection	H, M, L	H	High power
OFFSET	11	Offset frequency	0.00 – 69.995MHz	00.600MHz	0.6MHz
SFT-D	12	Offset direction	OFF / - / +	OFF	OFF
TOT	13	Time-out timer	OFF/1/3/10 minutes	1	1 minute
VOX	14	VOX function	OFF/1 – 16 level	OFF	OFF
BEEP	15	Beep	ON/OFF	ON	ON
LED	16	Lamp setting	ON/OFF/AUT	AUT	Auto
SCAN	17	Scan resume method	TO/CO/SE	TO	Time
CK	18	Call tone	OFF/1/2/3/4/5/1750MHz	1	1
SAVE	19	Save power selection	OFF/0.2/0.4/0.6/0.8/1.0	0.4	0.4 second
LOCK	20	Keypad lock selection	MANU/AUTO	MANU	Manual
BCL	21	Busy Channel Lock-out	ON/OFF	ON	ON
PONMSG	22	Power ON message	7 Characters		
MNAME	23	Storing Alpha	7 Characters		
CH-MDF	24	Alpha/Freq display	MN/FRQ	FRQ	FREQ
ENC	25	Tuning lock	ON/OFF	ON	ON
PRI	26	Priority scan	ON/OFF	ON	ON
PRI	27	Priority scan time setting	3.5.8.10 sec	3	3
N/W	28	Wide/narrow band selection	N/W	W	wide
A/B	29	Double-waiting	ON/OFF	ON	ON

9 OPERATING THROUGH REPEATERS

The place of the installation and maintenance of repeaters are usually located on mountain tops or other elevated locations. They generally operate at higher ERP (Effective Radiated Power) than a typical station. This combination of elevation and high ERP allows communications over much greater distances than communicating without using repeaters. Most repeaters use a receive and transmit frequency pair with a standard or non-standard offset. In addition, some repeaters must receive a tone from the transceiver to be accessed. For details, consult your local repeater reference.

OFFSET PROGRAMMING FLOW

Select a receive frequency.

Select an offset direction.

Select an offset frequency (only when programming odd-split repeater frequencies).

Activate the Tone function (if necessary).

Select a tone frequency (if necessary).

If you store all the above data in a memory channel, you will not need to reprogram the parameters every time. Refer to "MEMORY CHANNELS".

9 OPERATING THROUGH REPEATERS

PROGRAMMING AN OFFSET

You must first select an amateur radio repeater downlink frequency as described in “Selecting an Offset Frequency”.

◆ Selecting an Offset Direction

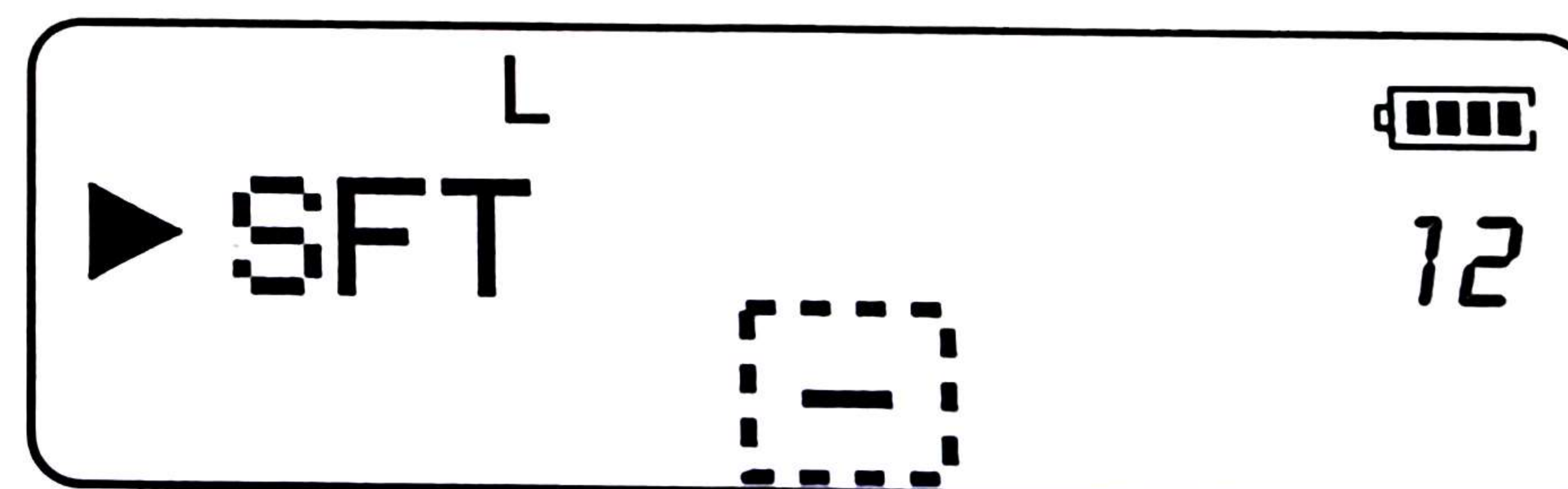
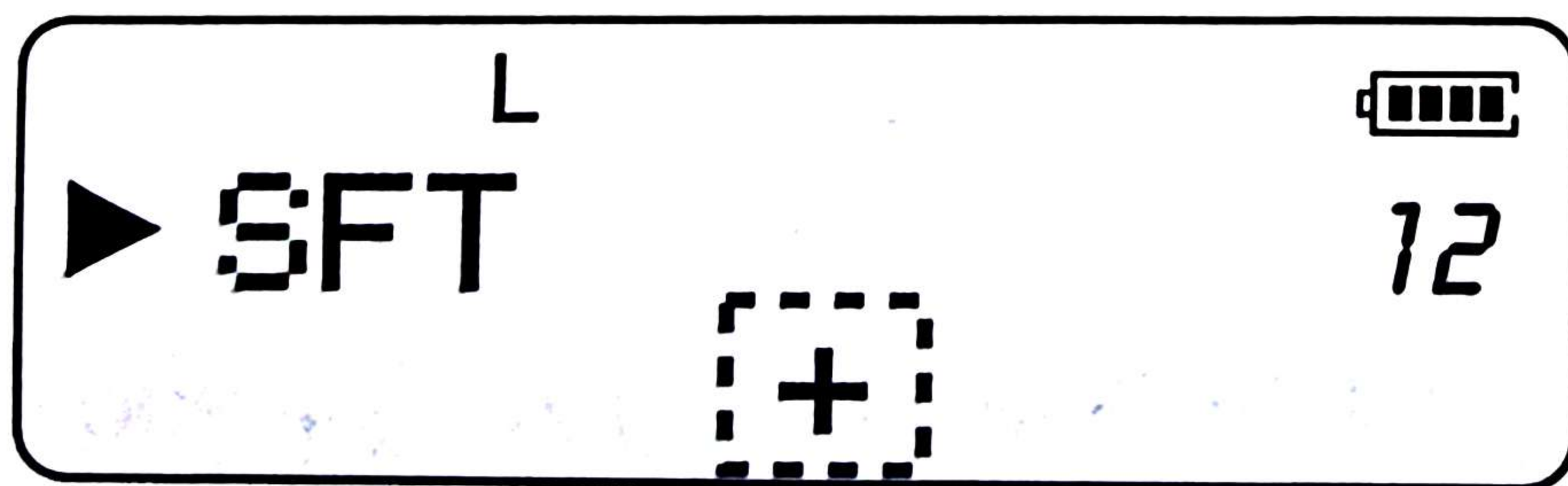
Select whether the transmission frequency will be higher (+) or lower (–) than the reception frequency.

1. Press **【MENU】** key twice.
2. Rotate the channel knob ENC to select Menu No. 12 (SFT).



Press **【MENU】**.

3. Rotate the channel knob ENC to select “+” or “–”.
4. Press **【MENU】** to store the new setting and continue to select other Menu, or press **【A/B】** key to store the new setting and exit Menu mode.



- “+” or “–” appears above the frequency, indicating which offset direction is selected.

If the offset transmission frequency falls outside the allowable range, transmission is inhibited and an alarm beep sounds. In this case, adjust the reception frequency so that the transmission frequency is within the band limits.

9 OPERATING THROUGH REPEATERS

◆ Selecting an Offset Frequency

To access a repeater, which requires a pair of non-standard offset frequencies, change the offset frequency to avoid affecting normal communication.

1. Press **【MENU】** key twice.
2. Rotate the channel knob ENC to select Menu No. 11 (OFFSET).
3. Press **【MENU】** key .
 - Appear the current offset frequency on the display.



4. Rotate the channel knob ENC to select the appropriate offset frequency or enter the desired offset frequency number.
 - The selectable range is from 0.000 MHz to 50.0000MHz.
5. Press **【MENU】** to store the new setting and continue to select other Menu, or press **【 A/B 】** key to store the new setting and exit Menu mode.

9 OPERATING THROUGH REPEATERS

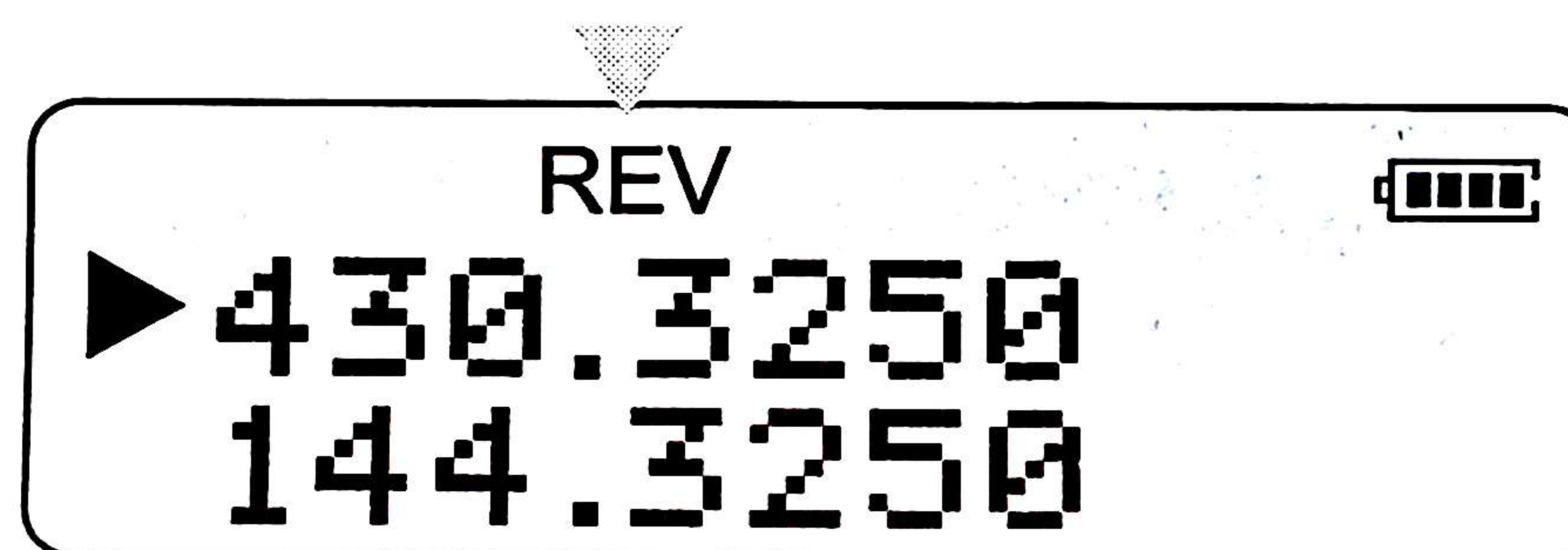
REVERSE FUNCTION

The Reverse function exchanges a separate reception and transmission frequency. So, while using a repeater, you can manually check the strength of a signal that you are receiving directly from the other station. If the station's signal is strong, both stations should move to a simplex frequency and free up the repeater.

To swap the transmission and reception frequencies:

Press **【MENU】** , **【 A/B 】** to switch the Reverse function ON (or OFF) .

“REV” appears when the function is ON.



Note:

You can turn the Reverse function ON when you are operating in Simplex Mode. However, it does not change the Transmission/Reception frequency.

10 MEMORY CHANNELS

In memory channels, you can store frequencies and related data that you frequently use so as not to reprogram them every time. Programmed channels can be recalled quickly through simple operation. A total of 199 memory channels are available for storing frequencies, modes and other operating conditions.

STORING DATA IN MEMORY.

You can use each memory channel as a simplex & repeater channel or a non-standard offset channel. Store only one frequency to use as a simplex & repeater channel or two separate frequencies to use as a non-standard offset channel. Select either application for each channel depending on the operations you need.

◆ Simplex & repeater channels allow:

- Simplex frequency operation
- Repeater operation with a standard offset (if an offset direction is stored)

◆ Non-standard offset channels allow:

- Repeater operation with a non-standard offset

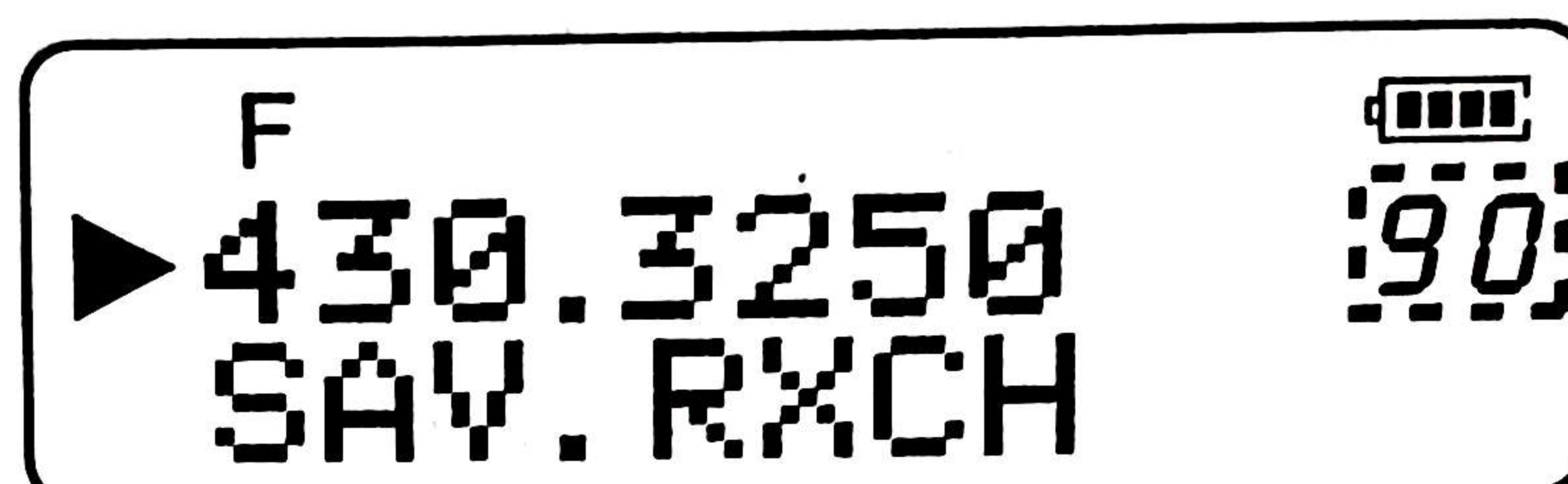
Note: Not only you can store data in memory channels, but you can also overwrite existing data with new data.

10 MEMORY CHANNELS

STORING OPERATION

1. Rotate the channel knob ENC to select desired frequency.
 - You can enter a desired frequency by numeric keypad directly.
2. Press **【MENU】** key, then press **【MR/VFO】** key.

The LCD displays:

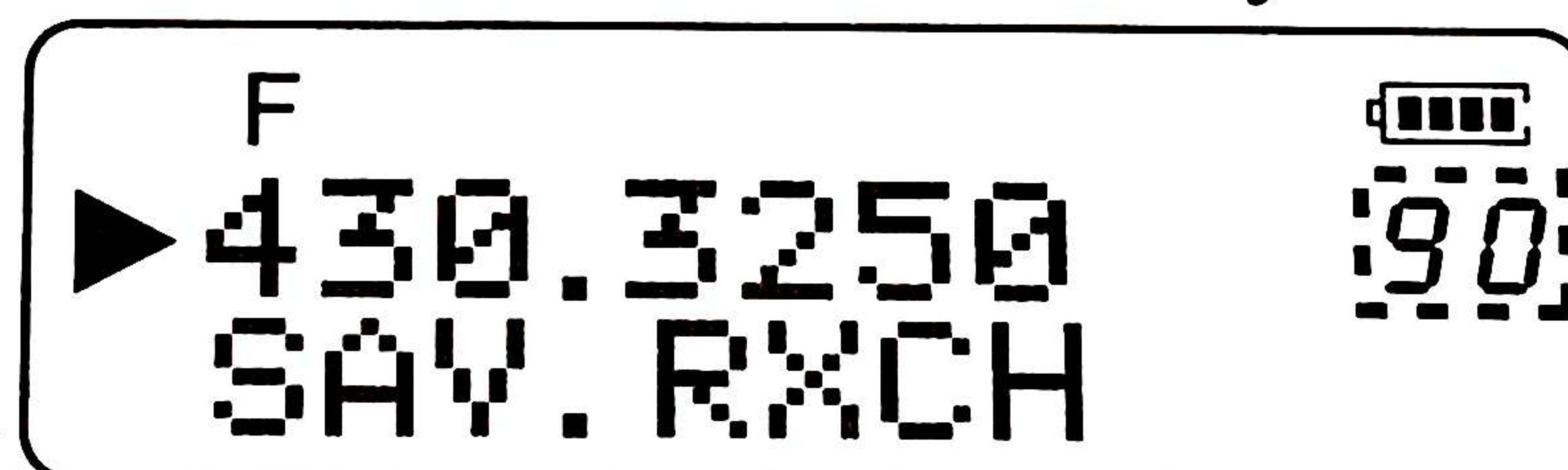


3. Press **【MR/VFO】** again, now the same frequency stored.

DIFFERENT FREQUENCY AND DIFFERENT BAND STORING OPERATION(THE MEMORY FREQUENCY MUST BE STORED AS SAME FREQUENCY FIRST)

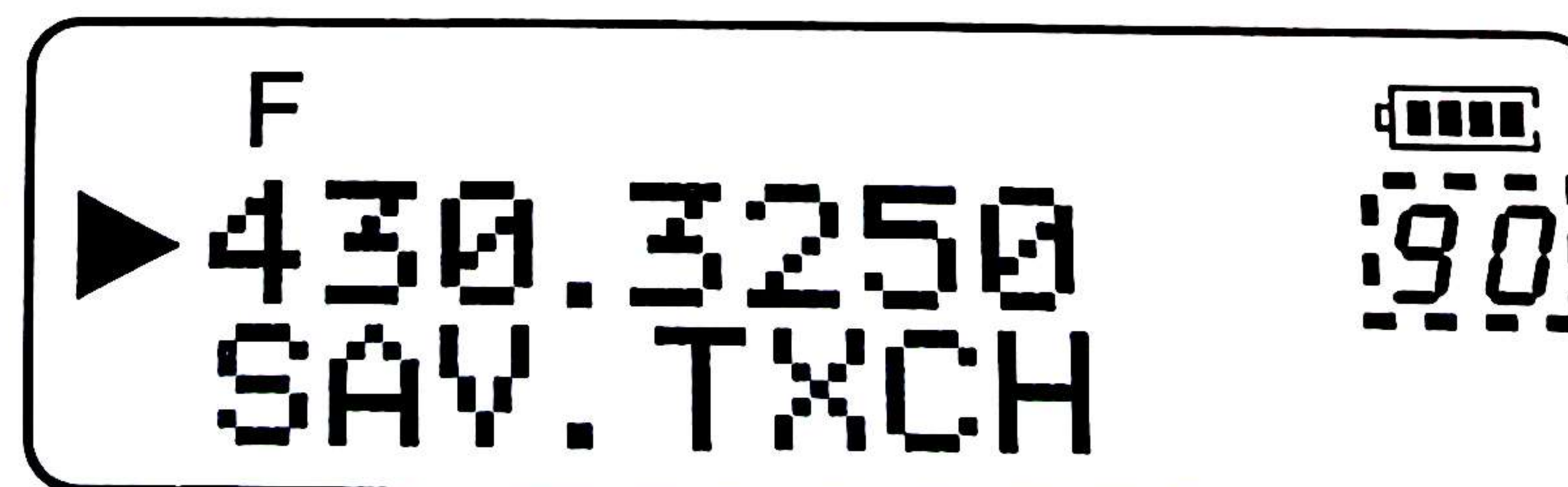
1. Rotate the channel knob ENC to select desired frequency.
You can enter a desired frequency by numeric keypad directly.
2. Press **【MENU】** key, then press **【MR/VFO】** key.

The LCD displays:



3. Then press **【A/B】** key,

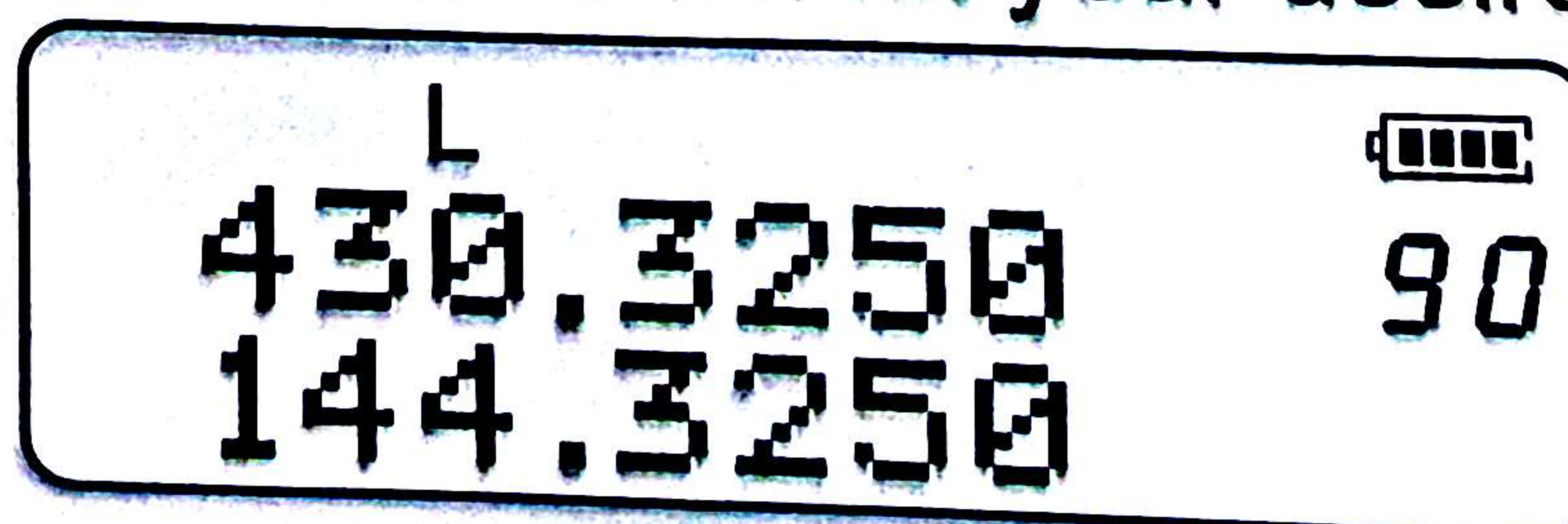
The LCD displays:



4. Press **【MR/VFO】** again, now the different frequency stored.

RECALL A MEMORY CHANNEL

1. Press **【MR/VFO】** to enter Memory Recall Mode.
 - The memory channel last used is recalled.
2. Rotate the channel knob ENC to select your desired memory channel.



10 MEMORY CHANNELS

- You cannot recall an empty memory channel.
- To restore VFO Mode, press **【MR/VFO】**.

USING A NUMERIC KEYPAD TO RECALL A MEMORY CHANNEL

You can also recall a memory channel by entering a desired memory channel number with the keypad.

1. Press **【MR/VFO】** to enter Memory Recall Mode.
2. And then enter the channel number using 3 digits.
 - For example, to recall channel 90, press **【0】**, **【9】**, **【0】**.

Note:

- You cannot recall an empty memory channel. An error beep sounds.
- When you recall a non-standard offset memory channel, “+” and “-” appear on the display. Press **【MENU】**, **【A/B】** (Reverse function) to display the transmission frequency.
- After recalling a memory channel, you may modify data such as power output. However, these settings are kept in the stored files once you select another channel or the VFO Mode. To permanently store the data, overwrite the channel contents.

FM RADIO FUNCTION OPERATION

1. Enter FM Radio Mode

In transceiver mode, press **[MENU] + [0]** button to enter FM radio mode. In FM radio mode, if someone calls this transceiver or press **[PTT]** to call other transceivers, it will automatically switch to receiving / transmitting mode. 10 seconds later after finishing the call, the transceiver will return to FM radio mode.

10 MEMORY CHANNELS

2. Exit FM Radio Mode

In FM radio mode, press [MENU] + [0] button to exit the FM radio mode and return back to transceiver mode.

3. FM radio channel Search

Press 【MENU】 + 【3】 , begin to entering the search mode, when search to an available channel, the transceiver will stop 5 seconds then search for next channel automatically. During the stay after searching an available channel, you can rotate channel knob to continue to search for channel up or down. press other keys to exit channel searching.

4. FM Radio Channel Storing

You can use the above method to search radio channel, when you search an available channel, exit the search mode; then press [MENU] + [MR/VFO] button to enter radio channel storing mode. Radio CH-01 appears on the display, which represent the FM radio channel number to be stored, rotate the channel selector to choose the desired channel number and press [MR/VFO] button to confirm and store. In VFO mode, you can directly enter radio frequency by numeric keys, then repeat above steps to store the channel.

5. FM radio mode switching and operation

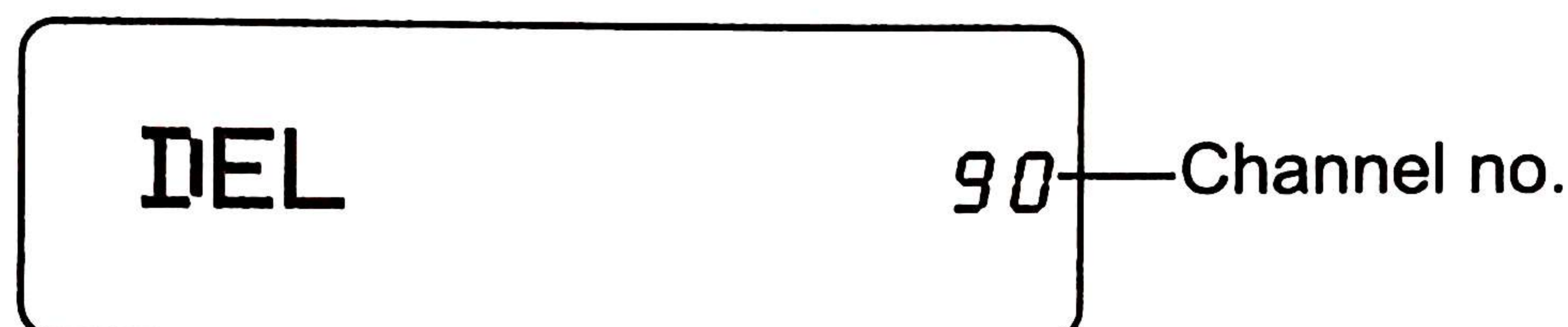
In radio mode, press 【MR/VFO】 to switch between VFO mode(channel mode) and MR mode(memory mode). In VFO mode, you can press numeric keys or rotate the channel knob ENC to select the radio frequency. In MR mode, you can press numeric keys or rotate the channel knob ENC to select the stored radio channel.

10 MEMORY CHANNELS

CLEARING A MEMORY CHANNEL

To clear the data from an individual memory channel:

1. Recall the memory channel you want to clear.
 2. And then turn OFF power
 3. Press 【 MR/VFO 】 key to turn ON power
- A confirmation message appears.



4. Press 【 MR/VFO 】 to clear the channel data.
- The contents of the memory channel are cleared.

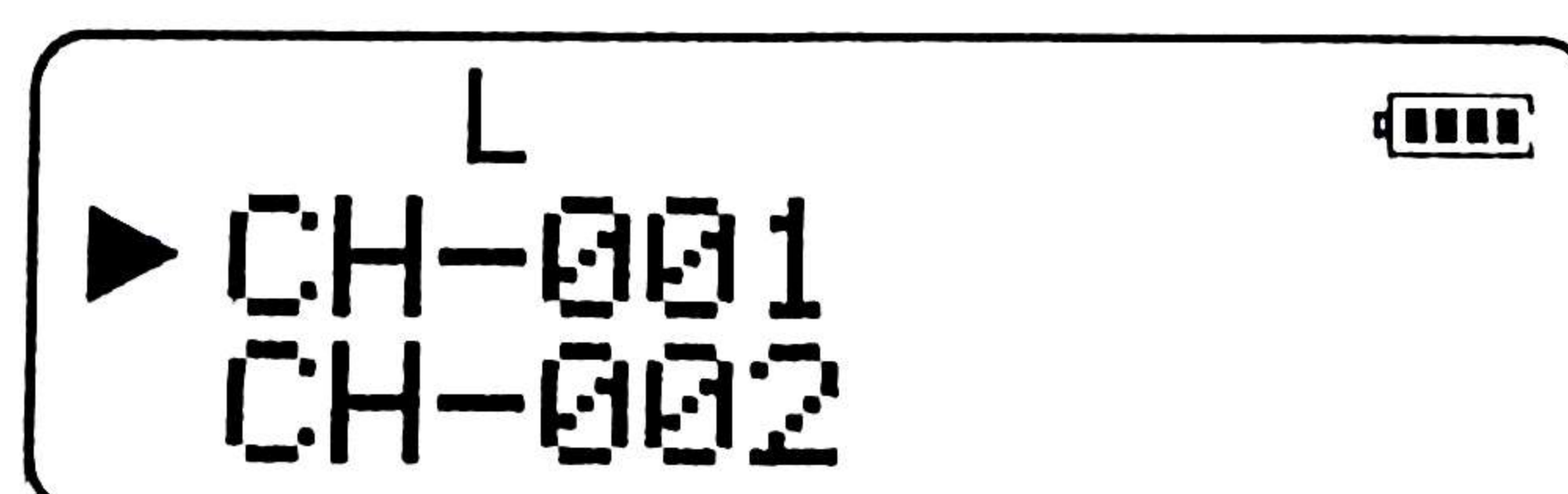
Note:

While the transceiver is in Channel Display Mode or Lock-out function is activated, you cannot clear the channel data. To clear the channel data, must be free from channel lock-out. (refer to channel lock-out)

CHANNEL DISPLAY

While in this mode, the transceiver displays only memory channel numbers (or Memory names if they have been stored), instead of frequency.

1. Press 【 # 】 key to switch among 3mode: channel mode, frequency + channel mode, channel name mode.
- The transceiver displays the memory channel number in place of the operating frequencies.



2. Rotate the channel knob ENC to select your desired memory channel number.

11 SCAN

SCAN RESUME METHOD

The transceiver stops scanning through the frequencies (or memory channel) where a signal is detected. Then it continues or stops scanning according to which Resume Mode you have selected.

◆ Time-Operated Mode (default)

The transceiver remains on a busy frequency (or memory channel) for approximately 5 seconds, and then continues to scan even if the signal is still present.

◆ Carrier-Operated Mode

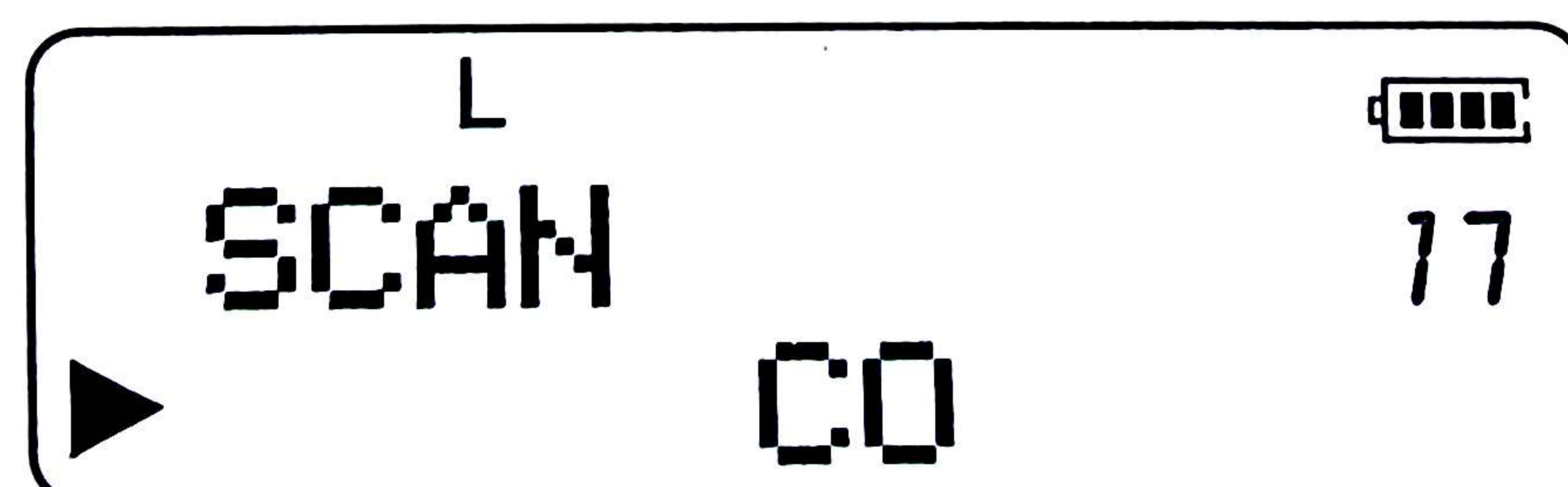
The transceiver remains on a busy frequency (or memory channel) until the signal drops out. There is a 5-second delay between signal dropout and scan resumption.

◆ Seek Mode

The transceiver moves to a frequency or memory channel where a signal is present and stops.

To change the scan resume method:

1. Press **【MENU】** key twice.
2. Rotate the channel knob ENC to select Menu No. 17 (SCAN).
3. Press **【MENU】** .
4. Rotate the channel knob ENC to select “TO” (Time-Operated), “CO” (Carrier-Operated), or “SE” (Seek) Mode.



5. Press **【MENU】** key to store new setting and continue to set other function, or press **【 A/B 】** key to store new setting and exit Menu mode.

ACTIVATE SCANNING

Activate scanning function under frequency and channel mode.

1. Press **【MENU】** key and then press **【3】** key to start scanning.
2. Press any key to cancel the function except **【MONI】** .

12 SELECTIVE CALL

CTCSS AND DCS

You may sometimes want to hear calls only from specific persons or groups. In this case, use the Selective Call. This transceiver is equipped with CTCSS (Continuous Tone Coded Squelch System) and DCS (Digital Coded Squelch). These Selective Calls allow you to ignore (not hear) unwanted calls from other persons who are using the same frequency. The transceiver responds only when it receives a signal having the same CTCSS tone or DCS code.

Note:

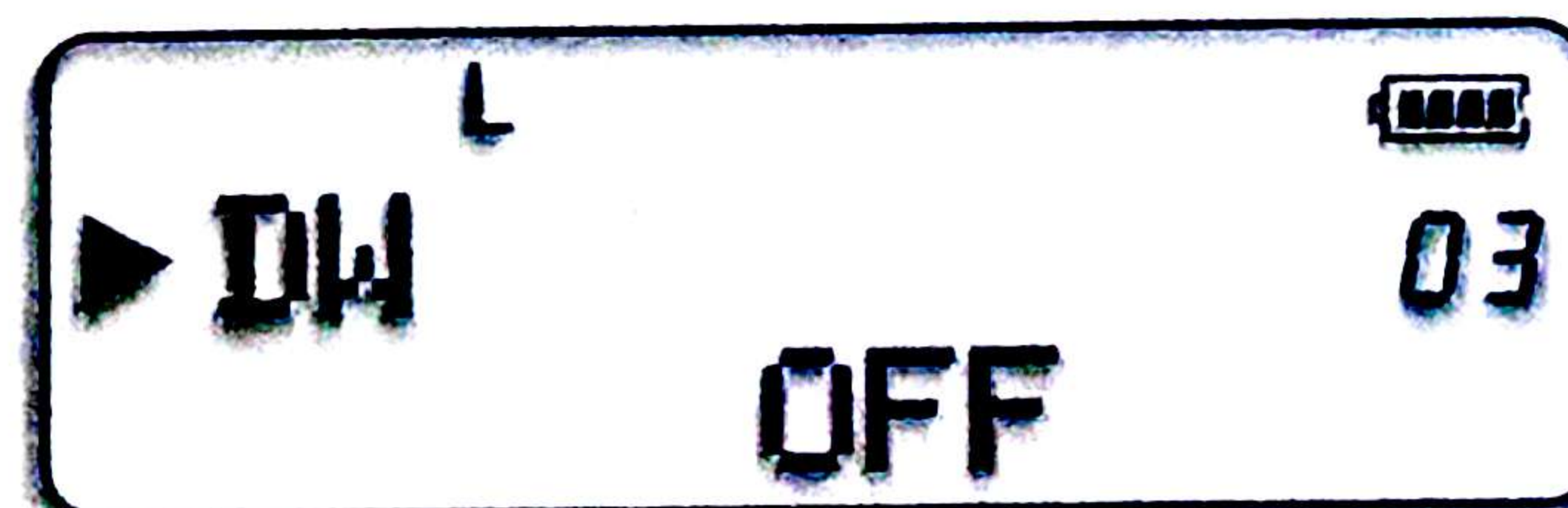
CTCSS and DCS do not cause your conversation to be private or scrambled. It only relieves you from listening to unwanted conversations.

FM RADIO MONITOR MODE SETTING

While FM radio is on, and the monitor function is activated. If the transceiver receive signals, the system will temporarily turn off FM radio automatically, and begin to receive signals from other transceiver; when other transceiver's signals stop 5 seconds, FM radio function reactivates automatically. Once the monitor function is turned off, you can not receive signals from other transceivers' transmitting signals.

1. Press **【MENU】** key twice.
2. Rotate the channel knob ENC to select menu No.03.

The LCD displays :



3. Press **【MENU】** again.
4. Rotate the channel knob ENC to select "ON/OFF"

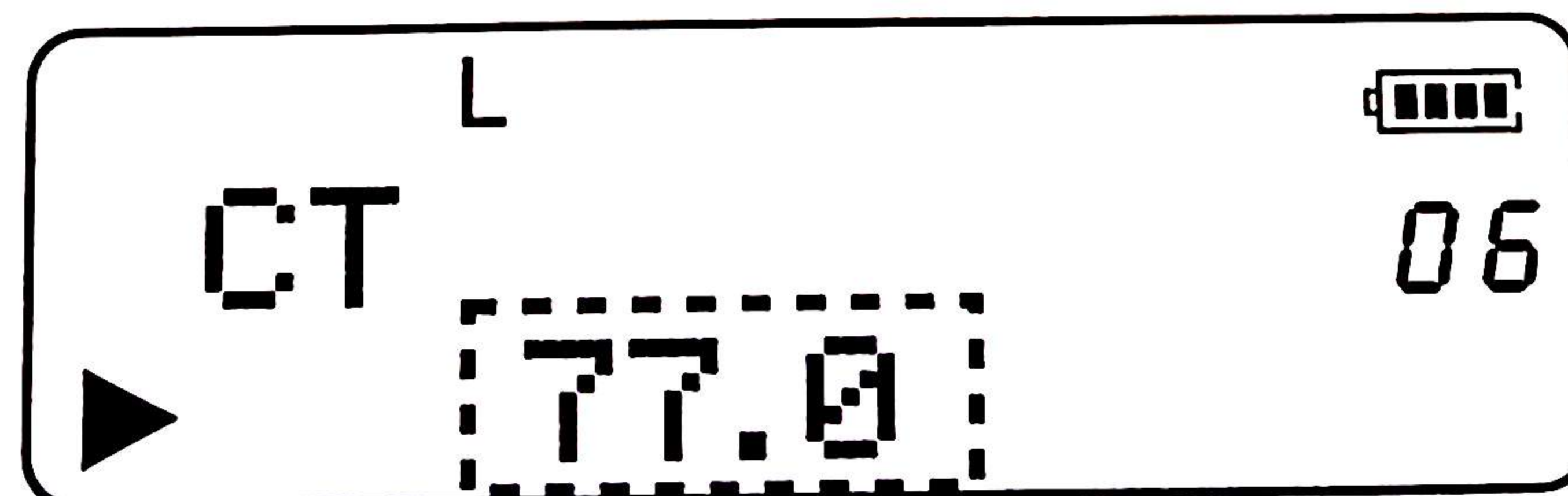


12 SELECTIVE CALL

- "ON" means on FM radio mode, transceiver can monitor receiving signals.
 - "OFF" means transceiver always stopping on FM radio mode.
5. Press **【MENU】** key to store the new setting and continue to set other functions, or Press **【A/B】** key to store the new setting and exit menu mode.

◆ Selecting a RX/TX CTCSS Frequency

1. Press **【MENU】** key twice, and rotate the channel knob ENC to select Menu No. 6 (CT).
 - The current CTCSS frequency appears.
2. Press **【MENU】** and rotate the channel knob ENC to select your desired CTCSS frequency.
 - The selectable CTCSS frequencies refer to the table on the following page.



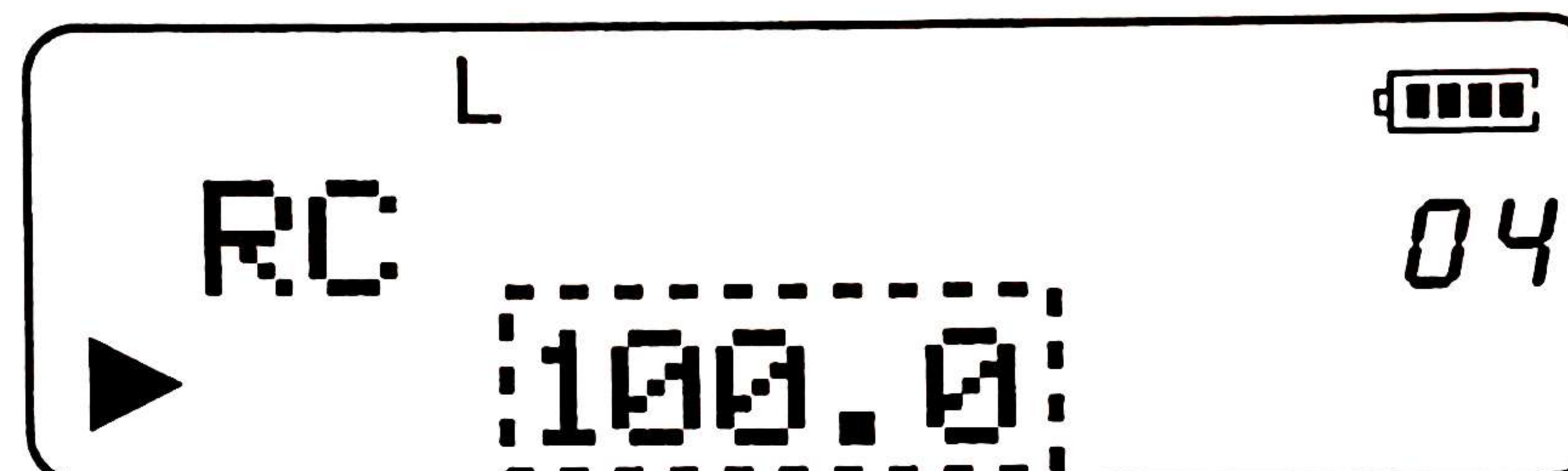
3. Press **【MENU】** to store the new setting and continue to set other function. Or press **【A/B】** key to store new setting and exit Menu Mode.

Note: To use the selected CTCSS tone, you must turn the CTCSS function ON.

12 SELECTIVE CALL

◆ Selecting RX CTCSS frequency

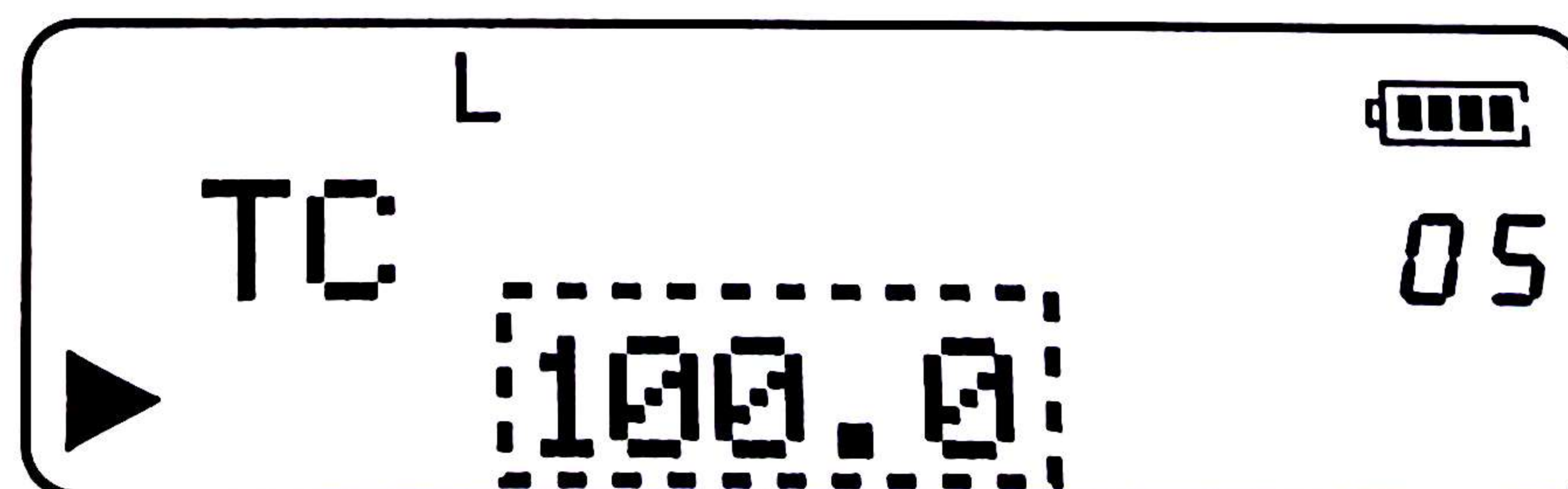
1. Press **【MENU】** key twice , and then rotate the channel knob ENC to select Menu No. 4 (RC) .
 - The current CTCSS frequency appears on the display.



2. Press **【MENU】** key.
3. Rotate the channel knob ENC to select desired CTCSS frequency.
4. Press **【MENU】** to store the new setting and continue to set other function. Or press **【 A/B 】** key to store new setting and exit Menu Mode.
 - The selectable CTCSS frequencies refer to the CTCSS frequencies table.

◆ Selecting TX CTCSS frequency

1. Press **【MENU】** key twice , and then rotate the channel knob ENC to select Menu No.5 (TC)
 - The current CTCSS frequency appears on the display.



2. Press **【MENU】** key.
3. Rotate the channel knob ENC to select desired CTCSS frequency table.
4. Press **【MENU】** to store the new setting and continue to set other function. Or press **【 A/B 】** key to store new setting and exit Menu Mode.
 - The selectable CTCSS frequencies refer to the CTCSS frequencies.

12 SELECTIVE CALL

Available CTCSS Tone Frequencies

OFF	85.4	118.8	162.2	192.8	241.8
61	88.5	123.0	165.5	196.6	250.3
63	91.5	127.3	167.9	199.5	254.1
67.0	94.8	131.8	171.3	203.5	
69.3	97.4	136.5	173.8	206.5	
71.9	100.0	141.3	177.3	210.7	
74.4	103.5	146.2	179.9	218.1	
77.0	107.2	151.4	183.5	225.7	
79.7	110.9	156.7	186.2	229.1	
82.5	114.8	159.8	189.9	233.6	

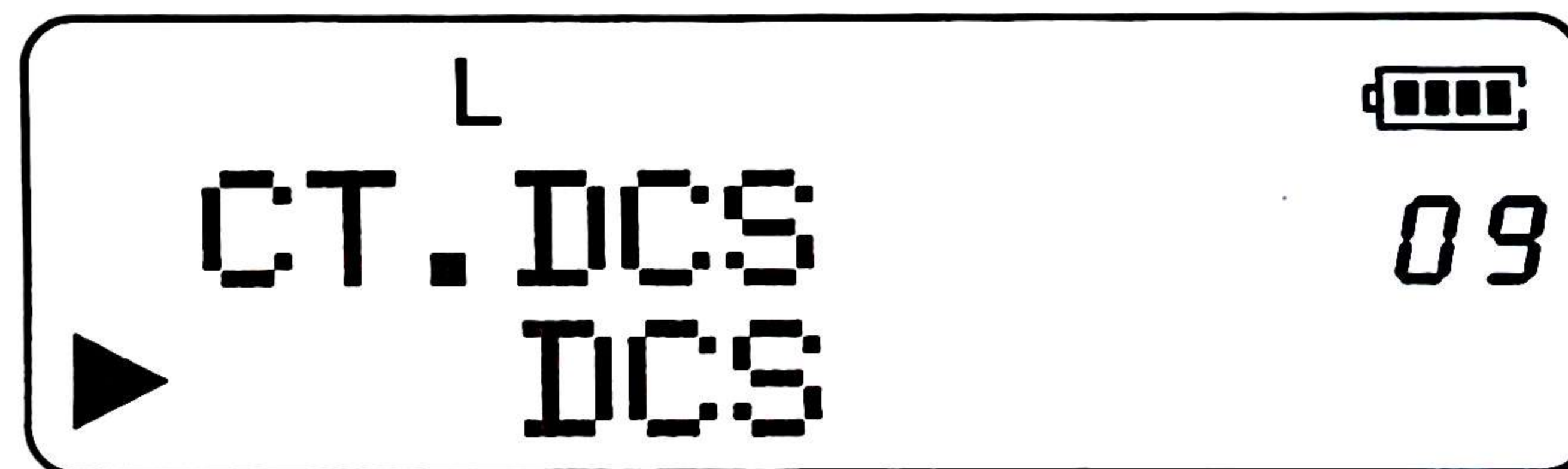
12 SELECTIVE CALL

DCS

DCS is similar to CTCSS. However, instead of using an analog audio tone, it uses a continuous sub-audible digital waveform that represents a 3-digit octal number. You can select a DCS code from among the DCS codes listed in the above table on the following page.

◆ Selecting a RX/TX DCS Code

1. Press **【MENU】** key twice, and rotate the channel knob ENC to select Menu No. 9 (DC). The current DCS code appears.



2. Press **【MENU】** and rotate the channel knob ENC to select your desired DCS code.
- The selectable DCS code, refer to the DCS code table (Normal“N”/Reverse“l”) .

12 SELECTIVE CALL

DCS CODE TABLE(The Inverse code)

OFF	053N	131N	205 N	261 N	343 N	432 N	516 N	645 N
017N	054N	132N	212 N	263 N	346 N	445 N	523 N	654 N
023N	065N	134 N	223 N	265 N	351 N	446 N	526 N	662 N
025N	071N	143 N	225 N	266 N	356 N	452 N	532 N	664 N
026N	072N	145 N	226 N	271 N	364 N	454 N	546 N	703 N
031N	073N	152 N	243 N	274 N	365 N	455 N	565 N	712 N
032N	074N	155 N	244 N	306 N	371 N	462 N	606 N	723 N
036N	114N	156 N	245 N	311 N	411 N	464 N	612 N	731 N
043N	115N	162 N	246 N	315 N	412 N	465 N	624 N	732 N
047N	116N	165 N	251 N	325 N	413 N	466 N	627 N	734 N
050N	122N	172 N	252 N	331 N	423 N	503 N	631 N	743 N
051N	125N	174 N	255 N	332 N	431 N	506 N	632 N	754 N

DCS CODE TABLE(The Normal code)

OFF	053 I	131 I	205 I	261 I	343 I	432 I	516 I	645 I
017 I	054 I	132 I	212 I	263 I	346 I	445 I	523 I	654 I
023 I	065 I	134 I	223 I	265 I	351 I	446 I	526 I	662 I
025 I	071 I	143 I	225 I	266 I	356 I	452 I	532 I	664 I
026 I	072 I	145 I	226 I	271 I	364 I	454 I	546 I	703 I
031 I	073 I	152 I	243 I	274 I	365 I	455 I	565 I	712 I
032 I	074 I	155 I	244 I	306 I	371 I	462 I	606 I	723 I
036 I	114 I	156 I	245 I	311 I	411 I	464 I	612 I	731 I
043 I	115 I	162 I	246 I	315 I	412 I	465 I	624 I	732 I
047 I	116 I	165 I	251 I	325 I	413 I	466 I	627 I	734 I
050 I	122 I	172 I	252 I	331 I	423 I	503 I	631 I	743 I
051 I	125 I	174 I	255 I	332 I	431 I	506 I	632 I	754 I

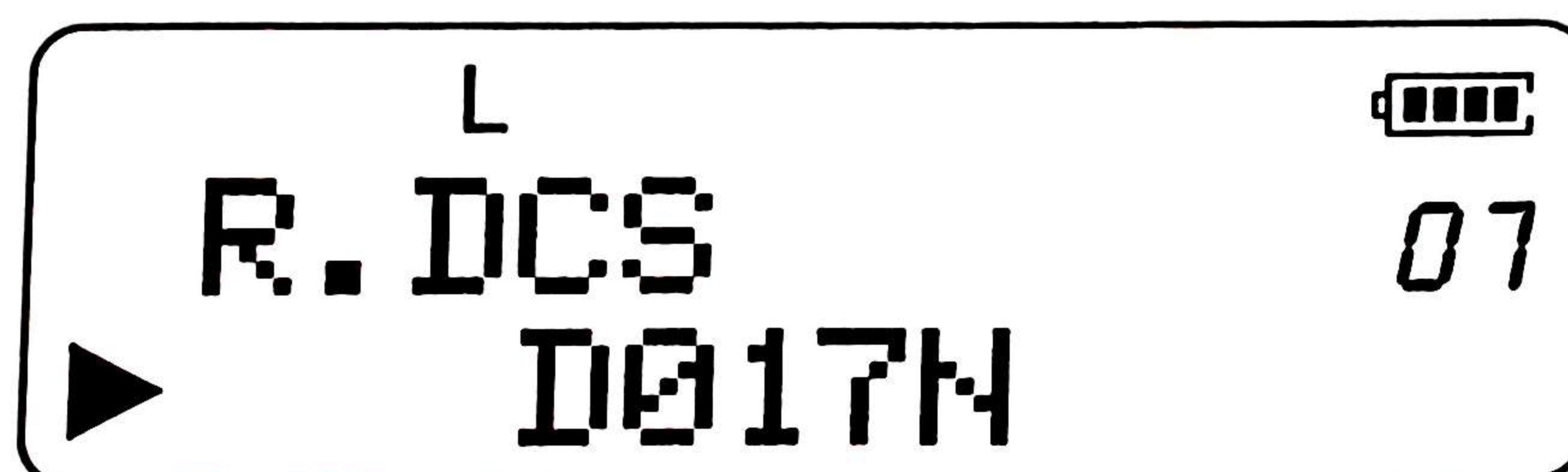
. Press **【MENU】** to store the new setting and continue to set other function. Or press **【 A/B 】** key to store new setting and exit Menu Mode.

12 SELECTIVE CALL

◆ Selecting RX DCS code

1. Press **【MENU】** key twice , and then rotate the channel knob ENC to select Menu No. 7 (Rd) .

The current DCS code appears on the display.

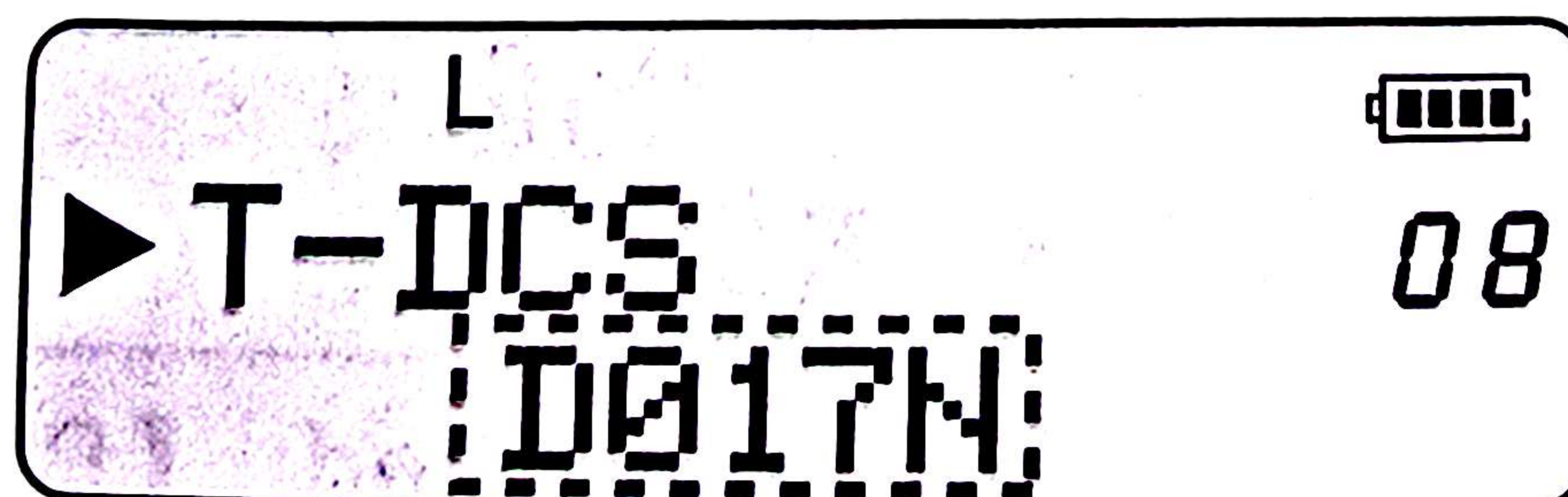


2. Press **【MENU】** key. then rotate the channel knob ENC to select desired DCS code.
 - The selectable DCS code, refer to the DCS code table (Normal“N”/Reverse“I”)
3. Press **【MENU】** to store the new setting and continue to set other function. Or press **【 A/B 】** key to store new setting and exit Menu Mode.

◆ Selecting TX DCS code

1. Press **【MENU】** key twice , and then rotate the channel knob ENC to select Menu No. 8 (TD)

The current DCS code appears on the display.



2. Press **【MENU】** key. then rotate the channel knob ENC to select desired DCS code
 - The selectable DCS code, refer to the DCS code table (Normal“N”/Reverse“I”)

12 SELECTIVE CALL

3. Press **【MENU】** to store the new setting and continue to set other function. Or press **【A/B】** key to store new setting and exit Menu Mode.

Backlight

To illuminate the display and keys:

Press [MONI] key to turn on/off the backlight.

- If other keys are not operated, the backlight turns off approximately 5 seconds after releasing [MONI] key.
- When the display and keys are light, press any keys except [MONI] key will activate the 5 seconds timer to re-start counting.
- When the display and keys are lighting, press [MONI] key to turn off the backlight immediately.

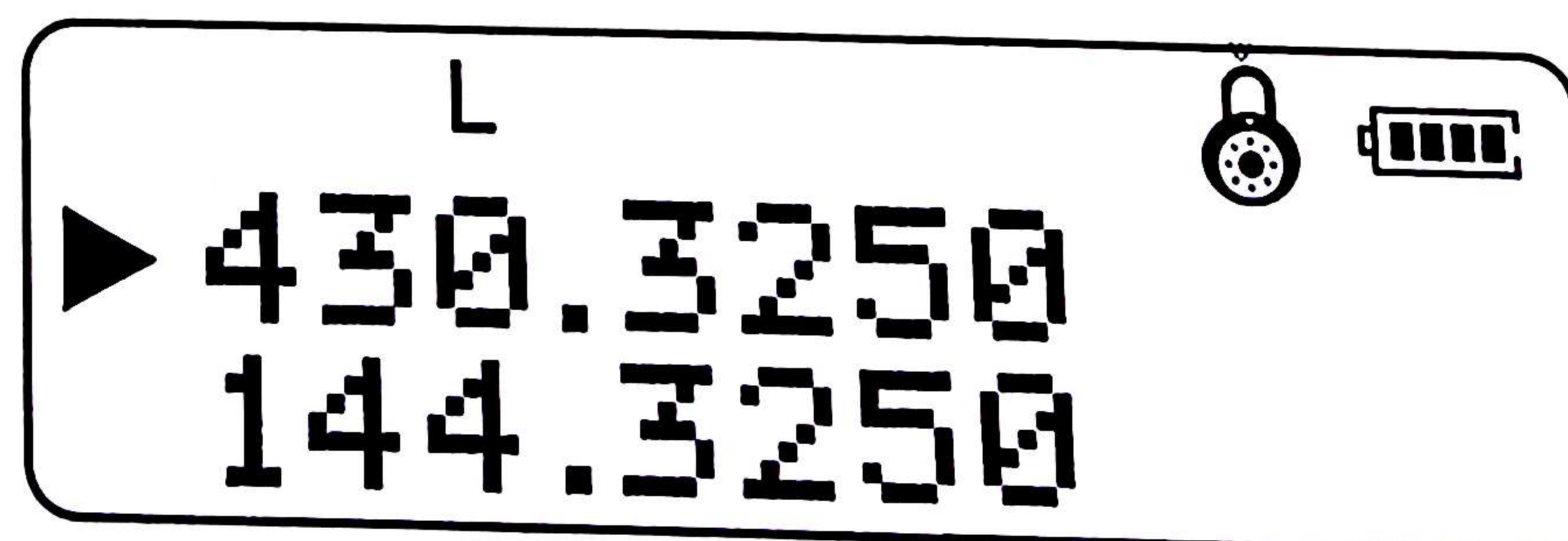
Note: For backlight setting, please refer to Operator Conveniences.

KEY LOCK FUNCTION

The key lock function disables most of the keys to prevent you from accidentally activating a function.

1. Press **【MENU】 (3 seconds)**.

“” appears when this function is ON.



- The following keys cannot be locked: **【PTT】**、**【MENU】** (3seconds)、**【MONI】**、PWR/VOL control.

2. Press **【MENU】** (3seconds) to unlock keys.

Note: As for manual/Auto key lock function setting, please refer to MANU lock in Operator Conveniences (Default).

12 SELECTIVE CALL

MONITOR

1. When you are receiving as the squelch function is ON, weak signals may become intermittent.
2. If the CTCSS or DCS function is ON, you may want to disable the squelch function temporarily to monitor the current channel activities.
3. In both of these cases, use the Monitor function to temporarily disable the squelch function.

Activate the Monitor function:






1. Press and hold [MONI] key for 3 seconds.
 - The speaker is un-muted and you can monitor the signals.
2. Release 【MONI】 key to return to normal operation.

13 OPERATOR CONVENIENCES

BATTERY CAPACITY INDICATOR

Before you operate the transceiver outside using a battery pack, it is important to know how long the battery pack will last, so as not to affect your normal conversation.

The battery capacity indicator shows the battery strength level.

-  High battery capacity
-  Medium battery capacity
-  Medium low battery capacity
-  Low battery capacity
-  Recharge or replace the battery

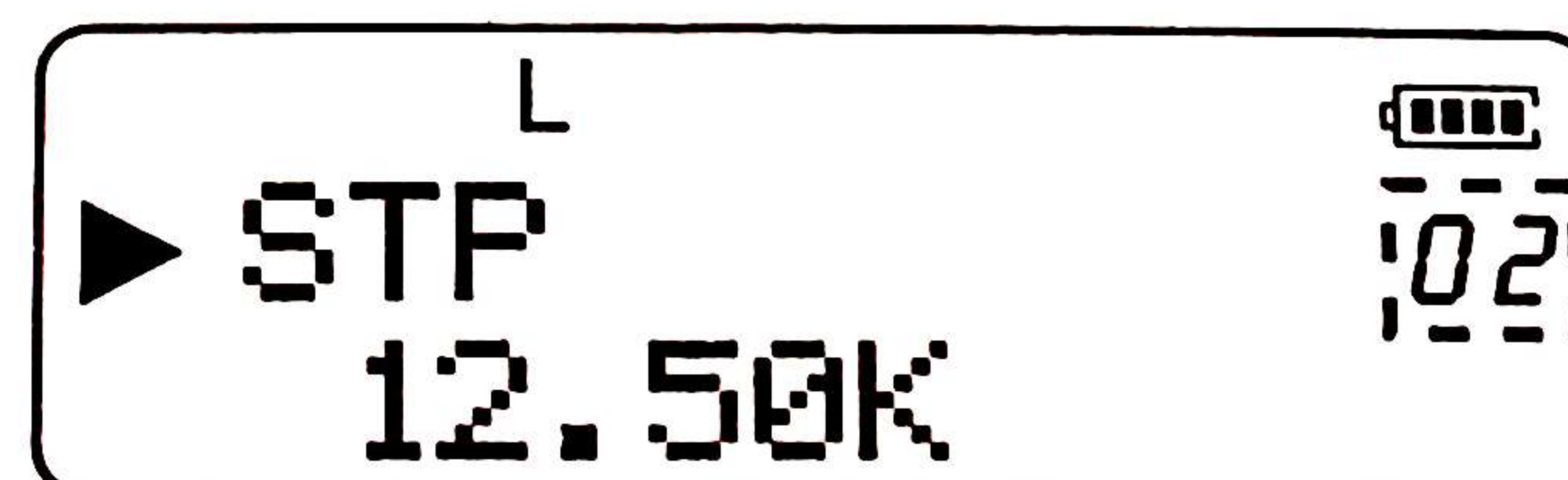
CHANNEL SETUP

When rotate the channel knob ENC to select a receiving frequency, you must select correct frequency step. You can select a desired frequency step from following value.

5KHz, 6.25KHz, 10KHz, 12.5KHz, 25KHz.

◆ To Change the Frequency Step

1. Press **【MENU】** key twice, and then rotate the channel knob ENC to select Menu No.2 (STP).
- The currently frequency step appears on the display.



2. Press **【MENU】** key and then rotate the channel knob ENC to select a desired frequency step.
3. press **【MENU】** key to store new setting and continue to set other function, Or press **【A/B】** key to store new setting and exit Menu mode.

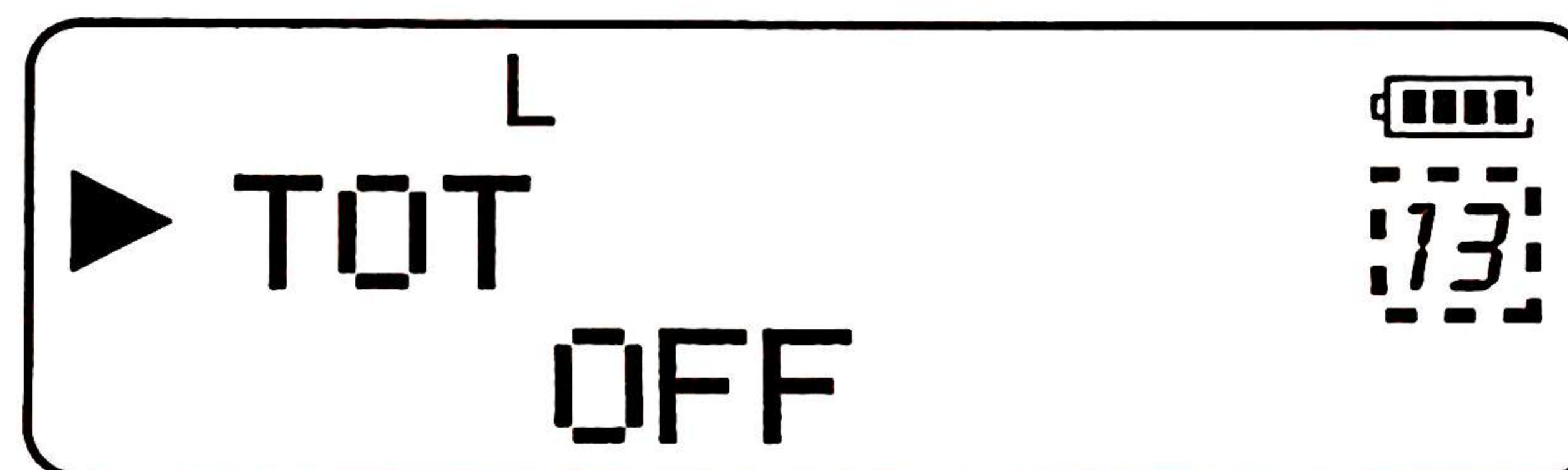
Note: If you change a frequency step which does not match the current frequency step size, the transceiver is automatically adjust the frequency to match the new frequency step size.

13 OPERATOR CONVENIENCES

TIME-OUT TIMER

The Time-out Timer limits the time of each transmission. The built-in Time-out Timer limits each transmission time to be 1 (default) , 3 or 10 minutes. Just before the transceiver stops the transmission, a warning beep sounds. This function is necessary to protect the transceiver from thermal damage due to overheat and therefore is recommended not to be turned OFF.

1. Press **【MENU】** key twice , and then rotate the channel knob ENC to select Menu NO.13 (TOT) .



2. Press **【MENU】** ,and then rotate the channel knob ENC to select 1 (default) , 3 or 10 minutes.
3. Press **【MENU】** key to store the new setting and continue to set other function. Or press **【 A / B 】** key to store new setting and exit Menu mode.

VOX (VOICE-OPERATED TRANSMISSION)

VOX eliminates the necessity of manually switching to the Transmission Mode each time you want to transmit. The transceiver automatically switches to Transmission Mode when the VOX circuitry senses that you have begun speaking into the microphone.

◆ To turn the VOX function ON:

1. Press **【MENU】** key twice, then rotate the channel knob ENC to select Menu No. 14 (VOX).

14 QUICK REFERENCE TO KEYS AND MAIN FUNCTIONS

Key	Functions
【#】	Switch memory channel display mode
【 A/B 】	Short press to switch A and B band, long press to cancel one of the band.
【MENU】	Menu Access / Short cut
【 MR/VFO】	Switch between frequency ,frequency+channel
【0~9】	Number input and work with function keys
【Backlight (short press)/MONI (long press)】	Turn on/off backlight, turn on squelch.

Item	Shortcut Operation
Adjust Squelch	Press 【MENU】 then press 【1】 key
DW OFF/ON set	Press 【MENU】 then press 【2】 key
Scan OFF/ON (including in FM radio mode)	Press 【MENU】 then press 【3】 key
RX CTCSS set	Press 【MENU】 then press 【4】 key
TX CTCSS set	Press 【MENU】 then press 【5】 key
TX power set	Press 【MENU】 then press 【6】 key
RX DCS set	Press 【MENU】 then press 【7】 key
TX DCS set	Press 【MENU】 then press 【8】 key
Channel spacing set	Press 【MENU】 then press 【9】 key
FM radio set	Press 【MENU】 then press 【0】 key
Storing Channel	Press 【MENU】 then press 【MR/VFO】 key
Selecting call tone	Press 【MENU】 then press 【CALL】 key
Key tone ON/OFF set	Press 【MENU】 then press 【 * 】 key
Off set direction(+,-)	Press 【MENU】 then press 【 # 】 key

15 STANDARDS

Frequency Range	VHF	UHF
	136-174MHz	400-480MHz
Channel Capacity	199	
Battery Voltage	7.4V (Li-ion) DC $\pm 15\%$	
Antenna Impedance	50 Ω	
Frequency Step	5,6.25,10,12.5,25KHz	
Workable Temp.	-30°C +60°C	
Frequency Stability	± 2.5 PPM	
Dimension	116X57X30mm	
Battery	1500mAh(Li-ion)	

16 SPECIFICATIONS

Transmit Part

Parameters \ Band	UHF	VHF
Power output	5W	5W
Modulation	FM	
Max. Frequency Deviation	$\leq \pm 2.5\text{KHz}$	
Spurious Radiation	$< -60\text{dB}$	
pre emphasis characteristics	per frequency range 6dB	
Transmitting Current	V:1300mA U:1500mA	

Receiver Part

Sensitivity	$< 0.2\mu\text{V}$ (12dB SINAD)
Squelch Sensitivity	0.15u
Inter-modulation Rejection	65dB
Audio Power	450mW

17 ACCESSORIES

Item	Quantity
Transceiver	1
Rubber antenna	1
Li-ion battery pack	1
Li-ion battery charger (with adaptor)	1
Belt Clip	1
User's manual	1

Optional Extra Accessories

Earphone	1
Enhanced Antenna	1