SELECTING AN OUTPUT POWER

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

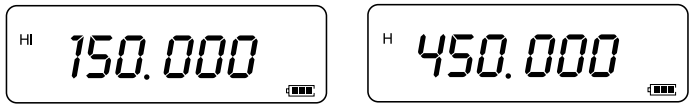
1. Press【MENU】key.
2. Turn channel selector to select Menu No. 10（POW）.
3. Press【MENU】key.
   Appears on the display.

4. Turn channel selector to select a desired transmission power and cycle between"H" (high), "M" (medium), and "L" (low).
5. Press【MENU】key to store the new setting and continue to set other function. Or press【FUNC】key to store the new setting and exit Menu mode

SELECTING A FREQUENCY

◆ VFO Mode

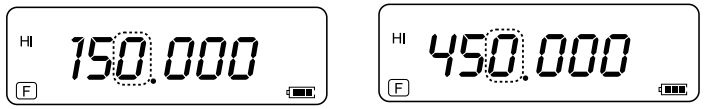
This is the basic mode for changing the operating frequency. Turn the channel selector clockwise to increase the frequency and turn connterclockwise to decrease the frequency.



◆ 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:

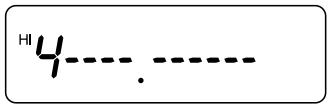
1. Press【FUNC】
   The MHz digit blinks.



2. Turn channel selector to select the desired MHz value.
3. After selecting the desired MHz value, press【FUNC】to exit the mode and return to normal VFO Mode.
4. Continue adjusting the frequency as necessary, using the Turning channel selector.

◆ Direct Frequency Entry

In addition to Turning channel selector，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.



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 Turn channel selector while entering the frequency, the transceiver clears the entry and changes to the next available frequency.

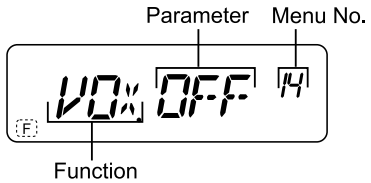
WHAT IS A MENU?

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, settings, and programming functions on this transceiver to meet your needs without using many controls and switches.

MENU ACCESS

1. Press【MENU】

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



2. Turn channel selector 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.

4. Turn channel selector to select your desired parameter.

5. Press【MENU】to store the new setting.Turn channel selector to continue to select other Menu, or press【FUNC】key to store the new setting and exit Menu mode.

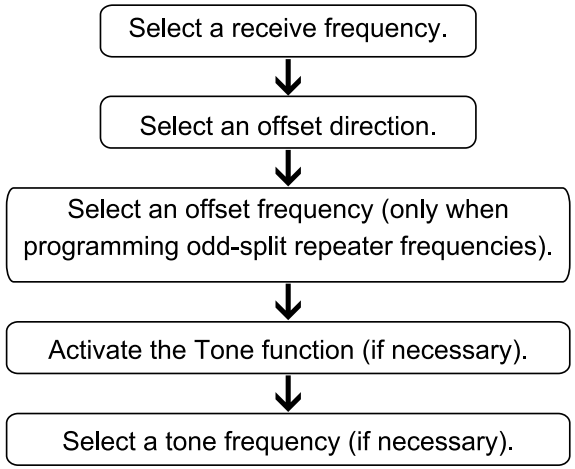
MENU FUNCTION LIST

On the display	Menu No	Function	Selections	Default	Description
SQL	1	Squelch Setting	00 to 09	05	5 level
STP	2	Frequency step	5,6.25,10,12.5,25KHz	25KHz	25KHz
CT.DCS	3	CTCSS/DCS selection	OFF/CTCSS/DCS	OFF	OFF
RC	4	RX CTCSS setting	67.0 – 254.1Hz	OFF	OFF
TC	5	TX CTCSS setting	67.0 – 254.1Hz	OFF	OFF
CT	6	RX/TX CTCSS setting	67.0 – 254.1Hz	OFF	OFF
Rd	7	RX DCS setting	023N – 754N 023I – 754I	OFF	OFF
Td	8	TX DCS setting	023N – 754N 023I – 754I	OFF	OFF
dC	9	RX/TX DCS setting	023N – 754N 023I – 754I	OFF	OFF
POW	10	TX power selection	H, M, L	H	High power
OFFSET	11	Offset frequency	0.00 – 50MHz	10.000MHz	10MHz
SFT	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	OFF	OFF
BP	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 selection	OFF/1 – 8 /1750MHz	1	1
SAV	19	Save power selection	OFF/0.2/0.4/0.6/0.8/1.0	0.4	0.4 second
KY	20	Keypad lock selection	MANU/AUTO	MANU	Manual
BCL	21	Busy Channel Lock-out	ON/OFF	ON	ON
PON	22	Power ON message	6-alpha		
M.NAME	23	Storing Alpha	6-alpha		
MDF	24	Alpha/Freq display	MN/FRQ	FRQ	FREQ
ENC	25	Tuning lock-out	ON/OFF	OFF	OFF
L.OUF	26	Memory channel lock-out	ON/OFF	OFF	OFF
PRI	27	Priority scan 0N or OFF	ON/OFF	OFF	OFF
PRI	28	Priority scan time setting	3.5.8.10 sec/OFF	3	3
N/W	29	N/W band selection	N/W	W	Wide band

Repeaters, which are often installed and maintained by radio clubs, 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 (odd-split). In addition, some repeaters must receive a tone from the transceiver to be accessed. For details, consult your local repeater reference.

OFFSET PROGRAMMING FLOW



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”.

PROGRAMMING AN OFFSET

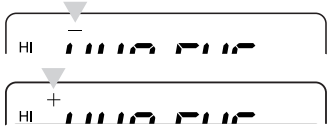
You must first select an amateur radio repeater downlink frequency as described in “Selecting an Offset Frequency”.

◆ Selecting an Offset Direction

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

1. Press 【MENU】.

2. Turn channel selector to select Menu No. 12（SFT）.
3. Press 【MENU】.
4. Turn channel selector to select “+” or “–”.
5. Press【MENU】to store the new setting. or press【FUNC】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. In this case, adjust the reception frequency so that the transmission frequency is within the band limits.

◆ Selecting an Offset Frequency

To access a repeater, which requires an odd-split frequency pair, change the offset frequency to avoid affecting normal communication.

1. Press【MENU】.
2. Turn channel selector to select Menu No. 11 (OFFSET).
3. Press【MENU】.
   Appear the currently offset frequency on the display.

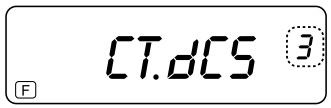
4. Turn channel selector to select the appropriate offset frequency or enter the desired offset frequency numeral.

■ The selectable range is from 0.000 MHz to 50.0000MHz.

5. Press【MENU】to store the new setting. or press【FUNC】key to store the new setting and exit Menu mode.

◆ Activating the CTCSS/DCS Function

1. Press 【MENU】.
2. Turn channel selector to select Menu No. 3 (CT.DCS).Info appears on the display.



3. Press 【MENU】.
4. Turn channel selector to select “DCS”.

5. Press【MENU】to store the new setting.or press【FUNC】key to store the new setting and exit Menu mode

■ “DQT” appears when the DCS function is ON.

Note: You cannot use the Tone and CTCSS/ DCS functions at the same time. Switching the CTCSS function ON after activating the DCS deactivates the DCS function.

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【FUNC】, 【MENU】to switch the Reverse function ON（or OFF）.

■ “R” 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.

In memory channels, you can store frequencies and related data that you frequently use so that you do not need to reprogram that data every time. You can quickly recall a programmed channel through simple operation. A total of 199 memory channels are available for storing frequencies, modes and other operating conditions.

SIMPLEX & REPEATER OR ODD-SPLIT MEMORY CHANNEL?

You can use each memory channel as a simplex & repeater channel or an odd-split channel. Store only one frequency to use as a simplex & repeater channel or two separate frequencies to use as an odd-split 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)

◆**Odd-split 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.

THE OPERATING OF MEMORY CHANNEL

Please confirm the desired store functions prior to store operating.

1. Power output selection（H, M, L）
2. RX/TX CTCSS selection
3. RX CTCSS selection

4. TX CTCSS selection
5. RX/TX DCS selection
6. RX DCS selection
7. TX DCS selection
8. Offset frequency
9. Offset direction（＋, －）

STORING OPERATION

1. Turn channel selector to select desired frequency.

■ You can enter a desired frequency by numeric keypad directly.

2. press【FUNC】key and then press【MONI】key.

■ A memory channel number appears and blinks.

3. Turn channel selector to select a desired channel number.
4. Press【MONI】key to store.

RECALL A MEMORY CHANNEL

1. Press 【MONI】to enter Memory Recall Mode.

■ The memory channel last used is recalled.

2. Turn channel selector to select your desired memory channel.

■ You cannot recall an empty memory channel.

■ To restore VFO Mode, press【MONI】.

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 【MONI】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 an odd-split memory channel, “+” and “–” appear on the display. Press 【FUNC】, 【MENU】(Reverse function) to display the transmission frequency.

■ After recalling a memory channel, you may modify data such as power output. However, these settings are cleared 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】to enter radio mode. In the radio mode, if someone calls this transceiver or press【PTT】to call other transceivers, it automatically switch to receiving / transmitting mode, 10 seconds after the call finish, the transceiver will switch back to the radio mode.

2. Exit the FM radio mode

In FM radio mode, press【MENU】+【0】to exit the FM radio mode, and back to transceiver mode.

3. FM radio channel Search

Press【MENU】+【3】 key to enter into search mode,once an available channel is searched, the transceiver will stop 5 seconds and then search for next available channel automatically. During the dwell time of searching an available channel, you can rotate channel selector in clockwise to continue to search channels upward, or rotate channel selector in counterclockwise to continue to serch channels downward, and then press other keys to exit channel searching state.

4. FM radio channel storing

You can use the above method to search FM radio channel, once an available channel is searched, exit search mode, then press 【PTT】 or 【FUNC】key to confirm and store. The two digit numbers on the right of the display represent the channel number need to be stored, rotating channel selector or pressing No.0-9 to select the desired channel number and pressing【PTT】 or 【FUNC】 key to confirm and store. In VFO mode (channel mode), you can press numeric keys to directly input FM radio frequency and then repeat above steps to store the channel.

5. FM radio mode switching and operation

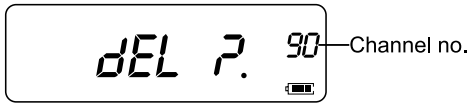
In FM radio mode, press 【MENU】to switch between VFO mode (channel mode) and MR mode(memory mode). In VFO mode, you can press numeric keys or rotate channel selector to select FM radio frequency. In MR mode, you can press numeric keys or rotate channel selector to select the stored FM radio channels.

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【MONI】key to turn ON power

■ A confirmation message appears.



4. Press【MONI】to clear the channel data.

■ The contents of the memory channel are cleared.

Note:

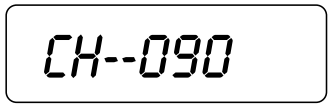
While the transceiver is in Channel Display Mode or Lock-out function is activated, you cannot clear the channel data. To clear the channel data, must be free from channel lock-out.

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【PTT】+【MENU】,and turn on the radio

■ The transceiver displays the memory channel number in place of the operating frequencies.



2. Turn channel selector to select your desired memory channel number.

Note: Can't switch empty channels(without any memory channels)

While in Channel Display Mode, only the following functions can be operated.

1. Squelch setting
2. Power output
3. TOT function
4. VOX function
5. BP
6. LED
7. Scan function
8. CK（Call tone）
9. SAV（save power）
10. Keypad lock-out（manual/auto）
11. BCL (busy channel lock-out)
12. PON (power ON message)
13. ENC
14. PRI
15. PRI
16. N/W

RESUMING THE OPERATING OF FREQUENCY DISPLAY MODE

Press【PTT】+【MENU】and Turn the power ON.

SCAN RESUME METHOD

The transceiver stops scanning through the frequencies (or memory channel) where a signal is detected. It then 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 SCANS RESUME METHOD:

1. Press【MENU】.
2. Turn channel selector to select Menu No. 17 (SCAN).
3. Press【MENU】.
4. Turn channel selector 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【FUNC】key to store new setting and exit Menu mode.

ACTIVATE SCANNING

Activate scanning function under frequency and channel mode.

1. Press【FUNC】key and then press【3】key to start scanning.
2. Press any key to cannel except【MONI】key.

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 response 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.

CTCSS

A CTCSS tone is a sub-audible tone and is selectable from among the 50 tone frequencies listed in the table.

◆ **Using CTCSS**

1. Press【MENU】and then turn channel selector to select Menu No. 3 (CT.DCS).
2. Press【MENU】and then turn channel selector to select “CTCSS”.

■ As you turn channel selector , the selection cycles as follows:
“OFF”⟶“CTCSS”⟶“DCS”⟶“OFF”

3. Press【MENU】key to store new setting and continue set other function. Or press【FUNC】key to store new setting and exit Menu mode.

■ “QT” appears on the upper part of display, indicating that the CTCSS function is activated.

Note: When CTCSS is ON, you will hear calls only when the selected CTCSS tone is received. To answer the call, press and hold【PTT】, then speak into the microphone.

Note:

■ You cannot use the CTCSS and DCS functions simultaneously. Switching the DCS function ON after having activated the CTCSS functions deactivates the CTCSS functions.

■ If you select a high CTCSS frequency, receiving audio or noise that contains the same frequency portions may cause CTCSS to function incorrectly. To prevent noise from causing this problem, select an appropriate squelch level.

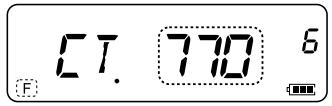
◆ **Selecting a RX/TX CTCSS Frequency**

1. Press【MENU】and turn channel selector to select Menu No. 6 (CT).

■ The current CTCSS frequency appears.

2. Press【MENU】and turn channel selector 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【FUNC】key to store new setting and exit Menu Mode.

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

◆ **Selecting RX CTCSS frequency**

1. Press【MENU】key, and then turn channel selector to select Menu No. 4（RC）.

■ The current CTCSS frequency appears on the display.

2. Press【MENU】key.
3. Turn channel selector to select desired CTCSS frequency.
4. Press【MENU】to store the new setting and continue to set other function. Or press【FUNC】key to store new setting and exit Menu Mode.

■ The selectable CTCSS frequencies refer to the table on the following page.

◆ **Selecting TX CTCSS frequency**

1. Press【MENU】key, and then turn channel selector to select Menu No. 5（TC）

■ The current CTCSS frequency appears on the display.

2. Press【MENU】key.
3. Turn channel selector to select desired CTCSS frequency.

4. Press【MENU】to store the new setting and continue to set other function. Or press【FUNC】key to store new setting and exit Menu Mode.

■ The selectable CTCSS frequencies refer to the table on the following page.

Available CTCSS Tone Frequencies

OFF	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	
85.4	118.8	162.2	192.8	241.8	
88.5	123.0	165.5	196.6	250.3	

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 107 DCS codes listed in the table on the following page.