

TH-7800 User Manual

Thank you very much for choosing the TH-7800 dual band mobile transceiver.

The TH-7800 provides you with a reliable, clear and efficient communications service which is enhanced by an ergonomic design and intuitive user controls.

Inherently reliable you can depend on your TH-7800 no matter where you are in the harsh environment.

The TH-7800 is cost-effective, multi-functional and will meet all of your VHF/UHF band communication needs no matter what the situation.

For a full explanation of the many features, functions and the care free maintenance of your new mobile please take the time to read the user manual enclosed with your transceiver.

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User Safety Information

- Do not attempt to configure your transceiver while driving.
- This transceiver is designed for a 13.8V DC power supply. Do not use a 24V battery to power on the transceiver.
- Please keep it away from interferential devices (Such as TV s, generators, etc.)
- Do not expose the transceiver to long periods of direct sunlight or place it close to heating appliances.
- If an abnormal odour or smoke is detected coming from the transceiver, turn off the power immediately and contact your dealer.
- Do not transmit with high power for extended periods or the transceiver may overheat.

Package includes:

- Radio unit x 1
- Keypad DTMF microphone x 1
- Radio body mounting bracket x 1
- DC power cable with fuse holder x 1
- Front controller separation cable x 1
- Front controller mounting bracket x 1
- Screw packs x 1
- Protection fuses x 1
- User manual x 1

Main Features

- Cover 144 / 430 MHz four transmitting bands
- Wide band AM receiving and FM receiving for 108-180MHz,136-174MHz,400-480MHz
- Independent controls for each left and right band
- V+U simultaneous receive capability
- Built-in V+U cross-band repeater and full duplex capability
- 800 memory channels and independent setting per channel
- 50W of high power output for VHF band and 40W for UHF band
- Standard 50 groups of CTCSS tone and 104 groups of DCS code
- User-defined CTCSS tone & DCS code capability
- DTMF / 2-Tone / 5-Tone for selective calling
- Voice compander and encryption scramble
- Automatic Repeater Shift (ARS)
- Detachable front controller and remote mounting capability
- Ultra-size LCD dual display screen
- User-programmable microphone keys

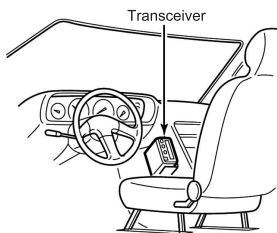
Initial Installation

Mobile Installation

To install the transceiver select a safe and convenient location inside your vehicle that minimizes danger to your passengers and yourself while the vehicle is in motion. Consider installing the unit at an appropriate position so that knees or legs will not strike it during sudden braking of your vehicle. Try to pick a well ventilated location that is shielded from direct sunlight.

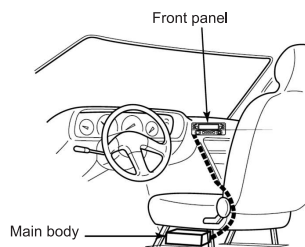
Installation methods

1 – Single Body Installation



The supplied mounting bracket can be used for the main unit installation.

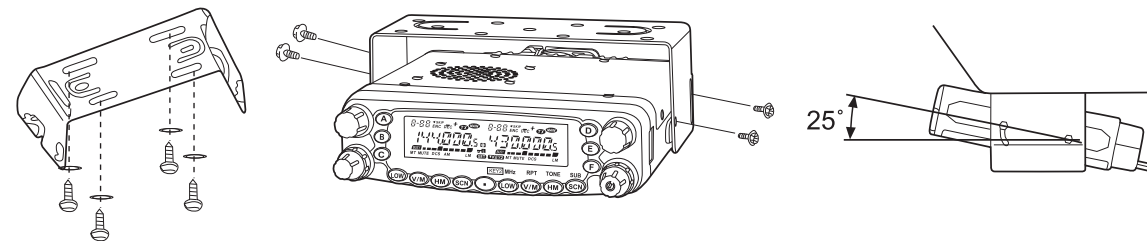
2 – Remote Control Installation



The supplied remote controller mounting bracket and separation cable can be used for installation.

Mounting bracket installation

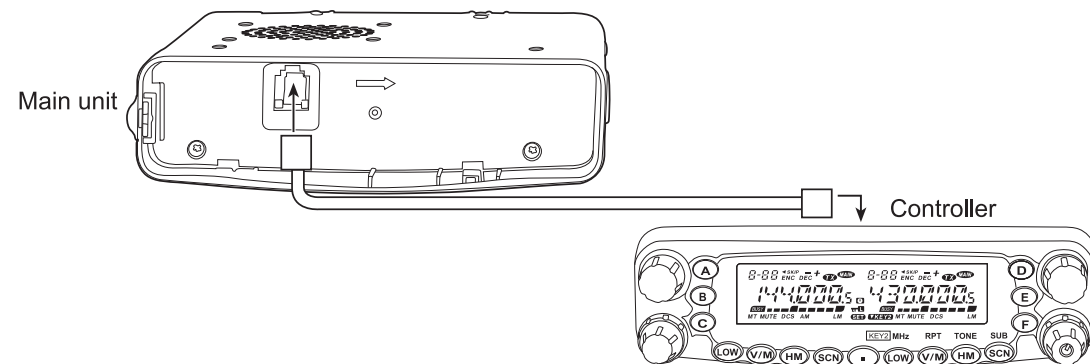
1. Drill 4 holes where the mounting bracket is to be installed.
2. Insert the supplied screws, nuts and washers through the mounting bracket and tighten.
3. Adjust the angle for your suitable position.



Separation cable connection

A separation cable (4.5m; 14.8 ft) is supplied with the TH-7800.

Connect the controller and the main unit using with the separation cable as follows.

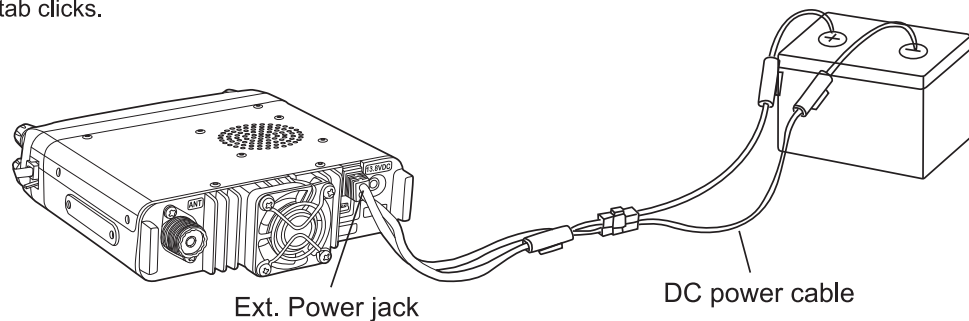


DC Power Cable Connection

Note: Locate the power input connector as close to the transceiver as possible.

The vehicle battery must have a nominal rating of 12V. Never connect the transceiver to a 24V battery. Be sure to use a 12V vehicle battery that has sufficient current capacity. If the current to the transceiver is insufficient the display may darken during transmission or transmitting output power may drop excessively.

1. Route the DC power cable supplied with the transceiver directly to the vehicle's battery terminals using the shortest path from the transceiver. We suggest you do not use the cigarette lighter socket as some cigarette lighter sockets introduce an unacceptable voltage drop. The entire length of the cable must be dressed so it is isolated from heat, moisture and the engine secondary (high voltage) ignition system/cables.
2. After installing the cable, in order to avoid the risk of damp, please use heat-resistant tape to tie together with the fuse box. Do not forget to reinforce the whole cable.
3. Confirm the correct polarity of the connections, then attach the power cable to the battery terminals: Red connects to the positive (+) terminal and black connects to the negative (-) terminal.
4. Reconnect any wiring removed from the negative terminal.
5. Connect the DC power cable to the transceiver's power supply connector. Press the connectors firmly together until the locking tab clicks.



Fixed Station Operation

In order to use this transceiver for fixed station operation you will need a separate 13.8V DC power supply (not included). Please contact your local dealer about it.

The recommended current capacity of your power supply is 12A.

1. Connect the DC power cable to the regulated DC power supply and ensure that the polarities are correct. (Red: positive; Black: Negative).

Do not directly the transceiver to an AC outlet.

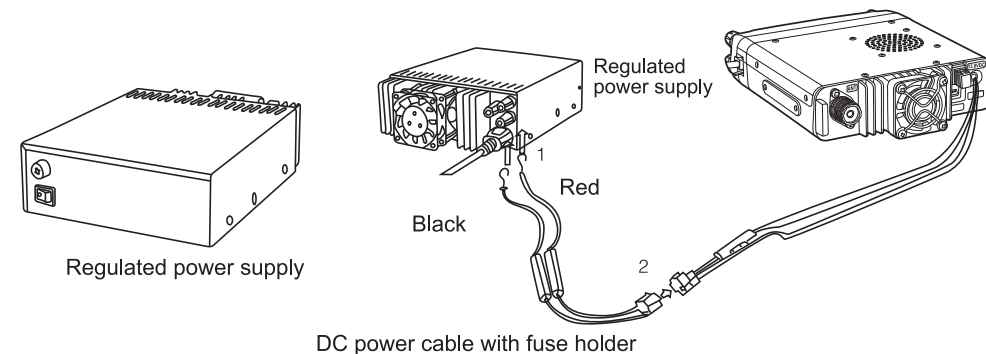
Use the supplied DC power cable to connect the transceiver to a regulated power supply.

Do not substitute a cable with smaller gauge wires.

2. Connect the transceiver's DC power connector to the connector on the DC power cable.
3. Press the connectors firmly together until the locking tab clicks.

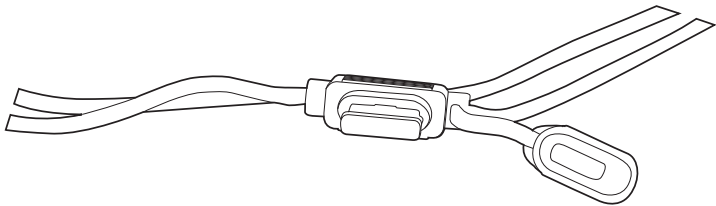
Note:

- Before connecting the DC power to the transceiver be sure to switch the transceiver and the DC power supply OFF.
- Do not plug the DC power supply into an AC outlet until you make all connections.



Replacing Fuses

If the fuse blows, determine the cause then correct the problem. After the problem is resolved replace the fuse. If newly installed fuses continue to blow, disconnect the power cable and contact your local dealer for assistance.



Fuse Location	Fuse Current Rating
Transceiver	15A
Supplied Accessory DC power cable	20A

Only use fuses of the specified type and rating otherwise the transceiver could be damaged.

Note: If you use the transceiver for a long period when the vehicle battery is not fully charged or when the engine is OFF, the battery may become discharged and will not have sufficient reserves to start the vehicle. Avoid using the transceiver in these conditions.

Antenna Connection

Before operating install an efficient well-tuned antenna. The success of your installation will depend largely on the type of antenna and its correct installation. The transceiver can give excellent results if the antenna system and its installation are given careful attention.

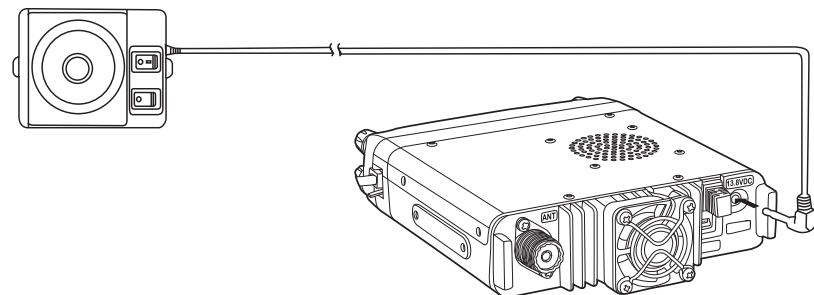
Use a 50 Ω impedance antenna and low-loss coaxial feed-line that has a characteristic impedance of 50 Ω , to match the transceiver input impedance. Coupling the antenna to the transceiver via feed-lines having a impedance other than 50 Ω reduces the efficiency of the antenna system and can cause interference to nearby broadcast TV receivers, radio receivers and other electronic equipment.

Note: Transmitting without first connecting an antenna or other matched load may damage the transceiver. Always connect the antenna to the transceiver before transmitting. All fixed stations should be equipped with a lightning arrester to reduce the risk of fire, electric shock and transceiver damage.

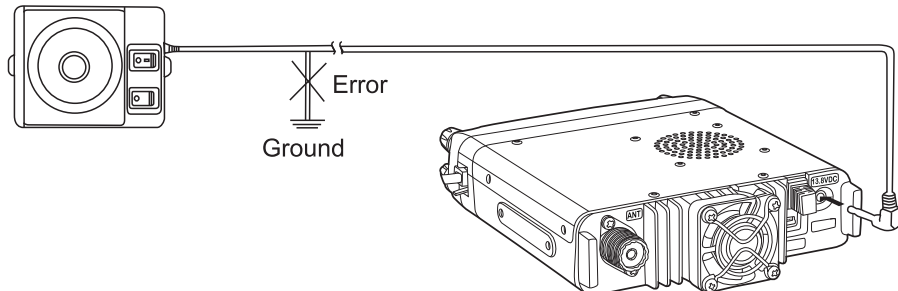
Accessories Connections

External Speaker

If you plan to use an external speaker, choose a speaker with an impedance of 8Ω . The external speaker jack accepts a 3.5mm mono (2-conductor) plug.

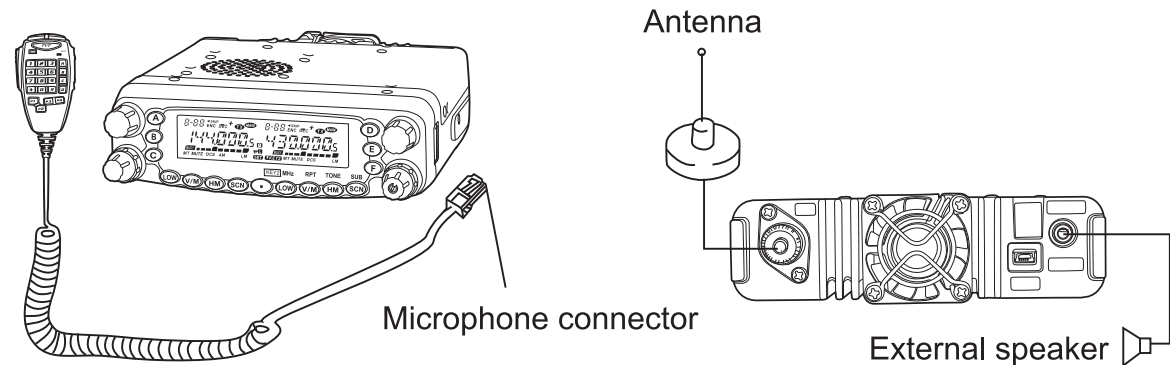


Note: External speaker output adopts double port BTL. Please be aware that the speaker can't connect to the ground otherwise the speaker will fault. The wrong connection way is as below:



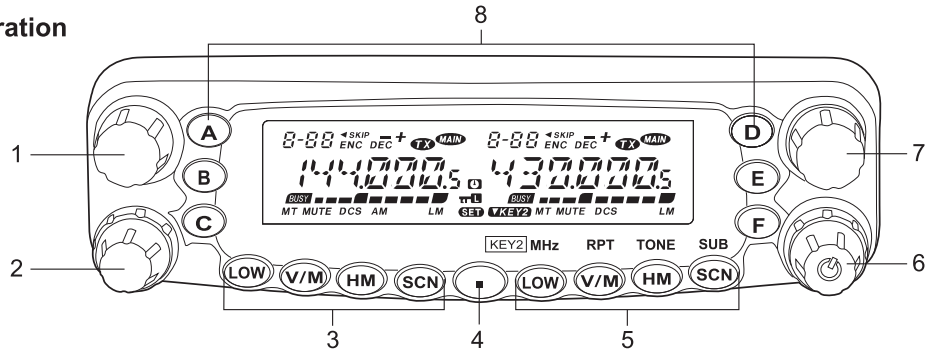
Microphone

For voice communications connect a microphone equipped with an 8-pin modular plug into the modular socket on the side of the main unit. Press firmly on the plug until the locking tab clicks. Attach the supplied microphone hanger in an appropriate location using the screws included in the screw set.



Getting Acquainted

Front Panel Operation

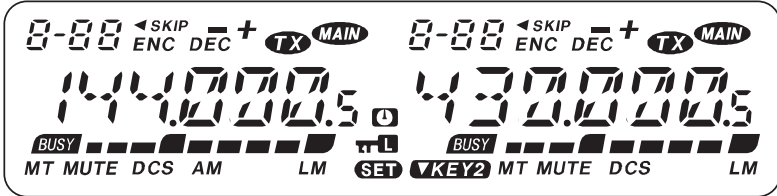


NO.	KEY	FUNCTION
1	LEFT DIAL	1. Tuning dial for the "left" band.
		2. Short press the knob to set the "left" band as the "Main" band.
		3. Enable rapid tuning (in 1 MHz steps) when the "left" band is set to be the "Main" band in VFO mode.
		4. Press and hold in this knob for 1/2 second to toggle the operating band on the left side as follows: 144 MHz -> 350 MHz -> 430 MHz...
2	LEFT VOL/SQL	1. The outer VOL (Volume) control adjusts the "left" receiver speaker audio level.
		2. Short press the knob to switch single receive mode "on" and "off".
		3. Press and hold this knob for 1/2 second to switch the front panel keys LOCK feature "on" and "off".
		4. The inner SQL (Squelch) control adjusts the "left" receiver background noise.
3	LEFT [LOW]	1. Short press the key to switch power output level of the "left" band (LOW-MID2-MID1-HIGH).
		2. Press and hold in this key for 1/2 second to switch memory display mode between "Frequency" and "Channel Tag" when the "left" band is set to the Memory mode or Home Channel.

3	LEFT [V/M]	1. Short press the key to switch frequency control for the "left" band between the VFO and Memory mode. 2. Press and hold in this key for 1/2 second to shift to the "Memory Tuning" feature when the "left" band is set to the Memory mode.
	LEFT [HM]	1. Short press the key to recall a favorite "HOME" frequency memory. 2. Press and hold in this key for 1/2 second to activate Priority Channel Scanning under VFO or MR mode.
	LEFT [SCN]	1. Short press the key to activate the Scanner on the "left" band. 2. Press and hold in this key for 1/2 second to set up the Scan Skip List or Preferential Scan List under MR mode.
4	[SET]	1. Short press the key to enter the Menu mode. 2. Press and hold in this key for 1/2 second to transfer the contents of the Main band VFO into a Memory system.
5	RIGHT [LOW] (Default)	1. Short press the key to switch power output level of the "right" band (LOW-MID2-MID1-HIGH). 2. Press and hold in this key for 1/2 second to switch memory display mode between "Frequency" and "Channel Tag" when the "right" band is set to the Memory mode or Home Channel.
	RIGHT [MHz] (Key Mode 2)	1. Short press the key to allow tuning in 1 MHz steps on the "Main" band VFO. 2. Press and hold in this key for 1/2 second to allow tuning in 10 MHz steps on the "Main" band VFO.
	RIGHT [V/M] (Default)	1. Short press the key to switch frequency control for the "right" band between the VFO and Memory mode. 2. Press and hold in this key for 1/2 second to shift to the "Memory Tuning" feature when the "right" band is set to the Memory mode.
	RIGHT [RPT] (Key Mode 2)	1. Short press the key to change the frequency shift direction: RPT - (minus shift), RPT + (plus shift), or RPT OFF (simplex).
		2. Press and hold in this key for 1/2 second to reverse TX and RX frequencies on the "Main" band during split-frequency operation.

5	RIGHT [HM] (Default)	1. Short press the key to recall a favorite "HOME" frequency memory. 2. Press and hold in this key for 1/2 second to activate Priority Channel Scanning under VFO or MR mode.
	RIGHT [TONE] (Key Mode 2)	Short press the key to change the Tone Squelch mode: ENC (CTCSS Encoder), ENC DEC (CTCSS Encoder & Decoder) or DCS operation.
	RIGHT [SCN] (Default)	1. Short press the key to activate the Scanner on the "right" band. 2. Press and hold in this key for 1/2 second to set up the Scan Skip List or Preferential Scan List under MR mode.
	RIGHT [SUB] (Key Mode 2)	Short press the key to make the next key you press act on the "Sub band". (The " MAIN " icon will blink on the "Sub band")
6	RIGHT VOL/SQL	1. The outer VOL (Volume) control adjusts the "right" receiver speaker audio level. 2. Press and hold this knob for 1/2 second to turn the radio "on" and "off". 3. The inner SQL (Squelch) control adjusts the "right" receiver background noise.
7	RIGHT DIAL	1. Tuning dial for the "right" band. 2. Short press the knob to set the right band as the "Main" band. 3. Enable rapid tuning (in 1 MHz steps) when the "right" band is set to be the Main band in VFO mode. 4. Press and hold in this knob for 1/2 second to toggle the operating band between 144 MHz and 430 MHz on the right side.
8	Hyper Memory Keys ([A] - [F])	1. Press and hold in one of these buttons for 2 seconds to store the current configuration of the radio into a special "Hyper" memory bank. 2. Short press the appropriate button to recall the desired "Hyper" memory.

Display



NO.	Icon	FUNCTION
1	8-88	Memory Channel Number
2	◀	Preferential Memory Channel
3	SKIP	Skip Memory Channel
4	—	Minus Shift
5	+	Plus Shift
6	— +	Odd Splits
7	ENC	CTCSS Encoder On
8	DEC	CTCSS Decoder On
9	TX	Transmitting
10	MAIN	"Main" Band
11	BUSY	Busy Channel (or Squelch Off)

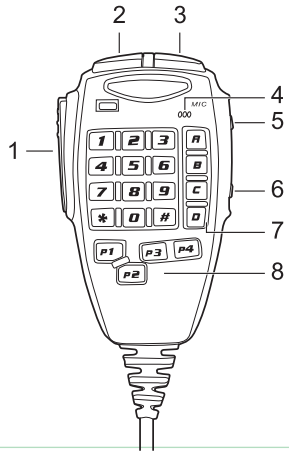
NO.	Icon	FUNCTION
12	MT	Memory Tune Mode
13	MUTE	Audio Mute Activate
14	DCS	DCS On
15	AM	AM Reception
16	L	Low Power Output
17	M	Middle Power Output
18	⏻	Automatic Power-Off
19	⏻ L	Keypad/Dial Lock
20	SET	Menu Set
21	VKEY2	Key Mode 2 active

Rear Panel



NO.	Port	FUNCTION
1	ANT	Connection for 50 Ω antenna.
2	EXT SP	Terminal for optional external speaker.
3	DATA	PC programming data port.

Microphone



NO.	Port	FUNCTION
1	PTT	Press the key to transmit.
2	DWN	Decrease channel number or setting value.
3	UP	Increase channel number or setting value.
4	MIC	Speak here during transmission.
5	LOCK	Locks out the microphone buttons except key 0 - 9 and PTT.
6	LAMP	Illuminates the microphone keypad.
7	Number Key	Input channel number or DTMF dial out etc.
8	Programmable Keys	User-defined functions Keys. Default: P1 : switch the "Main" band between the left and right display. P2 : switch the frequency control for the "Main" band between VFO and Memory mode. P3 : press repeatedly to select the CTCSS or DCS mode on the "Main" band. P4 : press repeatedly to select TX power output level on the "Main" band.

Basic Operation

Switching the power on/off

To turn the mobile power ON press and hold the **RIGHT VOL/SQL** knob for 1/2 second.

To turn the mobile power OFF press and hold the **RIGHT VOL/SQL** knob for 1/2 second again.

Adjusting the volume

Turn the outer **VOL** control clockwise to increase the receiver speaker audio level and counter clockwise to decrease it.

Note:

1. Volume can be adjusted more accurately during communication.
2. The audio volume level is set independently by the **LEFT** and **RIGHT VOL** control.

Adjusting the squelch level

Turn the inner **SQL** control clockwise to increase the receiver background noise and counter clockwise to decrease it.

Note:

The squelch level is also set independently by the **LEFT** and **RIGHT SQL** control.

Selecting the operating band

In the factory default configuration, the TH-7800 operates in the "Dual Receive" mode.

During Dual Receive operation, the "Main" band frequency (on which transmission is possible) will be indicated by the "**MAIN**" icon.

Short press the microphone's **[P1]** key or press the **DIAL** knob for the "left" or "right" side, the "**MAIN**" icon will light up alternative sides of the display as you switch "Main" bands from the "left" side to the "right" side, and vice-versa.

Note:

Short press the **LEFT VOL/SQL** knob to switch the single receive mode ON and OFF. When it is set ON, the working vol-

tage will be shown on the "sub" band, the "**KEY2**" icon will appear on the display, and **LEFT [LOW]**, **[V/M]**, **[HM]**, **[SCN]**, **RIGHT [MHz]**, **[RPT]**, **[TONE]** keys will be valid for the operating band.

Selecting the frequency band

Press and hold in **LEFT DIAL** knob for 1/2 second to toggle the operating band on the "left" band.

144 MHz -> 350 MHz -> 430 MHz..

Press and hold in **RIGHT DIAL** knob for 1/2 second to toggle the operating band between 144 MHz and 430 MHz on the right side.

Note:

TH-7800 can operate either in a V+V or U+V working mode, if needed.



VHF-VHF (V-V) Operation



UHF-UHF (U-U) Operation

Selecting desired frequency

1. Turning Dial

Under VFO mode, rotating the **DIAL** knob allows tuning in the pre-programmed steps established for the current operating band. Clockwise rotation will increase the operating frequency while counter-clockwise rotation will lower it.

On the Main band frequency, short press the **DIAL** knob then rotate it, to change the Main band frequency steps to 1 MHz step. This feature is useful for making rapid frequency excursions over the wide tuning range of the TH-7800.

2. Directly Frequency Entry by the Microphone s keypad

The keypad of the DTMF microphone may be used for directly entry of the Main band operating frequency.

To enter a frequency from the keypad, just press the numbered digits in the proper sequence. There is no decimal point key on the keypad, so if the frequency is below 100 MHz any required leading zeroes must be entered.

Example: To enter 144.025 MHz, press [1] -> [4] -> [4] -> [0] -> [2] -> [5]

Receiving

The **BUSY** sign will appear whenever you receive a call on the channel you are on.

Note: The transceiver may fail to receive the signal if the squelch level is set high.

Transmitting

To transmit, hold the microphone about 2.5 5cm from your mouth, simply press the **PTT** switch on the microphone and speak in your normal speaking voice.

Note: Press and hold **PTT** switch, LED lights ORANGE and power intensity shown on the display indicates transmission is in progress.

Selecting the power output level

To change the power level, press the **[LOW]** key to select one of four power settings. There power levels will be stored, in memory registers, at the time of memory storage.

LOW	MID 2	MID 1	HIGH
5 W	10 W	20 W	50 W / UHF: 40 W

During transmission, the Bar Graph will deflect in the display, according to the power output selected.

Note:

You may change the power level on the "Main" band using the microphone's **[P4]** key.

Memory Operation

The TH-7800 provides 4 kinds of memory systems. These include:

- 1. 800 standard memory channels, numbered "001" through "800".
- 2. 5 pairs of band-edge memories labeled "L1/U1" through "L5/U5".
- 3. 6 Home channels which providing storage and quick recall of one prime frequency on each operating band.
- 4. 6 "Hyper-Memory" channels which can be recalled by **[A]** - **[F]** keys.

Memory channels storage

- 1. Select the desired frequency as well as CTCSS, DCS, repeater offset, power level in the operating VFO mode on the "Main" band.
- 2. Press and hold in the **[SET]** key for 1/2 second to start memory storage. A memory number will be blinking on the top line of display.
- 3. Use the "Main" band **DIAL** knob or the microphone's **[UP]** / **[DWN]** buttons to selected the desired memory channel for storage.
- 4. Press and hold in the **[SET]** key for 1/2 second again to add the channel alpha-numeric tag. Rotate the "Main" band **DIAL** to select the first character in the name you wish to store, short press the **DIAL** or the microphone's **[UP]** button to move on to the next character. The available for character includes digits "0 ~ 9", letters "A ~ Z" and symbols "**, +, -, /, x".
- 5. Again short press the **DIAL** or the microphone's **[UP]** button to move on to the next character's slot. If you make a mistake, press microphone's **[DWN]** button to move back to the previous character's slot, then re-select the correct letter, number or symbol.
- 6. Repeat the above step to program the remaining letters, numbers, or symbols of the desired label. A total of six characters may be used in channel's tag.
- 7. When you have completed the creation of the tag, short press the **[SET]** key to save the tag and exit to normal operation.

Note:

If you don't want to attach a alpha name tag to the memory, short press the **[SET]** key directly after Step 3, to save the entry and exit to normal operation.

Storing independent transmit frequencies ("Odd Splits")

1. Store the receiving frequency as the steps already described.
2. Turn to the desired transmit frequency on the "Main" band, then press and hold in the **[SET]** key for 1/2 second.
3. Use the "Main" band **DIAL** knob or microphone's **[UP]** / **[DWN]** buttons to select the same memory channel number as used in Step 1 above.
4. Press and hold in the **PTT** switch, then short press **[SET]** while holding the **PTT** switch to save the entry and exit to normal operation. The "**—+—**" icon will appear on the channel.

Note:

Whenever you recall a memory which contains independent-stored transmit and receive frequencies, the "**—+—**" icon will appear in the display.

Memory Recall

1. While operating in the VFO mode, short press the **[V/M]** key to enter the Memory mode.
2. Rotate the **DIAL** knob or enter the microphone's key in the memory channel number to select the desired channel.

Note:

Memory channels on which you may have stored frequencies on the 29 MHz and 50 MHz two bands can not be recalled on the "right" band.

Memory Tuning

1. Select the desired memory channel under MR (Memory Recall) mode
2. Press and hold in the **[V/M]** key for 1/2 second; the "**MT**" icon will appear on the display.

3. Rotate the **DIAL** knob to turn to a new frequency. The synthesizer steps selected for VFO operation on the current band will be the steps used during Memory Tuning.
4. Short press **[V/M]** key again and exit Memory Tuning. The "**MT**" icon will disappear.

Deleting Memories

1. Short press **[V/M]** key to enter the Memory mode.
2. Press and hold in the **[SET]** key for 1/2 second, then rotate the "Main" band **DIAL** to select the memory channel to be selected. Note that memory channel #1 may not be deleted.
3. Short press the "Main" band **[SCN]** key to delete the channel selected. The display will revert to memory channel #1. Rotate the **DIAL** knob to the channel you just deleted, you will observe that it is invisible now.

HOME Channel Memory

The TH-7800 allows quick recall of a favorite operating frequency on each band, called HOME channel (one for each of the 6 operating bands).

1. Select the desired frequency as well as CTCSS, DCS, repeater offset, power level in the operating VFO mode on the "Main" band.
2. Press and hold in the **[SET]** key for 1/2 second to start memory storage. A memory number will be blinking on the top line of display.
3. Short press the "Main" **[HM]** key to store the VFO frequencies and other data in the special HOME channel register.
4. Repeat the steps above on the other operating bands.
5. To recall the HOME channel, just press the **[H/M]** key while operating either in the VFO or MR mode.

Hyper Memory Channel

The TH-7800 allows you to store the total current configuration of the radio into a special "Hyper" memory bank, including operating frequency, CTCSS/DCS data, repeater shift, power level, scanning feature, menu setting...etc. for both the "left"

and "right" bands.

1. Set up the desired configuration for both the "left" and "right" bands.
2. Press and hold in the one of the Hyper Memory keys (**[A] ~ [F]**) for 2 seconds to store into the Hyper Memory channel which you wish to store that configuration.
3. Press the appropriate Hyper Memory Key **[A] - [F]** to recall the desired Hyper Memory channel. Please store the current configuration into Hyper Memory Channel before recalling the Hyper Memory Channel to prevent the current configuration lost.

Memory Only Mode

When you store the memory channels, you may place the radio in a "Memory Only" mode, whereby VFO operation is impossible. This may be particularly useful during public-service events where a number of operators may be using the radio for first time, and ultimate simplicity of channel selection is desired.

Procedure:

1. Turn the radio off.
2. Press and hold in the **LEFT [V/M]** while turning the radio on.
3. Rotate the **DIAL** knob to select the **(F-5 M-ONLY MODE)**, then short press the **[SET]** key to confirm. The radio will restart and enter Memory Only Mode.
4. To return to normal operation, repeat the above steps.

Some Advanced Features

Repeater Operation

The TH-7800 provides a convenient Automatic Repeater Shift feature, which causes the appropriate repeater shift to be automatically applied whenever you tune into the designed repeater sub-bands in your country.

To activate **ARS**:

1. Short press the **[SET]** key to enter the Menu mode.
2. Rotate the "Main" band **DIAL** to select Menu # 2 (**ARS**).
3. Short press the "Main" band **DIAL** knob, then rotate the "Main" band **DIAL** to change the setting to "ON".
4. Short press the **[SET]** key to save the new setting and exit to normal operation.

If the **ARS** feature has been disabled, or if you need to set a repeater shift direction other than that established by the **ARS**, you may set the direction of the repeater shift manually.

1. Short press the **[SET]** key to enter the Menu mode.
2. Rotate the "Main" band **DIAL** to select Menu # 24 (**RPT.MOD**).
3. Short press the "Main" band **DIAL** knob, then rotate the "Main" band **DIAL** to select the desired shift among "+", "-", and "OFF".
4. Short press the **[SET]** key to save the new setting and exit to normal operation.

And when you travel to a different region, you may need to change the default repeater shift so as to ensure compatibility with local operating requirements.

1. Short press the **[SET]** key to enter the Menu mode.
2. Rotate the "Main" band **DIAL** to select Menu # 27 (**RPT.MOD**).
3. Short press the "Main" band **DIAL** knob, then rotate the "Main" band **DIAL** to select the desired shift among "+", "-", and "OFF".
4. Short press the **[SET]** key to save the new setting and exit to normal operation.

CTCSS Tone / DCS Code Operation

CTCSS setup involves two actions: setting the Tone Mode and Tone Frequency by using the Menu # 31 (**TONE M**) and # 30 (**TONE F**).

- 1. Short press the **[SET]** key to enter the Menu mode.
- 2. Rotate the "Main" band **DIAL** to select Menu # 31 (**TONE M**).
- 3. Short press the "Main" band **DIAL** knob, then rotate the "Main" band **DIAL** and "**ENC**", "**ENC.DEC**" will appear on the display;

ENC: CTCSS Encoder.

ENC.DEC: CTCSS Encoder & Decoder.

Note: you may select the Tone Squelch mode (**ENC**, **ENC.DEC**) on the "Main" band by the microphone's **[P3]** key.

- 4. When you have made your selection of the CTCSS Tone Mode, short press the "Main" band **DIAL** knob to confirm, then rotate the "Main" band **DIAL** to select Menu # 30 (**TONE F**). This menu is used to set the CTCSS tone frequency.
- 5. Short press the "Main" band **DIAL** knob to enable adjustment of the CTCSS frequency.
- 6. Rotate the "Main" band **DIAL** until the display indicates the Tone Frequency you need to be using.
- 7. When you have made your selection, short press the **[SET]** key to save the new setting and exit to normal operation.

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

Just as in CTCSS operation, DCS requires that you set the Tone Mode to DCS and then select a code.

- 1. Short press the **[SET]** key to enter the Menu mode.
 - 2. Rotate the "Main" band **DIAL** to select Menu # 31 (**TONE M**).
 - 3. Short press the "Main" band **DIAL** knob, then rotate the "Main" band **DIAL** and "**DCS**" will appear on the display;
- DCS**: Digital Code Squelch Encoder & Decoder.
- Note**: you may select the Tone Squelch mode (**DCS**) on the "Main" band by the microphone's **[P3]** key.
- 4. When you have made your selection of the DCS code Mode, short press the "Main" band **DIAL** knob to confirm, then rotate the "Main" band **DIAL** to select Menu # 7 (**DCS.COD**). This menu is used to set the DCS code.
 - 5. Short press the "Main" band **DIAL** to enable adjustment of the DCS code.
 - 6. Rotate the "Main" band **DIAL** to select the desired DCS code.
 - 7. When you have made your selection, short press the **[SET]** key to save the new setting and exit to normal operation.

Note: The DCS is an Encoder/Decoder system, so your receiver will remain muted until a matching DCS code is received on an incoming transmission.

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