

TYT

TH-F7

PROFESSIONAL FM TRANSCEIVER

COMP FUNCTION
CTCSS/DCS

Double Reception Channel

128 memory channels

USER'S MANUAL





Welcome to use **TYT** two-way radio

[www.409shop.com](http://www.tyt888.com)
<http://www.tyt888.com>

Main functions

Frequency range: 136-174MHz/245-246MHz
400-470MHz/465-520MHz

128 memory channels

CTCSS/DCS

Scrambler

VOX

FM radio function, can store

up to 25 radio stations

Transmission end prompt

PC software programming

COMP function

Multi-functional keypad lock

Wide/narrow bandwidth selectable

Power-on password protection

Channel name editable

<http://www.tyt888.com>



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User's Manual

409[®] SHOP
Using tips
Unpacking and checking equipments

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Using tips

Please read the following brief instructions, non-compliance with these rules may cause danger or violate the law.

- Obey the local government regulation before using this radio, improper use may violate the law and be punished.
- Turn off the radio before entering flammable or explosive areas.
- Do not charge or change the battery in flammable or explosive areas.
- Turn off the radio before getting close to the blasting zone or detonator areas.
- Do not use radio whose antenna is damaged, touching of damaged antenna will cause heat injury.
- Do not attempt to open the radio; the maintenance work should be done by technical expert only.
- To avoid troubles caused by electromagnetic interference or electromagnetic compatibility, please turn off the radio in places where have the banner "Do not use wireless equipment", such as hospital and other healthcare places.
- In the car with an airbag, do not put the radio within the scope of the airbag deployment.
- Do not store the radio under the direct sunshine or in hot areas.
- When you transmit with the radio, do keep away from its antenna for 5cm at least.
- If the radio appears smelly or smoke, please shut off its power immediately and contact with your local dealer.
- Do not transmit too long, for the radio may heat and hurt the user.

Unpacking and checking equipment

Welcome to use **TYT** TH-F7 two-way radio. Carefully unpack the radio. We recommend you check the items listed in the following table before discarding the package. If any item is missing, please contact local dealer immediately.

Supplied accessories:



Mainframe:
TH-F7 (1)



Antenna (1)



Li-ion battery (1)



Charger (1)



Charger
Adapter (1)



Handstrap (1)



Belt Clip (1)



Verification (1)



User's Manual (1)

Note: The antenna frequency range please refers to the annular label at the bottom of antenna.

Battery[®] Maintaining Installation of supplied accessories

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Battery[®]

The battery is not fully charged in factory, please charge a new battery or a rechargeable battery that is unused for a long time. Charge-discharge cycle of two or three times, the battery capacity will achieve the best condition. When the battery capacity is low, please charge or change the battery.

Applicable battery

Please use **TYT** designated battery; other batteries can cause explosion and hurt people.

Notice: 1. Please do not short-circuit the battery terminals or expose of in fire. Do not disassemble the battery by yourself.

2. Charge the battery between temperature 0℃ and 45℃. The battery can not be fully charged beyond this temperature range.

3. Please turn off the power when you charge the radio with battery. Transmit with the radio in charge will affect its correct charge.


4. Do not unplug the power or battery when it is charged.

5. The operating time becomes short even the battery is fully charged, the battery is exhausted, please replace battery.

6. Please do not charge when the battery or the radio is wet. Please dry it with a cloth before charging to avoid any danger.

Warning: When the conductive metals such as jewelry, key or decorative chains touch the battery terminals, all the batteries are likely to cause damage to the items or personal injury. These conductive metals may form a short circuit and generates much heat. Do deal with any battery carefully, especially when put it into pocket, wallet or other metallic containers.

Charging operation:

After installing the battery, if the battery icon shows "  " the battery is exhausted, please charge it. Please charge battery with designated **TYT** charger, the indicator light of charger will show charging condition.

Indicator light	Condition
Indicator light turns red	Charging
Indicator light turns green	Completed

Please charge battery as following steps

- 1) Insert the DC adaptor plug in the DC jack on the back of charger.
- 2) Insert the AC adaptor plug into the AC power outlet socket.
- 3) Plug the battery or radio with battery into the charger.
- 4) Make sure the battery is in good connection with charger, when charging indicator light turns red, it starts charging.
- 5) The charging time is about three hours, when charging indicator light turns green, charging is completed.

Note: 1. It is abnormal if the charging indicator light blinks before battery is inserted.

2. Please replace a new battery for charging after the indicator light is stable.

3. Connect battery well with charger, if charging indicator light turns red, it is charging normally, if charging indicator light blinks, the battery has been damaged, or the temperature is too high or too low.

Maintaining

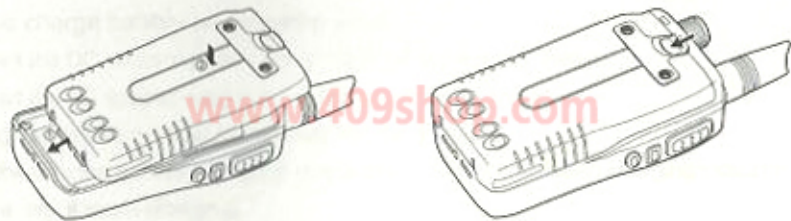
- Do not carry the radio by antenna or external microphone.
- Clean radio with lint-free cloth to avoid bad connection.
- Please close mic/speaker jack cover when radio is not used.
- The buttons, knobs and case will become dirty after long-time use, please clean with neutral detergent and stupe. Never use high corrosive chemicals.

Installation of supplied accessories

Installing/removing battery

Align three grooves at the bottom of radio and the three corresponding slots on the bottom back of battery, push the grooves into the slots, and then press the top of battery until a "click" sound is heard.

To remove battery, please make sure the radio is closed, then press down the releasing latch on top of radio, making the upper part of battery prolapse from the radio, then remove battery.



Installing and removing antenna

Hold the bottom of antenna; rotate it clockwise into the antenna base at the top of the radio until it is tight.

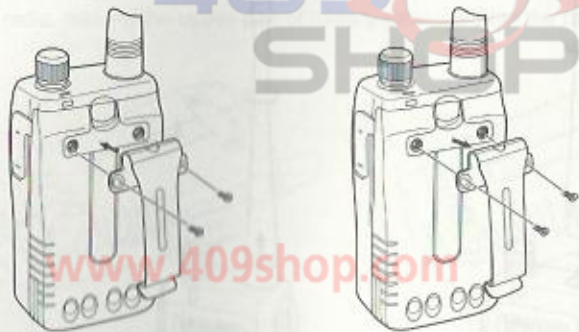
Rotate antenna counter-clockwise to remove it.



Installing and removing belt clip

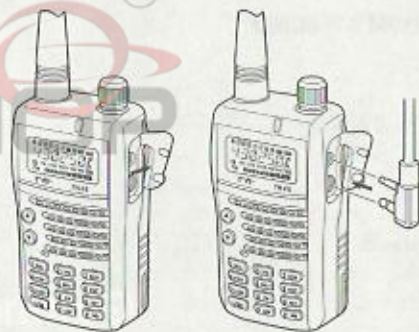
If necessary, please lock the supplied belt clip into screw slots on the back of radio for easy carrying.

Loosen the screw set to remove belt clip.



Installing external mic/speaker

Reveal mic/speaker jack cover, insert the mic/speaker into the jack.



Installing strap

Wear strap through the hole on the back of radio.

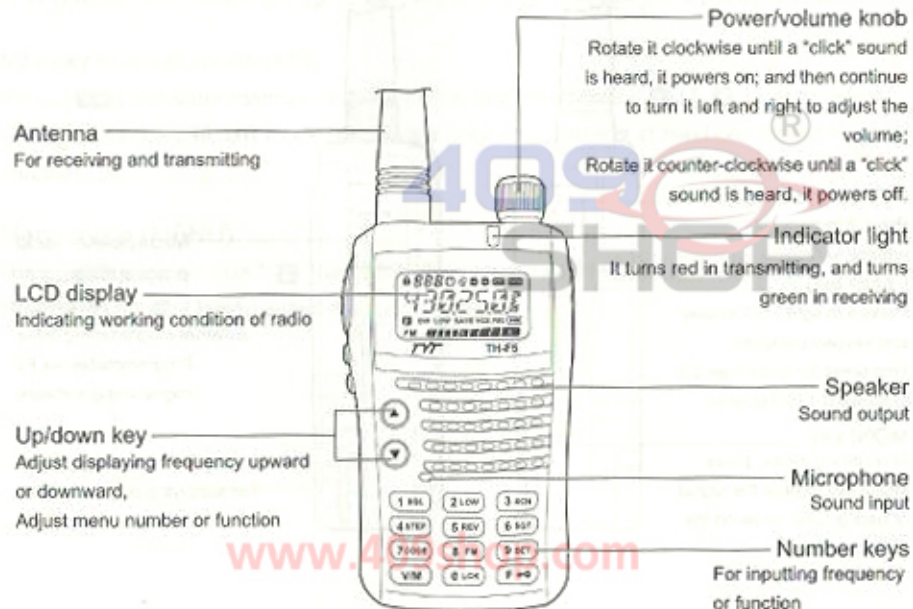


Getting familiar

Basic operation and functions descriptions

<http://www.tyt888.com>

Getting familiar





Working modes of radio

Frequency displaying mode (VFR)

In VFO mode, you can press [▲]/[▼] key to change frequency or input by keypad directly.

Memory channel mode (MR)

Press [**V/M**] key enter memory channel mode, and then press [▲]/[▼] key to select your desired channel. MR mode is available only when there is at least one stored memory channel.

Menu mode (MENU)

Press [**F+O**] key, an icon " **F** " will blink, then press [**9 MR**] enter into menu mode.

Press [▲]/[▼] key to select the function menu.

LCD display

You will see various icons shown on the screen when power on. The following table can help you identify icons' meaning which display on LCD.



Displaying working frequency, channel number or function menu.



Displaying the selected channel number or function menu when the radio is on MR mode.



Indicating TX signal strength and RX signal strength.

Icons	Description of functions	Operation
	Keypad lock	2sec
	Current working channel number in MR mode	[V/M]
	Auto power off	Menu 1
	Beep tone	Menu 6
	Minus shift	Press [F] and [5] twice
	Plus shift	[F], [5]
	CTCSS	[F], [6]
	DCS	[F], [6]
	Function menu for selecting	[F]
	Monitoring signals when radio is in FM radio mode	Menu 10
	Mid/low power	[F], [2]
	Battery save function	Menu 4
	VOX function	Menu 25
	Battery capacity indicator	-----
	FM radio ON/OFF	[F], [8]

Basic operation

Power on/off

- 1) Rotate power/volume knob clockwise until a music sound is heard, it powers on.
- 2) Rotate power/volume knob counter-clockwise to power off.

Adjusting volume

Rotate power/volume knob clockwise, when it powers on, continue to rotate it to adjust volume. When background noise is not heard, please press [MONI] key, rotate power/volume knob, the background noise will be heard.

Adjusting squelch level

The purpose of squelch function is to eliminate background noise when there is no signal received (Squelch circuit closed).

If the squelch output setting correct, the sound will be heard when there is signal received. (Squelch circuit open).

- 1) Press [F=9] and [TALK] keys

- The current squelch level is shown.

- 2) Use [▲]/[▼] keys to select squelch level from 0-9

- Background noise is eliminated when there is no signal.
- The higher the output value is, the stronger the received signal should be.

- 3) Press any key except [LAMP] and [MONI] keys to confirm the setting.

Selecting frequency

- 1) Press [▲] key to increase frequency, [▼] key to decrease frequency.

- If the desired frequency is not available, please change frequency step. More details please refer to "Frequency step setting".
- The desired frequency can be input directly by keypad, too, please refer to "Keypad input directly".

Transmitting

- 1) Press PTT switch and talk in normal volume to transmit.

- The indicator light turns red.
- Do not get too close to microphone or speak too loud, otherwise the voice will probably be distorted, or the signal will not be received clearly.
- Without affecting communication distance, when the power is lower, it will save more battery; high/mid/low power can be selected.

- 2) Release PTT switch to receive.

Menu setting

Introduction of menu

It includes all the function settings for the radio, and can be revised according to your specific needs.

Menu setting

1) Press [**F=0**] key, an icon " **F** " will blink in the screen, press [**ENT**] key enter into menu setting mode.

■ Function menu appears.

2) Use [**▲**]/[**▼**] key to select the desired menu item.

3) Press [**F=0**] key enter the menu setting, press [**▲**]/[**▼**] key to select your desired setting, and then press [**F=0**] key to confirm.

4) Press [**VM**] key to exit.

Menu setting

Menu	Display	Selectable setting
01	APO (Auto power off)	OFF, 1-15 hours
02	APRO (Voice mode)	OFF/COMP/SCRAMB
03	BANK (Channel division)	BANK, NO BANK
04	BATSAV (Battery save function)	ON/OFF
05	BCLO (Busy channel lock)	ON/OFF

Menu	Display	Selectable setting
06	BEEP (Keypad beep tone)	ON/OFF
07	CKSFT1 (CPU oscillation frequency 1)	ON/OFF
08	CKSFT2 (Secondary oscillation frequency 2)	ON/OFF
09	DC VLT (Current voltage displaying)	Current voltage is shown
10	DW (Monitoring signal in FM radio mode)	ON/OFF
11	LAMP (Backlight setting)	OFF/CONT/KEY
12	LOCK (Keypad lock way)	K+S/PTT/KEY/ALL
13	MSGSET (Power on message editing)	Edit by user
14	NAME (Channel name displaying mode)	FREQ/ALPHA
15	NM SET (Channel name setting)	Edit by user
16	OFFSET (Offset frequency)	VHF (00.000-37.995MHz) UHF (00.000-69.995MHz)
17	OPNMSG (Power on display setting)	OFF/DC/MSG
18	PSWD (Power on password protection)	ON/OFF
19	PSWD W (Power on password setting)	Edit by user
20	ROGER (Transmission end tone)	ON/OFF

Menu	Display	Selectable setting
21	SCN MD (Scan mode)	TO/CO
22	STE (End tone elimination)	ON/OFF
23	TOT (Time out timer)	OFF, 1-7 minutes
24	TXSTOP (Transmission prohibiting)	ON/OFF
25	VOX (VOX)	ON/OFF
26	VOX D (Vox ending delay time)	1s, 2s, 3s, 4s
27	VOX S (Vox sensitivity)	1-8
28	VXB (VOX lock in busy channel)	ON/OFF
29	WIDNAR (Wide/narrow bandwidth selective)	NARROW/WIDE

Description and setting of function menu

Auto power off (APO)

Auto power off function is a background feature, which monitors whether the key or knob is turned. APO will shut off the power when there is no operation within the pre-determined time. One minute before shutting of the power, "APO" will blink, and a series of alert tone sounds.

1) Set it through Menu 1 (APO), turn ON (1-15 hours) or OFF.

- When APO turns on, if squelch is turned on or any setting has been changed within pre-set time, the timer will be reset. When the squelch is turned off, or you stop changing any setting, the timer starts from 0 again.

Voice mode (APRO)

Set it through menu 2, two modes are available.

- 1) COMP: voice compander.
- 2) SCRAMB: voice scrambler.

Channel division (BANK)

When channel division function is used, the stored channels will automatically identify the group and display the corresponding channel group, allowing you to select your desired channel quickly. Two selecting modes are available.

1) BANK: Turn on channel division function

- 128 channels will be divided into 8 groups.

- Channel 1-16 will display BANK 1
- Channel 17-32 will display BANK 2
- Channel 33-48 will display BNAK 3
- Channel 49-64 will display BNAK 4
- Channel 65-80 will display BNAK 5
- Channel 81-96 will display BNAK 6
- Channel 97-112 will display BNAK 7
- Channel 113-128 will display BNAK 8

2) NO BANK: Turn off channel division function, displaying the corresponding channel number.

Battery save function (BATSAV)

Battery save function allows radio reduce power consumption by reducing receiver circuitry when there is no signal received, and prolong the using time of radio. It is turned off when squelch function is activated or any key is pressed.

Set it through Menu 4, ON/OFF, an icon "**SAVE**" appears when battery save function is on.

Busy channel lock (BCLO)

BCLO will prevent you from transmitting in the busy channel which is being used to avoid interfering other radios working in the same channel. Set it through Menu 5 to turn on/off.

Keypad beep tone (BEEP)

A "beep" tone will sound whenever any key is pressed. Set it through Menu 6 to turn on/off.

CKSFT1/CKSFT2

When the radio handles various functions with a microprocessor, during the CPU complex operations, a mixed small noise may appear in some point of frequency. If the problem happens, please turn on this function.

Set it through Menu 7, 8 to turn on/off CPU oscillation frequency.

Current voltage displaying (DC VLT)

Enter Menu 9 to view the current voltage of radio.

Monitoring signal in FM radio mode (DW)

When FM radio function is on, if DW turns on, when there is signal, FM radio will be turned off automatically, and an icon "**FM**" blinks on the screen, it starts receiving. It will resume FM radio function 5 seconds after receiving stops. If DW turns off, the radio keeps in FM radio mode, and will not receive signals.

Backlight setting (LAMP)

Set keypad and LCD backlight through Menu 11.

- 1) OFF: Keypad and LCD backlight will not be turned on upon any operation.
- 2) KEY: Keypad and LCD backlight will be turned on upon any operation, and stay for 5 seconds. It will be automatically turned off when there is not any operation. Press [LAMP] key to turn off backlight immediately.
- 3) CONT: Keypad and LCD backlight will be turned on constantly, even there is no operation.

Keypad lock way (LOCK)

Press [**F=O**] key for more than 2 seconds to lock keys that you do not want to use. Four keypad lock ways are available, can be selected through Menu 12.

- 1) K+S: Only Keypad and Up/down key are locked.
- 2) PTT: Only PTT switch is locked, to avoid danger caused by misuse transmission.
- 3) KEY: Only keypad is locked, to avoid changing radio settings when press any key unconsciously.
- 4) ALL: All keys are locked, no operation can be made.

Power on message setting (MSGSET)

Power on message can be edited, 5 digits or letters in maximum

- 1) Press [**F=O**] key, an icon " **F** " blinks on the screen, press [**9 SET**] enter into menu selecting mode, select menu 13.
- 2) Press [**F=O**] key to edit, the first character flashes, press [**▲**]/[**▼**] key to select "0-9" "A-Z" "-" "_" "+" "*" or a space.
- 3) Press [**9 SET**] key to switch to next character
- 4) Repeat step 2 and 3 to the fifth character, press [**F=O**] key to confirm the setting.
 - Press [**7 CODE**] key to delete the current character, and return to last character.
 - Press [**V/M**] key to clear all previous setting, and edit again.

Channel name displaying mode (NAME)

The channel name displaying mode can be set through Menu 14.

- 1) ALPHA: displaying your edited channel name.
- 2) FREQ: displaying frequency.

Channel name setting (NM SET)

Channel name can be edited by users, 5 digits or letters in maximum.

- 1) Press [**F=O**] key, an icon " **F** " blinks on the screen, press [**9 SET**] enter into menu selecting mode, select menu 15.
- 2) Press [**F=O**] key to edit, the first character flashes, press [**▲**]/[**▼**] key to select "0-9" "A-Z" "-" "_" "+" "*".
- 3) Press [**9 SET**] key to switch to next character.
- 4) Repeat step 2 and 3 to the fifth character, press [**F=O**] key to confirm the setting.

Offset frequency (OFFSET)

Select the offset frequency between TX frequency and RX frequency.

- 1) Press [**F=O**] key, an icon " **F** " blinks on the screen, press [**9 SET**] enter into menu selecting mode.
- 2) Select menu 16 (OFFSET).
- 3) Press [**F=O**] key, then input offset frequency directly by keypad
 - Available ranges: 00.000MHz to 37.995MHz (VHF) or 00.000MHz to 69.995MHz (UHF).
- 4) Press [**F=O**] key to confirm it and then exit.

Power on message displaying (OPNMSG)

The desired power on message displaying mode can be selected through menu 17

- 1) OFF: Normal power on, displaying frequency or channel number directly.
- 2) DC: Displaying current battery voltage.
- 3) MSG: Displaying your edited power on message.

Power on password protection (PSWD)

To turn on the power on password protection through menu 18, you have to set the 4-digits power on password through menu 19 first.

Power on password setting (PSWD W)

Set the desired power on password through menu 19. Press [**NUM**] key to delete the previous password and input a new one if necessary.

Transmission end tone (ROGER)

Turn it on/off through menu 20.

Scan mode (SCN MD)

You can select the desired scan mode (TO/CO) through menu 21.

End tone elimination (STE)

It can eliminate nasty sound when transmission is finished. The benefit of this function is particularly evident for those using earphone.

Note: This function will only activate when other radios also turn on STE function.

Time out timer (TOT)

To prevent radio from being damaged due to continuous transmission for a long time, a transmitting time limit can be selected, OFF/1-7 minutes can be selected, the radio will alert you when transmission time limit is up. Use [**▲**] / [**▼**] key to set this function in menu 23.

Transmission prohibiting (TXSTOP)

To avoid transmitting unconsciously or by unauthorized person, the transmission can be prohibited. Turn it on/off through menu 24.

VOX

Speak to the microphone in normal voice to transmit directly, no need to press PTT switch. Turn VOX on/off through menu 25, an icon "VOX" appears when VOX is on.

1) When VOX is on in your working channel.

- Speak to the microphone directly, it will transmit automatically.
- The radio stops transmitting when there is no voice, and waits for receiving.

2) When a headset with a microphone is used.

- When VOX is on, you should adjust VOX gain for the radio to identify voice volume.
- If microphone is too sensitive, the noise around radio will start transmitting.
- If microphone is not sensitive, the radio can not collect your voice. Please adjust VOX level well to guarantee smooth communications.

VOX ending delay time (VOX D)

The radio resumes to receiving mode soon after transmitting, your TX voice may sometimes not be sent out successfully. To avoid this problem, you can adjust VOX delay time after transmission. Access to menu 26, use [▲]/[▼] key select your desired delay time (1s, 2s, 3s, 4s).

VOX sensitivity (VOX S)

To make VOX more suitable for everyone to use, with different speaking volume and tone, please adjust and choose the most suitable level to use. Access to menu 27, use [▲]/[▼] key to select your desired sensitivity.

VOX lock in busy channel (VXB)

Vox can not work when a signal is received to avoid interfering. Turn this function on/off through menu 28.

Wide/narrow bandwidth selective (WIDNAR).

Select your desired bandwidth through menu 29 (WIDE/NARROW).

Use 1750Hz burst to connect with repeater

- 1) Select the desired frequency or channel for connecting with repeater.
- 2) Long press [LAMP] for more than 2S to transmit 1750Hz, release [LAMP] key to stop it.
- 3) When the radio has connected with repeater, you can transmit by the normal operation, that is, press PTT switch to transmit or receive.

Connecting with repeaters

CTCSS/DCS

Memory channel

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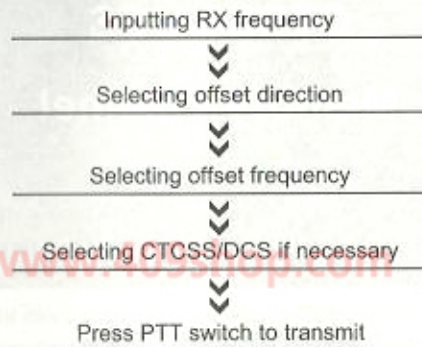
<http://www.tyt888.com>

Connecting with repeaters

Some amateur radio users will set up repeaters to increase the communication distance, the TX frequency and RX frequency of repeaters are different, either increase or use a fixed plus or minus shift frequency (RX frequency keeps the same, TX frequency increases or decreases) to relay transmission. Some repeaters may have CTCSS/DCS, or changed plus/minus offset frequency, please ask your local repeater operators for detailed information.

Repeater setting flowchart

The menu contains all the software settings of this radio; you can change some of the settings to meet your specific requirement.



Selecting offset direction

Selecting whether the TX frequency higher (+) or lower (-) than RX frequency.

- 1) Selecting your desired RX frequency.
- 2) Press [**F=0**] and [**5REV**] key.
 - The offset direction changes each time upon the above operation as below:



Selecting offset frequency

Selecting offset frequency between TX frequency and RX frequency.

- 1) Press [**F=0**] key, an icon " **F** " will blink, and then press [**9REV**] key enter into menu mode.
- 2) Selecting menu 16 (OFFSET).
- 3) Press [**F=0**] key, and then input offset frequency directly by keypad.
 - Available range: 00.000MHz-37.995MHz (VHF) or 00.000-69.995MHz (UHF).
- 4) Press [**F=0**] key to store the setting and then exit.
- 5) Press any key except [**F=0**], [LAMP] and [MONI] keys to exit menu mode.

CTCSS/DCS

CTCSS/DCS can prevent you from receiving unwanted call from the same channel. CTCSS/DCS is the sub-audio tone, 50 groups CTCSS and 107 groups DCS can be selected.

Note: CTCSS/DCS can not guarantee privacy of your talk, but can only prevent you from receiving unwanted call in the same channel.

Using CTCSS/DCS

- 1) Press [**F**] , [**G**] keys to turn on/off CTCSS/DCS. Seven CTCSS/DCS modes can be selected.

OFF: NO CTCSS/DCS in TX and RX

TONE: TX CTCSS only

CTCSS: CTCSS both in TX and RX

DCODE: TX DCS only

DCS: DCS both in TX and RX

TDCS: CTCSS for TX, and DCS for RX

DTSQL: DCS for TX, and CTCSS for RX

Note: When CTCSS/DCS turns on, an icon " **CT** " appears, when DCS turns on, an icon " **DCS** " appears.

Selecting CTCSS/DCS code

- 1) Press [**F**] and [**G**] keys to turn on CTCSS/DCS
- 2) Press [**▲**]/[**▼**] keys to select your desired mode
- 3) Press [**F**] key to confirm the working mode of CTCSS/DCS
- 4) Press [**F**] and [**7**] key enter into receiving CTCSS/DCS mode.
- 5) Press [**▲**]/[**▼**] key to select your desired receiving CTCSS/DCS code.
- 6) Press [**F**] key enter into transmitting CTCSS/DCS mode, press [**▲**]/[**▼**] key to select your desired transmitting CTCSS/DCS code.
- 7) Press [**F**] key to confirm the setting.

CTCSS frequency code

CTCSS				
1 - 67.0	11 - 94.8	21 - 131.8	31 - 171.3	41 - 203.5
2 - 69.3	12 - 97.4	22 - 136.5	32 - 173.8	42 - 206.5
3 - 71.9	13 - 100.0	23 - 141.3	33 - 177.3	43 - 210.7
4 - 74.4	14 - 103.5	24 - 146.2	34 - 179.9	44 - 218.1
5 - 77.0	15 - 107.2	25 - 151.4	35 - 183.5	45 - 225.7
6 - 79.7	16 - 110.9	26 - 156.7	36 - 186.2	46 - 229.1
7 - 82.5	17 - 114.8	27 - 159.8	37 - 189.9	47 - 233.6
8 - 85.4	18 - 118.8	28 - 162.2	38 - 192.8	48 - 241.8
9 - 88.5	19 - 123.0	29 - 165.5	39 - 196.6	49 - 250.3
10 - 91.5	20 - 127.3	30 - 167.9	40 - 199.5	50 - 254.1

DCS code

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

Memory channel

Under memory channel mode, you can store frequency and menu settings to avoid re-editing the data repeatedly and can transmit by your desired frequency by easy operation. 128 memory channels are divided into 8 groups. You can set channel name with 5 letters for each channel.

Store frequency settings in single or repeater channel

- 1) Under VFO mode, select your desired frequency.
- 2) Press [**F**] key, an icon " **F** " blinks in the screen.
 - Memory channel No. appears
- 3) use [**▲**]/[**▼**] key to select the desired memory channel No. to store.
- 4) Press [**VM**] to confirm it.
 - The selected frequency and data will be stored in the memory channel.
 - If the memory channel is not empty, then the new settings will replace the old settings.
 - If memory channel No. blinks, it indicates the channel has stored frequency settings.

Editable functions for storage in different modes

Function	VFO	MR	CH
Transmitting power	✓	✓	✓
Transmission stop	✓	✓	✓
Secondary oscillation frequency	✓	✓	✓
Busy channel transmission stop	✓	✓	✓
CPU oscillation frequency	✓	✓	✓
Voice Scrambler	✓	✓	✓
Voice Compander	✓	✓	✓
Squelch	✓	✓	✓
Squelch level	✓	✓	✓
Vox function	✓	✓	✓
Channel bandwidth	✓	✓	✓
Channel space	✓	x	x
Scan mode	x	✓	✓
Offset	✓	✓	✓
Offset frequency direction	✓	✓	✓
Channel name setting	x	✓	✓

Note: VFO: frequency display mode MR: memory channel display mode CH: channel display mode

Transmitting in memory channel mode

- 1) Press [**VIM**] key enter memory channel mode. It will transmit in the last memory channel first.
- 2) Use [**▲**]/[**▼**] key to select the desired memory channel.
 - It can not transmit in an empty memory channel.
 - Press [**VIM**] key again to resume VFO mode.

Delete memory channel

- 1) Select the desired memory channel to delete.
- 2) Power off the radio.
- 3) Press and hold [**F-9**] key to power on.
 - Selective menu displays in the screen.
- 4) Press [**▲**]/[**▼**] key to select MEMCLR, then press [**F-9**] key to confirm, the screen will display "RESET", then press [**F-9**] key again, the memory channel will be deleted.

Memory channel name setting

5 characters in maximum (letter and number) can be edited for the memory channel name. When transmitting in a named channel, the channel name will replace the stored frequency and display in the screen. Channel name can be call No., repeater name, city name or personal name etc.

- 1) Select the desired memory channel.
- 2) Press [**F-9**] and [**9H**] key to enter menu mode, select menu 15 for name setting.
 - The first character blinks.

3) Press [▲]/[▼] key to set the first character

- "0" "9" "A" "Z" "-" "_" "*" or a space can be set.

4) Press [**ENT**] key.

- The second character blinks.

5) Repeat step 3 and 4 to input 5 characters in maximum.

- After the fifth character is set, no need to press [**ENT**] key.
- Press [**DEL**] key to delete the current character and back to last character.
- Press [**VM**] key to delete all.

6) press [**F=0**] to finish the setting.

Channel name display/frequency display switching

When channel name has been stored, you can switch channel name display and frequency display, to confirm the frequency of the named channel.

- 1) Press [**F=0**] and [**ENT**] key enter into menu mode, select menu 14.
- 2) For detailed steps, please refer to function menu and settings.

Channel mode

When radio is in channel mode, it only displays channel number, no frequency.

- 1) Press and hold [**F=0**] key, and rotate power/volume knob to turn on radio.
 - Selective menu is shown in the screen.
- 2) Press [▲]/[▼] key to select M-ONLY, and then press [**F=0**] key to confirm the setting.

Note: If there is no frequency being stored in any channel, this function doesn't work.

Reset

If there goes something wrong with your radio, reset may solve the problem for you.

Note: You have to re-edit memory channel after reset, and reset is a quick way to clear the settings in all memory channel.

Rest reset

It is used to clear all the settings except the memory channels that have been locked.

- 1) Press and hold [**F=0**] key, and rotate power/volume knob to turn on radio.
 - menu is shown in the screen.
- 2) Press [▲]/[▼] key to select SETRST, and then press [**F=0**] key twice to confirm the setting.

All reset

It is used to clear all the settings.

- 1) Press and hold [**F=0**] key, and rotate power/volume knob to turn on radio.
 - Selective menu is shown in the screen.
- 2) Press [**F=0**] key twice to confirm the setting.

Reopen full frequency setting

It is used to clear all the settings.

Press [**F=0**] to open the radio, LCD displays "RLLRST" and "FO" blinks, press [▼], LCD displays "TYPE" and "F4" blinks, press [**F=0**] again, you will see "--". For VHF radio, Input "6018" and for UHF one, input "6029", and you can reopen the full frequency.

409[®] SHOP

Scanning

Auxiliary functions

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Scanning

Scanning is to monitor your desired frequency without hands operation. When you are familiar with the use of various scanning modes, the monitoring flexibility will increase using efficiency.

Available scanning

Scanning	Condition
VFO frequency scanning	All available frequency
Memory channel scanning	All stored channel
FM radio Scanning	Under Non-CH mode

Scanning mode

Scanning mode should be selected before scanning starts. You can select one of the below scanning modes.

TO: The radio stops scanning when a signal is received, and stays for 5 seconds, and then continue scanning even the received signal still exists.

CO: The radio stops scanning when a signal is received and stays until the signal disappears. It will resume scanning 2 seconds after the signal disappears.

Note: Press [MONI] key to stop scanning, release [MONI] key to resume scanning.

Scanning mode selecting

- 1) Press [F+0] and [9 301] key enter the menu mode.
- 2) Select menu 21 (SCN MD).
- 3) Press [F+0] key enter selective menu, then press [▲]/[▼] key to select [TO] or [CO].
- 4) Press [F+0] key to confirm the setting.
- 5) Press any key except [F+0], [LAMP],[MONI] and [▲]/[▼] to exit.

VFO scanning

VFO frequency scanning can automatically scan the full frequency range from lowest to highest one.

- 1) under VFO mode, press [F+0], [3 304] key to begin scanning.
 - Scanning from current displaying frequency.
 - Press [▲] (increase frequency) / [▼] (decrease frequency) to change scanning direction.
- 2) Press any key except [LAMP], [MONI] and [▲]/[▼] to exit VFO scanning.

Note: Scanning only works when squelch is turned off.

Memory channel scanning

It can scan all memory channels with data settings.

- 1) Press [VM] key to enter memory channel mode.
- 2) Press [F+0], [3 304] key to begin scanning.
 - Scan begins from last working channel.
 - Press [▲] (increase frequency) / [▼] (decrease frequency) to change scanning direction.
- 3) Press any key except [LAMP],[MONI] and [▲]/[▼] to exit scanning.

Note: Memory channel scanning only works when there are more than 2 memory channels with data and unlock.

Scanning only works when squelch is turned off.

Memory channel scanning can also work when radio is in CH mode.

Locking memory channel

You can lock memory channels that you do not want to scan.

- 1) Selected the memory channel that you want to lock.
- 2) Press [F+0], [0 LOCK] key to turn on/off the lock function.

Auxiliary function

Keypad lock

The function is used to prevent changing radio settings by pressing any key accidentally.

- 1) Press [**F.MD**] key (2 seconds) to turn on/off this function.
 - When this function is turned on, a lock-like icon appears.

Input by keypad

Input the number directly by keypad to choose desired frequency and memory channel, the time gap for inputting number is 10s or so.

Frequency input.

- 1) Choose VFO mode.
- 2) Input the desired frequency directly by keypad.

Memory channel number input

- 1) Press [**VM**] key to enter memory channel mode.
 - The last used memory channel will display.
- 2) Input digits for channel number directly by keypad.
 - E.g., input "003" to select channel 3.
 - The empty memory channel isn't available.

Backlight Function

Press [**LAMP**] to light the LCD display and keypad, backlight will turn off automatically when there is no operation within 5 seconds after [**LAMP**] key is released.

When lighting, Press any key except [**LAMP**] key, timer starts again for another 5s, press [**LAMP**] key to turn off backlight immediately.

Press [**F.MD**] , [**B.FM**] key enter menu mode, use [**▲**] / [**▼**] key to select menu 11 for backlight setting: OFF/CONT/KEY.

FM radio function

- 1) Press [**F.MD**] / [**B.FM**] key to turn on FM radio, the current FM radio frequency will display in the screen.
- 2) Press [**▲**] / [**▼**] key to adjust radio broadcast channel, or input by keypad directly. (FM radio frequency: 87.500--107.975MHz).
- 3) Rotate power/volume knob to adjust volume.
- 4) Press [**F.MD**] / [**B.FM**] key again to turn off FM radio.

FM radio station storage

- 1) Under FM radio VFO mode, select your desired FM radio frequency.
- 2) Press [**F.MD**] key, an icon " **F** " blinks in the screen.
 - one memory channel number appears.
- 3) Press [**▲**] / [**▼**] key to select your desired channel number for storage.
- 4) Press [**VM**] key to confirm the setting.

- The selected frequency and the corresponding data will be stored in the memory channel.
- If the selected channel has stored data, then the new data will replace the old one.
- If memory channel No. blinks, it has stored data in it.

FM radio memory channel

Under FM radio memory channel mode, the frequency can be stored in the memory channel.

There are 25 FM radio memory channels.

- 1) Press [**VIM**] key to enter FM radio memory channel mode.
 - The last edited channel will display in the screen.
- 2) Press [**▲**] / [**▼**] key to select desired channel.
 - Empty RM radio channel does not work.
 - Re-press [**VIM**] key to resume VFO mode.

Frequency step

To choose the right frequency step is necessary for choosing right receiving frequency.

- 1) Enter VFO mode.
- 2) Press [**F=0**], [**4STEP**] key, current frequency step is shown in the screen.
- 3) Use [**▲**] / [**▼**] key to choose your desired frequency step.
 - Available frequency step: 5, 6.25, 10, 12.5, 25, 37.5, 50 and 100 KHz.
- 4) Press any key except [LAMP] and [MONI] key to exit.

409[®]
Technical Specification
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Guarantee

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Technical Specification

Model	TH-F7
Frequency Range	136-174MHz 245-246MHz 400-470MHz 465-520MHz
Operating Temperature	-20℃~+60℃
Channel capacity	128 channels
Mode of operation	Simplex or semi-duplex
Dimension (W × H × D)	98mm × 53mm × 30mm
Weight	220(includes battery pack)
Output Power	1W/2W/4W
Modulation Mode	F3E
Maximum deviation	< ±5KHz
Remnant Modulation	< -60dB
Transmitting Current	0.7A/1.0A/1.5A
Frequency Stability	±2.5ppm
Receiving Sensitivity	< 0.18μV
Audio power	> 40mw
Standby current	46mA (20mA in power-saving mode)

Note: Specification will be revised without notice due to technical improvement. Thank you.

Guarantee

Model Number: _____

Serial Number: _____

Purchasing Date: _____

Dealer: _____ Telephone: _____

User's Name: _____ Telephone: _____

Address: _____ Post Code: _____

Remarks:

- 1 This guarantee card to be kept by the user, no replenishment if lost.
- 2 This guarantee card to be filled & chopped by the dealer, or it is invalid.
- 3 Don't alter the guarantee card, please confirm the serial number on the guarantee card is same as that on the machine.
- 4 One-year guarantee, charger, battery, ear-phone, antenna and cable are not under guarantee.
- 5 The user can get repairing service from the following ways:
 - Go to the shop where you buy the machine.
 - Our local repairing agents.
 - Send back to our company.

Please cut along with this line

