Cat. No. 19-1106

Owner's Manual

Please read before using this equipment

HTX-245

Compact Handheld 2-Meter/70-Cm Dual band

Amateur Transceiver

RadioShack

FEATURE

Your RadioShack HTX-245 Compact Handheld 2 meter/70 cm Dual band Amateur Transceiver is compact and lightweight, making it easy to carry almost anywhere. The crystal controlled circuitry provides accurate and stable channel selection, making it an ideal choice for your amateur communications needs.

Note :   You must have a Technician Class or higher Amateur Radio Operator's License, and a call sign issued by the FCC, to legally transmit using this transceiver. Transmitting without a license carries heavy penalties. Getting a license is easier than ever. See " Introduction to Amateur Radio" on Page 7 for more information.

Here are some of your transceiver's features.

1W Output power – the transceiver automatically transmits at 500mW output when powered by internal batteries and at 1W when powered by an external 6-volt power source.

CTCSS (Continuous Tone Coded Squelch System subaudible tone) – helps reduce interference from other nearby systems operating on the same frequency. Encoding and decoding tone unlocks squelch when received.

Repeater Offset – lets you select an appropriate offset value to match a local repeater.

Scan – the transceiver scans frequency range and memory channels for transmissions.

Power Save – conserves battery power when the transceiver is no transmitting or receiving.

Programmable Frequency Steps – let you set the frequency increment for tuning or scanning to 5, 10, 12.5, 15, 25, 50 KHz.

Signal Strength Indicator – a graduated bar shows the relative strength of the received signal.

Time-Out Timer – lets you set a maximum transmission time interval s among 5, 10, 15, 20 minutes make the best use of repeater transmission time.

Earphone Jack and External Microphone Jack – let you connect an optional ear-microphone for more flexible operation.

External Power Jack – lets you use an external power source.

50 Memory locations – let you store up to 50 frequencies and other settings.

Back Light – makes your transceiver easy to operate in low light situations.

Key Lock – lets you lock the transceiver's keys to prevent accidentally changing settings.

We recommend you to record your transceiver's serial number here. The number is on the transceiver is on the transceiver's back panel

Serial Number _____

MANUAL CONVENTIONS

Your transceiver's buttons perform multiple functions. The abbreviation or symbol for a function is printed for a function is printed on, below, or above each button.

To activate certain transceiver features, you must press F (function) and another button at the same time. Those key combination instructions are printed as first button name, +, then the second button name. For example, F+SET means hold down F while you press SET.

FCC INFORMATION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following tow conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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INTRODUCTION TO AMATEUR RADIO

Your transceiver is the perfect first radio for anyone entering the exciting world of amateur radio as well as a great additional transceiver for the experienced amateur radio operator. Your transceiver opens a door for you to the world form almost anywhere!. All you need is an Amateur Radio Operator's License(Technician Class or higher) issued by the Federal Communications Commission (FCC). If you do not have a license, it is easier than ever to get one and help from licensed operators is available. Here are a few tips to help you get started:

You can turn on your transceiver and scan the entire band to hear what is going on. **However, do not attempt to transmit until you get your license.** If you transmit without a license you are in violation of federal law that can lead to severe penalties. Note that ham operators take the FCC rules very seriously and want nothing to do with "bootleggers" – their term for people who operate without license.

Find out if there is a ham radio club in your area. Most clubs welcome newcomers and are glad to help you get your license. There are thousands of clubs across the country, so there is probably one in or near your own community. Often, the staff at your local RadiShack store can help you locate a club.

If you do not hear anyone talking about a local club in your area as you listen to local transmissions, write to the American Radio Relay League (ARRL), at the following address, to find out how to contact a local affiliate. The ARRL is the national organization representing amateur radio in the Unidted States. The league has more than 150,000 members. Most are ham operators, or members in the process of obtaining their license.

The American Radio Relay League
225 Main Street
Newington, CT 06111
http://www.arrl.org

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Start studying for the license exams. Do not be intimidated by the word "study", for most people can go from knowing absolutely nothing about amateur radio to passing the Novice and Technical written exams in less than a month.

The exams test your knowledge of basic radio regulations and elementary radio theory. Many clubs hold license classes which can be a fun and easy way to learn about amateur radio. There are good books, cassette tapes, computer programs, and many other study aids available. Your local RadioShack store sells FCC License preparation study guides for amateur radio operator licenses. While you are no longer required to learn Morse code for a Technician Class license, we encourage you to learn it anyway so you can advance to higher levels of operating privileges.

The examiners for a Novice license test can be any tow ham operators who hold a general or higher class license and who are at least 18 years old and are not related to you. There is no fee to take the Novice exam. As soon as you pass the Novice exam, you can immediately take the Technician exam. There is a small fee required for taking the Technician exam, and the test must be administered by a three-member Volunteer Examiner Team. Contact the ARRL for a schedule of exam opportunities in your area.

The Technician Class license lets you use the HTX-245 to communicate directly with other operators, and use repeaters for distant communication.

The ARRL staff helped us prepare this section of the Owner's manual. Amateur radio is a great hobby that has enriched the lives of millions of people all over the world. The ARRL would be glad to hear from you if you need more information or would like to join!

PREPARATION

POWER SOURCES

You can operate your transceiver form either of two power sources:

- Internal batteries
- Vehicle battery power(using an optional DC adapter)

Using Internal Batteries

Your transceiver can use three AA batteries (not supplied) for power. For the best performance and longest life, we recommend RadioShack alkaline batteries.

Cautions:

- Use only fresh batteries of the required size and recommend type.
- Do not mix old and new batteries, different types of batteries (standard, alkaline, or rechargeable), or rechargeable batteries of different capacities.

Follow these steps to install batteries.

[Figure 1]

1. Turn the transceiver off.

2. Slide the battery lock tab on the bottom of the transceiver down to release the battery cover

3. Press down and slide the battery compartment cover off.

4. Check what kind of battery will be used. If Alkaline batteries are used, the CHG switch inside of

battery compartment should be positioned to "Off". If Ni-cd or Ni-MH batteries are used, the CHG switch inside of battery compartment should be positioned to "On"

※ Caution : If you misallocate the position of CHG switch to "ON" for Alkaline, the battery may explode or leak

5. Put the batteries into the compartment.
6. Confirm the location and polarity of the battery cells, and or replace when required
7. To close the battery cover, slide the battery cover onto the transceiver.
8. Slide the battery lock tab on the bottom of the transceiver to secure the cover.

Testing Internal Batteries

To test the battery strength, try to power off and on. Then, you can check the current Voltage on the display for a second. The battery life indicator will show on the display on left bottom when the transceiver is in use. If the batteries are weak, the battery life indicator shows less than 4 steps. Replace both batteries as soon as possible.

Caution

- Dispose of old batteries promptly and properly. Do not burn or bury them.
- If you do not plan to use the transceiver with batteries for a two week period, remove the batteries. Batteries can leak chemicals that can destroy electronic parts.

Using Vehicle Battery Power

You can operate the HTX-245 from your vehicle's battery using a DC adapter such as RadioShack Cat. No. 273-1815(?)

Cautions:

[simbol1] You must use a power source that supplies 6 Volts DC and delivers at 600mA. Its center tip must be set to positive, and its plug must fit the transceiver's DC 6V jack. The recommended adapter meets these specifications. Using an adapter that does not meet these specifications could damage the transceiver or the adapter.

Always plug the adapter into the transceiver before you plug it into the cigarette-lighter socket, and unplug the adapter from the cigarette-lighter socket before you unplug it from the transceiver.

1. Set the adapter's voltage switch to 6V.

2. Insert the 3.4 mm outer diameter/1.3 mm inner diameter plug into the adapter's cord.

3. Insert the plug into the HTX-245's DC 6V jack.

4. Plug the other end of the adapter into the cigarette-lighter socket in the vehicle.

CONNECTING THE ANTENNA

Place the threaded base socket of the supplied antenna over the antenna connector on top of the transceiver and turn the antenna clockwise to tighten it.

[figure 2]

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Caution : Do not overtighten the antenna

ATTACHING THE BELT CLIP

Use a Phillips screwdriver and the two supplied screws to attach the supplied belt clip to your transceiver.
Do not over-tighten the screws.

[figure 3]

ATTACHING THE WRIST STRAP

Attach the supplied wrist strap to the top of the belt clip, thread the strap's small loop through the opening
in the top of the clip. Then insert the longer loop through the smaller loop. Pull on the strap until the loop
is tight.

[figure 4]

CONNECTING A MICROPHONE/SPEAKER

You can connect an external communications headset, consisting of a microphone and speaker, to the transceiver os you can use it privately. Lift the hinged, rubber dust cover from the MIC and SPK jacks on the top of an optional voice activated headset with microphone, such as Cat. No. 19-312(?), or an optional communication headset, such as Cat. No. 19-316(?), into the jacks.

Caution: Use only microphone speaker accessories that do not share a common ground for the speaker and the microphone. Doing otherwise might damage the transceiver.

[figure 5]

Note : Inserting the headset plug automatically disconnects the internal speaker and the push-to-talk(PTT) button.

You can also connect an optional stereo earphone, such as Cat. No. ?, into the SPK jack. This lets you use the transceiver's push-to-talk button or transmit as usual.

A QUICK LOOK AT THE CONTROLS

[figure7]

VOL – turns to adjust the volume

CH – turns to set the frequency

PWR – push to turn the radio on/off

M – monitor for tone squelch

F + DTMF – enter DTMF dial mode

F + TSQ – Tone squelch mode change for TX and RX

F + SET – enter Set mode

F + +/- - change Repeater frequency

F + BAND – shift the bands

F + PS – set Power save mode

F + APO – set Auto power off

F + Clear – remove the memory data.

F + ME – select memory address

F + STEP – change the frequency step.

F + Beep – turn beep sound on/off

F + 9 – set time-out-timer

F + 🔑 - set the key lock

▲/▼ - set the channel and frequency ✔

F + CM – changing call frequency

VFO – variable frequency oscillator

MR – read memories

SC – scan channels or frequencies

UNDERSTANDING REPEATERS

Operation through a repeater, where you transmit on one frequency and receive on another, is called *duplex* operation. Operation direct to another station, where you transmit and receive on the same frequency, is called *simplex* operation.

A repeater is a station that receives a signal on one frequency (the input frequency) and then retransmits that signal on a different frequency (the output frequency). Repeater antennas are typically located at the tops of tall buildings or on antenna towers, so a relatively low-power signal at a higher power. This gives your transceiver the ability to communicate over a much greater range.

To use a repeater, you must know the repeater's input and output frequencies. Repeaters are usually identified by their output frequency. Thus, a repeater that has an output frequency of 146.94 is referred to as the "146.94 repeater." To determine the input frequency, you must know the frequency offset(typically 600kHz for the 2-meter band and 5MHz for 70 cm band) and offset direction (+ if you add 600 kHz to the output, or -- if you subtract 600kHz from the output).

To determine the offset and the direction, obtain a copy of The ARRL Repeater handbook (available directly from the ARRL) which lists the locations of repeaters as well as their frequency and offset information

TURNING THE TRANSCEIVER ON

1. Push the "PWR" key for 0.5 seconds

2. The LCD will show and disappear the current voltage used

3. Power is confirmed by the power up sounds and the display on the display panel. The initial frequencies shows 144.00

4. To turn off, press the "PWR" key for 0.5 seconds

RECEIVING

Receiving is the process of selecting a frequency to a desired channel and listening.

1. Hold down "F" and then press "BAND(VFO)" key to select the band.

2. After selected the band, the frequency increases if the rotary switch is turned clockwise or "UP" button is pressed.

3. The frequency decreases if the rotary switch is turned counterclockwise or "DOWN" button is pressed.

4. Press the Key (16keys) directly to key in the frequency user want to set regardless of bands.

TRANSMITTING

By setting transceivers to the same frequency and press the "PTT" button, you can communicate directly with another party.

1. Set to the VFO and select the band.

2. Turn the selector to set the desired frequency or Press the Key (16keys) directly to key in the frequency user wants to set regardless of bands

3. Before transmitting confirm, the frequency is not being used by other parties.

4. Hold down the "PTT" button and speak into the microphone.

5. For the best sound transmission, speak around 5 cm apart from the microphone.

SCANNING FOR ACTIVE FREQUENCY

1. To search for activity on a frequency, press "SC" key to start scanning.
2. Press ▲/▼ to change the scan direction.
3. If there is a signal, it stops scanning for 8 seconds.
4. When detecting a signal, Green LED is on.
5. Press "SC" key or "PTT" key to exit scan mode.
6. Scan time is 60msec after detecting Lock.

ADJUSTING AUDIO VOLUME

Rotate the Volume dial clockwise to increase the audio volume, and counter- clockwise to decrease it.

SELECTING THE BAND(FREQUECY BAND)

1. This transceiver has VHF band and UHF band. They are switched as following:
2. Hold down the "F" key and press "BAND" (VFO)" key.
3. Confirm the band has switched. (The band is switched VHF, WX(10ch), UHF in turn with each press of "BAND" key.

TURINING THE FREQUENCY

1. Rotate the frequency dial in the mid of Volume dial clockwise to increase the frequency and counter-clockwise to decrease it.

USING A FUNCTION KEY

"F" key is for 2nd key operation.

1. While pressing the "F" key, "F" is displayed on LCD.
2. Hold down "F" key and rotate the frequency dial to increase or decrease frequency by 1Mhz.

TURNING THE SQUELCH OFF(MONITOR)

Turning the Squelch off (Monitor)

1. When the FM transceiver is not receiving a signal, squelch noise will be heard. The squelch control is used to cancel this noise.
2. Press the "M" key
3. To cancel, press the "M" key.

VFO STATE

The VFO(Variable Frequency Oscillator) is the state in which frequencies can be changed with the rotary channel selector. This is the normal usable state of the transceiver before setting and to exit setting.

1. If "MR" is displayed (Memory mode), press the "VFO" key to return the VFO mode. If "C" is displayed (Call mode), press the "VFO" key to return the VFO mode. If frequency is changed (Scan mode), press the "VFO" key to return the VFO mode. If Set mode is selected, press the "VFO" key to return the VFO mode.

LIGHTING THE DISPLAY

1. The lamp can be lit for five seconds when any key except "F" and "PTT" keys is pressed. The lamp does not go out if the keys are being used.

2. The lamp will be out in 5 seconds after releasing the key.

CHANGING THE CALL FREQUENCY (CM)

To change the CALL frequency

1. Press UP/DN key to select new VHF or UHF CALL frequency.

2. Hold down "F" key and press "CALL(CM)" key to save and exit.

USING THE KEY LOCK

This function locks the keys to prevent accidental changes.

1. Hold down "F" key and press "SC" key.

2. Confirm the key symbol is displayed.

3. Hold down "F" and press "SC" key to exit and confirm the key symbol is disappeared.

The "PWR", "PTT", "F", and "M" keys are still active.

READING MEMORIES

1. Often used frequencies including repeater +/-, tone squelch(TSQ) can be stored in Memory.
2. Total 50 channel frequencies can be stored regardless of VHF, UHF or weather radio band.
3. Memory mode: storing the memory, recalling the memory or using the memory.
4. The memory address is the location where a frequency is stored. The number of the memory address is used to recall the frequency stored at that location. Memory address numbers are 01 – 50.

STORING THE MEMORY

Frequencies used most often can be memorized.

1. Select the frequency you want to store by turning rotary S/W or pressing ▲/▼ keys.
2. Hold down "F" key and press "MR" key and LCD display shows memory address and data used lately and "MR" on L CD is twinkling.
3. Select the address in which you want to store the frequency by turning rotary S/W.
4. Overwriting is available.
5. Hold down "F" key and press "MR" key to save the frequency to the assigned address.
6. Just after saving the frequency to the assigned address, the tone is on.

RECALLING THE MEMORY

1. Press "MR" key.
2. Press "SCAN" key to scan memory channel.
3. is twinkling
4. If you want to stop scanning, press "SCAN" key or "PTT" key.
5. Press "VFO" key to exit.

ERASING THE MEMORY

Stored memory except address 01 can be erased.

1. Hold down "F" key and press "6" (CLR) key to erase the memorized address.
2. Press "VFO" to exit.

PROGRAMMING A DTMF CODE

The transceiver has 6 DTMF memory channels (d1 ~ d6) for storage of often-used DTMF codes of up to 16 digits. The memory channels are for common use on both bands.

1. Hold down "F" key and press "M" key to enter DTMF memory mode.
2. Confirm display. If it has no data, it display _ _ _   _ _ dl. If it has data in the assigned address, stored data is displayed.
3. Press any key to clear the data in the assigned address.
4. Push digit keys to enter the desired DTMF code.
5. Each address can store up to 16 digits that consist of 0 ~ 9, A ~ F.
6. When over 5 numbers are inputted, each number shifts to left.
7. In case of pressing the keys over 16 times, it makes beep sound.
8. d1 ~ d6 (memory only for DTMF) are shifted by rotary S/W.
9. Able to go to the other memory like d1 ~ d2 using Rotary S/W.
10. Press "PTT" or "F" key and press "M" key to save and exit.

TRANSMITTING A DTMF CODE

1. Push "PTT" and "M" key to transmit the selected DTMF code.
2. Or press "PTT" and then push keys (PTT will be hold for 1 second whenever any digit key is pressed.)
3. Confirm the display for transmitted frequency.
4. DTMF output: over 200ms interval should be maintained.
5. While transmitted, MIC mute mode should be maintained.

OPERATING THE REPEATER MODE

The Transceiver can be set to − offset, + offset or no offset (simplex). When the offset is +, the transmission frequency is plus the offset and when the offset is −, the transmission frequency is minus the offset. Set the receiving frequency the same as the out put frequency of the repeater station.

1. Hold down "F" key and press "3" key
2. The mode will be shifted +, -, off in turn by each pressing.
3. TX frequency shifts by +/- state.
4. Value to be shifted is set at the SET mode.
5. Default value is 600KHz in VHF and 5MHz in UHF.
6. LCD displays + or -.

USING TONE SQUELCH FREQUENCY (CTCSS)

When using the tone squelch, and waiting to receive a signal, the squelch is unmuted only when the transceiver receives the tone frequency that you have selected for your station.

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

1. Hold down "F" key and press "1" key, then "T", "T.SQL" in turn will be set.

   Confirm display.

   "T" is only TX

   "TSQ" is RX/TX.

   Tone frequency value should be set in setting mode

   .Sub-audible Tone Frequencies (MHz)

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
91.5	127.3	167.9	199.5	254.1

SETTING MODE

1. Hold down "F" key and press "2" to set RX tones.

2. Confirm display which shows 88.5 Hz as default.

   Display : 88.5 rt

3. Adjust the tone encoder frequency by pressing "▲/▼" keys.

4. Turn rotary S/W clockwise to change to TX tones setting mode.

5. Confirm display which shows 88.5 Hz as default.

   Display : 88.5 tt

6. Adjust the tone encoder frequency by pressing "▲/▼" keys

7. Turn rotary S/W to go to repeater setting mode in VHF band.

8. Confirm display "   .60   r1" as default.

9. Adjust the repeater value by pressing "▲/▼" keys. The step will go together with channel step adjusted.

10. Turn rotary S/W to go to repeater setting mode in UHF band.

11. Confirm display " 5.00   r2" as default.

12. Adjust the repeater value by pressing "UP/DN" keys. The step will go together with channel step adjusted.

13. Turn rotary S/W to go to Squelch mode.

14. Confirm display " 1. SQ (it looks S9)".

15. Change Squelch level by pressing "▲/▼" keys.

16. It will change 1. 2. 3. 4. and 5 per each press.

17. Press "PTT" or "VFO" to save and exit.

SPECIAL FEATURES

USING THE SPECIAL FEATURES

The transceiver has several advanced features that give you additional control and convenience while using your transceiver.

To set any of the features follow these steps. For detailed information on any feature, see its section on the following pages.

USING THE POWER SAVE

This function is used to extend the life of the battery. The battery save function will work automatically after there is no receiving signals for 8 seconds and "S" on LCD is twinkling to show this mode is on operation. When you want to do packet communication, power save mode should be off. To set power save off,

1. Hold down "F" key and press "4" key.

2. Packet communication is on and "S" on LCD is disappeared.

3. To go back to the power save mode on , press "F" and "4" then "S" on LCD is twinkling to let you know power save mode is on.

USING THE AUTO POWER OFF

The transceiver can be shut off automatically if the unit is not being used in the receive, transmit or keys entry mode for selected period.

1. Hold down "F" key and press "5".

2. Select one out of off, 30, 60, 90, 120 min. by pressing ▲/▼ key.

3. Press "PTT" or "VFO" key to save and exit.

4. Once it is set up, "AP" on LCD is displayed.

TURNING THE BEEP ON OR OFF

1. Hold down "F" and press "8" to make beep on or off.

2. "bP OF" or "bP OF" will be displayed for a second.

3. UP/DN keys manipulate beep sound.

USING TIME-OUT-TIMER

With PTT switch held down, transmit time is limited to prevent unintentional transmissions.

1. Hold down "F" and press "9" key.

2. Select the time among off, 5, 10, 15, 20 min. by pressing UP/DN key.

3. After selection, press "VFO" or "PTT" key to operate TOT mode.

4. 'TOT" is displayed on LCD.

5. In case of exceeding the set time, "TOT" on LCD twinkles and mode is changing to RX mode.

WEATHER RADIO

Your transceiver can receive 10 channels of weather radio broadcast. To listen to weather radio,

1. Press F+Band to select weather band.

2. WX with CH – 1 will be shown on LCD.

3. Press ▲ / ▼ to SC to select a weather radio channel you want to hear

4. Key in any frequency or Press F+Band to exit out of weather band.

Weather Radio Channel and

Channel	Frequency (MHz)
WX – 1	162.400
WX – 2	162.425
WX – 3	162.450
WX – 4	162.475
WX – 5	162.500
WX – 6	162.525
WX – 7	162.550

RESETING THE TRANSCEIVER

When this is done, the transceiver is set to the original state, and the Set mode is reset to its original state. If the original state is requested, use this function.

1. Press the "PWR" key to turn the power off.

2. Hold down "MR" key and press 6 and "PWR" key.

3. Release the keys, and confirm the display is in its original state.

4. Display will show all icons (full display) and then change to Current Voltage and initial condition mode.

※ Caution : After resetting mode, all memory will be erased.