User's Guide

MOTOROLA

XTN SERIES TWO-WAY RADIO

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6864110R04-O

Models XU1100, XU2100, XU2600, XV1100, XV2100, and XV2600

Introduction

Thank you for purchasing a Motorola® **XTN** Series Radio. Your radio is a product of Motorola's 70 plus years of experience as a world leader in the designing and manufacturing of communications equipment. The **XTN** Series radios provide cost-effective communications for businesses such as retail stores, restaurants, schools, construction sites, manufacturing, property and hotel management and more. Motorola professional two-way radios are the perfect communications solution for all of today's fast-paced industries.

Note: Please read this manual carefully to ensure you know how to properly operate the radio before use.

Motorola
Consumer Products Division
1705 Belle Meade Court
Lawrenceville, GA 30043

Package Contents

• Radio
• Swivel Belt Holster
• NiMH Battery
• 10-Hour Charger
• User's Guide
• Accessory Brochure
• Warranty Card

For a copy of a large-print version of this guide, or for product-related questions, please contact:

1-800-353-2729 U.S.A.
1-800-461-4575 Canada
1-888-390-6456 TTY (Text Telephone)
On the web, please refer to:
www.motorola.com/radios/professional

Introduction

Contents

FCC Licensing Information

XTN Series professional two-way radios operate on radio frequencies that are regulated by the Federal Communications Commission (FCC). In order to transmit on these frequencies, you are required to have a license issued by the FCC. Application is made on FCC Form 601 and Schedules D, E and G.

To obtain these FCC forms please request document ***000601*** which includes all forms and instructions. If you wish to have the document faxed, mailed or have questions, please use the following contact information.

Faxed contact the Fax-On-Demand system at:	Mailed call the FCC forms hotline at:	Questions regarding FCC license contact the FCC at:
1-202-418-0177	1-800-418-FORM 1-800-418-3676	1-888-CALL-FCC 1-888-225-5322 Or: http://www.fcc.gov

Before filling out your application, you must decide which frequency(ies) you can operate on. See the Frequency and Code Charts on page 25.

For questions on determining your radio frequency, please call Motorola Product Services at:

1-800-353-2729

Changes or modifications not expressly approved by Motorola may void the user's authority granted by the FCC to operate this radio and should not be made. To comply with FCC requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services. Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the FCC equipment authorization for this radio could violate FCC rules.

Note: Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.

Safety and General Information

Important Information on Safe and Efficient Operation
Read This Information Before Using Your Radio
The information provided in this document supersedes the general safety information contained in user guides published prior to July 2000. For information regarding radio use in a hazardous atmosphere please refer to the Factory Mutual (FM) Approval Manual Supplement or Instruction Card, which is included with radio models that offer this capability.
RF Operational Characteristics
Your radio contains a transmitter and a receiver. When it is ON, it receives and transmits radio frequency (RF) energy. The XTN Series VHF radios operate in the frequency range of 151-158 MHz, the XTN Series UHF radios operate in the frequency range of 461-469 MHz. When you communicate with XU1100 or XV1100 radios the output power level is 1.0 watt, with other XTN Series radios, the output power level is 2.0 watts

Exposure to Radio Frequency Energy
Your Motorola radio is designed to comply with the following national and international standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy:
- United States Federal Communications Commission, Code of Federal Regulations; 47 CFR part 2 sub-part J
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition

- National Council on Radiation Protection and Measurements (NCRP) of the United States, Report 86, 1986
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999
- Australian Communications Authority Radiocommunications (Electromagnetic Radiation - Human Exposure) Standard 1999 (applicable to wireless phones only)

To assure optimal radio performance and make sure human exposure to radio frequency electromagnetic energy is within the guidelines set forth in the above standards, always adhere to the following procedures:

Portable Radio Operation and EME Exposure

Antenna Care

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the radio and may violate FCC regulations.

DO NOT hold the antenna when the radio is "IN USE." Holding the antenna affects the effective range.

Two-Way Radio Operation

When using your radio as a traditional two-way radio, **hold the radio in** a vertical position with the microphone two to three inches (5. 0 to 7.5 cm) away from the lips.

Body-Worn Operation
To maintain compliance with FCC/Health Canada RF exposure guidelines, if you wear a radio on your body when transmitting, always place the radio in **a Motorola supplied or approved clip, holder, holster, case, or body harness for this product.** Use of non-Motorola-approved accessories may exceed FCC RF exposure guidelines. **If you do not use a body-worn accessory, ensure the radio and its antenna is at least one inch (2.5 cm) from your body when transmitting**.

Data Operation
When using any data feature of a device, with or without an accessory cable, position the device and its antenna at least one inch (2.5 cm) from the body.

Approved Accessories
For a list of approved Motorola accessories refer to the Two-Way Radio section of **www.motorola.com/store**.

Electromagnetic Interference/Compatibility
Note: Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed or otherwise configured for electromagnetic compatibility.

Facilities
To avoid electromagnetic interference and/or compatibility conflicts, turn off your radio in any facility where posted notices instruct you to do so. Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

Aircraft
When instructed to do so, turn off your radio when on board an aircraft. Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

Medical Devices

Pacemakers

The Advanced Medical Technology Association recommends that a minimum separation of 6 inches (15 centimeters) be maintained between a handheld wireless radio and a pacemaker. These recommendations are consistent with the independent research by, and recommendations of the U.S. Food and Drug Administration.

Persons with pacemakers should:

- ALWAYS keep the radio more than six inches (15 centimeters) from their pacemaker when the radio is turned ON.
- not carry the radio in the breast pocket.
- use the ear opposite the pacemaker to minimize the potential for interference.
- turn the radio OFF immediately if you have any reason to suspect that interference is taking place.

Hearing Aids

Some wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

Safety and General Use While Driving

Check the laws and regulations on the use of radios in the area where you drive. Always obey them. When using your radio while driving, please:

- Give full attention to driving and to the road.
- Use hands-free operation, if available.
- Pull off the road and park before making or answering a call if driving conditions so require.

Operational Warnings

For Vehicles with an Air Bag

Do not place a portable radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great force. If a portable radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to occupants of the vehicle.

Potentially Explosive Atmospheres

Turn off your radio prior to entering any area with a potentially explosive atmosphere, unless it is a radio type especially qualified for use in such areas as "Intrinsically Safe."

Do not remove, install, or charge batteries in such areas. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

Note: The areas with potentially explosive atmospheres referred to above include fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine. Areas with potentially explosive atmospheres are often but not always posted.

Blasting Caps and Areas

To avoid possible interference with blasting operations, turn off your radio when you are near electrical blasting caps, in a blasting area, or in areas posted: "Turn off two-way radio." Obey all signs and instructions.

Operational Cautions

Antennas

Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.

Batteries

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

Charging Safety Instructions

Before using the battery charger, read all instructions and cautionary markings on:
1. the battery
2. the battery charger, and
3. the radio using the battery.

Caution: To reduce the risk of injury, charge only the rechargeable battery. Other types of batteries may burst, causing personal injury and damage.

Save these Instructions

1. Do not expose the charger to rain or snow.
2. Do not operate the charger if it has received a sharp blow, or has been dropped or damaged in any way.
3. Do not disassemble the charger if it has received a sharp blow, or has been dropped or damaged in any way.
4. Never alter the AC cord or plug provided with the unit. If plug will not fit the outlet, have proper outlet installed by a qualified electrician. An improper condition can result in a risk of electric shock.
5. To reduce risk of damage to cord or plug, pull the plug rather than the cord when disconnecting charger from AC receptacle.
6. To reduce the risk of electric shock, unplug the charger from the outlet before attempting any maintenance or cleaning.
7. Use of an attachment not recommended or sold by Motorola may result in a risk of fire, electric shock, or personal injury.
8. Make sure that the cord is located so that it will not be stepped on, tripped over, or subjected to damage or stress.

9. An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in a risk of fire and/or electric shock. If an extension cord must be used, make sure:
   - That the pins on the plug of the extension cord are the same number, size and shape as those on the plug of the charger.
   - That the extension cord is properly wired and in good electrical condition, and
   - That the cord size is18 AWG for lengths up to 100 feet, and 16 AWG for lengths up to 150 feet.
10. The supply cord of this charger cannot be replaced. If the cord is damaged, call Motorola Product Services at:

1-800-353-2729 (U.S.A.)
1-800-461-4575 (Canada)
1-888-390-6456 TTY (Text Telephone)

Getting Started

This User's Guide covers several **XTN** Series models, and may detail some features your radio does not have. Your model number is shown on the back of the radio above the battery door, and tells you the following information:
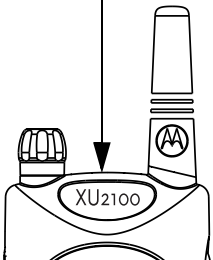
Model	Model Number Location	Frequency Band	Watts	Number of Channels
XU1100		UHF	1	1
XU2100		UHF	2	1
XU2600		UHF	2	6
XV1100		VHF	1	1
XV2100		VHF	2	1
XV2600		VHF	2	6

Diagram of Your New $\cancel{XTN}$ Series Radio and its Functions

Indicator Light

Use ⬤ to:
Transmit Call Tone

Use (P T T) to:
Talk
Exit a menu

Use (MENU) to:
Scroll through menus
Lock the keypad

Use ⊙ / ⊙ to:
*Access Presets

Microphone

Use ▯▯ (Power) to:
Turn power On/Off
Adjust radio volume

Accessory Jack
Radio Plug-in Charging
Audio Accessories

Use (mon) to:
Turn Scan On/Off*
Monitor the Frequency

Use ∪ and ⌃ to:
Change Channels*
Change menu settings

Speaker

* XU2600 and XV2600 Only

ⓜ MOTOROLA

$\cancel{XTN}$ SERIES

Getting Started

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Installing the Nickel-Metal Hydride Battery

Your radio is powered by a NiMH battery, which provides up to 15 hours* of usage. Please refer to page 9.

- Slide the Ribbed Latch on the bottom of the radio away from the battery door, or toward the contacts.
- Slide and lift the battery door off.
- Position the battery with the Motorola Logo side up, and the charge contacts are facing the bottom of the radio. Insert the top of the battery into the radio and push the battery up and into the battery compartment to fit tightly into place.
- Slide and snap the battery door into place.

*Based upon 5% transmit/ 5% receive/ 90% standby (standard duty cycle).
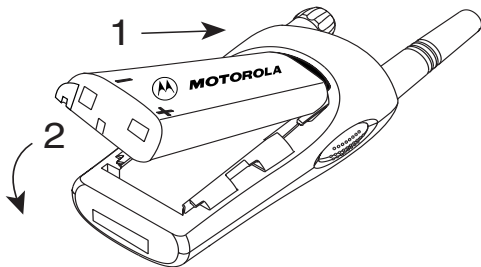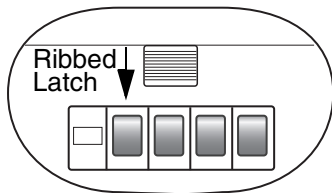
Charging with the 10-Hour Charger

Charge the NiMH battery overnight (16 hours) before using it for the first time, it will only need up to ten hours of charging thereafter.

- Make sure the radio is Off.
- Lift the Accessory Cover and plug the 10-Hour Charger (NNTN4077) firmly into the lower jack (small hole).
- Plug the charger into an electric outlet. The light on the charger will glow red if charging properly.

Note: For optimum battery life, the battery must not be left charging for prolonged periods after reaching full charge. Charging the battery over the weekend is acceptable.

If the radio is On while charging, additional time is required to charge the battery.

Use only the Charger supplied with the radio, or other XTN Series accessories.

Light
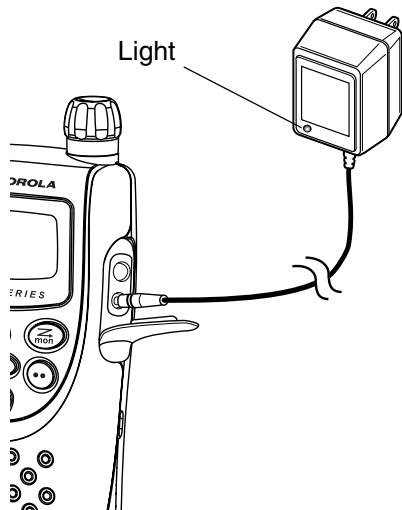
Charging with the 53872 Drop-in Charging Tray
(Not included with all models)

The Drop-in Charging Tray can be placed on any flat surface and provides drop-in charging convenience. The battery can be charged while inside the radio or removed and placed in the Drop-in Charging Tray separately. The battery's contacts must face down and the Motorola Logo must face the front of Charger.

- Connect the 10-Hour Charger and Drop-in Charging Tray by inserting the plug into the rear of the Drop-in Charging Tray.
- Insert the battery or radio into the Drop-in Charging Tray with the Motorola logo or radio front facing toward the front of the Charger.
- Refer to charging with the 10-Hour Charger.

Drop-in Charging Tray 53872 (NNTN4019)

10-Hour Charger NNTN4077
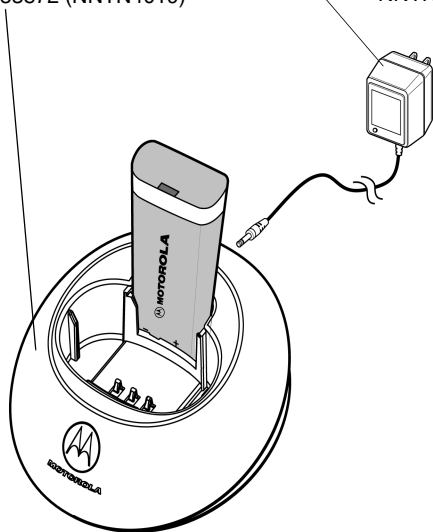
Installing AA Alkaline Batteries

Your radio can also use 4 AA batteries; alkaline cells provide up to 24 hours* of radio use.

- Push the Ribbed Latch on the bottom of the radio away from the battery door.
  *Please refer to the diagram and Battery Life on page 5.
- Slide and lift the battery door off.
- Place the AA batteries matching the markings in the compartment.
- Slide and snap the battery door into place.
- Set the correct Battery Type, please refer to page 16.
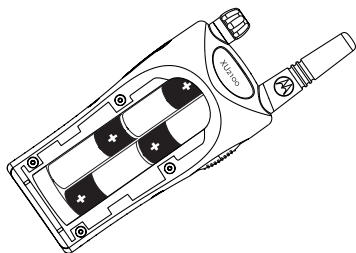
Battery Meter

The battery meter located in the upper left corner of the display indicates how much battery power you have remaining.

Battery Type	3 Bars	2 Bars	1 Bar	Flashing
NiMH	100%-85%	85%-25%	25%-10%	Final 10%
AA	100%-75%	75%-40%	40%-10%	Final 10%

Battery Life

Watts	NiMH	Alkaline
2	13 Hours	22 Hours
1	15 Hours	24 Hours

Swivel Belt Holster

Your radio includes a Swivel Belt Holster for your convenience, which allows both plug-in and drop-in charging.

- Slide the bottom of radio into the holster until it snaps into place.
- To remove, push the tab above the battery door and pull the radio from holster.

Note: In case of loss, please contact your point-of-sale or call 1-800-353-2729 and request replacement part number NNTN4106AR.

Turning On/Off Your Radio

Turn knob	Display	Normal Menu Mode
(knob icon)	(display icon)	Turn the knob on the top of the radio clockwise to turn the radio On. Turn the knob counterclockwise to turn the radio Off. The radio chirps and the display briefly shows all features and display segments of your radio.
	(display showing 1)	Then the radio displays the current Channel (larger number located in the center of the display) and the Frequency assigned to that Channel.
	(display showing 1)	Then the Interference Eliminator Code displays briefly. The Code will disappear and the current Channel will be left on display.

A diagram of your new **XTN** Series radio and its functions are on page on page 4.

Volume

You can set the volume by adjusting the knob on the top of the radio; (knob icon).

Note: Do not hold the radio too close to your ear when the volume is at a high setting.

Operating Radio

To check Channel activity, press the monitor button: ⓜ. If you hear static, then the channel is clear to use. Do not transmit if someone is speaking on the channel.

- Press and hold (P/T) and speak into the radio. To maximize clarity hold the radio two-to-three inches away from your mouth.
- To listen for messages, release (P/T).

Note: The transmit light on the front left of the radio flashes every three seconds when the radio is On and is steady red when transmitting.

Talk Range

Model	**Industrial** Inside steel/concrete industrial buildings	**Multi-Level** Inside multi-level buildings	**Outdoor** Flat ground with no obstructions
UHF 2W	Up to 250,000 Sq. Ft.	Up to 20 Floors	Up to 6 Miles
UHF 1W	Up to 200,000 Sq. Ft.	Up to 15 Floors	Up to 5 Miles
VHF 2W	Up to 180,000 Sq. Ft.	Up to 10 Floors	Up to 6 Miles
VHF 1W	Up to 150,000 Sq. Ft.	Up to 8 Floors	Up to 5 Miles

Signal Strength Indicator/Channel Busy

The radio displays ▼⁙⁙⁙ when there is activity on the Frequency, and the transmit light flashes once per second. When receiving, the display will show ▼⁙⁙⁙ and a signal strength of

I (weakest) through b (strongest). This can help determine when a radio is moving out of range.

Note: Obstacles that block the signal path may affect the strength of the incoming signal.

Monitor

To check for Channel activity, press and hold 🔊. You'll hear static if the Channel is clear and ▼⁙⁙⁙ 0 will display. Press 🔊 again to release.

Features

Call Tone

Your radio can transmit Call Tones to other radios in your group so you can alert them that you are about to talk. Once selected, press 🔔 to transmit the Call Tone to others. There are three distinct individual Call Tones to choose or you can choose to turn Call Tones off: 0.

• To set your Call Tone, press 🄼 as needed to display LR.
• You can press ⌵ or ⌃ to hear and select the Call Tone.
Note: The default is set on 0, or you may choose $1, 2,$ or 3.

Microphone Gain

The sensitivity of your radio's microphone can be adjusted to fit different users or operating environments. Please refer to page 14.

Hands-Free Use/VOX

With Compatible VOX Accessories

- Turn radio Off.
- Open Accessory Cover.
- Insert plug of audio accessory firmly into Accessory Jack.
- Turn radio On. Radio will display: «$\stackrel{\leftarrow}{\xi}$. **If flashing, please refer to page 14.**
- Lower radio volume BEFORE placing accessory on head or in ear.
- To transmit, speak into Accessory Microphone and to receive, stop talking.
- VOX operation can be disabled by pressing $\left(\begin{smallmatrix} P \\ T \end{smallmatrix}\right)$ or removing audio accessory.

Note: There is a short delay between when you start talking and the radio transmits.

To order accessories, please refer to:
**www.motorola.com/radios/professional**

Without Accessories

(XU2600 and XV2600 Only)

- Enable VOX by pressing $\left(\begin{smallmatrix} P \\ T \end{smallmatrix}\right)$ while turning the radio On.
- VOX operation can be temporarily disabled by pressing $\left(\begin{smallmatrix} P \\ T \end{smallmatrix}\right)$, «⃨ will flash.
- A short press of $\left(\begin{smallmatrix} P \\ T \end{smallmatrix}\right)$ will re-enable VOX.

Note: There is a short delay between when you start talking and the radio transmits.

Setting Sensitivity Level

- Press (MENU) as needed to display «⃨. The radio will also display the sensitivity type you are setting:
  - L = Microphone Gain
  - E = External VOX (with audio accessory)
  - ι = Internal VOX (without accessory)

- Select Sensitivity Level of 0, 1, 2, or 3 by using $\cup$ or $\wedge$:
  - 3 **= High Sensitivity**
  - 2 **= Medium Sensitivity**
  - 1 **= Low Sensitivity**
  - 0 **= Off (VOX with accessories only)**

Note: There is a short delay between when you start talking and the radio transmits.

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Scanning

(XU2600 and XV2600 Only)

Scan allows you to monitor other channels. When the radio detects activity, it stops scanning and locks in on the active Channel. This allows you to talk and listen to the person transmitting without changing channels.

- To start scanning, briefly press (🔊). Your radio displays ⋜ and begins to scroll through channels. When the radio detects Channel activity, it stops on that Channel and displays the Signal Strength Indicator and the Channel. You can talk to the person(s) transmitting without having to switch channels by pressing (ᴾᵀᵀ).

- To stop scanning, briefly press (🔊). If you press (ᴾᵀᵀ) while the radio is scanning, the radio will transmit on the Channel which was selected before you activated Scan.

If no transmission occurs within five seconds, scanning will resume.

If you want to scan a Channel without Interference Eliminator Codes, change the code for your set Channel to 0 before you press and release (🔊).

Editing Scan List

Scan List is changed by pressing (MENU) until ⋜ displays.

- The flashing Channel will appear on the display with a flashing Y or n.
- Press $\cup$ or $\cap$ to increase or decrease the Channel.
- Pressing (🔊) will change the Scan List to include/Y or exclude/n that particular Channel.

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Scan Advancement/ Nuisance Delete

Scan has several temporary features to make it easier to use.

Scan Advancement allows you to "skip" a busy Channel to check for other activity.

• Press $\left(^{+}\right)$ to begin scanning again, but only temporarily.

Nuisance Delete allows you to temporarily remove a channel from your Scan List, it will return the next time you use the Scan feature.

• Depressing $\cup$ will remove a Channel from the scan list, but only temporarily.
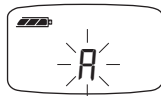
Setting the Battery Type*

This feature allows the battery meter to recognize and properly display the power remaining of single-cell batteries.

Press $\overset{\text{MENU}}{\textcircled{\scriptsize a}}$ until $\boxed{\blacksquare\blacksquare}$ displays. Either H (Alkaline) or n (rechargeable AA cells) is flashing.

• Press $\cup$ or $\left(^{+}\right)$ until your choice of H or n displays.

Note: *This menu will not appear if the Motorola NiMH Battery is in use.

Lock Keypad

To maintain settings and lock keypad, press $\overset{\text{MENU}}{\textcircled{\scriptsize a}}$ for three seconds.

Note: To unlock, press $\overset{\text{MENU}}{\textcircled{\scriptsize a}}$ for three seconds.

End-of-Transmission Tone

When you turn this feature On, your two-way radio transmits a tone when you finish transmitting. It's like saying "Roger" or "Over."

- If you don't hear the Talk Confirmation Tone, you can enable it by pressing and holding $\bigcap^+$ as you turn on your radio.
- To disable the End-of-Transmission Tone feature, turn your radio Off and then back On while pressing and holding $\bigcap^+$.
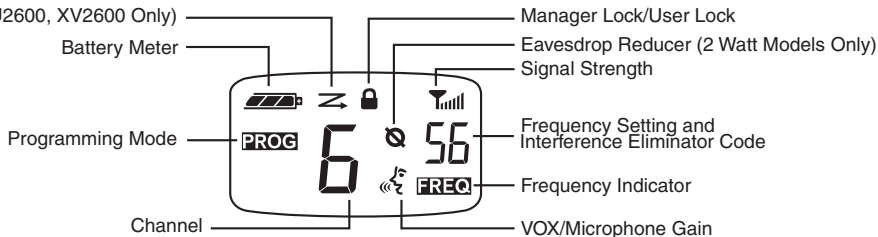
Keypad Tones

Every time you press a button on your radio it beeps to confirm, unless you turn this feature off.

- Turn your radio On while you press and hold $\bigcup$.
- To turn Keypad Tones back on, turn the radio Off and then back On again while you press and hold $\bigcup$.

Note: End-of-Transmission Tone and Call Tone are not heard but are transmitted.

Settings and Functions Display

Scan (XU2600, XV2600 Only) ——————— Manager Lock/User Lock
Battery Meter ——————— Eavesdrop Reducer (2 Watt Models Only)
Signal Strength
Programming Mode ——————— Frequency Setting and Interference Eliminator Code
Frequency Indicator
Channel ——————— VOX/Microphone Gain

Features

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Programming Mode

The following table lists the functions you can set by pressing and holding a button **while you are turning on your radio.**

Key(s) Pressed.	Function
ⓟ ⓩmon ▭	Access **PROG** Programming Mode: Three second delay.
ⓟ MENU ▭	Reset factory settings: Three second delay. Will not work if Manager Lock is enabled.
ⓟ ▭	Enable VOX without accessories (XU2600 and XV2600 Only).
⌃+ ▭	Turns "End-of-Transmission Tone On/Off. Radio default setting is "Off."
⌄− ▭	Turns Keypad Tones On/Off. Radio default setting is "On."

In order to talk with someone on your two-way radios, the following features need to be set exactly alike:

1. *Channel*: Current channel that the radio is using, depending upon radio model.
2. *Frequency*: The frequency your radio uses to transmit/receive.
3. *Interference Eliminator Code*: These codes help minimize interference by providing you with a choice of code combinations.
   Please refer to page 25.

4. *Scramble Code*: Codes that make your transmissions sound garbled to anyone listening who is not set to that specific code.
   Please refer to Scramble Code on page 21.
5. *Bandwidth:* Some frequencies have selectable channel spacing, which must match other radios for optimum audio quality.

   The Cloning Feature used with the optional accessory 53879 Multi-Unit Charger (MUC) can help to duplicate radio settings easily for multiple radio use. *Please refer to page 23*.

The above features with Preset Channels and Manager Lock can be selected in Programming Mode: **PROG**.

- **Access PROG by turning the radio On while holding the $\binom{P}{T}$ and $\textcircled{\tiny mon}$ buttons for three seconds**.
- The Programming icon; **PROG** illuminates and radio chirps to indicate access.
- Exit **PROG** by holding the $\binom{P}{T}$ for three seconds.

Note: **PROG** does not timeout.

Now, you may use your radio's $\textcircled{\tiny MENU}$ and $\cup$ or $\cap$ to select features.

Press	Display	Then Press
$\textcircled{\tiny MENU}$	The icon representing the feature you want.	$\cup$ or $\cap$ to select the feature. Press $\binom{P}{T}$ and release to return to the beginning of the Programming Menu. Press $\binom{P}{T}$ for three seconds to exit programming mode.

Channel

(XU2600 and XV2600 Only)

- Make sure **PROG** is accessed. Please refer to page 10.
- The Channel number flashes. **FREQ** and Code will display alternately.
- Press ∪ or ⌒ until the desired Channel is selected.

Frequency

- Press 🔘 once, **FREQ** indicator illuminates and the Frequency flashes.
- Press ∪ or ⌒ to choose desired Frequency.
- Exit the Programming Mode by holding down ⊤.

Interference Eliminator Code

The Interference Eliminator Code helps minimize interference by providing you with a choice of code combinations, which filter out static, noise, and unwanted messages.

Make sure **PROG** is accessed. Please refer to page 11.

- To set the Code, press 🔘 until the Code number display begins to flash.
- Then press ∪ or ⌒ to choose the Code.

Note: To hear everyone on your frequency, select Interference Eliminator Code *0*.

Programming Mode

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Scramble Code
(2-watt models only)

Your radio has the Scramble feature, which makes your transmissions sound garbled to anyone listening without the same code. It doesn't guarantee confidentiality, but it adds an extra layer of privacy.

- Make sure **PROG** is accessed. Please refer to page 11.
- Press ⓜ as needed until ◐ is displayed.
- Then press ⋁ or ⋀ to choose the Scramble Code.
- Select code 1, 2, or 3. Factory Default is set to Off: 0.

When you exit **PROG**, radio displays ◐.

Bandwidth (when FCC allowable)

Some frequencies have selectable channel spacing, which must match other radios for optimal radio quality.

- Change the setting by pushing the ⓜ until b displays.
- Bandwidth is only selectable when flashing.
- Press ⋁ or ⋀ to select setting:
  Either Hi (high: 25.0 kHz) or Lo (low: 12.5 kHz) will display.
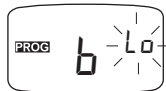
Note: Spirit GT radios operate on 12.5 kHz Bandwidth Lo, while M series operate on 25.0 kHz Bandwidth Hi. Make sure **PROG** is accessed. Please refer to page 11.

Manager Lock

This feature aids in preventing accidental or intentional changing of radio settings. All buttons with the exception of $\left(\begin{smallmatrix} P \\ T \end{smallmatrix}\right)$, $\textcircled{\scriptsize\textbf{4}}$ and the Monitor feature will be unaccessible when Y is chosen.

- Make sure **PROG** is accessed. Please refer to page 11.
- To turn lock on, press $\textcircled{\tiny MENU}$ until $\textbf{a}$ displays.
- Press $\biguplus$ or $\curvearrowright$ to select setting, Y or n.
- Once turned on, $\textbf{a}$ icon displays after exiting **PROG**.

Note: On multi-channel models, Manager Lock will lock your radio on the current Channel.

Assigning Channels to Presets

(XU2600 and XV2600 Only)

- Make sure **PROG** is accessed. Please refer to page 11.
- Press $\biguplus$ or $\curvearrowright$ to choose desired Channel.
- Press and hold $\odot$ or $\odot$ to assign that Channel to a preset, radio beeps to confirm. All of the Channel settings are assigned to that Preset button.

Cloning

The **XTN** Series radios have cloning capability when connected via the 53879 Multi-Unit Charger (MUC). Cloning enables rapid fleet reconfiguration because all selectable settings are sent to the target unit. The Target radio must be placed behind the Source radio and turned On. Radios must be of the same band; UHF or VHF. Multi-channel models can Clone to single-channel radios, but only the first channel is cloned. Please refer to the MUC User's Guide included with this accessory.

- Make sure **PROG** is accessed. Please refer to page 11.
- The source radio enters Cloning Mode and clones through an extended press of 🔘.
- Either P for pass or F for fail appears on the Source Radio Display.
- If cloning was successful all segments on the Target Radio Display will light up. Turn radio Off and back On again to use.
- Pressing 🔘 again will clone additional radios.

Target Radio Display

Source Radio Display
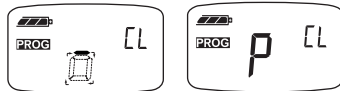
Note: The MUC does not need to be plugged in for Cloning feature to work.

Resetting Factory Defaults

All selectable features can be reset to factory defaults by turning the radio On while holding $\binom{P}{T}$ and 🔘 buttons simultaneously for three seconds.

Note: The radio cannot be reset if Manager Lock is enabled.

Programming Mode

23

Use and Care

Use a soft damp cloth to clean the exterior.

Do not immerse in water.

Do not use alcohol or cleaning solutions.

If the radio is submerged in water...

Turn radio Off and remove batteries.

Dry with soft cloth.

Do not use radio until completely dry.

Frequency and Code Charts

The charts on these pages provide Frequency and Code information. These charts are useful when using Motorola **XTN** Series two-way radios with other business radios. Frequency position is identical to Spirit M, GT and S Series Frequencies. (Where applicable.)

VHF Frequencies

Frequency	MHz	Bandwidth	Frequency	MHz	Bandwidth
1	151.6250	25.00	16	151.8650	25.00
2	151.9550	25.00	17	151.8950	25.00
3	154.5700	25.00	18	151.9250	25.00
4	154.6000	25.00	19	152.7000	25.00
5	151.7000	12.5/25.0	20	154.4900	25.00
6	151.7600	12.5/25.0	21	154.5150	25.00
*7	**151.8200**	12.5/25.0	22	154.5275	25.00
*8	**151.8800**	12.5/25.0	23	154.5400	25.00
*9	**151.9400**	12.5/25.0	24	154.6000	25.00
10	151.5125	25.00	25	154.6550	25.00
11	151.6550	25.00	26	158.4000	25.00
12	151.6850	25.00	27	158.4075	25.00
13	151.7150	25.00			
14	151.7450	25.00			
15	151.7750	25.00			

*Note: Due to FCC regulations, these frequencies transmit at only 1 watt.

UHF Frequencies

Frequency	MHz	Bandwidth	Frequency	MHz	Bandwidth
1	464.5000	12.5/25.0	29	462.9125	12.5
2	464.5500	12.5/25.0	30	464.4875	12.5
3	467.7625	12.5	31	464.5125	12.5
4	467.8125	12.5	32	464.5375	12.5
5	467.8500	12.5/25.0	33	464.5625	12.5
6	467.8750	12.5/25.0	34	466.0375	12.5
7	467.9000	12.5/25.0	35	466.0625	12.5
8	467.9250	12.5/25.0	36	466.0875	12.5
9	461.0375	12.5	37	466.1125	12.5
10	461.0625	12.5	38	466.1375	12.5
11	461.0875	12.5	39	466.1625	12.5
12	461.1125	12.5	40	466.1875	12.5
13	461.1375	12.5	41	466.2125	12.5
14	461.1625	12.5	42	466.2375	12.5
15	461.1875	12.5	43	466.2625	12.5
16	461.2125	12.5	44	466.2875	12.5
17	461.2375	12.5	45	466.3125	12.5
18	461.2625	12.5	46	466.3375	12.5
19	461.2875	12.5	47	466.3625	12.5
20	461.3125	12.5	48	467.7875	12.5
21	461.3375	12.5	49	467.8375	12.5
22	461.3625	12.5	50	467.8625	12.5
23	462.7625	12.5	51	467.8875	12.5
24	462.7875	12.5	52	467.9125	12.5
25	462.8125	12.5	53	469.4875	12.5
26	462.8375	12.5	54	469.5125	12.5
27	462.8625	12.5	55	469.5375	12.5
28	462.8875	12.5	56	469.5625	12.5

Interference Eliminator Codes

Code	Hz	Code	Hz	Code	Hz
1	67.0	14	107.2	27	167.9
2	71.9	15	110.9	28	173.8
3	74.4	16	114.8	29	179.9
4	77.0	17	118.8	30	186.2
5	79.7	18	123.0	31	192.8
6	82.5	19	127.3	32	203.5
7	85.4	20	131.8	33	210.7
8	88.5	21	136.5	34	218.1
9	91.5	22	141.3	35	225.7
10	94.8	23	146.2	36	233.6
11	97.4	24	151.4	37	241.8
12	100.0	25	156.7	38	250.3
13	103.5	26	162.2		

Carrier Squelch (0) disables Interference Eliminator Codes.

Digital Interference Eliminator Codes

Code	Code Word	Code	Code Word	Code	Code Word
39	023	67	174	95	445
40	025	68	205	96	464
41	026	69	223	97	465
42	031	70	226	98	466
43	032	71	243	99	503
44	043	72	244	100	506
45	047	73	245	101	516
46	051	74	251	102	532
47	054	75	261	103	546
48	065	76	263	104	565
49	071	77	265	105	606
50	072	78	271	106	612
51	073	79	306	107	624
52	074	80	311	108	627
53	114	81	315	109	631
54	115	82	331	110	632
55	116	83	343	111	654
56	125	84	346	112	662
57	131	85	351	113	664
58	132	86	364	114	703
59	134	87	365	115	712
60	143	88	371	116	723
61	152	89	411	117	731
62	155	90	412	118	732
63	156	91	413	119	734
64	162	92	423	120	743
65	165	93	431	121	754
66	172	94	432		

Troubleshooting

Symptom	Try This:
No Power	Recharge or replace battery (NTN8971). Reposition or replace AA batteries. *Please refer to page 6 and/or page 5 or page 8.*
Message not transmitted	Make sure $\left(\begin{smallmatrix}P\\T\end{smallmatrix}\right)$ is completely pressed as you transmit. Recharge, replace and/or reposition batteries.
Hearing other noises or conversation on a channel	Confirm Interference Eliminator Code is set. Frequency or Interference Eliminator Code may be in use, change Code on all radios if possible. *Please refer to page 20.*
Message scrambled	Scramble Code is On, and/or setting does not match other radios' settings. *Please refer to page 21.*

Symptom	Try This:
Limited talk range	Steel and/or concrete structures, heavy foliage, buildings or vehicles decrease range. Check for clear line of sight to improve transmission. *Please refer to page 11.* Wearing radio close to body such as in a pocket or on a belt decreases range. Change location of radio.
Message not received	Confirm radios have the same Channel, Frequency, Interference Eliminator Code and Scramble Code settings, depending upon model. *Please refer to page 20 for further information, and/or page 20.* *Another location for more information regarding:* page 21. Recharge, replace and/or reposition batteries. *Please refer to page 5, and/or page 8.* Obstructions and operating indoors, or in vehicles, may interfere -- change location. *Please refer to page 11.* Verify that the radio is not in Scan mode. *Please refer to page 15.*

Symptom	Try This:
Heavy static or interference	Radios are too close, they must be at least five feet apart. Radios are too far apart or obstacles are interfering with transmission. *Please refer to page 11.*
Keypad locked	Make sure menu is unlocked. Unlock by holding (MENU) for three seconds. Make sure Manager Lock is disabled. *Please refer to page 22.*
Low batteries	Recharge or replace NiMH battery. Replace AA batteries. Extreme operating temperatures affect battery life. *Please refer to page 5 and/or page 8.*
Charger light does not come on.	Check radio/battery is properly inserted and check battery/charger contacts to be sure they are clean and charging pin is inserted correctly. *Please refer to page 5 and/or page 8 or page 6.*

Symptom	Try This:
Low battery meter reading although new batteries are installed	Verify that the radio is set to the correct battery type. (Single-cell batteries only.) *Please refer to page 16.*
Cannot activate VOX	Feature not set and on. Sensitivity set to $\boxed{0}$. *Please refer to page 13*

Motorola Limited Warranty
Personal Communications Products Purchased in the United States and Canada

I. What this Warranty Covers

- <u>Products</u>. Defects in materials and workmanship in wireless cellular telephones, pagers, and/or two-way radios, and certain accessories that are sold with them, such as the battery, battery charger and holster manufactured and/or sold by Motorola (Products).
- <u>Batteries</u>. Defects in materials and workmanship in batteries that are manufactured by Motorola and/or sold with Products are covered by this warranty only if the fully-charged capacity falls below 80% of rated capacity or they leak.
- <u>Software</u>. Physical defects in the media that tangibly embodies each copy of any software supplied with the Products.

II. What the Period of Coverage Is

From the date the Products are purchased by the first end-user:

- <u>Products</u>. The warranty is for one year. Exception: The warranty for Spirit GT series and Talkabout series two-way radio accessories is for 90 days.
- <u>Software</u>. The warranty is for 90 days.
- <u>Repairs / Replacements</u>. The warranty is for the balance of the original warranty or for 90 days from the date you receive it, whichever is longer.

III. Who Is Covered

This warranty extends to the first end-user purchaser, only.

IV. What We Will Do to Correct Warranty Problems

At no charge to you, we have the option to repair or replace the Products or software that do not conform to the warranty, or to refund the Products' purchase price. We may use functionally equivalent reconditioned/refurbished/pre-owned or new Products or parts. No software updates are provided.

V. How to Get Warranty Service

Please call:

USA		Canada	
Product Services	**1-800-331-6456**	**All Products**	**1-800-461-4575**
Two-Way	**1-800-353-2729**	**TTY**	**1-888-390-6456**
TTY	**1-888-390-6456 (Text Telephone)**	**(Text Telephone)**	

You will receive instructions on how to ship the Products to Motorola. You must ship the Products to us with freight, duties and insurance prepaid. Along with the Products you must include: (a) a copy of your receipt, bill of sale or other comparable proof of purchase; (b) a written description of the problem; (c) the name of your service provider (if this Product requires subscription service); (d) the name and location of the installation facility (if applicable) and, most importantly; (e) your address and telephone number. If requested, you must also return all detachable parts such as antennas, batteries and chargers. RETAIN YOUR ORIGINAL PROOF OF PURCHASE.

We will ship repaired or replacement Products at our expense for the freight and insurance, but at your expense for any duties. If additional information is needed, please contact us at the telephone number listed above.

VI. What this Warranty Does Not Cover

- Products that are operated in combination with ancillary or peripheral equipment or software not furnished by Motorola for use with the Products ("ancillary equipment"), or any damage to the Products or ancillary equipment as a result of such use. Among other things, "ancillary equipment" includes batteries, chargers, adaptors, and power supplies not manufactured or supplied by Motorola. Any of these voids the warranty.
- Someone other than Motorola (or its authorized service centers) tests, adjusts, installs, maintains, alters, modifies or services the Products in any way. Any of these voids the warranty.
- Rechargeable batteries that: (a) are charged by other than the Motorola-approved battery charger specified for charging such batteries; (b) have any broken seals or show evidence of tampering; (c) are used in equipment other than the Product for which they are specified; or (d) are charged and stored at temperatures greater than 60 degrees centigrade. Any of these voids the warranty.
- Products that have: (a) serial numbers or date tags that have been removed, altered or obliterated; (b) board serial numbers that do not match each other, or board serial numbers that do not match the housing; or (c) nonconforming or non-Motorola housings or parts. Any of these voids the warranty.
- Defects or damage that result from: (a) use of the Products in a manner that is not normal or customary; (b) improper operation or misuse; (c) accident or neglect such as dropping the Products onto hard surfaces; (d) contact with water, rain, extreme humidity or heavy perspiration; (e) contact with sand, dirt or the like; or (f) contact with extreme heat, or spills of food or liquid.
- Physical damage to the surface of the Products, including scratches, cracks or other damage to a display screen, lens or other externally exposed parts.
- Failure of Products that is due primarily to any communication service or signal you may subscribe to or use with the Products.
- Coil cords that are stretched or that have any broken modular tabs.
- Products that are leased.

Flat-rate repair rates may apply to Products not covered by this warranty. To obtain information about Products needing repairs that are not covered by this warranty, please call the telephone number previously listed. We will provide information on repair availability, rates, methods of payment, where to send the Products, etc.

VII. Some Other Limitations

This is Motorola's complete warranty for the Products, and states your exclusive remedies. This warranty is given in lieu of all other express warranties. Implied warranties, including without limitation, the implied warranties of merchantability and fitness for a particular purpose, are given only if specifically required by applicable law. Otherwise, they are specifically excluded.

No warranty is made as to coverage, availability, or grade of service provided by the Products, whether through a service provider or otherwise.

No warranty is made that the software will meet your requirements or will work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected.

In no event shall Motorola be liable, whether in contract or tort (including negligence) for damages in excess of the purchase price of the Product, or for any indirect, incidental, special or consequential damages of any kind, or loss of revenue or profits, loss of business, loss of information or data, or other financial loss arising out of or in connection with the ability or inability to use the Products, to the full extent these damages may be disclaimed by law.

VIII. Patent and Software Provisions

At Motorola's expense, we will defend you, and pay costs and damages that may be finally awarded against you, to the extent that a lawsuit is based on a claim that the Products directly infringe a United States patent. Our obligation is conditioned on: (a) you notifying us promptly in writing when you receive notice of the claim; (b) you giving us sole control of the defense of the suit and all negotiations for its settlement or compromise; and (c) should the Products become, or in Motorola's opinion be likely to become, the subject of a claim of infringement of a United States patent, you permit us, at our option and expense, either to: procure for you the right to continue using the Products; replace or modify them so that they become non-infringing; or grant you a credit for such Products, as depreciated, and accept their return. The depreciation will be an equal amount per year over the lifetime of the Products, as established by Motorola.

Motorola will have no liability to you with respect to any claim of patent infringement that is based upon the combination of the Products or parts furnished under this limited warranty with ancillary equipment, as defined in VI., above.

This is Motorola's entire liability with respect to infringement of patents by the Products.

Laws in the United States and other countries preserve for Motorola and other third party software providers certain exclusive rights for copyrighted software, such as the exclusive rights to reproduce in copies and distribute copies of such software. The software may be copied into, used in and redistributed with only those Products that are associated with such software. No other use, including without limitation, disassembly or reverse engineering of such software or exercise of exclusive rights in such software is permitted.

IX. State Law and Other Jurisdiction Rights

Some states and other jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, or limitation on the length of an implied warranty, so the above limitations or exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from jurisdiction to jurisdiction.

To obtain information on Motorola Personal Communications Products, including warranty service, accessories and optional Extended Warranties on selected Products, please call:

USA		Canada	
Product Services	**1-800-331-6456**	**All Products**	**1-800-461-4575**
Two-Way	**1-800-353-2729**	**TTY**	**1-888-390-6456**
TTY	**1-888-390-6456**		**(Text Telephone)**
	(Text Telephone)		

To correspond with Motorola about the Products, please write us at http://www.motorola.com or at:

In the USA:
Motorola, Inc.
600 North U.S. Highway 45
Libertyville, IL 60048

In Canada:
Motorola Canada Limited
5875 Whittle Road
Mississauga, ON L4Z 2H4

Export Law Assurances

This product is controlled under the export regulations of the United States of America and Canada. The Governments of the United States of America and Canada may restrict the exportation or re-exportation of this product to certain destinations. For further information contact the U.S. Department of Commerce or the Canadian Department of Foreign Affairs and International Trade.

Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the FCC equipment authorization for this radio could violate FCC rules.

More specifically, changes or modifications not expressly approved by Motorola may void the user's authority granted by the FCC to operate this radio and should not be made. To comply with FCC requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services. Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the FCC equipment authorization for this radio could violate FCC rules.

Note: Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited

XTN Series Quick Reference

Function	Appearance	
*Channel	`1`	Use ∨ or ∧ for 1 through 6*.
Frequency	`1 1` **FREQ**	Appears briefly after pressing ∨ or ∧.
Interference Eliminator Code	`1 1`	Appears briefly after **FREQ** shows.

*depending upon model

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*depending upon model

Function	Appearance	
*Scramble Code	`1 ø 1`	ø is visible when feature is On.
Battery Meter		Visible except when changing features.
*Channel Scan	`z 4`	Press 🔘 to access. Radio display will scroll through Channels.
Receiving	`1 6`	Others speaking on the same Frequency and Code. Signal Strength: 1 weakest - 6 strongest.

XTN Series Features

Radio On	Visual	(MENU) as needed, then ∨ or ∧
Call Tone	$\overline{3}$ ⌐R	Choose $1,2,3$ or 0 = Off.
Mic Gain/ Sensitivity Level	$\overline{3}$ ⌐	Choose 1 low, 2 medium, or 3 high sensitivity. L shows Mic Gain, E shows External VOX with accessories, i shows Internal VOX without accessories.
*Scan List	z| $\frac{}{}y$	Choose y (yes) or n (no) by pressing (mon) for each channel.

*depending upon model

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*depending upon model

Battery Type	$\overline{R}$	R (alkaline) n (other rechargeable single cells) Does not appear if using NiMH.
Lock Keypad	i	Hold (MENU) for 3 seconds

XTN Series Buttons

- ▢▢▢ • Turn power On/Off.
- ⊙⊙ • *Access Preset Channel.
- 🔔 • Transmit call tone.

- (P T T) • Talk on the radio.
  • Exit a menu.
- (+) or (-) • Scroll through and change Channels or Menu settings.
- (MENU) • Scroll through menus.
  • Lock Keypad - 3 seconds.

- **Extend Your Productivity**
  Provides a cost-effective solution to onsite communication needs. Designed for heavy duty, everyday industrial use. Well suited for construction, manufacturing, security, property management, retail, and more.
- **Rugged MOTOROLA Quality**
  Shock/drop/temperature tested to meet Motorola's high standards.
- **Weather/Dust Resistant**
  Designed to meet IP-54 rating
- **Designed to meet Military Specs**
  810 C, D, E & F
- **Dependable Indoor/Outdoor Coverage**
  Will provide a communication range* of up to 250,000 sq. ft. or 20 floors and up to 6 miles.
  *Range will vary based on terrain and conditions and model selected.

- **Accessories for XTN Series**
  Brochure included - Convenient audio, power and charging accessories are available from your point-of-sale or www.motorola.com/radios/professional

- **Simple and Easy to Operate**
  Allows one-to-one or group communication at the push of a button. With no phone numbers to dial, plus the Manager Lock feature, there's little to no training needed for your staff to be fully up to speed.
- **Cost Efficient**
  No monthly fees to pay and no service contracts. Compatible with Motorola Spirit® radios and M Series audio accessories.
- **Cloning Capability**

- **Business Exclusive Frequencies**
  Frequencies set aside exclusively for business-only use. FCC License is required.
- **38 PL Codes, 83 Digital PL Codes**
- **Hands-Free Mode (VOX)**
  Advanced voice activation (VOX) lets you talk hands-free; XV2600, XU2600 models do not require accessories.
- **Voice Compression Technology**
  Helps provide better sound at longer distances.
- **1-Year Limited Warranty**
  For details, please call:
  1-800-448-6686.

Radio Specification Chart

Transmit Power	**1 or 2 Watts**
Receiver Sensitivity	**-120 dBm for 12 dB SINAD**
Audio Output	**90 dB SPL**
Receiver Technology	**Direct Conversion**
NiMH Battery Life	**Approximately 15 hrs 1W/13 hrs 2W**

Motorola® XTN Series

Proof of Purchase

FCC License Required

⚠️ **WARNING CHOKING HAZARD SMALL PARTS**
Not for children under 3 years. This product is not intended to be used as a toy or plaything.