



**MOTOROLA**

*intelligence everywhere™*

ASTRO® XTS™ 2500

Model II

Digital Portable Radio

Interactive End-User Training



Franklin County EMS User's

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## Welcome



This tutorial has been prepared exclusively for you, keeping in mind your system configuration and radio layout. The explanation for each function is a step-by-step guiding process, specifically designed for easy comprehension and implementation. However, for in-depth system or radio information, you should consult your system administrator. Keep in mind that each radio and each system is customer configurable.



# XTS 2500 Model II



Getting Started



Your Radio

	Z1	Z2
C1		
C2		

Fleet Map



Installation and  
Removal



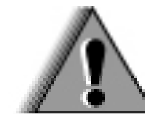
Status Symbols



Status Alert Tones



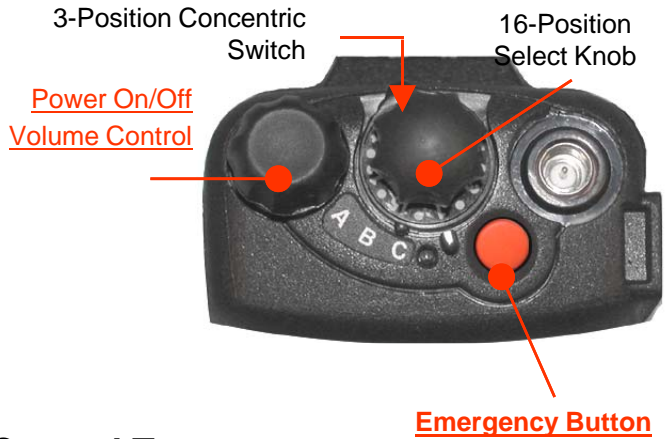
Analog and Digital  
Audio Quality



Important Safety  
Information

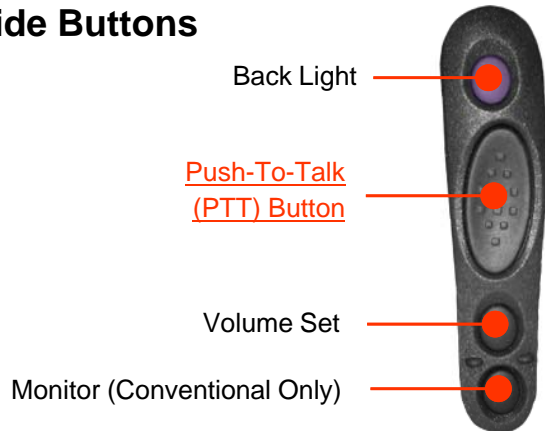


# Your Radio



## Control Top

## Side Buttons

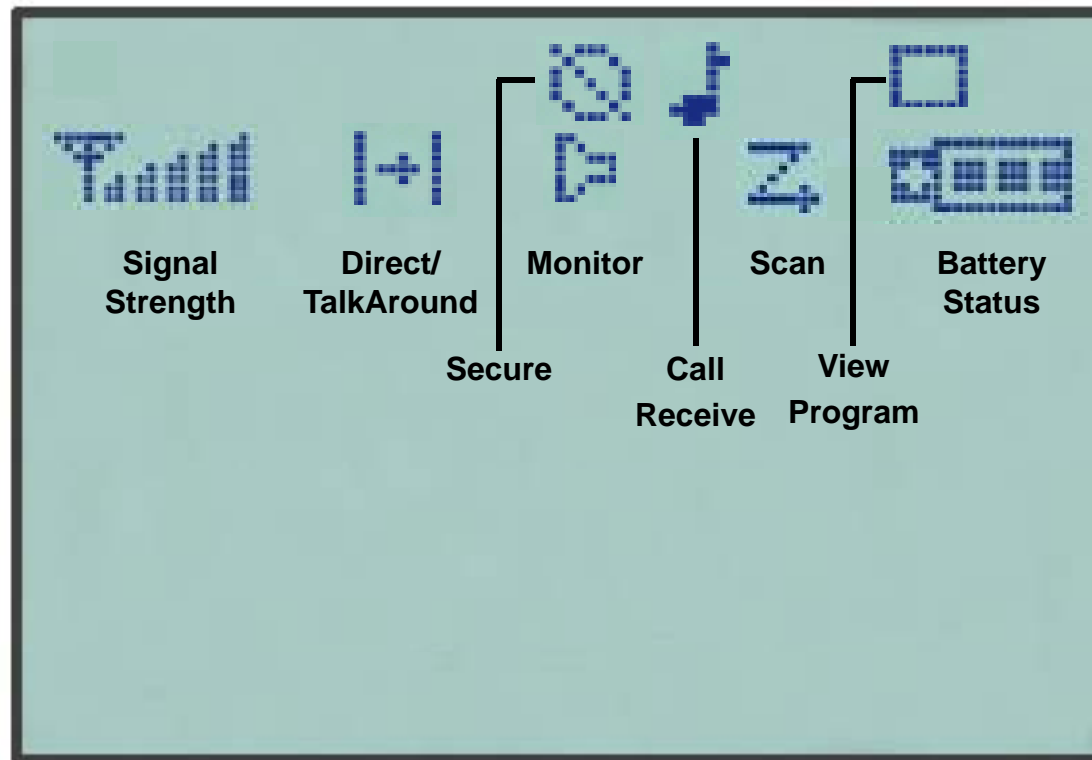


## Menu Options

- [Call Alert Page \(Respond\)](#)
- [Call Alert Page \(Send\)](#)
- [Channel/ Mode Select](#)
- [Clock \(Time and Date\)](#)
- [Direct/TalkAround](#)
- [ID Number \(View Your\) Using CALL](#)
- [ID Number \(View Your\) Using PAGE](#)
- [List View](#)
- [Nuisance Delete \(DEL Menu\)](#)
- [Nuisance Delete \(NUIS Menu\)](#)
- [Phone Call \(Place\)](#)
- [Phone Call \(Respond\)](#)
- [Power Select](#)
- [Private Conversation Call \(Place\)](#)
- [Private Conversation Call \(Respond\)](#)
- [Scan On/Off](#)
- [Scan List Edit](#)
- [Site Lock](#)
- [Site View/Search](#)
- [Smart Battery](#)
- [Status/Message Calls](#)
- [Talkgroup Calls](#)
- [Zone Select](#)



## Status Symbols – 1 of 2



*Continued on next slide.*



## Status Symbols – 2 of 2



<i>Symbol</i>	<i>Indication</i>
	<b>Call Received</b> Flashes when an Individual Call is received.
	<b>View/Program Mode</b> The radio is in the view or program mode. <ul style="list-style-type: none"> <li>• On steady = view mode</li> <li>• Flashing = program mode</li> </ul>
	<b>Received Signal Strength Indication (RSSI)</b> The received signal strength for the current site, for trunking only. The more stripes in the symbol, the stronger the signal.
	<b>Battery</b> <ul style="list-style-type: none"> <li>• Conventional = flashes when battery is low</li> <li>• Smart = the number of bars (0-3) shown indicates the charge remaining in your battery; flashes when battery is low</li> </ul>

<i>Symbol</i>	<i>Indication</i>
	<b>Talkaround</b> <ul style="list-style-type: none"> <li>• On = you are talking directly to another radio, not through a repeater, during conventional operation only</li> <li>• Off = you are talking through a repeater</li> </ul>
	<b>Monitor (Carrier Squelch)</b> The selected channel is being monitored during conventional operation only.
	<b>Secure Operation</b> <ul style="list-style-type: none"> <li>• On = secure operation</li> <li>• Off = clear operation</li> <li>• Flashing = receiving an encrypted voice call</li> </ul>
	<b>Scan</b> The radio is scanning a scan list.
	<b>Priority-One Channel Scan</b> One channel is assigned as the priority channel during scan operation.
	<b>Priority-Two Channel Scan</b> Two channels are assigned as the priority channels during scan operation.



## Status Alert Tones



Tone Name	Tone Information
Acknowledge	Receipt of a call sent to the central controller
Button Press	A valid key was pressed on the keypad
Call Alert	- Receipt of a Call Alert page sent to your radio - Confirmation receipt of a page received sent from your radio
Emergency	Emergency alarm was sent from your radio
Failsoft	Radio has lost communication with the central controller
Low Battery	Weak battery indication
No Acknowledge	A call to the central controller was not acknowledged
Out of Range	Radio is out of range of the system
Power-up	Radio has successfully powered on
Private Call I	Receipt of a Private Conversation call sent to your radio
Private Call Enhanced	Receipt of a Private Conversation call sent to your radio
Prohibit	Talkgroup or channel is not accessible
System Busy	Channel, system or target radio is busy
Talk Permit	Channel is ready to use
Time-out Timer	Time-out timer limit has been reached





## LED Status



### RED

- **Solid**
  - PTT is pressed; radio is transmitting
- **Flashing**
  - Channel Busy
  - Low Battery (lights while transmitting)



RED LED

### GREEN

- **Solid**
  - Self-test being performed
- **Flashing**
  - Incoming Private Call



GREEN LED



# Installation and Removal Procedures



Antenna



Battery



Universal Connector



Belt Clip



## Antenna



### To install the antenna:

1. Turn the radio off.
2. Screw the antenna (clockwise) into the antenna receptacle on top of the radio.
3. Tighten the antenna firmly with your fingers.

### To remove the antenna:

1. Turn the radio off.
2. Unscrew the antenna (counter-clockwise) and remove it from the antenna receptacle on top of the radio.



## Charging the Battery



*The battery must be charged before use. Memory effect is a phenomenon that causes a loss in battery capacity or voltage due to repetitive shallow discharging or long-term overcharging. This memory effect has been greatly reduced in your batteries through the use of new cell technology. It is still recommended, however, that you discharge your battery as much as possible before recharging it. Recharging after each shift is good standard practice. When charging a battery that is attached to your radio, turn the radio off to ensure a full charge.*

*Battery procedures continued on next panel.*



## Battery



### To install the battery:

1. Turn the radio off.
2. Align the three tabs at the bottom of the battery with the three slots at the bottom of the back of the radio.
3. Angle the battery forward toward the radio until the battery clicks into place.

### To remove the battery:

1. Turn the radio off.
2. Holding the radio in one hand, push down on the battery release slides on both sides of the battery with the other hand.
3. Angle the battery away from the radio and remove.



## Universal Connector Cover



***The universal connector cover protects the side connector near the antenna.***

### **To remove the cover:**

1. Turn the radio off.
2. Carefully insert a flat-bladed screwdriver between the bottom of the cover and the connector.
3. Holding the top of the cover with your thumb, push the screwdriver gently downward and lever the cover away from the radio.

### **To install the cover:**

1. Turn the radio off.
2. Insert the hooked end of the cover into the slot above the connector.
3. Rub the ball of your thumb from the top to the bottom of the cover, applying pressure towards the radio. This will flex the cover and snap it into place.



## Belt Clip



### To install the belt clip:

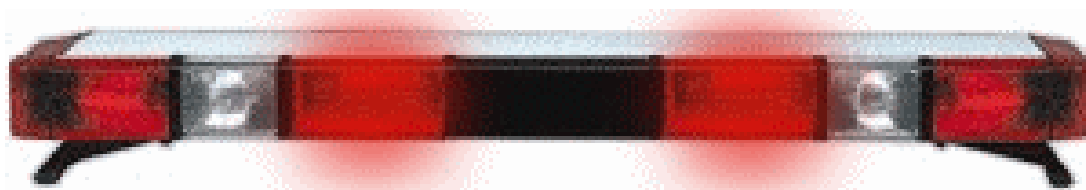
1. Remove battery before installing or removing the belt clip.
2. Hold the battery with the back of the battery facing you.
3. Hold the belt clip with the top facing upward, and align the clip with the slots on the battery back.
4. Slide the belt clip downward into the slots until it clicks into place.

### To remove the belt clip:

1. Pull away the metal tab at the top of the battery clip from the battery.
2. Slide the clip upward until it comes away from the radio.



# GENERAL FEATURES





## Radio On/Off/Volume




On/Off/Volume  
Knob



### To turn the radio on:

Turn the On/Off/Volume Control knob clockwise.

 *If the power-up test is successful, you briefly see **SELF TEST**, then the home display. If enabled, a power-up tone is also heard.*

*If the power-up test is unsuccessful, you see **ERROR XX/YY**. (XX/YY is an alphanumeric code.)*

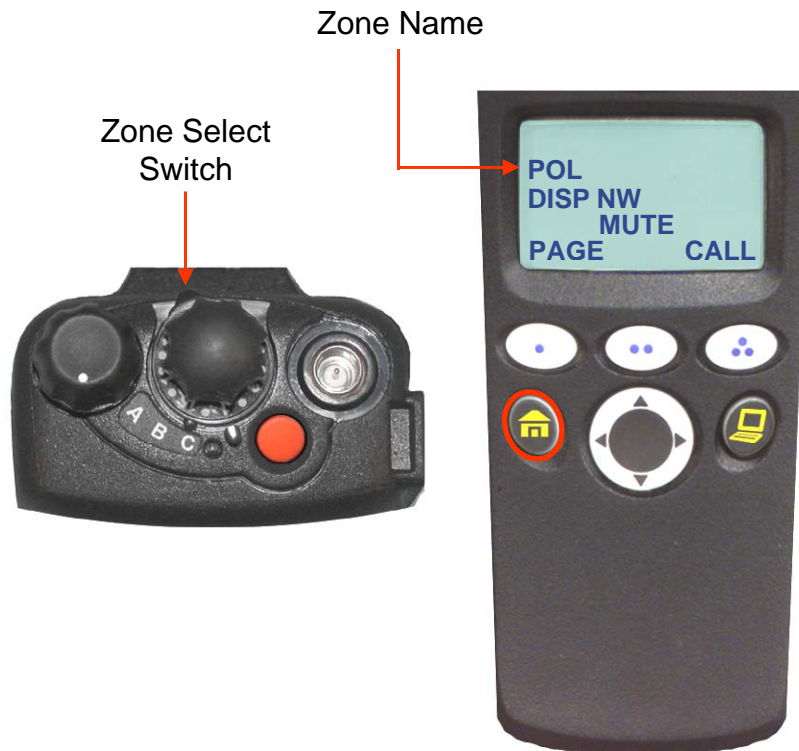
[Click here to view the Error Codes slide for further explanation of specific codes.](#)

### To turn the radio off:

Turn the On/Off/Volume Control knob counter-clockwise until it clicks.



## Zone Select (3-Position Concentric Switch)



### To select a zone:

1. Select zone A, B, or C using the 3-Position Zone Select switch.  
*If the zone you selected is unprogrammed, repeat step 1.*
2. Press the Home button to confirm the displayed zone and channel.



## Zone Select (Menu)



### To select a zone:

1. Press the right side of the 4-way Navigation button until ZONE appears on the display.
2. Press the button directly below ZONE.  
*The zone name flashes on the display.*
3. Press the right side of the 4-way Navigation button to find the zone you want.  
*If the zone you selected is unprogrammed, repeat step 3.*
4. Press the Home button to confirm the displayed zone and channel.  
OR  
Press the PTT button to transmit on the displayed zone/channel.



## Channel/Mode Select (16-Position Select Knob)



### To select a channel/mode:

Rotate the 16-Position Channel/Mode Select knob to the desired position.

*The new name will appear on the display.*

*If the channel/mode you selected is unprogrammed, repeat the above step.*

[Click here to view an explanation of what happens if the trunked system's central controller fails.](#)



## Channel/Mode Select (3-Position Concentric Switch)



### To select a channel/mode:

1. Select the channel/mode using the 3-Position Channel/Mode switch.  
*If the channel/mode you selected is unprogrammed, repeat step 1.*
2. Press the Home button to confirm the displayed zone and channel.

[Click here to view an explanation of what happens if the runked system's central controller fails.](#)



## Channel/Mode Select (Menu)



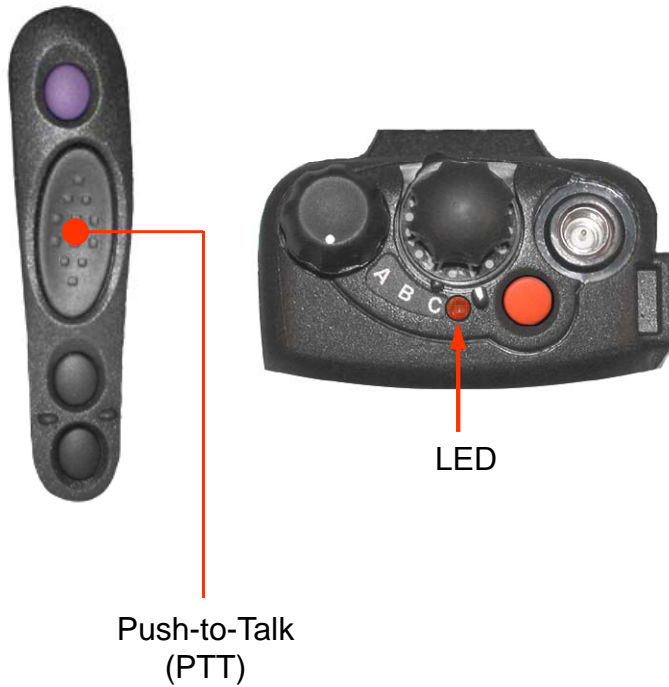
### To select a channel/mode:

1. Press the right side of the 4-way Navigation button until CHAN appears on the display.
2. Press the button directly below CHAN.  
*The channel/talkgroup name flashes on the display.*
3. Press the right side of the 4-way Navigation button to find the channel you want.  
*If the channel you selected is unprogrammed, repeat step 3.*
4. Press the Home button to confirm the displayed channel/talkgroup.  
OR  
Press the PTT button to transmit on the displayed zone/channel.

[Click here to view an explanation of what happens if the runked system's central controller fails.](#)




## Time-out Timer



***The time-out timer turns off your radio's transmitter. The timer is set for 60 seconds at the factory, but it can be programmed from 0 to 7.75 minutes (465 seconds) by a qualified radio technician.***

1. Hold down the PTT button longer than the programmed time.

 *You will hear a low-pitched warning tone, the transmission will cut off, and the LED will go out until you release the PTT.*

2. Release the PTT button.

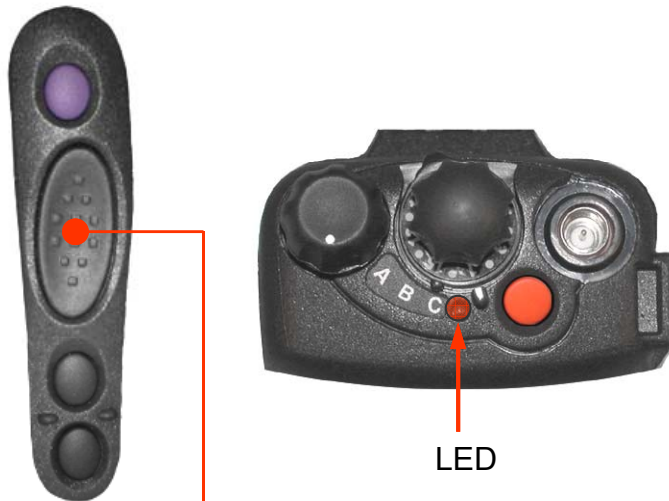
*The LED will re-light and the timer will reset.*

3. Press the PTT button to re-transmit. The time-out timer restarts.

*The timer will restart and the LED lights red.*




## Transmit and Receive



Push-to-Talk  
(PTT)

LED

### To transmit:

1. Select the desired zone/channel.
2. Listen for ongoing conversations; if the channel becomes clear, proceed with your call.
3. Press and hold the PTT button to transmit and wait for the "Talk Permit" tone. The LED will light red. When speaking, keep the microphone 1-2" from your mouth.  
 *Note: If you do not hear a Talk Permit tone, your system administrator has preprogrammed the tone to be off.*
4. Release the PTT button to receive (listen).

[Click here for information on Smart PTT which prevents you from talking over someone else's conversation.](#)

[Click here for information on what happens if you go out of range of the system.](#)





# 3-POSITION CONCENTRIC SWITCH



## Direct/TalkAround (3-Position Concentric Switch)




*Also known as “talk-around operation,” direct lets you bypass the repeater and connect directly to another radio. The transmit and receive frequencies are the same.*


### To directly connect with another radio:

1. Select a conventional channel from the channel mapping list provided by your system administrator.

2. Turn the Direct switch to the predetermined position.

*The direct symbol (  ) will be displayed. Make sure the receiving unit has the same channel configuration selected. You will not receive normal trunked, talkgroup calls while in direct mode.*

3. Turn the Direct switch again to disengage the feature and return to normal radio operation.

*The direct symbol (  ) will no longer be displayed.*




## Scan On or Off (3-Position Concentric Switch)



*The scan feature allows you to monitor traffic on different channels by scanning a preprogrammed list of channels. Your radio can have several different scan lists. These lists must be enabled by a qualified radio technician.*


### To turn scan on:

Turn the Scan switch to the predetermined position to enable scan.

*The scan symbol (  ) will be displayed, indicating scan is active.*

### To turn scan off:

Turn the Scan switch to the predetermined position to disable scan.

*The scan symbol (  ) will no longer be displayed, indicating scan has been deactivated.*



## Scan List Edit (3-Position Concentric Switch) – 1 of 3



*This feature lets you change scan list members and priorities.*

### To edit the scan list:

1. Move the Scan List Programming switch to the programming position.

*You see the first available item and the view/program (□) symbol flashing, indicating the programming mode. You will also see SEL, DEL, and RCL displayed as possible selections.*

2. Press the left or right side of the 4-way Navigation button to select the item to be changed.

*Continued on next slide.*






## Scan List Edit (3-Position Concentric Switch) – 2 of 3



3. Press the button directly below SEL or DEL or RCL.  
*SEL = add the currently displayed item to the scan list.*  
*DEL = delete the currently displayed item from the scan list.*  
*RCL = view the next available item.*

OR

When adding a priority member press the button directly below SEL additional times.

You will see  or  or  with a flashing dot.



= this item is in the scan list.



= this item is in the scan list as a priority-two member.



(dot flashing) = this item is in the scan list as the priority-one member.

*Note: You cannot delete a priority member.*

*Continued on next slide.*



# TOP SIDE BUTTON



## Emergency – Send (Top Button) – 1 of 5



*There are three ways to send an emergency signal from your radio.*



Emergency Button



[Send an emergency alarm.](#)

[Send a silent emergency alarm.](#)

[Send an emergency call.](#)

[Click here for additional information about the Emergency feature.](#)



## Emergency – Send Emergency Alarm (Top Button) – 2 of 5



### To send an emergency alarm:

1. With the radio turned on, press the Emergency button.  
*The current zone/channel is displayed alternately with EMERGENCY, the LED lights red, and you hear a group of short, medium-pitched tones.*

*If the selected channel does not support emergency, the display shows NO EMERGENCY. Select a channel that does show EMERGENCY.*

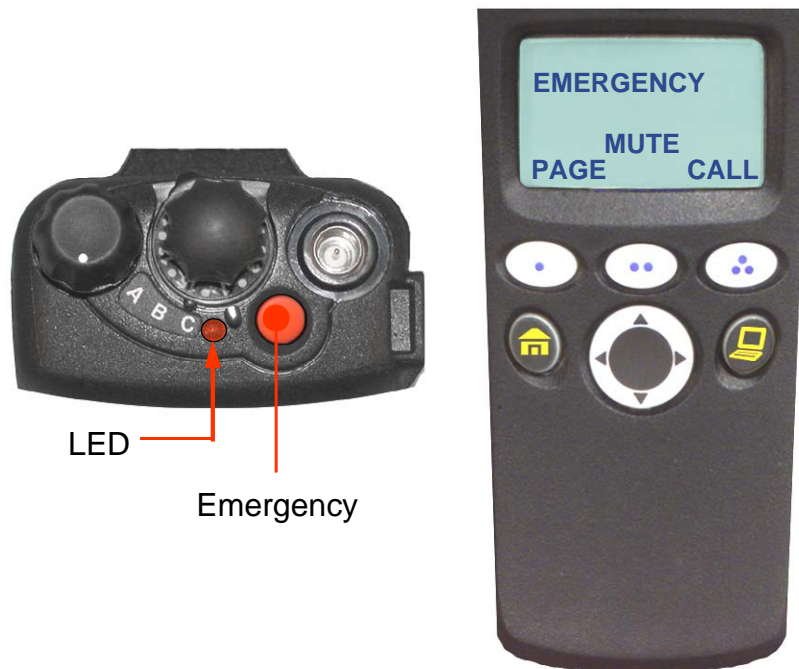
*Note: To exit emergency at any time, press and hold the Emergency button for about a second.*

2. When you receive the dispatcher's acknowledgment, you see ACK RECEIVED, four tones sound, the alarm ends, and the radio exits the emergency mode.  
If no acknowledgment is received, you see NO ACKNOWLEDG, the alarm ends, and the radio exits the emergency mode.





## Emergency – Send Emergency Call (Top Button) – 4 of 5



*This type of dispatch gives your radio priority access on a channel. The radio operates in the normal dispatch manner while in emergency call, except, if enabled, it will return to one of the following:*

- **Tactical/Non-Revert** — You talk on the channel you selected before you entered the emergency state.
- **Non-Tactical/Revert** — You talk on a preprogrammed emergency channel. The emergency alarm is sent on this same channel.

**To send an emergency call:**

1. With the radio turned on, press the Emergency button. The current zone/channel is displayed alternately with **EMERGENCY**, the LED lights red, and you hear a group of short, medium-pitched tones.

*If the selected channel does not support emergency, the display shows **NO EMERGENCY**. Select a channel that does show **EMERGENCY**.*

*Continued on next slide.*



## Emergency – Send Emergency Call (Top Button) – 5 of 5



*Note: To exit emergency at any time, press and hold the Emergency button for about a second.*

2. Press and hold the PTT button and announce your emergency into the microphone.
3. Release the PTT button to end the transmission and wait for a response from the dispatcher.
4. Press and hold the Emergency button for about a second to exit emergency.



## Monitor (Conventional) (Top Button)



Monitor  
Button



Push-to-Talk  
(PTT)



**Your radio may be programmed to receive Private Line (PL) calls.**

### To enable the monitor feature:

1. Select a conventional channel from the channel mapping list.
2. Momentarily press the Monitor button to listen for activity. *The monitor/carrier squelch indicator ( [ ] ) is displayed.*
3. Press and hold the Monitor button to set continuous monitor operation.
4. Press the Monitor button again, or the PTT button, to return to the original squelch setting.

*Note: If you try to transmit on a receive-only channel, you will hear an invalid tone until you release the PTT button.*



## Nuisance Channel Delete (Top Button)




Nuisance  
Delete  
Button



*When the radio scans to a channel that you do not wish to hear (nuisance channel), you can temporarily delete the channel from the scan list.*

### To delete a nuisance channel:

1. When the radio is locked onto the channel to be deleted, press the Nuisance Delete button. Repeat this step to delete more channels.

*Note: You cannot delete priority channels (  ) or the designated transmit channel.*

*The radio continues scanning the remaining channels in the list.*

2. To resume scanning the deleted channel, change channels or turn scan off and then back on again.



# SIDE BUTTON 1



## Display Light (Side Button 1)



Light  
Button



**If poor light conditions make the display difficult to read:**

Turn on the radio's backlights by pressing the Light button.

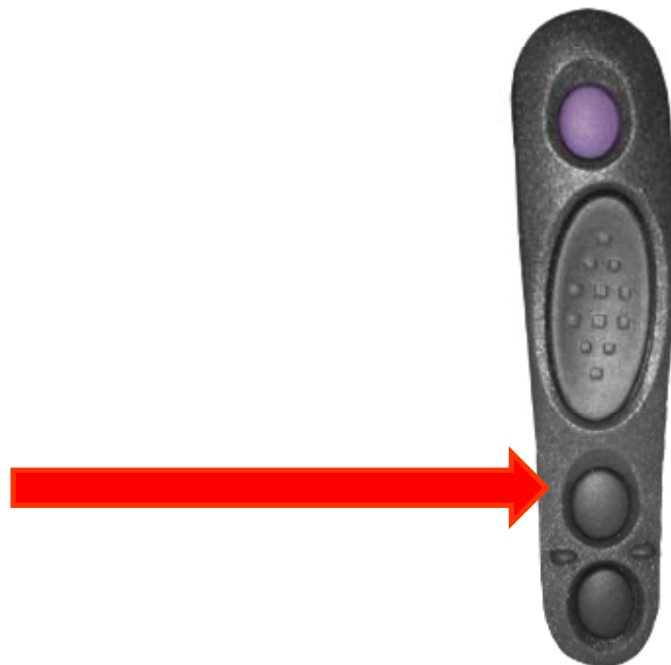
*These lights will remain on for a preprogrammed time before they turn off automatically.*

OR

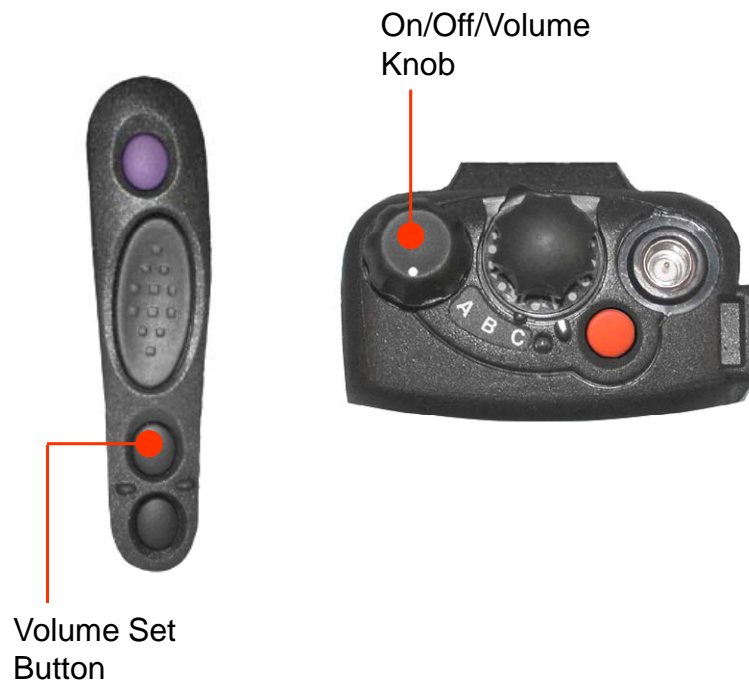
*You can turn them off immediately by pressing the Light button again.*



## SIDE BUTTON 2



## Volume Set Tone (Side Button 2)



### To adjust the volume:

1. Select the desired zone and channel.
2. Press and hold the Volume Set button to hear the volume set tone.
3. Adjust the Volume Control knob if necessary.
4. Release the Volume Set button.





## Monitor (Conventional) (Side Button 3)



**Your radio may be programmed to receive Private Line (PL) calls.**

### To enable the monitor feature:

1. Select a conventional channel from the channel mapping list.
2. Momentarily press the Monitor button to listen for activity. *The monitor/carrier squelch indicator ( [ ] ) is displayed.*
3. Press and hold the Monitor button to set continuous monitor operation.
4. Press the Monitor button again, or the PTT button, to return to the original squelch setting.

*Note: If you try to transmit on a receive-only channel, you will hear an invalid tone until you release the PTT button.*



# MENU



## Clock (Time and Date) (Menu) – 1 of 2



*Using this special feature, you can program the time and date as you might with other electronic devices. The clock display is enabled by a qualified radio technician.*

### To edit the time and date:

1. Press the right side of the 4-way Navigation button until CLCK is displayed.
2. Press the button directly below CLCK.  
*The current setting is displayed.*
3. Press the button directly below EDIT.  
*The first item flashes.*

*Continued on next slide.*



## Clock (Time and Date) (Menu) – 2 of 2



4. Press the up or down arrow of the 4-way Navigation button to change the selected item.

*Note: Press the Home button at any time to return to the home display without saving your changes.*

OR

Press the right side of the 4-way Navigation button to move to an item you wish to change.

5. Press the up or down arrow of the 4-way Navigation button to change the selected item.
6. Press the right side of the 4-way Navigation button one or more times to move to an item in the date field.
7. Press the up or down arrow of the 4-way Navigation button to change the selected item.
8. When you have made all of your changes, press the button directly below SAVE to save your changes and return to the home display.

*Note: If a call arrives while the radio is in the clock-setting menu, the radio exits clock setting, your changes are lost, and the call information is displayed.*




## Nuisance Delete (DEL Menu)



*When the radio scans to a channel that you do not wish to hear (nuisance channel), you can temporarily delete the channel from the scan list.*

### To delete a nuisance channel:

1. Press the right side of the 4-way Navigation button until DEL is displayed.
2. Press the button directly below DEL to temporarily delete the displayed channel from the scan list.
3. If desired, re-enable the channel by exiting and re-entering scan.

*Note: Nuisance Delete cannot remove a priority channel (  ) or the last channel in the list.*




## Nuisance Delete (NUIS Menu)



*When the radio scans to a channel that you do not wish to hear (nuisance channel), you can temporarily delete the channel from the scan list.*

### To delete a nuisance channel:

1. Press the right side of the 4-way Navigation button until NUIS is displayed.
2. Press the button directly below NUIS to temporarily delete the displayed channel from the scan list.
3. If desired, re-enable the channel by exiting and re-entering scan.

*Note: Nuisance Delete cannot remove a priority channel (  ) or the last channel in the list.*



## Smart Battery (Menu)



***This feature allows you to view the condition of your Smart Battery.***

**To access information about your battery:**

1. Press the right side of the 4-way Navigation button until BATT is displayed.
2. Press the button directly below BATT.
3. Battery data is displayed as follows:

*CAPACITY indicates the current charge on the battery.*

*INIT indicates the date of the initial use of the battery.*

*EST CHGS indicates the estimated number of charges on the battery.*

*Note: If a Smart Battery is not powering your radio, the display will read SMART BATT DATA NOT AVAILABLE.*



Thank You



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