

APX™ TWO-WAY RADIOS



APX 6000/APX 6000Li MODEL 3.5

INTERACTIVE END USER TOOLKIT (IEUTK)

Caroline County
Fire and Rescue



Model 3



RADIO PARTS AND CONTROLS

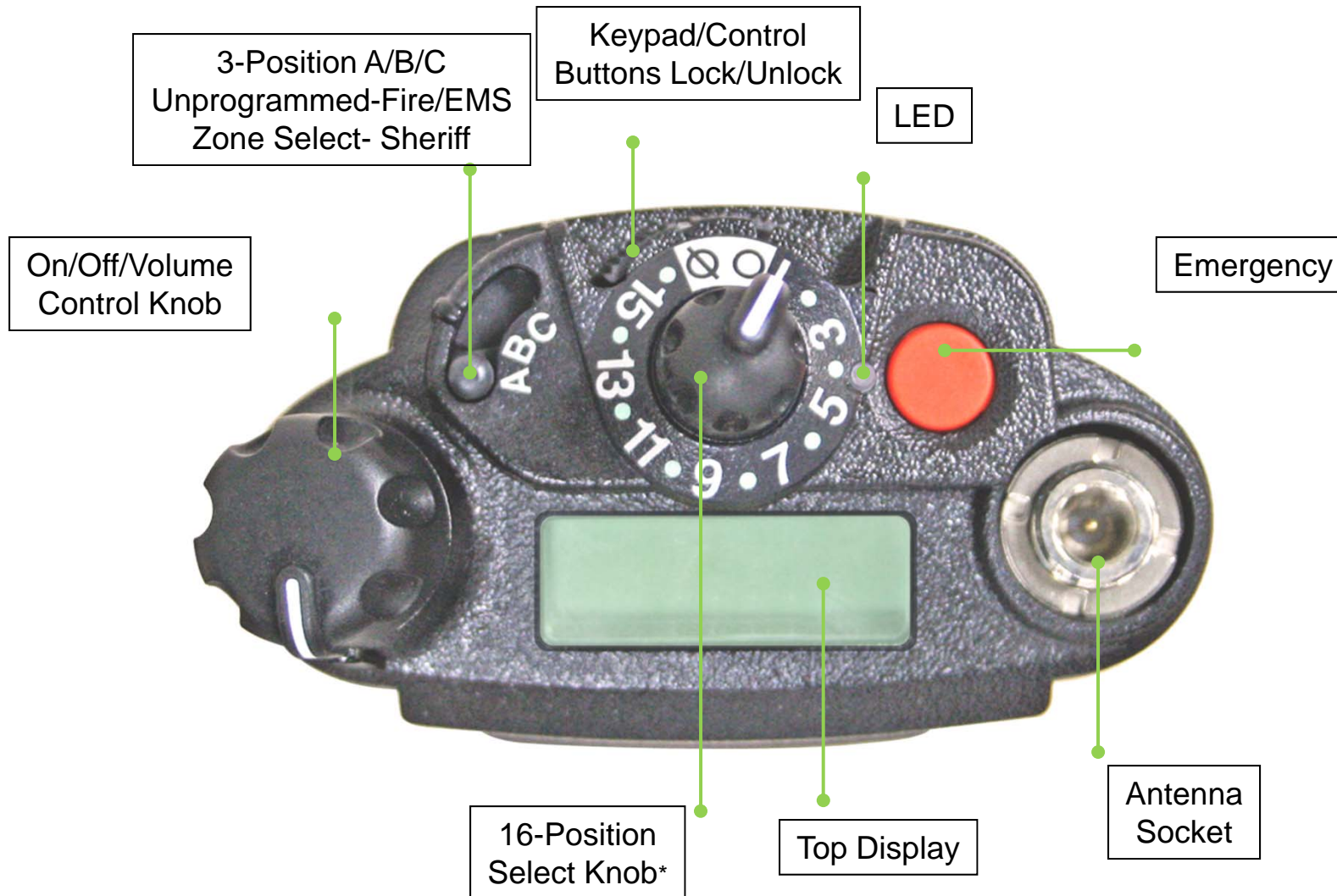


** These radio controls/buttons are programmable.*

RADIO PARTS AND CONTROLS



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Battery Charger

To charge the battery, place the battery, with or without the radio, in a Motorola-approved charger. The charger's LED indicates the charging progress.

Note: When charging a battery attached to a radio, turn the radio off to ensure a full charge.



Multi Unit Charger



Single Unit Charger

[Continued...](#)

Radio Shoulder Mic's should not be clipped to the antenna or the mic cord



Radio Shoulder Mic's NEED to be supported independently



IMPRES Adaptive Charger

- Monitors the usage pattern of the IMPRES battery and,
- Stores that information in the IMPRES battery, then
- Performs a recondition cycle only when needed.
- Will not overheat the battery regardless of how long it is left in the charger.
- Charger monitors the battery and automatically “tops off” the battery, as required.










NOTE:

- 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 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.



[Continued...](#)

Charge Indicator Lights

<u>Charge Indicator</u>		<u>Description</u>
Single Flash Green		Charger has successfully powered up.
Steady Red		Battery is in rapid charge mode.
Flashing Green		Battery has completed rapid charge (>90% available capacity). Battery is in Top-Off charge (Trickle Charge) and requires approximately 1 hour.
Steady Green		Battery has completed charging and is fully charged.
Flashing Yellow		Battery is recognized by charger but is waiting to charge. (Either the battery voltage is too low or the battery temperature is too low or too high to allow charging. When this condition is corrected, the battery will begin charging).
Flashing Red		Battery is un-chargeable or not making proper contact.
Steady Yellow		Battery is in recondition mode. The length of time the charger remains in this mode is dependent upon the state of charge remaining in the battery when inserted. (Fully charged batteries require more time to recondition—8 hours or more—than fully discharged batteries.)
Flashing Red & Green	 	Battery may be approaching the end of its rated service life. This is <u>not</u> a fault indication, merely a notification to the user that the battery may soon no longer be able to yield expected service and may need to be replaced.

Automatic Reconditioning of the Battery:

When the IMPRES battery is properly inserted into the charger, the charger determines if it is appropriate to recondition the battery.

If the battery needs reconditioning, the charger automatically indicates a **STEADY YELLOW**. This process may take **8 hours or more** to complete, depending upon the state of charge and capacity rating of the battery when inserted.

NOTE: It important that the battery be allowed to complete the recondition/recharge process for it to be effective. Leave the battery in the charger until the charger indicates a **STEADY GREEN**.

NOTE:

*Toward the end of the rapid charge cycle (**STEADY RED** indication), the battery voltage exceeds the normal operating voltage of the radio. Voltage returns to a normal level following the rapid charge mode or when the battery is removed from the charger.*

If the radio is turned on while the charger is in rapid charge mode, the radio becomes temporarily inoperable. This condition can be cleared by removing the radio from the charger and turning the radio off and on again.

During the reconditioning process, the battery becomes fully discharged. As a result, the radio may not function during reconditioning mode.

[Continued...](#)

Manually Terminating Reconditioning:

At any time during the reconditioning process (**STEADY YELLOW** indication), remove and reinsert the battery within **5 seconds**. This causes the charger to terminate the reconditioning process and begin the charging process. The charger indicator changes to a **STEADY RED**.

Manual Reconditioning of the Battery:

Within **2 ½ minutes** of the initial insertion of an IMPRES battery (**STEADY RED** indication), remove and reinsert the battery within **5 seconds** to manually force reconditioning to occur. The charger indicator changes from a **STEADY RED** to a **STEADY YELLOW**. This forces the charger to recondition and automatically recharge the battery.

NOTE: Excessive use of this feature reduces the cycle life of the battery.



[Continued...](#)

Initial Battery Charge:

1. Must be in an IMPRES Adaptive Charger to properly calibrate the IMPRES battery and enable the Smart Energy features. This process is indicated by a **STEADY YELLOW** indicator light.
2. The process is automatic and includes an initial reconditioning and then begins charging upon completion of this process.
3. To ensure optimum performance prior to the initial use, all new batteries should be left in the charger until the light turns solid green.

If this process is interrupted, the charger will calibrate the battery upon the next insertion.

NOTE:

IMPRES batteries may be charged in conventional chargers. However, the Smart Energy features will not be enabled.

New batteries (never used before) may prematurely indicate a full charge (**STEADY GREEN** indication).



❑ Attaching/Removing the Battery

With the radio turned off, slide the battery into the radio's frame until side latches click into place.

To remove the battery, turn the radio off. Squeeze the release latches at the bottom of the battery until the battery releases from the radio. Remove the battery from the radio.

NOTE –
Removal of batteries will be difficult at first until contact seals are broken-in



Note: If your radio is preprogrammed with volatile-key retention, the encryption keys are retained for approximately 30 seconds after battery removal.

Check with your dealer or system administrator for more information.

❑ Attaching/Removing the Antenna

With the radio turned off, set the antenna in its receptacle and turn clockwise to attach it to the radio.

To remove the antenna, turn the antenna counterclockwise. Make sure you turn off the radio first.



❑ Attaching/Removing the Accessory Connector Cover

The accessory connector is located on the antenna side of the radio. It is used to connect accessories to the radio.

Note: To prevent damage to the connector, shield it with the connector cover when not in use. Accessory Connector Cover must be fully secured to meet the salt water submersion specification.

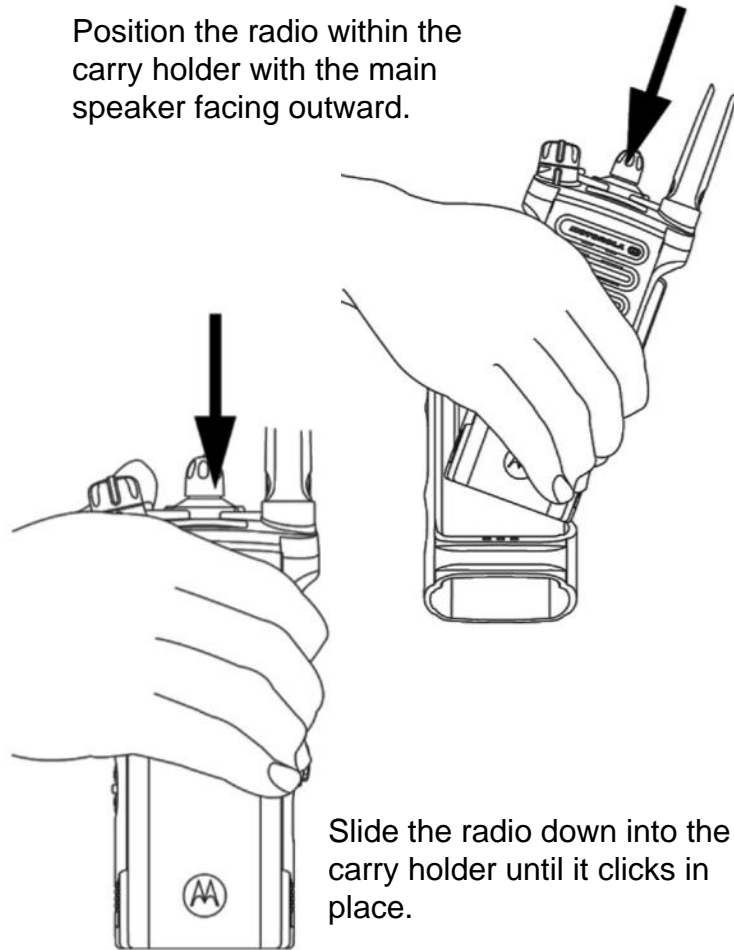


Slide the Accessory Connector Cover over the antenna and position at the base of the antenna. Insert the hooked end of the cover into the slot above the connector. Press downward on the cover's top to seat it in the slot. Once in place, tighten by rotating the thumbscrew clockwise by hand.

To remove the accessory connector cover, rotate the thumbscrew counterclockwise until it disengages from the radio. If the thumbscrew is too tight, use an Allen wrench to loosen it first. Rotate and lift the connector cover to disengage it from the radio.

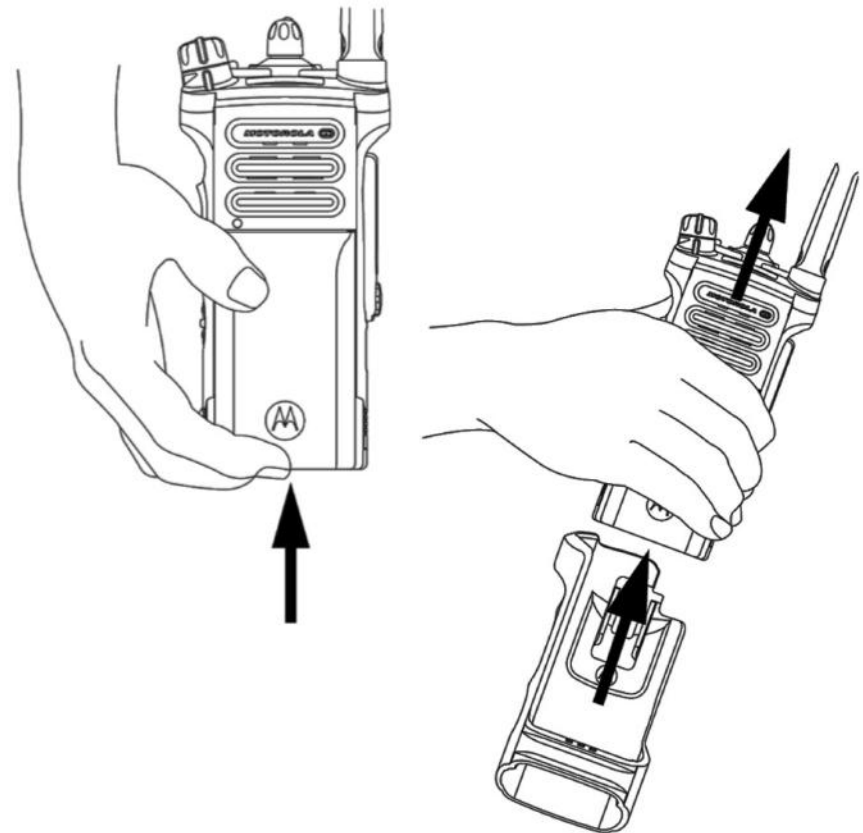
❑ Using the Carry Holder

Position the radio within the carry holder with the main speaker facing outward.



Slide the radio down into the carry holder until it clicks in place.

To remove the radio from the carry holder, place the tip of your fingers on the ledge of the carry holder and push at the bottom of the radio until the radio is released from it.



❑ Turning on/off the Radio

Rotate the **On/Off/Volume Control Knob** clockwise until you hear a click.

*If the power-up test is successful, you see **SELFTEST** on the radio's display momentarily, followed by the Home screen.*

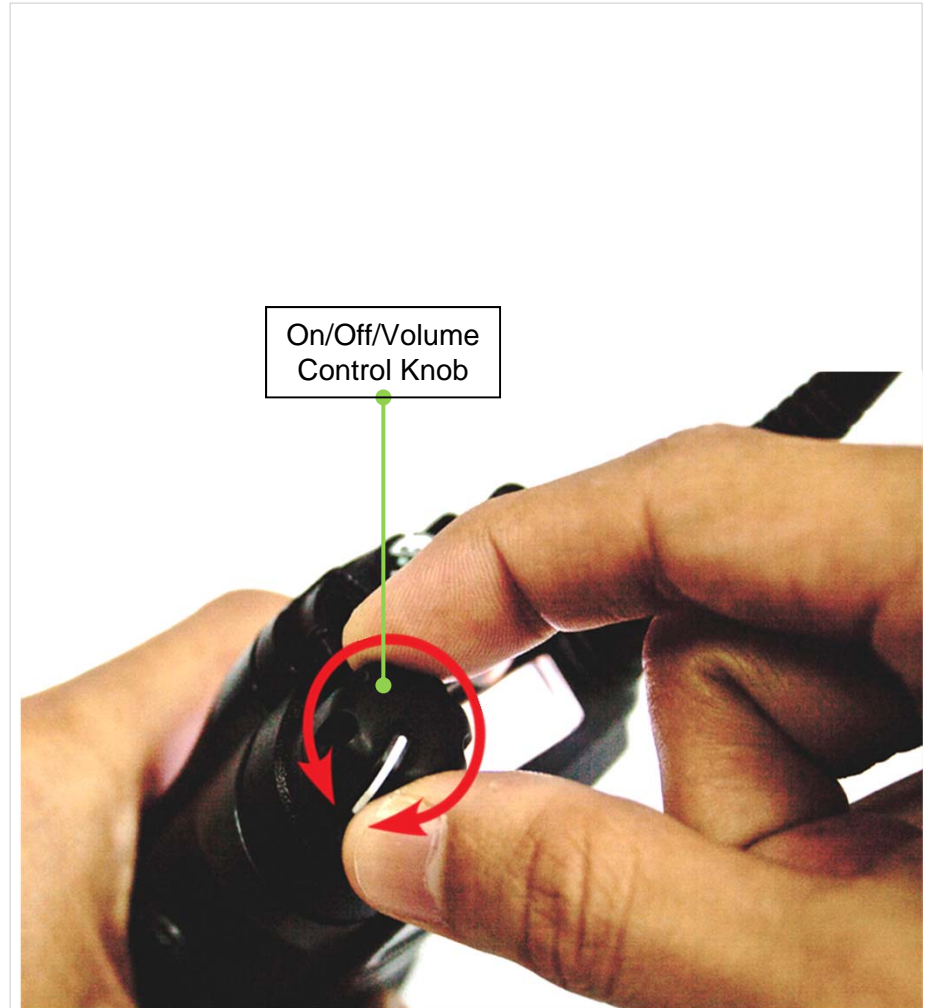
Note: *If the power-up test is unsuccessful, you see **Error XX/YY** (XX/YY is an alphanumeric code).*

*Turn off the radio, check the battery, and turn the radio back on. If the radio fails the power-up test again, record the **Error XX/YY** code and contact your dealer.*

Note: *If the power-up test is successful, but you see **Hardware board absent** or **Hw Board Mismatch**. Then, send the radio to the qualified technician to fix this error.*

*If the power-up test is successful, but you see, **Hw Board Failed** or **Man-Down Hw Error**, send the radio to the qualified technician to fix this error.*

To turn off your radio, rotate the **On/Off/Volume Control Knob** counterclockwise until you hear a click.

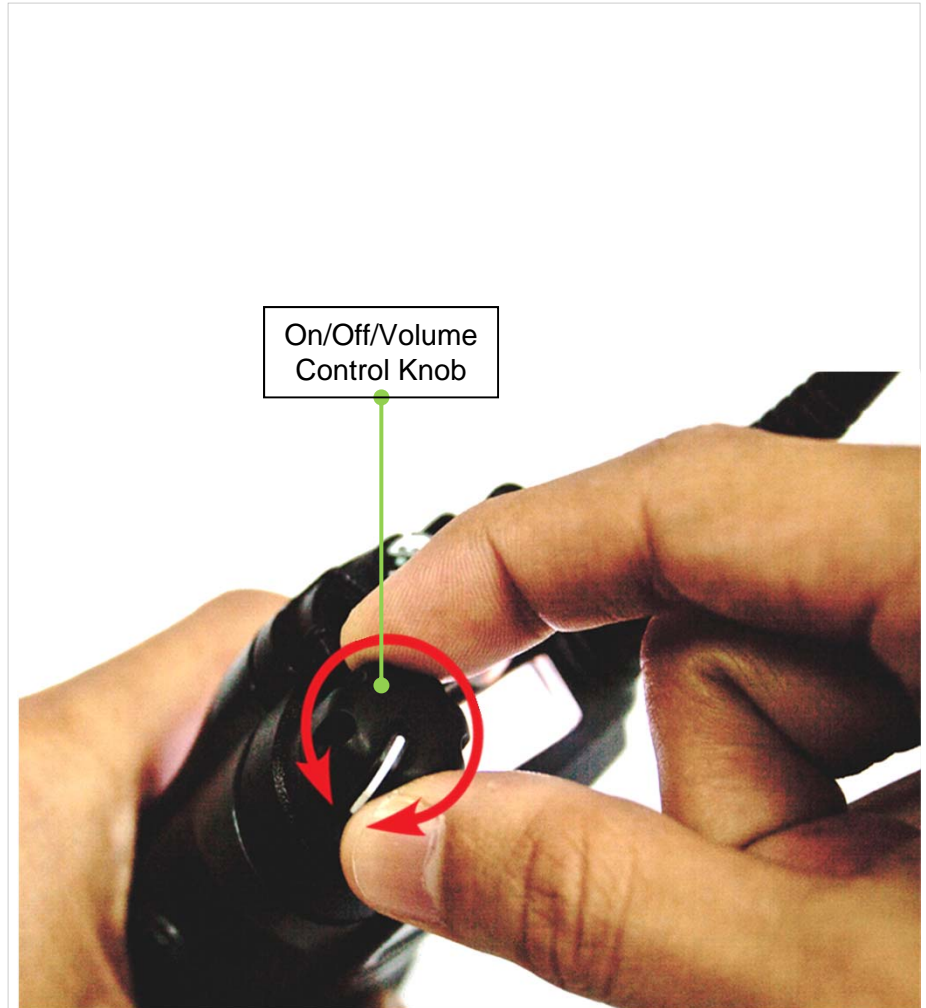


❑ Adjusting the Volume

To increase the volume, turn the **On/Off/Volume Control Knob** clockwise.




To decrease the volume, turn this knob counterclockwise.

Note: Ensure that the main speaker is pointed towards you for increased loudness and intelligibility, especially in areas with loud background noises.



❑ Accessing the Preprogrammed Functions

You can access various radio functions through one of the following ways:

- A short or long press of the relevant programmable buttons.
- **OR**
- Use the **Menu Select Buttons** (, , and ).

Using the Menu Select Buttons

The **Menu Select Buttons** allow to access the menu entries of features.

Note: Check with your dealer or system administrator for the list of features activated in your radio.



Your radio may be preprogrammed differently from the following example, but the steps for selecting a channel may appear as shown below:


- Press the **Menu Select** button () directly below **Chan.**



Using the Navigation Buttons

Home Button

The  button returns you to the Home (default) screen. In most cases, this is the current mode. For selected radio features, the  button is also used to save user-edited radio settings or information before returning you to the Home screen.

Note: Some features do not require you to press  to go to the Home screen. Refer to the individual feature sections in this manual for further details on saving user-edited radio settings or information.

Data Feature Button

Use this button to access data-related features, such as the Text Messaging Service (TMS) feature screen.

4-Way Navigation Button

Use this button to scroll up, down, left or right. Press and release one of the button to scroll from one entry to the next one. Press and hold one of the button to have the radio toggles through the list automatically (release the button to stop).



❑ Push-To-Talk (PTT) Button

The **PTT** button on the side of the radio serves two basic purposes:

- While a call is in progress, the **PTT** button allows the radio to transmit to other radios in the call. Press and hold down **PTT** button to talk. Release the **PTT** button to listen. The microphone is activated when the **PTT** button is pressed.
- While a call is not in progress, the **PTT** button is used to make a new call.



□ Status Icons

The 130 x 130 pixel front liquid crystal display (LCD) of your radio shows radio status, text entries, and menu entries. The top two display rows contain color icons that indicate radio operating conditions.

The following are the icons that appear on the radio's display.



Receiving

Radio is receiving a call or data.



Transmitting

Radio is transmitting a call or data.



Battery

For IMPRES battery operation only – the icon shown indicates the charge remaining in the battery.
For all battery operation – the icon blinks when the battery is low.



Received Signal Strength Indicator (RSSI)

The number of bars displayed represents the received signal strength for the current site, for trunking only. The more stripes in the icon, the stronger the signal.

Top Display



Top Display



Direct

- On = Radio is currently configured for direct radio-to-radio communication (during conventional operation only).
- Off = Radio is connected with other radios through a repeater.



Top Display



Monitor (Carrier Squelch)

Selected channel is being monitored (during conventional operation only).



Power Level

- L = Radio is set at Low power.
- H = Radio is set at High power.

Top Display



Scan

Radio is scanning a scan list.

Top Display



Priority Channel Scan

- Blinking dot = Radio detects activity on channel designated as Priority-One.
- Steady dot = Radio detects activity on channel designated as Priority-Two.

Top Display



Secure Operation

- On = Secure operation.
- Off = Clear operation.
- Blinking = Receiving an encrypted voice call.

Top Display



Bluetooth On

Bluetooth is on and ready for Bluetooth connect

Top Display



Bluetooth Connected

Bluetooth is currently connected to the external Bluetooth device.

Top Display



❑ LED Indicator

The LED indicator shows the operational status of your radio.



Solid red – Radio is transmitting.

Blinking red – Radio is transmitting at low battery condition.

Rapidly blinking red – Radio has failed the self test upon powering up or encountered a fatal error.

Solid yellow (Conventional Only) – Channel is busy.

Blinking yellow – Radio is receiving a secured transmission.

Solid green – Radio is powering up, or is on a non-priority channel while in the Scan List Programming mode.

Blinking green – Radio is receiving an individual or telephone call, or is on a Priority-Two channel while in the Scan List Programming mode.

Rapidly blinking green – Radio is on a Priority-One channel while in the Scan List Programming mode.




Note: No LED indication when the radio receives a clear (non-secured) transmission in trunking Mode.

❑ Intelligent Lighting Indicators

This feature temporarily changes the radio's display backlight color and the alert text background color to help signal that a radio event has occurred.




Note: This feature must be preprogrammed by a qualified radio technician.




Backlight and Bar Color	Notification	When
Orange	Emergency Alerts	The radio initiates an emergency alarm or call.
		The radio receives an emergency alarm or call.
		The radio initiates the Man Down Post-Alert timer.
Red	Critical Alerts	The radio battery is low.
		The radio is out of range.
		The radio enters fail-soft mode.
		The radio is unable to establish a full connection with the system.
		The radio is unable to authenticate or register with the system.
Green	Call Alerts	The radio receives a private call.
		The radio receives a phone call.
		The radio receives a call alert.
		The radio receives a selective call.


 <p>The screen displays 'Zone A Chan 1' with an orange bar at the bottom labeled 'Emergency'. The navigation buttons below the screen are also illuminated in orange.</p>	 <p>The screen displays 'Zone A Chan 1' with a red bar at the bottom labeled 'Out of range'. The navigation buttons below the screen are also illuminated in red.</p>	 <p>The screen displays 'Zone A Chan 1' with a green bar at the bottom labeled 'Call Received'. The navigation buttons below the screen are also illuminated in green.</p>
<p>Orange</p>	<p>Red</p>	<p>Green</p>
<p>Emergency Alerts</p>	<p>Critical Alerts</p>	<p>Call Alerts</p>

☐ Alert Tones

Your radio uses alert tones to inform you of your radio's condition. The following table lists these tones and when they occur.

You Hear	Tone Name	Heard
Short, Low-Pitched Tone  Play	Radio Self Test Fail	When radio fails its power-up self test.
	Reject	When unauthorized request is made.
	Time-Out Timer Warning	Four seconds before time out.
	No ACK Received	When radio fails to receive an acknowledgment.
	Individual Call Warning Tone	When radio is in an individual call for greater than 6 seconds without any activity.
	Man Down Entry	When radio initiates Man Down mode.
Long, Low-Pitched Tone  Play	Time-Out Timer Timed Out	After time out.
	Talk Prohibit/PTT Inhibit	(When PTT button is pressed) transmissions are not allowed.
	Lack of Voice PTT Time out	When the radio ends your call after it detected there are lack of voice for 5 seconds after the PTT is pressed and hold. Your radio ends the call to enable your radio to receive calls from other radio users.
	Out of Range	(When PTT button is pressed) the radio is out of range of the system.
	Invalid Mode	When radio is on an unpreprogrammed channel.
A Group of Low-Pitched Tones  Play	Busy	When system is busy.

You Hear	Tone Name	Heard
Short, Medium-Pitched Tone  Play	Valid Key-Press	When correct key is pressed.
	Radio Self Test Pass	When radio passes its power-up self test.
	Clear Voice	At beginning of a non-coded communication.
	Priority Channel Received	When activity on a priority channel is received.
	Emergency Alarm Entry	When entering the emergency state.
	Central Echo	When central controller has received a request from a radio.
Long, Medium-Pitched Tone  Play	Volume Set	When volume is changed on a quiet channel.
	Emergency Exit	When exiting the emergency state.
A Group of Medium-Pitched Tones  Play	Fail-soft	When the trunking system fails.
	Automatic Call Back	When voice channel is available from previous request.
	Keyfail	When encryption key has been lost.
	Console Acknowledge	When status, emergency alarm, or reprogram request ACK is received.
	Received Individual Call	When Call Alert or Private Call is received.
	Call Alert Sent	When Call Alert is received by the target radio.
	Site Trunking	When a SmartZone trunking system fails.
Short, High-Pitched Tone (Chirp)	Low-Battery Chirp	When battery is below preset threshold value.
Two High-Pitched Tones	GPS Fails	When the GPS signal is lost or when GPS fails.

You Hear	Tone Name	Heard
Ringing	Fast Ringing	When system is searching for target of Private Call.
	Enhanced Call Sent	When waiting for target of Private Call to answer the call.
	Phone Call Received	When a land-to-mobile phone call is received.
Gurgle  Play	Dynamic Regrouping	(When the PTT button is pressed) a dynamic ID has been received.
	Talk Permit	(When PTT button is pressed) is verifying with the system for accepting its transmissions.
Unique, Low-Pitched Chirp	New Message	When a new message is received.
Unique, High-Pitched Chirp	Priority Status	When a priority message is received.
Incremental-Pitched Tone	Bluetooth Paired	When Bluetooth accessory is paired with the radio.
	Bluetooth Connected	When Bluetooth accessory is connected to the radio.
Decremental-Pitched Tone	Bluetooth Unpaired	When Bluetooth accessory is unpaired from the radio.
	Bluetooth Disconnected	When Bluetooth accessory is disconnected from the radio.
A Group of Very High-Pitched Tones	Man Down Continuous Tone	When radio is in Man Down mode and prepares to transmit Emergency Alarm when the timer of this alarm ends.
	Critical Man Down Continuous Tone	When radio is in Man Down Enhanced mode and prepares to transmit Emergency Alarm when the timer of this alarm ends.
Unique Low-High Tone	Enhanced Zone Bank Up	When EZB Up button is pressed to scroll the Enhance Zone Bank up.
Unique High-Low Tone	Enhanced Zone Bank Down	When EZB Down button is pressed to scroll the Enhance Zone Bank down.

❑ Selecting a Zone

A zone is a group of channels.

Procedure:

[Zone (3-Position A/B/C)]

- 1 Move the preprogrammed **Zone (3-Position A/B/C)** switch to the position of the required zone. **Sherriff Only**

OR

Model 3

Use the keypad to enter the zone number.

*If the zone number entered is unprogrammed, the display shows **Invalid entry**.*

Repeat Step 2.

- 3 Press the **Menu Select** button directly below **Sel** to confirm the displayed zone.
- 4 Press the **PTT** button to transmit on the displayed zone channel.

OR

[Menu]

DEMO

- 1 ◀ OR ▶ to **ZNUP** or **ZNDN**.

- 2 Press the **Menu Select** button directly below **ZNUP** or **ZNDN**.

- 3 ▲ OR ▼ to the required zone.

OR

Model 3

Use the keypad to enter the zone number.

*If the zone number entered is unprogrammed, the display shows **Invalid entry**.*

Repeat Step 2.

- 4 Press the **Menu Select** button directly below **Sel** to confirm the displayed zone.
- 5 Press the **PTT** button to transmit on the displayed zone channel.

❑ Selecting a Radio Channel

A channel is a group of radio characteristics, such as transmit/receive frequency pairs.

Procedure:

[16-Position Select Knob]

- 1 Turn the preprogrammed **16-Position Select Knob** to the desired channel.

❑ Receiving and Responding to a Radio Call

Once you have selected the required channel and/or zone, you can proceed to receive and respond to calls.

The LED lights up solid red while the radio is transmitting. In conventional mode, the LED lights up solid yellow when the radio is receiving a transmission. In trunking mode, there is no LED indication when the radio receives a transmission.

If the radio is receiving a secure transmission, the LED blinks yellow.



❑ Receiving and Responding to a Radio Call

Receiving and Responding to a Private Call (Trunking Only)

A Private Call is a call from an individual radio to another individual radio.

These one-to-one calls between two radios are not heard by others in the current talkgroup. The calling radio automatically verifies that the receiving radio is active on the system and can display the caller ID.

Note: If the feature inactivity timer is enabled, your radio automatically exits the feature when your radio is left idle long enough for the time to expire. You will hear the Menu Inactive Exit Tone upon feature exit.

Procedure:

When you receive a Private Call:

- 1 You hear two alert tones and the LED blinks green.
The display shows **Call received** and the caller alias or ID. Press the **Menu Select** button directly below **Resp** within 20 seconds after the call indicators begin.


OR

Press the **Call Response** button within 20 seconds after the call indicators begin.

During the call, the display shows the caller alias (name), if it is in the call list.

OR

During the call, the display shows the caller ID (number), if the caller's name is not in the call list.

- 2 Press and hold the **PTT** button to talk.
Release the **PTT** button to listen.
- 3 Press  or the **Call Response** button to hang up and return to the Home screen.

❑ Making a Radio Call

You can select a zone, channel, subscriber ID, or talkgroup by using:

- The preprogrammed Zone switch
- The 16-Position Select Channel Knob
- The Contacts list

Note: If the feature inactivity timer is enabled, your radio automatically exits the feature when your radio is left idle long enough for the time to expire. You will hear the Menu Inactive Exit Tone upon feature exit.

❑ Making a Radio Call

Making a Talkgroup Call

To make a call to a group of users, your radio must be configured as part of that talkgroup.

Procedure:

DEMO

- 1 Turn the **16-Position Select Channel Knob** to select the channel with the desired talkgroup.
- 2 Press the **PTT** button to make the call.
ASTRO Conventional Only:
The LED lights up solid red.
The display shows the talkgroup alias or ID.
OR
Trunking Only:
The LED lights up solid red.
Speak clearly into the microphone.
Release the **PTT** button to listen.




❑ Making a Radio Call

Making a Private Call (Trunking Only)

Procedure:


[Preprogrammed Button]

- 1 Press the preprogrammed **Quick Access (One-Touch) Private Call** button to dial the preprogrammed ID.
*The display shows **Calling... <Number>**.*
- 2 *When you are connected, the display shows the ID of the target radio.*
Press and hold the **PTT** button to talk.
Release the **PTT** button to listen.
OR
*If no acknowledgment is received, the display shows **No acknowledge**.*
- 3 Press  to return to the Home screen.


OR

[Menu]




- 1  or  to **Call**.
- 2 Press the **Menu Select** button directly below **Call**.
The display shows the last transmitted or received ID.

- 3 Press the **Menu Select** button directly below **Cnts**.
Scroll through and select the required ID. 

OR

Press the **Menu Select** button directly below **LNum** to go to the last number dialed. 


OR

 or  to the required ID. 

OR

Model 3 

Use the keypad to enter the required ID.

- 4 Press the **PTT** button to start the Private Call.
*The display shows **Calling... <Number>**.*
- 5 *When you are connected, the display shows the ID of the target radio.*
Press and hold the **PTT** button to talk.
Release the **PTT** button to listen.
OR
*If no acknowledgment is received, the display shows **No acknowledge**.*
- 6 Press  to return to the Home screen.

☐ Repeater or Direct Operation

The **REPEATER** operation increases the radio's range by connecting with other radios through a repeater. The transmit and receive frequencies are different.

The **DIRECT** or "talkaround operation" allows you to bypass the repeater and connect directly to another radio. The transmit and receive frequencies are the same.

Procedure:

[Preprogrammed Button]

- 1 Direct or talk around channels are preprogrammed. When tuned, observe this icon on both displays.



Top Display



☐ Contacts

This feature provides “address-book” capabilities on your radio. Each entry corresponds to an alias (name) or ID (number) that you use to initiate a call. Contact entries are alphabetically sorted according to entry alias. Each alias can have up to 5 IDs of different call types associated with it.

Additionally, each entry, depending on context (conventional, trunking, or phone), associates with one or more of the four types of calls: Phone Call, Selective Call, Private Call, or Call Alert.

Each entry within Contacts displays the following information:

- Call Alias (Name)
- Call ID (Number)
- Call Type (Icon)
- WACN ID (Astro 25 Trunking IDs only)
- System ID

Note: Your radio must be preprogrammed to allow you to add, edit, or delete the contact entries.

Your radio also supports a maximum of 50 call lists. Each list can store up to 100 IDs (numbers).

Note: Your radio is preprogrammed with a number of contacts per Call Lists. Check with your dealer or system administrator for more information.

The radio automatically exits the feature, if the feature inactivity timer is enabled, when the radio is left idle and the timer expires. You will hear the Menu Inactive Exit Tone upon feature exit.

☐ Contacts

Viewing Details of a Contact

Procedure:

DEMO

- 1 ◀ Or ▶ to **Cnts.**
- 2 Press the **Menu Select** button directly below **Cnts.**
The entries are alphabetically sorted.
- 3 ▲ Or ▼ to the entry you want to view.
- 4 Press the **Menu Select** button directly below **Optn.**
- 5 ▲ Or ▼ to **View.**
- 6 Press the **Menu Select** button directly below **Sel.**
The display shows all the numbers associated with the entry.



☐ Contacts

Making a Private Call from Contacts

Procedure:

DEMO

- 1 ◀ OR ▶ to **Cnts.**
- 2 Press the **Menu Select** button directly below **Cnts.**
The entries are alphabetically sorted.
- 3 ▲ OR ▼ to the required subscriber alias.
- 4 Press the **Menu Select** button directly below **Optn.**
- 5 ▲ OR ▼ to **Call.**
- 6 Press the **Menu Select** button directly below **Sel.**
- 7 ▲ OR ▼ to select the call type.
- 8 Press the **PTT** button to initiate the call.
During the call, the display shows the subscriber alias.
- 9 Press and hold the **PTT** button to talk.
The LED lights up solid red.
OR
Release the **PTT** button to listen.
The LED lights up solid yellow.

If there is no voice activity for a preprogrammed period of time, the call ends.

OR

The call ends when it reaches the maximum ring time.

OR

- 1 ◀ or ▶ to **Cnts.**
- 2 Press the **Menu Select** button directly below **Cnts.**
The entries are alphabetically sorted.
- 3 ▲ OR ▼ to the required subscriber alias.
- 4 ◀ OR ▶ to scroll through the available IDs for the selected subscriber alias.
- 5 Press the **PTT** button to initiate the call.
During the call, the display shows the subscriber alias.
- 6 Press and hold the **PTT** button to talk.
The LED lights up solid red.
OR
Release the **PTT** button to listen.
The LED lights up solid yellow.

If there is no voice activity for a preprogrammed period of time, the call ends.

OR

The call ends when it reaches the maximum ring time.






☐ Contacts

Adding a New Contact Entry

Model 3

Procedure:

DEMO

- 1 ◀ Or ▶ to **Cnts.**
- 2 Press the **Menu Select** button directly below **Cnts.**
The entries are alphabetically sorted.
- 3 ▲ Or ▼ to [**New Contact**].
- 4 Press the **Menu Select** button directly below **Sel.**
- 5 ▲ Or ▼ to **Name.**
- 6 Press the **Menu Select** button directly below **Edit.**
*The display shows **Edit name** and a blinking cursor appears.*
Use the keypad to enter the name.
Press ◀ to move one space to the left.
Press ▶ to move one space to the right.
Press the **Menu Select** button directly below **Del** to delete any unwanted characters.
Press  to add a space.
Press  to toggle between mixed case mode, uppercase mode, and lowercase mode.
Press  to toggle between numeric and letter mode.

Press the **Menu Select** button directly below **Ok** once you have entered the name.

OR

Press the **Menu Select** button directly below **Cncl** to return to the previous screen.

- 7 ▲ Or ▼ to [**Add Number**].
- 8 Press the **Menu Select** button directly below **Sel.**
- 9 ▲ Or ▼ to **Number 1.**
- 10 Press the **Menu Select** button directly below **Edit.**
The display shows **Edit Number 1** and a blinking cursor appears.
Use the keypad to enter the number.
Press the **Menu Select** button directly below **Del** to delete any unwanted characters.
Press the **Menu Select** button directly below **Ok** once you have entered the number.
OR
Press the **Menu Select** button directly below **Cncl** to return to the previous screen.

11 ▲ Or ▼ to **Type 1**.

12 Press the **Menu Select** button directly below **Edit**.

▲ Or ▼ to the required mode.

Press the **Menu Select** button directly below **Ok**.

OR

Use keypad to enter or edit the existing system IDs.

OR

▲ Or ▼ to **[Add Number]**.

Press the **Menu Select** button directly below **Sel** to add a new number.

13 Press the **Menu Select** button directly below **Done** once you have finished.

*The display shows <Entry> **Stored**, confirming that the contact entry has been added.*

The radio returns to the main Contacts screen.



☐ Contacts

Deleting a Contact Entry

Model 3

Procedure:

DEMO

- 1 ◀ Or ▶ to **Cnts.**
 - 2 Press the **Menu Select** button directly below **Cnts.**
The entries are alphabetically sorted.
 - 3 ▲ Or ▼ to the entry you want to delete.
 - 4 Press the **Menu Select** button directly below **Optn.**
 - 5 ▲ Or ▼ to **Delete.**
 - 6 Press the **Menu Select** button directly below **Sel.**
The display shows <Entry> confirm del?.
 - 7 Select **Yes.**
The display shows <Entry> deleted and the radio returns to the main screen for Contacts.
- OR**
- Select **No** to return to the main screen for Contacts.



☐ Contacts

Adding a Contact to a Call List

Procedure:

DEMO

- 1 ◀ OR ▶ to **Cnts.**
- 2 Press the **Menu Select** button directly below **Cnts.**
The entries are alphabetically sorted.
- 3 ▲ OR ▼ to the entry you want to add to a call list.
- 4 Press the **Menu Select** button directly below **Optn.**
- 5 ▲ OR ▼ to **Add to CallLst.**
- 6 Press the **Menu Select** button directly below **Sel.**
- 7 ▲ OR ▼ to the required **Call List.**
- 8 Press the **Menu Select** button directly below **Add.**
OR
▲ OR ▼ to **Cncl** to return to the main display for Contacts.

*The display momentarily shows **Please wait** before showing **<Entry> added**, confirming the addition of the contact to the list.*

The radio returns to the main display for Contacts.

☐ Contacts

Removing a Contact from a Call List

Procedure:

DEMO

- 1 ◀ OR ▶ to **Cnts.**
- 2 Press the **Menu Select** button directly below **Cnts.**
The entries are alphabetically sorted.
- 3 ▲ OR ▼ to the entry you want to remove from a call list.
- 4 Press the **Menu Select** button directly below **Optn.**
- 5 ▲ OR ▼ to **Rm frm CallLst.**
- 6 Press the **Menu Select** button directly below **Sel.**
The display shows <Entry> remove?.
- 7 Press the **Menu Select** button directly below **Yes** to remove the entry from the Call List.
OR
Press the **Menu Select** button directly below **No** to return to the main display for Contacts.

The display momentarily shows **Please wait** before showing **<Entry> removed**, confirming the addition of the contact to the list.

The radio returns to the main display for Contacts.

☐ Contacts




Editing a Contact (Entry Alias and Entry ID)

Model 3

Entry Alias and Entry ID can be edited.

Procedure:

DEMO

- 1 ◀ or ▶ to **Cnts.**
 - 2 Press the **Menu Select** button directly below **Cnts.**
The entries are alphabetically sorted.
 - 3 ▲ or ▼ to entry you want to edit.
 - 4 Press the **Menu Select** button directly below **Optn.**
 - 5 ▲ or ▼ to **Edit.**
 - 6 Press the **Menu Select** button directly below **Sel.**
 - 7 ▲ or ▼ to entry alias or entry ID you want to edit.
- 8 Press the **Menu Select** button directly below **Edit.**
*The display shows **Edit name** and a blinking cursor appears.*
Use the keypad to enter the name.
Press ◀ to move one space to the left.
Press ▶ to move one space to the right.
Press the **Menu Select** button directly below **Del** to delete any unwanted characters.
Press  to add a space.
Press  to toggle between mixed case mode, uppercase mode, and lowercase mode.
Press  to toggle between numeric and letter mode.
Press the **Menu Select** button directly below **Ok** once you have entered the name.
OR
Press the **Menu Select** button directly below **Cncl** to return to the previous screen.
The display returns to the Edit Contact screen.
 - 9 Press the **Menu Select** button directly below **Done** to save your changes and return to the main screen for Contacts.

☐ Contacts

Editing a Contact (Call Type)

Model 3

Procedure:

DEMO

- 1 ◀ Or ▶ to **Cnts.**
- 2 Press the **Menu Select** button directly below **Cnts.**
The entries are alphabetically sorted.
- 3 ▲ Or ▼ to entry you want to edit.
- 4 Press the **Menu Select** button directly below **Optn.**
- 5 ▲ Or ▼ to **Edit.**
- 6 Press the **Menu Select** button directly below **Sel.**
- 7 ▲ Or ▼ to Call Type you want to edit.
- 8 Press the **Menu Select** button directly below **Edit.**
- 9 ▲ Or ▼ to choose from the list of call types given.
- 10 Press the **Menu Select** button directly below **Ok** to select.
The display returns to the Edit Contact screen.
- 11 Press the **Menu Select** button directly below **Done** to save your changes and return to the main screen for Contacts.

☐ Scan Lists

Scan lists are created and assigned to individual channels/groups.

Your radio scans for voice activity by cycling through the channel/group sequence specified in the scan list for the current channel/group.

Your radio supports different types of Scan Lists:

- Trunking Priority Monitor Scan List

NOTE – for Caroline Fire and Rescue radios


The Fire Rescue Dispatch Talk Group is set as the #1 priority in scanning. The selected talk group is #2

CCFR radios will NOT scan non-trunked channels, including the Fire Rescue Talk Around (FR T/A) channel

☐ Scan Lists

Viewing a Scan List

Procedure:

- 1 ◀ Or ▶ to **ScnL**.
- 2 Press the **Menu Select** button directly below **ScnL**.
- 3 ▲ Or ▼ to view the members on the list, or repeatedly press the button under RCL
- 4 Press  to exit the current display and return to the Home screen.



☐ Scan Lists

Editing the Scan List

This feature lets you change scan list members and priorities.

Procedure:

[Menu]

[DEMO](#)

1 ◀ or ▶ to **ScnL**.

2 Press the **Menu Select** button directly below **ScnL**.
The display shows the lists that can be changed.

3 ▲ or ▼ to the entry you want to edit.

4 Press the **Menu Select** button directly below **Sel** to add and/or change the priority of the currently displayed channel in the scan list.

OR

Press the **Menu Select** button directly below **Del** to delete the currently displayed channel from the scan list.

OR

Press the **Menu Select** button directly below **Rcl** to view the next member of the scan list.


- 5 ▲ or ▼ to select more channels to be added or deleted.

OR

Use the **16-Position Select knob** to select additional channels to be added or deleted.

OR**Model 3**

Use the keypad to go directly to additional channels to be added or deleted.

- 6 Press  to exit scan list programming and return to the Home screen.

**Priority Channel Scan**

- Blinking dot = Radio detects activity on channel designated as Priority-One.

Top Display



- Steady dot = Radio detects activity on channel designated as Priority-Two.

Priority Status

Below the **Sel**, **Del**, and **Rcl** screen, press the **Menu Select** button directly below **Sel** to view and/or change the priority status of the currently displayed channel.

OR

Below the **Sel**, **Del**, and **Rcl** screen, press the **Sel** button one or more times to view and/or change the scan list status icon of the currently displayed channel.

A Scan icon indicates that the current channel is in the scan list as a non-priority channel.

The LED lights up solid green.

OR

A Priority-Two Channel Scan icon indicates that the current channel is in the scan list as the Priority-Two channel.

The LED blinks green.

OR

A Priority-One Channel Scan icon indicates that the current channel is in the scan list as the Priority-One channel.

The LED rapidly blinks green.

You hear all traffic on the Priority- One channel, regardless of traffic on non-priority channels.

OR

No icon indicates that the current channel is deleted from the scan list.

☐ Scan

Turning Scan On or Off

This feature allows you to monitor traffic on different channels by scanning a preprogrammed list of channels.

Procedure:

[Menu]

1 ◀ or ▶ to **Scan**.

2 Press the **Menu Select** button directly below **Scan**.

*The display shows **Scan off** if scan is disabled.*

Press the **Menu Select** button directly below **Scan** to enable scan.

OR

*The display shows **Scan on** and the scan status icon if scan is enabled.*

Press the **Menu Select** button directly below **Scan** to disable scan.

The radio returns to the Home screen.



❑ Call Alert Paging

This feature allows your radio to work like a pager.

Even if other users are away from their radios, or if they are unable to hear their radios, you can send them an individual Call Alert page. You can also verify if a radio is active on the system.

Depending on how your radio is programmed, when you make an Enhanced Private Call, the radio either automatically sends a call alert page if there is no answer after the maximum ring time, **OR** when you press the **PTT** button.

Note: This feature must be preprogrammed by a qualified radio technician.

When you receive a Call Alert page, you hear four repeating alert tones and the LED blinks green. The call received icon blinks and the display shows **Page received**.

Press any button to clear the Call Alert page.

❑ Call Alert Paging

Sending a Call Alert Page

Note: The radio automatically exits the feature, if the feature inactivity timer is enabled, when the radio is left idle and the timer expires.

You will hear the Menu Inactive Exit Tone upon feature exit.

Procedure: **Menu (Page)]**

1 ◀ or ▶ to **Page**.

DEMO

2 Press the **Menu Select** button directly below **Page**.

3 Press **Cnts** to scroll through and select the required ID.

OR

▲ or ▼ to the required ID.

OR

Use the keypad to enter the required ID.

4 Press the **PTT** button to send the page.

*The display shows **Paging... <Number>**.*

*If the call alert page is sent successfully, you hear a tone and the display shows **Ack received**.*

OR

*If the call alert page is not acknowledged, you hear a low tone and the display shows **No acknowledge**.*

OR

[Menu (Call)]

1 ◀ or ▶ to **Call**.

2 Press the **Menu Select** button directly below **Call**.

3 ▲ Or ▼ to select the alias or ID, and press the **PTT** button to initiate the call.

*If the target radio does not respond after a preprogrammed period of time, the display shows **Send page?**.*

4 Press the **Menu Select** button directly below **Yes** to send the call alert page.

OR

Press the **Menu Select** button directly below **No** to exit the screen without sending the call alert page.

*The display shows **Paging... <Alias>**.*

*If the call alert page is sent successfully, you hear a tone and the display shows **Ack received**.*

OR

*If the call alert page is not acknowledged, you hear a low tone and the display shows **No acknowledge**.*

The radio returns to the Home screen.

OR

Press the **Menu Select** button directly below **Ok** to return to the main screen for Contacts.

□ Emergency Operation

The Emergency feature is used to indicate a critical situation.

If the **Top (Orange)** button is preprogrammed to send an emergency signal, this signal overrides any other communication over the selected channel.

Your radio supports the following Emergency modes:

- Emergency Alarm with Emergency Call

Check with your dealer or system administrator for more information on the programming of this feature.

Each channel can only assigned one of the Emergency modes above. The radio responds differently when pressing the preprogrammed **Emergency** button in each channel.

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

Note: The radio operates in the normal dispatch manner while in Emergency Call, except if enabled, it returns to one of the following:

- **Tactical/Non-Revert**
The radio sends emergency alarm and/or make emergency call on the current selected channel.
- **Non-Tactical/Revert for Trunking system**
The radio reverts to the preprogrammed emergency talkgroup to send alarm and/or make emergency call.

Man Down is an alternate way to activate the Emergency feature on the condition the Emergency must be set up for this feature to operate.

❑ Tactical/Non-Revert v/s Revert Emergency Activation on CCFR Radios

If a CCFR Radio User depresses the **Orange Emergency Button** while operating on a Caroline County Talk Group – the radio will switch to and send its alarm on the FR Dispatch primary talk group **UNLESS**:

The radio is selected on these talk groups:

Tac 2
Tac 3
Tac 4
Tac 5
Tac 6
Tac 7
Tac 8



Important

In this case, the radio will remain on the selected Tactical talk group and send the alarm to Dispatch.

This radio configuration is different than what is found on Sheriff's Office and all other non-public safety radio users in Caroline.

If a CCFR Radio User depresses the **Orange Emergency Button** while operating on another County's radio system, the radio will send its alarm to that locality's 911 Center over their selected talk group. Caroline 911 will **NOT** receive this alarm.

□ Emergency Operation

Sending an Emergency Alarm with Emergency Call

Procedure:

A green rectangular button with the word "DEMO" in white capital letters.

- 1 Press the preprogrammed **Emergency** button.

*The display shows **Emergency** and the current zone or channel.*

You hear a short, medium-pitched tone and the LED momentarily blinks red.

OR

You hear the radio sounds a short low-pitched tone to indicate the selected channel does not support emergency and rejects to launch emergency mode.

*The display shows **No emergency**, if the selected channel does not support emergency.*

- 2 **The radio enters the Emergency Call state when:**

You receive the dispatcher's acknowledgment.

*The display shows **Ack received**.*

OR

You receive no acknowledgement.

*The display shows **No acknowledge**.*

OR

*You press the **PTT** button while in the Emergency Alarm mode.*

- 3 Press and hold the **PTT** button.
Speak clearly into the microphone.
- 4 Release the **PTT** button to end the transmission and wait for a response from the dispatcher.
- 5 Press and hold the preprogrammed **Emergency** button for about a second to exit the Emergency Call mode.

NOTE: You must press and hold the **Emergency** button for 1.5 seconds to activate.

❑ Trunking System Controls

Using the Fail-soft System

The fail-soft system ensures continuous radio communications during a trunked system failure.

If a trunking system fails completely, the radio goes into fail-soft operation and automatically switches to its fail-soft channel.

Procedure:

- 1 During fail-soft operation, your radio transmits and receives in conventional operation on a predetermined frequency.
- 2 You hear a medium-pitched tone every 10 seconds and the display shows **Fail-soft**.

When the trunking system returns to normal operation, your radio automatically leaves fail-soft operation and returns to trunked operation.



❑ Trunking System Controls

Going Out of Range

When your radio goes out of the range of the system, it can no longer lock onto a control channel.

Procedure:

DEMO

1 You hear a low-pitched tone.

AND/OR

The display shows the currently selected zone/channel combination and **Out of range**.

Your radio remains in this out-of-range condition until:
It locks onto a control channel.

OR

It locks onto a fail-soft channel.

OR

It is turned off.



❑ Trunking System Controls

Using the Site Trunking Feature

If the zone controller loses communication with any site, that site reverts to site trunking.

The display shows the currently selected zone/channel combination and **Site trunking**.

Note: When this occurs, you can communicate only with other radios within your trunking site.



❑ Trunking System Controls

Viewing and Changing a Site

This feature allows you to view the name of the current site or forces your radio to change to a new one.

Viewing the Current Site

Procedure:

- 1 Press the preprogrammed **Site Displ/Srch** button.
The display momentarily shows the name of the current site and its corresponding received signal strength indicator (RSSI).

Changing the Current Site

Procedure:

- 1 Press and hold down the preprogrammed **Site Displ/Srch** button.
*You hear a tone and the display momentarily shows **Scanning site**.
When the radio finds a new site, it returns to the Home screen.*

❑ Mission Critical Wireless - Bluetooth®

Caroline County Portables are equipped with Bluetooth technology.

At present, we will not be issuing any Bluetooth headsets.

If this changes in the future, training will be provided on pairing and operating these devices.



❑ Using the Flip Display

This feature allows you to flip the content of the top display upside down. It is particularly useful when you would like to read the top display while the radio is still in the carry holder attached to your belt.

Procedure:

DEMO

- 1 Press and hold the preprogrammed **Light/Flip** button to flip the display.



❑ Turning Keypad Tones On or Off

You can enable and disable keypad tones, if needed.

Procedure:

[Preprogrammed Button]

- 1 Press the preprogrammed **Keypad Mute** button to turn the tones off or on.

*The display momentarily shows **Tones off**, indicating that the keypad tones are disabled.*

OR

*The display momentarily shows **Tones on**, and you hear a short tone indicating that the keypad tones are enabled.*

OR

[Menu]

- 1 ◀ Or ▶ to **Mute**.

- 2 Press the **Menu Select** button directly below **Mute**.

*The display momentarily shows **Tones off**, indicating that the keypad tones are disabled.*

OR

*The display momentarily shows **Tones on**, and you hear a short tone indicating that the keypad tones are enabled.*



❑ Using the Time-Out Timer

This feature turns off your radio's transmitter. You cannot transmit longer than the preset timer setting.

If you attempt to do so, the radio automatically stops your transmission, and you hear a talk-prohibit tone.

The timer is defaulted at 60 seconds, but it can be preprogrammed from 3 to 120 seconds, in 15-second intervals, or it can be disabled entirely for each radio mode, by a qualified radio technician.

Note: You will hear a brief, low-pitched, warning tone four seconds before the transmission times out.

Procedure:

- 1 Hold down the **PTT** button longer than the preprogrammed time.
*You hear a short, low-pitched warning tone, the transmission is cut-off, and the LED goes out until you release the **PTT** button.*
- 2 Release the **PTT** button.
The timer resets.

- 3 Press the **PTT** button to re-transmit.
The time-out timer restarts and the LED lights up solid red.

❑ Setting the Time and Date

You can set the time and date for your radio.

Settings:

- The default time setting is a 12-hour clock. The display shows **12:00AM**.
- The AM/PM selection is not available for the 24-hour clock setting.
- The default setting for the domestic date shows **MDY**.

Note: Check with your dealer or system administrator for additional programmable settings for this feature.

Procedure:

- 1 ◀ or ▶ to **Clck**.
- 2 Press the **Menu Select** button directly below **Clck**.
The display shows the current setting of the radio.
- 3 Press the **Menu Select** button directly below **Edit**.
The first item blinks.

- 4 ◀ or ▶ to change the selected item.

OR

◀ or ▶ one or more times to move to an item you wish to change.

▲ or ▼ to change the selected item.


OR

Press the **Menu Select** button directly below **Exit** to exit the screen without making any changes and return to the Home screen.

- 5 Press the **Menu Select** button directly below **Ok** once you have finished to save your changes and return to the Home screen.

OR

Press the **Menu Select** button directly below **Cncl** to discard all changes and return to the Home screen.

Press  at any time to return to the Home screen without saving your changes.

Note: If a call arrives while the radio is in the clock-setting menu, the radio exits clock setting and displays the call information. Any changes made before the call is NOT saved.

❑ IMPRES™ Battery Annunciator

This feature displays the current capacity and charges cycles of your battery when a IMPRES Battery is powering your radio.

This feature must be enabled in your radio to see the information.

The information shown are:

- Rated Capacity – Percentage of current battery capacity.
- Remaining Capacity – Remaining power of the battery in mAh.
- Estimated Charges – Number of charges cycles the battery has gone through.

To access battery info screen:

Procedure:

1 ◀ or ▶ to **Batt.**


2 Press the **Menu Select** button directly below **Batt.**
The display shows the details of the battery.

3 ▲ or ▼ to scroll through the various information.

OR

Press the **Menu Select** button directly below **Exit** to return to the previous screen.

OR

Press  to return to the Home screen.

❑ Accessing the General Radio Information

Your radio contains information on the following:


- Radio Information
- IP Display
- Control Assignments
- Soft ID (If Enabled)

Note: The radio automatically exits the feature, if the feature inactivity timer is enabled, when the radio is left idle and the timer expires. You will hear the Menu Inactive Exit Tone upon feature exit.

Accessing the Radio Information

This feature displays the following information of your radio:


- Host Version
- Secure Version
- Model Number
- ESN
- Flash Code
- Tuning Version
- Option Board Type (optional)
- Option Board Bluetooth Address (optional)
- Expansion Board Type (optional)
- DSP Version
- KG (Secure Algorithm)
- Serial Number
- Flash Size & Type
- RF Band
- Processor Version
- Option Board Serial Number (optional)
- Option Board Software Version (optional)

Note: Press  at any time to return to the Home screen.

Follow the procedure to view the information;

Procedure:

[Preprogrammed Button]


- 1 Press the preprogrammed **Info** button.
- 2 Press the **Menu Select** button directly below **Info**.
- 3 ▲ Or ▼ to required information.
- 4 Press the **Menu Select** button directly below **Sel**.
The display shows the Information screen.
- 5 ▲ or ▼ to scroll through the various information.
OR
Press the **Menu Select** button directly below **Back** to return to the previous screen.
OR
Press  to return to the Home screen.

OR

[Menu]

- 1 ◀ Or ▶ to **Info**.
- 2 Press the **Menu Select** button directly below **Info**.
- 3 ▲ Or ▼ to required information.

DEMO

- 4 Press the **Menu Select** button directly below **Sel**.
The display shows the Information screen.
- 5 ▲ Or ▼ to scroll through the various information.
OR
Press the **Menu Select** button directly below **Back** to return to the previous screen.
OR
Press  to return to the Home screen.