

ALASKA LAND MOBILE RADIO (ALMR)

MOTOROLA
XTS-5000

Portable Radio Operation

February 10, 2009

Welcome

This tutorial has been prepared exclusively for you, the user of the statewide Alaska Land Mobile Radio System.

The explanations here were designed with the intent to provide basic system information.

However, for in-depth system or radio information, you should consult your Communications Coordinator or the ALMR Operations Management Office.

Remember that each radio and each user account is agency configurable and may vary from the information presented here.

Fleet-mapping, Codeplugs and Templates

➤ Fleet-map

- Method to organize channels and talkgroups in an agency's radio
- Custom for every agency

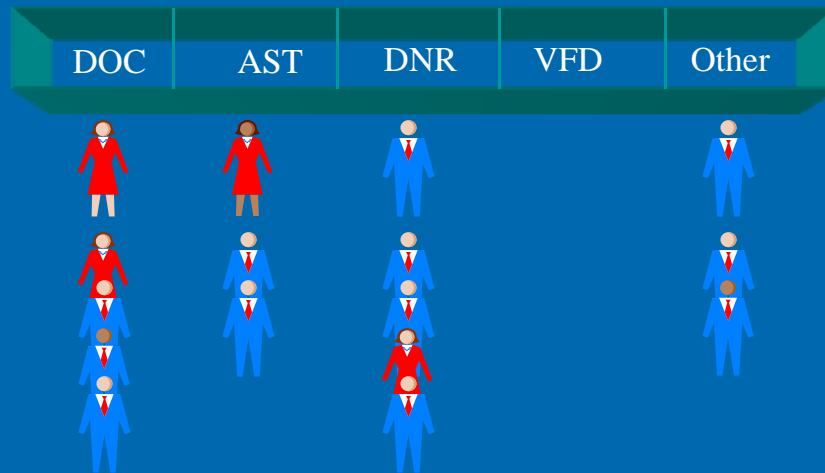
➤ Codeplug

- Frequencies, talkgroups and configuration for a radio
- Includes control of radio: Knobs, switches, menus

➤ Template

- Standardized Codeplug Policy
- Allows for Cloning
- Minimizes radio programming time

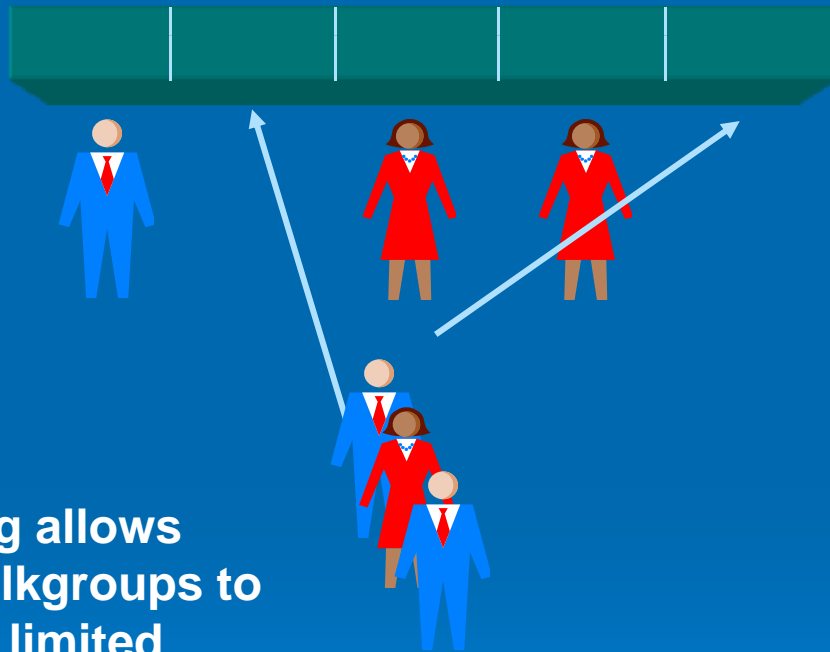
Conventional Operation



Similar to grocery store line.

Users can only talk when their channel is clear of traffic.

Trunked Operation

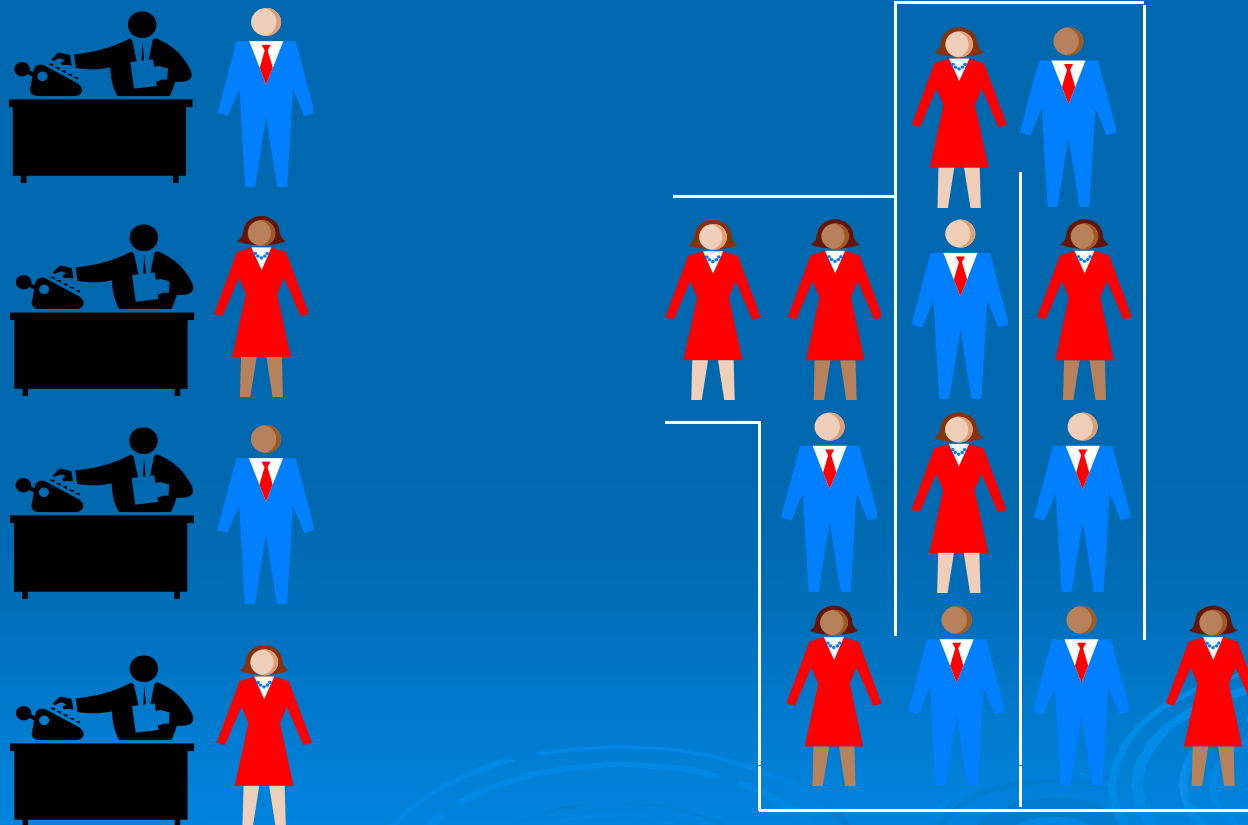


(Similar to a bank teller line)

Trunking allows many talkgroups to utilize a limited number of repeaters.

Any bank teller can provide your services. The person at the front of the line is helped by the next available teller.

Bank Teller Line



Site Affiliation

➤ Site Affiliation:

- Radio can only affiliate ONE talkgroup with ONE site at a time
- Radio transmits its information (Unit ID, Talkgroup ID, etc.) to the control channel of the site
- The site authorizes the radio for use on the system

Scanning

➤ Scanning on a conventional system:

- Radio changes frequencies rapidly
- Stops when traffic is received on any channel in the scan group

➤ Scanning on a trunked system:

- Radio monitors the control channel for talkgroup ID's in the scan list
- The site must have a radio affiliated with the talkgroup ID in order to broadcast that traffic

Site Trunking

- **All ALMR radio sites are linked by various methods to the Zone Controller**
- **If a link is broken, one or more sites will operate in a stand alone manner and continue to process local traffic ONLY.**
- **The site cannot share traffic with other ALMR sites**
- **The radio will attempt to affiliate with a fully operational site**

Mutual Aid Regions

The State has been divided into 6 Mutual Aid Regions.

REGION: Area Covered

A: Southeast Alaska

B: MatSu Valley

C: Western Alaska

D: Interior Alaska

E: Kenai Peninsula

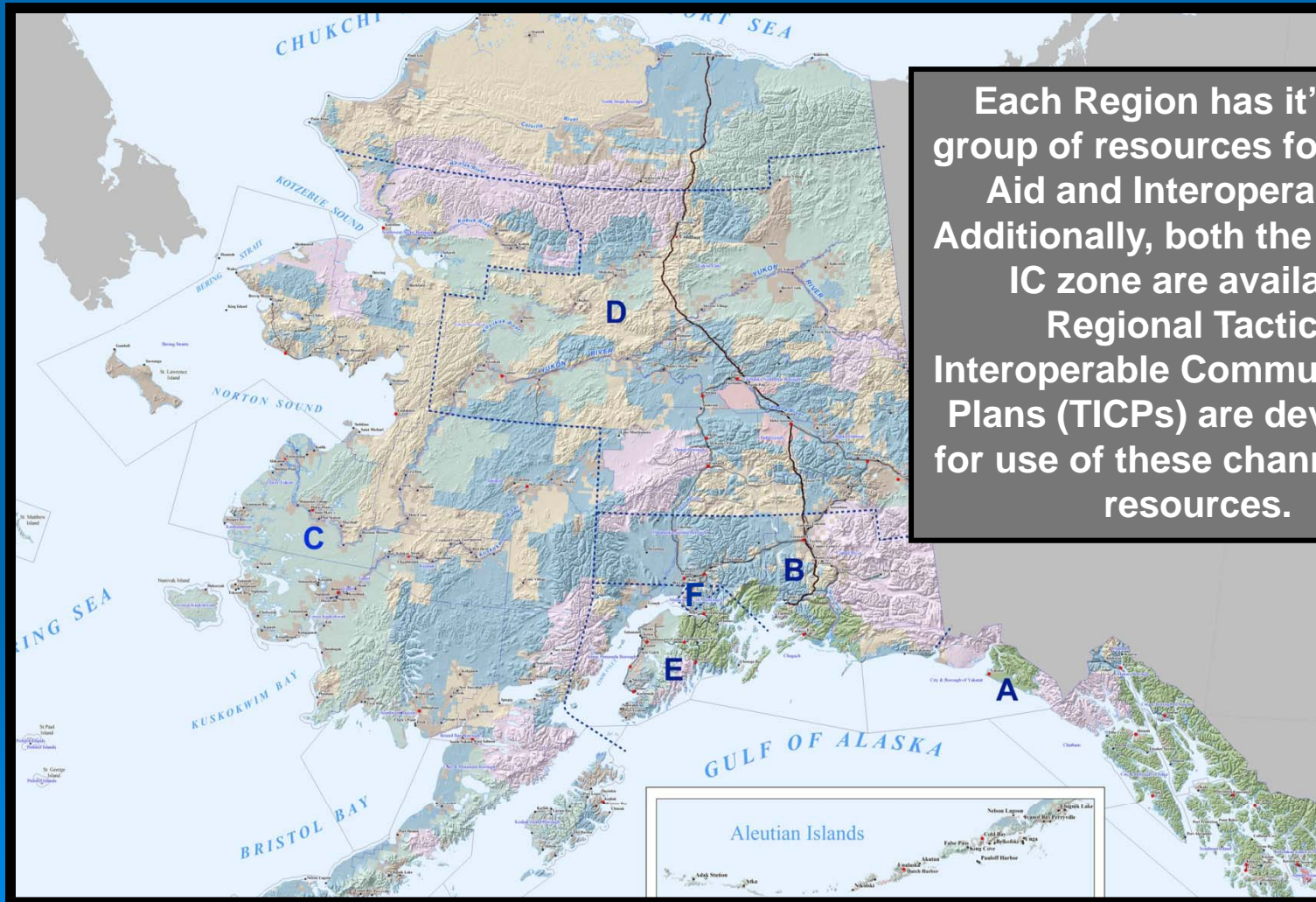
F: Anchorage Bowl



Note:

Each Region has it's own group of resources for Mutual Aid and Interoperability. Additionally, both the IOP and IC zone are available. Regional Tactical Interoperable Communication Plans (TICPs) are developed for use of these channels and resources.

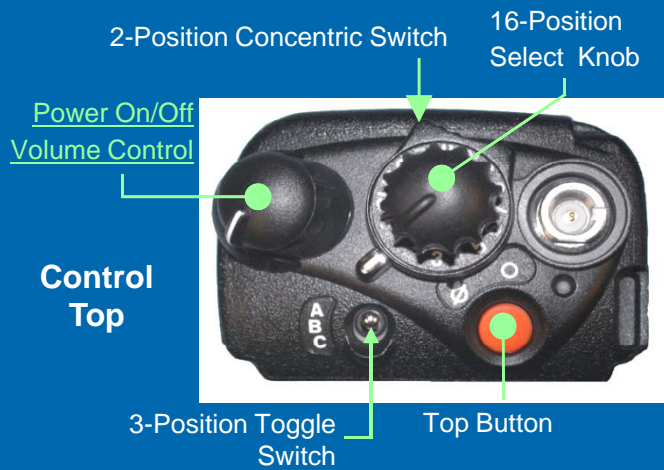
Mutual Aid Regions



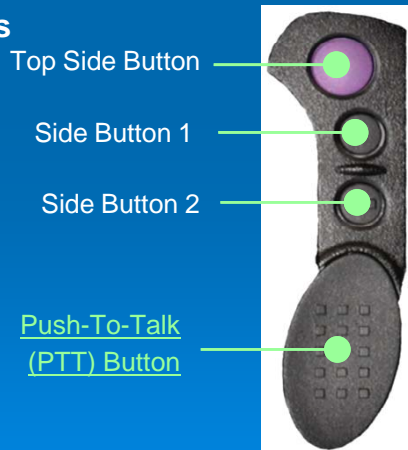
Each Region has it's own group of resources for Mutual Aid and Interoperability. Additionally, both the IOP and IC zone are available. Regional Tactical Interoperable Communication Plans (TICPs) are developed for use of these channels and resources.

YOUR RADIO

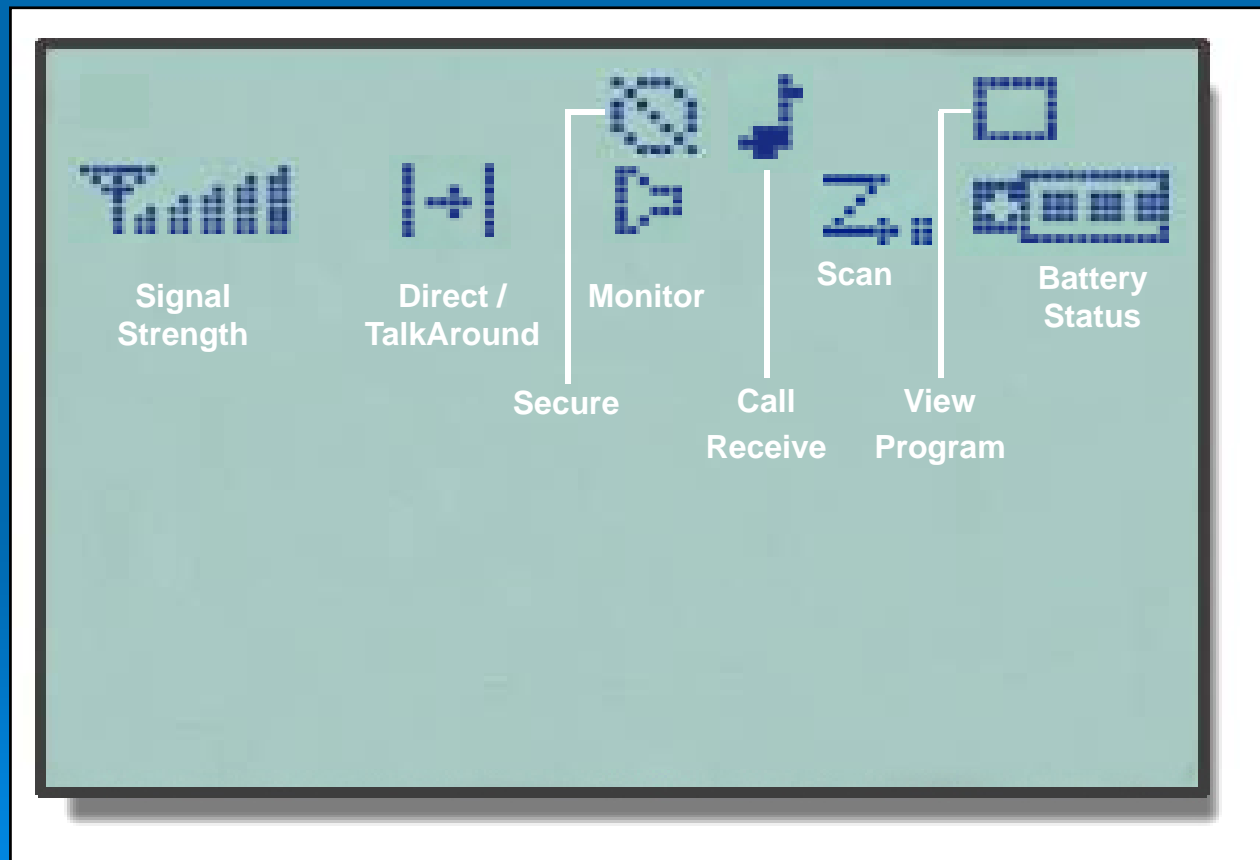
Your Radio



Side Buttons

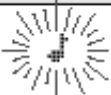
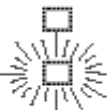






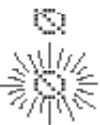


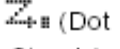
Status Symbols



Continued...

Status Symbols

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

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

LED Status

RED

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



RED LED

GREEN

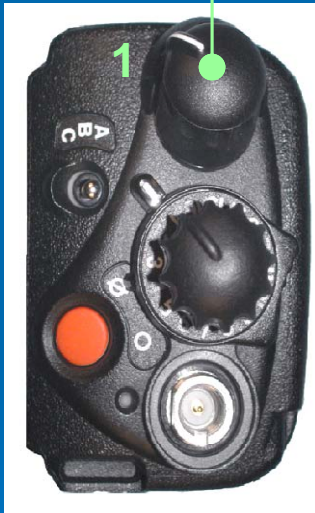
- **Solid**
 - Self-test being performed
- **Flashing**
 - Incoming Private Call



GREEN LED

Antenna

On / Off / Volume
Control



To install the antenna:

1. Turn the radio off.
2. 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.

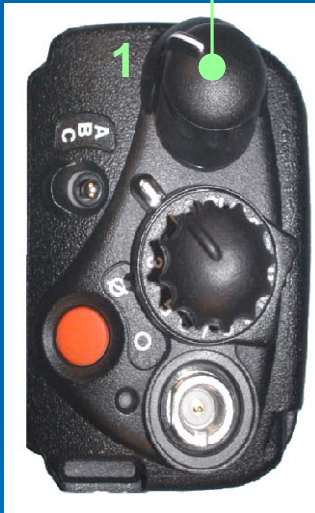
Charging the Battery



- 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
- However, it is still recommended that you discharge your battery as much as possible before recharging it
- Recharging after each shift is a good standard practice
- When charging a battery that is attached to your radio, turn the radio off to ensure a full charge

Battery

On / Off / Volume Control



To install the battery:

1. Turn the radio off.

2. Hold the radio with the back facing upward.
3. Align the three slots at the top of the battery with the three tabs on the back of the radio.
4. Push the battery down toward the radio until the battery clicks into place.



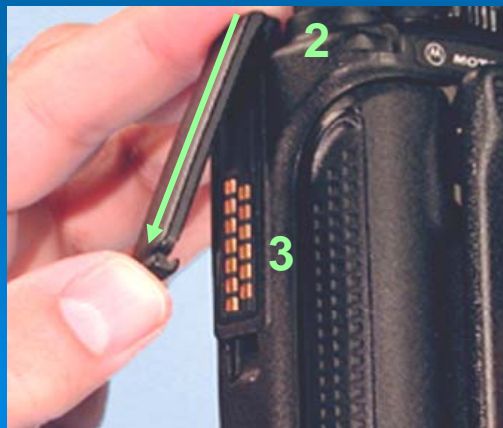
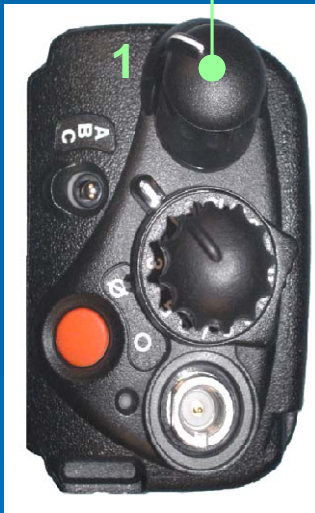
To remove the battery:

1. Turn the radio off.

2. Hold the radio with the back of the radio facing upward.
3. Push the battery release button on the bottom of the radio.
4. Lift the battery away from the radio and remove.

Universal Connector Cover

On / Off / Volume Control



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.

Speaker / Microphone

On / Off / Volume
Control



To install the speaker microphone:

1. Turn the radio off.

2. Follow the instructions for removing the universal connector cover (slide 23).

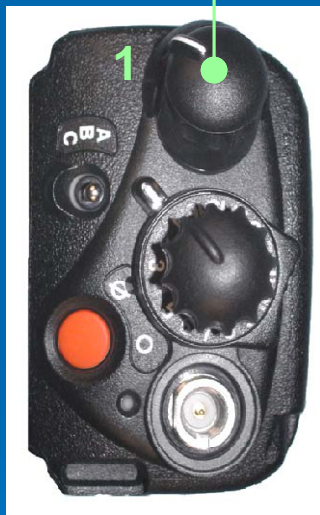
3. Attach the accessory connector to the radio's universal connector as follows:

- a. Looking at the antenna side of the radio, insert the bottom hooked end of the accessory connector into the slot below the universal connector.
- b. While holding the accessory connector seated in the bottom slot, pivot the top of the accessory connector toward the radio, then engage the accessory connector's spring-loaded latch in the radio's top slot.

Continued...

Speaker / Microphone

On / Off / Volume
Control



To remove the speaker microphone:

1. Turn the radio off.

2. Remove the accessory connector by pivoting the top of the accessory connector away from the radio until it disengages from the radio.

3. Follow the instructions for attaching the universal connector cover (slide 23).

Belt Clip



To install the belt clip:

1. Remove the 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.

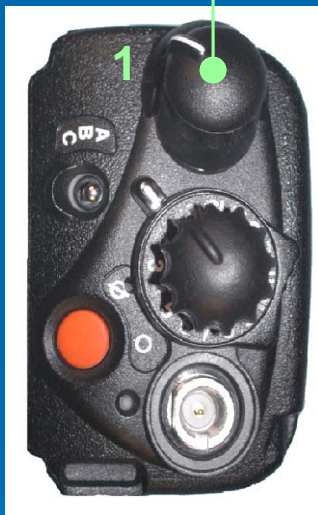
To remove the belt clip:

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 Control

On / Off / Volume Control



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**, followed by 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).*

To turn the radio off:

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

Zone Select (Menu)



Push-to-Talk
(PTT)

Zone Name



Home

4-way Navigation

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:

Turn the **Channel / Mode Select** knob to select the desired channel/mode.

The new name will appear on the display.

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

Time-out Timer



LED



Push-to-Talk
(PTT)

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



LED



Push-to-Talk
(PTT)

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 inches 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).

3-POSITION TOGGLE SWITCH

3-Position Toggle Switch



PL / DPL Defeat



With this feature, you can override any coded squelch (DPL or PL) that might be preprogrammed to a channel.

To override PL or DPL:

Toggle the **PL / DPL Defeat** switch to the predetermined PL / DPL defeat position.

You can now hear any activity on the channel. The radio is muted if no activity is present.

When this feature is active, the carrier squelch status indicator () will be displayed.

Toggle Switch Configuration (Conventional):

- A. Keypad Lock
- B. BLANK
- C. Scan

Toggle Switch Configuration (Trunking):

- A. Keypad Lock
- B. BLANK
- C. Scan

2-POSITION CONCENTRIC SWITCH

Secure / Clear Transmit (2-Position Concentric Switch)



The radio will receive encrypted calls without enabling the Secure switch, but to transmit in secure, the Secure switch must be enabled.

To select secure transmissions:

Turn the **Secure/Clear** switch to the predetermined secure position (☒).

*Note: If the selected channel is programmed for clear-only operation, you will be unable to transmit in secure. If you press the **PTT** button, you will see **CLR TX ONLY** displayed, and you will hear an invalid mode tone.*

*The radio will not transmit until you set the **Secure/Clear** switch to the clear position (☐).*

Secure / Clear Transmit (2-Position Concentric Switch)



The radio will receive encrypted calls without enabling the Secure switch, but to transmit in secure, the Secure switch must be enabled.

To select clear transmissions:

Turn the **Secure/Clear** switch to the predetermined clear position (☐).

*Note: If the selected channel is programmed for secure-only operation, you will be unable to transmit in clear. If you press the **PTT** button, you will see SEC TX ONLY displayed, and you will hear an invalid mode tone.*

*The radio will not transmit until you set the **Secure/Clear** switch to the secure position (☒).*

OVER THE AIR RE-KEYING (OTAR)

Over the Air Re-keying (OTAR)

- Over-the-Air Re-keying (OTAR) is a method used to distribute encryption keys to authorized radios using a wireless signal. OTAR provides the ability to re-key portable and mobile radios remotely over the ALMR system
- The Key Management Facility (KMF) is a database server that formulates and originates the OTAR messages and acts as the key manager for an agency or agencies. There are currently five KMFs used within the ALMR.

OTAR - Manual AES Key Request



Push-to-Talk
(PTT)



Requesting a re-key for AES encryption:

- Turn off scan
- Make certain that radio is on an infrequently used trunking talkgroup
- From the display menu, select button corresponding to "REKY"
- Press the **PTT** and wait for beeps or fail message appears
- If radio "beeps," turn on encryption and confirm proper key

TOP BUTTON

Emergency Button Feature

Emergency Send (Top Button)



Emergency Button



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

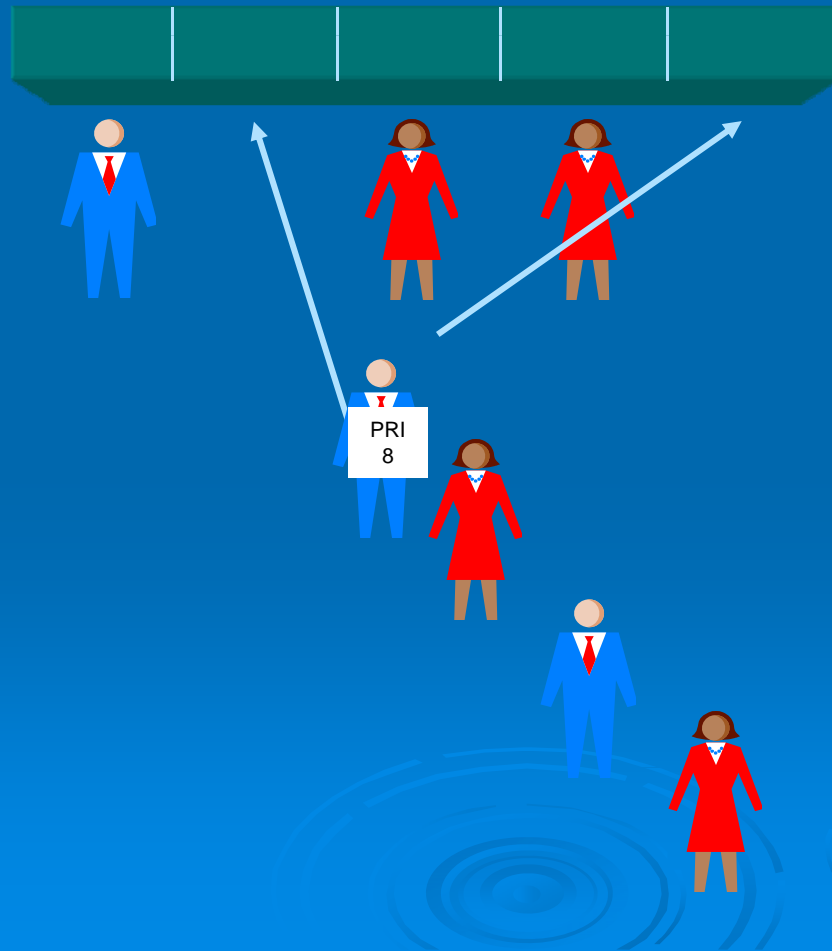
****Kulis Radios are all programmed to revert to the SF1 talkgroup on all Kulis talkgroups.**

REG A-F - revert back to the HAIL channel on that zone

All Kulis Channels revert back to Security Forces main channel "SF 1"

NG Zone will remain Tactical unless talking on the announcement TG.

Emergency Operation



Emergency Send (Top Button)



LED
Emergency




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.*

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....](#)

Emergency Send (Top Button)



Push-to-Talk
(PTT)

Emergency
Button

LED



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.

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

SIDE BUTTON 1

Display Light (Side Button 1)



If poor light conditions make the display or channel numbers (around the 16-Position Select knob) 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.

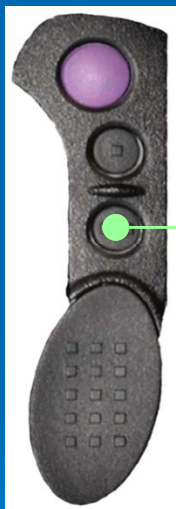
OR

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

SIDE BUTTON 2

Site View / Search (Trunking Mode) (Side Button 2)

Site View / Search



You can view the number of the current site or force your radio to change to a new one.

To view the current site:

Press the **Site View / Search** button.

The display momentarily shows the name of the current site and its corresponding received signal strength indicator (RSSI).

OR

*If the radio is scanning for a new site, you momentarily see **SCANNING SITE** displayed.*

To change the current site:

Press and hold down the **Site View / Search** button.



*You momentarily see **SCANNING SITE** displayed and hear a tone. When the radio finds a site, it returns to the home display.*

MENU

Clock (Time & Date) (Menu) 1 of 2



4-way Navigation

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...](#)

Clock (Time & Date) (Menu) 2 of 2



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

OR

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

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

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.*

Stolen / Missing Radios



- Some radios may contain Sensitive information
 - Sensitive for Law Enforcement
 - FOUO for DOD
- Report missing radios in a timely fashion
- ALMR can disable the radios remotely until the missing radio is found