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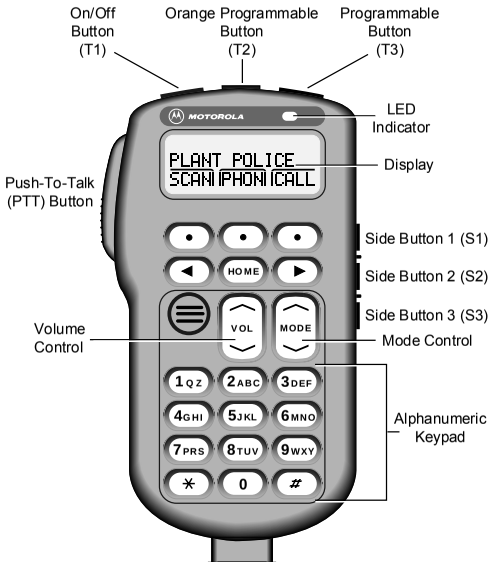
ASTRO®
XTL™ 5000
Digital Mobile Radio

W3 Control Head
User's Guide

ASTRO® XTL™ 5000 Digital Mobile Radio with W3 Control Head

Quick Reference Card



BASIC OPERATION

Turning the Radio On and Off

Press the top left button (T1) to turn the radio on or off. When the radio is powered on, the display shows XTL 5000. You will hear a high-pitched (good power-up) tone. If your radio shows an error on power-up, contact your system manager for assistance.

Selecting the Zone and Mode

1. Press ▶ until the display shows ZONE.
2. Press • below ZONE.
   The display shows the current zone and mode.
3. Press ▶ until the display shows the desired zone, or enter the zone number using the keypad.
4. Press HOME or the PTT button to save the displayed zone as the new home zone.

Monitoring Conventional Modes

Take the microphone off hook, or press the preprogrammed Monitor button (**S1, S2, or S3**). The display shows MONITOR ON.

Cancelling Monitoring

Place the microphone on hook, or press the preprogrammed Monitor button (**S1**, **S2**, or **S3**). The display shows MONITOR OFF.

Receiving

1. Select the desired zone and mode.
2. Press ⊖ to adjust the volume.

Transmitting (Conventional Modes)

1. Select the desired zone and mode.
2. Press ⊖ to adjust the volume.
3. When a mode becomes available, press and hold the PTT button to transmit; release the PTT button to receive.

Transmitting (Trunked Systems)

1. Select the desired zone and mode.
2. Press ⊖ to adjust the volume.
3. Press and hold the PTT button to transmit; release the PTT button to receive.

STATUS ANNUNCIATORS

These are small symbols that appear on the display indicating the status of certain radio functions.

Carrier Squelch (🔊)	Indicates carrier squelch is open to monitor all active conventional mode traffic. When not displayed, traffic is not open to monitoring.
Secure Operation (🔒) *(Secure radios only)*	When solid, radio is transmitting securely. When flashing, radio is receiving securely. When off, radio is operating in clear mode.
Call Received (♪)	Flashes when a Private Call, page, or Phone Call is received.
Scan (↻)	When displayed, indicates the radio is scanning.
Priority Scan (↻.)	Indicates scanning of a priority mode (flashing for Priority 1 mode; solid for Priority 2 mode).
Programming/ View Mode (▭)	When solid, radio is in view mode. When flashing, radio is in programming mode.
Direct (|⟶|)	When on, indicates you are talking directly to another radio (talkaround). When off, you are talking through a repeater.

LED INDICATIONS

Action	*LED Condition*	*Meaning*
Press the PTT button to transmit	Steady red	Normal transmission
	Unlit	Not transmitting
Release the PTT button to receive	Single red flash	Mode busy (clear) (conventional modes only)
	Two red flashes	Mode busy (encrypted) (conventional modes only)
	Flashing green	Receipt of phone call, private conversation call, dispatcher interrupt call, conventional selective call, or Call Alert page

GENERAL FEATURES

Status (Trunking Systems Only)

1. Press ◄ or ► until the display shows the STS softkey.
2. Press • below STS.
   The display shows the last acknowledged status.
3. Press ◄ or ► until the display shows the desired status, or enter the list item's number using the keypad.
4. Press the PTT button to transmit the selected status.
5. Press HOME to exit status and return to the home display.

Selecting Transmit Power Level

1. Press ◄ or ► until the display shows the PWR softkey.
2. Press • below PWR.
   The display shows HIGH POWER or LOW POWER.
3. Press • below the LOW or HIGH softkey.
   The radio returns to the home display.

Sending an Emergency Alarm

Press and hold the orange top button (**T2**).
The red LED lights steadily. You hear an emergency tone. The display alternately shows EMERGENCY and the current zone and mode names. When the alarm is acknowledged by the dispatcher, you hear four beeps. The radio returns to normal operation.

Sending a Silent Emergency Alarm

Press and hold the orange top button (**T2**).
The radio transmits the emergency without any external indication than an alarm is in progress.

Cancelling an Emergency Alarm

Press and hold the emergency button before the alarm is acknowledged,
You hear an exit tone and returns to normal operation. If the radio does not return to normal operation, press the PTT button. The radio does NOT sound an exit tone.

Sending an Emergency Call

1. Press and hold the orange top button (**T2**).
   The red LED lights steadily. You hear a short, medium-pitched emergency tone. The display alternately shows EMERGENCY and the current zone and mode names.
2. Press the PTT button and announce your emergency.
3. To exit emergency call mode, press the emergency button for a little over 1-1/2 seconds (or for the duration specified by your system manager).
   You hear a medium-pitched exit tone and the radio returns to normal operation

Failsoft Operation (Trunked Systems Only)

During Failsoft operation, you hear a faint beeping tone every ten seconds. The radio unsquelches. The display alternately shows FAILSOFT and the current trunked mode name.

Muting Keypad Tones

1. Press ◄ or ► until the display shows the MUTE softkey.
2. Press • below MUTE.
   The display shows TONES ON or TONES OFF and the ON and OFF softkeys.
3. Press • below ON or OFF.
   The radio saves your selection and returns to the home display.

Scanning

Turning Scan On or Off

1. Press ◄ or ► until the display shows the SCAN softkey.
2. Press • below SCAN.
   The display shows SCAN ON or SCAN OFF and the ON and OFF softkeys.
3. Press • below ON or OFF. The display shows ◿.
   When you select OFF, the radio stops scanning and returns to the home display.

Deleting Nuisance Modes

1. When the radio is locked onto the mode you want to delete, press ◄ or ► until the display shows the NUIS softkey, Alternatively, press the preprogrammed Nuisance Delete button.
   The mode is deleted and you hear a valid key-press chirp.
2. To resume scanning the deleted mode, turn scan off and then back on again.

Dynamic Priority Change (Conventional Operation Only)

1. Press the preprogrammed Dynamic Priority button with the radio locked onto the Priority 2 mode. (The Priority 1 mode cannot be modified.)
   You hear a valid key-press chirp.
2. To resume scanning the Priority 2 mode, turn scan off and then on again.

Viewing a Scan or Phone List

1. Press ◄ or ► until the display shows the VIEW softkey.
2. Press • below VIEW until the display shows the SCAN or PHON softkey.
3. Press • below SCAN or PHON.
4. Press ► to scroll through the list entries.
5. Press HOME or the PTT button to exit the list.
   The radio returns to the home display.

Programming a List

1. Press ◄ or ► until the display shows the PROG softkey.
2. Press • below PROG until the display shows the list softkey options (PROG, CALL, etc.).
3. Press • below the type of list you wish to access. The display shows a flashing □ indicator.
4. Press ◄ or ► until you reach the list entry you wish to edit, or enter the number of the item in the list using the keypad.
5. Press the preprogrammed list edit (**S2**) button.
6. Use the numeric keypad to modify the entry.
7. Press the preprogrammed **S2** button to save your changes.
8. Press HOME to exit programming mode and return to the home display.

Telephone Operation

Answering a Telephone Call

You hear a telephone-like ringing sound. The display alternately shows PHONE CALL and the current mode name. The display shows a flashing ♪.

1. Press the programmed phone or call-response button.
   The ♪ annunciator disappears from the display.
2. Press the PTT button to talk; release it to listen.
3. Press HOME or the preprogrammed phone button to hang up.
   The radio returns to the home display.

Calling the Last Number Dialed

1. Press ◄ or ► (or the preprogrammed button) until the display shows the PHON softkey.
2. Press • below PHON.
   The display shows the last phone number dialed.

   With immediate access, the display shows PLEASE WAIT; otherwise, press the PTT button.

   Trunked Telephone Operation: The display shows NO PHONE; you hear a low-pitched tone which indicates the radio is out-of-range or interconnect is not in service. If the display shows PHONE BUSY, interconnect is in use; the radio will re-dial the number when interconnect is available.

   If you hear a dial tone, this indicates access was successful.
3. Proceed to step 1 of “Transmit a Phone Call.”

Making Delayed-Access Calls

1. Press ◄ or ► until the display shows the PHON softkey, or press the preprogrammed phone button.
2. Press • below PHON. The display shows the last phone number dialed.
3. Use the numeric keypad to enter the desired phone number.

   To make a delayed-access call to a number in the phone list:
   Press ◄ or ► to enter the phone list. The display alternately shows the name and phone number associated with the entry.

   OR

   To make a delayed-access call to a number at a location in the phone list:
   Press ◄ or ► to enter the phone list. Then press a location from 1 to 19 corresponding to the number you wish to call. The display alternately shows the name and phone number associated with the entry.
4. Press the PTT button. The display shows PLEASE WAIT. If you do not hear a dial tone, press HOME to hang up and return to Step 1.

   Trunked Telephone Operation: The display shows NO PHONE; you hear a low-pitched tone which indicates the radio is out-of-range or interconnect is not in service. The display shows PHONE BUSY indicating interconnect is in use; the radio will re-dial the number when interconnect becomes available.

   If you hear a dial tone, this indicates access was successful. The display shows the last phone number dialed.
5. Proceed to step 1 of “Transmit a Phone Call.”

Making Immediate-Access Calls

1. Press ◄ or ► until the display shows the PHON softkey, or press the preprogrammed phone button.
2. Press • below PHON.
   The display shows PLEASE WAIT.
   If you hear a dial tone, this indicates access was successful. The display shows the last phone number dialed.
   If you do not hear a dial tone, press HOME to hang up. Return to Step 1.
3. Use the numeric keypad to modify the phone number.

   To make a delayed-access call to a number at a location in the phone list:
   Press ◄ or ► to enter the phone list. Press a location from 1 to 19 of the number you wish to call. The display alternately shows the name and phone number associated with the entry.

   OR

   To make a delayed-access call to a number using the phone list:
   Press ◄ or ► to enter the phone list. The display alternately shows the name and phone number associated with the entry.

   Trunked Telephone Operation: NO PHONE displayed with a low-pitched tone means radio is out-of-range or interconnect is not in service. PHONE BUSY displayed means interconnect is in use; when interconnect is available, number will be re-dialed.

   A dial tone means access is successful.
4. Proceed to step 1 of "Transmit a Phone Call."

Making Manual-Access Calls

1. Press ► until the display shows the PHON softkey, or press the preprogrammed phone button.
2. Press • below PHON.
   The display shows the last phone number dialed.
3. Use the numeric keypad to enter the phone access code.
   You hear a dial tone.
   If you do not hear a dial tone, press HOME to hang up. Use the keypad to change the phone number.
4. Proceed to step 1 of "Transmit a Phone Call."

Transmitting a Phone Call

1. Press the PTT button to send the phone number.
2. If the other party answers, press the PTT button again to talk; release it to listen.
3. Press HOME or the preprogrammed phone button to send the hang-up code.
   The radio returns to the home display.

TRUNKING FEATURES

Displaying the ID Number

1. Press ► until the display shows the CALL softkey.
2. Press • below CALL.
   The display shows RECEIVED ID, or the ID number (Private Conversation II).
3. Press ► (or * if so programmed) to display MY ID: and the ID number.
4. Press HOME to return to the home display.

Private Conversation™ II, Enhanced Private Conversation™, and Call Alert

Calling or Paging the Last ID Number Transmitted or Received

1. Press ► until the display shows the CALL (or PAGE for Call Alert) softkey.
2. Press • below CALL or PAGE (or use the quick-response button). The display shows the last ID transmitted or received. In the case of private call, the display shows RECEIVED ID, or the ID number (Private Conversation II).
3. Proceed to step 1 of "Send a Private Conversation Call" or "Send a Call Alert Page."

Directly Entering the ID Number to be Called or Paged

1. Press ► until the display shows the CALL (or PAGE for Call Alert) softkey.
2. Press • below CALL or PAGE (or use the quick-response button).
   The display shows the last ID transmitted or received. In the case of private call, the display shows RECEIVED ID, or the ID number (Private Conversation II).
3. Use the numeric keypad (**0** to **9** keys) to enter the new ID number.
4. Proceed to step 1 of "Send a Private Conversation Call" or "Send a Call Alert Page."

Scrolling to an ID Number in the Call List

1. Press ► until the display shows the CALL (or PAGE for Call Alert) softkey.
2. Press • below CALL or PAGE (or use the quick-response button).
   The display shows the last ID transmitted or received. In the case of private call, the display shows RECEIVED ID, or the ID number (Private Conversation II).
3. Press ◄ or ► to enter the call list, or press • below LIST.
4. Press ◄ or ► to scroll to the desired member of the list.
5. Proceed to step 1 of "Send a Private Conversation Call" or "Send a Call Alert Page."

Going Directly to an ID Number in the Call List

1. Press ► until the display shows the CALL (PAGE for Call Alert) softkey.
2. Press • below CALL or PAGE (or use the preprogrammed quick-response button).
   The display shows the last ID transmitted or received. In the case of private call, the display shows RECEIVED ID, or the ID number (Private Conversation II).
3. Press ◄ or ► to enter the call list.
4. Press ◄ or ► to scroll to the desired list entry.
5. Press the **0** to **9** keys to enter the location number.
   The display alternately shows the name and ID number associated with the entry. If there are 10 or more list entries, the display shows ID LOC#X_.
   Use the numeric keypad again to enter the second digit of the location number.
6. Proceed to step 1 of "Send a Private Conversation Call" or "Send a Call Alert Page."

Sending a Private Conversation Call

1. Press the PTT button to transmit the displayed ID number.
   If the radio you are calling is not in service, the display shows NO ACKNOWLEDGE. If the other party does not answer within 20 seconds, the display shows NO ANSWER.
2. Press HOME to exit private call, or press the PTT button to speak.
3. Press HOME to hang up.
   The radio returns to the home display.

Sending a Call Alert Page

1. Press the PTT button to transmit the displayed ID number.
   If the radio you are paging cannot be reached, you hear only one beep.
2. Press the PTT button to try again, or press HOME to hang up.
   If the radio you called has received your page, you will hear five beeps. The radio returns to the home display.

Answering a Private (and Enhanced Private) Conversation Call

When a private call is received, the display alternately shows CALL RECEIVED and the current mode name. The the ♪ annunciator and the green LED flash. You hear two alert tones.

1. Press ► until the display shows the CALL softkey, or press the preprogrammed call response button.
2. Press the call response button again, or press the • button below CALL.
   The display shows the last ID number transmitted or received. In the case of private call, the display shows RECEIVED ID, or the ID number (Private Conversation II).
3. Press the PTT button to answer the call.
   If you hear a busy tone, the system is busy.
4. Press HOME, • below CALL, or the preprogrammed call response button to hang up.
   The radio saves the caller's ID number and returns to the home display.

Answering a Call Alert Page

When a call alert page is received, the display alternately shows PAGE RECEIVED and the current mode name. The the ♪ annunciator and the green LED flash. You hear a four-beep tone.

1. Press the PTT button to answer the page.
   The display shows the current mode. The LED, alert tone, and ♪ turn off. The ID is saved as the last ID number received.
2. Press the PTT button to talk, release to listen.
   Everyone who belongs to the talkgroup will hear your transmission.

   OR

   If you want to respond to the page with a Private Call:

   a. Press ► or the preprogrammed call or call response button until the display shows CALL.
   b. Press • below CALL.
      The display shows the ID of the paging radio.
3. Proceed to step 1 of "Send a Private Conversation Call."

Automatic Multiple Site Selection (AMSS)

Viewing the Current Site and Forcing a Site Change

1. Press the search button momentarily.
   The display shows the number of the site if the radio is locked (or SCANNING SITE if the radio is scanning).
2. Press and hold down the search button while the radio scans for a new site.
   The radio returns to the home display.

Locking and Unlocking a Site

1. Press ► until the display shows SITE.
2. Press • below SITE. The display shows the current lock state, and the LOCK and UNLK softkeys.
3. Press • button LOCK or UNLK. The radio saves the new setting and returns to the home display.

ALERT TONES

Type of Tone	*Indication*	*Action*
Short, low-pitched tone	Unsuccessful power-up. Radio failed self-test. Radio not ready for use.	Contact your service representative.
	Invalid (bad) key press. A key press was rejected.	
	Time-out timer warning. Transmission time will expire in four seconds.	
Short, medium-pitched tone	Valid (good) key press. A key press was accepted.	
	Pressed emergency button to enter emergency. Emergency entered.	
Short, high-pitched tone	Successful power-up. Radio passed self-test.	
Continuous, low-pitched tone	Transmit on receive-only mode. Pressed PTT button on receive-only mode.	Release PTT button.
	Transmit inhibit on busy mode. Pressed PTT button while mode was busy.	
	Invalid mode. An invalid or unprogrammed operation.	
	Time-out timer timed out. Transmission was terminated.	Release PTT button.

ALERT TONES (Continued)

Type of Tone	*Indication*	*Action*
Continuous, medium-pitched tone	Emergency alarm/call exit. Exiting.	
Faint beeping tone every 10 seconds	Failsoft (trunked systems only).	
"Bah-bah-bah-bah"	Phone busy. All modes busy. Radio is in queue.	Waiting for next available line.
	Trunked system busy (trunked systems only). Radio is in queue.	Waiting for next available mode.
Single, medium-pitched tones followed by group of four medium-pitched tones	Your page has been received by the target radio.	
Group of two medium-pitched tones	Private Conversation call or conventional selective call received.	
Group of three medium-pitched (di-di-dit) tones	Call back (trunked systems only). A talkgroup is now available.	Okay to transmit in that talkgroup.
Group of four medium-pitched tones every five seconds	Call Alert (page) received.	

ALERT TONES (SECURE-EQUIPPED RADIOS ONLY)

Type of Tone	*Indication*	*Action*
One beep immediately after PTT button press	Indicates clear transmission on secure-equipped radio.	
Six medium-pitched tones	Keyfail. Encryption key lost or erased.	Reload key.
Six medium-pitched tones (continuous)	Keyfail. Radio set in secure position. PTT is being pressed.	Set radio to "clear," or select a clear mode, or reload key.
Six medium-pitched tones on radio power-up	Encrypted operation problem. Radio is set to either clear or secure.	Reload key.
Six medium-pitched tones every five to ten seconds	Encrypted operation problem. PTT button not being pressed.	Set radio to "clear," or select a clear mode, or reload key.
Consecutive, medium-pitched tones	Loss of encryption key during secure operation.	Reload key.

ASTRO® XTL™ 5000 Digital Mobile Radio with W3 Control Head User's Guide

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Product Safety and RF Exposure Compliance

Caution

Before using this product, read the operating instructions for safe usage contained in the Product Safety and RF Exposure booklet enclosed with your radio.

ATTENTION!

This radio is restricted to occupational use only to satisfy FCC RF energy exposure requirements. Before using this product, read the RF energy awareness information and operating instructions in the Product Safety and RF Exposure booklet enclosed with your radio (Motorola Publication part number 68P81095C99) to ensure compliance with RF energy exposure limits.

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Notations Used in This Manual

Throughout the text in this publication, you will notice the use of WARNINGS, CAUTIONS, and Notes. These notations are used to emphasize that safety hazards exist, and care that must be taken or observed.

WARNING WARNING: An operational procedure, practice, or other condition, which might result in injury or death if not carefully observed.

CAUTION CAUTION: An operational procedure, practice, or other condition, which might result in damage to the equipment if not carefully observed.

Note: Note: An operational procedure, practice, or other condition, which is essential to emphasize.

The following special notations identify certain items:

Example	*Description*
Light button or ►	Buttons and keys are shown in bold print or as a key symbol.
	The special display font is used to show information in the display.
PHONE	Menu items (softkeys) are similar to the way they appear on the radio's display.

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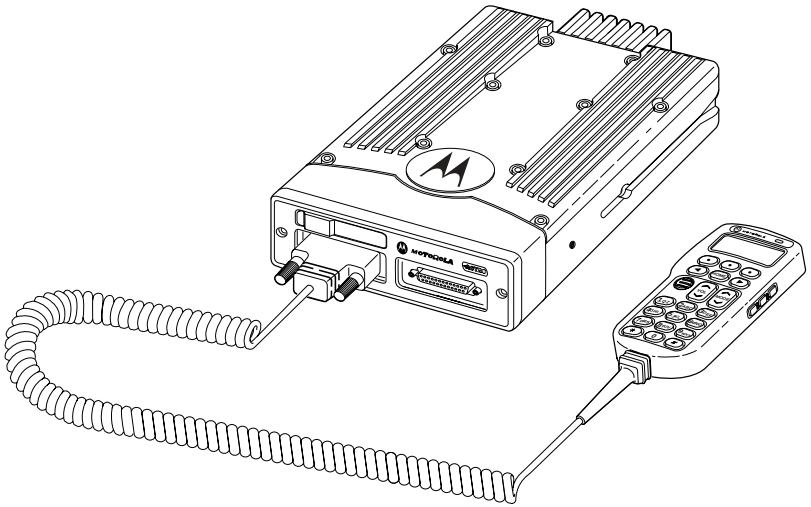
Notes

Getting to Know Your Radio

Motorola XTL 5000 Digital Mobile Radios are sophisticated, state-of-the-art, communication units, pioneering the latest technology in radio electronics. Intelligent and flexible software increases the radio's capability, and permits many of the radio's features to be customized for your specific needs.



The XTL 5000 Digital Mobile Radio can operate in the following frequency ranges:

VHF	***UHF***	***700/800 MHz***
136-174 MHz	380-470 MHz	764-776 MHz
	450-520 MHz	794-806 MHz
		806-825 MHz
		851-870 MHz

Major Radio Components

Your radio has two major components: the radio unit installed in your vehicle and the control head that is used to activate various radio features. You may also have radio accessories installed based on the specific configuration of your radio.

This user guide describes how to use your radio and its control head. The foldout page inside the back cover of this guide contains an illustration of the W3 control head showing all the controls and programmable buttons situated on the control head. Keep this foldout open as a reference as you review the procedures in this user guide.

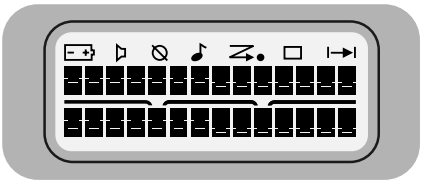
The XTL 5000 Radio

The XTL 5000 radio unit contains a receiver, a transmitter, and associated internal circuitry. The radio is programmed by your system manager to meet your specific needs and/or those of your workgroup.

The W3 Control Head

The W3 control head that came with your XTL 5000 radio has the following features (refer to the foldout at the back of this user guide):

- **On/Off Button (T1)**: Used to turn the radio on or off (see page 4).
- **Two-line, 14-character-per-line, liquid-crystal display (LCD)**: Shows alphanumeric messages or feature information as you use your radio. Also displays status annunciators above the character lines, indicating the status of certain radio functions (see page 7).



- **Full Keypad**: Features 20 keys and used to enter menus, scroll through a list of displayed options, and enter data.

The first row contains three dedicated menu-select buttons (see page 6).

The second row contains the left scroll key ◄, the **HOME** key HOME, and the right scroll key ►.

The third row has two rocker switches: the **VOL** rocker button (VOL) which is used to adjust the volume level up or down, and the **MODE** rocker button (MODE) which is used to scroll up or down through the list of available modes.

A set of standard 3 x 4 telephone keys complete the keypad.

- **PTT button:** Pressed to transmit on the displayed mode and released to receive.
- **LED indicator:** Green/red light-emitting diode that indicates radio status as you operate various features (see page 9).
- **Programmable buttons:** Five buttons that can be custom-programmed by your system manager. These are:

  Orange Programmable Button (T2)
  Programmed at the factory to activate the Emergency feature.

  Programmable Button (T3)

  Programmable Side Button 1 (S1)

  Programmable Side Button 2 (S2)

  Programmable Side Button 3 (S3)

  Check with your system manager for information on how these buttons have been programmed. Use the foldout at the back of this manual to record the functions that have been programmed to each button.

Using Your Radio: The Basics

This subsection gives you the basic knowledge you need in order to use your radio. The following topics are covered:

- Turning your radio on or off (page 4)
- Adjusting the volume (page 5)
- Turning the display/keypad light on or off (page 5)
- Browsing through menu options or softkeys (page 5)
- Entering softkey menus (page 6)
- Returning to the Home display (page 7)
- Interpreting various radio indicators (page 7)
- Entering characters using the keypad (page 13)

Turning Your Radio On or Off

To turn your radio on or off:

Press the top left button on the control head (**T1**).

The display shows `XTL 5000`. You hear a high-pitched tone indicating the radio has passed a self-check.

If the display shows `ERROR XX/XX` (where `XX/XX` is an alphanumeric code) and you hear a low-pitched tone, the radio has failed the self-test.

Do the following:

1 Press the top left button (**T1)** to turn the radio off.

2 Make sure the power source is not malfunctioning.

3 Press **T1** to turn the radio on again.

If the radio fails the self-test again, contact your system manager.

Adjusting the Volume

To adjust the volume to a comfortable level:

Press the Volume rocker button ( ) up or down until the desired volume level is reached.

Turning the Display/Keypad Light On or Off

The display light is useful when you need to read the information on the display and locate keys on the keypad in less than optimal lighting conditions (for example, during night time).

To toggle the display and keypad light on or off:

Press the preprogrammed light button. (The default is Side Button 1.)

The Control Head ships from the factory with the backlighting set to ON.

Browsing through Menus (Softkeys)

Softkeys are menu items that appear on the bottom row of the control head's display. These menu items are software-activated and enable you to access many of the radio's features without having to activate dedicated mechanical controls. Each menu item has a four-digit alpha label (for example, MUTE and VIEW).

To browse through available softkey options and lists:

Press the ◄ and ► scroll key as appropriate.

If you scroll continuously in one direction, the display will wrap around to the beginning of the list. To scroll faster, hold down the desired scroll key.

Entering Softkey Menus

To access a menu item:

Press the menu-select button (•) immediately below the softkey you wish to access.

Returning to the HOME Display

In most cases, the home display is your radio's *dispatch* state, that is, the default channel and zone that your radio operates on. To return to the Home display at any time:

Press the (HOME) key *for at least one second*.

Note: The default channel and zone are programmed by your system manager.

Interpreting Radio Status Indicators

Your radio has three types of status indicators:

- Status annunciators that appear on the display
- LED indicators
- Alert tones

Status Annunciators

These are small symbols that appear on the display above the channel name indicating status as you operate various radio features.

Annunciator	*Indicates...*
	Carrier Squelch (Conventional mode only) All active traffic on the selected channel in being monitored during conventional operation. When not displayed, traffic is not open to monitoring.
	Secure Operation only When lit solid, radio is transmitting in secure mode. When flashing, radio is receiving in secure mode. When off, radio is operating in clear mode.
	Call Received Flashes when a Private Call, Phone Call or page is received.

Annunciator	*Indicates...*
	Scan The radio is scanning a preprogrammed list of channels/ modes for activity.
(Flashing Dot)	**Priority 1 Channel Scan** The channel assigned as the Priority 1 channel is being scanned for activity.
(Steady Dot)	**Priority 2 Channel Scan** The channel assigned as the Priority 2 channel is being scanned for activity.
	View/Programming Mode When solid, radio is in list view mode. When flashing, radio is in list programming mode.
	Direct/Talkaround (Conventional operation only) When on, indicates you are talking directly to another radio. When off, you are talking through a repeater.

LED Indications

The LED indicator on the front of the W3 control head indicates operational status as you use various features:

LED State	*Indicates...*
Continuous red when you press PTT button to transmit	Normal transmission
Unlit when you press PTT button to transmit	Not transmitting
Single red blink when you release PTT button to receive	Mode busy (conventional clear)
Two red blinks when you release PTT button to receive	Mode busy (conventional encrypted)
Blinking green when you release PTT button to receive	Receipt of phone call, Private Conversation call, dispatcher interrupt call, conventional selective call, or Call Alert page

Alert Tones

Your radio uses alert tones to inform you of radio conditions.

Type of Tone	*Indicates...*	*Action*
Short, low-pitched tone	Unsuccessful power-up. Radio failed self-test. Radio not ready for use.	Contact your service representative.
	Invalid (bad) key press. A key press was rejected.	
	Time-out timer warning. Transmission time will expire in four seconds.	

Type of Tone	*Indicates...*	*Action*
Short, medium-pitched tone	Valid (good) key press. A key press was accepted.	
	Pressed emergency button to enter emergency. Emergency entered.	
Short, high-pitched tone	Successful power-up. Radio passed self-test.	
Continuous, low-pitched tone	Transmit on receive-only mode. Pressed PTT button on receive-only mode.	Release PTT button.
	Transmit inhibit on busy mode. Pressed PTT button while mode is busy.	
	Invalid mode. An invalid or unprogrammed operation.	
	Time-out timer timed out. Transmission terminated.	Release PTT button.
Continuous, medium-pitched tone	Emergency alarm/call exit. Exiting.	
Faint beeping tone every ten seconds (trunked systems only)	Failsoft.	
“Bah-bah-bah-bah” (trunked systems only)	Trunked system busy. Radio is in queue.	Waiting for next available mode.
Single, medium-pitched tones followed by group of four medium-pitched tones	Your page has been received by the target radio.	

Type of Tone	*Indicates...*	*Action*
Group of two medium-pitched tones	Private Conversation call received.	
Group of three medium-pitched (di-di-dit) tones (trunked systems only)	Call back. A talkgroup is now available.	Okay to transmit in that talkgroup.
Group of four medium-pitched tones every five seconds	Call Alert (page) received by your radio.	
Short, medium-pitched tone (trunking only)	Echo received in response to emergency alarms.	
Four short, medium-pitched tones	Emergency alarm acknowledged.	
Continuous, low-pitched tone	No Emergency. Current trunking personality or conventional system does not have emergency enabled. No emergency tone.	
Group of two high-pitched tones	Fast ring in Private call. System is searching for target radio.	

Alert Tones (Secure-Equipped Radios Only)

Your secure-equipped radio uses alert tones to let you know the condition of security features.

Type of Tone	*Indication*	*Action*
One beep immediately after PTT button press	Indicates clear transmission on secure-equipped radio.	
Six medium-pitched tones	Keyfail. Encryption key lost or erased.	Reload key.
Six medium-pitched tones (continuous)	Keyfail. Radio set in secure position. PTT is being pressed.	Set radio to clear, or select a clear mode, or reload key.
Six medium-pitched tones on radio power-up	Encrypted operation problem. Radio is set to either clear or secure.	Reload key.
Six medium-pitched tones every five to ten seconds	Encrypted operation problem. PTT button not being pressed.	Set radio to clear, or select a clear mode, or reload key.
Consecutive, medium-pitched tones	Loss of encryption key during secure operation.	Reload key.

Entering Characters Using the Keypad

Your XTL 5000 radio accepts input through the keypad in the form of numeric or alphanumeric strings. You may use manual keypad entry to select a status or a mode, to program a list, or to dial a phone number.

For instance, when you access the Status function using the STS softkey, the display shows the last successfully acknowledged status first. If you would like to send a different status message, you can scroll to the entry or, in the case of long lists, use the keypad to enter a number corresponding to its numeric location in the list. If you wish to access the twelfth status entry in the list, for example, you can press **1** and then **2**, and press the PTT button to transmit that status.

This concludes an introduction on operating your XTL 5000 radio. You can now begin familiarizing yourself with using your radio to perform basic procedures such as transmitting and receiving. These are covered in the following chapter.

Notes

Basic Radio Operation

This section describes how to perform the following basic radio procedures:

- Monitoring conventional modes (page 16)
- Selecting a zone and mode (page 17)
- Receiving on conventional modes (page 18)
- Changing the squelch setting (page 19)
- Receiving on trunked systems (page 20)
- Transmitting on conventional modes (page 21)
- Transmitting on trunked systems (page 22)

Use the foldout at the back of this user guide as a reference when you review these procedures.

The section also has information on the following feature:

- Time-Out Timer or TOT (page 23)

Monitoring Conventional Modes

To monitor conventional modes, do the following:

Take the microphone off the radio's hook.
OR
Press the preprogrammed Monitor button (**S1**, **S2**, **S3**, **T2**, or **T3** as appropriate.)

The display shows MONITOR ON indicating that the squelch circuit has been opened, allowing you to monitor all of the traffic on the channel.

To cancel monitoring:

Place the microphone on the radio's hook.
OR
Press the preprogrammed Monitor button (**S1**, **S2**, **S3**, **T2**, or **T3** as appropriate.)

The display shows MONITOR OFF.

Selecting a Zone and Mode (Channel)

A *channel* is a group of radio characteristics such as transmit/receive frequency pairs stored in your radio. A *zone* is a grouping of channels. A *mode* is a combination of zones and channels. Your radio is programmed by your system manager to have channels and zones that you need to perform your day-to-day operations.

When your radio powers up, it defaults to the home mode and zone, the zone that you transmit and receive on. At times, you may need to select a different zone or channel to transmit or receive on, as follows:

1 Press the ► button to scroll to the ZONE softkey.

2 Press the • button below ZONE.

The display shows the current zone and mode.

3 Press ► or ◄ until the desired zone is displayed.

OR

If you know the zone number, enter it using the keypad.

4 Press the HOME or **PTT** button to save the displayed zone as the new home (default) zone.

The zone name stops flashing once it is saved.

5 Press the **PTT** button to begin transmitting on the displayed zone.

6 To select a particular mode within a zone, press the MODE button until the desired mode is displayed.

Receiving on a Conventional Mode

Follow these steps to receive on a conventional mode:

1. Select a desired zone and mode (see page 17).
2. When you hear a transmission, use the rocker switch to adjust the volume to a comfortable listening level if necessary.

   Your radio is now set to receive on the selected mode.

Note: If the mode is busy when you radio is receiving a clear signal, the red LED blinks once.

If the mode is busy when your radio is receiving an encrypted signal, the red LED blinks twice.

Changing the Squelch Setting

Your radio's ability to transmit and receive signals varies as you move away from or close to your base station. You can adjust your radio's squelch to improve its ability to receive transmissions.

Follow these steps to change the squelch setting:

1. Press and hold the preprogrammed Monitor button (**S1**, **S2**, **S3**, **T2**, or **T3** as appropriate).
2. Press the ◄ or ► button to scroll to the desired squelch setting.
3. Press the HOME button.

Receive on Trunked Systems

Follow these steps to receive while operating on a trunked system:

1 Select a desired zone and mode (see page 17).

2 When you hear a transmission, use the rocker switch to adjust the volume to a comfortable listening level if necessary.

Your radio is now set to receive on the selected mode.

Transmitting on Conventional Modes

Follow these steps to transmit on a conventional mode:

1. Select a desired zone and mode (see page 17).

   When you hear a transmission, use the rocker switch to adjust the volume to a comfortable listening level if necessary.

2. When a mode becomes available, press and hold the **PTT** button to transmit. Speak clearly into the microphone.

   The red LED lights steadily when the radio is transmitting.

3. Release the **PTT** button to receive.

Note: If you try to transmit on a receive-only mode, you will hear a continuous low-pitched (“invalid mode”) tone.

Transmitting on Trunked Systems

Follow these steps to transmit on a trunked system:

1 Select a desired zone and mode (see page 17).

Note: If no secure voice modes are available for a transmission, the display shows NO SECURE. You must switch to a clear mode or wait until a secure voice channel is available before you can transmit.

When you hear a transmission, use the rocker switch to adjust the volume to a comfortable listening level if necessary.

2 Press and hold the **PTT** button to transmit.
Speak clearly into the microphone.
The red LED lights steadily when the radio is transmitting.

3 Release the **PTT** button to receive.

Notes: If you hear a busy (“bah-bah-bah-bah”) signal, release the **PTT** button. You hear a “di-di-dit” (“call-back”) tone. You have three seconds to transmit before you hear another busy signal.

If transmission is not possible for some reason, you hear a continuous, low-pitched (“talk prohibit”) tone. Your radio may be out of range.

Time-out Timer

This feature limits the amount of time you can continuously transmit. Your system manager can program the timer for up to 465 seconds at 15-second intervals. XTL 5000 radios are programmed at the factory to time-out after 60 seconds.

Notes: You hear a low-pitched alert tone four seconds before your transmission to about to expire.

If you hold down the **PTT** button longer than the programmed time, you hear a continuous, low-pitched tone. This tone ceases to sound when you release the **PTT** button.

Notes

Common Radio Features

This section contains information and procedures associated with various features that may have been enabled in your radio by your system manager.

The following information is covered in this section:

- Conventional squelch options(page 29)
- Types of Scan (page 35)
- PTT-ID (page 42)

The following procedures are covered in this section:

- Sending a status call (trunking systems only) (page 26)
- Selecting the transmit power level (page 28)
- Sending an emergency alarm (page 30)
- Sending a silent emergency alarm (page 31)
- Sending an emergency call (page 32)
- Muting and unmuting keypad tones (page 34)
- Turning scanning on or off (page 37)
- Viewing a Scan List (page 38)
- Programming a Scan List (page 39)
- Deleting nuisance modes from the scan list (page 41)
- Viewing a Page, Call, or Phone List (page 43)
- Telephone Operation (page 44)
- Call Alert (page 49)
- Programming a Page, Call, or Phone List Number (page 57)
- Programming a Page, Call, or Phone List Name (page 60)
- Optional External Alarms (Horn and/or Lights) (page 63)

Sending a Status Call (Trunking Only)

A Status Call is a text message sent to the dispatcher informing him or her of your situation. It does not involve a voice transmission. The status call feature is available on both conventional and trunked systems. For example, a status call might indicate to the dispatcher that you are ENROUTE or AT SITE.

Status names are field-programmable. In trunking modes, each radio can have up to eight separate statuses.

Follow these steps to send a status call to your dispatcher:

1 Press the ◄ or ► button to scroll to STS.

OR

Press the preprogrammed Status button (**S1**, **S2**, **S3**, **T2**, or **T3** as appropriate) and proceed to step 4.

2 Press the • button below STS.

The display shows the last acknowledged status entry or the first status entry in the list.

3 Press the ◄ or ► button to scroll through the available status choices.

Stop scrolling when you reach the desired status (for example, STATUS 3).

4 Press the **PTT** button to transmit the selected status. The display shows PLEASE WAIT.

The dispatcher transmits an acknowledgment upon receipt of the status. Four tones sound and ACK RECEIVED is displayed by your radio upon receipt. The radio then returns to normal dispatch operation.

• 4 tones

In a trunking system, if the status is not acknowledged after approximately six seconds, the display alternately shows NO ACKNOWLEDGE and the associated status name. You also hear a continuous low-pitched (“talk prohibit”) tone until you release the **PTT** button.

• Talk-prohibit tone

5 If you do not receive an acknowledgment:

Press the HOME button to exit status and return to normal dispatch operation.

OR

Press the **PTT** button to transmit the status again.

Note: If you enter the status menu without taking any action for six seconds, you will hear an alert tone warning you that status menus are active. You can still receive voice transmissions during this time. Press the **PTT** button to transmit the status, or press the HOME button to exit the status menu.

Selecting Transmit Power Level

You may need to change the transmit power level on your XTL 5000 radio based on operating conditions.

1 Press the ◄ or ► buttons to scroll to the PWR softkey.

2 Press the • button below PWR.

The display shows HIGH POWER or LOW POWER along with the LOW and HIGH softkeys.

3 Press the • button under LOW or HIGH as appropriate.

The radio automatically returns to the home display.

Note: Press HOME or the **PTT** button to discard your change and exit the menu. The radio automatically returns to the home display.

Note: When you power on your radio, it automatically defaults to a HIGH POWER transmit state even if you had selected LOW POWER before you turned the radio off.

Conventional Squelch Options

The term “squelch” is used to describe the muting of audio circuits when signal levels received by a radio fall below a pre-determined threshold. With carrier squelch, you hear all channel activity that exceeds the radio’s preset squelch level. This squelch level is programmed by your system manager.

Analog Squelch Options

Tone Private-Line (PL), Digital Private-Line (DPL), and network ID are coded squelch modes; carrier squelch is not. Your system manager can program each mode with one of these squelch options as appropriate.

During carrier squelch operation, all traffic on the channel is heard. During PL or DPL operation, your radio responds to only those messages intended specifically for you.

Digital Squelch Options

Each conventional personality can be programmed for one of the following squelch options in digital mode:

- **Digital Carrier-Operated Squelch (COS)** — This option allows you to hear all digital traffic.
- **Normal Squelch** — This option allows you to hear any digital traffic that has the correct network access code.
- **Selective Squelch** — This option allows you to hear any digital traffic that has the correct network access code and the correct talkgroup.

Sending an Emergency Alarm

This feature is useful when you want to alert the dispatcher of an emergency condition. The dispatcher receives your radio ID in addition to the emergency message. An emergency call gives your radio priority over any other traffic on the channel.

Follow the steps below to send an emergency alarm:

Press the orange top button (**T2**).

The display alternately shows EMERGENCY and the name of the current zone and mode. You hear a short, medium-pitched (“emergency”) tone.

• Short tone

When the dispatcher acknowledges the emergency, you hear four short, medium-pitched tones and the display shows ACK RECEIVED. The radio automatically exits emergency mode and returns to the home display.

Note: If you do not receive an acknowledgment for the emergency alarm, the radio automatically re-transmits the emergency alarm. The number of repetitions is preprogrammed by your system manager.

Sending a Silent Emergency Alarm

Your radio may have been programmed for silent emergency based on your needs or the needs of your workgroup.

To activate silent emergency:

1. Press the orange top button (**T2**).

   Your radio sends an emergency signal to the dispatcher, but shows no external indications that the emergency alarm is in progress. The audio is muted.

2. To exit the emergency mode, press and hold the orange top button for more than 1-1/2 seconds.

   You hear a medium-pitched exit tone which confirms that the radio has exited successfully. The radio returns to the home display.

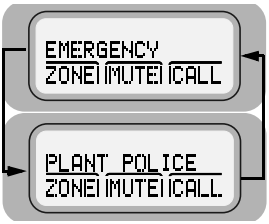
Sending an Emergency Call

These steps explain the sending of a trunked *emergency alarm with call*. When sending a trunked emergency call only (not available for conventional emergency), an emergency alarm is not automatically sent to the dispatcher.

1 Press the orange top button (**T2**).

EMERGENCY and the zone and mode are alternately displayed, and a short, medium-pitched emergency tone sounds.

The emergency alarm is automatically sent to the dispatcher.



• Short tone

2 Press the **PTT** button and announce your emergency.

The emergency alarm ends and the radio enters the emergency call mode. The radio operates in the normal *dispatch manner* while in emergency call operation.

3 To exit the emergency call mode, press the orange emergency button (**T2**) for more than 1-1/2 seconds (programmable).

A medium-pitched exit tone sounds until you release **T2**. The radio returns to normal operation.

Notes: The operating mode for your emergency call assumes one of two possible programmed operations:

- For non-revert operation, you will talk on the mode you selected before the emergency call.
- For revert operation, you will talk on a programmed emergency mode.

If you change operating modes while in emergency call operation, the emergency call is moved to, and continues on, the new mode.

Important: Exit the emergency call mode when you have finished.

Muting and Unmuting the Keypad Tones

The tones you hear when you press a key can be muted with this feature.

1 Press the ◄ or ► button to scroll to MUTE.

2 Press the • button below MUTE.

The display shows TONES ON or TONES OFF, and the ON and OFF softkeys.

3 Press the • button below ON or OFF.

Your selection is saved, and the radio returns to the home display.

Notes: Press the HOME or **PTT** button to exit the menu without saving the change.

Note: The radio retains this setting even if it is turned off.

Types of Scan

Your XTL 5000 radio can monitor traffic on many different channels by scanning a list containing as many as 15 conventional or trunked modes. Up to 32 different scan lists are available per radio. Setting the modes to be scanned is programmed in advance by a qualified radio technician.

Types of Scan Lists

List Type	***Description***
Trunking Priority Scan	All modes in the list are from the same trunking system.
Conventional	Only conventional modes are in the list.
Talkgroup Scan	Conventional and Trunking modes from one trunking system are in the list. Priority scan operation is not available.

Types of Scanning

Type	***Description***
Priority-One	One member of the scan list is chosen as the priority-one member. You hear all of the traffic on the priority-one channel, even if the non-priority channels in the scan list have traffic on them.
Priority-Two **AND** Non-Priority	In addition to the priority-one channel, a second channel can be assigned as a priority-two channel. The remaining members in the scan list can be programmed as non-priority members of the scan list.

Types of Scanning

Type	*Description*
Automatic (autoscan)	When selected, a channel with autoscan automatically begins scanning its associated scan list. The radio continues auto scanning until you select a channel without autoscan enabled.
Operator-Selectable	Scan can be programmed, by a qualified radio technician, to be selected either from a menu or by a preprogrammed **Scan** button.

Turning Scan On or Off

1 Press the ◄ or ► buttons to scroll to SCAN.

OR

Press the preprogrammed **Scan** button (**S1**, **S2**, **S3**, **T2**, or **T3** as appropriate). Press the **Scan** button again to exit scan.

2 Press • below SCAN.
The display shows SCAN ON or SCAN OFF, and the ON and OFF softkeys.

3 Press the • button below ON or OFF.

- If you selected ON, the radio starts scanning and the display shows .

OR

- If you selected OFF, the radio stops scanning.

The radio returns to the home display.

Note: Press the HOME button to exit the menu without changing the selection.

Viewing a Scan List

This feature enables you to view the scan list programmed into your radio.

Note: The call, page, and phone lists are handled separately in “Viewing a Page, Call, or Phone List” on page 43.

To view the scan list:

1 Press the ◄ or ► buttons to scroll to the VIEW softkey.

2 Press the • button below VIEW.

3 Press the ◄ or ► buttons to scroll to the SCAN softkey.

4 Press the • button below SCAN.

The display shows the first entry in the scan list and the (the scan status annunciator). It also shows the viewing-mode annunciator (a solid ▭) until you exit list view mode.

5 Press the ► button to advance to the next entry in the list.

OR

To directly access an entry, use the keypad to enter its numerical position in the list (any programmed location from 1 to 15).

Notes: When the last entry is displayed, you can press the ► button to scroll to the first list entry.

6 Press HOME to exit the list and return to the home display.

Programming a Scan List

This feature lets you change the channels that are included in the current scan list and their priorities.

1 Press ◄ or ► to scroll to PROG.

2 Press the • button below PROG.

3 Press the ◄ or ► buttons to find SCAN.

4 Press the • button below SCAN to access the scan list.

The display shows the SEL, DEL, and RCL sofkeys. It also shows a flashing ☐ (the programming-mode annunciator) until you exit list programming mode.

5 Press the ◄ to ► buttons to scroll through the available zones.

6 Press the **MODE** rocker switch to scroll through the different modes (channels) of a zone.

OR

To directly access that channel of the current zones, use the keypad to enter a channel's numeric location in the list.

Note: If the channel is a member of the scan list, the display shows ⇄ (the scan status annunciator).

7 Press the • button below SEL to add or remove a channel from the scan list or to change a scan list member's priority. (The **S1**, or *Select*, button also serves the same function.)

Each press of SEL changes the member's priority (Non-Pri, Pri1, Pri2, and off) and is indicated by the scan status annunciators:

= channel is in the scan list as non-priority

= channel is in the scan list as the priority 2 channel

(dot flashing) = channel is in the scan list as the priority 1 channel.

off = remove from the scan list.

Press DEL to delete a mode from the list. (Unlike pressing SEL, pressing DEL removes the selection using a single press rather than toggling through different scan states.)

If the scan list is pre-programmed so that a deletion is not allowed, this function is blocked.

OR

Press RCL repeatedly to view the entire contents of the scan list.

8 Press (HOME) to save all changes, exit the programming mode and return to the home display.

Deleting Nuisance Modes

During scanning, you can temporarily delete modes you do not want to hear. This feature must be preprogrammed by your system manager.

Follow these steps to delete a nuisance mode:

1. When the radio is locked onto the mode you want to delete, Press the preprogrammed *Nuisance Delete* button.

   OR

   Press the ◄ or ► buttons to use the NUIS softkey to delete the mode.

   A valid key-press chirp tone sounds. The mode is deleted and the radio continues to scan the remaining modes.

Note: You cannot delete priority modes and the designated transmit channel.

2. To resume scanning the deleted mode, turn scan off and then back on again.

PTT-ID (Optional)

This stands for Push-to-Talk ID. This feature is programmed as needed for each channel by your system manager.

If this feature is made available for your talkgroup, it allows you to see the ID number of the radio from which you are receiving a transmission. This ID could be up to eight characters in length and is shown on your display as well as on your dispatcher’s display.

In addition, your radio ID number is automatically sent when you transmit. For digital voice transmissions, your radio ID is sent continuously during the voice transmission.

Viewing a Page, Call, or Phone List

This feature enables you to view the page, call, and phone lists programmed into your radio by your system manager. Page and Call use the same list.

Note: For Scan, see “Viewing a Scan List” on page 38.

To view your page, call or phone list:

1 Press the ◄ or ► buttons to scroll to the VIEW softkey.

2 Press the • button below VIEW.

3 Press the ◄ or ► buttons to scroll through the available list types.

4 Press the • button below the appropriate list type: the PHON, CALL or PAGE softkey.
The display shows the first entry in the list with the name on the upper line and a phone or ID number on the lower line. It also shows a solid ▭ (the viewing-mode annunciator) until you exit list view mode.

5 Press the ► button to advance to the next member of the list.

OR

To directly access an entry, use the keypad to enter its numerical position in the list (any programmed location from 1 to 100).

Note: When the last entry in the list is displayed, you can press the ► button to scroll to the first list entry.

6 To exit the list and return to the home display, press the HOME button.

Telephone Operation (Conventional and Trunking)

You can use your radio in a manner similar to a standard telephone.

Answer a Telephone Call

When your radio receives a telephone call:

- Telephone-like ringing sounds.
- PHONE CALL and the present mode are alternately displayed.
- The Call-Received status annunciator (♪) flashes in the display.

Note: Incoming phone numbers are not stored in the phone list.

1. Press the programmed Phone or Call-Response button.

   Note: The Call-Received status annunciator is no longer displayed.

2. Press the **PTT** button to talk; release the **PTT** button to listen.
3. Press HOME or the Phone button to hang up. The radio returns to the home display.

Selecting a Phone Number to Call

You can select a phone number to call either from the keypad or from a phone list.

Enter a Number on the Keypad

1 Press ► to scroll to PHON.

Note: If your radio has a programmed Phone button, press it to skip directly to step 3.

2 Press the • button below PHON.

The display shows the last transmitted phone number. If this is the correct phone number, go to step 4.

3 Press the numeric keys.

Note: Some phone networks require a pause in the phone dialing sequence. To place a pause in a 34-digit phone number, press * first and then # (P for pause is displayed).

4 Press the **PTT** button to dial the phone number.

The phone number called remains on the display.

If the system does not acknowledge the call, your radio displays NO ACKNOWLEDGE.

Enter the Number from a Phone List

Note: See “Viewing a Page, Call, or Phone List” on page 43.

1 Press ► to scroll to PHON.

Note: If your radio has a programmed phone button, press it to skip directly to step 4.

2 Press the • button below the PHON softkey.

The display shows the last transmitted phone number. If this is the correct phone number, go to step 4.

3 Press the ◄ or ► buttons to scroll to the desired phone number.

The member’s name and the phone number are alternately displayed when you stop on a member of the list.

4 Press the **PTT** button to dial the phone number.

The phone number called remains on the display.

If the system does not acknowledge the call, the display shows NO ACKNOWLEDGE.

Initiating a Telephone Call

The display shows the desired telephone number.

Press the **PTT** button to initiate the phone call to the number on the display.

The phone number being called remains on the display.

If the system does not acknowledge the call, your radio displays NO ACKNOWLEDGE.

Notes:

- If the phone system is malfunctioning or not currently available, the display shows NO PHONE, and you hear a continuous tone when you press the **PTT** button.
- If the phone system is busy, and not available at all, then the display will show PHONE BUSY. If you hear a continuous tone, the system phone connection is busy. You should exit phone mode and try again.
- If the display shows PHONE BUSY and you hear a busy tone, then there is no channel available, and the radio will automatically connect when the channel is ready.
- After reaching the number you are calling, you might need to dial an extension number before you can reach your party. You also have the option of sending in additional digits (overdial) to the telephone system (for example, credit card numbers and PINs).
  - If your radio is programmed for *live overdial*, every digit pressed after the phone call has been established is sent into the telephone system.
  - If your radio is programmed for *buffered overdial*, the digits pressed are queued into the radio's memory, and they are all sent in together upon the next PTT button press. You cannot send in digits and talk on the same PTT button press. If you press the PTT button to send the digits, you must release the PTT button and press it again if you wish to transmit your voice.

5 If the calling party answers, converse in the normal manner.

Press the **PTT** button to talk; release the **PTT** button to listen.

Note: Motorola trunked radios generate a high-pitched tone when the radio's PTT button is released. This is heard by the landline party and is an indicator to begin talking.

6 When you have finished your conversation, or if the display shows NO PHONE or NO ACKNOWLEDGE, hang up by pressing HOME or the phone button.

The radio returns to the home display.

Call Alert (Conventional and Trunking)

Call Alert Paging

With Call Alert, your radio can receive, respond to, and send pages (like a beeper), depending upon how it is programmed.

Page the Last ID Number Transmitted or Received

1 Press the (►) button to scroll to PAGE for Call Alert.

2 Press the (•) button below PAGE.

The display shows the last ID number transmitted or received.

3 Go to “Sending a Call Alert Page” on page 54 to send your page.

Entering Directly the ID Number to be Paged

You can use the keypad to directly enter the ID number of the person you want to page. Follow these steps to enter the ID directly:

1 For Call Alert, press the ► button to scroll to the PAGE softkey.

The display shows the last ID number transmitted or received.

2 Use the keypad to enter the new ID number.

Notes: If you enter more than, or less than, six digits and press the **PTT** button, you will hear a bad key-press tone.

Press the ◄ button to move the cursor to the left and erase the previous digit. When you have erased the last digit, press the ◄ button to display the last entry in the list. Press the ► button to display the first list entry.

Scrolling to an ID Number in the Page List

Note: See “Viewing a Page, Call, or Phone List” on page 43.

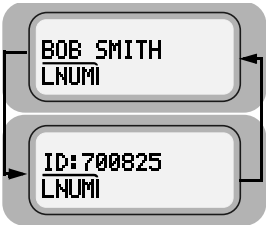
1 Press the (►) button to scroll to PAGE for Call Alert.

2 Press the (•) button below PAGE.

The display shows the last ID number transmitted or received.

3 Press the (►) or (◄) buttons to scroll through the list.

The member’s name and ID number are alternately displayed when you stop.



Note: The last member of the list equals the last ID number transmitted or received. This is the same as location **00** in the list.

4 Refer to “Sending a Call Alert Page” on page 54 to send your page.

Going Directly to an ID Number in the Page List

Note: See “Viewing a Page, Call, or Phone List” on page 43.

1 Press the ► button to scroll to PAGE for Call Alert.

2 Press the • button below PAGE.

The display shows the last ID number transmitted or received.

3 Press the ► or ◄ buttons to scroll through the list.

Note: The last member of the list equals the last ID number transmitted or received. This is the same as location **00** in the list.

4 Do one of the following:

- Press the numeric keys to enter the first digit of the location number.

  That position in the list is immediately displayed only if there are fewer than 10 members.The member’s name and ID number are alternately displayed.

- OR

- LOC#X_ (where X is a 0 or a 1 and it is the first digit entered) is displayed if there are 10 or more members.

  The cursor flashes to show the location of the second digit.

5 Press the numeric keys to enter the second digit of the location number.

The member’s name and ID number are alternately displayed.

Note: The display shows INVALID ENTRY if you enter a nonexisting number (for example, 24). The radio will revert back to step 4.

6 Refer to “Sending a Call Alert Page” on page 54 for sending a page.

Sending a Call Alert Page

Follow these steps to send a call alert page:

1. Press the **PTT** button.

   If you hear five tones, the system has received the ID number. The radio you called is on the air and has received your page. Your radio automatically returns to the home display.

   If you hear only one tone, the system has received the ID number, but the radio you are paging is not on the air. Proceed to the next step.

2. To try paging the number again, press the **PTT** button.

   OR

   To hang up, press the HOME button to hang up. The radio returns to the home display.

Note: If you hear a low-pitched alert tone and the display shows NO ACKNOWLEDGE, the radio you called did not acknowledged the Call Alert within six seconds. Try again or press the HOME button to exit.

Answering a Call Alert Page

If you hear a recurring four-beep tone, your radio is receiving a Call Alert page. The display alternately shows the current mode name and PAGE RECEIVED. The green LED and Call-Received status annunciator (♪) flash.

Note: The four-beep tone will continue until you answer the page or reset the radio.

To turn-off the Call Alert audible and visual indicators,:

Press any keypad key or control head button (except the preprogrammed light button or Vol rocker switch), or change the mode.

You can answer a Call Alert page using the **PTT** button or using Enhanced Private Call.

Answering a Page Using PTT Button

Press the **PTT** button.

The display shows the current mode. The audible alert, LED, and ♪ status annunciator turn off.

The radio stores the ID number of the paging radio as the last ID number received.

Note: Pressing the **PTT** button enables you to transmit and releasing it enables you to listen to a transmission. Everyone in the talkgroup will hear your voice when you transmit.

Answering a Page Using Enhanced Private Call

1 Press the programmed quick-response or call button.

OR

Press the (►) button until the display shows the CALL softkey.

Press the (•) button below CALL.

The display shows the ID number of the paging radio.

2 Press the **PTT** button.

The ID number is transmitted.

3 Pause for one second to allow the alert tone to sound on the receiving radio.

Release the **PTT** button to listen to the transmission.

Notes: The display shows NO ANSWER if the party does not answer within 20 seconds. An alert tone sounds and the telephone-like ringing will stop.

The display shows NO ACKNOWLEDGE if the called radio is not in service. No ringing will sound.

4 Press the **PTT** button to continue with your Private Conversation after you hear the other party's voice.

5 Press the (HOME) button to hang up. The radio returns to the home display.

Programming a Page, Call, or Phone List Number

This feature lets you change the ID numbers assigned to the call lists used by the trunked Private Conversation™ and Call Alert features, as well as the phone numbers used by the phone feature.

Notes: Programming the scan list is handled separately in “Programming a Scan List” on page 39.

Page and Call use the same list.

1 Press the ◄ or ► button to scroll to the PROG softkey.

2 Press the • button below PROG.

3 Press the ◄ or ► buttons to scroll through the available list types.

4 Press the • button below PHON, CALL or PAGE as appropriate to access the call list you want to edit.

The display shows the first member’s name above either the phone number or above the radio ID number. It also shows a flashing ▭ (the programming-mode annunciator) until you exit list programming mode.

5 Press the ◄ or ► buttons to view other list members.

OR

To directly access an entry, use the keypad to enter its numerical position in the list (any programmed location from 1 to 100).

6 Press **S1** (the *Number Selected* button in the programming mode) to enter number edit mode.

7 Erase the old number by pressing the ◄ button to delete each digit.

Note: If you accidentally erase all the numbers, press the ◄ or ► button to exit without making any changes. Start again at step 5. To return to the home display without making any changes, press the HOME button.

8 Press the numeric keys (**0** through **9**) to enter the new number.

The blinking cursor indicates the position of the next number to be added.

To enter a number at the blinking cursor, refer to the following table.

The following table shows what keys to press and how many times to press them to enter a character.

Key	Number of times the key is pressed								
	1	2	3	4	5	6	7	8	9
0	0	(	)	<	>				
1	1	&	%						
2	A	B	C	2	a	b	c		
3	D	E	F	3	d	e	f		
4	G	H	I	4	g	h	i		
5	J	K	L	5	j	k	l		
6	M	N	O	6	m	n	o		
7	P	Q	R	S	7	p	q	r	s
8	T	U	V	8	t	u	v		
9	W	X	Y	Z	9	w	x	y	z
*	*	/	+	-	=				
#	#	.	!	?	,	;			

Note: Some phone networks require a pause in the phone dialing sequence. To enter a pause in a phone number (up to 16 digits), press (*) first, and then (#). The display shows P for pause.

9 Do one of the following:

- Press the **S1** button to save your changes.

  You can continue to edit other numbers by returning to step 5.

  OR

- Press (HOME) to exit the number editing mode without saving the changes.

10 Press (HOME) to exit the programming mode and return to the home display.

Programming a Page, Call, or Phone List Name

This feature lets you change the ID names assigned to the call lists used by the trunked Private Conversation and Call Alert features, as well as the phone names used by the phone feature.

1 Press ◄ or ► to scroll to PROG.

2 Press the • button below PROG.

3 Press ◄ or ► to scroll through the entire display of list types.

4 Do one of the following:

- Press the • button below PHON to access the phone list,

  OR

- Press the • button below CALL or PAGE to access the call list.

  The display shows the first member's name above either the phone number or above the radio ID number.

  The display shows the programming-mode annunciator (a flashing ▭) until you exit the programming list mode.

5 Do one of the following:

- Press ◄ or ► to view other list members.

  OR

- Use the keypad to enter a member's position number (any preprogrammed location from 1 to 100) to go directly to that member.

6 Press **S2**, which becomes the *Name Selected* button when in the programming mode, to enter the name edit mode.

7 Erase the old name by pressing ◄ to delete each character.

Note: If you erase all of the characters, press ◄ or ► to exit without making any changes. Begin again at step 5, or press HOME to return to the home display.

8 Press any button on the telephone-style keypad to enter new characters.

The blinking cursor indicates the position of the next character to be added.

To enter a character at the blinking cursor, refer to the following table.

Refer to the table on page 58 to see what keys to press and how many times to press them to select a character.

Note: To leave a space in the text, press ► twice.

9 Do one of the following:

- Press the **S2** button to save your changes.

  You can continue to edit other names by returning to step 5.

  OR

- Press HOME to exit the name editing mode without saving the changes.

10 Press HOME to exit the programming mode and return to the home display.

Optional External Alarms (Horn and/or Lights)

Your radio can be equipped to activate external alarms when a Call Alert page, Selective Call, or Private Conversation call is received.

This feature is useful when you must leave the vehicle, but need to receive any incoming messages. Because this option requires the installation of additional relays, ask the system administrator if this option is installed.

Turning External Alarm(s) On

Non-Permanent Horn and/or Lights

1 Press the ▶ button to scroll to the H/L softkey.

2 Press the • button below H/L.

3 Press the • button below H+L, HORN, or LGTS to enable horn and lights, only horn, or only lights, respectively. The display alternately shows the enabled alarm(s) and the selected mode.

The radio will remember the current state of the horn and lights feature when the radio is turned off.

Permanent Horn and/or Lights

The radio will always power-up with the last-selected alarm(s) enabled. To view which alarm(s) are enabled:

1 Press the ► button to scroll to H/L.

2 Press the • button below H/L.

The top line of the display shows the enabled alarm(s).

3 Press the HOME button to go to the home display.

Changing or Turning Off the Selected Alarm(s)

1 Press the ► button to scroll to H/L.

2 Press the • button below H/L.

3 Press the button below OFF, H+L, HORN, or LGTS to turn off or change the selected alarm(s).

When a Call Is Received While Alarms Are Turned On

When a call is received, the vehicle's horn sounds for four seconds, and/or the vehicle's lights turn on for 60 seconds. (These time intervals can be changed by the system administrator.)

The display alternates between the type of call received (CALL RECEIVED, or PAGE RECEIVED) and the selected mode name. The green LED and the Call-Received status annunciator both flash.

Non-rearmable

To turn off the external alarm(s), press the • button below H/L or any other control head button, except VOL.

When the external alarm(s) are turned off, the feature is deactivated. To reactivate the feature, perform the steps of "Turning External Alarm(s) On" on page 63.

Rearmable

To turn off the external alarm(s), press any control head button, except VOL. When the external alarm(s) are turned off, they are automatically rearmed.

Notes

Conventional Features

This chapter shows you how to access features available in conventional operation. The following topics are covered:

- Repeater/Direct Operation (page 67)
- Smart PTT (page 68)
- Talkgroup Calls (page 69)

Repeater/Direct Operation

Two types of operation are available with this feature:

Direct	You can bypass the repeater and talk directly to another radio. The transmit and receive frequencies are identical.
Repeater	You talk through the repeater, thereby increasing the radio's range. The transmit and receive frequencies differ.

If repeater/direct is associated with a mode, that mode is programmed by your system manager for repeater or direct operation.

Smart PTT

Smart PTT is a feature that can be programmed for modes according to your needs and/or the needs of your workgroup. This gives the system manager better control of radio operations. You may notice two differences in radio operation while on a mode programmed for Smart PTT:

- You will not be able to transmit and will hear a continuous alert tone until you release the PTT button. If the red LED flashes when the radio is receiving, this indicates the mode is busy.
- The monitor function is disabled.

Three radio-wide variations of smart PTT can be enabled on your radio:

Transmit Inhibit on Busy Channel	You will not be able to transmit if any traffic is detected on the mode.
Transmit Inhibit on Busy Mode with Wrong Squelch Code feature	You will not be able to transmit on an active mode with a squelch code other than your own; or with an encryption key other than your own if your radio is secure-equipped. You can transmit if the PL code is the same as yours.
Quick-Key Override	This feature can work with variation 1 or 2. You can override transmit-inhibit by quick-keying the radio; in other words, pressing the **PTT** button twice within the time programmed for **Smart PTT Quick-Key Timer.** (The default value is half a second).

Talkgroup Calls

This feature enables your system manager to define a group of conventional system users who can share the use of a conventional channel. Talkgroups can be associated with a personality as programmed by your system manager, or you can select them yourself.

If you have a radio that is secure-equipped, encryption keys are slaved to talkgroups. When talkgroups are enabled, encryption keys can be selected by changing the active talkgroup. (See “Secure Features” on page 97 for more information.)

Selecting a Talkgroup

Follow the steps below to select a talkgroup:

1. Press the ◄ or ► buttons until the display shows the TGRP softkey.
2. Press the • button directly below TGRP.

   The display shows the last user-selected and stored talkgroup, and the available menu entries.

3. Press the ◄ or ► buttons to scroll through the list of talkgroups.

   OR

   Use the keypad to enter the number of the desired index.

4. Press the • button directly below PSET (**P**RE**SET**) to select the preset or programmed talkgroup.

   OR

   Press the • button directly below SEL (**SEL**ECT) to save the currently displayed talkgroup and return to the home display.

Note: If the encryption key slaved to the new talkgroup is erased, the display shows KEY FAIL. You hear a momentary key fail tone.

If the encryption key slaved to the new talkgroup is not allowed, the display shows ILLEGAL KEY. You hear a momentary illegal key tone.

5 Press the (HOME) button to exit this menu.

Selective Call

Selective Calling

With Selective Call, your radio conversation is heard only by you and the other party involved.

Calling the Last ID Number Transmitted or Received

1 Press the (►) button to scroll to CALL for Selective Call.

2 Press the (•) button below CALL.

The display shows the last ID number transmitted or received. RECEIVED ID, as the incoming caller's ID number (Private Conversation II), is displayed for Private Conversation.

3 Refer to "Starting a Selective Call" on page 76 to place your call.

Entering Directly the ID Number to be Called

You can use the keypad to directly enter the ID number of the person you want to call. Follow these steps to enter the ID directly:

1 For Selective Call, press the ► button to scroll to the CALL softkey.

The display shows the last ID number transmitted or received. For Private Conversation, it also shows RECEIVED ID as the incoming caller's ID number (Private Conversation II).

2 Use the keypad to enter the new ID number.

Notes: If you enter more than, or less than, six digits and press the **PTT** button, you will hear a bad key-press tone.

Press the ◄ button to move the cursor to the left and erase the previous digit. When you have erased the last digit, press the ◄ button to display the last entry in the list. Press the ► button to display the first list entry.

Scrolling to an ID Number in the Call List

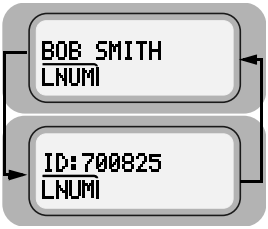
The same call list is shared by the Private Conversation.

1. Press the (►) button to scroll to CALL for Selective Call.
2. Press the (•) button below CALL.

   The display shows the last ID number transmitted or received. RECEIVED ID, or the incoming caller's ID number (Private Conversation II) is displayed for Private Conversation.

3. Press (►) or (◄) to scroll through the list.

   The member's name and ID number are alternately displayed when you stop.



   Note: The last member of the list equals the last ID number transmitted or received. This is the same as location **00** in the list.

4. Refer to "Starting a Selective Call" on page 76 to place your call.

Going Directly to an ID Number in the Call List

1 Press ► to scroll to CALL for Selective Call.

2 Press the • button below CALL.

The display shows the last ID number transmitted or received. RECEIVED ID or the incoming caller's ID number (Private Conversation II) is displayed for Private Conversation.

3 Press ► or ◄ to scroll through the list.

Note: The last member of the list equals the last ID number transmitted or received. This is the same as location **00** in the list.

4 Do one of the following:

- Press the numeric keys to enter the first digit of the location number.

  That position in the list is immediately displayed only if there are fewer than 10 members.The member's name and ID number are alternately displayed.

  OR

- LOC#X_ (where X is a 0 or a 1 and it is the first digit entered) is displayed if there are 10 or more members.

  The cursor flashes to show the location of the second digit.

5 Press the numeric keys to enter the second digit of the location number.

The member's name and ID number are alternately displayed.

Note: The display shows INVALID ENTRY if you enter a nonexisting number (for example, 24). The radio will revert back to step 4.

6 Refer to "Starting a Selective Call" on page 76 to place your call.

Starting a Selective Call

Follow the steps below to initiate a Selective Call:

1. Press the **PTT** button.

   The radio transmits the ID number.

2. Pause for one second for the alert tone to sound on the receiving radio.

Notes: If the party does not answer within 20 seconds, the display shows NO ANSWER. You hear an alert tone and the telephone-like ringing stops.

If the radio you called is not in service. the display shows NO ACKNOWLEDGE. You will not hear ringing.

3. When the person you called answers, press the **PTT** button to respond.
4. To hang up, press the HOME button.

   The radio returns to the home display.

Answering a Selective Call

If you hear two alert tones (repeating every five seconds for 20 seconds) sound, CALL RECEIVED and the present mode are alternately displayed.

The green LED and the Call-Received status annunciator (♪) flash.

Note: If you do not answer within 20 seconds, the radio returns to the home display.

1 To answer a call, press the (▶) button. The display shows the CALL softkey.

OR

If your radio has a programmed call-response or call button, press it to see the display shown in step 2. Proceed to step 3.

2 Press the (•) button below CALL.

The display shows the last ID number transmitted or received either as RECEIVED ID, or as the incoming caller's ID number (Private Conversation II).

Note: If you press the **PTT** button before you press the quick-response button, your response is transmitted to everyone in the talkgroup. Press the **PTT** button to answer the call.

3 A busy tone indicates the system is busy. If you hear a call-back tone, a mode is available. The radio automatically keys up for three seconds, after which you can begin speaking.

4 To hang up, do one of the following:

- Press the HOME button.

  OR

- Press the • button below CALL.

  OR

- Press the preprogrammed quick-response button if your radio has one.

  The caller's ID number is saved as the last ID number received.

  The radio returns to the home display.

Trunking Features

Features Used on Trunking Systems

This chapter shows you how to access features available on trunking systems. The following topics are covered:

- Viewing Your Radio's ID Number (page 80)
- Enhanced Private Conversation™ (page 81)
- Dynamic Regrouping (page 89)
- SmartZone® Operation (page 91)
- Out-of-Range Indication (page 95)

Viewing Your Radio's ID Number

1 Press the ► button until the display shows the CALL softkey.

2 Press the • button below CALL.

The display shows RECEIVED ID or the actual ID number.

3 Press the ◄ button.

OR

If you are in the preprogrammed call list, press the * button.

The display shows MY ID: and the ID number.

4 Press the HOME button to return to the home display.

Enhanced Private Conversation™

Private Conversation Calling

With Enhanced Private Conversation, your radio conversation is heard only by you and the other party involved.

Calling the Last ID Number Transmitted or Received

1 Press the (►) button to scroll to CALL for Private Conversation.

2 Press the (•) button below CALL.

The display shows the last ID number transmitted or received. RECEIVED ID, as the incoming caller's ID number (Private Conversation II), is displayed for Private Conversation.

3 Refer to "Starting a Private Conversation Call" on page 86 to place your call.

Entering Directly the ID Number to be Called

You can use the keypad to directly enter the ID number of the person you want to call. Follow these steps to enter the ID directly:

1 For Private Conversation, press the ► button to scroll to the CALL softkey.

The display shows the last ID number transmitted or received. For Private Conversation, it also shows RECEIVED ID as the incoming caller's ID number (Private Conversation II).

2 Use the keypad to enter the new ID number.

Notes: If you enter more than, or less than, six digits and press the **PTT** button, you will hear a bad key-press tone.

Press the ◄ button to move the cursor to the left and erase the previous digit. When you have erased the last digit, press the ◄ button to display the last entry in the list. Press the ► button to display the first list entry.

Scrolling to an ID Number in the Call List

The same call list is shared by Selective Call.

1 Do one of the following:

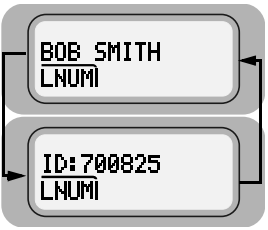
- Press (►) to scroll to CALL for Private Conversation.

2 Press the (•) button below CALL.

The display shows the last ID number transmitted or received. RECEIVED ID, or the incoming caller's ID number (Private Conversation II) is displayed for Private Conversation.

3 Press (►) or (◄) to scroll through the list.

The member's name and ID number are alternately displayed when you stop.



Note: The last member of the list equals the last ID number transmitted or received. This is the same as location **00** in the list.

4 Refer to "Starting a Private Conversation Call" on page 86 to place your call.

Going Directly to an ID Number in the Call List

1 Press ► to scroll to CALL for Private Conversation.

2 Press the • button below CALL.

The display shows the last ID number transmitted or received. RECEIVED ID or the incoming caller's ID number (Private Conversation II) is displayed for Private Conversation.

3 Press ► or ◄ to scroll through the list.

Note: The last member of the list equals the last ID number transmitted or received. This is the same as location **00** in the list.

4 Do one of the following:

- Press the numeric keys to enter the first digit of the location number.

  That position in the list is immediately displayed only if there are fewer than 10 members.The member's name and ID number are alternately displayed.

  OR

- LOC#X_ (where X is a 0 or a 1 and it is the first digit entered) is displayed if there are 10 or more members.

  The cursor flashes to show the location of the second digit.

5 Press the numeric keys to enter the second digit of the location number.

The member's name and ID number are alternately displayed.

Note: The display shows INVALID ENTRY if you enter a nonexisting number (for example, 24). The radio will revert back to step 4.

6 Refer to "Starting a Private Conversation Call" on page 86 to place your call.

Starting a Private Conversation Call

Follow the steps below to initiate a Private Call:

1. Press the **PTT** button to send a Private Conversation Call to the radio whose ID number you have selected.

   The radio transmits the ID number.

2. Pause for one second for the alert tone to sound on the receiving radio.

   Notes: If the party does not answer within 20 seconds, the display shows NO ANSWER. You hear an alert tone and the telephone-like ringing stops.

   If the radio you called is not in service. the display shows NO ACKNOWLEDGE. You will not hear ringing.

3. When the person you called answers, press the **PTT** button to respond.
4. To hang up, press the (HOME) button.

   The radio returns to the home display.

Answering an Enhanced Private Conversation Call

If you hear two alert tones (repeating every five seconds for 20 seconds) sound, CALL RECEIVED and the present mode are alternately displayed.

The green LED and the Call-Received status annunciator (♪) flash.

Green LED flashes
♪ flashes

Note: If you do not answer within 20 seconds, the radio returns to the home display.

1 To answer a call, press the (►) button. The display shows the CALL softkey.

OR

If your radio has a programmed call-response or call button, press it to see the display shown in step 2. Proceed to step 3.

2 Press the (•) button below CALL.

The display shows the last ID number transmitted or received either as RECEIVED ID, or as the incoming caller's ID number (Private Conversation II).

Note: If you press the **PTT** button before you press the quick-response button, your response is transmitted to everyone in the talkgroup. Press the **PTT** button to answer the call.

3 A busy tone indicates the system is busy. If you hear a call-back tone, a mode is available. The radio automatically keys up for three seconds, after which you can begin speaking.

4 To hang up, do one of the following:

- Press the HOME button.

  OR

- Press the • button below CALL.

  OR

- Press the preprogrammed quick-response button if your radio has one.

  The caller's ID number is saved as the last ID number received.

  The radio returns to the home display.

Dynamic Regrouping

This feature is programmed in each radio by a qualified radio technician. During special operations, dynamic regrouping allows the dispatcher to temporarily reassign selected radios to a single trunked mode so they can communicate with each other.

Electronic (Menu) Mode Selection

Dynamic Regrouping is transparent to you until the dispatcher activates it. You hear an invalid-mode tone if you select dynamic regrouping from the radio menu and it is not active.

- If you hear a gurgle-like tone, dynamic regrouping is activated. Transmit and receive as usual.
- When the dispatcher cancels dynamic-regrouping:
  - The radio returns to the pre-dynamic regrouping mode if the dynamic regrouping mode was selected.
  - The radio remains active on the selected mode if the dynamic regrouping mode was not selected.

Selecting Enable and Disable

The dispatcher can classify regrouped radios as *select-enabled* or *select-disabled*.

- Select-enabled radios can be changed to any available mode including the dynamic regrouping mode, once the dynamic position is selected.
- Select-disabled radios can not be changed from the dynamic mode that the dispatcher has selected.

Note: Scan, phone, and Private Conversation cannot be selected while the radio is select disabled.

Reprogramming Request

This feature allows you to tell the dynamic regrouping console you want a new dynamic regrouping assignment.

1 Press ► to scroll to RPGM.

Note: If your radio has a programmed reprogram-response button, press it for quick access to the reprogram request feature.

2 Press the • button below RPGM.

The display shows REPROGRAM RQST on the first line, and the reprogram request is sent to the dynamic regrouping console.

You hear five tones if the console acknowledged your request. Your radio returns to the home display.

• Five tones

You hear one tone if the system received the request, but the console did not acknowledge it. Go to the next step.

• One tone

3 Press the **PTT** button to transmit the request, or press the HOME button to hang up and return to the home display.

Note: If the dynamic regrouping console fails to acknowledge your request in six seconds, the display shows NO ACKNOWLEDGE and you hear a low-pitched alert tone. Repeat the reprogram request, or press the HOME button to hang up.

• Tone

SmartZone® Operation

A SmartZone system allows up to 50 sites in a wide-area trunking system. Site switching features allow the radio to quickly switch to other sites within the SmartZone system. These features are based on signal strength and site preferences. No action is required on your part for site switching.

However, your radio does have other SmartZone features that you can access.

Locking/Unlocking a Site

1 Do one of the following:

- Press (►) until the display shows SITE. Go to step 2.

  OR

- Press the preprogrammed Site Lock button to display the current lock state. Go to step 3.

  OR

- Press and hold the preprogrammed Site Lock button. The lock state (SITE LOCKED or SITE UNLOCKED) will change once.
  Release the button to save the new lock state. Go to step 4.

2 Press the (•) button below SITE.

The display shows the current lock state (SITE LOCKED in this case) together with UNLK and LOCK softkeys on the lower line.

Note: You can view the current site by pressing the preprogrammed search button.

3 Press the (•) button below either UNLK or LOCK. The new lock state is saved.

4 The home display returns.

Searching for a Site

The display shows `SITE XX` when you press the programmable *site view* button if your SmartZone radio has not received the current site's ID from the control channel.

1 Do one of the following:

- Momentarily press the preprogrammed Search button.

  The display shows the number or name of the affiliated site, followed by the Received Signal Strength Indicator (RSSI) level of the site.

  OR

- Press and hold the preprogrammed Search button.

  The display shows `SCANNING SITE` until the radio affiliates with a new site. The number of the new site is then displayed.

2 The home display is automatically returned.

Site Trunking

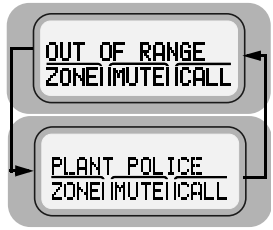
SITE TRUNKING is alternately displayed (if so programmed) with the selected mode whenever the radio's usable site is not communicating with the SmartZone controller. You can only communicate with other radios operating at the same site when SITE TRUNKING is displayed. No wide-area calls can be made from a site-trunking site.

Failsoft

If a trunking system experiences a complete failure, the radio will revert to failsoft operation and automatically switch to its failsoft channel. During failsoft, trunking repeaters will transmit a medium-pitched tone every 10 seconds. The radio periodically leaves failsoft to search for a trunking site. The radio returns to failsoft if no trunking sites are found.

If you press the PTT button while the radio is searching for a trunking site, the radio returns to failsoft and transmits. In failsoft, you can only communicate with other radios on the same mode and site. No wide-area call can be made from a failsoft mode. When the trunking system returns to normal operation, your radio will automatically leave the failsoft operation and return to trunked operation.

Out-of-Range Indication



The out-of-range display/audible indication feature can be enabled by your system manager. The display alternately shows OUT OF RANGE and the current selected mode name. You hear a low-pitched tone every six seconds:

- When the radio is out of range of the system and can no longer lock onto the control channel,

  OR

- When the radio is in failsoft and cannot lock onto the failsoft channel.

The out-of-range indication remains in effect until one of the following conditions occur:

- The radio locks on a control channel.
- The radio locks on a failsoft channel.
- The radio is turned off.

Notes

Secure Features

Features Available on Secure XTL 5000

This chapter covers features available on XTL 5000 Digital Mobile Radios with secure encryption. The following topics are covered:

- Transmitting in Secure and Clear Modes (page 98)
- Selecting an Index (Conventional Only) (page 99)
- Selecting a Key (Conventional Only) (page 100)

Note: The information in this section applies to both conventional and trunked systems.

Transmitting in Secure and Clear Modes

If your radio is secure-capable, you can transmit messages in secure mode.

To transmit a message in secure or encrypted mode:

1 Press and release the preprogrammed *Secure* button when your radio is on personalities or talkgroups that have been designated by your system manager for secure transmissions.

2 Press the **PTT** button to transmit while the radio is on a personality or talkgroup programmed for secure.

The radio will begin transmitting in secure mode. The display shows ⃠ (secure status annunciator) when the transmission is in progress.

To transmit a message in non-encrypted or clear mode:

Press and release the preprogrammed *Secure* button again.

The radio will transmit in clear mode when you press the **PTT** button. The display does not show the ⃠ status annunciator.

Note: You cannot change from secure to clear while the **PTT** button is pressed. The radio will generate an illegal tone and the transmission will be ended.

Secure-equipped radios automatically determine whether a voice message is being received in secure or clear mode. This allows you to receive either type of message without having to reset the preprogrammed Secure button.

Selecting an Index (Conventional Only)

This feature allows you to select one or more groups of encryption keys from among those stored in the radio. For example, you might have a group of three keys in one encryption index and a separate group of three keys in a second index. You can switch automatically from one set of keys to the other by changing indices. Every mode that was slaved to one of the original keys now has the equivalent new key instead.

Follow these steps to select an index:

1 Press the ► button until the display shows the INDX softkey.

2 Press the • button below INDX.

The display shows the last-selected and stored index. Your radio has two indices.

3 Press the ◄ or ► buttons to select the other index.

OR

If you have a Direct Entry Keypad (DEK), press the 1 Q Z or 2 ABC key on the keypad.

You will hear a positive tone. The display does not change.

OR

Press the • button below IND1 or IND2 to select **INDEX 1** or **INDEX 2**.

4 Press the • button below SEL to confirm the change in the index and exit the menu.

Note: To abort index selection, press the **PTT** button, the **Mode** rocker switch, or the HOME button. The index remains unchanged.

Selecting a Key (Conventional Only)

This feature allows you to manually select one of the 16 encryption keys.

Follow these steps to select a key:

1 Press ► until the display shows the KEY softkey.

2 Press the • button below KEY.

The display shows the last-selected and stored key.

3 Do one of the following based on how you want to access the key:

To scroll through the list of keys, press the ► or ◄ buttons as appropriate.

If the currently selected key has been erased, the display alternately shows ERASED and the key name.

Or use one of the methods below:

a. To use the Direct Entry Keypad to jump to the selected key, press the appropriate numeric keys (**0** to **9**) on the DEK.

b. To use the Direct Entry Keypad to access the PRESET menu directly, press the • button below the PSET softkey.

c. To exit the menu without loading a key, press one of the following: the • button below ABRT, the **PTT** button, the mode rocker switch, or the HOME button.

The display shows the home mode.

d. To load the currently selected (displayed) key and exit the menu, press the (•) button below the SEL softkey.

The display shows the home mode.

Notes: If the selected (displayed) key has been erased, you will hear keyfail tones after you exit the menu. This indicates that you have selected an erased key.

If the selected (displayed) key is not allowed, the display shows ILLEGAL KEY. You will hear a momentary illegal key tone.

Notes

Glossary

ACK	**Ack**nowledgment of communication.
Channel	A group of characteristics, such as transmit/ receive frequency pairs, radio parameters, and encryption encoding.
Coded Squelch	Used on conventional channels to make sure you hear only the communication meant for you.
Control Channel	In a trunking system, one of the channels that is used to provide a continuous, two-way/data communications path between the central controller and all radios on the system.
Conventional	Typically refers to radio-to-radio communications, sometimes through a repeater. You share a frequency, or frequencies, with other users without the aid of a central controller to assign communication channels. Therefore, you should monitor each channel before transmitting to avoid interfering with another user who may be transmitting.
Cursor	A visual tracking marker (a blinking line) that indicates a location on the display.
Digital Private-Line (DPL)	A continuous, sub-audible data signal, transmitted with the carrier.
Dispatcher	An individual who has radio system management duties.
Failsoft	A back-up system allowing you to communicate in a non-trunked, conventional mode should the trunked system fail.
FCC	**F**ederal **C**ommunications **C**ommission.
Hang Up	Disconnect.

Home Display	The first display information after the radio completes its self test.
LCD	**L**iquid-**C**rystal **D**isplay.
Mode	A programmed combination of operating parameters; for example, a channel or talkgroup.
Mode-Slaving	Radio programmed to automatically give the proper operation for a given mode you have selected.
Monitoring (Conventional Operation)	Press a programmed monitor button to listen to traffic on the active channel. This way, you can avoid talking over someone else's conversation.
Page	A one-way alert, with audio and/or display messages.
Push-To-Talk (PTT) Button	The **PTT** button engages the transmitter and places the radio in transmit (send) operation when pressed. Press this button to transmit, and release it to receive.
Repeater	A conventional radio feature, in which you talk through a receive/transmit facility that re-transmits received signals in order to improve communications range and coverage.
RF	**R**adio **F**requency. A part of the general frequency spectrum between the audio and infrared light regions (about 10 kHz to 10,000,000 MHz).

Squelch	The muting of audio circuits when received signal levels fall below a pre-determined threshold. With carrier squelch, you hear all channel activity which exceeds the radio's preset squelch level.
Standby	An operating condition whereby the radio's speaker is muted but still continues to receive data.
Talkgroup	An organization (or group) of radio users who communicate with each other, using the same communication path.
Tone Private-Line (PL) Coded Squelch	A continuous sub-audible tone transmitted with the carrier.
Trunking	The automatic sharing of communications paths between a large number of users. Allows radio users to share a smaller number of frequencies because a repeater, or communications path, is assigned to a talkgroup for the length of a conversation.
Zone	A grouping of channels or talkgroups.

Notes

Patent Disclosure

This product is covered by one or more of the following United States patents:

4,512,035 4,551,856 4,653,117 4,816,774 4,829,594 4,837,853 4,864,252 4,885,550 4,914,321 4,918,403 4,959,617 4,975,650 4,994,768 5,006,730 5,021,754 5,079,526

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This warranty applies only within the United States.

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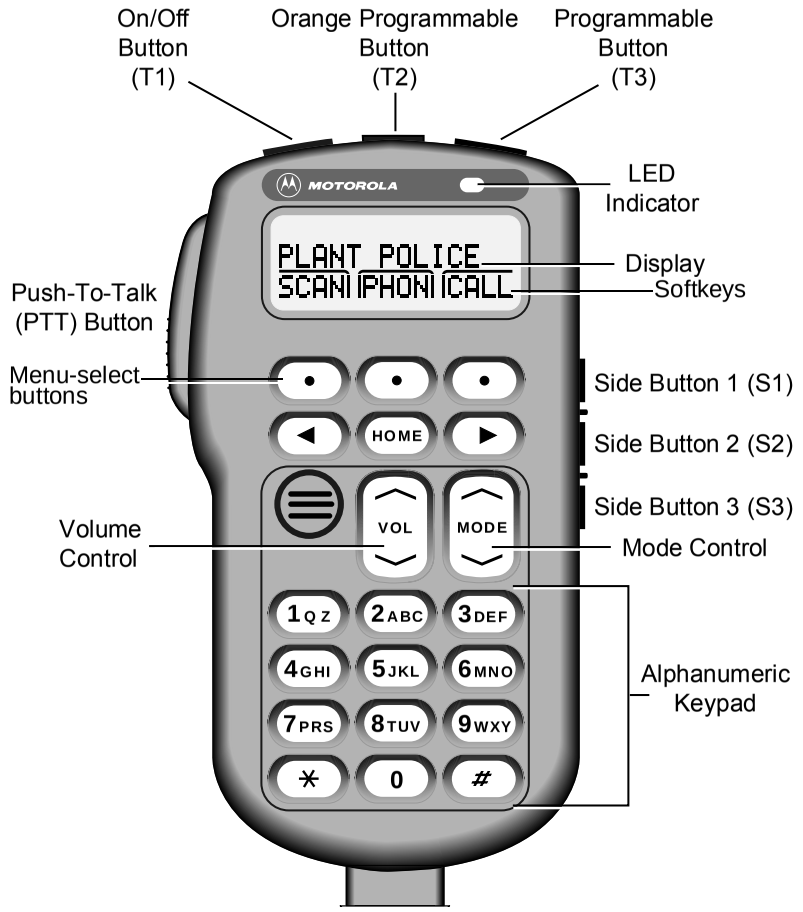

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