MOTOROLA

ASTRO® APX™ 7000 Series Digital Portable Radios Quick Reference Card

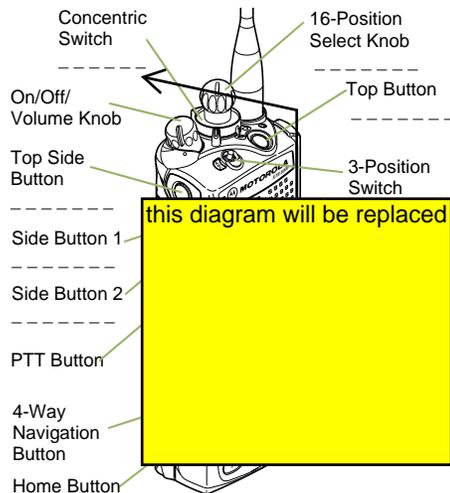### Product Safety and RF Exposure Compliance

⚠️ **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 6881095C98) to ensure compliance with RF energy exposure limits.

Radio Controls (diagram to be replaced)

Concentric Switch
– – – – – – –

On/Off/ Volume Knob
– – – – – – –

Top Side Button
– – – – – – –

Side Button 1
– – – – – – –

Side Button 2
– – – – – – –

PTT Button

4-Way Navigation Button

Home Button

16-Position Select Knob
– – – – – – –

Top Button
– – – – – – –

3-Position Switch
– – – – – –

this diagram will be replaced

Radio On/Off

• **On** – **On/Off/Volume** knob clockwise.

• **Off** – **On/Off/Volume** knob counterclockwise.

Zones and Channels

• **Zone** – **Zone** switch to desired zone.

• **Channel** – **Channel** switch to desired channel.

Receiving and Transmitting

1 Select zone/channel.

2 Listen for a transmission.
OR
Press and hold **Volume Set** button.
OR
Press **Monitor** button and listen for activity.

3 Adjust volume, if necessary.

4 Press the **PTT** button to transmit; release to receive.

Sending an Emergency Alarm

1 Press the **Emergency** button.

2 Display shows current zone/channel, and EMERGENCY. LED lights up solid red, and a short, medium-pitched tone sounds.

3 When acknowledgment is received, you hear four beeps; alarm ends; and radio exits emergency.

*To exit emergency at any time, press and hold the **Emergency** button.*

Sending an Emergency Call

1 Press the **Emergency** button.

2 Press and hold PTT. Speak clearly into the microphone.

3 Release the **PTT** button to end call.

4 Press and hold **Emergency** button to exit emergency.

*To exit emergency at any time, press and hold the **Emergency** button.*

Sending a Silent Emergency Call

1 Press the **Emergency** button.

2 Display does not change; the LED does not light up, and there is no tone.

3 Silent emergency continues until you:
Press and hold the **Emergency** button to exit emergency state.
OR
Press and release the **PTT** button to exit silent emergency mode and enter regular emergency (alarm, call, or alarm with call) mode.

*To exit emergency at any time, press and hold the **Emergency** button.*
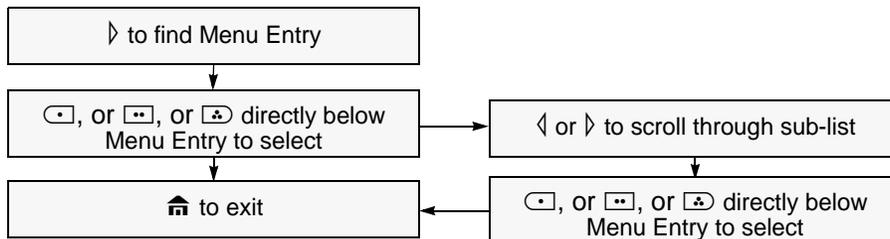
Display Status Icons

	Receiving an individual call.
	The radio is in the view or program mode. **On Steady** = View mode **Blinking** = Program mode
	Received signal strength for the current site (trunking only). The more stripes in the icon, the stronger the signal.
	Blinks when the battery is low.
	You are talking directly to another radio or through a repeater. **On** = direct **Off** = repeater
	This channel is being monitored.
	Your radio is in secure operation; **On** = secure operation; **Off** = clear operation; **Blinking** = receiving an encrypted voice call
	The radio is scanning a scan list.
	Priority 1 Channel during scan.
	Priority 2 Channel during scan
	Indicates status of the location signal; **Off** = Location feature disabled, or insufficient battery power in location accessory device; **Blinking** = Location feature enabled, but no location signal available; **On** = Location feature enabled, and location signal available

Menu Entries (Use with Menu Navigation)

Entry	Menu Selection	Page
BATT	Smart Battery	82
CALL	Private Call/Selective Call	25/31
CHAN	Select a Channel	24
CLCK	Set the Time and Date	78
DIR	Repeater/Direct	28
ERAS	Key Zeroization	65
KEY	Key Selection	64
KSET	Keyset Selection	64
LOGF	Radio Lock	68
MUTE	Keypad Mute	77
NAME	Text Select	35
NUM	Number Select	35
LOC	Location	71
PAGE	Call Alert Page	46

Entry	Menu Selection	Page
PHON	Phone	25
PROG	Editing	35
PSWD	Password	68
PWR	TX Power Level	76
REKY	Rekey Request	66
RPGM	Reprogram Request	34
SCAN	Scan On/Off	43
SITE	Site Lock/Unlock	75
STS	Status Call	33
TGRP	Talkgroup Call	32
TMS	Text Messaging	54
USER	User Login	51
VIEW	View a List	39
ZONE	Select a Zone	23

Menu Navigation

▷ to find Menu Entry

⬇

⊡, or ⊡, or ⊡ directly below Menu Entry to select → ◁ or ▷ to scroll through sub-list

⬇   ⬇

🏠 to exit ← ⊡, or ⊡, or ⊡ directly below Menu Entry to select

Contents

This User Guide contains all the information you need to use the APX™ 7000 Series Digital Portable Radios.

Contents

iii

Contents

Contents

vi

this page will be deleted

Important Safety Information

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 6881095C98) to ensure compliance with RF energy exposure limits.

For a list of Motorola-approved antennas, batteries, and other accessories, visit the following website:

http://www.motorola.com/governmentandenterprise

Computer Software Copyrights

The Motorola products described in this manual may include copyrighted Motorola computer programs stored in semiconductor memories or other media. Laws in the United States and other countries preserve for Motorola certain exclusive rights for copyrighted computer programs, including, but not limited to, the exclusive right to copy or reproduce in any form the copyrighted computer program. Accordingly, any copyrighted Motorola computer programs contained in the Motorola products described in this manual may not be copied, reproduced, modified, reverse-engineered, or distributed in any manner without the express written permission of Motorola. Furthermore, the purchase of Motorola products shall not be deemed to grant either directly or by implication, estoppel, or otherwise, any license under the copyrights, patents or patent applications of Motorola, except for the normal non-exclusive license to use that arises by operation of law in the sale of a product.

Documentation Copyrights

No duplication or distribution of this document or any portion thereof shall take place without the express written permission of Motorola. No part of this manual may be reproduced, distributed, or transmitted in any form or by any means, electronic or mechanical, for any purpose without the express written permission of Motorola.

Disclaimer

The information in this document is carefully examined, and is believed to be entirely reliable. However, no responsibility is assumed for inaccuracies. Furthermore, Motorola reserves the right to make changes to any products herein to improve readability, function, or design. Motorola does not assume any liability arising out of the applications or use of any product or circuit described herein; nor does it cover any license under its patent rights, nor the rights of others.

Getting Started

Take a moment to review the following:

How to Use This Guide

This User Guide covers the basic operation of the APX™ 7000 Portables.

However, your dealer or system administrator may have customized your radio for your specific needs. Check with your dealer or system administrator for more information.

Notations Used in This Manual

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

WARNING	An operational procedure, practice, or condition, etc., which may result in injury or death if not carefully observed.
Caution	An operational procedure, practice, or condition, etc., which may result in damage to the equipment if not carefully observed.
Note:	An operational procedure, practice, or condition, etc., which is essential to emphasize.

The following special notations identify certain items:

Example	Description
Home button or 🏠	Buttons and keys are shown in bold print or as an icon.
Phone	Menu entries are shown similar to the way they appear on the radio's display.
▷	This means "Press the right side of the 4-way Navigation button."

1

◼ What Your Dealer/System Administrator Can Tell You

You can consult your dealer or system administrator about the following:

- Is your radio preprogrammed with any preset conventional channels?

- Which buttons have been preprogrammed to access other features?

- What optional accessories may suit your needs?

Preparing Your Radio for Use

Assemble your radio by following these steps:

◼ Charging the Battery

⚠ **WARNING**	**To avoid a possible explosion:** • **DO NOT** replace the battery in any area labeled "hazardous atmosphere". • **DO NOT** discard batteries in a fire.

The Motorola-approved battery shipped with your radio is uncharged. Prior to using a new battery, charge it for a minimum of 16 hours to ensure optimum capacity and performance.

For a list of Motorola-authorized batteries available for use with your radio, see *Batteries and Battery Accessories* on page page 90.

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

🗐 Battery Charger

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

For a list of chargers, see *Chargers* on page 91.

■ Attaching the Battery

With the radio turned off, insert the top edge of the battery into the radio's frame.

Rotate the battery toward the radio and press down until the battery clicks into place.
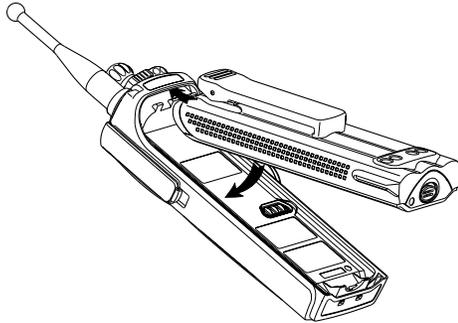
Release Button
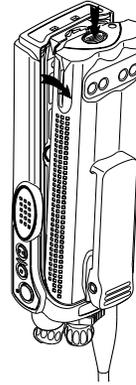
To remove the battery, turn the radio off. Press the release button on the bottom of the battery until the battery releases from the radio. Remove the battery from the radio.

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

Note: You can view the status of your Smart Battery. See *Accessing the Radio Information* on page 82 for more information.

these diagrams will be replaced
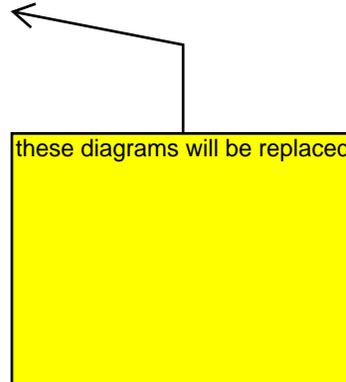
Attaching the Antenna
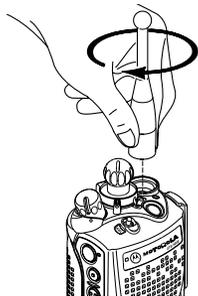
With the radio turned off, set the antenna in its receptacle and turn clockwise to attach it to the radio.

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

For information regarding available antennas, see *Antenna* on page 88.

Attaching the Belt Clip

Align the grooves of the belt clip with those of the battery and press downward until you hear a click.

Assembly
Belt Clip
Slots
Battery

Metal Tab
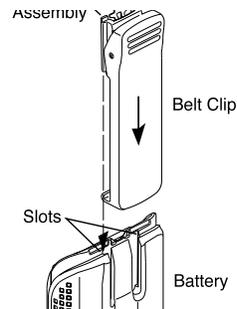
To remove the clip, use a flat-bladed object to press the belt clip tab away from the battery. Then, slide the clip upward and away from the radio.
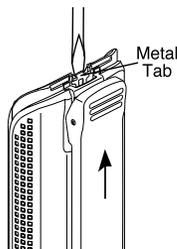
these diagrams will be replaced
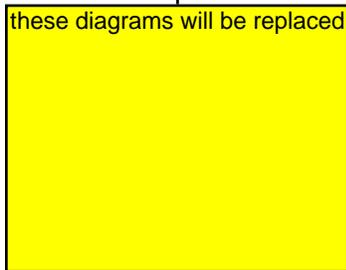
■ Attaching the Universal Connector Cover

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

Note: To prevent damage to the connector, shield it with the connector cover when not in use.
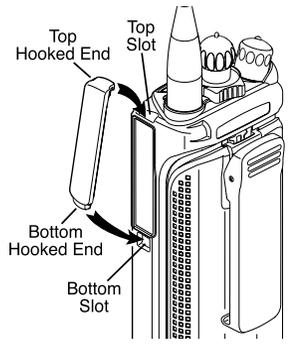
Insert the hooked end of the cover into the slot above the connector. Press downward on the cover's top to seat it in the slot.

Rub the ball of your thumb from the top to the bottom of the cover while applying pressure towards the radio. This should flex the cover and snap it into place.

Top Hooked End
Top Slot
Bottom Hooked End
Bottom Slot

To remove the universal connector cover, insert a flat-bladed screwdriver into the area between the bottom of the cover and the slot below the connector.

Hold the top of the cover with your thumb while you pry the bottom of the cover away from the radio with the screwdriver.
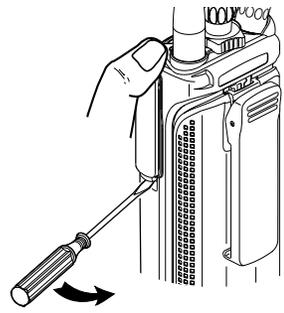
■ Turning On the Radio

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

If the power-up test is successful, you see **SELF TEST** on the radio's display momentarily, by the home

On
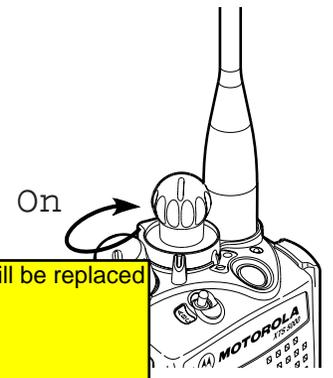
these diagrams will be replaced

Note: If the you see **Error XX/Y** code).

Note: Turn and turn the radio back test again, record the **Error XX/YY** code and contact your dealer.
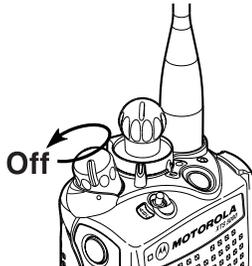
To turn off the radio, rotate the ***On/Off/Volume Control Knob*** *counterclockwise until you hear a click.*

Off

■ Adjusting the Volume

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

To decrease the volume, turn this knob counterclockwise.

On
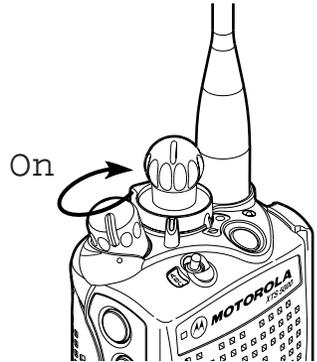
Identifying Radio Controls

Take a moment to review the following:

these diagrams will be replaced

6

■ Radio Controls You Will Be Using
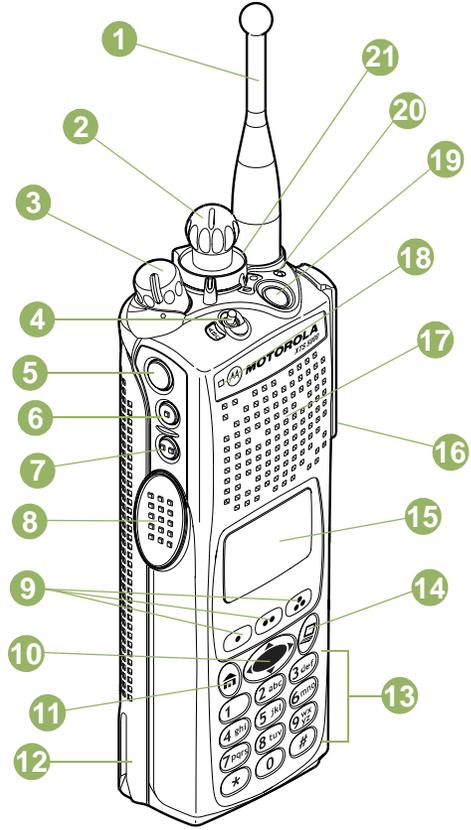
1 Antenna

2 16-Position Select Knob*

3 On/Off/Volume Control Knob

4 3-Position A/B/C Switch*

5 Top Side (Select) Button*

6 Side Button 1*

7 Side Button 2*

8 Push-to-Talk (**PTT**) Button

9 Menu Select Buttons

10 4-Way Navigation Button

11 Home Button

12 Battery

13 Keypad

14 Universal Connector

15 Display

16 Universal Connector

17 Speaker

18 Microphone

19 Top Button*

20 LED

21 2-Position Concentric Switch*

this diagram will be replaced

*...p controls/buttons are programmable to operate
...ware-activated features.*

■ Programmable Features

Any references in this manual to controls that are "preprogrammed" mean that a qualified radio technician must use the radio's programming software to assign a feature to a control.

Your dealer can program the programmable buttons or keypad as shortcuts to radio functions or preset channels/groups depending on the duration of a button press:

- Press – Pressing and releasing rapidly.
- Long press – Pressing and holding for the preprogrammed duration (between 0.25 seconds and 3.75 seconds).
- Hold down – Keeping the button pressed.

◻ Assignable Radio Functions

Call Alert – Allows the radio to function like a pager, or to verify if a radio is active on the system.

Call Response – Allows you to answer a private call.

Channel – Selects a channel.

Dynamic Priority – Allows any channel in a scan list (except for the priority-one channel) to temporarily replace the priority-two channel.

Emergency – Depending on the programming, initiates or cancels an emergency alarm or call.

Monitor – Monitors a selected channel for all radio traffic until function is disabled.

Nuisance Delete – Temporarily removes an unwanted channel, except for priority channels or the designated transmit channel, from the scan list. The designated transmit channel refers to the user's selected zone/channel combination from which scan is initiated.

Phone – Allows you to make and receive calls similar to standard phone calls.

PL Defeat – Overrides any coded squelch (DPL or PL) that is preprogrammed to a channel.

Private Call – Allows a call from an individual radio to another individual radio.

Repeater/Direct – Toggles between using a repeater and communicating directly with another radio.

Reprogram Request – Notifies the dispatcher that you want a new dynamic regrouping assignment.

Scan List Programming – Selects the scan list for editing.

Scan On/Off – Toggles scan on or off.

Secure/Clear – Toggles secure operation on or off

Select – Selects the assigned list for editing.

Selective Call – Calls an assigned radio.

Site Lock/Unlock – Locks onto a specific site.

Site Search – Displays the current site.

Status – Sends data calls to the dispatcher about a predefined status.

Text Messaging – Selects the text messaging menu.

TMS Quick Text – Selects a predefined message.

User Login – Automatically registers with the server.

Zone – Allows selection from a list of zones.

Assignable Settings or Utility Functions

Keypad Mute – Toggles the keypad tones on or off.

Light – Toggles display backlight on or off.

Smart Battery – Displays the status of your Smart Battery.

TX Power Level – Toggles transmit power level between high and low.

Volume Set – Sets the volume set tone.

◼ Accessing the Preprogrammed Functions

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

- A short or long press of the relevant programmable buttons.

OR

- Use the **Menu Select Buttons** (⊙, ⊡, and ⊡).

⬚ Accessing the Menu Entry Features

The bottom row of the display contains one to three menu entries (also known as softkeys). The softkeys allow you to select one of several menus to access the radio's features.

The menu entries, as shown in the table below, are accessed through the **Menu Select** buttons.

Menu Entry	Feature	Page	Menu Entry	Feature	Page
Batt	Smart Battery	82	Phon	Phone	25
Call	Private Call/ Selective Call	25/31	Prog	Editing	35
Chan	Channel Selection	24	Pswd	Password	68

Menu Entry	Feature	Page	Menu Entry	Feature	Page
Clck	Time/Date	78	Pwr	TX Power Level	76
Dir	Repeater/ Direct	28	Reky	Rekey Request	66
Eras	Key Zeroization	65	Rpgm	Reprogram Request	34
Key	Key Selection	64	Scan	Scan On/Off	43
Kset	Keyset Selection	64	Site	Site Lock/ Unlock	75
Logf	Radio Lock	68	Sts	Status Call	33
Mute	Keypad Mute	77	Tgrp	Talkgroup Call	32
Name	Text Select	35	View	View a List	39
Num	Number Select	35	Zone	Zone Selection	23
Page	Call Alert Page	46	Loc	Location	71
TMS	Text Messaging	54	User	User Login	51

⬜ Using the Menu Select Buttons

The **Menu Select** buttons (⊡ , ⊡ , and ⊡) access the menu entries of features.

Note: Please check with a qualified radio technician for the list of features activated in your radio.

Your radio may be preprogrammed differently from the following example, but the display for turning Scan on or off may look as shown below:

● To turn Scan on, press ⊡ directly below **Sel**.

menu entry (Softkey)   SCAN   Z   menu entry (Softkey)

ON   OFF

Menu Select Buttons →   ●   ••   ⋮

Home Button →   🏠   ◀ ▲ ▶ ▼   🖥 ← App Button (TMS Button)

4-Way Navigation Button
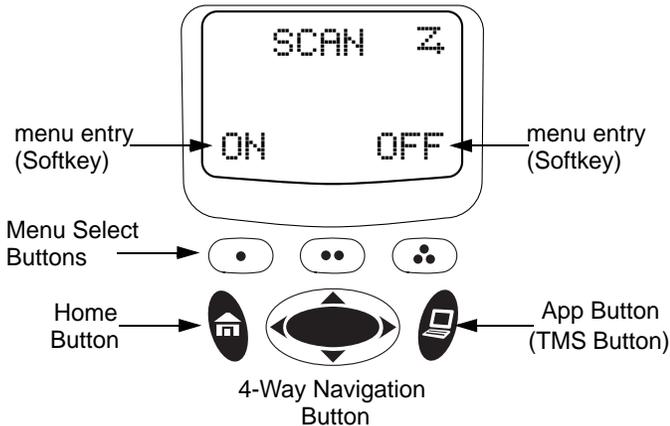
⬜ Using the Navigation Buttons

⬜ *Home Button*

The 🏠 button always returns you to the home (default) display. In most cases, this is the current mode.

Some radio features that you can edit require saving information in memory. Press 🏠 after editing those features to save the information before returning to the home display.

Note: Some features do not require you to press 🏠 to go to the home display.

⬜ *App Button (TMS Feature Button)*

Use this button to access the Text Messaging Service (TMS) feature screen.

⬜ *4-Way Navigation Button*

Use this button to scroll through the radio's lists, or items in the display, or both.

■ Using the Keypad

You can use the 3 x 4 alphanumeric keypad to access your radio's features. The keypad functions in a manner similar to a standard telephone keypad when entering numeric digits. When the keypad is used to edit a list, each key can generate different characters of the alphabet. The table below shows the number of times a key needs to be pressed to generate the required character.

◻ Keypad Characters

Key									Number of Times Key is Pressed											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
⌨ 1.?	1	.	,	?	!	;	@	_	*	#	&	$	/	+	=	\	"	'	(	)
⌨ 2ABC	a	b	c	2	A	B	C													
⌨ 3DEF	d	e	f	3	D	E	F													
⌨ 4GHI	g	h	i	4	G	H	I													
⌨ 5JKL	j	k	l	5	J	K	L													
⌨ 6MNO	m	n	o	6	M	N	O													
⌨ 7PQRS	p	q	r	s	7	P	Q	R	S											
⌨ 8TUV	t	u	v	8	T	U	V													
⌨ 9WXYZ	w	x	y	z	9	W	X	Y	Z											
⌨ 0	0	**Note:** Press and hold to toggle between normal text entry mode and upper case mode.																		
⌨ *	Space or *																			
⌨ #DEL	Press and hold to toggle between alphabetic mode and numeric mode.																			

■ Push-To-Talk (PTT) Button

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

- While a call is in progress, the **PTT** button allows the radio to transmit to other radios in the call.

  Press and hold down **PTT** button to talk. Release the **PTT** button to listen.

  The microphone is activated when the **PTT** button is pressed.

PTT Button

- While a call is not in progress, the **PTT** button is used to make a new call (see *Making a Radio Call* on page 26).
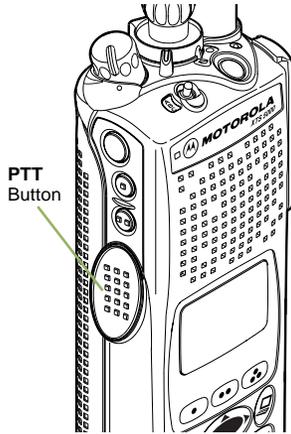
Identifying Status Indicators

Your radio indicates its operational status through the following:

■ Status Icons

The 64 x 96 pixel liquid crystal display (LCD) of your radio shows radio status, text entries, and menu entries.

The top two display rows contain icons that indicate radio operating conditions.

Call Received

this diagram will be replaced ...eives an Individual Call.
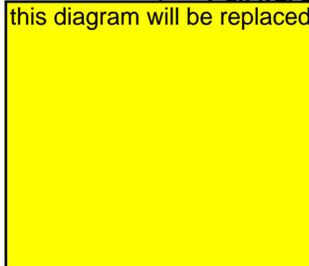
View/Program Mode

Radio is in the view or program mode.

Pending image

- On Steady = View mode

Pending image

- Blinking = Program mode

Received Signal Strength Indicator (RSSI)

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

Battery

- Conventional = Blinks when battery is low.

- Smart = The number of bars (0 – 4) shown indicates the charge remaining in the battery. Blinks when the battery is low.

Talkaround

- On = Radio is currently configured for direct radio to radio communication (during conventional operation only).

- Off = Radio is connected with other radios through a repeater.

Monitor (Carrier Squelch)

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

Secure Operation

Pending image

- On = Secure operation

- Off = Clear operation

Pending image

- Blinking = Receiving an encrypted voice call.

Scan

Radio is scanning a scan list.

Priority-One Channel Scan

A channel is assigned as the priority channel during scan operation.

Priority-Two Channel Scan

Two channels are assigned as the priority channels during scan operation.

14

Location Signal

- On = Location feature is enabled, and location signal is available

Pending image

- Off = Location feature is disabled, or there is insufficient battery power in location accessory device.

Pending image

- Blinking = Location feature is enabled, but no location signal is available.

User Login Indicator (IP Packet Data)

iP

- On (Tinted) = User is currently associated with the radio.

iP

- Off (Not tinted) = User is currently not associated with the radio.

iP

- Blinking = Device registration or user registration with the server failed due to an invalid username or pin.

Text Messaging Service (TMS)

This feature allows you to send and receive text messages. See *Text Messaging Service (TMS)* on page 54 for more information.

Status Icons

The following icons appear on the radio's display when you send and receive text messages.

Inbox Full
The Inbox is full.

New Message Icon
User receives a new message.

Message Sent
The text message is sent successfully.

Message Unsent
The text message cannot be sent.

Read Message

Pending image

The selected text message in the Inbox has been read.

15

Unread Message

Pending image

The selected text message in the Inbox has not been read.

Message Index

Pending image

Indicates the index of the current message the user is viewing.

Example: If the user is looking at the third message out of a total of 6 messages in the Inbox folder, the icon is displayed as the icon on the left column.

Priority Message

Pending image

- The "Priority" feature is toggled on before the message is sent.

- Messages in the Inbox folder are flagged with "Priority".

Request Reply

Pending image

- The "Request Reply" feature is toggled on before the message is sent.

- Messages in the Inbox folder are flagged with "Request Reply".

Priority Message and Request Reply

Pending image

- The "Priority" and "Request Reply" features are toggled on before the message is sent.

- Messages in the Inbox folder are flagged with both "Priority" and "Request Reply".

Num Lock

Pending image

Indicates that the text entry is currently in number lock mode.

Normal Mode

Pending image

Indicates that the text entry is currently in normal mode.

Uppercase

Pending image

Displayed during text editing mode to indicate that the text entry is currently in uppercase mode.

📑 Menu Options

Menu Option	Description/Function
Inbx	Stores new incoming messages or messages that you have received. The Inbox can hold up to 30 messages.
Comp	Brings you to the compose screen.
Drft	Stores all saved messages or messages that are to be sent at a later time. The Draft folder can hold up to 10 messages.

Menu Option	Description/Function
Sent	Stores the messages that you have already sent. The Sent folder can hold up to 10 messages.
Back	Brings you back to the TMS main menu or previous menu.
Edit	Brings you to the Quick Text Messages screen.
Save	Saves your messages to the Draft folder.
Rply	Replies to a message.
Del	Deletes a message.
Addr	Keys in the target address, or selects one from the list.
New	Composes a new message.
List	Selects a predefined message.
Impt	Toggles on or off the "Priority" flag for an outgoing message.
Rqrp	Toggles on or off the "Request Reply" flag for an outgoing message.
Curr	Deletes the current selected message.
All	Deletes all the messages in the current message folder.

■ LED Indicator

The LED indicator shows the operational status of your radio.

Solid red – Radio is transmitting.

Blinking red – Radio is transmitting at low battery condition.

Double blinking red – Radio is transmitting or receiving an emergency call.

Solid yellow – Channel is busy.

Blinking yellow – Radio is [...]sion.

Solid green – Radio is pow[...]ctivity.

Blinking green – Radio is [...] is scanning a Priority-Two ch[...]

Double blinking green – Radio is scanning a Priority-One channel.

LED Indicator

this diagram will be replaced
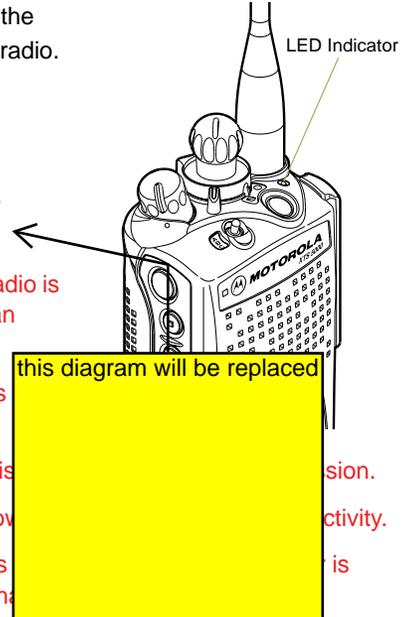
■ Intelligence Lighting Indicators

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

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

Backlight and Bar Color	Event	When
Orange	High Alert Event	The radio initiates an emergency alarm or call.
		The radio receives an emergency alarm or call.
		The Man Down timer expires.
Red	System Status Events	The radio battery is low.
		The radio is out of range.
		The radio enters failsoft mode.
Green	User Status Events	The radio receives a private call.
		The radio receives a phone call.
		The radio receives a call alert.
		The radio receives a selective call.

■ Alert Tones

An alert tone is a sound or group of sounds. Your radio uses alert tones to inform you of your radio's conditions. The following table lists these tones and when they occur.

You Hear	Tone Name	Heard
Short, Low-Pitched Tone	Radio Self-Test Fail	When radio fails its power-up self test.
	Radio Self-Test Fail	When radio fails its power-up self test.
	Reject	When unauthorized request is made.
	Time-Out Timer Warning	Four seconds before time out.
Long, Low-Pitched Tone	No ACK Received	When radio fails to receive an acknowledgment.
	Time-Out Timer Timed Out	After time out.
	Talk Prohibit/PTT Inhibit	(When **PTT** button is pressed) transmissions are not allowed.
	Out-of-Range	(When **PTT** button is pressed) the radio is out of range of the system.
	Invalid Mode	When radio is on an unpreprogrammed channel.
	Individual Call Warning Tone	When radio is in an individual call for greater than 6 seconds without any activity.
A Group of Low-Pitched Tones	Busy	When system is busy.

You Hear	Tone Name	Heard
Short, Medium-Pitched Tone	Valid Key-Press	When correct key is pressed.
	Radio Self-Test Pass	When radio passes its power-up self test.
	Clear Voice	At beginning of a non-coded communication.
	Priority Channel Received	When activity on a priority channel is received.
	Emergency Alarm Entry	When entering the emergency state.
	Central Echo	When central controller has received a request from a radio.
Long, Medium-Pitched Tone	Volume Set	When volume is changed on a quiet channel.
	Emergency Exit	When exiting the emergency state.
A Group of Medium-Pitched Tones	Failsoft	When the trunking system fails.
	Automatic Call Back	When voice channel is available from previous request.
	Talk Permit	(When **PTT** button is pressed) verifying system accepting transmissions.
	Keyfail	When encryption key has been lost.
	Console Acknowledge	When status, emergency alarm, or reprogram request ACK is received.
	Received Individual Call	When Call Alert or Private Call is received.
	Call Alert Sent	When Call Alert is received by the target radio.

20

You Hear	Tone Name	Heard
Short, High-Pitched Tone (Chirp)	Low-Battery Chirp	When battery is below preset threshold value.
Short, Medium-Pitched Tone (Chirp)	GPS RSM Low Battery Chirp	When this accessory battery is below preset threshold value.
Momentary Low to High Tone	Latched PTT Active	When Latched PTT state is engaged and before the radio transmits.
Momentary Tone	Latched PTT Timeout	When Latched PTT state is expiring. It sounds when the radio is transmitting and replaces time-out timer warning tone in Latched PTT state.
Momentary High to Low Tone	Latched PTT Inactive	When Latched PTT state is disengaged and after the radio completes transmission.
Ringing	Fast Ringing	When system is searching for target of Private Call.
	Enhanced Call Sent	When waiting for target of Private Call to answer the call.
	Phone Call Received	When a land-to-mobile phone call is received.
Gurgle	Dynamic Regrouping	(When the **PTT** button is pressed) a dynamic ID has been received.
Unique, Low-Pitched Chirp	New Message	When a new message is received.
Unique, High-Pitched Chirp	Priority Message	When a priority message is received.

■ Phone Call Display and Alert Prompts

The following appears on the radio's display when you make and receive Phone calls. The radio also uses alert tones to indicate the current status.

You Hear	You See	When	Notes
A Long Tone	No Phone	You press the **PTT** button and the phone system is not available.	Press 🏠 to hang up. The radio returns to the home display.
	Phone Busy	The phone system is busy.	Press 🏠 to exit the phone mode and try your call later.
A Busy Tone	Phone Busy	When a channel is not available.	The radio automatically connects when a channel opens.
–	No Acknowldg	The call is not acknowledged.	Press 🏠 to hang up. The radio returns to the home display.
A High-Pitched Tone	–	When you release the PTT button.	The radio indicates to the landline party that he or she may begin talking.

Note: You have the option of sending additional digits (overdial), such as an extension number, or credit card or PIN numbers, to the phone system. If the radio is programmed for live overdial, every digit entered after the call is connected is sent to the phone system.

If the radio is programmed for buffered overdial, the digits pressed are entered into memory and then sent when the **PTT** button is pressed. Press the **PTT** button to send either digits or voice, but not both at the same time.

General Radio Operation

Once you understand how your APX 7000 Portable is configured, you are ready to use your radio.

Use this navigation guide to familiarize yourself with the basic Call features:

Selecting a Zone

A zone is a group of channels.

Use the following procedure to select a zone.

Procedure:
Move the preprogrammed Zone switch to the position of the required zone and proceed to step 3.
OR
Follow the procedure below.

1 ◁ or ▷ to **Zone**.

2 Press the **Menu Select** button direc[...] current zone blinks while the chann[...]

3 ⌃ or ⌄ to the required zone.

4 Press the **Menu Select** button direc[...] the displayed zone and channel.
   OR
   Press the **PTT** button to transmit on[...]

3-Position
A/B/C Switch

this diagram will be replaced
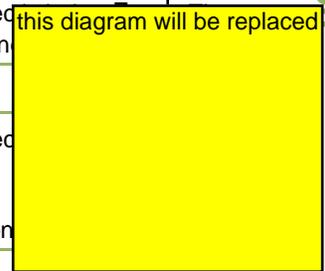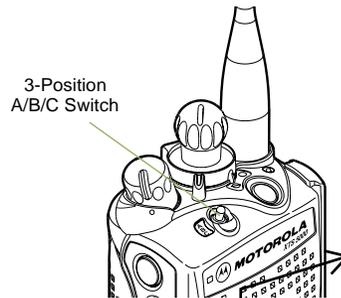
Selecting a Radio Channel

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

Use the following procedure to select a channel.

Pending image

Note: Consult a qualified radio technician for the right choice between the following methods.

Procedure:
Turn the preprogrammed **16-Position Select** knob to the desired channel.
OR
Follow the procedure below.

1 ◁ or ▷ to **Chan**.

2 Press the **Menu Select** button directly below **Chan**. The current channel name blinks while the zone remains steady.

3 ⌃ or ⌄ to the required channel.
OR
Use the keypad to enter the channel number.
If the channel selected is unprogrammed, repeat Step 3.

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

Receiving and Responding to a Radio Call

Once the channel, subscriber ID or group ID is displayed, you can proceed to receive and respond to calls.

The LED lights up solid red while the radio is transmitting and blinks green when the radio is receiving.

LED Indicator
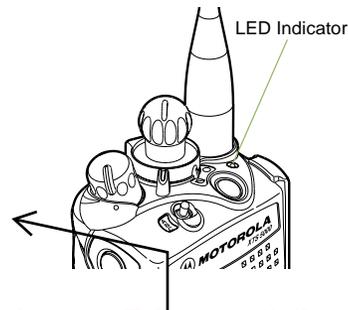
Receiving and Responding to a Talkgroup Call

To receive a call from a group of configured as part of that group

this diagram will be replaced

Procedure:
When you receive a talkgroup ...n):

1 The LED blinks green.

2 The display shows the calle... ...e RSSI icon, and the Group Call icon.

3 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

4 Press the **PTT** button to respond to the call. The LED lights up solid red.

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

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

*See **Making a Talkgroup Call** on page 26 for details on making a Talkgroup Call.*

▯ Receiving and Responding to a Private Call (Trunking Only)

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

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

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

Procedure:
Use the preprogrammed **Call Response** button to answer a Private Call:

1 You hear two alert tones and the LED blinks green. The display shows C̲a̲l̲l̲ ̲R̲e̲c̲e̲i̲v̲d̲ and the call received icon blinks.

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

3 During the call, the display shows the caller's name, if it is in the call list.
OR
During the call, the display shows the caller's ID number, if the caller's name is not in the call list.

4 Press and hold the **PTT** button to talk. Release the **PTT** button to listen.

5 Press ⌂ or the **Call Response** button to hang up and return to the home display.

*See **Making a Private Call (Trunking Only)** on page 27 for details on making a Private Call.*

▯ Receiving and Responding to a Telephone Call (Trunking Only)

This feature allows you to receive calls similar to standard phone calls from a landline phone.

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

Procedure:

Use the preprogrammed **Call Response** button to answer a Telephone Call:

1 You hear a telephone-type ringing and the LED blinks green. The display shows **Phone Call** and the call received icon blinks.

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

3 Press and hold the **PTT** button to talk. Release the **PTT** button to listen.

4 Press 🏠 or the **Call Response** button to hang up and return to the home display.

*See **Making a Telephone Call (Trunking Only)** on page 27 for details on making a Telephone Call.*

Making a Radio Call

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

- The Channel Selector Knob

- A preprogrammed **One Touch Call** button

- The Contacts list (see *Viewing a Details of a Contact* on page 39)

Making a Talkgroup Call

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

Procedure:

1 Turn the Channel Selector Knob to select the channel with the active group alias or ID.

2 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

3 Press the **PTT** button to make the call. The LED lights up solid red. The display shows the group alias or ID, and the Group Call icon.

4 Speak clearly into the microphone.

5 Release the **PTT** button to listen.When the target radio responds, the LED blinks green. You see the Group Call

icon, the group alias or ID, and transmitting radio alias or ID on your display.

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

7 Radio returns to the previous screen you were on prior to receiving the call.

📁 Making a Private Call (Trunking Only)

Procedure:
Press the preprogrammed **Quick Access (One-Touch) Private Call** button to dial the preprogrammed ID number and proceed to Step 5 of the procedure below.
OR
Follow the procedure below.

1 ◁ or ▷ to Call.

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

3 Press Lnum to go to the last number dialed.
OR
⌃ or ⌄ to the required ID number.
OR
Use the keypad to enter the required ID number.

4 Press the **PTT** button to start the Private Call.

5 The display momentarily shows Please Wait and the ID number.

6 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

7 When you are connected, the display shows the ID number of the target radio. Press and hold the **PTT** button to talk. Release the **PTT** button to listen.
OR
If no acknowledgment is received, the display shows No Acknowldg.
OR
If the target radio does not respond before the time out, the display shows No Answer.

8 Press 🏠 to hang up and return to the home display.

*You can send an individual Call Alert page if there is no answer from the target radio. See **Sending a Call Alert Page** on page 46 for more information.*

📁 Making a Telephone Call (Trunking Only)

This feature allows you to make calls similar to standard phone calls to a landline phone.

Procedure:
Press the preprogrammed **Quick Access (One-Touch) Phone Call** button to dial the preprogrammed phone number and proceed to Step 5 of the procedure below.

27

OR

Follow the procedure below.

1 ◁ or ▷ to **Phon**.

2 Press the **Menu Select** button directly below **Phon**. The display shows the last transmitted phone number.

3 Press **Lnum** to go to the last number dialed.
OR

△ or ▽ to the required phone number.
OR

Use the keypad to enter the required phone number.

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

5 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

6 When your call is answered, press the **PTT** button to talk. Release the **PTT** button to listen.

7 Press ⌂ to hang up and return to the home display.

*See **Phone Call Display and Alert Prompts** on page 22 for more information if your call is **NOT** answered.*

■ Repeater or Direct Operation

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

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

Procedure:
Press the preprogrammed **Repeater/Direct** switch to toggle between talkaround and repeater modes.
OR
Follow the procedure below.

1 ◁ or ▷ to **Dir**.

2 Press the **Menu Select** button directly below **Dir**. The display momentarily shows the current radio setting.

3 You see **Repeater mode** if the radio is currently in Repeater mode.
OR
You see **Direct mode** and the Talkaround icon if the radio is currently in Direct mode.

4 Press the **Menu Select** button directly below Dir to enable Direct mode. The display shows the Talkaround status icon.
OR
Press the **Menu Select** button directly below $Rptr$ to enable Repeater mode.
OR
Press 🏠 to exit without changing the current radio setting.

▨ Monitoring Features

Radio users who switch from analog to digital radios often assume that the lack of static on a digital channel is an indication that the radio is not working properly. This is not the case.

Digital technology quiets the transmission by removing the "noise" from the signal and allowing only the clear voice or data information to be heard.

Use the Monitor feature to make sure a channel is clear before transmitting.

▤ Monitoring a Channel

Procedure:
Use the preprogrammed **Volume Set** Button button.

1 Select the desired zone and channel.

2 Press and hold the **Volume Set** button to hear the volume set tone.

3 Adjust the **Volume Control** knob if necessary.

4 Release the **Volume Set** button.

5 Press and hold the **PTT** button to transmit. The LED lights up solid red.

6 Release the PTT button to receive (listen).

29

OR

Press the preprogrammed **Monitor** button and proceed to Step 3 of the procedure below.

OR

Follow the procedure below.

1. Select the desired zone and channel.

2. Listen for a transmission.

3. Adjust the **Volume Control** knob if necessary.

4. Press and hold the **PTT** button to transmit. The LED lights up solid red.

5. Release the PTT button to receive (listen).

*The Carrier Squelch indicator appears on the display when you monitor a channel via the preprogrammed **Monitor** button.*

▯ Conventional Mode Operation

Your radio may be preprogrammed to receive Private-Line® (PL) calls.

Procedure:

1. Momentarily press the **Monitor** button to listen for activity. The Carrier Squelch indicator appears on the display.

2. Press and hold the **Monitor** button to set continuous monitor operation. The duration of the button press is programmable.

3. Press the **Monitor** button again, or the **PTT** button, to return to the original squelch setting.

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

Advanced Features

Use this navigation guide to learn more about advanced features available with your radio:

Advanced Call Features

⬜ Receiving and Making a Selective Call (ASTRO Conventional Only)

This feature allows you to receive a call from or to call a select individual. It is intended to provide privacy and to eliminate the annoyance of having to listen to conversations that are of no interest to you.

⬜ *Receiving a Selective Call*

Procedure:

1 When you receive a Selective Call, you hear two alert tones and the LED blinks green. The call received icons blinks and the display shows **Call Receivd**.

2 The display remains active for two seconds, and then the speaker unmutes.

3 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

4 Press and hold the **PTT** button to talk. Release the **PTT** button to listen.

5 Press 🏠 to hang up and return to the home display.

☐ *Making a Selective Call*

Procedure:

Press the preprogrammed **Quick Access (One-Touch) Selective Call** button to dial the preprogrammed ID number and proceed to Step 5 of the procedure below.

OR

Follow the procedure below.

1   ◁ or ▷ to **Call**.

2   Press the **Menu Select** button directly below **Phon**. The display shows the last transmitted or received ID number.

3   Press **Lnum** to go to the last number dialed.
    OR
    ⌃ or ⌄ to the required ID number.
    OR
    Use the keypad to enter the required ID number.

4   Press the **PTT** button to start the Selective Call.

5   Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

6   When you are connected, the display shows the ID number of the target radio. Press and hold the **PTT** button to talk. Release the **PTT** button to listen.

7   Press ⌂ to hang up and return to the home display.

☐ **Using the Talkgroup Call Feature (Conventional Operation Only)**

This feature allows you to define a group of conventional system users so that they can share the use of a conventional channel.

Note: Encryption keys are slaved to talkgroups. When talkgroups are enabled, encryption keys are changed by changing the active talkgroup. See *Secure Operations* on page 63.

☐ *Selecting a Talkgroup*

Procedure:

1   ◁ or ▷ to **Tgrp**.

2   Press the **Menu Select** button directly below **Tgrp**. The display shows the last talkgroup that was selected and stored, **Sel** and **Pset**.

3   ⌃ or ⌄ to the required talkgroup.
    OR
    Use the keypad to enter the number of the corresponding talkgroup in the list.

4   Press the **Menu Select** button directly below **Sel** to save the currently displayed talkgroup and return to the home display.
    OR

Press the **Menu Select** button directly below Pset to select the preset preprogrammed talkgroup.

5 If the encryption key slaved to the new talkgroup is erased, a momentary key fail tone sounds and the display shows Key fail.
OR
If the encryption key that is slaved to the new talkgroup is not allowed, a momentary key fail tone sounds and the display shows Illegal Key.

6 Press 🏠 or the **PTT** button to exit.
OR
Turn the **16-Position Select** knob to exit.

☐ Sending a Status Call (ASTRO 25 Trunking Only)

This feature allows you to send data calls to the dispatcher about a predefined status.

Note: Each status can have up to a 12-character name. A maximum of eight status conditions is possible.

Procedure:
Press the preprogrammed **Status** button and proceed to Step 3 of the procedure below.
OR
Follow the procedure below.

1 ◁ or ▷ to Sts.

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

3 The display shows the last acknowledged status call, or the first status in the list.

4 ⌃ or ⌄ to the required status.
OR
Use the keypad to enter a number corresponding to the location in the status list.

5 Press the **PTT** button to send the status.

6 When the dispatcher acknowledges, four tones sound and the display shows Ack Received. The radio returns to normal dispatch operation.
OR
If no acknowledgment is received, a low-pitched tone sounds and the display shows No Acknowldg.

7 Press 🏠 to return to the home display.

No traffic is heard on trunked channels while Status Calls is selected.

*If the radio detects no Status Call activity for six seconds, an alert tone sounds until you press 🏠 or the **PTT** button.*

☐ Using the Dynamic Regrouping Feature (Trunking Only)

This feature allows the dispatcher to temporarily reassign selected radios to a single special channel so they can communicate with each other. This feature is typically used

33

English

during special operations and is enabled by a qualified radio technician.

You will not notice whether your radio has this feature enabled until a dynamic regrouping command is sent by the dispatcher.

Note: If you try to access a zone or channel that has been reserved by the dispatcher as a dynamically regrouped mode for other users, an invalid tone sounds.

Procedure:

1 When your radio is dynamically regrouped, it automatically switches to the dynamically regrouped channel. A "gurgle" tone sounds and the display shows the dynamically regrouped channel's name.

2 Press the **PTT** button to talk. Release **PTT** button to listen.

When the dispatcher cancels dynamic regrouping, the radio automatically returns to the zone and channel that you were using before the radio was dynamically regrouped.

⃞ *Requesting a Reprogram (ASTRO 25 Trunking Only)*

This feature lets you notify the dispatcher that you want a new dynamic regrouping assignment.

Procedure:

Press the preprogrammed **Reprogram Request** button to send reprogram request to the dispatcher and proceed to Step 3 of the procedure below.

OR

Follow the procedure below.

1 ◁ or ▷ to **Rpgm**.

2 Press the **Menu Select** button directly below **Rpgm** to send reprogram request to the dispatcher.

3 The display shows **Reprgrm rqst**.

4 If you hear one beep:
Press the **PTT** button to send the reprogram request again or press 🏠 to cancel and return to the home display.
OR
If you hear five beeps, the dispatcher has acknowledged the reprogram request. Your radio returns to the home display.
OR
If the dispatcher does not acknowledge the reprogram request within six seconds, a low-pitched alert tone sounds and the display shows **No Acknowldg**.
Try again or press 🏠 to cancel and return to the home display.

⃞ *Classifying Regrouped Radios*

The dispatcher can classify regrouped radios into either of two categories: **Select Enabled** or **Select Disabled**.

• Select-enabled radios are free to change to any available channel, including the dynamic-regrouping channel, once the user has selected the dynamic-regrouping position.

- Select-disabled radios cannot change channels while dynamically regrouped. The dispatcher has forced the radio to remain on the dynamic-regrouping channel.

The Scan or Private Call feature cannot be selected while your radio is Select Disabled.

■ Contacts

This feature provides "address-book" capabilities on your radio. Each entry corresponds to an alias (name) or ID (number) that you use to initiate a call.

Contacts manages up to 10,000 contact entries, alphabetically sorted according to entry alias or ID.

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

It also supports a maximum of 50 call lists. Each list can store up to 100 contact aliases. Each alias can have up to 10 IDs of different call types associated with it.

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

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

Each entry within Contacts displays the following information:

- Call Alias (Name)
- Call ID (Number)
- Call Type (Icon)

Note: The radio automatically exits the feature, if the time-out timer is enabled, when the radio is left idle and time is

35

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

◪ Making a Private Call from Contacts

Procedure:
Use the Options Menu.

1 ◁ or ▷ to `Cnts`.

2 Press the **Menu Select** button directly below `Cnts`. The entries are alphabetically sorted.

3 △ or ▽ to the required subscriber alias or ID.

4 Press the **Menu Select** button directly below `Optn`.

5 △ or ▽ to `Call` and press the **Menu Select** button directly below `Sel`.

6 △ or ▽ to select the call type.

7 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

8 Press the **PTT** button to initiate the call.

9 During the call, the display shows the subscriber alias, if it is in the call list.
OR
During the call, the display shows the subscriber ID, if the caller's name is not in the call list.

10 Press and hold the **PTT** button to talk. Release the **PTT** button to listen. The LED lights up solid green.

11 If there is no voice activity for a programmed period of time, the call ends.
OR
The call ends when it reaches the maximum ring time.

OR

Use the **PTT** button.

1 ◁ or ▷ to `Cnts`.

2 Press the **Menu Select** button directly below `Cnts`. The entries are alphabetically sorted.

3 △ or ▽ to the required subscriber alias or ID.

4 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

5 Press the **PTT** button to initiate the call.

6 During the call, the display shows the subscriber alias, if it is in the call list.
OR
During the call, the display shows the subscriber ID, if the caller's name is not in the call list.

7 Press and hold the **PTT** button to talk. Release the **PTT** button to listen. The LED lights up solid green.

8 If there is no voice activity for a programmed period of time, the call ends.
OR
The call ends when it reaches the maximum ring time.

◫ Adding a New Contact Entry

Procedure:

1 ◁ or ▷ to Cnts.

2 Press the **Menu Select** button directly below Cnts. The entries are alphabetically sorted.

3 △ or ▽ to New Contact and press the **Menu Select** button directly below Sel.

4 △ or ▽ to New Name and press the **Menu Select** button directly below Edit.

5 You see Please enter a name and a blinking cursor appears.
Use the keypad to enter the name.
Press ◁ to move one space to the left.
Press ▷ to move one space to the right.
Press **Menu Select** button directly below Del to delete any unwanted characters.
Press and hold ⌨ to toggle between normal text entry mode, uppercase mode and num lock mode.

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

7 Repeat Steps 4 through 6 to enter the ID and call type.

8 Press the **Menu Select** button directly below Done once you have finished entering the information.

9 You see <Entry> Stored, confirming that the contact entry has been added.

◫ Deleting a Contact Entry

Procedure:

1 ◁ or ▷ to Cnts.

2 Press the **Menu Select** button directly below Cnts. The entries are alphabetically sorted.

3 △ or ▽ to the entry you want to delete and press the **Menu Select** button directly below Optn.

4 △ or ▽ to Delete and press the **Menu Select** button directly below Sel.

5 You see Deleting <Entry> Confirmed? on the display.

6 Select Yes to delete the entry.
You see <Entry> deleted and the radio returns to the main screen for Contacts.
OR
Select No to return to the main screen for Contacts.

37

🗐 Adding a Contact to a Call List

Procedure:

1 ◁ or ▷ to Cnts.

2 Press the **Menu Select** button directly below Cnts. The entries are alphabetically sorted.

3 △ or ▽ to the entry you want to add to the call list and press the **Menu Select** button directly below Optn.

4 △ or ▽ to Add to Call List and press the **Menu Select** button directly below Sel.

5 You see <Entry> Added to Call List, confirming the addition of the contact to the list.

6 The radio returns to the main display for Contacts.

🗐 Editing a Contact in a Call List

🗐 *Editing an Entry Alias*

Procedure:

1 ◁ or ▷ to Cnts.

2 Press the **Menu Select** button directly below Cnts. The entries are alphabetically sorted.

3 △ or ▽ to the entry you want to edit and press the **Menu Select** button directly below Optn.

4 △ or ▽ to Edit and press the **Menu Select** button directly below Sel.

5 △ or ▽ to the entry alias you wish to change and press the **Menu Select** button directly below Edit.

6 A blinking cursor appears.
Use the keypad to edit the name.
Press ◁ to move one space to the left.
Press ▷ to move one space to the right.
Press **Menu Select** button directly below Del to delete any unwanted characters.
Press and hold 🖵 to toggle between normal text entry mode, uppercase mode and num lock mode.

7 Press the **Menu Select** button directly below OK once you have finished. The display returns to the Edit Contact screen.

8 Press the **Menu Select** button directly below Done to save your changes and return to the main screen for Contacts.

🗐 *Editing as Entry ID*

Procedure:

1 ◁ or ▷ to Cnts.

2 Press the **Menu Select** button directly below Cnts. The entries are alphabetically sorted.

38

3 $\frown$ or $\smile$ to the entry you want to edit and press the **Menu Select** button directly below `Optn`.

4 $\frown$ or $\smile$ to `Edit` and press the **Menu Select** button directly below `Sel`.

5 $\frown$ or $\smile$ to the entry ID you wish to change and press the **Menu Select** button directly below `Edit`.

6 A blinking cursor appears.
Use the keypad to edit the number.
Press $\triangleleft$ to move one space to the left.
Press $\triangleright$ to move one space to the right.
Press **Menu Select** button directly below `Del` to delete any unwanted characters.
Press and hold 🔒 to toggle between normal text entry mode, uppercase mode and num lock mode.

7 Press the **Menu Select** button directly below `OK` once you have finished. The display returns to the Edit Contact screen.

8 Press the **Menu Select** button directly below `Done` to save your changes and return to the main screen for Contacts.

▯ *Editing a Call Type*

Procedure:

1 $\triangleleft$ or $\triangleright$ to `Cnts`.

2 Press the **Menu Select** button directly below `Cnts`. The entries are alphabetically sorted.

3 $\frown$ or $\smile$ to the entry you want to edit and press the **Menu Select** button directly below `Optn`.

4 $\frown$ or $\smile$ to `Edit` and press the **Menu Select** button directly below `Sel`.

5 $\frown$ or $\smile$ to `Type` and press the **Menu Select** button directly below `Edit`.

6 $\frown$ or $\smile$ to choose from the list of call types given and press the **Menu Select** button directly below `OK` to select.

7 The display returns to the Edit Contact screen.

8 Press the **Menu Select** button directly below `Done` to save your changes and return to the main screen for Contacts.

▯ **Viewing a Details of a Contact**

Procedure:

1 $\triangleleft$ or $\triangleright$ to `Cnts`.

2 Press the **Menu Select** button directly below `Cnts`. The entries are alphabetically sorted.

3 $\frown$ or $\smile$ to the entry you want to view and press the **Menu Select** button directly below `Optn`.

Advanced Features

39

4 ⌃ or ⌄ to **View Contact** and press the **Menu Select** button directly below **Sel**.

5 You see all the numbers associated with the entry.

6 ⌃ or ⌄ to select the number and press the **Menu Select** button directly below **Call** make the call.
OR
Press **Exit** or 🏠 to return to the home display.

■ **Scan Lists**

Scan lists are created and assigned to individual channels/groups. Your radio scans for voice activity by cycling through the channel/group sequence specified in the scan list for the current channel/group.

Your radio can support up to 32 different scan lists. These lists must be preprogrammed by a qualified radio technician.

Viewing a Scan List

Procedure:

1 ◁ or ▷ to **View**.

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

3 ⌃ or ⌄ to view the available lists.

4 Press the **Menu Select** button directly below the name of the list you wish to view. The display shows the View mode icon and the first list member.

5 ⌃ or ⌄ to view other list members.

6 Press 🏠 to exit the current display and return to the home display.

If you wish to view a scan list and the list has no entries, you see EMPTY LIST. To end this display, turn scan off or edit the list.

🔲 Editing the Scan List

This feature lets you change scan list members and priorities.

Note: The maximum number of members for a trunking priority monitor scan list is 15; for a conventional scan list, 15; and for a talkgroup scan list, 10.

Procedure:
Use the preprogrammed **Select (Top Side)** button.

1. ◁ or ▷ to **Prog**.

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

3. ⌃ or ⌄ to **Scan**.

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

5. The display shows the programming mode icon and the first list member.

6. ⌃ or ⌄ to the number you want to edit.

7. Press the **Select** button once to add the currently displayed channel to the scan list.

8. ⌃ or ⌄ to select more list members whose scan status you want to change.
   OR
   Use the keypad to go directly to that scan list member.
   OR

Use the **16-Position Select** knob to select another scan list member.

9. Press 🏠 to exit scan list programming and return to the home display.

OR

Move the preprogrammed **Scan List Programming** switch to programming position and proceed to Step 5 of the procedure below.
OR
Follow the procedure below.

1. ◁ or ▷ to **Prog**.

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

3. ⌃ or ⌄ to **Scan**.

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

5. The display shows the programming mode icon and the first list member.

6. ⌃ or ⌄ to the number you want to edit.

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

41

the currently displayed channel from the scan list.
OR

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

8 $\smallsmile$ or $\smallfrown$ to select more channels to be added or deleted.
OR

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

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

9 Move the **Scan List Programming** switch out of programming position.
OR

Press 🏠 to exit scan list programming and return to the home display.

*See **Viewing and Changing the Priority Status** on page 42 for more details on how to add and/or change the priority of the currently displayed channel in the scan list.*

Changing the Scan List Status

Procedure:

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

2 The display shows the programming mode icon and the first list member.

3 $\smallsmile$ or $\smallfrown$ to the number you want to edit.

4 Press the **Select** button once to add the currently displayed channel to the scan list.
OR

Press the **Select** button one or more times to change the scan list status icon of the currently displayed channel.

5 $\smallsmile$ or $\smallfrown$ to select more list members whose scan status you want to change.
OR

Use the keypad to go directly to that scan list member.
OR

Use the **16-Position Select** knob to select another scan list member.

6 Move the **Scan List Programming** switch out of programming position.

Viewing and Changing the Priority Status

Procedure:

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

At the below `Sel`, `Del`, and `Rcl` screen, press the **Select**

button one or more times to view and/or change the scan list status icon of the currently displayed channel.

2 A Scan icon indicates that the current channel is in the scan list as a non-priority channel.
OR
A Priority-Two Channel Scan icon indicates that the current channel is in the scan list as the priority 2 channel.
OR
A Priority-One Channel Scan icon indicates that the current channel is in the scan list as the priority 1 channel. You hear all traffic on the priority 1 channel, regardless of traffic on non-priority channels.
OR
No icon indicates that the current channel is deleted from the scan list.

You cannot delete a priority channel from a scan list. In a talkgroup scan list, priority cannot be assigned.

■ Scan

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

☐ Turning Scan On or Off

Procedure:
Press the preprogrammed **Scan** button, or turn the preprogrammed Scan switch to the Scan On or Scan Off position, to start or stop Scan.
OR
Follow the procedure below.

1 ◁ or ▷ to **Scan**.

2 Press the **Menu Select** button directly below **Scan**. The display shows the current radio setting.

3 The display shows **Scan Off** if scan is disabled. Press the **Menu Select** button directly below **On** to enable scan.
OR
The display shows **Scan On** and the scan status icon if scan is enabled. Press the **Menu Select** button directly below **Off** to disable scan.

⬛ Making a Dynamic Priority Change (Conventional Scan Only)

While the radio is scanning, the dynamic priority change feature allows you to temporarily change any channel in a scan list (except for the priority-one channel) to the priority-two channel.

The replaced (old) priority-two channel then becomes a non-priority channel. This change remains in effect until scan is turned off. Scan then reverts to the preprogrammed state.

Procedure:

1 When the radio locks onto the channel designated as the new priority-two channel, press the preprogrammed **Dynamic Priority** button.

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

To resume scanning the preprogrammed priority-two channel, you must leave and re-enter scan operation.

⬛ Deleting a Nuisance Channel

If a channel continually generates unwanted calls or noise (termed a "nuisance" channel), you can temporarily remove the unwanted channel from the scan list.

This capability does not apply to priority channels or the designated transmit channel.

Note: Deleting a "nuisance" channel is **only** possible through the preprogrammed **Nuisance Channel Delete** button. This feature is **not** accessible through the menu.

Procedure:

1 When the radio is locked onto the channel to be deleted, press the preprogrammed **Nuisance Delete** button.

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

⬛ Restoring a Nuisance Channel

Procedure:
To restore the deleted nuisance channel, do **one** of the following:

• Turn the radio off and then turning it on again.

  OR

• Stop and restart a scan via the preprogrammed **Scan** button or menu.

OR

- Change the channel via the **16-Position Select** knob.

■ Call Alert Paging

This feature allows your radio to work like a pager.

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

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

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

▯ Receiving and Answering a Call Alert

Procedure:

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

2 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

3 Press and hold the **PTT** button to talk. Release the **PTT** button to listen.

▯ Sending a Call Alert Page

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

Procedure:
Press the preprogrammed **Quick Access (One-Touch) Call Alert Paging** button to send a page to the preprogrammed ID and proceed to Step 5 of the procedure below.
OR
Follow the procedure below.

1 ◁ or ▷ to Call.

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

3 ⌃ or ⌄ to select the alias or ID, and press the PTT button to initiate the call.

4 If the target radio does not respond after a programmed period of time, you see **Send page?** on the display.

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

6 The display shows Paging <Alias>.

7 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

8 When you are connected, you see the home display. Press and hold the **PTT** button to talk. Release the **PTT** button to listen.
   OR
   If an individual Call Alert page is not acknowledged, the display shows No Acknowldg.

9 Press the **Call Response** button to hang up and return to the home display.
   OR
   Press 🏠 to hang up and return to the home display.

46

■ Emergency Operation

An Emergency Alarm is used to indicate a critical situation.

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

Your radio supports the following Emergency Alarms:

- Emergency Alarm
- Emergency Call
- Emergency Alarm with Emergency Call
- Silent Emergency Alarm

Consult a qualified radio technician for emergency programming of your radio.

Only **one** of the Emergency Alarms above can be assigned to the preprogrammed **Emergency** button.

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

▯ Sending an Emergency Alarm

This feature allows you to send a data transmission, which identifies the radio sending the emergency, to the dispatcher.

Procedure:

1 Press the preprogrammed **Emergency** button.

2 The display shows Emergency, which alternates with the current zone/channel. A short, medium-pitched tone sounds and the LED lights up solid red.
OR
The display shows No Emergency, if the selected channel does not support emergency. Select a channel that shows Emergency.

3 When you receive the dispatcher's acknowledgment, the display shows Ack Receivd. Four tones sound, the alarm ends, and the radio exits the Emergency Alarm mode.
OR
If no acknowledgement is received, the display shows No Acknowldg. The alarm ends and the radio exits the Emergency Alarm mode.

⊓ Sending an Emergency Call

This feature gives your radio priority access on a channel.

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

- **Tactical/Non-Revert** – You talk on the channel you selected before you entered the emergency state.

- **Non-Tactical/Revert** – You talk on a preprogrammed emergency channel. The emergency alarm is sent on this same channel.

Procedure:

1 Press the preprogrammed **Emergency** button.

2 The display shows Emergency, which alternates with the current zone/channel. A short, medium-pitched tone sounds and the LED lights up solid red.
OR
The display shows No Emergency, if the selected channel does not support emergency. Select a channel that shows Emergency.

3 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

4 Press and hold the **PTT** button. Speak clearly into the microphone.

5 Release the **PTT** button to end the transmission and wait for a response from the dispatcher.

6 Press and hold the preprogrammed **Emergency** button for about a second to exit the Emergency Call mode.

⊓ Sending an Emergency Alarm with Emergency Call

Procedure:

1 Press the preprogrammed **Emergency** button.

2 The display shows Emergency, which alternates with the current zone/channel. A short, medium-pitched tone sounds and the LED lights up solid red.
OR
The display shows No Emergency, if the selected channel does not support emergency. Select a channel that shows Emergency.

3 The radio enters the Emergency Call state when:
You receive the dispatcher's acknowledgment. The display shows Ack Receivd.
OR
You press the **PTT** button while in the Emergency Alarm mode.

4 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

5 Press and hold the **PTT** button. Speak clearly into the microphone.

6 Release the **PTT** button to end the transmission and wait for a response from the dispatcher.

7 Press and hold the preprogrammed **Emergency** button for about a second to exit the Emergency Call mode.

⬚ Sending a Silent Emergency Alarm

This feature allows you to send an Emergency Alarm to another radio without any audio or visual indicators.

Upon acknowledgement, your radio's microphone is automatically activated, allowing you to communicate with the other radio without pressing the **PTT** button.

This activated microphone state is also known as "hot mic".

If you press the **PTT** button during the preprogrammed hot mic transmission period, the radio ignores the **PTT** press and remains in Emergency mode.

Note: If you press the **PTT** button during hot mic, and continue to press it after the hot mic duration expires, the radio continues to transmit until you release the **PTT** button.

Procedure:

1 Press the preprogrammed **Emergency** button.

2 The display shows no changes, the LED does not light up, and you hear no tones.

3 The silent emergency state continues until you:
Press and hold the preprogrammed **Emergency** button for about a second to exit the Silent Emergency Alarm mode.
OR
Press and release the **PTT** button to exit the Silent Emergency Alarm mode and enter regular dispatch or Emergency Call mode.

Note: For **ALL** Emergency signals, when changing channels:

• If the new channel is also preprogrammed for Emergency, you can change channels while in Emergency operation. The emergency alarm or call continues on the new channel.

• If the new channel is **NOT** preprogrammed for Emergency, the display shows No emergency, and you hear an invalid tone until you exit the Emergency state or change to a channel preprogrammed for Emergency.

⬜ Using the Emergency Keep-Alive Feature

This feature, when enabled, prevents the radio from being turned off via the **On/Off Control** knob when the radio is in the Emergency state.

Note: The radio only exits the Emergency state using one of the ways mentioned in the previous sections.

Advanced Features

Automatic Registration Service (ARS) User Login

This feature provides an automated data application registration for the radio. When you turn on the radio, the device automatically registers with the server.

Data applications within the fixed network can determine the presence of a device on the system and send data to the device. For example: Text Messaging Service (TMS).

The Automatic Registration Service for the radio consists of two (2) modes:

- ARS Server Mode (default mode)
- ARS Non-Server Mode

Note: The default ARS mode can be changed by a qualified radio technician using the radio's programming software.

Selecting or Changing the ARS Mode

Procedure:
Turn the preprogrammed **16-Position Select** knob, once the zone you want is displayed, to the desired mode.
OR
Follow the procedure below.

1 ◁ or ▷ to **Chan**.

2 Press the **Menu Select** button directly below **Chan**. The display shows the User Login Indicator icon, the zone, and a blinking current channel name.

3 ⌃ or ⌄ to the required channel or mode.

4 In ARS Server Mode, the display shows the User Login Indicator icon, the zone, and **ARSsvr**.
OR
In ARS Non-Server Mode, the display shows the User Login Indicator icon, the zone, and **Nonsvr**.
OR
If the channel or mode selected is unprogrammed, the display shows **Unprogrammed**. Repeat Step 3.

5 Press 🏠 to confirm the displayed zone and channel.

⬚ **Accessing the User Login Feature**

This feature allows you as the user to be associated with the radio. With this association, every data application (Example: Text Messaging Service) takes on a friendly username.

You can still send text messages without logging in as a user. The user login feature only enables the recipient of your message to identify you as the sender by assigning a username to your message.

Note: Valid characters for a username entry are capital letters A-Z, small letters a-z, numbers 0-9, '*', '#', '-', '/' and the space character.

The maximum length for a username is eight (8) characters. Usernames are not case sensitive in server mode but are case sensitive in non-server mode.

A predefined username may sometimes be invalid because the programming software that is used to set predefined usernames allows you to set usernames comprising of eight (8) characters or more.

⬚ *Logging In as a User*

Procedure:
Press the preprogrammed **User Login** button and proceed to Step 3.
OR
Follow the procedure below.

1 ◁ or ▷ to **User**.

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

3 The display shows the User Login screen.

4 Press the **Menu Select** button directly below **ID**.

5 A blinking cursor appears beside **ID**.
Use the keypad to enter a username via direct entry using the keypad multi-tap function.
OR
△ or ▽ to scroll through the list of predefined usernames.
Press the **Menu Select** button to select a predefined username.
OR
Press and hold △ or ▽ to scroll through the list of predefined usernames at a fast scroll rate.
Press the **Menu Select** button to select a predefined username.

6 If the selected predefined username has more than eight (8) characters, or an invalid character in it, the display momentary shows **Invalid ID**. Repeat Step 5.

OR

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

7 A blinking cursor appears beside **Pin**.

   Enter your Personal Identification Number (PIN) number.
   The maximum PIN length is 4 digits. The PIN number
   appears as asterisks.

8 Press the **Menu Select** button directly below **Logn**.

9 In ARS Server Mode, the display shows the User Login
   Indicator icon, the ID, **In progress** and **Cncl**.
   OR
   In ARS Non-Server Mode, the display shows the User Login
   Indicator icon, the ID, **Logged in** and **Logt**.
   OR
   In non-ARS enabled mode, the display shows **Offline** and
   Logt.

10 If the username is invalid, login fails and the user login
   failure indicator (IP indicator) icon blinks. The display also
   momentary shows **Login failed**. Repeat Step 5.
   OR
   If the PIN is invalid, login fails and the user login failure
   indicator (IP indicator) icon blinks. The display also
   momentary shows **Login failed**. Repeat Step 7.
   OR
   Press the **Menu Select** button directly below **Cncl** to cancel
   the login in progress screen and return to the initial user
   login screen.
   OR

Wait for the logged in confirmation screen. If the login
process is successful, the display shows the successful user
login indicator (IP indicator) icon and **Logged in** and **Logt**.

⧉ *Logging Out*

Once the data application registration is completed, you can log
out.

Procedure:

1 Press the **Menu Select** button directly below **Logt**.

2 Display shows the User Login Indicator icon and **Clr
   private data?**.

3 Select **Yes** to clear all your private data. The display
   momentary shows **Private data cleared**.
   OR
   Select **No** to keep your private data.

Note: Private data refers to all messages in the text
messaging inbox, Draft, and Sent folder. The next user
is able to access the Inbox, Draft and Sent messages if
private data is not deleted.

■ Text Messaging Service (TMS)

This feature allows you to send and receive text messages. The **maximum** length of characters for a text message is **200**.

There are three (3) types of text messages:

- A new text message (free form message)
- A predefined message (quick text message)
- An edited quick text message

The main menu consists of the following options:

- Inbox
- Compose
- Drafts
- Sent

Note: See *Status Icons* on page 15 for more details on the TMS icons and *Menu Options* on page 16 for more details on each menu option.

⎙ Accessing the TMS Features

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

Procedure:
Press the preprogrammed **TMS** button or the **TMS Feature** button to access the TMS feature screen.
OR
Press and hold the preprogrammed **TMS** button to access the Inbox screen.
OR
Follow the procedure below.

1 ◁ or ▷ to **TMS**.

2 Press the **Menu Select** button directly below **TMS** to access the TMS feature screen.

3 ⌃ or ⌄ to scroll through the main menu options.

⎙ Composing and Sending a New Text Message

Note: During the uppercase mode, multi-tapping the keys only scrolls through the uppercase letters. For example, A->B->C->2.

During the num lock mode, pressing the keypad only enters the numeric digits. Subsequent presses of the

same key inserts the same digit to the text message (no multi-tap).

Procedure:

1   ◁ or ▷ to **TMS**.

2   Press the **Menu Select** button directly below **TMS** to access the TMS feature screen.

3   △ or ▽ to **Compose** and press the **Menu Select** button directly below **Sel**.
    OR
    Press the **Menu Select** button directly below **Exit** to return to the TMS feature screen.

4   △ or ▽ to **Text Message** and press the **Menu Select** button directly below **Sel** to compose a new message.

5   A blinking cursor appears on the **Compose** screen.
    Use the keypad to type or edit your message.
    Press ◁ to move one space to the left.
    Press ▷ to move one space to the right.
    Press **Menu Select** button directly below **Del** to delete any unwanted characters.
    Press and hold ⌨ to toggle between normal text entry mode, uppercase mode and num lock mode.

6   Press the **Menu Select** button directly below **Optn** once the message is composed.

7   △ or ▽ to **Send Message** and press the **Menu Select** button directly below **Sel**.

8   A blinking cursor appears in the **Enter Address** screen. Use the keypad to type the direct address entry via multi-tap.
    Press **Menu Select** button directly below **Del** to delete any unwanted characters.
    OR
    △ or ▽ to scroll through the address list and press the **Menu Select** button below **Sel** to select the required address.

9   Press the **Menu Select** button below **Send** to send the message.
    OR
    Press the **PTT** button to send the message.

10 You see the **Send Message** screen and **Sending msg** on the display.

*Press the **Menu Select** button directly below **Back** at any time to return to the previous screen.*

Note: You can append a priority message and/or a request reply to your message. See ***Using the Priority Message and Request Reply Features*** on **page 58** for more details.

You can also select the **Save to Drafts** option to save your message in the Drafts folder to send it at a later

Advanced Features

55

time. See *Accessing the Drafts Folder* on **page 60** for more details.

⬚ Sending a Quick Text Message

Quick Text messages are messages that are predefined and usually consist of messages that are used most frequently.

Each Quick Text message has a **maximum** length of 50 characters.

Procedure:
Press the preprogrammed **Quick Text** button and proceed to Step 3.
OR
Follow the procedure below.

1 ◁ or ▷ to **TMS**.

2 Press the **Menu Select** button directly below **TMS** to access the TMS feature screen.

3 △ or ▽ to **Compose** and press the **Menu Select** button directly below **Sel**.
OR
Press the **Menu Select** button directly below **Exit** to return to the TMS feature screen.

4 △ or ▽ to **Quick Text** and press the **Menu Select** button directly below **Sel** for a predefined message.

5 △ or ▽ to scroll through the list of messages and press the **Menu Select** button directly below **Sel** to select the required message.

6 The message appears on the **Compose** screen, with a blinking cursor at the end of it.

7 Press the **Menu Select** button directly below **Optn**.

8 △ or ▽ to **Send Message** and press the **Menu Select** button directly below **Sel** to send the message.

9 A blinking cursor appears in the **Enter Address** screen. Use the keypad to type the direct address entry via multi-tap.
Press **Menu Select** button directly below **Del** to delete any unwanted characters.
OR
△ or ▽ to scroll through the address list and press the **Menu Select** button below **Sel** to select the required address.

10 Press the **Menu Select** button below **Send** to send the message.
OR
Press the **PTT** button to send the message.

11 You see the **Send Message** screen and **Sending msg** on the display.

Press the **Menu Select** *button directly below* **Back** *at any time to return to the previous screen.*

Note: You can append a priority message and/or a request reply to your message. See *Using the Priority Message and Request Reply Features* on **page 58** for more details.

◫ Editing a Quick Text Message

While Quick Text messages are predefined, you can edit each message before sending it. An edited Quick Text message has a **maximum** length of **200** characters.

Procedure:
Press the preprogrammed **Quick Text** button and proceed to Step 3.
OR
Follow the procedure below.

1 ◁ or ▷ to **TMS**.

2 Press the **Menu Select** button directly below **TMS** to access the TMS feature screen.

3 △ or ▽ to **Compose** and press the **Menu Select** button directly below **Sel**.
   OR
   Press the **Menu Select** button directly below **Exit** to return to the TMS feature screen.

4 △ or ▽ to **Quick Text** and press the **Menu Select** button directly below **Sel** for a predefined message.

5 △ or ▽ to scroll through the list of messages and press the **Menu Select** button directly below **Sel** to select the required message.

6 The message appears on the **Compose** screen, with a blinking cursor at the end of it.
   Use the keypad to edit your message.
   Press ◁ to move one space to the left.
   Press ▷ to move one space to the right.
   Press **Menu Select** button directly below **Del** to delete any unwanted characters.
   Press and hold ⌨ to toggle between normal text entry mode, uppercase mode and num lock mode.

7 Press the **Menu Select** button directly below **Optn** once you have finished editing the message.

8 △ or ▽ to **Send Message** and press the **Menu Select** button directly below **Sel** to send the message.

9 A blinking cursor appears on the **Enter Address** screen.
   Use the keypad to type the direct address entry via multi-tap.
   Press **Menu Select** button directly below **Del** to delete any unwanted characters.
   OR
   △ or ▽ to scroll through the address list and press the **Menu Select** button below **Sel** to select the required address.

57

10 Press the **Menu Select** button below **Send** to send the message.
OR
Press the **PTT** button to send the message.

11 You see the **Send Message** screen and **Sending msg** on the display.

*Press the **Menu Select** button directly below **Back** at any time to return to the previous screen.*

Note: You can append a priority message and/or a request reply to your message. See *Using the Priority Message and Request Reply Features* on **page 58** for more details.

⬚ Using the Priority Message and Request Reply Features

Before sending your message, you can append a priority message and/or a request reply to your message.

Note: The Priority Message icon on a message does not imply that the message gets higher priority over the other messages when it is being transmitted. It is just an indication that can be embedded into a message to let the receiver know that the message is important.

Procedure:

After the outgoing message is composed (see *Composing and Sending a New Text Message* on page 54 for more information):

1 Press the **Menu Select** button directly below **Optn**.

2 ⌃ or ⌄ to **Mark Important** and press the **Menu Select** button directly below **Sel** to indicate the message as important.
AND/OR
⌃ or ⌄ to **Req Reply** and press the **Menu Select** button directly below **Sel** to request for a reply.

3 A blinking cursor appears on the **Enter Address** screen. Use the keypad to type the direct address entry via multi-tap.
Press **Menu Select** button directly below **Del** to delete any unwanted characters.
OR
⌃ or ⌄ to scroll through the address list and press the **Menu Select** button below **Sel** to select the required address.

4 Press the **Menu Select** button below **Send** to send the message.
OR
Press the **PTT** button to send the message.

5 You see the **Send Message** screen and **Sending msg** on the display.

*Press the **Menu Select** button directly below **Back** at any time to return to the previous screen.*

⫟ Managing Text Messages

⫟ *Receiving a Text Message*

Note: When you receive a message that is flagged with the "Request Reply" icon, you must manually respond to the sender that you have received the message. The system will not automatically send back a notification that the radio has received such message.

Procedure:
When you receive a message:

1 The new message icon appears and the display momentarily shows **New msg**.

2 Press the **Menu Select** button directly below **TMS** to access the message.

3 Selected message in the Inbox opens.

⫟ *Viewing a Text Message from the Inbox*

The Inbox can hold up to 30 messages.

Note: ⌃ or ⌄ to read the message if fills more than one screen.

Procedure:
Press the preprogrammed **TMS** button or the **TMS Feature** button to access the TMS feature screen, and proceed to Step 3.
OR
Press and hold the preprogrammed **TMS** button to access the Inbox screen and proceed to Step 4.
OR
Follow the procedure below.

1 ◁ or ▷ to **TMS**.

2 Press the **Menu Select** button directly below **TMS** to access the TMS feature screen.

3 ⌃ or ⌄ to **Inbx** and press the **Menu Select** button below **Sel**.

4 The display shows the message status icon at the top of the screen, and a list of aliases or ID.

5 ⌃ or ⌄ to the required aliases or ID and press the **Menu Select** button below **Sel** to view the message.

*Press the **Menu Select** button directly below **Rply**, **Del**, or **Back** to access the option.*

• *Select **Rply** to reply to the message.*

• *Select **Del** to delete the message.*

• *Select **Back** to return to the previous screen.*

59

🗐 *Replying to a Received Text Message*

Note: The original date and time stamp, address and message content is automatically appended to the reply message.

Procedure:

1 🔼 or 🔽 to the required aliases or ID and press the **Menu Select** button below **Sel** to view the message.

2 Press the **Menu Select** button directly below **Rply** to reply to a message.

3 🔼 or 🔽 to **Text Message** and press the **Menu Select** button directly below **Sel**.
OR
🔼 or 🔽 to **Quick Text** and press the **Menu Select** button directly below **Sel** for a predefined message.
🔼 or 🔽 to scroll through the list of messages and press the **Menu Select** button directly below **Sel** to select the required message.

4 A blinking cursor appears on the **Compose** screen.
OR
The predefined message appears on the **Compose** screen, with a blinking cursor at the end of it.

5 Use the keypad to type or edit your message.
Press ◁ to move one space to the left.
Press ▷ to move one space to the right.

Press **Menu Select** button directly below **Del** to delete any unwanted characters.
Press and hold 🔲 to toggle between normal text entry mode, uppercase mode and num lock mode.

6 Press the **Menu Select** button directly below **Optn** once you have finished writing the message.

7 🔼 or 🔽 to **Send Message** and press the **Menu Select** button directly below **Sel** to send the message.

8 You see the **Send Message** screen and **Sending msg** on the display.

*Press the **Menu Select** button directly below **Back** at any time to return to the previous screen.*

Note: You can append a priority message and/or a request reply to your message. See *Using the Priority Message and Request Reply Features* on **page 58** for more details.

🗐 *Accessing the Drafts Folder*

This folder stores the messages that were saved previously. The Drafts folder can hold up to 10 messages. The oldest draft in the folder is deleted when the 11th message comes in.

Procedure:

1 ◁ or ▷ to **TMS**.

2 Press the **Menu Select** button directly below **TMS** to access the TMS feature screen.

3 ⌃ or ⌄ to **Drafts** and press the **Menu Select** button below **Sel**.

4 The display shows a list of messages.

5 ⌃ or ⌄ to the required text message press the **Menu Select** button below **Sel** to view the message.

Press the **Menu Select** *button directly below* **Edit**, **Del**, *or* **Back** *to access the option.*

- *Select* **Edit** *to edit the message before sending it.*
- *Select* **Del** *to delete the message.*
- *Select* **Back** *to return to the previous screen.*

▯ **Managing Sent Text Messages**

Once a message is sent to another radio, it is saved in the Sent folder. The most recent sent text message is always added to the top of the Sent list.

The Sent folder is capable of storing a maximum of ten (10) last sent messages. When the folder is full, the next sent text message automatically replaces the oldest text message in the folder.

▯ *Viewing a Sent Text Message*

Note: The icon at the top right corner of the screen indicates the status of the message. See *Text Messaging Service (TMS)* on page 15 for more information.

Procedure:

Press the preprogrammed **TMS** button or the **TMS Feature** button to access the TMS feature screen, and proceed to Step 3.
OR
Follow the procedure below.

1 ◁ or ▷ to **TMS**.

2 Press the **Menu Select** button directly below **TMS** to access the TMS feature screen.

3 ⌃ or ⌄ to **Sent** and press the **Menu Select** button below **Sel**.

4 The display shows a list of aliases or ID.

5 ⌃ or ⌄ to the required aliases or ID and press the **Menu Select** button below **Sel** to view the message.

Press the **Menu Select** *button directly below* **Optn**, **Del**, *or* **Back** *to access the option.*

- *Select* **Optn** *to send to the message.*
- *Select* **Del** *to delete the message.*
- *Select* **Back** *to return to the previous screen.*

61

⟐ *Sending a Sent Text Message*

Procedure:

1 Press the **Menu Select** button directly below Optn while viewing the message.

2 ⌃ or ⌄ to Send Message and press the **Menu Select** button directly below Sel to send the message.

3 A blinking cursor appears on the Enter Address screen. Use the keypad to type the direct address entry via multi-tap.
Press **Menu Select** button directly below Del to delete any unwanted characters.
OR
⌃ or ⌄ to scroll through the address list and press the **Menu Select** button below Sel to select the required address.

4 You see the Send Message screen and Sending msg on the display.

Press the **Menu Select** *button directly below* Back *at any time to return to the previous screen.*

Note: You can append a priority message and/or a request reply to your message. See *Using the Priority Message and Request Reply Features* on **page 58** for more details.

⟐ *Deleting a Text Message*

Procedure:

From the Inbox, Draft, or Sent screen:

1 ⌃ or ⌄ to scroll through the messages.

2 Press the **Menu Select** button directly below Del to delete the current message
OR
Press the **Menu Select** button directly below Clr to delete all messages.

■ Secure Operations

Secure radio operation provides the highest commercially available level of voice security on both trunked and conventional channels.

Unlike other forms of security, Motorola digital encryption provides signaling that makes it virtually impossible for others to decode any part of an encrypted message.

Note: Secure operation is not available in trunked analog modes.

Selecting Secure Transmissions

Procedure:
Turn the preprogrammed **Secure/Clear** switch to the secure position.

Note: If the selected channel is programmed for clear-only operation – when you press the **PTT** button, an invalid mode tone sounds and the display shows Clr TX only.

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

Selecting Clear Transmissions

Procedure:
Turn the preprogrammed **Secure/Clear** switch to the clear position.

Note: If the selected channel is programmed for secure-only operation – when you press the **PTT** button, an invalid mode tone sounds and the display shows Sec TX only.

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

Managing Encryption

Loading an Encryption Key

Note: Refer to the key-variable loader (KVL) manual for equipment connections and setup.

Procedure:

1 Attach the KVL to your radio.

2 The display shows Keyloading, and all other radio functions, except for power down, backlight, and volume, are locked out.

3 Press the **PTT** button on the KVL. This loads the encryption keys into your radio.

4 When the key has been loaded successfully, the radio sounds a short tone for single-key radios.
OR
When the key has been loaded successfully, the radio sounds an alternating tone for multikey radios.

5 ◁ to backspace.
Secure-equipped radios – 6 to 8 characters.
Clear radios – 0 to 8 characters.

Using the Multikey Feature

This feature allows the radio to be equipped with as many as 48 different encryption keys and supports the DES-OFB algorithm.

There are two types:

- **Conventional Multikey** – The encryption keys can be tied (strapped), on a one-per-channel basis, through radio service software. In addition, you can have operator-selectable keys, operator-selectable keysets, and operator-selectable key erasure. If talkgroups are enabled in conventional, then the encryption keys are strapped to the talkgroups.

- **Trunked Multikey** – If you use your radio for both conventional and trunked applications, you have to strap your encryption keys for trunking on a per-talkgroup or announcement-group basis. In addition, you may strap a different key to other features, such as dynamic regrouping, failsoft, or emergency talkgroup. You can have operator-selectable key erasure.

Selecting an Encryption Key

Procedure:

1 ◁ or ▷ to **Key**.

2 Press the **Menu Select** button directly below `Key`. The display shows the last user-selected and stored encryption key, and the available menu selections.

3 △ or ▽ to scroll through the encryption keys.
OR
Use the keypad to enter the number of the desired key.

4 Press the **Menu Select** button directly below the desired menu selection.
OR
△ or ▽ to scroll through the menu selections.
Choose `Pset` or `Preset` to select the preset or default encryption key **OR** `Sel` to save the newly selected key and returns to the home display.

5 Press 🏠, the **PTT** button, or the `Abrt` menu selection to exit.
OR
Turn the **16-Position Select** knob to exit.

Note: If the selected key is erased, a momentary keyfail tone sounds and the display shows `Key fail`.
OR
If the selected key is not allowed, a momentary illegal key tone sounds and the display shows `Illegal key`.

Selecting a Keyset

64

This feature allows you to select one or more groups of several encryption keys from among the available keys stored in the radio.

For example, you could have a group of three keys structured to one keyset, and another group of three different keys structured to another keyset; by changing keysets, you would automatically switch from one set of keys to the other.

Every channel to which one of the original keys was tied now has the equivalent new key instead.

Note: Press ⌂, the **PTT** button, or the `Abrt` menu selection, or turn the **16-Position Select** knob to exit this menu at any time without changing the keyset selection.

Procedure:

1 ◁ or ▷ to `Keyset`.

2 Press the **Menu Select** button directly below `Keyset`. The display shows the last user-selected and stored keyset, and the available keyset menu selections.

3 Press the **Menu Select** button directly below the desired keyset.
OR
Use the keypad to enter the number of the desired keyset.

4 Press the **Menu Select** button directly below `Sel` to save the newly selected keyset.

5 The radio exits keyset selection and returns to the home display.

▢ *Using the Key Zeroization Feature*

This feature allows you to erase all or selected encryption keys.

Note: Press ⌂, the **PTT** button, or the `Abrt` menu selection, or turn the **16-Position Select** knob to exit this menu at any time without changing the keyset selection.

Procedure:
Use the Menu.

1 ◁ or ▷ to `Eras`.

2 Press the **Menu Select** button directly below `Eras`. The display shows the last user-selected and stored encryption key, and the available menu selections.

3 Press the **Menu Select** button directly below `All` to select all the encryption keys in the radio.
OR
Press the **Menu Select** button directly below `Sngl` to select the displayed encryption key to be erased.
OR
Press the **Menu Select** button directly below `Abrt` to exit this menu and returns to the home display.

4 At `Ers all keys`, press the **Menu Select** button directly below `Yes` to erase all the encryption keys in the radio **OR** `No` to return to the previous screen.

OR

At `Ers sngl key`, press the **Menu Select** button directly below `Yes` to erase the displayed encryption key **OR No** to return to the previous screen.

5   Press the **Menu Select** button directly below the desired menu selection.

OR

$\triangle$ or $\triangledown$ to find the desired encryption key. The display shows the selected key, and the available menu selections shown in Steps 3 and 4. Press the **Menu Select** button directly below the desired menu selection.

OR

Use the keypad to enter the number of the desired key. The display shows the selected key, and the available menu selections shown in Steps 3 and 4. Press the **Menu Select** button directly below the desired menu selection.

6   Press 🏠, the **PTT** button, or the `Abrt` menu selection to exit.

OR

Turn the **16-Position Select** knob to exit.

OR

Use the preprogrammed **Top Side** and **Top** buttons to erase the single key in radios with the single-key option, and to erase all keys in radios with the multikey option.

1   Press and hold the **Top Side** button.

2   While holding **Top Side** button down, press the **Top** button.

3   The display shows `Please wait`.

4   When all the encryption keys have been erased, the display shows `Erased`.

Note: **DO NOT** press the **Top** button before pressing the **Top Side** button, unless you are in an emergency situation as this sends an emergency alarm.

Requesting an Over-the-Air Rekey (ASTRO Conventional Only)

This feature, also known as **OTAR**, allows the dispatcher to reprogram the encryption keys in the radio remotely. The dispatcher performs the rekey operation upon receiving a rekey request from the user.

Procedure:

1   $\triangleleft$ or $\triangleright$ to `Reky`.

2   Press the **Menu Select** button directly below `Reky`.

3   Press the **PTT** button to send the rekey request.
OR
Press the **PTT** button again, or the **Home** or **Emergency** button, to exit the feature and transmit in normal mode.

4   If the rekey operation fails, a bad-key tone sounds and the display shows `Rekey fail`.

Note: The rekey operation failure indicates that your radio does not contain the Unique Shadow Key (USK). This key must be loaded into the radio with the key-variable loader (KVL) before the rekey request can be sent.

Refer to your local key management supervisor for more information.

◼ Security

⧉ Radio Lock

This feature changes your radio to a more robust security system that protects the use of the secure encryption keys.

If this feature is enabled in your radio by a qualified radio technician, when you turn the radio on, the display shows **Radio locked**.

⧉ *Unlocking Your Radio*

Procedure:

1 Enter your numeric password.

2 ◁ to backspace.
Secure-equipped radios – 6 to 8 characters.
Clear radios – 0 to 8 characters.

3 Press the preprogrammed **Select** button. If the password is correct, the radio unlocks.
OR
If the password is incorrect, the radio remains locked.

Note: If you enter three incorrect passwords in a row, the display shows **Deadlock**. Turn the radio off and then on, and begin again at Step 1.

IMPORTANT:

For Secure Radios Only – After a total of 17 consecutive incorrect passwords (turning the radio off and on does not reset this number), the radio erases all of its encryption keys and shows Deadlock. See a qualified radio technician.

Changing Your Password

Procedure:

1 ◁ or ▷ to Pswd.

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

3 Enter the old password.

4 Press the **Menu Select** button directly below Sel.

5 Enter the new password.

6 Press the **Menu Select** button directly below Sel.

7 Re-enter the new password.

8 Press the **Menu Select** button directly below Sel. The password is updated.
OR
If the two passwords do not match, repeat Steps 5 through 8.

Note: If you enter three incorrect old passwords, the radio exits the password feature. You cannot access this feature again until you turn the radio off and on.

Enabling or Disabling the Radio Lock Feature (Secure Radios Only)

This feature allows you to enable or disable the radio lock feature. It is programmable by a qualified radio technician.

Procedure:

1 ◁ or ▷ to Logf.

2 Press the **Menu Select** button directly below Logf. The display shows the current radio setting.

3 Press the **Menu Select** button directly below Enab to enable the radio lock feature.
OR
Press the **Menu Select** button directly below Dsab to disable the radio lock feature.

Global Positioning System (GPS) Enabled

Your RSM's GPS Enabled feature uses information from the Global Positioning System (GPS) satellites orbiting the Earth to determine the approximate geographical location of your RSM, expressed as latitude and longitude. The availability and accuracy of this location information (and the amount of time that it takes to calculate it) varies depending on the environment in which you are using the GPS feature.

For example, GPS location fixes are very difficult to obtain indoors, in covered locations, between high buildings, or in situations where you have not established a clear broad view of the sky.

Understanding the GPS Feature

The GPS technology uses radio signals from earth orbiting satellites, to establish the location co-ordinates, maximizing your view of clear unobstructed sky is essential for optimum performance.

Where adequate signals from multiple satellites are not available (usually because you cannot establish a view of a wide area of the sky), the GPS feature of your RSM will not work. Such situations include but are not limited to:

- In underground locations

- Inside of buildings, trains, or other covered vehicles

- Under any other metal or concrete roof or structure

- Between tall buildings or under dense tree-cover

- In temperature extremes outside the operating limits of your RSM

Even where location information can be calculated in such situations, it may take longer to do so, and your location estimate may not be as accurate. Therefore, in any emergency situation, always report your location to your dispatcher.

Furthermore, please note that even where adequate signals from multiple satellites are available, your GPS feature only provides an approximate location, often within 20-100 meters from your actual location, but sometimes much further from the actual location.

Keep in mind that the accuracy of the location information and the time it takes to obtain it varies depending upon circumstances, particularly the ability to receive signals from an adequate number of satellites.

The satellites used by the GPS feature are controlled by the U.S. government and are subject to changes implemented in accordance with the Department of Defense GPS user policy and the Federal Radio Navigation Plan. These changes may affect the performance of the GPS feature on your RSM.

⬚ Enhancing GPS Performance

Sometimes, the GPS feature of your RSM may be unable to complete a location calculation successfully. You then see a message indicating that your RSM cannot see enough visible satellites.

To maximize the ability of your RSM to determine a fix, please note the following guidelines:

• Stay in the open. The GPS feature works best where there is nothing between your RSM and a large amount of open sky.

• Wear your RSM outside all clothing. Keep it as high on your body as possible, ideally at shoulder level.

⬚ The Outdoor Location Feature (Using GPS)

This feature allows you to determine your current location using a location menu, as well as your current distance and bearing in relation to another location. Radio location may be requested and reported over-the-air.

This feature is only available when a location enabled accessory such as the GPS Remote Speaker Microphone (RSM) is attached to the radio.

Your radio stores up to a maximum of sixty (60) programmable location coordinates, also known as waypoints. When the memory is full, the next waypoints automatically replaces the oldest waypoints in the radio.

The radio also stores four (4) preprogrammed waypoints. These coordinates cannot be deleted.

Programmable Waypoints	Preprogrammed Waypoints
User-configurable location coordinates.	Fixed location coordinates: • Home • Emergency • Last Known Location • Destination
Only the alias is editable, not the coordinates.	The Home and Destination coordinates are editable.
Coordinates can be deleted one at a time, or all at once.	Coordinates cannot be deleted.

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

Accessing the Outdoor Location Feature

Note: An **ON/OFF** menu key may be present on the location menu if it is preprogrammed by the dealer or system administrator.

Procedure:
Press the preprogrammed **GPS** button to access the GPS feature screen.
OR
Follow the procedure below.

1 ◁ or ▷ to **Loc**.

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

3 The display shows **Location off**.

4 Press the **Menu Select** button directly below **On** to obtain a location fix.
OR
Press the **Menu Select** button directly below **Optn**.
△ or ▽ to **Turn on GPS** and press the **Menu Select** button directly below **Sel**.

5 The display shows the latitude and longitude of the last successful location fix. The top line displays **Previous loc**.

6 Press the **Menu Select** button directly below **Rfsh** to obtain a new location fix.

7 The top line temporarily displays **Please wait** while the new location is being determined.

While the new location is being determined, the location signal can be a solid or blinking icon.

8 Once the location coordinates are fixed, the display shows the current latitude and longitude, along with the time and date.
The location coordinates are updated automatically every four minutes while the location signal is present.

9 Press the **Menu Select** button directly below **Exit** to exit the feature and return to the main screen.
OR
Press ⌂ or the **PTT** button (if preprogrammed) to exit this menu.

The radio also exits the menu if the emergency button is pressed or the GPS RSM is disconnected.

Saving a Waypoint

Procedure:
While in the current location display:

1 Press the **Menu Select** button directly below **Optn**.

2 △ or ▽ to **Save as waypnt** and press the **Menu Select** button directly below **Sel**.

3 A blinking cursor appears in the **Save as waypnt** screen. Use the keypad to type the alias via multi-tap.
Press ◁ to move one space to the left.

71

Press ⊳ to move one space to the right.
Press **Menu Select** button directly below Del to delete any unwanted characters.
Press and hold 🔲 to toggle between normal text entry mode, uppercase mode and num lock mode.

4 Press the **Menu Select** button directly below OK once you are done.

5 You see Current loc saved as <waypoint name> on the display.

6 Press the **Menu Select** button directly below Exit to exit the feature and return to the main screen.
OR
Press 🏠 or the **PTT** button (if preprogrammed) to exit this menu.

◻ *Viewing a Saved Waypoint*

Procedure:
While in the current location display:

1 Press the **Menu Select** button directly below Optn.

2 ⌃ or ⌄ to Waypoints and press the **Menu Select** button directly below Sel.

3 The display shows a list of saved waypoints.

4 ⌃ or ⌄ to scroll through the list.

◻ *Editing a Waypoint*

Procedure:
While in the current location display:

1 Press the **Menu Select** button directly below Optn.

2 ⌃ or ⌄ to Waypoints and press the **Menu Select** button directly below Sel.

3 The display shows a list of saved waypoints.

4 ⌃ or ⌄ to the required waypoint, and press the **Menu Select** button directly below Optn.

5 ⌃ or ⌄ to Edit name and press the **Menu Select** button directly below Sel.

6 A blinking cursor appears in the Edit name screen.
Use the keypad to edit the alias via multi-tap.
Press ⊲ to move one space to the left.
Press ⊳ to move one space to the right.
Press **Menu Select** button directly below Del to delete any unwanted characters.
Press and hold 🔲 to toggle between normal text entry mode, uppercase mode and num lock mode.

7 Press the **Menu Select** button directly below OK once you are done.

8 You see <Waypoint name> updated on the display.

9 Press the **Menu Select** button directly below `Exit` to exit the feature and return to the main screen.
OR
Press ⌂ or the **PTT** button (if preprogrammed) to exit this menu.

◻ *Measuring the Distance and Bearing from a Saved Waypoint*

Procedure:
While in the current location display:

1 Press the **Menu Select** button directly below `Optn`.

2 ⌃ or ⌄ to `Dist frm here...` and press the **Menu Select** button directly below `Sel`.

3 The display shows a list of saved waypoints.

4 ⌃ or ⌄ to the required waypoint, and press the **Menu Select** button directly below `Sel`.

5 The display shows the distance and bearing from the current to the selected coordinates.

◻ *Using the Location Feature While in Emergency Mode*

When the Emergency feature is activated by pressing the emergency button, the radio exits the Location menu and returns to the home (default) display so that you can see which channel the emergency signal is going out on.

However, you may re-enter the Location menu while still in emergency mode, provided that Silent Emergency has not been activated.

If you have turned Location off using the **ON/OFF** menu key, it automatically turns back on when Emergency is activated.

■ Trunking System Controls

⧉ Using the Failsoft System

The failsoft system ensures continuous radio communications during a trunked system failure. If a trunking system fails completely, the radio goes into failsoft operation and automatically switches to its failsoft channel.

Procedure:

1 During failsoft operation, your radio transmits and receives in conventional operation on a predetermined frequency.

2 A medium-pitched tone sounds every 10 seconds and the display shows Failsoft.

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

⧉ Going Out-of-Range

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

Procedure:

1 A low-pitched tone sounds.
AND/OR
The display shows the currently selected zone/channel combination and Out of range.

2 Your radio remains in this out-of-range condition until:
It locks onto a control channel.
OR
It locks onto a failsoft channel.
OR
It is turned off.

⧉ Using the Site Trunking Feature

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

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

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

⊟ **Locking and Unlocking a Site**

This feature allows your radio to lock onto a specific site and not roam among wide-area talkgroup sites. This feature should be used with caution, since it inhibits roaming to another site in a wide-area system.

Procedure:
Use the preprogrammed **Site Lock/Unlock** button to toggle the lock state between locked and unlocked.
OR
Follow the procedure below.

1 ◁ or ▷ to **Site**.

2 Press the **Menu Select** button directly below **Site**. The display shows the current lock state.

3 Press the **Menu Select** button directly below **LOCK** to lock the site. The display shows **Site locked**.
OR
Press the **Menu Select** button directly below **Unlk** to unlock the site. The display shows **Site unlockd**.

4 The radio saves the new site lock state and returns to the home display.

⊟ **Viewing and Changing a Site**

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

⊟ *Viewing the Current Site*

Procedure:

1 Press the preprogrammed **Site Search** button.

2 The display momentarily shows the name of the current site and its corresponding received signal strength indicator (RSSI).
OR
If the radio is scanning for a new site, the display momentarily shows **Scanning site**.

⊟ *Changing the Current Site*

Procedure:

1 Press and hold down the preprogrammed **Site Search** button.

2 A tone sounds and the display momentarily shows **Scanning site**.

3 When the radio finds a new site, it returns to the home display.

75

⬜ **Selecting the Power Level**

You can select the power level at which your radio transmits. The radio always turns on to the default setting.

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

Settings:

- Select **Low** for a shorter transmitting distance and to conserve power.
- Select **High** for a longer transmitting distance.

Procedure:
Use the preprogrammed **Transmit Power Level Switch** to toggle the power level between low and high power.
OR
Follow the procedure below.

1 ◁ or ▷ to **Pwr**.

2 Press the **Menu Select** button directly below **Pwr**. The display shows the current power level, along with **Low** and **High**.

3 Press the **Menu Select** button directly below the desired power level (**Low** or **High**) to select it.

4 The radio saves the new transmit power level and returns to the home display.

Press 🏠 or the PTT button to exit without changing the setting.

🗋 Selecting a Radio Profile

This feature allows you to manually switch the visual and audio settings of the radio. The display, backlight, alert tones, and audio settings are defined according to the preprogrammed radio settings of each radio profile.

You can have up to a maximum of three (3) radio profiles programmed into your radio by a qualified radio technician.

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

Procedure:
Use the preprogrammed **Profile** button and proceed to Step 2.
OR
Follow the procedure below.

1 ◁ or ▷ to Prfl.

2 Press the **Menu Select** button directly below Prfl to access the Profiles feature screen.

3 ⌃ or ⌄ to scroll through the menu selections.

4 Press the **Menu Select** button directly below Sel to select the required radio profile.
OR
Press the **Menu Select** button directly below Exit to exit the screen without making any changes.

5 The radio returns to the home display. The profile name on the home display indicates the current selected radio profile.

🗋 Controlling the Display Backlight

You can enable or disable the radio's display backlight as needed, if poor light conditions make the display, keypad, or channel numbers (around the 16-Position Select knob) difficult to read.

Procedure:
Press the preprogrammed **Light** button to toggle the backlight on or off.

Note: The backlight remains on for a preprogrammed time before it turns off automatically.

🗋 Turning Keypad Tones On or Off

You can enable and disable keypad tones if needed.

Procedure:
Press the preprogrammed **Keypad Mute** button to turn the tones off or on.

77

OR

Follow the procedure below.

1 ◁ or ▷ to **Mute**.

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

3 The display momentarily shows **Tones off**, indicating that the keypad tones are disabled.
OR
The display momentarily shows **Tones On**, and a short tone sounds, indicating that the keypad tones are enabled.

⬑ Setting the Time-Out Timer

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

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

The radio also automatically exits the feature, if the radio is left idle, when time is up. You will hear the Menu Inactive Exit Tone upon feature exit (if enabled).

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

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

Procedure:

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

2 Release the **PTT** button. The LED relights and the timer resets.

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

⬑ Setting the Time and Date

You can set the time and date for your radio.

Settings:

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

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

⬑ *Editing the Time and Date*

Procedure:

1 ◁ or ▷ to **Clck**.

2 Press the **Menu Select** button directly below **Clck**. The display shows the current setting of the radio.

3 Press the **Menu Select** button directly below **Edit**. The first item blinks.

4 ⌃ or ⌄ to change the selected item.
   OR
   ◁ or ▷ one or more times to move to an item you wish to change.

   ⌃ or ⌄ to change the selected item.
   OR
   Press the **Menu Select** button directly below **Exit** to exit the screen without making any changes and return to the home display.

5 Press the **Menu Select** button directly below **OK** once you have finished to save your changes and return to the home display.
   OR
   Press the **Menu Select** button directly below **Cncl** to discard all changes and return to the home display.

Press 🏠 at any time to return to the home display without saving your changes.

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

◻ **Using the Conventional Squelch Operation Features**

This feature filters out unwanted calls with low signal strength or channels that have a higher than normal background noise.

◻ *Analog Options*

Tone Private Line (PL), Digital Private-Line (DPL), and carrier squelch can be available (preprogrammed) per channel.

Mode	Result
Carrier squelch (C)	You hear all traffic on a channel.
PL or DPL	The radio responds only to your messages.

◻ *Digital Options*

One or more of the following options may be programmed in your radio. Consult your dealer or system administrator for more information.

Option	Result
Digital Carrier-Operated Squelch (COS)	You hear any digital traffic.

79

Option	Result
Normal Squelch	You hear any digital traffic having the correct network access code.
Selective Switch	You hear any digital traffic having the correct network access code and correct talkgroup.

▢ Using the PL Defeat Feature

This feature allows you to override any coded squelch (DPL or PL) that might be preprogrammed to a channel.

Procedure:
Place the preprogrammed PL Defeat switch in the PL Defeat position. You hear any activity on the channel.
OR
The radio is muted if no activity is present.

Note: When this feature is active, the Carrier Squelch status indicator is displayed.

▢ Using the Smart PTT Feature (Conventional Only)

Smart **PTT** is a per-channel, programmable feature used in conventional radio systems to keep radio users from talking over other radio conversations.

When smart **PTT** is enabled in your radio, you cannot transmit on an active channel.

If you try to transmit on an active smart-**PTT** channel, you hear an alert tone, and the transmission is inhibited. The LED blinks red to indicate that the channel is busy.

Three radio-wide variations of smart PTT are available:

Transmit Inhibit on Busy Channel with Carrier	You cannot transmit if any traffic is detected on the channel.
Transmit Inhibit on Busy Channel with Wrong Squelch Code	You cannot transmit on an active channel with a squelch code or (if secure-equipped) encryption key other than your own. If the PL code is the same as yours, the transmission is not prevented.
Quick-Key Override	This feature can work in conjunction with either of the two above variations. You can override the transmit-inhibit state by quick-keying the radio. In other words, two **PTT** Button presses within the preprogrammed time limit.

◻ Using the Latched PTT Feature

This feature allows you to continue to transmit for a programmed period of time without having to press and hold the **PTT** button. You can only extend the Latched **PTT** function once every session.

You cannot use this feature when the radio is in the hot mic state.

Note: Your radio must be programmed to allow you to use this feature.

◻ *Entering and Extending the Latched PTT State*

Procedure:

- Double press and release the **PTT** button to enter the Latched **PTT** state.

- Double press and release the **PTT** button before the initial programmed period of time expires to extend the Latched **PTT** state.

Note: When the Latched PTT state is extended, the total transmission time is the sum of the initial and the extend time.

◻ *Exiting the Latched PTT State*

Your radio exits Latched **PTT** state when **one** of the following occurs:

- Pressing and releasing the **PTT** button before the programmed period of time expires.

- The programmed period of time ends.

- The transmission ends (for example, during a channel change).

Note: You will hear an inactive tone when the radio exits the Latched **PTT** state. See *Alert Tones* on page 19 for more information.

Accessing General Radio Information

Your radio contains information on the following:

- Radio Information
- IP Display
- Control Assignments

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

Accessing the Radio Information

This feature displays the following information of your radio:

- Host Version
- DSP version
- Model Number
- Serial Number
- ESN
- FlashCode
- Flash Size
- KG (Secure algorithm)
- Memory Size
- Tuning Version
- Proc Version

- RF Band
- Secure Version
- Control Head Version
- Siren Version
- TRC Version (Tone Remote Control)
- VRS Version
- AUX CH Version
- DVRS App Version
- DVRS DSP Version
- DVRS CP Version

Procedure:
Press the preprogrammed **Info** button and proceed to Step 3.
OR
Follow the procedure below.

1 ◁ or ▷ to **Info**.

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

3 △ or ▽ to **Radio Info** and press the **Menu Select** button directly below **Sel**.

4 You see the Information screen.

5 △ or ▽ to scroll through the various information.
   OR
   Press the **Menu Select** button directly below **Back** to return to the previous screen.
   OR
   Press 🏠 to exit and return to the home display.

If there is no activity for a programmed period of time, the radio exits the current screen and returns to the home display.

Viewing the IP Information

This feature displays the device name, IP address, and status of your radio.

Note: The device name of your radio is preprogrammed. Check with your dealer or system administrator for more information.

Procedure:
Press the preprogrammed **Info** button and proceed to Step 3.
OR
Follow the procedure below.

1 ◁ or ▷ to **Info**.

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

3 ⌃ or ⌄ to **IP Info** and press the **Menu Select** button directly below **Sel**.

4 You see the IP Info screen.

5 ⌃ or ⌄ to scroll through the various information.
OR
Press the **Menu Select** button directly below **Back** to return to the previous screen.
OR
Press 🏠 to exit and return to the home display.

If there is no activity for a programmed period of time, the radio exits the current screen and returns to the home display.

▯ *Viewing the Control Assignments*

This feature displays the programmable radio functions assigned to the controls of your radio.

See *Programmable Features* on page 8 for more information on the various programmable features of your radio.

Procedure:
Press the preprogrammed **Info** button and proceed to Step 3.
OR
Follow the procedure below.

1 ◁ or ▷ to **Info**.

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

3 ⌃ or ⌄ to **Control map** and press the **Menu Select** button directly below **Sel**.

4 You see the Control Map screen.

5 ⌃ or ⌄ to scroll through the various information.
OR
Press the **Menu Select** button directly below **Back** to return to the previous screen.
OR
Press 🏠 to exit and return to the home display.

If there is no activity for a programmed period of time, the radio exits the current screen and returns to the home display.

83

Helpful Tips

Take a moment to review the following:

Caring for Your Radio

Caution

- The XTS 5000 radio casting has two vent ports that allow for pressure equalization in the radio. Never poke these vents with any objects, such as needles, tweezers, or screwdrivers. This could create leak paths into the radio and the radio's submergibility will be lost.

- **(For XTS 5000 R Radios Only)**
  The XTS 5000 R radio is designed to be submerged to a maximum depth of 6 feet, with a maximum submersion time of 4 hours. Exceeding either maximum limit may result in damage to the radio.

- **(For XTS 5000 R Radios Only)**
  Elastomer technology materials used for seals in rugged portable radios can age with time and environmental exposure. Therefore, Motorola recommends that rugged radios be checked annually as a preventive measure in order to assure the watertight integrity of the radio. Motorola details the disassembly, test, and reassembly procedures along with necessary test equipment needed to inspect, maintain and troubleshoot radio seals in the radio's service manual.

Caution

- If the radio battery contact area has been submerged in water, dry and clean the radio battery contacts before attaching a battery to the radio. Otherwise, the water could short-circuit the radio.

- If the radio has been submerged in water, shake the radio well so that any water that may be trapped inside the speaker grille and microphone port can be removed. Otherwise, the water will decrease the audio quality of the radio.

- Do not disassemble the radio. This could damage radio seals and result in leak paths into the radio. Any radio maintenance should be performed only by a qualified radio technician.

Cleaning Your Radio

To clean the external surfaces of your radio:

1 Combine one teaspoon of mild dishwashing detergent to one gallon of water (0.5% solution).

2 Apply the solution sparingly with a stiff, non-metallic, short-bristled brush, making sure excess detergent does not get entrapped near the connectors, controls or crevices. Dry the radio thoroughly with a soft, lint-free cloth.

3 Clean battery contacts with a lint-free cloth to remove dirt or grease.

Caution

Do not use solvents to clean your radio. Spirits may permanently damage the radio housing.

Do not submerge the radio in the detergent solution.

Handling Your Radio

- Do not pound, drop, or throw the radio unnecessarily. Never carry the radio by the antenna.

- Avoid subjecting the radio to an excess of liquids. Do not submerge the radio unless it is a ruggedized, XTS 5000 R model.

- Avoid subjecting the radio to corrosives, solvents or spirits.

- Do not disassemble the radio.

- Keep the accessory-connector cover in place until ready to use the connector. Replace the cover immediately once the accessory has been disconnected.

⬦ Servicing Your Radio

Proper repair and maintenance procedures will assure efficient operation and long life for this product. A Motorola maintenance agreement will provide expert service to keep this and all other communication equipment in perfect operating condition. A nationwide service organization is provided by Motorola to support maintenance services. Through its maintenance and installation program, Motorola makes available the finest service to those desiring reliable, continuous communications on a contract basis. For a contract service agreement, please contact your nearest Motorola service or sales representative, or an authorized Motorola dealer.

Express Service Plus (ESP) is an optional extended service coverage plan, which provides for the repair of this product for an additional period of either one or two years beyond the normal expiration date of the standard warranty. For more information about ESP, contact the Motorola Radio Support Center at 3761 South Central Avenue, Rockford, IL 61102 (800) 227-6772 / (847)725-4200.

■ Taking Care of the Battery

Note: Battery life is determined by several factors. Among the more critical are the regular overcharge of batteries and the average depth of discharge with each cycle. Typically, the greater the overcharge and the deeper the average discharge, the fewer cycles a battery will last.

For example, a battery which is overcharged and discharged 100% several times a day, will last fewer cycles than a battery that receives less of an overcharge and is discharged to 50% per day. Further, a battery which receives minimal overcharging and averages only 25% discharge, will last even longer.

⬦ Charging the Battery

Battery life is determined by several factors. Among the more critical are the regular overcharge of batteries and the average depth of discharge with each cycle. Typically, the greater the overcharge and the deeper the average discharge, the fewer cycles a battery will last.

For example, a battery which is overcharged and discharged 100% several times a day, will last fewer cycles than a battery that receives less of an overcharge and is discharged to 50% per day. Furthermore, a battery that receives minimal overcharging and averages only 25% discharge, will last even longer.

▢ Checking the Battery Charge Status

Your radio can indicate your battery's charge status through:

- LED and sounds
- conventional fuel gauge icon on the display
- smart fuel gauge icon on the display

▢ *LED and Sounds*

When your battery is low:

- the LED blinks red when the PTT button is pressed.
- you hear a low-battery "chirp" (short, high-pitched tone).

▢ *Conventional Fuel Gauge Icon*

A blinking fuel gauge icon (▢▬) is displayed only when the battery voltage drops to low level. In this case, replace the battery with a fully charged one.

Gauge	Battery Charge
▢▬▬▬	71% to 100% full
▢ ▬▬	41% to 70%
▢ ▬	11% to 40%
▢	10% or less (at 10%, the gauge begins blinking)

Replace the battery with a fully charged one when the fuel gauge shows the lowest level.

▢ *Smart Fuel Gauge Icon*

Consult the Smart Battery manual. All conditions must be met for a battery to be classified as a "Smart Battery". When your radio has a Smart Battery installed, the fuel gauge icon is always displayed.

Battery Recycling and Disposal

Nickel-cadmium (NiCd) rechargeable batteries can be recycled. However, recycling facilities may not be available in all areas. Under various U.S. state laws and the laws of several other countries, NiCd batteries must be recycled and cannot be disposed of in landfills or incinerators. Contact your local waste management agency for specific requirements and information in your area.

Motorola fully endorses and encourages the recycling of NiCd batteries. In the U.S. and Canada, Motorola participates in the nationwide Rechargeable Battery Recycling Corporation (RBRC) program for NiCd battery collection and recycling. Many retailers and dealers participate in this program.

For the location of the drop-off facility closest to you, access RBRC's Internet web site at www.rbrc.com or call 1-800-8-BATTERY. This internet site and telephone number also provide other useful information concerning recycling options for consumers, businesses, and governmental agencies.

Antenna

Radio Operating Frequencies

Before installing the antenna, make sure it matches your radio's operating frequency.

Please refer to the APX7000 micro-site at http://...tbd... for the antenna information.