





**MOTOROLA**  
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# CDM1550-LS<sup>+</sup>™ User Guide


Professional Radio - As Dedicated As You Are™

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## SAFETY

### USER SAFETY, TRAINING, AND GENERAL INFORMATION

READ THIS IMPORTANT INFORMATION ON SAFE AND EFFICIENT OPERATION BEFORE INSTALLING AND USING YOUR MOTOROLA MOBILE TWO-WAY RADIO IN A VEHICLE OR AS A CONTROL STATION.

### COMPLIANCE WITH RF ENERGY EXPOSURE STANDARDS

Your Motorola two-way radio is designed and tested to comply with a number of national and international standards and guidelines (listed below) regarding human exposure to radio frequency electromagnetic energy. **This radio complies with the IEEE (FCC) and ICNIRP exposure limits for occupational/controlled RF exposure environment at duty cycles of up to 50% talk-50% listen and should be used for occupational use only.** In terms of measuring RF energy for compliance with the FCC exposure guidelines, your radio radiates measurable RF energy only while it is transmitting (during talking), not when it is

receiving (listening) or in standby mode. Note that the approved, supplied batteries for this radio are rated for a 5-5-90 duty cycle (5% talk-5% listen - 90% standby), even though this radio complies with the FCC occupational exposure limits at duty cycles of up to 50% talk.

**Your Motorola two-way radio complies with the following RF energy exposure standards and guidelines:**

- United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 2 sub-part J
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1- 1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1- 1999 Edition
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999



- Australian Communications Authority Radiocommunications (Electromagnetic Radiation - Human Exposure) Standard 2001 (applicable to wireless phones only)
- ANATEL, Brasil Regulatory Authority, Resolution 256 (April 11, 2001) “additional requirements for SMR, cellular and PCS product certification.”

## OPERATIONAL INSTRUCTIONS AND TRAINING GUIDELINES

To ensure optimal performance and compliance with the occupational/controlled environment RF energy exposure limits in the above standards and guidelines, users should transmit no more than 50% of the time and always adhere to the following procedures:

### Transmit and Receive

- **To transmit (talk), push the Push-To-Talk (PTT) button; to receive, release the PTT button.**

- **Transmit only when people outside the vehicle are at least the minimum lateral distance away, as shown in Table 1, from a properly installed, externally-mounted antenna.**

Table 1 lists the minimum lateral distance for bystanders in an uncontrolled environment from the transmitting antenna at several different ranges of rated radio power for mobile radios installed in a vehicle.

*Table 1: Rated Power and Lateral Distance*

<b>Rated Power of Vehicle-installed Mobile Two-way Radio</b>	<b>Minimum Lateral Distance from Transmitting Antenna</b>
Less than 7 watts	8 inches (20 centimeters)
7 to 15 watts	1 foot (30 centimeters)
16 to 50 watts	2 feet (60 centimeters)
51 to 110 watts	3 feet (90 centimeters)

## Mobile Antennas

- **Install antennas at the center of the roof or the center of the trunk deck. These mobile antenna installation guidelines are limited to metal body vehicles.**
- **The antenna installation must additionally be in accordance with:**
  - a. The requirements of the antenna manufacturer/supplier
  - b. Instructions in the Radio Installation Manual
- **Use only Motorola approved supplied antenna or Motorola approved replacement antenna.** Unauthorized antennas, modifications, or attachments could damage the radio and may violate FCC regulations.

## Approved Accessories

For a list of Motorola approved antennas see the appendix of this user manual.

## Fixed Site Antennas

If mobile radio equipment is installed at a fixed location and operated as a control station or as a fixed unit, the antenna installation must comply with the following requirements in order to ensure optimal performance and compliance with the RF energy exposure limits in the above standards and guidelines.

- The antenna should be mounted outside the building on the roof or a tower if at all possible.
- As with all fixed site antenna installations, it is the responsibility of the licensee to manage the site in accordance with applicable regulatory requirements and may require additional compliance actions such as site survey measurements, signage, and site access restrictions in order to insure that exposure limits are not exceeded.

## ELECTROMAGNETIC INTERFERENCE/COMPATIBILITY

**NOTE:** Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed or otherwise configured for electromagnetic compatibility. It may be necessary to conduct compatibility testing to determine if any electronic equipment used in or around vehicles or near fixed antenna sites is sensitive to external RF energy and if any procedures need to be followed to eliminate or mitigate the potential for interaction between the radio transmitter and the equipment or device.

### Facilities

To avoid electromagnetic interference and/or compatibility conflicts, **turn off your radio in any facility where posted notices instruct you to do so.** Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

### Vehicles

To avoid possible interaction between the radio transmitter and any vehicle electronic control modules, for example, ABS, engine, or transmission controls, we recommend that the radio be installed by an experienced installer and that the following precautions be used when installing the radio:

1. Refer to any manufacturers instructions or other technical bulletins or recommendations on radio installation.
2. Before installing the radio, determine the location of the electronic control modules and their harnesses in the vehicle.
3. Route all radio wiring, including the antenna transmission line, as far away as possible from the electronic control units and associated wiring.

## Driver Safety

Check the laws and regulations on the use of radios in the area where you drive. Always obey them.

When using your radio while driving, please:

- Give full attention to driving and to the road.
- Pull off the road and park before making or answering a call if driving conditions so require.

## OPERATIONAL WARNINGS



WARNING

### For Vehicles With an Air Bag

Do not place a mobile radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great force. If a mobile radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to occupants of the vehicle.

## Potentially Explosive Atmospheres

**Turn off your radio prior to entering any area with a potentially explosive atmosphere. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.**

The areas with potentially explosive atmospheres referred to above include fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine. Areas with potentially explosive atmospheres are often but not always posted.

### Blasting Caps and Areas

To avoid possible interference with blasting operations, turn off your radio when you are near electrical blasting caps, in a blasting area, or in areas posted: "Turn off two-way radio." Obey all signs and instructions.

For radios installed in vehicles fuelled by liquefied petroleum gas, refer to the (U.S.)

National Fire Protection Association standard, NFPA 58, for storage, handling, and/ or container information. For a copy of the LP-gas standard, NFPA 58, contact the National Fire Protection Association, One Battery Park, Quincy, MA.

## INTRODUCTION



Welcome to Motorola's CDM Series family of radio users. The CDM1550•LS<sup>+</sup>, the Intelligent Radio, combines the very latest in two-way technology while delivering

outstanding functionality at the touch of a button.

The CDM1550•LS<sup>+</sup> mobile radio operates on PassPort and LTR trunked and conventional radio systems.

### TRUNKED RADIO SYSTEMS

Trunked systems allow a large number of users to share a relatively small number of frequencies or repeaters without interfering with each other. The airtime of all the repeaters in a trunked system is pooled, which maximizes the amount of airtime available to any one radio and minimizes channel congestion.

### PassPort™ Trunked Systems

PassPort is an enhanced trunking protocol developed by Trident Micro Systems that supports wide area dispatch networking. A network is formed by linking several trunked sites together to form a single system. This offers users an extended communication coverage area. Additionally, users with PassPort can seamlessly roam among all sites within the network. Seamless roaming means that the radio user does not have to manually change the zones on the radio when roaming from site-to-site.

### LTR™ Trunked Systems

LTR is a transmission based trunking protocol developed by the E. F. Johnson Company for primarily single site trunking applications. In transmission trunking, a repeater is used for only the duration of a single transmission. Once a transmission is completed, that repeater becomes available to other users. This means that a conversation comprised of many transmissions may occur over several different channels within the LTR system. This method of trunking provides system efficiency

by making repeaters available to all users after every transmission.

## CONVENTIONAL RADIO SYSTEMS

Conventional radio systems typically refers to unit-to-unit communications through a single channel. Conventional systems also allow radio users to extend communication coverage by relaying their messages through a repeater. To ensure coordinated use by multiple talkgroups, each radio user must monitor the channel or repeater before transmitting to verify that the system is not currently busy.

## CDM1550•LS<sup>+</sup> RADIO FEATURES

**Note:** Throughout this manual there are features listed as trunked and conventional. **Trunked** indicates the feature functions in both PassPort and LTR zones unless otherwise noted. **Conventional** indicates the feature functions in Conventional zones only.

CDM1550•LS<sup>+</sup> Radio Feature Highlights:

### Radio Wide Features

- 14-Character Alphanumeric Display
- 4 Programmable Feature Buttons
- Up to 15 PassPort and/or LTR Zones with up to 16 Talkgroups per Zone
- Up to 16 Conventional Channels
- X-Pand Audio Enhancement Selectable by Conventional Channel, LTR Repeater or PassPort Talkgroup
- Home Channel
- Telephone Interconnect
- User-programmable Phone and Scan Lists
- Voice Storage Capability

### PassPort Zone Features

- Unique Mobile Identity Number per Radio
- Unique Electronic Serial Number per Radio
- Registration/Deregistration upon power up/power down
- Automatic Seamless Roaming between Networked Sites
- Registered Site and Mobile Identity View
- User Initiated Roam Request
- PassPort Primary Group Auto Scan and PassPort Scan

### **PassPort Zone Features (Cont.)**

- Call Signalling Features
  - PTT ID (Display of Mobile Identification Number)

### **LTR Zone Features**

- MDC 1200 Signaling
  - Call Alert
  - Radio Check
  - Selective Call
  - Caller ID
- Auto Group System, All Group Scan
- System Scan with 2 Priority Levels

### **Conventional Zone Features**

- Monitor and Sticky Permanent Monitor
- System Scan with 2 Priority Levels

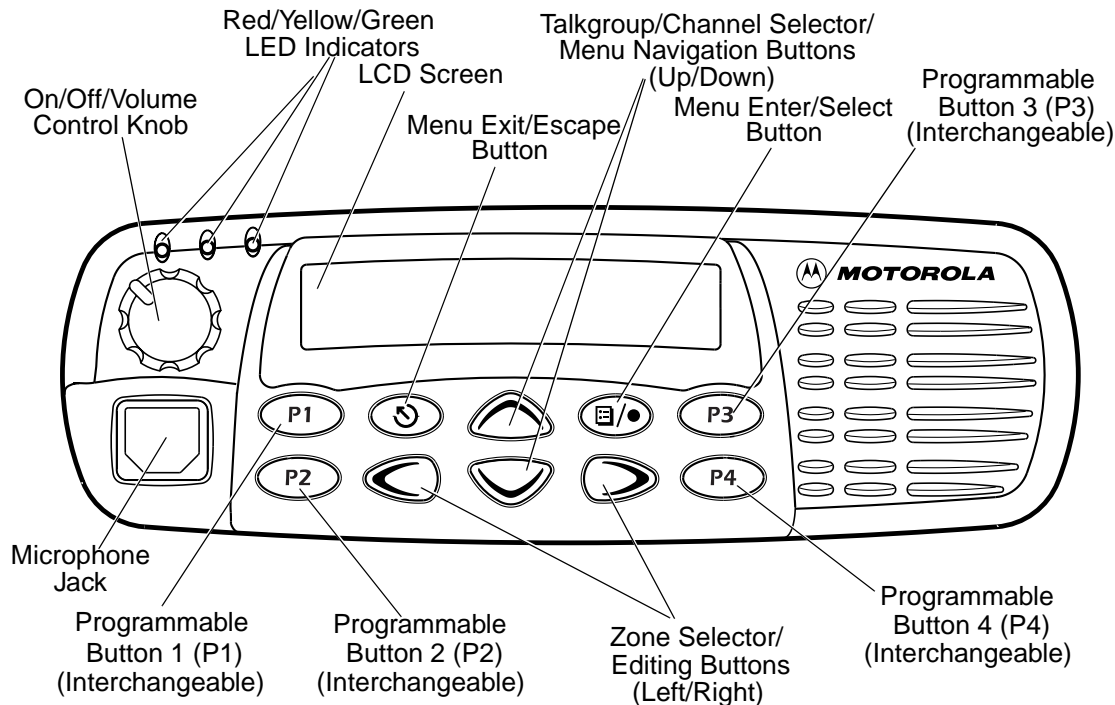


## Notes

# RADIO OVERVIEW

## PARTS OF THE RADIO

CDM1550•LS+ Model



### On/Off/Volume Control Knob

Turns the radio on or off, and adjusts the radio's volume.



### LED Indicators



Indicates power-up, scan, or receipt of a talkgroup or selective call (see table below):

LED Color	Indicates
Steady red	Radio is transmitting ( <b>PTT</b> button pressed)
Flashing red	Radio is attempting to access trunked system ( <b>PTT</b> button pressed), or Radio is receiving ( <b>PTT</b> button released)
Double flashing yellow	Call Light feature, or Individual Selective Call Received
Single flashing yellow	Group Selective call received (LTR trunked and conventional operation only)
Momentary green	Radio has powered-up successfully

LED Color	Indicates
Double flashing green	System, All Group Scan or PassPort Group Scan Operation

**Left Button**  and **Right Button** 

- Used to scroll through the preprogrammed trunked and conventional zones.
- Used to scroll through menu choices when in Menu Mode.
- When editing Call, Scan, and Phone lists,  is used as a backspace key and  is used to add a space.

**Up Button**  and **Down Button** 

- Used to scroll through the preprogrammed talkgroups of a selected trunked zone, or through conventional channels when in conventional zone.
- Used to scroll through menu choices when in Menu Mode.

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

Press and hold down this button to talk; release it to listen.

**Microphone**

When sending a message, hold the microphone 1 to 2 inches (2.5 to 5 cm) away from your mouth, and speak clearly into the microphone.

**Menu/Select Button** 

Used to enter Menu Mode. When in Menu Mode, this button is used to make menu selections.

**Menu Exit/Button** 

Used to move to the previous Menu level (short press) or to exit Menu Mode (long press).

**Menu Buttons****Exit****Left****Up****Down****Menu/  
Select****Right**






Display



The top display row displays menu and radio status information:

Symbol	Indication
 X-Pand	The X-Pand feature is activated. When in narrow band, this feature improves audio quality.
 Power Level	Low Power "L" or High Power "H" is activated.
 Monitor	The selected channel is being monitored (conventional operation only).
 Phone	Phone mode is selected.
 Call Received	A Selective Call or Call Alert has been received .

Symbol	Indication
 Scan	When the green LED is blinking, indicates that the System, PassPort Scan, or All Group Scan feature has been activated.  When the green LED is off, indicates that non-prioritized Auto Group Scan has been activated.
 •Priority 1 Scan ( ● flashing)	Indicates activity on a priority 1 talkgroup or channel during System Scan.
 Priority 2 Scan ( ● steady)	<ul style="list-style-type: none"> <li>When the green LED is on, indicates activity on a priority 2 talkgroup or channel during System Scan.</li> <li>When the green LED is off, indicates prioritized Auto Group Scan has been activated.</li> </ul>

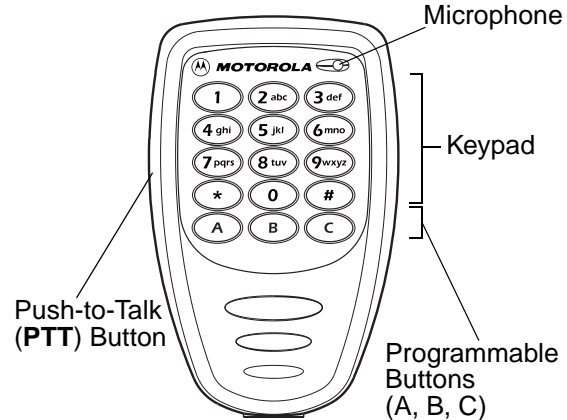
Symbol	Indication
 <b>Talkaround</b>	You are not transmitting through a repeater (Conventional operation only).
 <b>Programming Mode</b>	A Program list is being edited.
 <b>Clock</b>	Shows the time (12- or 24-hour).
 <b>Signal Strength</b>	The more bars, the stronger the signal being received by your radio.
 <b>PassPort Zone</b>	A PassPort zone has been selected.

### Microphone Jack

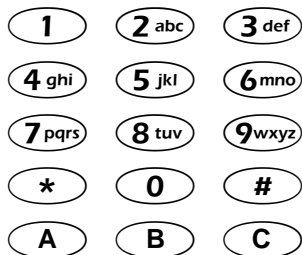
Plug the optional DTMF Microphone (RMN4026) or other microphone into this jack.

## OPTIONAL DTMF MICROPHONE (RMN4026)




Your radio may be ordered with an optional DTMF (Dual-Tone Multi-Frequency) microphone that has a direct-entry keypad. This microphone has three buttons (A, B, C) below the keypad that can be programmed by your dealer to conveniently activate available radio features.




## DTMF Microphone Keypad



The keypad is used for:

- Dialing a phone number
- Entering a specific radio ID number when making an MDC radio call
- Entering information when programming radio call, scan, and phone lists.
- Directly accessing preprogrammed features  
( , , and  buttons [see page 24])

Each key can generate several different characters. For example, to enter the character “C,” press the  button three times. (Refer to the following table on page 23.)

## Entering Characters Using the DTMF Microphone Keypad

Button	Number of Times Button is Pressed														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	(	)	<	>										
1	1	&	%	#	*										
2 <sup>abc</sup>	A	B	C	2	a	b	c	2	Á	Ç	à	á	ç		
3 <sup>def</sup>	D	E	F	3	d	e	f	3	È	É	Ê	è	é	ê	
4 <sup>ghi</sup>	G	H	I	4	g	h	i	4	Í	ì	í				
5 <sup>jkl</sup>	J	K	L	5	j	k	l	5							
6 <sup>mno</sup>	M	N	O	6	m	n	o	6	Ñ	Ó	Ô	ò	ó	ô	ö
7 <sup>pqs</sup>	P	Q	R	S	7	p	q	r	s	7					
8 <sup>tuv</sup>	T	U	V	8	t	u	v	8	Ú	ù	ú				
9 <sup>wxyz</sup>	W	X	Y	Z	9	w	x	y	z	9	Y	y			
*	*	/	+	-	=										
#	#	Blank Space	-	.	!	?	'	"	,	;	:				



## PROGRAMMABLE BUTTONS

Your radio has several programmable buttons that can be programmed by your dealer as shortcuts to various radios' features.

Programmable buttons include:

- The four front buttons (P1, P2, P3, and P4).
- The three buttons (A, B, and C) of the optional DTMF microphone.

Some buttons can access up to two features, depending on the type of button press:

- **Short Press**—quickly pressing and releasing the programmable buttons,

*or*

- **Long Press**—pressing and holding the programmable buttons,

*or*

- **Hold Down**—pressing and holding down the programmable buttons while checking status or making adjustments.

The table on page 25 summarizes the programmable features available and shows the page number where the feature is explained.






In the "Button" column, have your dealer record the name of the programmable button next to the feature that has been programmed to them.

Use the abbreviations for instance P1, P2, P3, and P4 shown in the radio illustrations at the front of this manual.

Also, where a choice exists, have your dealer indicate whether the button press is short press (SP), or long press (LP).

Check with your dealer for a complete list of features your radio supports.

## Programmable Features

Feature	Indicator	Short Press	Long Press	Hold Down	Page	Button
Home Channel	—	Directly access your favorite trunked zone and talkgroup or conventional channel.†		—	35	
Backlight Control	—	Turn on your radio backlight.†		—	—	
Monitor §		Enter/Exit permanent monitor mode.	Open Squelch.	Continually monitor channel.	—	
Phone		Directly access Phone mode.†		—	71	
Power Level		Toggle transmit power level between high and low.†		—	93	
Radio Call	LED Color	Directly access radio call menu.†		—	47	
Repeater/ Talkaround §		Toggle between using a conventional repeater or transmitting directly to another radio.†		—	34	
Roam Request*	Searching	Manually initiate PassPort roaming function.	Stop PassPort roaming function.	—	42	
Scan/Delete Nuisance Channel		Turn PassPort Group, All Group, and System scan on or off.	Delete a nuisance channel while scanning.	—	66	

† This feature is activated by **EITHER** a short **OR** a long press, but not both.

§ Conventional operation only. ‡LTR trunked operation only. \*PassPort trunked operation only.


## Programmable Features (Continued)

Feature	Indicator	Short Press	Long Press	Hold Down	Page	Button
Site/MIN View*	—	Displays the PassPort site number on which the unit is registered, the home site and unit's MIN (Mobile Identity Number).†		—	41	
Speed Dial	—	Quickly access speed dial phone list.†		—	71	
Voice Storage Record/Playback	—	Playback recorded messages.	Record voice memos.	—	82	
Voice Storage Playback Exit	—	Exit Voice Storage Play Back mode.†		—	83	
Voice Storage Playback Delete	—	Delete recorded messages.†		—	84	
Volume Set	—	—	—	Sound a tone for adjusting your radio's volume level.	29	
Edit Scan List	—	Add, delete, or prioritize talkgroups or channels.			66	
Direct Zone Access	—	Direct entry to zone selection menu.†		—	31	

† This feature is activated by **EITHER** a short **OR** a long press, but not both.

§ Conventional operation only. ‡ LTR trunked operation only. \*PassPort trunked operation only.

### Programmable Features (Continued)

Feature	Indicator	Short Press	Long Press	Hold Down	Page	Button
Direct Channel Access	—	Direct access to a trunked talkgroup or conventional channel through a Smart Microphone †		—	31	
Horn and Lights	—	Toggles external alarm feature or cancels a triggered alarm.†		—	35	
Auxiliary Control (1/2)	—	Activates or deactivates a pin on the accessory connector.†		—	—	
Status§	—	Direct entry to the message menu.†		—	50	
Message§	—	Direct entry to the message menu.†		—	51	
Emergency§		Initiate Emergency Alert	Cancel Emergency Alert	—	56	

† This feature is activated by **EITHER** a short **OR** a long press, but not both.

§ Conventional operation only. ‡ LTR trunked operation only. \*PassPort trunked operation only.

## Audio Indicators for Programmable Buttons



High-Low Tone



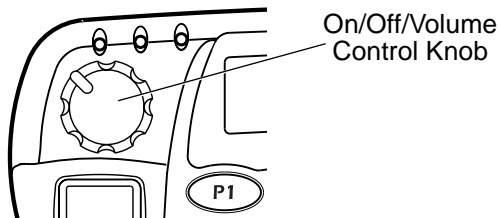
Low-High Tone

In addition to having visual indicators, some programmable buttons use tones to indicate one of two modes:

Button	High-Low Tone	Low-High Tone
Scan	<b>Stop</b> scan	<b>Start</b> scan
Power Level	<b>High</b> power selected	<b>Low</b> power selected
Repeater/ Talkaround	<b>Uses</b> conventional repeater	<b>Does not use</b> conventional repeater

## GETTING STARTED

### TURNING THE RADIO ON OR OFF




#### ON

Push the **On/Off/Volume Control** knob. If power-up is successful, you hear the Self-Test Pass Tone



and see the LED momentarily turn green.

If the radio fails to power up, you hear the Self-Test Fail Tone .

#### OFF

Push the **On/Off/Volume Control** knob until you hear a click and the display clears.

### ADJUSTING THE VOLUME

Turn the **On/Off/Volume Control** knob clockwise to increase the volume, or counterclockwise to decrease the volume.

—or—





- 1 Hold down the **Volume Set** button (see page 26). You hear a continuous tone.
- 2 Turn the **On/Off/Volume Control** knob to the desired volume level.
- 3 Release the **Volume Set** button.


## SELECTING A TRUNKED ZONE AND TALKGROUP

**Note:** Throughout this manual there are features listed as trunked and conventional. **Trunked** indicates the feature functions in both PassPort and LTR zones unless otherwise noted. **Conventional** indicates the feature functions in Conventional zones only.

Up to 15 PassPort and/or LTR trunked zones (containing 16 talkgroups each) can be programmed into your radio.

### To select a trunked zone and talkgroup:

- 1  or  to select the appropriate trunked zone.
- 2  or  until you see the desired preprogrammed talkgroup on the display.

**Note:**  (the PassPort Zone symbol) appears when a PassPort Zone has been selected.

## SENDING A TRUNKED CALL

### To Send a Trunked Call





- 1 Hold the microphone in a vertical position at a distance of about 1 to 2 inches (2.5 to 5 cm) from your mouth.
- 2 Press and hold the **PTT** button.  
—or—  
Press and release the **PTT** button and wait 3 seconds.
  - If access to the trunked system was successful, the red LED indicator lights steady.
    - In addition, your dealer can program your radio to sound a short, high-pitched (talk permit) tone, indicating successful trunked system access.
  - If access to the trunked system was unsuccessful, the red LED indicator flashes and a low-pitched (talk prohibit) tone sounds, indicating that the system was busy or out-of-range.

- 3 With the **PTT** button depressed, speak clearly into the microphone
- 4 Release the **PTT** button to listen.

## SELECTING A CONVENTIONAL ZONE AND CHANNEL

Up to a total of 16 conventional channels, in one or more conventional zones, can be programmed into your radio.




### To Select a Conventional Zone and Channel

- 1  or  to select the appropriate conventional zone.
- 2  or  until you see the desired conventional channel on the display.

## DIRECT ZONE ACCESS

The Direct Zone Access feature offers an alternative way of accessing a trunked or conventional zone.

### To Activate Direct Zone Access

- 1 Press the preprogrammed **Direct Zone Access** button (see page 27).
- 2  or  until you see the desired zone on the display.
- 3  to confirm your selection.

## DIRECT CHANNEL ACCESS

The **direct channel access** feature allows you to directly access a specific trunked talkgroup or conventional channel within the zone you have currently selected. This feature can be programmed on one of the radio programmable buttons (P1, P2, P3 or P4) and/or any DTMF microphone (RMN4026) programmable buttons (A, B or C).





## To Start Activate Direct Channel Access

### Using the radio's programmable buttons:

- 1 Press the preprogrammed Direct Channel button.  
The current talkgroup or channel flashes intermittently.

YR TKGP ALIAS

- 2 Up or down arrow  or  to select the appropriate Trunked talkgroup or channel.

- 3 Press again the preprogrammed Direct Channel button.

–or–

Press  or 

The new selected talkgroup or channel appears on the display

NW TKGP ALIAS

### Using the DTMF microphone:

- 1 Press the preprogrammed Direct Channel button (A, B, or C).

The current talkgroup or channel flashes intermittently.

YR TKGP ALIAS

- 2 Up or down arrow  or  to select the appropriate Trunked talkgroup or channel.

–or–

If **Menu/Channel Up** feature is preprogrammed on the DTMF microphone press it to select the appropriate talkgroup or channel.

- 3 Press again the preprogrammed Direct Channel button.

–or–

Press **select/enter** button on the microphone (if preprogrammed).

The new selected talkgroup or channel appears on the display.

NW TKGP ALIAS





## SENDING A CONVENTIONAL CALL

**Note:** In the United States, FCC regulations require you to monitor the conventional channels before sending a call. The monitor feature (see page 25) can be accessed through one of your programmable buttons.

### To send a conventional call:

- 1 Hold the microphone in a vertical position at a distance of about 1 to 2 inches (2.5 to 5 cm) from your mouth.
- 2 Press the **PTT** button and speak clearly into the microphone. The red LED indicator lights steady while the call is being sent.
- 3 Release the **PTT** button to listen.

## RECEIVING A TRUNKED OR CONVENTIONAL CALL

- 1 Turn your radio on.
- 2 Adjust your radio's volume (see page 29).
- 3  or  to select the desired trunked or conventional zone, then  or  until you see the desired preprogrammed talkgroup or conventional channel on the display.
  - Make sure the **PTT** button is released.
- 4 Listen for voice activity. The red LED indicator flashes when your radio is receiving.

**Note:** In PassPort mode, the Mobile Identity Number (XXXX) of the calling radio appears on the display if enabled.

XXXX

## REPEATER OR TALKAROUND |→| MODE

### (CONVENTIONAL OPERATION ONLY)

Talkaround Mode enables you to communicate with another radio when either:


- The repeater is not operating
- or–
- Your radio is out of the repeater's range but within communicating distance of another radio.

**Note:** The |→| symbol appears on the LCD screen when Talkaround Mode is selected.

### To Select either Repeater Mode or Talkaround Mode

Press the preprogrammed **Repeater/Talkaround** button (see page 25) to toggle between Repeater Mode and Talkaround Mode.

–or–

1  to enter Menu Mode.


2  or  until **Rptr/Talkarnd**

3  to select **Rptr/Talkarnd**

4  or  until **Talkarnd Mode**

–or–

**Talkarnd Mode**

5  to confirm your selection.

## CALL LIGHT

### (TRUNKED OPERATION ONLY)

The **Call Light** indicator informs you that you have received a call from a specified talkgroup (as programmed by your dealer). The yellow LED indicator flashes continuously, indicating that a call has been received.

#### To Turn the Call Light Off

- Turn the radio off, then on again.
- Select another trunked or conventional zone.
- Press the **PTT** button.
- Press any preprogrammed button.

## HOME CHANNEL

The Home Channel feature allows you to instantly access your favorite trunked talkgroup or channel at the touch of a button.

#### To Activate Home Channel

Press the preprogrammed **Home Channel** button (see page 25).

## HORN AND LIGHTS

When you are away from your vehicle, the **Horn and Lights feature** notifies you when a call is received by activating your vehicle's horn and lights. This feature can be triggered by a call alert in LTR mode. It also can be associated with call light in LTR and PassPort mode.

#### To Activate Horn and Lights Programmed with Call Light (Trunked Operation Only)

- 1 Press the preprogrammed **Horn and Lights** button. The LED flashes yellow continuously, indicating that a call has been received.

you see

**YR CURRENT TKGP**

- 2 Once the delay timer has expired, the horn and lights of the vehicle go off.
- 3 Press any buttons on the radio or the DTMF microphone to deactivate it.

## To Activate Horn and Lights Programmed with Call Alert (LTR Trunked Operation Only)

- 1 Press the preprogrammed **Horn and Lights** button. When you receive a call alert, you can see the preprogrammed name or ID of the calling radio:

YOUR NAME OR ID

**Note:** If preprogrammed, alert tones (either once or continuously) may sound.

- 2 Press any buttons on the radio or the DTMF microphone to deactivate it.



**Note:** There are options available in the CPS (Customer Programming Software), which don't require you to manually activate **Horn and Lights**. Please see your dealer for additional information.

## REMOTE MONITOR (LTR TRUNKED AND CONVENTIONAL OPERATION ONLY)

Remote Monitor allows you to automatically key-up another radio to listen-in on all surrounding audio. This feature can be initiated by a dispatcher to a mobile radio, or from a mobile radio to another mobile radio.

### To Activate Remote Monitor



- 1  to enter Menu Mode.

- 2  or  until


Radio Call

- 3  to select

Radio Call

- 4  or  until

Remote Monitor

- 5  to select the appropriate call list member:

MDC CALL 01

**Note:** An audio or visual indication may come up on the receiving radio if preprogrammed by your dealer.

To cancel **Remote Monitor**, press any button on the radio.

**Note:** Remote monitor automatically ceases after one transmit and one receive cycle.

## Notes

## PASSPORT TRUNKING

PassPort is an enhanced, wide-area trunking protocol developed by Trident Micro Systems. Up to 128 trunked sites can be linked together to form one PassPort system, which means that your communications can extend far beyond the reach of a single trunked site.

### SEAMLESS ROAMING

PassPort Trunking systems offer you the ability to seamlessly roam among all sites in a network. Seamless Roaming means that you do not have to manually change the zones on the radio when roaming from site-to-site. As you roam throughout a PassPort System's coverage area, your CDM1550•LS<sup>+</sup> radio is regularly monitoring the RSSI (Received Signal Strength Indication) level of the site on which you are currently registered. In addition, if the signal strength falls below the acceptable threshold pre-programmed by your dealer, your radio starts monitoring the RSSI level of adjacent sites within the network. This allows the CDM1550•LS<sup>+</sup> radio to quickly roam to the site with the strongest signal, which provides

you with optimal audio quality throughout your communications.

### Initial Registration

Before communications with your talkgroup can begin, your radio needs to register on the PassPort system. Registration automatically takes place upon radio power up or after selecting the desired PassPort zone on the selector knob. What you see:

- 1 Upon radio Power up, you see:  
(if you select a PassPort zone after the radio is powered up, see step 2).

PASSPORT

- 2 The selected **PassPort zone alias** appears on the display.

YOUR ZONE ALIAS

- 3 The selected **Talkgroup Alias** appears on the display.

TLKGRP ALIAS



**Note:** If the radio performs a more extensive frequency search in order to attempt successful registration, you may see on the display:

SEARCHING

- 4 Upon successful PassPort Registration, you see:

REG SITE XXX

**Note:** Your radio sounds a “Low-High” tone upon successful PassPort System registration. The XXX number indicates the site within the PassPort system on which you have registered.

5

TLKGRP ALIAS

After successfully registering at a site, the selected PassPort talkgroup alias appears and remains on the display.

## Roaming and Registering Between Sites

Once initial registration with the PassPort system has occurred, your radio constantly monitors the RSSI to ensure an acceptable signal level is maintained (as programmed by your dealer). When the RSSI in the radio falls below this acceptable level, the CDM1550•LS<sup>+</sup> attempts to roam to and register onto another site within the PassPort system.

This process happens automatically and requires no action by you. What you see:

- 1 When the radio is searching for a new site or attempting successful registration to a site, you see on the display:

SEARCHING

**Note:** This message is displayed until successful registration.

- 2 When the radio has successfully registered to the new PassPort System, XXX indicates the site number you see on the display.

REG SITE XXX

- 3 The selected PassPort talkgroup alias appears and remains on the display.

TLKGRP ALIAS

## SITE/MIN VIEW

There may be circumstances when you want to view the number of the PassPort site on which you are registered as well as your Mobile Identity Number (MIN).

### To Start And Stop Viewing Site/Min

- 1 Press the preprogrammed **SITE/MIN View** button (see page 26).

The display shows the number of the site on which you are currently registered.

site now XXX

**Note:** If the preprogrammed button is activated prior to or during registration, a bad key chirp is sounded and you see on the display:

site now n/a

The display indicates the Home Site Number (HSID) and Mobile Identity Number.

IAM XXX-YYYYY

XXX indicates the HSID, YYYYYY indicates the MIN.

**Note:** This message can be activated if the radio is not registered.

## ROAM REQUEST

Because of the RSSI feature, the CDM1550•LS<sup>+</sup> radio automatically roams to a different site when the signal from the registered site becomes too weak for quality communication. This RSSI threshold is programmed by your dealer. However, if you believe the signal strength would be better on another site, you may want to manually initiate the roaming process. This feature is called Roam Request.

### To Start a Roam Request

- 1 Press the preprogrammed **Roam Request** button (see page 25).
- 2 When the radio is searching for a new site or attempting successful registration to a site, you see on the display:

SEARCHING

- 3 When the radio has successfully registered to the new PassPort System, you see on the display:

REG SITE XXX

**Note:** A bad key chirp may sound and you see on the display:

Roam Not Avail

- When registration to a site with a higher RSSI than your current site is unavailable.
- When the preprogrammed button is pressed before the radio has collected its “neighbor list”. A Neighbor list” is a list of frequencies from adjoining sites within the PassPort system that are used during the roam process.
- When the radio is programmed for a single home system.

In these cases, wait a few seconds and try again.

- The selected PassPort talkgroup alias appears and remains on the display:

TLKGRP ALIAS

### To Cancel a Roam Request

- Press and hold the preprogrammed **Roam Request** button (see page 25) again.

You see:

Cnc1 Roam Req

**Note:** The radio then attempts to return to the previously registered site.

## TROUBLESHOOTING

While in PassPort zones, there are some specific display messages that indicate you should contact your dealer for assistance.

Message	What it Means
"Invalid Group ID"	Your dealer needs to verify talkgroup programming in your radio or the PassPort system.
"DISABLED"	Your radio requires reactivation on the PassPort system (not applicable to conventional and LTR functionality).
Blank display upon power up .	Your radio needs to be returned to your dealer for reactivation or service.

**Notes:**

## RADIO CALLS











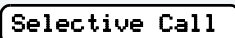
### MAKING A SELECTIVE CALL (LTR TRUNKED AND CONVENTIONAL OPERATION ONLY)



You can make a selective call to a particular radio or to a group of radios, as programmed by your dealer.

#### To Make a Selective Call

Press the preprogrammed **Radio Call** button (see page 25), and proceed to step 4.

–or–


- 1  to enter menu mode.
- 2  or  until 
- 3  to select 
- 4  or  until 
- 5  to select 

- 6  or  to locate the desired ID in the Radio Call List.

–or–


Enter with the DTMF microphone the ID number of the radio you want to call.

- 7 Press the **PTT** button to send the call.
  - The radio sounds a continuous tone, if programmed by your dealer.
  - The LED lights a solid yellow.
- 8 Press the **PTT** button and talk; release the **PTT** button to listen.  
If not received, you see:




- 9  to return to 

–or–

Hold down  to exit menu mode.

## RECEIVING A SELECTIVE CALL (LTR TRUNKED AND CONVENTIONAL OPERATION ONLY)

### When you Receive a Selective Call

- The display shows  and the preprogrammed name or ID of the calling radio.
- The LED indicator flashes yellow, if programmed by your dealer.
- You hear an alert tone.

To answer the call, press the **PTT** button.


**Note:** Unless you make a Selective Call back to the caller, your response is heard by all members of your talkgroup.


## SENDING A CALL ALERT PAGE (LTR TRUNKED AND CONVENTIONAL OPERATION ONLY)

You can alert another person by sending a Call Alert page.

### To Send a Call Alert Page

Press the preprogrammed Radio Call button (see page 25) and proceed to step 4:



1  to enter menu mode.

2  or  until 

3  to select 

4  or  until 

5  to select 

6  or  to locate the desired ID in the Radio Call List.

—or—

Enter with the DTMF microphone the ID number of the radio you want to page.

7 Press the **PTT** button,

you see:

**Call in Prog**

and the preprogrammed name or ID alternating on the display.

- The LED alternates between a solid yellow and solid red while the call is in process.


- 8** If the Call Alert page is received by the target radio, you see:

**Acknowledge**

If not received,  
you see:


**No Acknowledge**

- The radio sounds a short alert tone if, programmed by your dealer.

- 9**  to return to


**Call Alert**

—or—

Hold down  to exit menu mode.

## RECEIVING A CALL ALERT PAGE (LTR TRUNKED AND CONVENTIONAL OPERATION ONLY)

### When You Receive a Call Alert Page

- The display shows  **Call Received** and the preprogrammed name or ID of the calling radio.
- You hear four alert tones, either once or continuously, as programmed by your dealer.
- The LED indicator flashes a single yellow for a group call, or flashes a double yellow for an individual call.

To answer the page, press the **PTT** button; to cancel the page, press any other button.














**Note:** Your radio displays only the last Call Alert page received. Also, your radio does not receive any Selective Calls until you clear the page.



## RADIO CHECK (LTR TRUNKED AND CONVENTIONAL OPERATION ONLY)

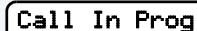
Radio Check allows you to determine if a radio is within the range of the trunked system and turned on, without disturbing the user of that radio. This feature can also be used when attempts with Selective Call and Call Alert fail.

### To Perform a Radio Check

- 1  to enter menu mode.
- 2  or  until 
- 3  to select 
- 4  or  until 
- 5  to select 
- 6  or  to locate the desired ID in the Radio Call list  
 –or–  
 Enter the ID number of the radio you are checking.

- 7 Press the PTT button,

you see:



- 8 If the Radio Check is received by the target radio, you see:




If not received, you see:



- 9  to return to











–or–

Hold down  to exit menu mode.

## SENDING A STATUS (CONVENTIONAL OPERATION ONLY)

This feature gives you the ability to send a status update to the base. The status feature makes more efficient use of the channel compared to voice transmissions. Status updates of up to 14 characters may be programmed by your dealer.

### To Send a Status







- 1  to enter Menu Mode.
- 2  or  until 
- 3  to select 
- 4  or  to locate the desired status in the preprogrammed list.  
 –or–  
 when using the enhanced keypad microphone only,  
 enter the number of the status you wish to send.  
 –or–  
 if programmed by your dealer (see page 27),  
 press the button that has been preprogrammed for a specific status.



**Note:** You cannot retransmit the current status update.

### SENDING A MESSAGE (CONVENTIONAL OPERATION ONLY)

This feature gives you the ability to send and receive preprogrammed messages. Data messages make more efficient use of channels compared to voice transmissions. Messages of up to 14 characters may be programmed by your dealer.


#### To Send an Electronic (Data) Message

- 1  to enter Menu Mode.
- 2  or  until 
- 3  to select 

- 4  or  to locate the desired message in the preprogrammed list.  
 –or–  
 when using the enhanced keypad microphone only,  
 enter the number of the message you wish to send.  
 –or–  
 if programmed by your dealer (see page 27),  
 press the button that has been preprogrammed for a specific message.
- 

## RECEIVING A MESSAGE (CONVENTIONAL OPERATION ONLY)

When your radio receives a message:

- You hear two alert tones.
- The yellow LED indicator flashes.
- You see:   
 alternating with the preprogrammed alias.

**Note:** If you receive a message that is programmed into your radio, the display will alternate with the following:



and



## RESPONDING TO EMERGENCY ALERTS (CONVENTIONAL OPERATION ONLY)

Your radio offers choices for initiating and responding to Emergency Alert communications. Choices may include:

- Emergency Cycles - Allows the radio to automatically cycle between transmit and receive mode over a preprogrammed number of times by keying with voice after it

has received an Acknowledge to the alarm you send. The default number of transmits is one (10, maximum); the default value of the retransmit interval is 5 seconds (one, minimum; 60, maximum).

- Emergency Alarm/Call - Gives you access to a voice resource, on a priority basis, over all other types of call traffic.
- Emergency Remote Monitor - Enables the dispatcher to activate the transmit circuit of your radio, during an Emergency, to hear the situation through your microphone. See page 53 for more about sending an Emergency Remote Monitor.
- Remote Monitor - Enables the dispatcher to activate the transmit circuit of your radio, during a normal dispatch, to hear the situation through your microphone. See page 54 for information about sending a Remote Monitor.

**Note:** All the choices listed above are dealer preprogrammed. See your dealer for more details.

## Decoding an Emergency Alarm

If preprogrammed by your dealer, and provided the signaling protocol supports it, your radio decodes (responds to) an Emergency Alarm or Emergency Call by:

- Sounding a unique, repeating alert tone
- Activating an external alarm
- Displaying alternating message parts on a single line, similar to the following example

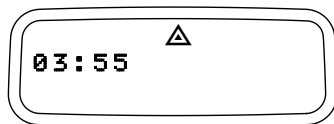


- the word **Emergency**, followed by



- Emergency Alias from the Radio Call List (example, **MDC CALL 01**), followed by

- Timestamp of the Emergency Alert (example, **03:55**).



- Flashing the **△** icon (while decoding only; lights steady when encoding)

### Multiple Queued Emergencies

Clearing the existing displayed Emergency shows the next in the queue, if one exists. The display updates and shows “Emerg (queued number) of (total number)”. If no additional Emergencies are queued, the radio exits Emergency mode and resumes normal mode.

### Three Minute Timer

Responding to an Emergency starts a three-minute timer. The radio does not generate another Emergency Alert tone against that Emergency Alias or ID until the three-minute period expires. If cleared within 3 minutes, the alarm will regenerate the alert. If the radio receives another Emergency Alert from the same Alias or ID, the radio acknowledges the Emergency but does not restart the tone,

activate the external alarm, or display updated information.

### After the Timer Expires

If the three-minute timer has expired for a specific Emergency Alias or ID, and the radio decodes an Emergency that is currently in queue, the radio:

- Acknowledges the Emergency
- Restarts the Emergency Alert tone
- Activates the external alarm
- Updates the time stamp on the matching Emergency

**Note:** If the Radio Call List does not include an alias for the radio ID, the ID displays. Radios that do not support the signaling protocol sound the alert tone, activate the external alarm and display data.

## CLEARING AN EMERGENCY ALERT

(CONVENTIONAL OPERATION ONLY)

### To Clear an Emergency Alert

- 1 Press any button on the radio to cancel the Emergency Alert tone.
- 2 Press (or activate) an external pushbutton or foot switch.

**Note:** You must press an external switch to clear the visible Emergency Alias and display the next queued Emergency Alias, if present. You must clear all decoded Emergency Alerts before encoding (sending) your own Emergency Alert.


---

## SENDING AN EMERGENCY REMOTE MONITOR

(CONVENTIONAL OPERATION ONLY)



As your radio responds to an Emergency Alert, only the Emergency Queue menu is available.

To access the Emergency Queue menu:

- 1  to enter Menu Mode.
- 2 The radio displays the list of aliases currently in the Emergency queue, similar to that shown, oldest to newest.



MDC CALL 01

- 3  or  to view the next oldest Emergency Remote Monitor packet and to choose the packet to send.
  - 4 Press the PTT to send the packet.
-

## SENDING AN EMERGENCY ALERT (CONVENTIONAL OPERATION ONLY)


A priority Emergency Alert can be sent to a specific radio or dispatch center by pressing:

- A button preprogrammed by your dealer (see page 27).
- The foot switch
- A pushbutton accessory

Emergency Alerts have priority over all other calls.

The  symbol will appear on the display when your radio is in the Emergency Alert state.

An Emergency Alert can be programmed to:

- Show  and sound a tone  
–or–
- Show the normal display  
–or–
- Activate the microphone so that all activity can be transmitted (for a predetermined amount of time). See your dealer for more information.

To cancel the Emergency Alert, press and hold down the preprogrammed **Emergency** button.

## SENDING A REMOTE MONITOR

The Remote Monitor gives the ability to activate the transmit circuit of your radio – both silently and normally – and key it. The Remote Monitor feature depends on how your radio responds to the Remote Monitor Command. Upon receiving a Remote Monitor Command, the radio:

1. Keys the transmitter.
2. Acknowledges the command
3. Sends the PTT-ID
4. Activates the microphone.

**Note:** If a remote microphone is attached, it responds.

Remote Monitor capability depends on which of two modes are preprogrammed:

- Silent Mode – When the command is sent in Silent Mode, and the receiving radio keys and transmits for the time set by the Remote Monitor Command, the receiving radio will not generate an indicator of the event.
- Non-Silent Mode – When the command is sent in Non-Silent Mode, and the receiving radio keys and transmits for the time set by

the Remote Monitor Command, the receiving radio will generate an indicator of the event.

The amount of time that the radio remains in receive mode or in transmit mode is set by the Remote Monitor Command and the time settings in the radio. When in this state, touching any button on the radio takes it out of the Remote Monitor mode. See your dealer for more details.

## SELECTIVE RADIO INHIBIT (CONVENTIONAL OPERATION ONLY)

Your radio is equipped with a security feature that can temporarily render the unit inoperative when an inhibit signal is sent from the base station.

This feature is commonly used to disable radios:

- In case of theft
- When your vehicle is being serviced
- For system control reasons

**Note:** When your radio has been disabled by the base station, all controls will be inoperative except for the On/Off button. When the radio is powered up,

You see:

**Radio Disabled**



## EDITING A RADIO CALL LIST (LTR TRUNKED AND CONVENTIONAL OPERATION ONLY)

Your radio has a Radio Call list that contains the names and radio IDs of several talkgroups or individuals. The ID numbers in the Radio Call List are programmed by your dealer, and cannot be changed from your radio. However, you can edit the names associated with these IDs. The  symbol appears on the display when you are editing.

**Note:** The radio cannot receive any calls while you are editing.

### To Edit a Call List Entry

1  to enter menu mode.

2  or  until

**Program Lists**



3 to select **Program Lists**

4 or until **RadioCall List**

5 to select **RadioCall List**

6 or until **Edit Entry?**

7 to select **Edit Entry?**

8 or until you locate the desired entry.

9 to select the entry.

10 Use your keypad to edit the entry.

11 to save your changes. **Edit Entry?**

12 to return to **Edit Entry?**

–or–

Hold down to exit menu mode.

## NAME AND CALL TONE TAGGING (LTR TRUNKED AND CONVENTIONAL OPERATION ONLY)

You can program your radio to sound a particular alert tone when a specific user is calling (name tone tagging), or when receiving a particular type of radio call (call tone tagging).

**Note:** Name and call tone tagging are valid only for selective calls and call alerts.

There are seven alert tones to select from. (see page 87.)

### To Tag a Specific User's Name



1 to enter menu mode.

2 or until **Name Tone Tag**

3 to select **Name Tone Tag**

4 or until you see the name you want to tag.


5 to confirm the selection.

6  or  until you see and hear the tone you want to use for this name.

7  to confirm the selection,


you see:

**Name Tone Set**


8  to return to



**Name Tone Tag**

–or–

Hold down  to exit menu mode.

### To Tag a Type of Radio Call



1  to enter menu mode.

2  or  until

**Audio/Tones**

3  to select



**Audio/Tones**

4  or  until



**Call Tone Tag**

5  to select

**Call Tone Tag**

6  or  until you see the call type you want to tag.


7  to confirm the selection.

8  or  until you see and hear the tone you want to use for this type of call.

9  to confirm the selection,


you see:

**Call Tone Set**

10  to return to

**Call Tone Tag**

–or–

Hold down  to exit menu mode.

**Notes:**