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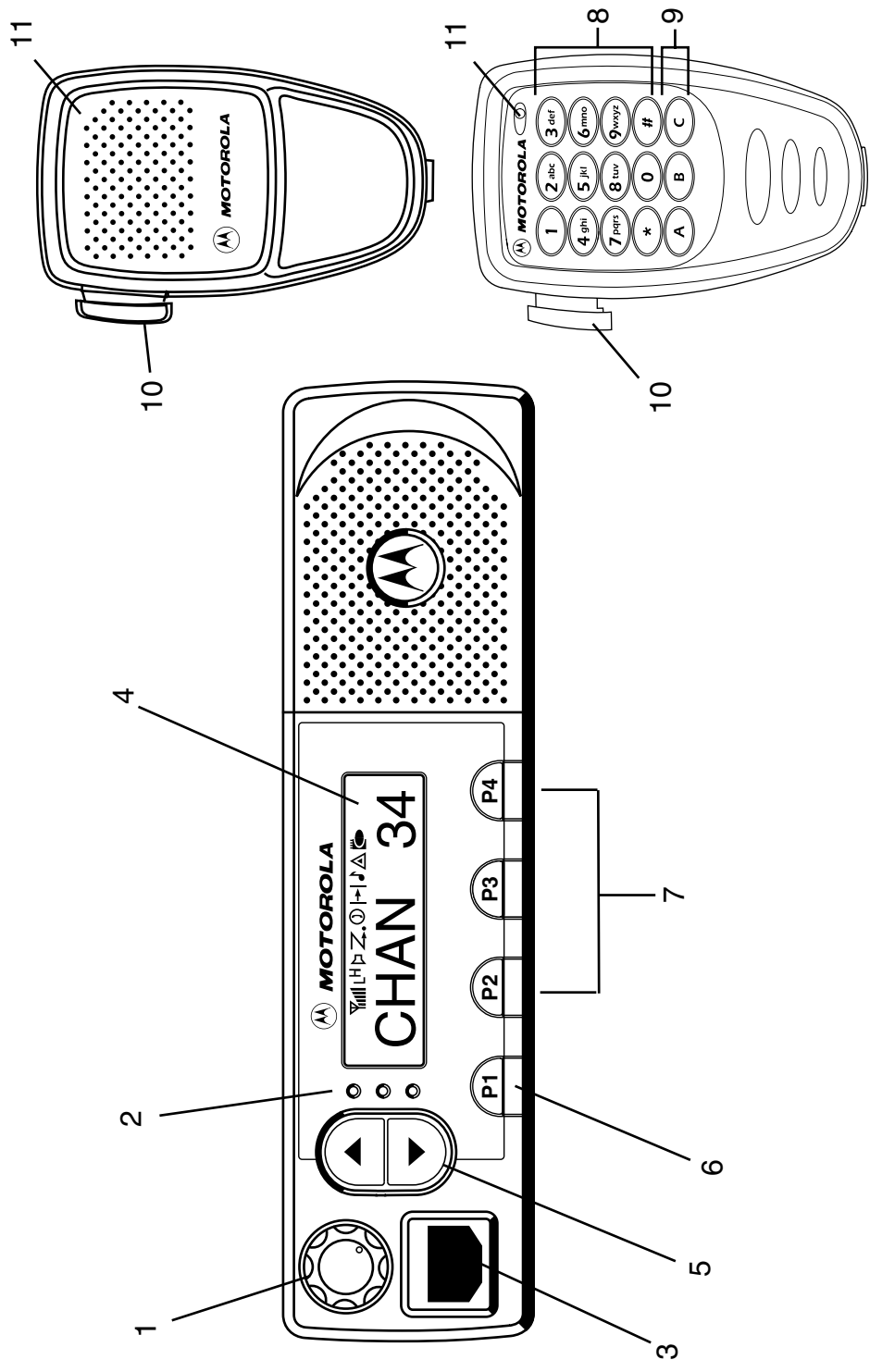
# Commercial Series

## CM160

User Guide

6866545D04 - O

Issue: October 2003



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## RADIO OVERVIEW

This user guide covers the operation of the CM160 Mobile Radio.



**Caution**

Before using this product, read the operating instructions for safe usage contained in the Product Safety and RF Exposure booklet 6866537D37\_ enclosed with your radio.




### ATTENTION!

This radio is restricted to occupational use only to satisfy ICNIRP 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 (Motorola Publication part number 6866537D37\_) to ensure compliance with RF energy exposure limits.

### RADIO CONTROLS

The numbers below refer to the illustrations on the inside front cover.


- 1. On-Off / Volume Knob**  
Used to turn the radio on or off, and to adjust the radio's volume.
- 2. LED Indicators**  
Indicates channel, scan, and monitor status, as well as receipt of a selective call.
- 3. Mic Jack**

- 4. LCD Display**  
An 8 character single line display with up to 9 radio status icons.
- 5. Navigation up or down**  
Used for channel scrolling, menu navigation and scrolling menu lists. 
- 6. Menu Button**   
Used to access and select the menu options.
- 7. Programmable Buttons**   
Dual function programmable buttons. Short press selects function 1; long press selects function 2.

### MICROPHONE CONTROLS

(Keypad Microphone)

Hold the microphone 2.5 to 5 cm (1-2 inches) from your mouth, and speak clearly into it.

- 8. Keypad**
- 9. Programmable Keys**   
Dual function programmable buttons. Short press selects function 1; long press selects function 2.
- 10. Push-to-talk (PTT)**  
Press and hold down this button to talk; release it to listen.
- 11. Microphone**

## PROGRAMMABLE BUTTONS

Several of your radio's keys and buttons can be programmed, by Customer Programming Software (CPS), as short-cut buttons for many of the radio's features. Programmable buttons include:

**CM160**    

**Keypad microphone**   

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

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






- **short press**—quickly pressing and releasing the programmable buttons
- **long press**—pressing and holding the programmable buttons for a period of time (at least 1 1/2 seconds)
- **hold down**—pressing and holding down the programmable buttons while checking status or making adjustments






The following table is a summary of programmable radio features and corresponding page references.

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

The dealer can use the abbreviations (P1, P2, P3, P4) shown in the radio illustration on the inside cover.

Also, where appropriate, have your dealer indicate whether the button press requires a short press, a long press, or needs to be held down.

Function	Indicator	Short Press	Long Press	Hold Down	Page	Button
Menu Mode	—	 button enters Menu mode and selects menu options.  button is automatically re-assigned to exit Menu Mode.†		—	8	
Volume Set		—	—	Sound a tone for adjusting your radio's volume level.	13	
Home Revert Memory Channel (1 & 2)	—	Provides direct channel access.	—	—	14	
Store Memory Channel (1 & 2)	—	—	Stores current channel.	—	14	
Local/Distance	—	Toggles between local mode and distance mode. †		—	14	
Monitor		Toggle silent monitor operation (also turn off open squelch monitor when it has been activated).	Turn on open squelch monitor.	—	15	
Repeater/Talkaround		Toggle between using a repeater or transmitting directly to another radio. †		—	17	
Voice Operated Transmission (VOX)	—	Toggle VOX On and Off.		—	18	
Radio Call	—	Directly accesses the radio call menu. †		—	19	

Function	Indicator	Short Press	Long Press	Hold Down	Page	Button
Scan/Nuisance Channel Delete		Toggle scan on and off .	Delete a nuisance channel while scanning.	—	23	
Edit Scan List	—	Directly accesses the Scan Edit menu to add, delete or prioritise channels.		—	27	
Phone		Directly accesses Phone mode.†		—	29	
Speed Dial		Directly accesses Phone mode to access phone list for speed dial.†		—	31	
Escalart On/Off	—	Toggles escalart on and off.†		—	40	
Squelch	—	Toggles your radio's squelch level between tight and normal squelch.		—	42	
Power Level		Toggle transmit power level between High and Low.†		—	42	
Option board		Toggles the option board on and off.†		—	43	

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



### KEYPAD KEYS

(Keypad Microphone)

1	2 abc	3 def
4 ghi	5 jkl	6 mno
7 pqrs	8 tuv	9 wxyz
*	0	#
A	B	C

Your radio may be operated with a DTMF (Dual-Tone Multi-Frequency) microphone that has a direct entry keypad.

The keypad is used for:

- Dialling a phone number and making a call.
- Entering information when programming phone lists.
- Directly accessing pre-programmed features.

The keypad microphone has three programmable buttons (A, B, and C) below the keypad that can be programmed to conveniently activate selected radio features. Each button is dual function; a short press may select one function, a long press may select the second.


The # button can be programmed to send a call.

Each key can generate several different characters, e.g. to enter 'C' press the 2 abc button three times. Refer to the table below for entering characters using the microphone keypad.

Number of Times Button is Pressed					
Button	1	2	3	4	5
0	0				
1	1	/	\		
2 abc	A	B	C	2	
3 def	D	E	F	3	
4 ghi	G	H	I	4	
5 jkl	J	K	L	5	
6 mno	M	N	O	6	
7 pqrs	P	Q	R	S	7
8 tuv	T	U	V	8	
9 wxyz	W	X	Y	Z	9
*	*	<	>		
#	#	+	-	-	

## MENU KEYS



### Menu Select Button

The  button is dedicated to Menu access and menu option selections. It can be pre-programmed by your dealer to either a long or short press.

### Menu Exit Button


In Menu Mode, this button is automatically assigned to exit the menu. A long press exits the menu immediately, while short presses are used to move up to the next higher Menu level. When the top level menu is selected, a short press will exit the Menu Mode.

The radio also exits the Menu Mode after an "Inactivity Time" timeout

Once the menu mode is exited, both  and  buttons return to their normal programmable condition.

### Up /Down Navigation Keys /

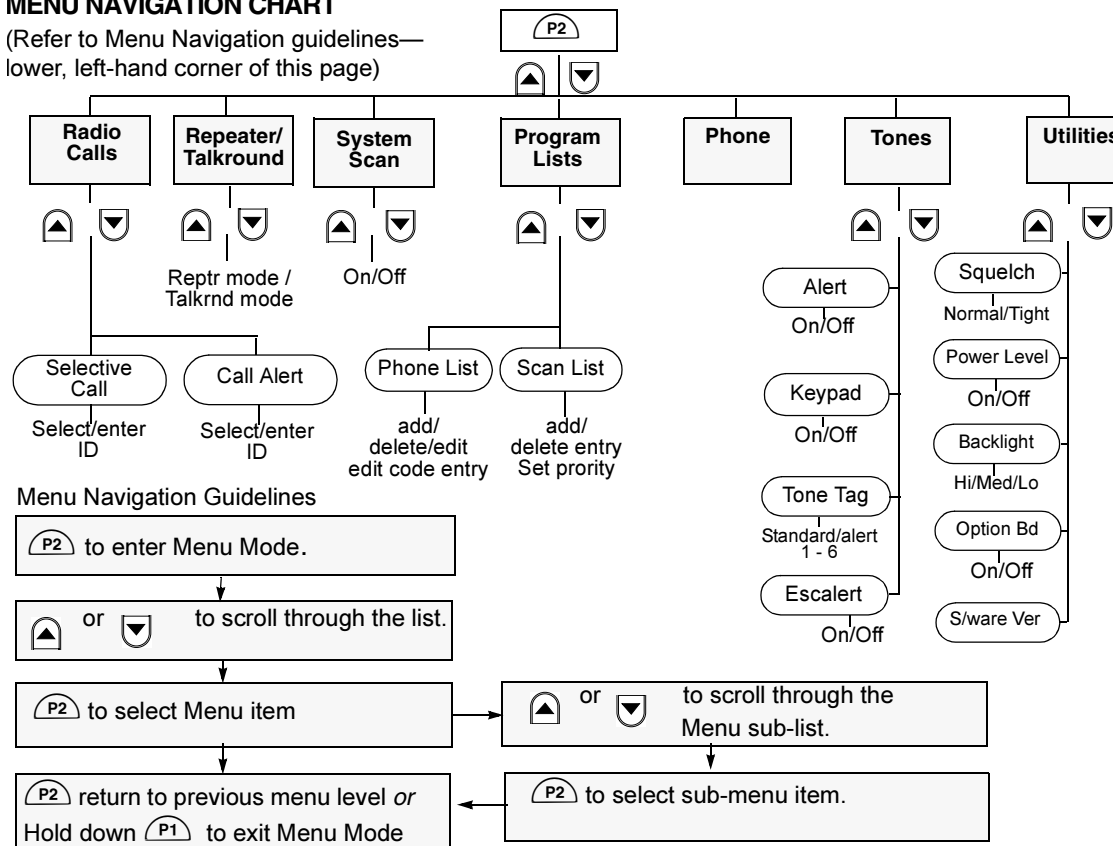
Used to scroll when in Menu Mode.

Increment/decrement channel number or scroll through menu list options. If you scroll past the last option the selection wraps around and starts again. On reaching the required option, a short press of  selects the option.

Refer to the menu navigation chart for menu selectable features.

## MENU NAVIGATION CHART

(Refer to Menu Navigation guidelines—  
lower, left-hand corner of this page)



RADIO OVERVIEW

**LCD DISPLAY AND ICONS**



Displays radio Status, Addresses or Channel, on one line of 8 characters. The top line of the display shows radio status icons, explained in the table below:

Symbol	Name and Description
	<b>Option Board Indicator</b> Indicates that an option board is activated in the radio.
	<b>Signal Strength Indicator</b> The more bars, the stronger the signal being received by your radio.
	<b>Power Level Indicator</b> “L” lights when your radio is configured to transmit in Low Power. “H” lights when your radio is configured to transmit in High Power.
	<b>Monitor Indicator</b> The selected channel is being monitored.

Symbol	Name and Description
	<b>Scan Indicator</b> Indicates that the scan feature is activated.
	<b>Priority Scan Indicator</b> Indicates that the scan feature is activated. The dot is flashing during priority scan mode when scan has landed on a Priority 1 channel. The dot is steady during priority scan mode when scan has landed on a Priority 2 channel.
	<b>Phone Indicator</b> Phone mode is selected.
	<b>Call Received Indicator</b> A Selective Call or Call Alert has been received.
	<b>Talkaround Indicator</b> You are transmitting directly to another radio, not via a repeater.
	<b>Emergency Indicator</b> An Emergency Alarm is being sent.

### AUDIO SIGNAL TONES

High pitched tone  Low pitched tone

Signal	Description
<input type="checkbox"/> <input type="checkbox"/> _____	Self Test Pass Tone.
<input checked="" type="checkbox"/> _____	Self Test Fail Tone.
<input type="checkbox"/> <input type="checkbox"/> _____	Positive Indicator Tone.
<input type="checkbox"/> _____	Negative Indicator Tone.
<input type="checkbox"/> _____	Good key press.
<input checked="" type="checkbox"/> _____	Bad key press.

Some programmable buttons use tones to indicate one of two modes as detailed in the following table:

Programmable Buttons	Positive Indicator Tone	Negative Indicator Tone
Scan	Start	Stop
Power Level	High	Low
Squelch	Tight	Normal
Repeater/Talkaround	Does not use repeater	Uses repeater
VOX	Enabled	Disabled
Local/Distance	Local	Distance
Sticky Monitor/Open Squelch	—	Enabled
Home Revert Memory Channel (1&2)	—	Enabled
Store Memory Channel (1&2)	—	Stored
Menu Mode (P2)	—	Accessed
Radio Call	—	Enabled
Scan List Edit	—	Enabled
Speed Dial	—	Enabled
Phone Mode	—	Enabled
Option Board	Enabled	Disabled
Escalert	Enabled	Disabled

### LED INDICATORS

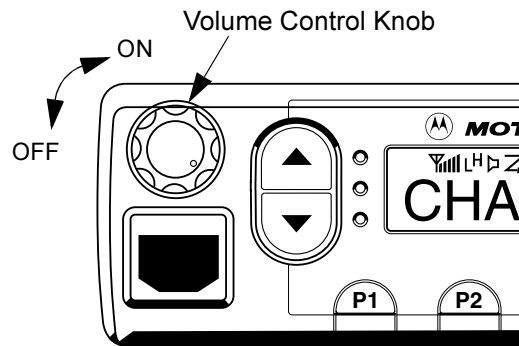
Three LEDs show radio status as follows:

LED	State	Indication
<b>Radio Call</b>		
Red	Solid	Radio transmitting
Red	Flashing	Channel busy - when receiving
<b>Scan</b>		
Green	Flashing	Radio is scanning
<b>Call Alert</b>		
Yellow	Solid	Radio sending a Call Alert
Yellow	Flashing	Radio receiving a Call Alert
<b>Selective Call</b>		
Yellow	Solid	Radio sending a Selective Call
Yellow	Flashing	Radio receiving a Selective Call

LED	State	Indication
<b>Sticky Monitor/Open Squelch</b>		
Yellow	Solid	Radio monitoring channel

## GETTING STARTED

### TURNING THE RADIO ON / OFF



ON	OFF
Rotate the <b>On/Off/Volume Control</b> knob clockwise until you hear a click.	Rotate the <b>On/Off/Volume Control</b> knob counterclockwise until you hear a click. The display clears and the LED indicators turn off .

### Adjusting the Volume

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

–or– use the pre-programmed **Volume Set** button:

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

### Radio On Message

At power up the radio may display a message customised by your dealer, e.g.:

RADIO ON

After this text has been displayed, the radio performs a self test routine. During the routine the Green LED lights. On completion of a successful self test the radio produces the Self-Test pass Tone, the Green LED indicator goes out and the display shows the screen that was in use at power down, typically:

CHAN 35

This may be a number or an alias and will be the current channel.

**Note:** If your radio fails the self test routine the display will show the failure number. Record the number and consult your dealer

### SELECTING A RADIO CHANNEL

Your radio offers up to 64 channels, however some may not be programmed. Check with your dealer for more information.

Press  $\uparrow$  to increment the Channel number or  $\downarrow$  to decrement it.

Your radio will power up on a pre-programmed designated channel or the channel that it was on when it was powered down.

### Home Revert Memory Channels (1&2)

Up to two programmable buttons can be programmed as Home Revert Memory Channel buttons which allow you quick access to frequently used channels. The buttons may be pre-programmed by your dealer or are programmable by yourself.

If pre-programmed by your dealer, an appropriate press of the button will take you to the assigned channel.

### Store Memory Channels (1&2)

To program a Memory Channel button yourself, select the desired channel in the normal way and long press the button. The button is then programmed to the selected channel; a short press on the button will take you to that channel.

**Note:** The programming is retained when you turn off the radio.

### Using the Microphone Keypad (If programmed)

Enter the desired channel number on the keypad. Press # on the keypad to select the channel.

**Note:** The keypad microphone cannot be used to enter the channel number during a call or whilst the radio is in a scan.

### Set Local or Distance Mode



Distance is the standard mode of operation, and maximises receive radio range.

Local reduces interference from other radios in close proximity and is typically used for base station configurations.

Press the preprogrammed **Local/Distance** button to toggle between Local and Distance mode.



## RECEIVE

- 1 Turn your radio on.
- 2 Adjust the radio's volume, if necessary.
- 3  or  to select the desired channel.
  - Make sure the **PTT** button is released.
- 4 Listen for voice activity.
  - The red LED indicator flashes while your radio is receiving.
- 5 To respond, hold the microphone vertically 2.5 to 5 cm from your mouth. Press the **PTT** button to talk; release it to listen.

## MONITOR

It is important to monitor traffic before transmitting to ensure that you do not "talk over" someone who is already transmitting.

## Silent Monitor



- 1 A short press of the preprogrammed **Monitor** button places the radio in Silent Monitor mode.
  - You hear a high-pitched tone, then any communications on channel. Wait until the channel is quiet before sending a call..
- 2 A short press of the **Monitor** button cancels Silent Monitor mode and returns the radio to normal operation.

## Open Squelch Monitor

- 1 To place the radio in Open Squelch mode, press and hold the preprogrammed **Monitor** button until you hear a high-pitched tone.
  - If no activity is present, you will hear "white noise."
- 2 Momentarily press the **Monitor** button to return to normal operation.

**Note:** Depending on how your radio has been programmed, per channel for transmit and receive conditions, when the microphone has been taken off-hook, the radio will go into Open Squelch mode.

**TRANSMIT**

- 1 Turn your radio on.
  - 2  or  to select the desired channel.
  - 3 Hold the microphone vertically 2.5 to 5 cm from your mouth. Press the **PTT** button to talk.
    - The red LED indicator lights steady while the call is being sent.
  - 4 Release the **PTT** button to listen.
- 

Your radio may be configured for 'Busy Channel Lockout' under certain conditions (e.g. when the channel is in use by others) in which case, the negative tone indicator will sound when you press the PTT or call button to indicate that transmission is inhibited.

**Cancelling a Call**

At any time while setting up a call, it may be cancelled by pressing the Monitor button, or replacing the microphone in its holder (referred to as going "on hook").

The call timer can also cancel a call.

**Ending a Call**

A call should always be ended by pressing the Monitor button, or replacing the microphone in its holder.

## REPEATER OR TALKAROUND MODE

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 display when Talkaround Mode is selected.


## Select either Repeater Mode or Talkaround Mode

Press the preprogrammed **Repeater/Talkaround** button to toggle between Repeater Mode and Talkaround Mode.

– or –


1  to enter menu mode.

2  or  until

3  to select the current setting.

4  or  until

–or– until

5  to select the current setting.

## VOX OPERATION

When hands-free operation is desired, your radio can transmit by voice alone using the VOX feature when you speak through a voice activated external microphone that is connected to your radio.



**Note:** A voice activated external microphone must be connected to your radio prior to power-up of the radio in order to activate the VOX feature.

To enable or disable VOX operation on a channel, press the preprogrammed **VOX** button.



**Note:** Pressing the **PTT** button disables VOX.

– or –

You can select channels with VOX enabled or VOX disabled as preprogrammed by your dealer.

- 1  or  to select a channel that has been preprogrammed for VOX to **enable** VOX.

**Note:** Pressing the **PTT** button disables VOX.

- 2  or  to select a channel that has **not** been pre-programmed for VOX, to **disable** VOX.
-

## RADIO CALLS




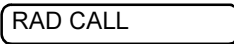









### SELECTIVE CALLS

#### Making a Selective Call

You can make a selective call to a particular radio, known as an individual call, or a group of radios, known as a group call.


Press the preprogrammed **Radio Call** button 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 -

When using the enhanced keypad microphone, enter a valid DTMF digit to move to that location in the list.

- 7 Press the **PTT** button to send the call.
- 8 Press and hold the **PTT** button to talk; release to listen.
- 9 When the call is completed,  until you exit menu mode.

#### Receiving a Selective Call

When you receive a Selective Call:

- The display shows  and the preprogrammed name or ID of the calling radio.
- The yellow LED indicator flashes, if programmed by your dealer.
- You hear two high-pitched tones.




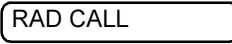

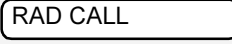


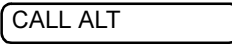


- 1 To acknowledge the call, press and release the **PTT** button.
- 2 Press and hold the **PTT** button to talk; release to listen.



### SEND A CALL ALERT PAGE

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

Press the preprogrammed **Radio Call** button 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 -

When using the enhanced keypad microphone, enter a valid DTMF digit to move to that location in the list.

- 7 Press the **PTT** button to send the page.
- 8 When the page is completed,  until you exit menu mode.

### RECEIVE A CALL ALERT PAGE

When you receive a Call Alert page:

- The display shows  and the preprogrammed name or ID of the calling radio.
- The yellow LED indicator flashes, if programmed by your dealer.
- You hear four high-pitched tones.

To acknowledge the page, press and release the **PTT** button; to cancel the page, press any other key.

## REPEATER ACCESS

### Use with Keypad Microphone (RMN5029)


To send DTMF repeater access tones :

- 1 Press and hold the microphone **PTT** button.
- 2 Enter the repeater access code on the microphone keypad.
- 3 Release the microphone **PTT** button.

RADIO CALLS

## EMERGENCY ALERTS

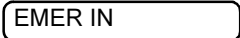
Your radio offers choices for initiating and responding to Emergency Alert communications. An Emergency Alert can be programmed for:

- Standard operation - shows  and sounds a tone  
–or–
- Silent operation - shows the normal display  
–or–
- Silent with voice operation - activates the microphone so that all activity can be transmitted (for a predetermined amount of time). An appropriate 'hot microphone' must be fitted, e.g. MDRMN5029.

All emergency features are preprogrammed. See your dealer for further information on the emergency features that are available.

## Sending an Emergency Alert

A priority Emergency Alert can be sent to a specific radio or dispatch centre by pressing either a foot switch or a push button accessory.

- The display shows: 

**Note:** Emergency alerts have priority over all other calls.


## Clearing an Emergency Alert

An Emergency Alert can be cleared by long pressing either a foot switch or a push button accessory.



## SCAN

Your radio is equipped with the Scan feature, which allows you to search for, lock onto, and monitor voice activity on channels. Scan lists are assigned per channel, by your dealer. Your radio automatically switches to a channel, within that scan list, when it detects activity. You can also edit these lists through the radio menu.

- The green LED indicator flashes during scan mode; it stops flashing when the radio switches to an active channel.
- The  symbol appears on the display while in scan mode.
- Your dealer can preprogram your radio where, if the microphone is taken off-hook while in Scan mode, the scanning activity becomes suspended until the microphone is replaced.



There are two types of Scan available in your radio:

- System Scan
- Auto Scan




## START SYSTEM SCAN

Press the preprogrammed **Scan** button to start System Scan.

– or –

1  or  to select a channel that contains a Scan list.


2  to enter menu mode.

3  or  until 

4  to select 

The display shows the current scan status.

5  or  until 









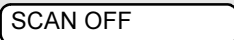


6  to select the current setting.

SCAN

**STOP SYSTEM SCAN**

Press the preprogrammed **Scan** button to stop System Scan.



– or –

- 1  to enter menu mode.
  - 2  or  until 
  - 3  to select 
- The display shows the current scan status.
- 4  or  until 
  - 5  to select the current setting.
    - The  symbol disappears from the display.



**Note:** Your dealer can preprogram your radio when exiting System Scan to automatically revert to the last scan channel that had activity on it or to automatically revert to the channel where scan was initiated.

**START AUTO SCAN **

Auto Scan automatically starts scanning once the channel with Auto Scan enabled is selected.

 or  to select a channel that has been preprogrammed for Auto Scan by your dealer.

**STOP AUTO SCAN**

 or  to select a channel that has not been preprogrammed for Auto Scan by your dealer.

- The  symbol disappears from the display.

## TALKBACK

The Talkback feature allows you to respond to a transmission while scanning. If transmission is detected on a channel while scanning, the radio will stop and land on that channel for a preprogrammed period of time after activity has ceased. This is referred to as “hangtime”. During this hangtime you may respond by pressing the **PTT** button.

**Note:** The LED scan indicator stops flashing while the radio is in hangtime. If the **PTT** button is not pressed, the radio reverts back to scan after the preprogrammed hangtime.



SCAN

### DELETE A NUISANCE CHANNEL

**Note:** Your dealer must preprogram a button to **Nuisance Delete** to access this feature.

If a channel continually generates unwanted calls or noise (a “nuisance” channel), you can temporarily remove it from the scan list:

- 1 While the radio is on the Nuisance Channel, press the preprogrammed **Nuisance Channel Delete** button until you hear a tone.
- 2 Release the **Nuisance Channel Delete** button. The nuisance channel is deleted.

---

**Note:** You cannot temporarily delete the channel that has been preprogrammed by your dealer as your designated scan channel, a priority channel, or the last remaining channel in the scan list.



### Restore Channels to the Scan List

- 1 Power off the radio. Once the radio is powered on again, the deleted nuisance channels are restored to the scan list.

–or–

- 2 Press the preprogrammed **Scan** button to stop the scan.
- 3 Press the preprogrammed **Scan** button again to start scanning again. The Deleted Nuisance Channels are restored to the scan list.

– or –



- 4  or  to change channel. Once you return to the original channel, the deleted nuisance channels are restored to the scan list.
-

### EDIT A SCAN LIST



Your radio can support up to 16 Scan lists. Each Scan list can contain up to 16 channels. The same channel can be included in several Scan lists, and the same Scan list can be assigned to several channels. Scan lists are assigned per channel, by your dealer. When you edit a Scan list, you can either add, delete, or prioritize channels.

**Note:** Your radio cannot receive any calls while you are editing a Scan list.



### ADD OR DELETE CHANNELS IN A SCAN LIST

1  or  until  
Scan list you want to edit.


2  to enter menu mode.

3  or  until

4  to select


5  or  until



**Note:** One Scan list per channel is available.


6  to select

7  or  until

–or– until

8  to select the current setting.

9  or  until you see the channel you want to add or delete.


10  to confirm your selection.

11 If you added a channel,

you see:   
–or–

If you delete a channel,


you see:

12  to confirm the deletion.

you see:

13  to return to

–or–

14  until you exit menu mode.

SCAN

**PRIORITIZE A CHANNEL IN A SCAN LIST**

You may want to check the activity on one or two channels more frequently than others. You can do this by prioritizing them:

Priority Channel	Scanning Sequence
None specified	Ch1→Ch2→Ch3→ Ch4→...Ch1
Channel 2 (Priority 1)	Ch2→Ch1→Ch2→Ch3→ Ch2→Ch4→Ch2→...Ch1
Channel 2 (Priority 1) and Channel 8 (Priority 2)	Ch2→Ch1→Ch8→Ch3→ Ch2→Ch4→Ch8→...Ch1

**Note:** If you are receiving on a non-priority channel and traffic becomes active on a priority channel, your radio will automatically switch to that priority channel and indicate the activity with a short tone.

**Set Priority Channels**

**Note:** You cannot have the same priority on two different channels.

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

- 4 or until
- 5 to select
- 6 or until
- 7 to select
- 8 or until
- or-* until

9 to select the current priority level.

You see the current priority channel.

10 or until you see the channel you want to prioritize.

*-or-* until   
to select the current channel

*-or-* until   
to de-prioritise the current channel

11 to prioritize that channel.

you see:

12 to return to

13 until you exit menu mode.

## PHONE

Your radio allows you to place and receive telephone calls through a repeater (depending on phone line availability). You can edit the phone list through your radio's menu.

- ① appears on the display when you are in Phone mode.

Your dealer can preprogram your radio in one of three ways to enter your access/de-access code to the repeater.

**Immediate Auto** – your radio will transmit the access/deaccess code automatically upon entering phone mode or disconnecting a phone call. You will hear a series of tones, and see your access/deaccess code on the display, indicating that an access/deaccess code is being sent automatically.

**Delayed Auto** – your radio will transmit the access code upon a **PTT** button press. The de-access code is sent automatically when you exit phone mode.

**Manual** - Press and hold the microphone **PTT** and enter your access/deaccess code using the DTMF microphone keypad. Release the microphone **PTT** on completion.



PHONE

**RECEIVE A PHONE CALL** ⓘ



When a phone call is received, a ringing tone sounds, alerting you to answer the phone call. Press the preprogrammed **Phone** button and proceed to step 6.


– or –

Press the **PTT** button, and if the Hot Keypad feature has been preprogrammed by your dealer, do the following:

1  or  to select a channel that has been programmed for telephone.

2  to enter menu mode.

3  or  until

4  to select

**Note:** The ⓘ appears on the display.

5 Your dealer can preprogram your radio in one of three ways to enter your access code to the repeater.

**Immediate Auto** – automatically sends the access code.

**Delayed Auto** – your radio will transmit the access code upon a **PTT** button press.

**Manual** - Press and hold the microphone **PTT** and enter your access code using the DTMF microphone keypad. Release the microphone **PTT** on completion.

6 Hold microphone 2.5 to 5 cm away from your mouth. Press and hold the **PTT** button to talk. Release the **PTT** button when the other party wants to talk, both parties will need to speak in turn.

7 To disconnect a phone call, do one of the following:

If your radio has Immediate Auto or Delayed Auto programmed, go to step 8.

–or–

Press and hold the microphone **PTT** and enter your deaccess code using the DTMF microphone keypad. Release the microphone **PTT** on completion.

8 To exit Phone Mode:

Press the preprogrammed **Phone** button

–or–

Press and hold  to disconnect the call.

**Note:** ⓘ disappears from the display.





## MAKE A PHONE CALL



Press the preprogrammed **Phone** button and proceed to step 6.

– or –

Press the **PTT** button, and if the Hot Keypad feature has been preprogrammed by your dealer, do the following:

1  or  to select a channel that has been programmed for telephone.

2  to enter menu mode.

3  or  until

4  to select

5 Your dealer can preprogram your radio in one of three ways to enter your access code to the repeater.

**Immediate Auto** – automatically sends the access code.



**Delayed Auto** – your radio will transmit the access code upon a **PTT** button press.

**Manual** - Press and hold the microphone **PTT** and enter your access code using the DTMF microphone keypad. Release the microphone **PTT** on completion.

6 When you hear a dial tone:

Enter the phone number using the DTMF microphone keypad.


The number will scroll to the left,  
–or–

 or  to select a number from the phone list. (Only the first 8 digits are displayed.)  
–or–

- Press and release the preprogrammed **Speed Dial** button.
- Press the key (0 to 9) corresponding to the number you want to call.

7 To redial the last number dialed (if not using Speed Dial), press and release the **PTT** button immediately after the access code is sent. The radio sends the last number dialed.  
–or–

PHONE

If you entered your access code using the DTMF keypad, press  once to access the last number dialed; then press and release the **PTT** button.

- 8** Press and release the **PTT** button, if required for your radio.

- 9** Hold the microphone 2.5 to 5 cm away from your mouth. Press and hold the **PTT** button to talk. Release the **PTT** button when the other party wants to talk, both parties will need to speak in turn.

- 10** To disconnect a phone call, do one of the following:

If your radio has Immediate Auto or Delayed Auto programmed, go to step 10.

–or–


Press and hold the microphone **PTT** and enter your deaccess code using the DTMF microphone keypad. Release the microphone **PTT** on completion.

- 11** To exit Phone Mode:

Press the preprogrammed **Phone** button

–or–

Press and hold  to disconnect the call.

**Note:**  disappears from the display.

## EDIT THE PHONE LIST

Your radio contains a Phone list that holds up to 25 phone numbers. You can edit the Phone list in three ways through your radio's menu:

- Add an entry
- Delete an entry
- Edit an existing entry

















### Add an Entry

- 1 to enter menu mode.
- 2 or until
- 3 to select
- 4 or until
- 5 to select
- 6 or until
- 7 to select,   
you see:
- 8 Use the DTMF microphone keypad to enter the name (see Entering Characters using the DTMF Microphone Keypad).
















- 9 to store the name,  
you see:
- 10 Use the DTMF microphone keypad to enter the phone number. You can also add a Pause Indicator (press three times until the # character on the display changes to a "-").
- 11 to store the phone number.  
you see:
- 12 or until you see the location in the list where you want to store the phone number.
- 13 to store the location.  
you see:
- 14 to return to   
-or-  
 until you exit menu mode.







PHONE

**Delete an Entry**

- 1  to enter menu mode.
  - 2  or  until
  - 3  to select
  - 4  or  until
  - 5  to select
  - 6  or  until
  - 7  to select
  - 8  or  until you see the entry you want to delete.
  - 9  to select the entry,  
you see:
  - 10  again to confirm the deletion,  
you see:
  - 11  to return to  
-or-
-  until you exit menu mode.
-

## Edit an Entry














- 1  to enter menu mode.
- 2  or  until
- 3  to select
- 4  or  until
- 5  to select
- 6  or  until
- 7  to select
- 8  or  until you see the entry you want to edit.
- 9  to select the entry.
- 10  or  until   
(to edit the name),  
–or– until   
(to edit the phone number),  
–or– until   
(to edit the location in the phone list).

- 11  to confirm your selection.
  - 12 Use the DTMF microphone keypad to edit the entry  
–or–  
 or  until you see the location where you want to store the phone number.
  - 13  to store the information.  
you see:
  - 14  to return to   
–or–  
 until you exit menu mode.
- 

PHONE



### Edit Access/Deaccess Codes


You can edit the access/de-access codes that are used to connect or disconnect you from a repeater.

- 1  to enter menu mode.
- 2  or  until
- 3  to select
- 4  or  until
- 5  to select
- 6  or  until
- 7  to select
- 8  or  until
- or- until
- 9  to select the current setting.
- 10 Enter the number using the DTMF keypad microphone.

- 11  to select the entry.

you see:

- 12  or  to edit another code.

- 13  until you exit menu mode.
-

## TONE PREFERENCES

You can use the radio's menu to access user-adjustable settings to customize the tones on your radio:

### Tone Settings

Feature	What it Does	Settings
TONE	Turns all alert tones on or off.	ON OFF
KPD TONE	Turns the keypad tones on or off.	ON OFF
TONE TAG	Assigns a specific tone when receiving a specific type of radio call.	STANDARD ALERT 1-6
ESCALERT	Increases the volume of the alarm tones when a radio call is not answered.	ON OFF

### TONES ON/OFF

You can program your radio to enable or disable all alert tones.

- 1 to enter Menu mode.
- 2 or until
- 3 to select
- 4 or until
- 5 to select
- 6 or until
- or – until
- 7 to select the current setting.

### KEYPAD TONES ON/OFF

You can program your radio to enable or disable all keypad tones.

**Note:** Tones for the programmable buttons , , , and cannot be disabled.














- 1 to enter Menu mode.
- 2 or until
- 3 to select
- 4 or until
- 5 to select
- 6 or until
- or – until
- 7 to select the current setting.





## CALL TONE TAGGING

You can program your radio to sound a particular alert tone when receiving a Selective Call or Call Alert (call tone tagging).

**Note:** Seven alert tones are available to select from in the list.

- 1  to enter menu mode.
- 2  or  until
- 3  to select
- 4  or  until
- 5  to select
- 6  or  until   
– or – until
- 7  to select the current setting.
- 8  or  until you see and hear the tone you want to use for this type of call.
- 9  to select the current setting,  
you see:

10  to return to











11  until you exit the menu mode.

### ESCALERT

You can program your radio to increase the volume of the alarm tones when a radio call is not answered.

Press the preprogrammed **Escalert** button and proceed to step 6.

– or –

- 1  to enter menu mode.
- 2  or  until
- 3  to select
- 4  or  until
- 5  to select
- 6  or  until
- or – until
- 7  to select the current setting.

## USER SETTINGS

You can use the radio's menu to access user-adjustable settings to customize some of your radio features:

### Utilities Features











Feature	What it Does	Settings
SQUELCH	Changes the squelch of the radio to tight or normal.	TIGHT NORMAL
PWR LVL	Changes the power level of the radio to high or low.	HIGH LOW
OPT BRD	Enables or disables an option board.	ON OFF
BKLT INT	Changes the brightness of the backlight.	HIGH MED LOW
SOFTWARE	Displays the radio's software version number.	XX'XX'XX

### SET SQUELCH LEVEL

Use this feature to filter out nuisance (unwanted) calls and/or background noise. However, tightening squelch could cause calls from remote locations to be filtered out as well. In this case, normal squelch may be more desirable.

Press the preprogrammed **Squelch** button to toggle between tight and normal squelch.



– or –

- 1  to enter menu mode.
- 2  or  until
- 3  to select
- 4  or  until
- 5  to select
- 6  or  until
- or- until
- 7  to select the current setting.

### SET POWER LEVEL











Each channel in your radio has a predefined transmit power level that can be changed.

- *High power (H)* allows you to reach a radio that is further away.
- *Low power (L)* to reach a radio within close proximity.

**Note:** The  or  symbol appears on the display when High/Low Power Level is selected.


To set the power level, press the preprogrammed **Power Level** button to toggle between low and high power.

– or –

- 1  to enter menu mode.
- 2  or  until
- 3  to select
- 4  or  until
- 5  to select
- 6  or  until
- or- until
- 7  to select the current setting.











## OPTION BOARD ON/OFF

Use this feature to enable or disable an option board.

- The  symbol appears on the display when the option board feature is On.











Press the preprogrammed **Option Board** button to toggle the option board on or off.

– or –

1		to enter menu mode.
2	 or 	until <input type="text" value="UTILITY"/>
3		to select <input type="text" value="UTILITY"/>
4	 or 	until <input type="text" value="OPT BRD"/>
5		to select <input type="text" value="OPT BRD"/>
6	 or 	until <input type="text" value="ON"/>
	-or- until	<input type="text" value="OFF"/>
7		to select the current setting.









## SET THE BACKLIGHT INTENSITY

Use this feature to change the brightness of the backlight.

1		to enter menu mode.
2	 or 	until <input type="text" value="UTILITY"/>
3		to select <input type="text" value="UTILITY"/>
4	 or 	until <input type="text" value="BKLT INT"/>
5		to select <input type="text" value="BKLT INT"/>
6	 or 	until <input type="text" value="HIGH"/>
	-or- until	<input type="text" value="MED"/>
	-or- until	<input type="text" value="LOW"/>
7		to select the current setting.

### DISPLAY THE SOFTWARE VERSION

Use this feature to view the current software version of your radio.

- 1  to enter menu mode.
- 2  or  until
- 3  to select
- 4  or  until
- 5  to view the software version.
- 6  until you exit menu mode.