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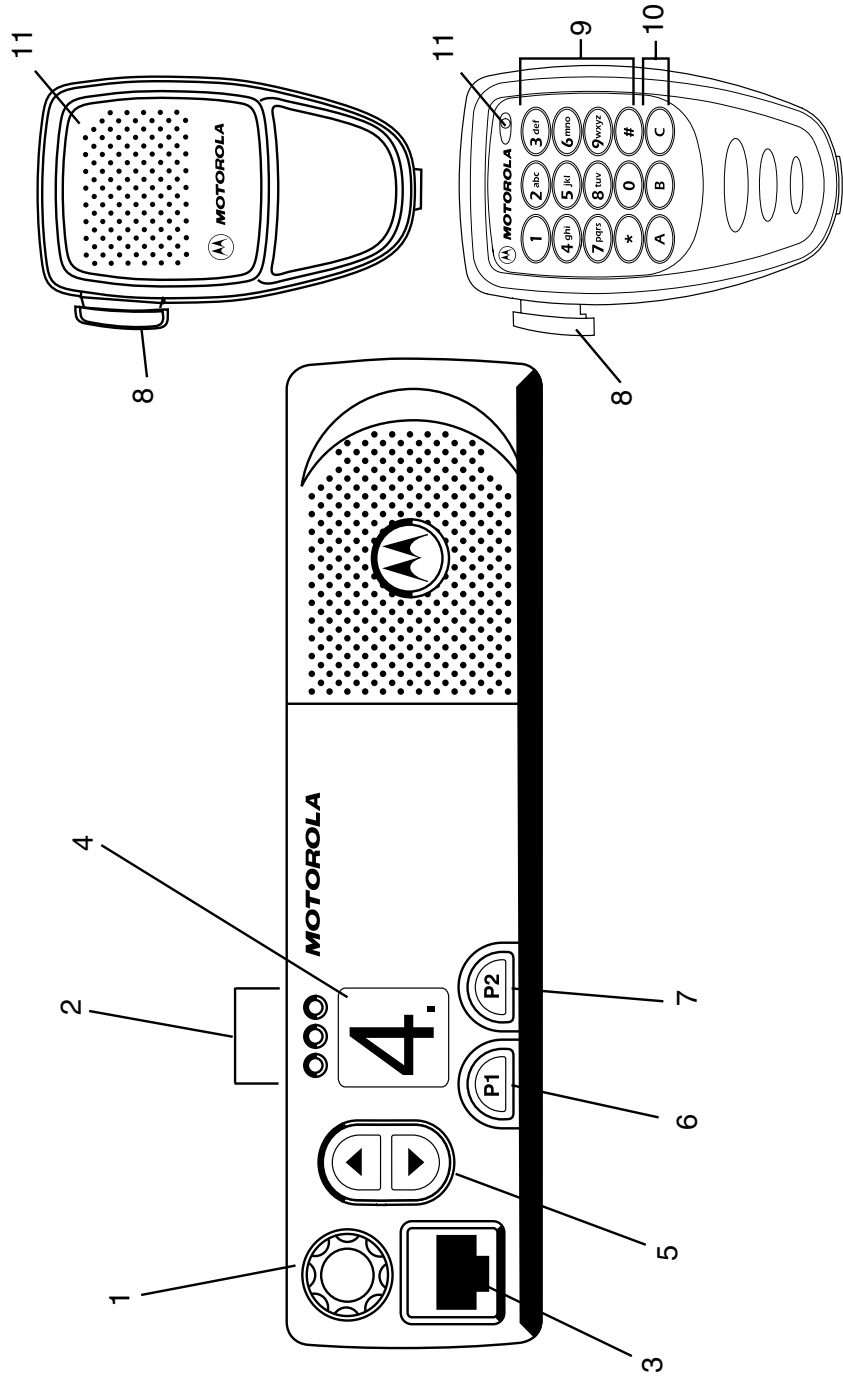
Commercial Series

CM140

User Guide

6866545D03 - O

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RADIO OVERVIEW

This user guide covers the operation of the CM140 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.

OPERATION AND CONTROL FUNCTIONS

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**
Indicate channel, scan and monitor status.
- 3. LCD Display**
A single digit display used for digits 0 to 9. The display also shows a dot used to indicate radio power High/Low condition.
- 4. Mic Jack**
- 5. Up/Down keys**
Used for channel scrolling. 
- 6. Programmable Button **
- 7. Programmable Button **

Microphone Controls

(Keypad Microphone)

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

- 8. Push-to-talk (PTT)**
Press and hold down this button to talk; release it to listen.
- 9. Keypad**
- 10. Programmable Keys   **
- 11. Microphone**

LED Indicators



Three LEDs show radio status as follows:

LED	State	Indication
Green	Solid	Successful power up.
Green	Off	After successful power up.
Green	Flashing	Radio is scanning.
Red	Solid	Radio is transmitting.
Red	Flashing	Channel busy - when receiving.
Yellow	Solid	Radio in monitor mode.
Yellow	Flashing	Receiving a Selective Call or a Call Alert.

Programmable Buttons

Your radio has two programmable buttons. Your dealer can program these buttons as shortcuts to various radio features.

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

Programmable buttons include the  and  buttons.

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,) shown in the radio illustration on the inside cover.

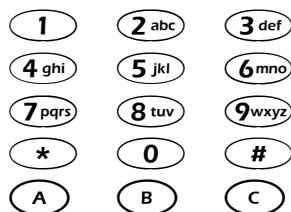
Also, where appropriate, have your dealer indicate whether the button press requires a short press, a long press, or needs to be held down.

Function	Short Press	Long Press	Hold Down	Page	Button
Volume Set	—	—	Sound a tone for adjusting your radio's volume level.	6	
Sticky Monitor	Toggle silent monitor operation (also turn off open squelch monitor when it has been activated).	Turn on open squelch monitor.	—	8	
Voice Operated Transmission (VOX)	Toggle VOX On and Off			8	
Power Level	Toggle transmit power level between High and Low.†		—	10	
Repeater/Talkaround	Toggle between using a repeater or transmitting directly to another radio.†		—	10	
Squelch	Toggles your radio's squelch level between tight and normal squelch.			10	
Local/Distance	Toggles between local mode and distance mode †			10	
Scan/Nuisance Channel Delete	Toggle scan on and off .	Delete a nuisance channel while scanning.	—	11	

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

Use of DTMF Microphone

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



These keys are used to:

- Dial a phone number
- Directly access preprogrammed features

Improved Audio Feature

Companding

Companding is a feature that allows further improvement of voice quality. It compresses your voice at transmission and expands it when receiving while simultaneously reducing extraneous noise. However, to enjoy this benefit, all transmitting and receiving radios must have this feature activated.

Audio Signal Tones

High pitched tone Low pitched tone

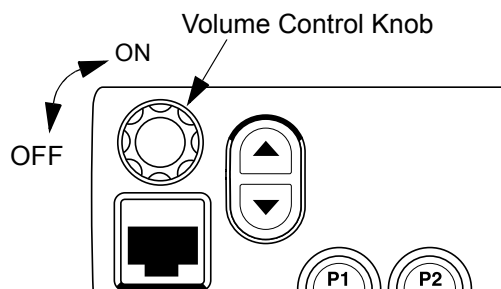
Signal	Description
	Self Test Pass Tone.
	Self Test Fail Tone.
	Positive Indicator Tone.
	Negative Indicator Tone.



Some programmable buttons use tones to indicate one of two modes:

Button	Positive Tone	Negative Tone
Scan	Start scan	Stop scan
Power Level	High power selected	Low power selected
Squelch	Tight Squelch	Normal Squelch
Repeater/Talkaround	Does not use repeater	Uses repeater
VOX	VOX Enabled	VOX Disabled
Local/Distance	Local mode	Distance mode

GETTING STARTED

TURNING THE RADIO ON OR OFF



ON	OFF
Rotate the On/Off/Volume Control knob until you hear a click. If power-up is successful, you will hear the Self-Test Pass Tone () and see the green LED light momentarily. If the radio fails to power up, you will hear the Self-Test Fail Tone  .	Rotate the On/Off/Volume Control knob until you hear a click 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–



- 1 Hold down the **Volume Set** button (see page 4). 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.

SELECTING A RADIO CHANNEL

Your radio offers 8 channels.

Note: Due to government regulations, some channels may not be programmed. See your dealer for more information.

To select a channel:

Press the  button or the  button to select the desired channel.

The channel number is displayed.

SENDING A CALL

- 1 Turn your radio on.
- 2 Select the desired channel.
- 3 Hold the microphone vertically 2.5 to 5 cm (1 to 2 inches) from your mouth. Press the **PTT** to talk; release it to listen.

If your system uses the request-to-talk feature, use the following method to send a call:

- 1 Turn your radio on.
- 2 Select the desired channel.
- 3 Press the **PTT** (for priority requests to talk, the **PRTT** button) and wait for the talk permit tone.
- 4 Hold the microphone vertically 2.5 to 5 cm (1 to 2 inches) from your mouth. Press the **PTT** to talk; release it to listen.

RECEIVING A CALL

- 1 Turn your radio on.
- 2 Adjust the radio's volume.
- 3 Select the desired channel.
- 4 You will hear an incoming call.
- 5 To respond, hold the microphone vertically 2.5 to 5 cm (1 to 2 inches) from your mouth. Press the **PTT** to talk; release it to listen

GETTING STARTED

MONITORING

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

- 1 A short press of the preprogrammed **Monitor** button places the radio in Sticky Permanent 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 on the **Monitor** button cancels Sticky Permanent Monitor mode and returns the radio to normal operation.
 - 3 To place the radio in open squelch mode, press and hold the preprogrammed **Monitor** button until you hear the high pitched tone, then you will hear noise or communications on channel. Wait until communications cease before sending a call.
 - 4 A short press on the **Monitor** button returns the radio to normal operation.
-

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.

- 1 To enable or disable the VOX operation, press the preprogrammed **VOX** button.
Pressing the **PTT** button disables VOX.
- or-
- 2 Select a channel that has been preprogrammed for VOX to **enable** VOX
You do not need to press a preprogrammed **VOX** button.
Pressing the **PTT** button disables VOX.
 - 3 Select a channel that has **not** been preprogrammed by your dealer for VOX, to disable VOX.
-

RADIO CALLS

RECEIVING A SELECTIVE CALL

When you receive a selective call:

- The yellow LED indicator flashes, if programmed by your dealer.
- You hear two high-pitched tones.

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

RECEIVING A CALL ALERT PAGE

When you receive a call Alert page:

- The yellow LED indicator flashes, if programmed by your dealer.
- You hear four high-pitched tones.

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

SENDING DTMF TONES

Use with Keypad Microphone

Use this feature to send DTMF tones to a repeater.

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

SETTING THE POWER LEVEL

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

- High power
- Low power

To set the power level, press the preprogrammed **Power Level** button to toggle between *low* and *high*. A dot shows on the display to indicate High power is selected.

SETTING TIGHT OR NORMAL SQUELCH

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.

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. An audible indicator is heard when changing between modes.

To select either Repeater Mode or Talkaround Mode:

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

SETTING 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.

SCAN

Your radio can monitor multiple channels in a scan list. Your dealer can program up to four different channels into each scan list. When your radio detects activity on a scan list channel, it will automatically switch to that channel.

Note: The same channels can be assigned to different scan lists.

STARTING OR STOPPING SCAN

The green LED indicator flashes during a scan operation and stops flashing when the radio switches to a channel.

1 You can start or stop a scan operation by: pressing the preprogrammed **Scan** button.

- or -

2 Select a channel that has been preprogrammed by your dealer to start Auto Scan.
You do not then need to press the pre-programmed Scan button as scanning starts automatically on selection of the channel.

3 To stop Auto Scan, select a channel that has not been preprogrammed to Auto Scan.

SCAN

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.

DELETING A NUISANCE CHANNEL

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

If a channel continually generates unwanted calls or noise (a “nuisance” channel), use the **Scan** button to temporarily delete the channel from the scan list.

Note: You cannot delete a priority channel or the last remaining channel in a scan list.

Deleting a Channel from the Scan list

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

Restoring a Channel to the Scan List

- 1 Press the Scan button to stop the scan.
 - 2 Press the Scan button again to start scanning again. The Deleted Nuisance channels are restored to the scan list.
-