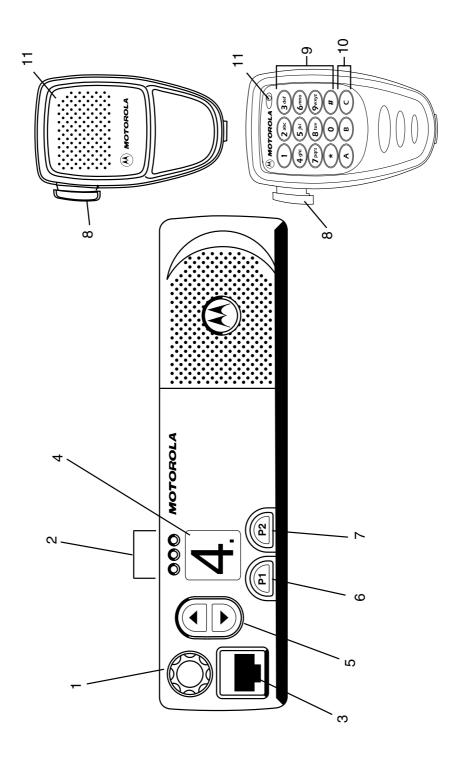


Commercial Series CM140

User Guide

6866545D03 - O

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RADIO OVERVIEW

This user guide covers the operation of the CM140 Mobile Radio.



Before using this product, read the operating instructions for safe usage contained in the Product Safety and RF Exposure booklet 6866537D37 Caution 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 2. LED Indicators

Indicate channel, scan and monitor status.

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.

- Mic Jack
- 5. Up/Down keys Used for channel scrolling.



- Programmable Button P1
- 7. Programmable Button P2

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 (A) (B) (C)
- 11. Microphone

the radio's volume.

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 (P1) and (P2) 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 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.

| <u> </u> | 2 abc | 3 def |
|----------|--------------|-------|
| 4 ghi | 5 jkl | 6mno |
| 7 pqrs | 8 tuv | 9wxyz |
| * | 0 | # |
| A | B | C |

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 ■

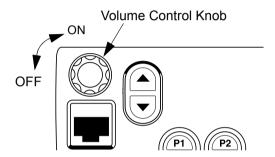
| Signal | Description |
|--------|--------------------------|
| | Self Test Pass Tone. |
| | Self Test Fail Tone. |
| | Positive Indicator Tone. |
| | Negative Indicator Tone. |

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

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.
- 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

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.

To enable or disable the VOX operation, press the preprogrammed VOX button. Pressing the PTT button disables VOX.

-or-

- 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.
- 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
- 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-
 - You do not then need to press the preprogrammed Scan button as scanning starts automatically on selection of the channel.
- To stop Auto Scan, select a channel that has not been preprogrammed to Auto 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

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