

June 2000



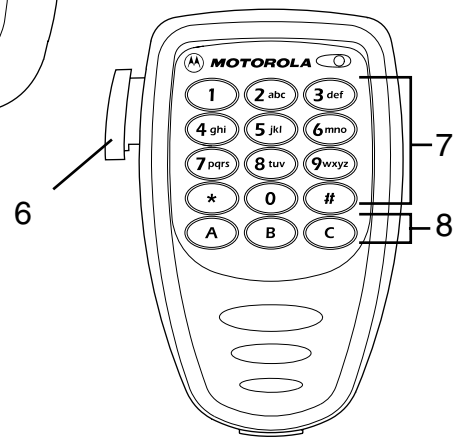
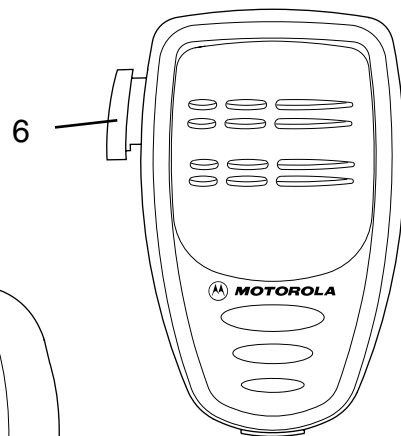
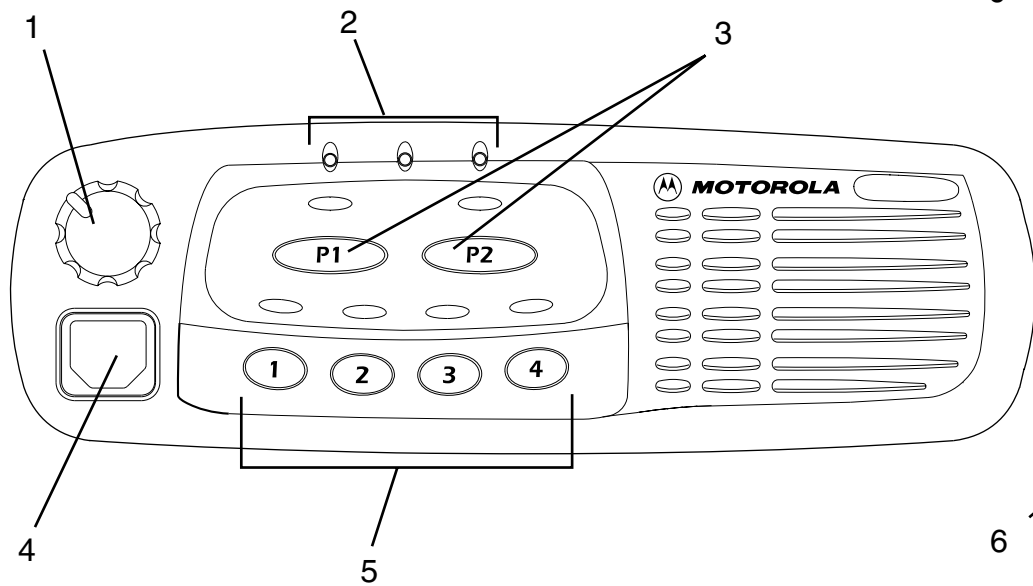
MOTOROLA

Professional Radio

GM140

User Guide

68P64110B86



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Computer Software Copyright

The products described in this manual may include copyrighted computer programmes stored in semiconductor memories or other media. Laws in the United States of America and other countries preserve for Motorola Europe and Motorola Inc. certain exclusive rights for copyrighted computer programmes, including the right to copy or reproduce in any form the copyrighted computer programme. Accordingly, any copyrighted computer programmes contained in the products described in this manual may not be copied or reproduced in any manner without the express written permission of the holders of the rights. Furthermore, the purchase of these products shall not be deemed to grant either directly or by implication, estoppel, or otherwise, any licence under the copyrights, patents, or patent applications of the holders of the rights, except for the normal non-exclusive royalty free licence to use that arises by operation of the law in the sale of the product.

RADIO OVERVIEW







This user guide covers the operation of the GM140 Professional Mobile Radio.

Please read pages 12 to 14 **before** using this radio

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 Indicator**
Indicates channel, scan and monitor status.
3. **Programmable Buttons**  
4. **Mic Jack**
5. **Channel Selector Buttons**    
Used for channel Selection.

Microphone Controls



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

6. **Push-to-talk (PTT)**
Press and hold down this button to talk; release it to listen.
7. **Keypad**
8. **Programmable Keys**   

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, 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.

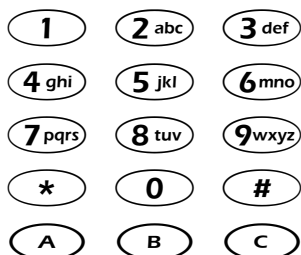
Function	Short Press	Long Press	Hold Down	Page	Button
Volume Set	—	—	Sound a tone for adjusting your radio's volume level.	7	
PRTT (Priority Request-to-Talk)	Sends a priority access request to the dispatcher.		—	8	
Repeater/Talkaround	Toggle between using a repeater or transmitting directly to another radio. [†]		—	9	
Power Level	Toggle transmit power level between High and Low. [†]		—	9	
Scan/Nuisance Channel Delete	Toggle scan on and off.	Delete a nuisance channel while scanning.	—	10	
Phone	Access Phone Mode. [†]		—	11	

Function	Short Press	Long Press	Hold Down	Page	Button
Speed Dial	Access your phone list directly. [†]		—	11	
Monitor	Toggle silent monitor operation (also turn off open squelch monitor when it has been activated).	Turn on open squelch monitor.	—	—	
Option Board (if one is installed)	Toggle between activating and deactivating the option board. [†]		—	—	
Auxiliary Control (1/2)	Activates or deactivates a pin on the accessory connector. [†] (See your dealer.)		—	—	

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

Use with Optional Enhanced DTMF Microphone (MDRMN4026)

Your radio may be ordered with an optional 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

Audio Indicators for Programmable Buttons



Low-High Tone



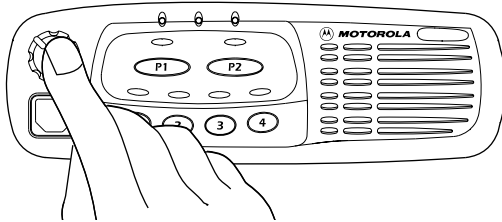
High-Low Tone



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

Button	Low-High Tone	High-Low Tone
Scan	Start scan	Stop scan
Power Level	High power selected	Low power selected
Option Board	Enabled	Disabled
Repeater/Talkaround	Does not use repeater	Uses repeater

GETTING STARTED

TURNING THE RADIO ON OR OFF



ON	OFF
<p>Push the On/Off/Volume Control knob until you hear a click.</p> <p>If power-up is successful, you will hear the Self-Test Pass Tone. </p> <p>If the radio fails to power up, you will hear the Self-Test Fail Tone .</p>	<p>Push the On/Off/Volume Control knob until you hear a click and the LED indicators turn off.</p>

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 4 channels.

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

To select a channel:

Press the desired **Channel Selector** button ((1), (2), (3) or (4)).

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 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
-

RADIO CALLS

SELECTIVE RADIO INHIBIT

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.

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 (see page 4) to toggle between *low* and *high*.

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 (see page 4) to toggle between Repeater Mode and Talkaround 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 blinks during a scan operation and stops blinking when the radio switches to a channel.

You can start or stop a scan operation by: pressing the preprogrammed **Scan** button (see page 4).

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 on that channel for a preprogrammed period of time. During this

“hangtime” you may respond by pressing the **PTT**.

Note: If transmission ceases or if the **PTT** is not pressed for a preprogrammed duration, the radio continues to scan. The LED scan indicator stops blinking while the radio is in hangtime.

DELETING A NUISANCE CHANNEL

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.

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

Restoring a Channel to the Scan List

To restore a previously deleted channel to the scan list, restart the scan operation or turn your radio off and on again.

PHONE

If your radio has access to a telephone system, you can make a phone call. To do this, your radio must send an access code to a station that connects it to a phone line. (Ask your dealer for more details.) After completing a call, your radio must send a deaccess code to hang up.

MAKING A PHONE CALL

You can make a phone call using the preprogrammed **Phone** button (see page 4). To initiate a phone call (an enhanced keypad microphone is required):

- 1 Press the **Phone** button.
- 2 You will hear a series of tones indicating that an access code is being sent automatically.
—or—
enter your access code using the keypad.

- 3 When you hear a dial tone, enter the phone number using the keypad.
—or—
Press and release the preprogrammed **Speed Dial** button (see page 5) to use the Speed Dial feature.
- 4 Press the key (1 to 9) corresponding to the number you want to call.
—or—
Press "0" if you want to call the last number dialed.

Note: If you entered the access code using the keypad, the last number redial feature will not be available. However, if the access code was entered automatically, press the **Phone** button.

To end a phone call:

- 1 If your radio has the deaccess code preprogrammed, proceed to step 2.
—or—
Enter the deaccess code using the keypad.
- 2 Press the **Phone** button to exit Phone Mode.

SAFETY INFORMATION

SAFE AND EFFICIENT OPERATION OF MOTOROLA TWO-WAY RADIOS

This section provides information and instructions for the safe and efficient operation of Motorola Portable and Mobile Two-Way Radios.

For information regarding radio use in hazardous areas, please refer to the Factory Mutual (FM) approval manual supplement or Instruction Card which is included with radio models that offer this capability.

Exposure To Radio Frequency Energy

National and International Standards and Guidelines

Your Motorola Two-Way Radio, which generates and radiates radio frequency (RF) electromagnetic energy (EME) is designed to comply with the following National and International Standards and Guidelines regarding exposure of human beings to radio frequency electromagnetic energy:

- Federal Communications Commission Report and Order No. FCC 96-326 (August 1996)
- American National Standards Institute (C95.1 - 1992)

- National Council on Radiation Protection and Measurements (NCRP - 1986)
- International Commission on Non-Ionizing Radiation Protection (ICNRP - 1986)
- European Committee for Electrotechnical Standardisation (CENELEC):
 - ENV. 50166-1 1995 E Human Exposure to Electromagnetic Fields Low Frequency (0Hz to 10kHz)
 - ENV. 50166-2 1995 E Human Exposure to Electromagnetic Fields High Frequency (10kHz to 300GHz)
 - Proceedings of SC211/8 1996 Safety Considerations for Human Exposure to E.M.F.s from Mobile Telecommunications Equipment (M.T.E.) in the Frequency Range 30MHz - 6 GHz (E.M.F. - Electromagnetic Fields)

To assure optimal radio performance and that human exposure to radio frequency electromagnetic energy is within the guidelines set forth in the above standards, always adhere to the following procedures:

Electromagnetic Interference/Compatibility

Note: Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed or otherwise configured for electromagnetic compatibility.

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. When instructed to do so, turn off your radio when on board an aircraft. Any use of a radio must be in accordance with airline regulations or crew instructions.

OPERATIONAL WARNINGS

Potentially Explosive Atmospheres



WARNING

Turn off your two-way radio when you are in any area with a potentially explosive atmosphere, unless it is a radio type especially qualified for use in such areas (for example, Factory Mutual or CENELEC Approved). Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

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.

Note: 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.

Mobile Radio Operation and EME Exposure

To assure optimal radio performance and that human exposure to radio frequency electromagnetic energy is within the guidelines referenced earlier in this document, transmit only when people inside and outside the vehicle are at least the minimum distance away from a properly installed, externally mounted antenna.

Table 1 lists the minimum distance for several different ranges of radiated power.

Table 1: Radiated Power and Distance

Radiated Power of Vehicle-installed Mobile Two-way Radio	Minimum Distance From Transmitting Antenna
7 to 15 Watts	30.5 cm(1 Foot)
16 to 50 Watts	61 cm (2 Feet)
More than 50 Watts	91.5 cm (3 Feet)

Mobile Antenna Installation

Install the vehicle antenna *external* to the vehicle and in accordance with:

- The requirements of the antenna manufacturer/ supplier
- Instructions in the Radio Installation Manual

Control Station Operation

When radio equipment is used to operate as a control station, it is important that the antenna be installed outside the building and away from places where people may be in close proximity.

Refer to Table 1 for rated power and minimum distant values for transmitting antennas.

GENERAL RADIO CARE



Caution

- The use of chemicals such as detergents, alcohol, aerosol sprays, and/or petroleum products may be harmful to and damage the radio housing.
- Clean the radio exterior using a cloth moistened with clean water and a mild dishwashing liquid.
- The use of non-approved radio accessories may damage the radio and invalidate warranty.
- Do not operate whilst driving. It should also be noted that the use of a hand-held microphone whilst driving could constitute an offense under Road Traffic Regulations.