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GP328 Quick Reference Card

Deleting a Nuisance Channel

1. While radio is on a Nuisance Channel, press and hold **Scan** button until a tone is sounded.
2. Release **Scan** button.

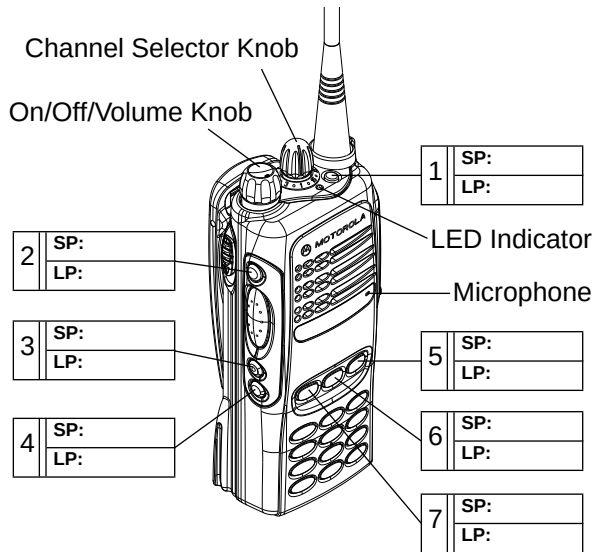
For Keypad Radios only

Making a Phone Call

1. Press **Phone** button.
2. Send access code if needed.
3. Send phone number by
 - pressing and releasing PTT to send last dialed number, or
 - press **Speed Dial** button followed by keypad keys '1' to '9' to access first nine numbers in your phone list (press PTT if buffered dial), or
 - press the numbered keys to send out phone number (press PTT if buffered dial).

Ending a Phone Call

1. Send de-access code if needed.
2. Press **Phone** button.



NOTE:

- Enter the functions for your radio's 7 programmable buttons in the boxes provided above.
- In the boxes above, **SP** represents *Short Press*, while **LP** represent *Long Press*.

Turning On the Radio

- Turn **On-Off/Volume Control** knob clockwise. Self Test Pass Tone will sound and green LED will light up if radio powers up successfully. If radio fails power up, the Self Test Fail Tone will sound.

Turning Off the Radio

- Turn **On-Off/Volume Control** knob counter-clockwise, until click is heard.

Adjusting the Radio's Volume

1. Press and hold **Volume Set** key; until continuous tone is sounded.
2. Turn **On-Off/Volume Control** knob to adjust volume level.
3. Release **Volume Set** key when desired level is achieved.

Selecting a Radio Channel

- Turn **Channel Selector** knob clockwise or counter-clockwise to reach desired channel.

Sending a Call

1. Use **Channel Selector** knob to change to required channel.
2. Press **PTT**, and speak clearly with mouth about 2.5 to 5 cm (one to two inches) away from microphone.
3. Release **PTT** when call is completed.

Receiving a Call

1. Turn radio on.

2. Adjust volume level.
3. Switch to desired channel.
4. If at any time a call comes through, it will be heard at the volume level set.

Emergency Siren

1. Press programmed **Emergency** button to initiate *Emergency Siren*.
2. Press and hold **Emergency** button to cancel *Emergency Siren*.
3. Press and release **Emergency** button to restart Emergency sequence.

Programmable Buttons' Audio Indicators

Programmable Buttons	Positive Indicator Tone	Negative Indicator Tone
Scan	Start Scan operation	Stop Scan operation
Tx Power	Radio transmits at low power	Radio transmits at high power
Squelch	Radio operates in tight squelch	Radio operates in normal squelch
Option Board	Activates radio's option board	Deactivates radio's option board
Keypad Lock	Radio's keypad is locked	Radio's keypad is unlocked
Repeater/Talkaround	Radio DOES NOT use the repeater	Radio uses the repeater

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Two (2) Years

Product Accessories (including battery, antenna, charger, belt clip etc.)

One (1) Year

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 - 2) the damage or defect is caused by charging or using the battery in equipment or service other than the Product for which it is specified.
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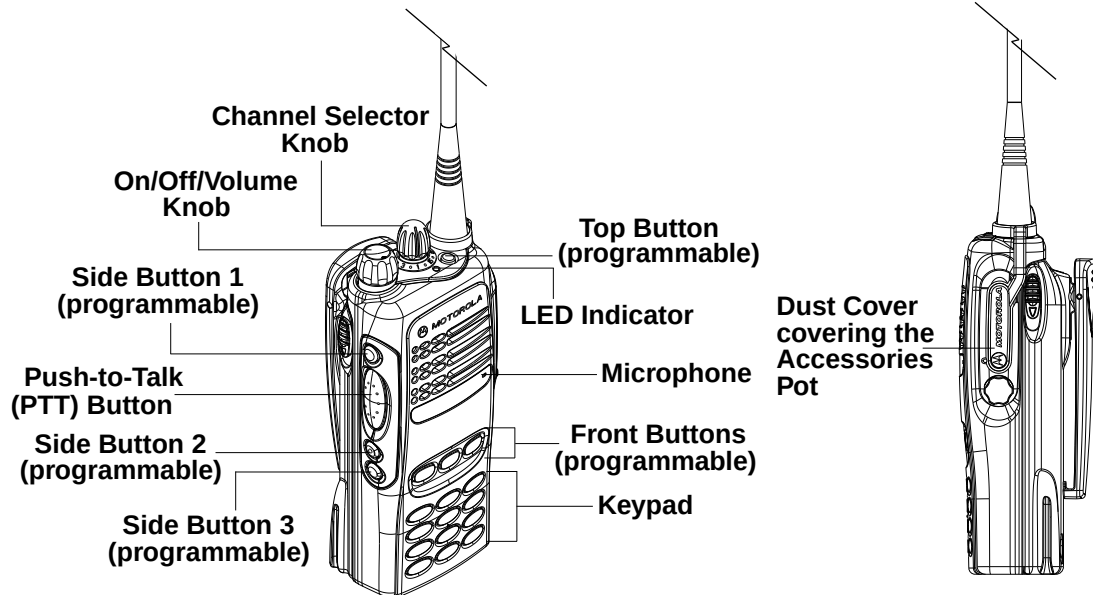
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RADIO OVERVIEW

PARTS OF THE RADIO



On/Off/Volume Knob

Used to turn the radio on or off, and to adjust the radio's volume.

Channel Selector Knob

Used to switch the radio to different channels.

Push-to-Talk (PTT) Button

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

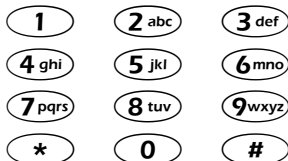
Microphone

Speak clearly into the microphone when sending a message.

LED Indicator

Used to give battery status, power-up status, radio call information and scan status.

Keypad Keys (for keypad radios only)

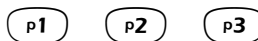


These keys are used when dialing a phone number.

Programmable Buttons

Several of the radio's buttons can be programmed as short-cut buttons for many of the radio's features. Programmable buttons are the:

- Top button,
- three side buttons, and
- three front buttons (for keypad radios).



Check with your dealer for a complete list of the functions your radio's programmable buttons support.

The following table shows the functions available by

- quickly pressing and releasing the programmable buttons (short press), or by
- pressing and holding the programmable buttons for a period of time (at least 1.5 seconds) before releasing (long press), or by
- pressing and holding down the programmable buttons while checking the status or making adjustments.

Button	Short Press	Long Press	Press and Hold
Emergency*	To initiate an Emergency Siren.	To cancel your radio's Emergency status.	—
Monitor/Permanent Monitor	—	To continually monitor the selected channel.	To monitor the selected channel for any activity.
Volume Set	—	—	To sound a tone for adjusting the radio's volume level.
Battery Gauge	—	—	To check the battery's status.
Scan/Nuisance Channel Delete	To toggle between the start/stop of the Scan operation.	To delete a nuisance channel while scanning.	—
Tx Power	To toggle your radio's transmit power level between High and Low power. [†]	To toggle your radio's transmit power level between High and Low power. [†]	—
Keypad Lock	—	To toggle between locking/unlocking your radio's keypad.	—
Repeater/Talkaround	To choose to/not to transmit through the repeater. [†]	To choose to/not to transmit through the repeater. [†]	—
Squelch	To toggle your radio's squelch level between tight/normal squelch. [†]	To toggle your radio's squelch level between tight/normal squelch. [†]	—

Button	Short Press	Long Press	Press and Hold
Option Board	To toggle the activation/deactivation of your radio's option board (if one is installed). [†]	To toggle the activation/deactivation of your radio's option board (if one is installed). [†]	—
Phone	To make a Phone Call. [†]	To make a Phone Call. [†]	—
Speed Dial	To easily access the phone numbers in your phone list. [†]	To easily access the phone numbers in your phone list. [†]	—
Light	To turn on your radio's backlight. [†]	To turn on your radio's backlight. [†]	—

* If Emergency function is required, it can ONLY be programmed to the Top Button.

[†] Depending on how your radio has been programmed by your dealer, these functions are activated EITHER through short press OR long press, but not both.

INDICATOR TONES

High pitched tone  Low pitched tone 



Self Test Pass Tone



Self Test Fail Tone



Positive Indicator Tone



Negative Indicator Tone

PROGRAMMABLE BUTTONS' AUDIO INDICATORS

Some programmable keys function as toggles (alternating between two different choices). These keys use audio indicators to indicate the change.

Programmable Buttons	Positive Indicator Tone	Negative Indicator Tone
Scan	Start Scan operation	Stop Scan operation
Tx Power	Radio transmits at low power	Radio transmits at high power
Squelch	Radio operates in tight squelch	Radio operates in normal squelch
Option Board	Activates radio's option board	Deactivates radio's option board
Keypad Lock	Radio's keypad is locked	Radio's keypad is unlocked
Repeater/Talkaround	Radio DOES NOT use the repeater	Radio uses the repeater

IMPROVED AUDIO FEATURES

Low Level Expansion (LLE)

The LLE feature of your radio improves voice quality by reducing unwanted background noise when receiving a message. It is compatible with most major types of audio processing systems available today.

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.

NOTE: Contact your dealer for your radio's current companding settings or to change the settings.

GETTING STARTED

BATTERY INFORMATION

Battery Status

You can check your radio's battery status by pressing the programmed Battery Gauge button (battery status is shown by the LED indicator).

Battery Level	LED Indicator
High	Green
Satisfactory	Yellow
Low	Flashing Red
Very Low	None

NOTE: If the Battery Gauge indicator does NOT appear, this indicates that the battery may not be a genuine Motorola product.

Charging your Battery

When the battery level is very low, you need to recharge the battery before you can continue to use your radio.

1. Place the radio with the battery attached or the battery alone in the charger.
2. The charger's LED would indicate the charging progress.

NOTE: Because new batteries or batteries that have not been used for several months could prematurely indicate full charge (solid green LED), charge the batteries for 14 to 16 hours prior to initial use to achieve optimal performance.

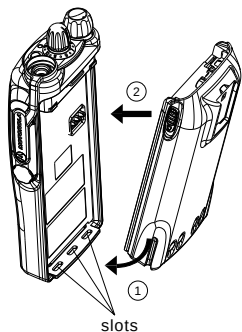
LED color	Status
Single flash of Green	Successful charger power-up.
Flashing Red*	Battery is unchargeable.
Flashing Yellow	Charger is getting ready to charge.
Red	Battery is charging.
Flashing Green†	Battery is 90% charged.
Green	Battery is fully charged.

* Remove the battery from charger and use a pencil eraser to clean the four metal contacts on the bottom of the battery. Place the battery back into the charger. If the LED indicator continues to flash red, replace the battery.

† A standard battery may require one hour to charge to 90% capacity.

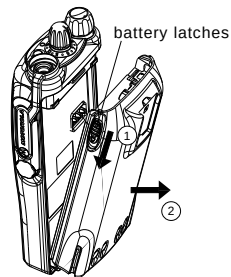
ACCESSORY INFORMATION

Attaching the Battery



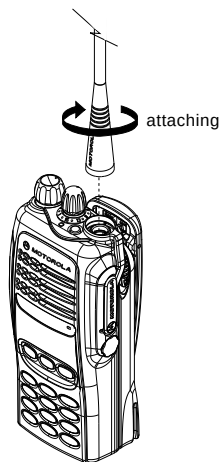
1. Fit the extensions at the bottom of the battery into the slots at the bottom of the radio's body.
2. Press the top part of the battery towards the radio until a click is heard.

Removing the Battery



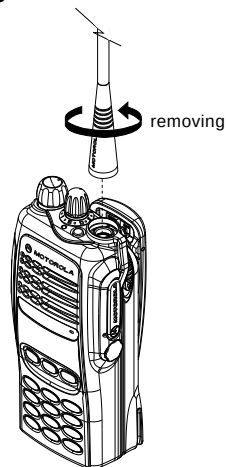
1. Turn off the radio, if it is turned on.
2. Slide the battery latches, on both sides of the battery, downwards.
3. Pull the top part of the battery away from the radio's body, and lift the battery from the radio's body.

Attaching the Antenna



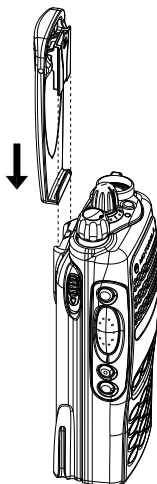
1. Align the threaded end of the antenna with the radio's antenna connector.
2. Turn the antenna clockwise to fasten it.

Removing the Antenna



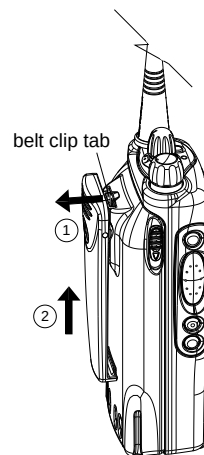
Turn the antenna counter-clockwise until you can remove it.

Attaching the Belt Clip



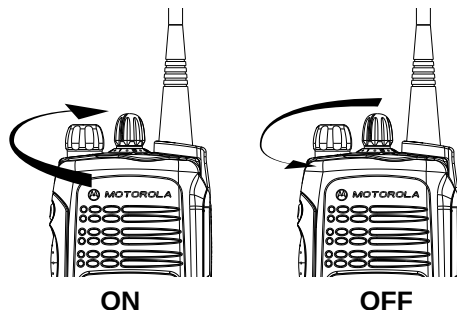
1. Align the grooves of the belt clip with those of the battery.
2. Press the belt clip downwards until a click is heard.

Removing the Belt Clip



1. Use a key to press the belt clip tab away from the battery.
2. Slide the belt clip upwards to remove it.

TURNING THE RADIO ON OR OFF



- Turn the **On-Off/Volume Control** knob clockwise to turn on the radio. You will hear the Self Test Pass Tone and see a green LED if the radio powers up successfully. If the radio fails its self test, you will hear the Self Test Fail Tone.
- Turn the **On-Off/Volume Control** knob counter-clockwise, until a click is heard, to turn off the radio.

ADJUSTING THE RADIO'S VOLUME

1. Press and hold the **Volume Set** key; you will hear a continuous tone.
2. Turn the **On-Off/Volume Control** knob and adjust the volume level.
3. Release the **Volume Set** key.

SELECTING A RADIO CHANNEL

Your radio offers sixteen (16) channels for easy access to required conventional channels. Some channels on your radio may not be programmed. Check with your dealer for more information.

Turn the **Channel Selector** knob clockwise or counter-clockwise until you reach the desired channel.

SENDING A CALL

1. Use the **Channel Selector** knob to change to the required channel.
2. Press the **PTT**, and speak clearly with your mouth about 2.5 to 5 cm (one to two inches) away from the microphone.
3. Release the **PTT** when you finish speaking.

RECEIVING A CALL

1. Turn your radio on.
2. Adjust its volume level.
3. Switch to the desired channel.
4. If at any time a call comes through, you will hear the call at the volume level you have set.

RADIO CALL INFORMATION

EMERGENCY SIREN

Your radio can be programmed to emit an emergency siren. The Emergency Siren will cause the radio to sound a repetitive tone at the maximum volume.

1. Press and release the **Emergency** button to initiate an Emergency Siren.
2. Press and hold the **Emergency** button to cancel the Emergency Siren.
3. Press and release the **Emergency** button to restart the Emergency sequence.

TALKAROUND

In your communications network, you may be using a repeater to cover a larger area than what is possible with your radio. However, you can communicate with another radio within your radio's range without going through the repeater by using the *Talkaround* feature. This is especially useful when the repeater is down.

Press the programmed **Repeater/Talkaround** button to toggle between the options of making or not making a call through the repeater. A positive indicator tone indicates that the radio is in talkaround mode, while a negative indicator tone indicates that the radio is in repeater mode.

SQUELCH

If a particular channel receives many unwanted calls coming from radios that do not belong to your communications group and are some distance away, or the "background noise" is excessive, you can try to filter these transmissions out by tightening the channel's squelch. However, tightening squelch could cause calls from members of your communications group that are farther away to be filtered out as well. To set the squelch level:

Press the programmed **Squelch** button to toggle between the options of having normal squelch or tightening the squelch of your radio. A positive indicator tone indicates that the radio is operating in tight squelch, while a negative indicator tone indicates that the radio is operating in normal squelch.

POWER LEVEL

You can transmit your calls at different transmit power levels. A higher level means you can reach a radio that is farther away. Lower power level conserves battery power. You are advised to transmit as frequently as possible on low power, and use high power only when needed.

Press the programmed **Tx Power** button to toggle between the options for High or Low power transmit level. A positive indicator tone indicates that the radio is operating in low power mode, while a negative indicator tone indicates that the radio is operating in high power mode.

SCAN

You can monitor several channels in order to receive any call that is transmitted on any of these channels. Sixteen different channels can be programmed into a scan list. Each channel can share the same scan list or have different scan lists assigned to them.

Once the radio's scan operation is activated and the radio detects a call coming through a channel in its scan list, it switches to that channel for you to receive the call.

STARTING OR STOPPING A SCAN OPERATION

The LED Indicator will blink (green) during a scan operation. It will stop blinking when the radio switches to a channel.

1. Press the **Scan** key to start a scan operation.
2. Press the **Scan** key again to stop the scan operation.

TALKBACK

If the programmable Talkback option is set, you can respond to any calls received during the scan operation by pressing the PTT before the

programmed hang-time ends. Check with your dealer for details.

DELETING A NUISANCE CHANNEL

If a channel continually generates unwanted calls/noise, you can temporarily remove it from the scan list by performing a *Nuisance Channel Delete* operation.

1. While the radio is on the Nuisance Channel, press and hold the **Scan** key until you hear a tone.
2. Release the **Scan** key.

NOTE: You cannot perform a *Nuisance Channel Delete* on a priority channel or if there is only one remaining channel in the scan list.

ADDING A DELETED NUISANCE CHANNEL BACK TO THE SCAN LIST

1. Press the **Scan** key to stop the scan operation.
2. Press the **Scan** key again to re-start the scan operation.

SCAN CHANNEL DISCOVERY ALERT

Sometimes you need to know which channel the radio has switched to during a scan operation. The Scan Channel Discovery Alert gives you this information.

After you have stopped a scan operation, this feature gives you audio feedback when you select the last channel that was switched to by the scan operation. To do this:

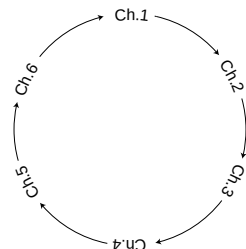
1. Stop the scan operation.
2. Turn the **Channel Selector** to change the channels.
3. When you reach the last channel the scan operation switched to, the radio sounds an alert tone.

SCAN LIST MEMBER PRIORITY

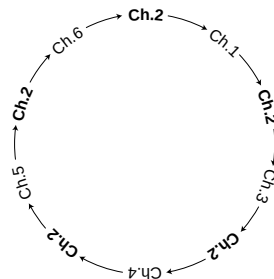
A channel in your scan list may be prioritized (check with your dealer for details). In such a case, the radio will check that prioritized channel more frequently than the other non-prioritized channels.

Assuming a scan list with 6 channels, if all your channels are non-prioritized, the normal scan

operation would check for activity in the following sequence:



If Channel 2 is prioritized, the scan operation would change to



NOTE: Even though your radio has switched to a non-priority channel, your radio will still check for activity on the priority channel. If some activity is detected there, the radio will switch to that priority channel.

PHONE

You can use your radio to connect to a phone line to make a phone call. You need a radio with a keypad to do this.

To do this, your radio must send an access code to a station that connects it to a phone line. After you have finished your call, the radio has to send a deaccess code to shutdown the connection to the phone line.

MAKING A PHONE CALL

A complete phone session consists of

- entering the Phone mode
- sending the access code
- sending the phone number
- having the phone conversation
- ending the phone call.

Entering the Phone Mode

Before you can make a phone call, you must enter the radio's Phone mode.

1. Press the Phone button.

Sending the Access Code

Your radio can be programmed to send the access code in any of the following ways:

- manual
- automatic delayed
- automatic immediate.

Check with your dealer for more details.

Method	Steps to Take
Manual	Dial the access code from the keypad.
Automatic Delayed	Press and release the PTT; the radio automatically sends the preprogrammed access code.
Automatic Immediate	You do not have to do anything; the radio immediately sends the access code when it enters phone mode.

Sending the Phone Number

After the access code is sent, you should wait for a dialing tone before sending your phone number.

You can send

- a phone number that is stored in the radio, or
- a new number.

Additionally, depending on how your radio is programmed, if you use the keypad to send a number, the radio can send the numbers in one of the following ways:

- live dial
- buffered dial.

Check with your dealer for details.

Sending a Stored Phone Number

You can access the stored phone numbers by

- recalling the last number dialed,
- using the speed dial feature.

Method	Steps to Take
Last Number Redial*	Press and release the PTT; the radio sends the last number dialed.

Method	Steps to Take
Speed Dial†	1. Press and release the programmed Speed Dial button. 2. Press the numbered keys (1-9) corresponding to the first nine phone numbers in the phone list. Press "0" if you want the last number dialed. 3. If your radio uses buffered dial, press and release the PTT. 4. The radio sends out the phone number.

* The method described is not applicable for radios which manually send the access code; these radios can access this number from the phone list or the speed dial.

Sending a New Number (for radios with keypad only)

You enter the phone number by pressing the relevant keys on the keypad.

Method	Steps to Take
Live Dial	Enter the phone number by using the keypad; the radio sends out the numbers as the keys are pressed.
Buffered Dial	1. Enter the phone number by using the keypad; the radio saves the selected numbers in a buffer. 2. Press and release the PTT; the radio sends out the numbers in its buffer.

The Phone Conversation

Once the radio has connected to the intended party, you can begin the conversation. Even though this is a phone call, your conversation mimics a radio call (that is, both parties speak in turn).

1. Press and hold the PTT, while talking into the microphone.
2. Release the PTT when you finish what you want to say, and wait for the response.

3. Repeat steps 1 and 2 until the conversation ends.

NOTE: The radio starts a programmable Time-Out-Timer the moment both parties stop transmitting (talking). If the Time-Out-Timer expires, the radio will end the phone call.

Ending the Phone Call

Just as the radio needs to send the access code when starting a phone call, the radio needs to send the deaccess code to end the phone call.

The radio can send the deaccess code in any of the following ways:

- manual, and
- automatic.

Check with your dealer for details.

1. If your radio sends the deaccess code manually, dial the deaccess code from the keypad.
2. Press the **Phone** button to exit phone mode.

NOTE: Radios using the automatic method will send the deaccess code automatically.

SAFETY INFORMATION

SAFE AND EFFICIENT OPERATION OF MOTOROLA TWO-WAY RADIOS

This document provides information and instructions for the safe and efficient operation of Motorola Portable 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

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 electro-magnetic fields Low frequency (0 Hz to 10 kHz)

*ENV 50166-2
1995 E*

Human exposure to electro-magnetic fields High frequency (10 kHz to 300 GHz)

*Proceedings of
SC211/B 1996*

"Safety Considerations for Human Exposure to EMFs from Mobile Telecommunication Equipment (MTE) in the Frequency Range 30MHz - 6 GHz."(EMF - Electro-Magnetic Fields)

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

Portable Radio Operation and EME Exposure



- When transmitting with a portable radio, hold radio in a vertical position with the microphone 2.5 to 5 centimeters (one or two inches) away from the mouth. Keep antenna at least 2.5 centimeters (one inch) from your head or body when transmitting.
- If you wear a portable Two-Way radio on your body, ensure that the antenna is at least 2.5 centimeters (one inch) from the body when transmitting.

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. Hospital or health 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



WARNING

Vehicles with an air bag

- Do not place a portable radio in the area over an airbag or in the air bag deployment area. Air bags inflate with great force. If a portable 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 vehicle.

Potentially explosive atmospheres

- 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 (e.g. FM or Cenelec approved). Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

Batteries

- Do not replace or recharge batteries in a potentially explosive atmosphere. Contact sparking may occur while installing or removing batteries and cause an explosion.

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 fuelling 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.

Operational Cautions



Caution

Damaged antennas

- Do not use any portable two-way radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.

Batteries

- All batteries can cause property damage and/or bodily injury such as burns if a conductive material such as jewellery, keys or beaded chains touch exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse or other container with metal objects.

RECYCLING / DISPOSAL OF NICD BATTERIES

The Basel Convention classifies used NiCd batteries as hazardous waste, unless certain exemptions apply.

At the end of your battery's useful life, it can be recycled. However, recycling facilities may not be available in all areas. Under various state or local laws, such batteries must be recycled or disposed of properly, and cannot be dumped in landfills or incinerators.

Motorola fully endorses and encourages the recycling of NiCd batteries. The following is a list of recycling facilities around the world, where you can ship your NiCd batteries to be recycled:

United States

INMETCO
P.O. Box 720
245 Porteville Road
Ellwood City, PA 16117
Tel: (412) 758-5515
Fax: (412) 758-9311

Europe

S.N.A.M.
Rue de la Garenne
Z.I. Chesnes Tharabie -BP733
Saint Quentin Fallavier
38297 La Verpilliere Cedex,
France
Tel: 033-74-94-59-85
Fax: 033-74-94-13-18

Asia

Hanil Metal Recycle Co. Ltd.
2404 Palryong-dong
Changwon-Shi
Kyongsangnam-Do, Korea
Tel: 082-551-93-1911
Fax: 082-551-96-0050

Japan

Onahama Refinery of Toho Zinc Co., Ltd.,
10 Aza-Yoshihamä,
Onahama,
Iwaki-City Fukushima Prefecture,
Japan

Marubeni Co.
Head Office/Attn. B6B2
4-2 Ohtemachi 1-Choma
Ciyoda-Ku, Tokyo, Japan

Nippon Recycle Ctr., Corp.
6-3-19, Nishitamma, Kita-Ku
Osaka, 530, Japan
Tel: 081-6-311-9071
Fax: 081-311-0949

You should consider the methods of collecting, labeling, and shipping used NiCd batteries. Consult your federal, state, or local environmental authority for specific legal requirements and for recycling options in your area.

Motorola, as a responsible corporate citizen, has always been concerned with the protection of the environment. Please feel free to call our toll-free number, 1-800-422-4210, for further battery information.