

**T4500 Series Two-Way Radio User Guide**

**PRELIMINARY**  
**November 12, 2002**

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**Congratulations on your purchase of a Motorola Product!**

Product registration is an important step toward enjoying your new Motorola product. Registering helps us facilitate warranty service, and permits us to contact you should your Motorola product require an update of other service. Registration is not required for warranty coverage.

To register your product on-line, visit [www.motorola.com/warranty/radios](http://www.motorola.com/warranty/radios).

Please retain your original dated sales receipt for your records. For warranty service of your Motorola product, you will need to provide a copy of your dated sales receipt to confirm warranty status.

For a copy of a large-print version of this guide, or for product-related questions, call:

**1-800-353-2729 in the USA**  
**1-888-390-6456 TTY (Text Telephone)**

On the web, visit our website at [www.motorola.com/store](http://www.motorola.com/store).

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PRELIMINARY

# **SAFETY AND GENERAL INFORMATION**

## **IMPORTANT INFORMATION ON SAFE AND EFFICIENT OPERATION**

### **READ THIS INFORMATION BEFORE USING YOUR RADIO**

The information provided in this document supersedes the general safety information contained in user guides published prior to July 2000.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

#### **Transmit and Receive Procedure**

Your two-way radio contains a transmitter and a receiver. To transmit (talk), you must push the Talk button; to receive (listen), release the Talk button.

#### **Exposure To Radio Frequency Energy**

Your Motorola radio is designed to comply with the following national and international standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy:

- United States Federal Communications Commission, Code of Federal Regulations; 47 CFR part 2 sub-part J

- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999
- Australian Communications Authority Radiocommunications (Electromagnetic Radiation - Human Exposure) Standard 2001 (applicable to wireless phones only)
- ANATEL, Brasil Regulatory Authority, Resolution 256 (April 11, 2001) "additional requirements for SMR, cellular and PCS product certification."

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

## **PORTABLE RADIO OPERATION AND EME EXPOSURE**

### **Antenna Care**

**Use only the supplied or an approved replacement antenna.** Unauthorized antennas, modifications, or attachments could damage the radio and may violate FCC regulations.

**DO NOT hold the antenna when the radio is “IN USE.”** Holding the antenna affects call quality and may cause the radio to operate at a higher power level than needed.

### **Two-way Radio Operation**

When using your radio as a traditional two-way radio, **hold the radio in a vertical position with the microphone one to two inches (2.5 to 5 cm) away from the lips.**

### **Body-worn Operation**

To maintain compliance with FCC/Health Canada RF exposure guidelines, if you wear a radio on your body when transmitting, always place the radio in a Motorola supplied or approved clip, holder, holster, case, or body harness for this product. Use of non-Motorola-approved accessories may exceed FCC/Health Canada RF exposure guidelines. If you do not use one of the Motorola-supplied or approved body-worn accessories, and are not using the radio held in the normal use position, **ensure the radio and its antenna are at least one inch (2.5 cm) away from your body when transmitting.**

To control your exposure and ensure compliance with the general population/uncontrolled environment exposure limits, always adhere to the following procedure:

- Transmit no more than 50% of the time.
- To transmit (talk), push the Talk button.
- To receive calls, release the Talk button.

Transmitting 50% of the time, or less, is important because the radio generates measurable RF energy exposure only when transmitting (in terms of measuring standards compliance).

### **Data Operation**

If applicable, when using any data feature of the radio, with or without an accessory cable, **position the radio and its antenna at least one inch (2.5 cm) away from the body.**

### **Approved Accessories**

For a list of approved Motorola accessories visit our website at [www.mot.com](http://www.mot.com).

## **ELECTROMAGNETIC INTERFERENCE/COMPATIBILITY**

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

- **FACILITIES**

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.

- **AIRCRAFT**

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

- **MEDICAL DEVICES**

Pacemakers

The Advanced Medical Technology Association recommends that a minimum separation of 6 inches (15 centimeters) be maintained between a handheld wireless radio and a pacemaker. These recommendations are consistent with the independent research by, and recommendations of, the United States Food and Drug Administration.

Persons with pacemakers should:

- ALWAYS keep the radio more than six inches (15 centimeters) from their pacemaker when the radio is turned ON.
- not carry the radio in the breast pocket.
- use the ear opposite the pacemaker to minimize the potential for interference.
- turn the radio OFF immediately if you have any reason to suspect that interference is taking place.

Hearing Aids

Some digital wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

## Safety and General Use While Driving

Check the laws and regulations on the use of radio in the area where you drive. Always obey them.

When using your radio while driving, please:

- Give full attention to driving and to the road.
- Use hands-free operation, if available.
- Pull off the road and park before making or answering a call if driving conditions so require.

## OPERATIONAL WARNINGS

- **FOR VEHICLES WITH AN AIR BAG**

Do not place a portable radio in the area over an air bag 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 the vehicle.

- **POTENTIALLY EXPLOSIVE ATMOSPHERES**

Turn off your radio prior to entering any area with a potentially explosive atmosphere, unless it is a radio type especially qualified for use in such areas as “Intrinsically Safe.” Do not remove, install, or charge batteries in such areas. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

**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.

### **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.

### **OPERATIONAL CAUTIONS**

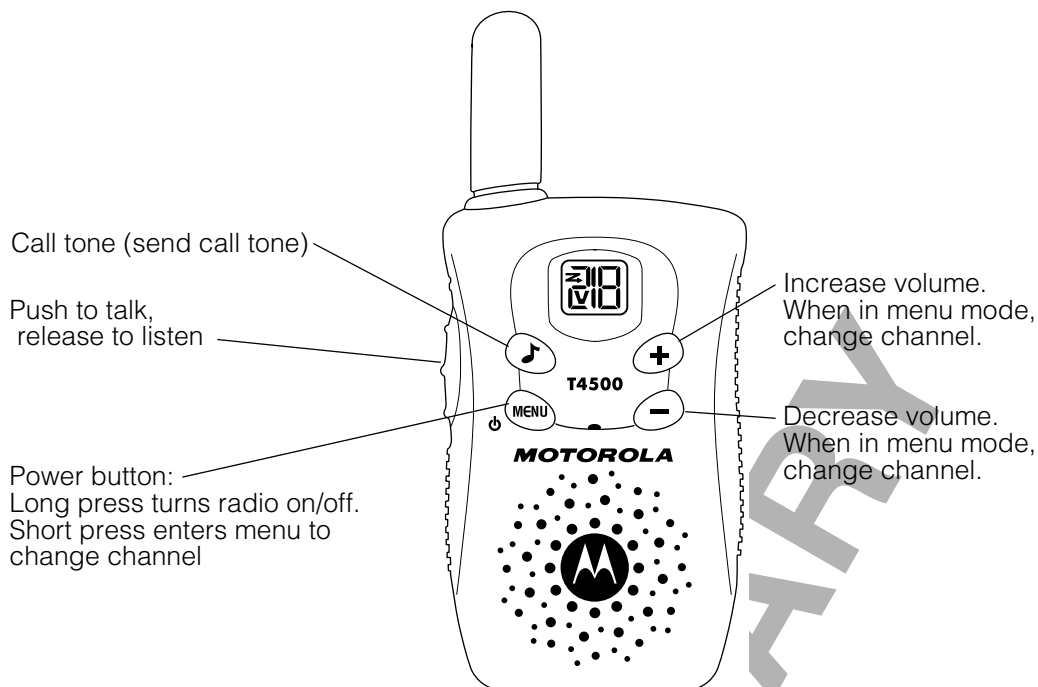
- **ANTENNAS**

**Do not use any portable 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 jewelry, 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.

## Finding the Controls



## Installing the Batteries

Your radio uses 3 AAA Alkaline batteries.

1. Turn the radio off.
2. Remove the battery cover using a coin.
3. Insert batteries so the + marking on each battery matches the one in the compartment.
4. Replace the battery cover.

Change the batteries when (what low battery indicators does the radio have?)

## Turning Your Radio On and Off

Press the power button (until you see/hear what?).

## Adjusting the Volume

Press <uparrow> to increase the volume and <downarrow> to decrease the volume.

## Setting the Channel

The channel is the radio frequency wave your radio uses to transmit. Your radio has 22 channels. To change the channel:

1. Briefly press and release <power>.
2. Press <uparrow> or <downarrow> to select a channel.
3. Press <power> to save the new channel setting.

## Talking and Listening


To talk, press and hold the Push to Talk button  $M$ .

When you are finished talking, release  $M$ .

For maximum clarity, hold the radio 2 to 3 inches away from your mouth and speak directly into the microphone. Be careful not to cover the microphone while transmitting.

| <b>CHANNEL</b> | <b>FREQUENCY</b> | <b>DESCRIPTION</b> |
|----------------|------------------|--------------------|
| 1              | 462.5625 MHz     | FRS / GMRS         |
| 2              | 462.5875 MHz     | FRS / GMRS         |
| 3              | 462.6125 MHz     | FRS / GMRS         |
| 4              | 462.6375 MHz     | FRS / GMRS         |
| 5              | 462.6625 MHz     | FRS / GMRS         |
| 6              | 462.6875 MHz     | FRS / GMRS         |
| 7              | 462.7125 MHz     | FRS / GMRS         |
| 8              | 467.5625 MHz     | FRS                |
| 9              | 467.5875 MHz     | FRS                |
| 10             | 467.6125 MHz     | FRS                |
| 11             | 467.6375 MHz     | FRS                |
| 12             | 467.6625 MHz     | FRS                |
| 13             | 467.6875 MHz     | FRS                |
| 14             | 467.7125 MHz     | FRS                |
| 15             | 462.5500 MHz     | GMRS               |
| 16             | 462.5750 MHz     | GMRS               |
| 17             | 462.6000 MHz     | GMRS               |
| 18             | 462.6250 MHz     | GMRS               |
| 19             | 462.6500 MHz     | GMRS               |
| 20             | 462.6750 MHz     | GMRS               |
| 21             | 462.7000 MHz     | GMRS               |
| 22             | 462.7250 MHz     | GMRS               |

## Troubleshooting

| <b>No Power</b>                                          | Reposition or replace Alkaline batteries.                                                                                                                                                                                                                             |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message not transmitted</b>                           | Make sure  is completely pressed as you transmit.<br>Reposition or replace Alkaline batteries.                                                                                       |
| <b>Hearing other noises or conversation on a channel</b> | Shared channel may be in use. Try another channel.                                                                                                                                                                                                                    |
| <b>Limited talk range</b>                                | Steel and/or concrete structures, heavy foliage, use in buildings or vehicles decrease range. Check for clear line of sight to improve transmission.<br>Wearing radio close to body, such as in a pocket or on a belt, will decrease range. Change location of radio. |
| <b>Message not received</b>                              | Confirm radios are set to the same channel.<br>Make you are not pressing PTT while trying to listen.<br>Reposition or replace Alkaline batteries.<br>Obstructions, operating indoors or in vehicles may interfere with transmission. Change your location.            |
| <b>Heavy static or interference</b>                      | Radios are too close (must be at least 5 feet apart).<br>Radios are too far apart or obstacles interfering with transmission. Talk range is up to 2 miles depending on terrain and conditions.                                                                        |
| <b>Low batteries</b>                                     | Replace Alkaline batteries. Extreme operating temperatures affect battery life.                                                                                                                                                                                       |

## FCC Licensing Information

Your Motorola radio operates on General Mobile Radio Service (GMRS) frequencies and is subject to the Rules and Regulations of the Federal Communications Commission (FCC). The FCC requires that all operators using General Mobile Radio Service (GMRS) frequencies obtain a radio license before operating their equipment. To obtain the FCC forms please request Forms **605** and **159** which includes all forms and instructions. If you wish to have the document faxed, mailed or have questions, please use the following contact information.

| <b>Faxed</b><br><b>Contact the Fax-On-Demand system at:</b> | <b>Mailed</b><br><b>Call the FCC forms hotline at:</b> | <b>Questions</b><br><b>regarding FCC license</b><br><b>Contact the FCC at:</b>                                   |
|-------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>1-202-418-0177</b>                                       | <b>1-800-418-FORM</b><br><b>1-800-418-3676</b>         | <b>1-888-CALL-FCC</b><br><b>1-888-225-5322</b><br><b>Or: <a href="http://www.fcc.gov">http://www.fcc.gov</a></b> |

Changes or modifications not expressly approved by Motorola may void the user's authority granted by the FCC to operate this radio and should not be made. To comply with FCC requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services.

Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the FCC equipment authorization for this radio could violate FCC rules.

**Note:** Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.

# Motorola Limited Warranty for the United States and Canada

## What Does this Warranty Cover?

Subject to the exclusions contained below, Motorola, Inc. warrants its telephones, pagers, messaging devices, and consumer and professional two-way radios (excluding commercial, government or industrial radios) that operate via Family Radio Service or General Mobile Radio Service, Motorola-branded or certified accessories sold for use with these Products ("Accessories") and Motorola software contained on CD-ROMs or other tangible media and sold for use with these Products ("Software") to be free from defects in materials and workmanship under normal consumer usage for the period(s) outlined below. This limited warranty is a consumer's exclusive remedy, and applies as follows to new Motorola Products, Accessories and Software purchased by consumers in the United States or Canada, which are accompanied by this written warranty:

### Products and Accessories

| Products Covered                                                                                          | Length of Coverage                                                                                                                |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Products and Accessories</b> as defined above, unless otherwise provided for below.                    | <b>One (1) year</b> from the date of purchase by the first consumer purchaser of the product unless otherwise provided for below. |
| <b>Decorative Accessories and Cases.</b> Decorative covers, bezels, PhoneWrap™ covers and cases.          | <b>Limited lifetime warranty</b> for the lifetime of ownership by the first consumer purchaser of the product.                    |
| <b>Monaural Headsets.</b> Ear buds and boom headsets that transmit mono sound through a wired connection. | <b>Limited lifetime warranty</b> for the lifetime of ownership by the first consumer purchaser of the product.                    |
| <b>Consumer and Professional Two-Way Radio Accessories.</b>                                               | <b>Ninety (90) days</b> from the date of purchase by the first consumer purchaser of the product.                                 |
| <b>Products and Accessories that are Repaired or Replaced.</b>                                            | <b>The balance of the original warranty or for ninety (90) days</b> from the date returned to the consumer, whichever is longer.  |

### Exclusions

**Normal Wear and Tear.** Periodic maintenance, repair and replacement of parts due to normal wear and tear are excluded from coverage.

**Batteries.** Only batteries whose fully charged capacity falls below 80% of their rated capacity and batteries that leak are covered by this limited warranty.

**Abuse & Misuse.** Defects or damage that result from: (a) improper operation, storage, misuse or abuse, accident or neglect, such as physical damage (cracks, scratches, etc.) to the surface of the product resulting from misuse; (b) contact with liquid, water, rain, extreme humidity or heavy perspiration, sand, dirt or the like, extreme heat, or food; (c) use of the Products or Accessories for commercial purposes or subjecting the Product or Accessory to abnormal usage or conditions; or (d) other acts which are not the fault of Motorola, are excluded from coverage.

**Use of Non-Motorola Products and Accessories.** Defects or damage that result from the use of Non-Motorola branded or certified Products, Accessories, Software or other peripheral equipment are excluded from coverage.

**Unauthorized Service or Modification.** Defects or damages resulting from service, testing, adjustment, installation, maintenance, alteration, or modification in any way by someone other than Motorola, or its authorized service centers, are excluded from coverage.

**Altered Products.** Products or Accessories with (a) serial numbers or date tags that have been removed, altered or obliterated; (b) broken seals or that show evidence of tampering; (c) mismatched board serial numbers; or (d) nonconforming or non-Motorola housings, or parts, are excluded from coverage.

**Communication Services.** Defects, damages, or the failure of Products, Accessories or Software due to any communication service or signal you may subscribe to or use with the Products Accessories or Software is excluded from coverage.

### Software

| Products Covered                                                                                                                     | Length of Coverage                                 |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| <b>Software.</b> Applies only to physical defects in the media that embodies the copy of the software (e.g. CD-ROM, or floppy disk). | <b>Ninety (90) days</b> from the date of purchase. |

### Exclusions

**Software Embodied in Physical Media.** No warranty is made that the software will meet your requirements or will work in combination with any hardware or software applications provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected.

**Software NOT Embodied in Physical Media.** Software that is not embodied in physical media (e.g. software that is downloaded from the internet), is provided "as is" and without warranty.

## Who is Covered?

This warranty extends only to the first consumer purchaser, and is not transferable.

## What Will Motorola Do?

Motorola, at its option, will at no charge repair, replace or refund the purchase price of any Products, Accessories or Software that does not conform to this warranty. We may use functionally equivalent reconditioned/refurbished/pre-owned or new Products, Accessories or parts. No data, software or applications added to your Product, Accessory or Software, including but not limited to personal contacts, games and ringer tones, will be reinstalled. To avoid losing such data, software and applications please create a back up prior to requesting service.

## How to Obtain Warranty Service or Other Information

|                                                                                                                                          |                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>USA</b>                                                                                                                               | <b>Phones</b> 1-800-331-6456<br><b>Pagers</b> 1-800-548-9954<br><b>Two-Way Radios<br/>and Messaging Devices</b> 1-800-353-2729 |
| <b>Canada</b>                                                                                                                            | <b>All Products</b> 1-800-461-4575                                                                                             |
| <b>TTY</b>                                                                                                                               | 1-888-390-6456                                                                                                                 |
| For <b>Accessories</b> and <b>Software</b> , please call the telephone number designated above for the product with which they are used. |                                                                                                                                |

You will receive instructions on how to ship the Products, Accessories or Software, at your expense, to a Motorola Authorized Repair Center. To obtain service, you must include: (a) a copy of your receipt, bill of sale or other comparable proof of purchase; (b) a written description of the problem; (c) the name of your service provider, if applicable; (d) the name and location of the installation facility (if applicable) and, most importantly; (e) your address and telephone number.

## What Other Limitations Are There?

ANY IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL BE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY, OTHERWISE THE REPAIR, REPLACEMENT, OR REFUND AS PROVIDED UNDER THIS EXPRESS LIMITED WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER, AND IS PROVIDED IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. IN NO EVENT SHALL MOTOROLA BE LIABLE, WHETHER IN CONTRACT OR TORT (INCLUDING NEGLIGENCE) FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, ACCESSORY OR SOFTWARE, OR FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, OR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, SOFTWARE OR APPLICATIONS OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE ABILITY OR INABILITY TO USE THE PRODUCTS, ACCESSORIES OR SOFTWARE TO THE FULL EXTENT THESE DAMAGES MAY BE DISCLAIMED BY LAW.

**Some states and jurisdictions do not allow the limitation or exclusion of incidental or consequential damages, or limitation on the length of an implied warranty, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state or from one jurisdiction to another.**

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