



Two-Way Radio User's Guide



KEM-ML36100

MC Series

For More Information

For further information, you may call Motorola at 1-800-638-5119 (U.S. and Canada), e-mail us at giantintl@callcenter.com or visit us on the Internet at www.motorola.com.

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 in user guides published prior to December 1, 2002.

Transmit and Receive Procedure

Your two-way radio contains a transmitter and a receiver. 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 receive calls, release the Push to Talk (PTT) button.
- To transmit (talk), press the PTT 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).

Exposure to Radio Frequency Energy

Your Motorola two-way radio complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 2 sub-part J.
- American National Standards Institute (ANSI)/Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992.
- Institute of Electrical and Electronics 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, 2003.
- ANATEL ANNEX to Resolution No. 303 of July 2, 2002 "Regulation of limitation of exposure to electrical, magnetic and electromagnetic fields in the radio frequency range between 9 KHz and 300GHz".

To ensure 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 its effective range.

Body-Worn Operation

To maintain compliances 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 1 inch (2.5 cm) from your body when transmitting.**

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) from the body.**

Approved Accessories

For a list of approved Motorola accessories, visit our Web site at www.motorola.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. 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.

IC Canada

The term "IC:" before the equipment certification number only signifies that the Industry Canada technical specifications were met.

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 onboard 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 cm) be maintained between a handheld wireless radio and a pacemaker. These recommendations are consistent with the independent research by and recommendations of the U.S. Food and Drug Administration.

People with pacemakers should:

- ALWAYS keep the radio more than 6 inches (15 cm) 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 there is any reason to suspect that interference is taking place.

Medical Devices – 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.

Medical Devices – Other

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 regarding the use of radios in the area where you drive, and always obey them. If you do use 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.

The use of a two-way radio while engaged in activities requiring concentration may cause distraction or otherwise impair your ability to safely participate in such activities. Always use technology safely. 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. Only radio types that are especially qualified should be used 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 radios." 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—like 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.

Exercise care when removing NiMH or AA batteries. Do not use sharp or conductive tools to remove either of these batteries.

Battery Charger Safety Instructions:

Save these Instructions

1. Do not expose the charger to rain or snow.
2. Do not operate or disassemble the charger if it has received a sharp blow, or has been dropped or damaged in any way.
3. Never alter the AC cord or plug provided with the unit. If the plug will not fit the outlet, have the proper outlet installed by a qualified electrician. An improper condition can result in a risk of electric shock.
4. To reduce the risk of damage to the cord or plug, pull the plug rather than the cord when disconnecting the charger from the AC receptacle.
5. To reduce the risk of electric shock, unplug the charger from the outlet before attempting any maintenance or cleaning.
6. Use of an attachment not recommended or sold by Motorola may result in a risk of fire, electric shock or personal injury.
7. Make sure the cord is located so it will not be stepped on, tripped over or subjected to damage or stress.
8. An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in a risk of a fire and/or electric shock. If an extension cord must be used, make sure that:
 - The pins on the plug of the extension cord are the same number, size and shape as those on the plug of the charger.
 - The extension cord is properly wired and in good electrical condition.
 - The extension cord size is 18 AWG for lengths up to 100 feet, and 16 AWG for lengths up to 150 feet.
9. The supply cord of the AC adaptor cannot be replaced. If the cord is damaged, call customer service at 1-800-638-5119 (U.S. and Canada).

FCC Licensing Information

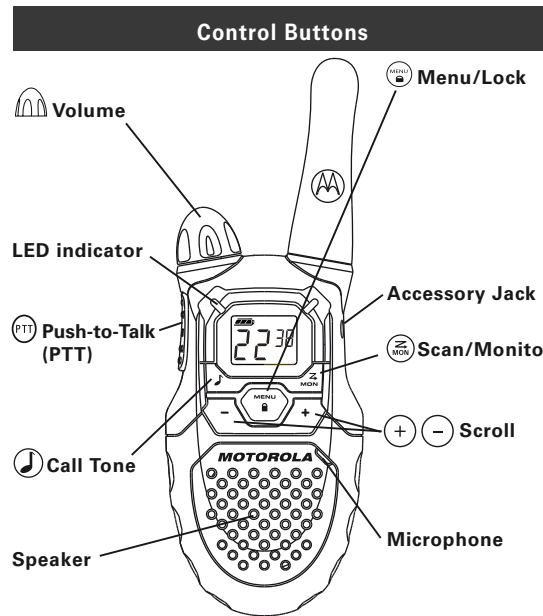
Your Motorola radio operates on General Mobile Radio Service (GMRS) frequencies and is subject to the Rules and Regulations of the Federal Communications Commission (FCC). The FCC requires that all operators using GMRS frequencies obtain a radio license before operating their equipment. To obtain the FCC forms, please visit the FCC's Web site at wireless.fcc.gov/uls/index.htm?job=home to source form 605 and 159, which include all the instructions you will need.

If you wish to have the document faxed or mailed, or if you have questions, please use the following contact information:

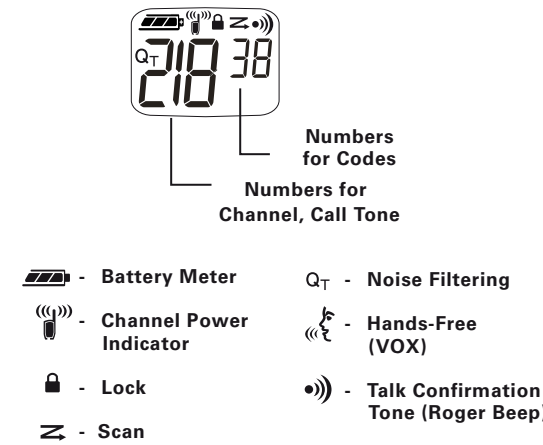
For a fax: Contact the Fax-On Demand system	For mail service: Call the FCC Forms Hotline	If you have questions about the FCC License: Call the FCC
1-202-418-0177	1-800-418-FORM (3676)	1-888-CALL-FCC (225-5322)

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.



Display Screen Guide



Getting Started

Installing the Batteries

Each radio can use either 1 NiMH rechargeable battery pack or 3 AA alkaline batteries and beeps when the batteries are low.

Installing NiMH Rechargeable Battery Pack

1. Turn the radio off.
2. With the back of the radio facing you, lift the battery cover latch up and remove the cover.
3. Remove the battery pack from the clear plastic bag (do not disassemble or unwraps the battery pack).
4. Insert the NiMH battery pack with the diagram facing you.
5. Reposition the battery cover and press down to secure.

Installing the Three AA Alkaline Batteries

1. Turn the radio off.
2. With the back of the radio facing you, lift the battery cover latch up and remove the cover.
3. Insert the three AA alkaline batteries with + and - polarity as shown inside.
4. Reposition the battery cover and press down to secure.

Radio Battery Meter

The radio battery icon shows the battery charge level, from full to empty . When the radio has one segment left, the radio chirps periodically or after releasing (Low Battery Alert).

Removing the NiMH Battery Pack (Optional Accessory)

1. Turn the radio off.
2. With the back of the radio facing you, lift the battery latch up to release the battery cover and remove the cover.
3. Gently remove the NiMH battery.
4. Reposition the battery cover and press down to secure.

Removing the Three AA Batteries

1. Turn the radio off.
2. With the back of the radio facing you, lift the battery latch up to release the battery cover and remove the cover.

3. Gently remove each battery by easing each battery out individually.

4. Reposition the battery cover and press down to secure.

Notes

- Exercise care when removing NiMH or AA batteries. Do not use sharp or conductive tools to remove either of these batteries.
- Remove the batteries before storing your radio for extended periods of time. Batteries corrode over time and may cause permanent damage to your radio.

Using the Battery Charger

The battery charger provides drop-in charging convenience for NiMH batteries and can be placed on any flat surface, such as a desk or workbench. Charge the NiMH battery overnight (at least 16 hours) before using it for the first time. After the initial charge, an empty battery is fully charged within 14 hours.

1. Follow the steps above to install a NiMH Battery Pack.
2. Plug the AC power supply cord into the jack on the desk stand.
3. Plug the AC power supply into a standard wall outlet.
4. With a radio facing forward, slide it into one of the charging pockets.
5. When charging the battery charger, the red light on the charger base will glow continuously.

Notes

- The light will remain red after the NiMH battery pack is fully charged.
- When moving between hot and cold temperatures, do not charge the NiMH battery pack until the battery temperature acclimates (usually about 20 minutes).
- For optimal battery life, remove the radio or battery from the charger within 16 hours. Do not store the radio while connected to the charger.
- Turn radio off while in charging tray.

Attaching and Removing the Belt Clip

1. Attach belt clip to pocket or belt strap.
2. Align the belt clip post with the hole in the back of the radio.
3. Gently push until the clip clicks in place.

To Remove

1. Push down on the release tab at the top of the belt clip to release the catch.
2. Pull the belt clip away from the back of the radio.

Turning Your Radio On and Off

Turn clockwise to turn the radio on and counterclockwise to turn the radio off.

1. In the ON position, the radio chirps and briefly shows all feature icons available on the radio.
2. The display screen then shows the current channel, code and all features that are enabled.

Setting the Volume

Press and hold for three seconds while rotating until you reach a comfortable listening level.

1. Rotate clockwise to increase the volume.
2. Rotate counterclockwise to decrease the volume.

Do not hold the radio close to your ear. If the volume is set to an uncomfortable level, it could hurt your ear.

Talking and Listening

To communicate, all radios in your group must be set to the same channel and Interference Eliminator Code.

1. To talk, press and hold .
2. When you are finished talking, release .

For maximum clarity, hold the radio two to three inches away from your mouth and speak directly into the microphone. Do not cover the microphone while talking.

Talk Range

Your radio is designed to maximize performance and improve transmission range. Do not use the radios closer than five feet apart.

Monitor Button

Pressing and holding for three seconds allows you to listen to the volume level of the radio when you are not receiving. This allows you to adjust the volume, if necessary. You can also press to check for activity on the current channel before you talk.

Push-to-Talk Timeout Timer

To prevent accidental transmissions and save battery life, the radio emits a continuous warning tone and stops transmitting if you press for 60 continuous seconds.

Menu Options

Selecting the Channel

Your radio has 22 channels. The channel is the frequency the radio uses to transmit. Channels 8-14 are FRS 0.5 watt only and all other channels are GMRS. (See the "Channels and Frequencies" table on overleaf for details.)

1. With the radio on, press . When the radio is on a 0.5 watt channel, displays. When the radio is on a 1 watt channel, displays. The current channel flashes.
2. Press or and select an unused or quiet channel.
3. Press to save the channel setting or to continue set up.

Selecting the Interference Eliminator Code

Interference Eliminator Codes help minimize interference by blocking transmissions from unknown sources. Codes 1–38 are the standard analog codes that appear on other FRS/GMRS radios. 0 is the off position, no codes are enabled.

To set the code for a channel:

1. Press until the code starts to flash.
2. Press or to select the code.
3. Press to save the code setting or to continue set up.

You can set a different code for each channel using this procedure.

An extended press of or allows you to scroll through the Interference Codes rapidly so you can quickly reach the code you want.

Note: You must set the Interference Eliminator Code to 0 on a radio that uses Interference Eliminator Codes to communicate with radios that do not have Interference Eliminator Codes. Select 0 for "no tone, no code" and OFF will flash on your radio's display.

Setting and Transmitting Call Tones

Your radio can transmit different call tones to other radios in your group so you can alert them that you want to talk. Your radio has 5 call tones.

To set a call tone:

1. With the radio on, press three times until the current call tone setting (0 - 5) flashes and CA displays.
2. Press or to change and hear the call tone.
3. Press to set the new call tone or to continue set up.

To transmit your call tone to other radios set to the same channel and Interference Eliminator Code as your radio, press .

Note: Setting the call to 0 disables the call tone feature.






Menu Options (continued)

Q_T Noise Filtering



The Q_T noise-filtering feature helps to ensure uninterrupted communication with other Motorola radios that have this feature. This feature also filters out unwanted transmissions from other radios. This is useful in places where there is heavy radio traffic, such as amusement parks or ski resorts.

Note: Q_T noise filtering is not available when the radio is scanning.

To turn Q_T noise filtering on or off:

1. Press  until Q_T displays.
2. Press  or  until Y displays to turn noise filtering on, or until  displays to turn noise filtering off.
3. Press  to confirm your selection.





To transmit to a radio that has Q_T noise filtering turned on:

1. Select the same channel and Interference Eliminator Code as the other radio.
2. Press  to send a call tone. This allows your voice to pass through the Q_T noise filter on the receiving radio.
3. Press  and speak normally.

Note: If you skip step 2, the beginning of your message may not be heard on the receiving radio. For a 30-second period, starting after the last transmission, all transmissions received on the selected channel and code will pass through the Q_T noise filter.

Transmitting a Talk Confirmation Tone

Your radio will transmit a unique tone when you finish transmitting. It is like saying “Roger” or “Over” to let others know you are finished talking.

1. To turn Talk Confirmation off, press and hold  while you turn your radio on. The Talk Confirmation call tone  will not display.
2. To turn Talk Confirmation back on, turn your radio off and then back on while pressing and holding . The Talk Confirmation call tone  will be displayed.

Use With Accessories (PTT)



You can use optional headset accessories. MC Series radios are compatible with PTT accessories. VOX headsets will require use of the radios  button to talk.



Many accessories (sold separately) are available for your radio. For more information, visit our Web site at www.motorola.com or shop.giantintl.com.

Special Features

Keypad Lock

To avoid accidentally changing your radio settings:





1. Press  and hold until  displays.
2. When in lock mode, you can turn the radio on and off, adjust the volume, receive, transmit, send a call tone, and monitor channels. All other functions are locked.

To unlock the radio, press and hold  until  is no longer displayed.








Scanning Channels

Use scan to search the 22 channels for transmissions from unknown parties, to find someone in your group who has accidentally changed channels, or to quickly find unused channels for your own use.

To start Scanning:

1. Briefly press the  key. The scan  will appear in the display, and the radio will begin to scroll through the channel and code combinations.
2. When the radio detects channel activity matching the channel and code combination, it stops scrolling and you can hear the transmission.
3. To respond and talk to the person transmitting, press  within five seconds after the end of the transmission.
4. The radio will resume scrolling through the channels five seconds after the end of any received activity.
5. To stop scanning, briefly press the  key.

Scanning Notes:

1. If you press  while the radio is scrolling through inactive channels, the transmission will be on the “home channel”, that is, the channel (and Interference Eliminator Code) your radio was set to when you started the scan. Scanning will resume five seconds after the end of your transmission. You may press the  key to stop scanning at any time.
2. If the radio stops on an undesired transmission, you may immediately resume the scan by briefly pressing  or .
3. If the radio repeatedly stops on an undesired transmission, you may temporarily remove that channel from the scan list by pressing and holding  or  for three seconds. You may remove more than one channel in this way.
4. To restore the removed channel(s) to the scan list, turn the radio off and then back on, or exit and re-enter the scanning mode by pressing .
5. You cannot remove the home channel from the scan list.
6. In Advanced Scan, the detected code will only be used for one transmission. You must note the code, exit scan, and set that detected code on that channel to permanently use the detected code.

Channels and Frequencies

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

Warranty

Consumer Two-Way Radio Products and Accessories purchased in the United States or Canada.

What Does this Warranty Cover?

Subject to the exclusions contained to the right, Giant International Ltd. warrants the Motorola branded consumer two-way radios that operate via Family Radio Service or General Mobile Radio Service that it manufactures (“Products”), the Motorola branded or certified accessories sold for use with these Products that it manufactures (“Accessories”) 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 branded Products and Accessories manufactured by Giant International Ltd., and purchased by consumers in the United States or Canada, which are accompanied by this written warranty:

Products Covered	Length of Coverage	Exclusions
Products and Accessories as defined above, unless otherwise provided for below. 1. Consumer Two-Way Radio Accessories. 2. Products and Accessories that are Repaired or Replaced.	One (1) year from the date of purchase by the first consumer purchaser of the product unless otherwise provided for below. 1. Ninety (90) days from the date of purchase by the first consumer purchaser of the product. 2. The balance of the original warranty or for ninety (90) days from the date returned to the consumer, whichever is longer.	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 or Giant International Ltd., are excluded from coverage. Use of Non-Motorola branded Products and Accessories. Defects or damage that result from the use of Non-Motorola branded or certified Products, Accessories, 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, Giant International Ltd. 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 branded housings, or parts, are excluded from coverage. Communication Services. Defects, damages, or the failure of Products or Accessories due to any communication service or signal you may subscribe to or use with the Products or Accessories is excluded from coverage.

Who is covered?

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

What will GIANT INTERNATIONAL LTD. do?

GIANT INTERNATIONAL LTD., at its option, will at no charge repair, replace or refund the purchase price of any Products or Accessories that does not conform to this warranty. We may use functionally equivalent reconditioned/ refurbished/ pre-owned or new Products, Accessories or parts.

How to Obtain Warranty Service or Other Information?

To obtain service or information, please call:

USA Two-Way Radios	Canada Two-Way Radios
1-800-638-5119 giantintl@callcenter.com	1-800-638-5119 giantintl@callcenter.com

For Accessories, 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 or Accessories at your expense, to a GIANT INTERNATIONAL LTD. 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.

Patent and Copyright Information

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