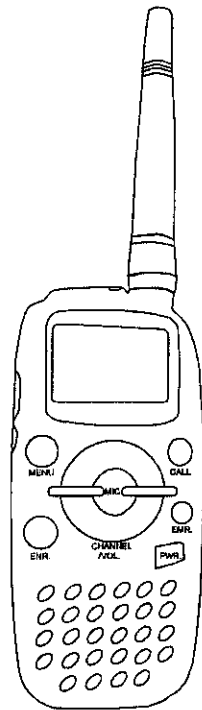## 23 CHANNEL GENERAL MOBILE RADIO SYSTEM
WITH AM/FM STEREO RECEIVER
GMRS-1000 H

BEFORE OPERATING THIS PRODUCT PLEASE
## READ THESE INSTRUCTIONS COMPLETELY

Warning: Adjustment to this unit or replacement of any transmitter component (crystal, semiconductor, etc.) to this unit that could result in a violation of the rules.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

☐ Reorient or relocate the receiving antenna.
☐ Increase the separation between the equipment and receiver.
☐ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
☐ Consult the dealer or an experienced radio/TV technician for help.

THIS PAGE WILL BE PRINTED

ON THE FIRST PAGE OF

INSTRUCTION MANUAL FOR

GURSTOMM / LIGHT-3000

04 OCT 2001
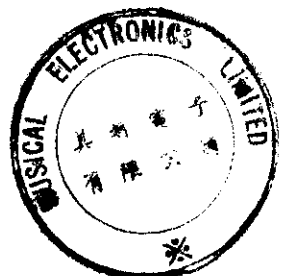
FCC WARNINGS

This device complies with part 15 of the FCC rules, operation is subject to the condition that this device does not cause harmful interference.

How to Obtain a GMRS License?

You must obtain an FCC license (or be an immediate family member of someone who is already licensed) before you may transmit with a GMRS radio.

To apply for a GMRS license, you must complete and return a Form 605 to the FCC. You can obtain a copy of the FCC Form 605 and its instructions by calling: 1-888-CALL-FCC. You can also obtain a copy from the FCC's Web site: www.fcc.gov/formpage.html

You can also apply for a GMRS license directly on the Web.

Applicants must also submit an FCC Form 159 (Remittance Advice). It is available from the same sources mentioned above.

As of September 2000, the cost of obtaining an FCC license in the GMRS is $85. This includes a $50 application fee, and a usage fee of $35 ($7 per year for the five-year GMRS license). This $85 fee total must be submitted along with the application.

PRECAUTIONS

- Do not modify or attempt to adjust the transceiver for any reason.
- Avoid extremes in exposure to water, heat, and cold. This transceiver is weather resistant but not waterproof.
- Do not expose the transceiver to long period of direct sunlight, nor place the transceiver close to heating appliances.
- Do not place the transceiver in excessively dusty areas, humid areas, wet areas, nor on unstable surfaces.
- If an abnormal or smoke is detected coming from the transceiver, immediately switch OFF the power and remove the batteries from the transceiver. Contact your dealer.

Caution: To maintain compliance with the FCC s RF exposure guidelines, hold the transmitter and antenna at least 2 inch (5 centimeters) from your face and speak in a normal voice, with the antenna pointed up and away from the face. If you wear the handset on your body while using the headset accessory, use only the manufacturers supplied bell clip for this product and ensure that the antenna is at least 1 inch(2.5 centimeters) from your body when transmitting.

Use only the supplied antenna. Unauthorized antennas, modifications, or attachments could damage the transmitter and may violate FCC regulations.

1

Safety Information

Your wireless handheld portable transceiver contains a low power transmitter. When the Push-to-talk(PTT) button is pushed it sends out radio frequency (RF) signals.

This device is authorized to operate at a duty factor not to exceed 50%. In August 1996, the Federal Communications Commission (FCC) adopted RF exposure guidelines with safety levels for hand-held wireless devices.

Features

- Up to 7 miles range without Repeater-Assisted Communications
- Total 23 Channels
  1. 14 Main Channels with 38 CTCSS Sub-channels
  2. 7 Repeater-Assisted Channels with 38 CTCSS Sub-channels
  3. 2 Emergency Cahnnels
- Build-in VOX Function with adjustable Mic sensitivity
- Adjustable Squelch Control
- Time-Out-Timer (Transmitter operation timer)
- Auto channel Scan
- Channel Memory Presets
- Muti-function Back-lit LCD Display
- Talk Confirmation Tone and Call / Ring Button
- Detachable Belt Clip
- Auto Battery Saver
- External Power (DC 9V) and External Microphone Speaker Jacks

UNPACKING

Carefully unpack the transceiver. We recommend that you identify the items listed below before discarding the packing material.

- Transceiver 1
- Belt Clip 1
- Instruction Manual 1

2

Frequency Range

Our 23 Channel GMRS unit represents one of the most advanced FM two-way radios used with the following UHF frequencies.

Mail Channels

Channel	Frequency	
1	462.5625 MHz	FRS Channel 1
2	462.5875 MHz	FRS Channel 2
3	462.6125 MHZ	FRS Channel 3
4	462.6375 MHz	FRS Channel 4
5	462.6625 MHz	FRS Channel 5
6	462.6875 MHz	FRS Channel 6
7	462.7125 MHz	FRS Channel 7
8	462.5500 MHz	
9	462.5750 MHz	
10	462.6000 MHz	
11	462.6250 MHz	
12	462.6500 MHz	
13	462.7000 MHz	
14	462.7250 MHz	

Repeater-Assisted Communication Cahnnels

Channel	Rx Frequency	Tx Frequency
15	462.5500 MHz	467.5500 MHz
16	462.5750 MHz	467.5750 MHz
17	462.6000 MHz	467.6000 MHz
18	462.6250 MHz	467.6250 MHz
19	462.6500 MHz	467.6500 MHz
20	462.7000 MHz	467.7000 MHz
21	462.7250 MHz	467.7250 MHz

Emergency Cahnnels

Ech1	462.6750 MHz	
Ech2	462.6750 MHz	467.675 MHz (with Repeater)

Controls and Indicators

Earphone/Microphone jack

Transmission/Reception Indicator

PTT button

MONITOR button

MENU

Micropphone

ENTER/LOCK button

LED display

CALL button

EMERGENCY button

UP/DOWN buttons
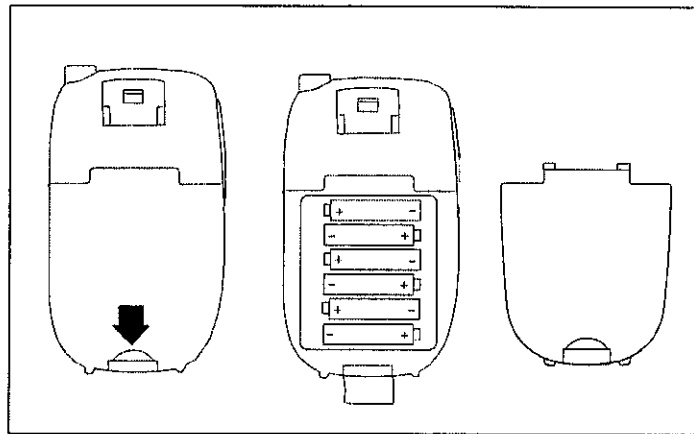
POWER button
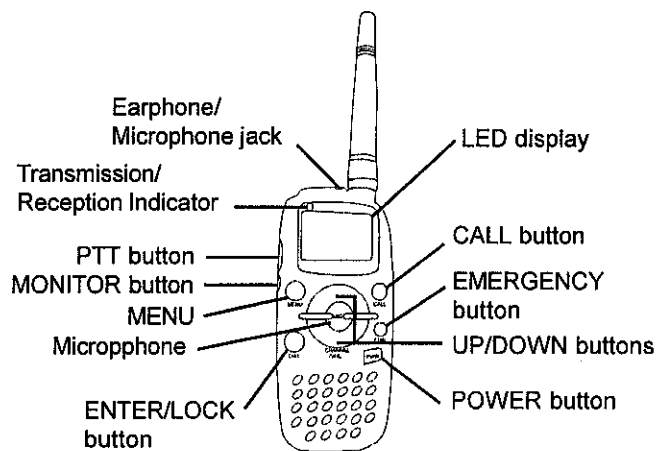
Display and Indicators

LED display - indicates Channel numbers, Volume level, Lock, Beep, Low Battery Level, etc.

Transmission and Reception indicator - When transmitting, the indicator stays on. The indicator flashes when receiving a signal.

Power Saver Mode indicator - flashes in Power Saver Mode.

Operation

Install Batteries

1. Pull lock tab down and lift door up (towards you) to remove battery cover.
2. Insert six "AAA" batteries. Position batteries according to polarity markings.

Note : When batteries are low or need charging the ▭ BATT LOW indicator will blink. Replace alkaline batteries.

3

LCD Display

Out of Range Indicator

Speaker ON Indicator for FM Mode

Transmit (Talk) Indicator

Receive (Listen) Indicator

Lock Indicator

Talk Confirmation

Outgoing Call Indicator

Main Channel Frequency for FM Mode

FM - FM Mode Indicator
VOL - Volume adjust Mode Indicator
WB - Weather Band Mode Indicator
SQL - Squelch adjust Mode Indicator
CH - Channel adjust Mode Indicator
VOX - VOX sensitivity adjust Mode Indicator

CTCSS Subchannel Indicator Frequency for FM Mode Monitor Mode for Weather Band Radio

Battery Level Indicator

4

To Turn On The Unit or To Turn Off The Unit

Press the POWER switch for more than 1 second.

Auto Battery Power Saver
The unit has a special circuit designed to extend battery life. If there are no transmissions within 5 seconds, the unit will automatically switch to battery save mode.

To Transmit

Simply talk to the built-in microphone as VOX (Voice Activated Transmission) turns into transmission mode automatically, or press the PTT(Push-To-Talk) button.

To Adjust VOLUME control

Press momentarily UP button to increase or DOWN button to decrease volume.
The higher number, the higher volume level.

To Select Main Channel

1. Press the MENU button. The LCD display indicates as shown at right.

2. Press the UP or DOWN button to set a desired channel.
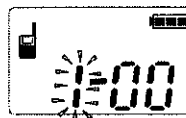
3. Press the MENU button to continue other settings.
   To complete setting, press the ENTER button.

Note: Channel 15 though Channel 21 and Emergency Channel 2 require Repeater station to communicate.

To Select Sub-Channel

1. After setting Main Channel, press the MENU button again.
   The LCD display indicates as shown at right.
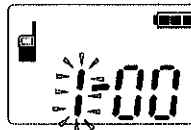
2. Press the UP or DOWN button to set a desired sub-channel from 00(sub-channel Off) to 38.

3. Press the MENU button to continue other settings.
   To complete setting, press the ENTER button.
   Sub-channel digits will flash at slow speed after setting.

Automatic Channel Scan

Press and hold the UP or DOWN button to search signals.
When the unit catches a strong signal, scan will stop for 5 seconds.
If you want to stop at that channel, press the PTT or ENTER button.

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To Set Preset Memory

You can store the most frequently used channels up to 10 pre-
sets.

1. Press the MENU button and set main
   and sub-channel as desired.
   For example: Channel 14-38 as shown at
   right
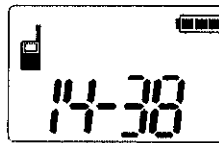
2. Press the MENU button. The LCD dis-
   play indicates as shown at right.
   If a memory number is flashing, a
   memory preset is free to store a channel.
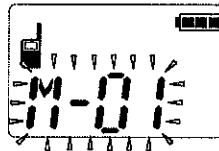
   If a memory number is not flashing, that
   memory preset number is occupied. A channel number is
   shown after memory preset number.

   To see a memory number, press the MONITOR button.

3. Press the UP or DOWN button to set a
   desired memory preset number.
   For example: Memory preset number M-
   10 as shown at right.
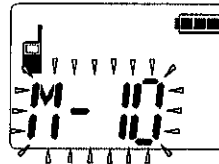
4. Press and hold the ENTER button for 2 seconds. You will hear
   a confirmation beep. A channel number is stored, then the dis-
   play shows a stored channel number.

5. To enter a new channel number to an occupied memeory pre-
   set, set a desired channel first. Then, press the MENU button.
   While a memory number flashes, press UP or DOWN button
   to select a desired memory number and press and hold the
   ENTER button for 2 seconds until a beep is heard.

6. Press the MENU button to continue other settings.
   To complete setting, press the ENTER button.

To Set Dual Watch Function

This feature enables you to monitor 2 channes simultanuosly.
Set Main and Sub channels you want to moni-
tor prior to set Dual Watch Function.

1. Press the MENU button repeatedly until the
   LCD display indicates as shown at right.
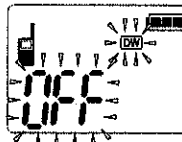
2. Press the UP or DOWN button to set a de-
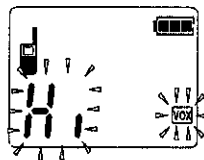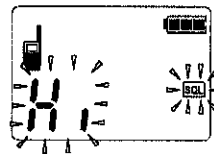   sired channel to monitor. Example:1438

3. Press the MENU button to continue other
   settings.
   To complete setting, press the ENTER but-
   ton.

To Select VOX Level

This feature enables you to adjust VOX microphone sensitivity.

1. Press the MENU button repeatedly until
   the LCD display indicates as shown at
   right.

2. Press the UP or DOWN button to set a
   desired level.
   H_i – High Sensitivity
   M_{id} – Middle Sensitivity
   L_o – Low Sensitivity

3. Press the MENU button to continue other settings.
   To complete setting, press the ENTER button.

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To Select Squelch Level

This feature enables you to adjust squelch level on reception. When you hear interference noises during reception, adjust squelch level.

1. Press the MENU button repeatedly until the LCD display indicates as shown at right.

2. Press the UP or DOWN button to set a desired level.
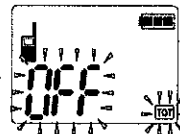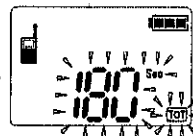   Lo - Low
   Mid – Middle
   Hi – High

3. Press the MENU button to continue other settings.
   To complete setting, press the ENTER button.

To Set Time-Out-Timer

When you communicate by using repeaters, you should keep your unit as brief as possible. Most repeaters have built-in timers that limit single transmission to 3 minutes or less. You can set the transceiver to stop transmitting and sound a beep if you exceed a set time limit with a single transmission.

To select a value for the time-out timer,
1. Press the MENU button repeatedly until the LCD display indicates as shown at right.

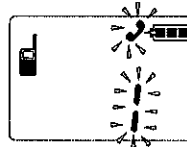2. Press the UP or DOWN button to set a desired time from 10 seconds to 180 seconds.

3. Press the MENU button to continue other settings.
   To complete setting, press the ENTER button.

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To Select Call Tones

Call tones sound like a telephone ring, and are convenient for quickly identify yourself to another party. Persons whom you call will instantly recognize you because of your call tone. As the unit features 5 different tones, you can select and set your favorable tone.

1. Press the MENU button repeatedly until the LCD display indicates as shown at right.

2. Press the UP or DOWN button to set a desired tone from 1 to 5.

3. Press the MENU button to continue other settings.
   To complete setting, press the ENTER button.

To Lock Control Keys (UP/DOWN, MENU keys)

Press and hold the ENTER button for 2 seconds. Key icon O-n will appear on the display.

To Turn On or Off Roger (Talk Confirmation Tone)

This alerts the other party that you are finished talking and it's OK for them to begin talking.
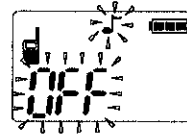
1. Press the MENU button repeatedly until the LCD display indicates as shown at right.

2. Press the UP or DOWN button to turn on the beep.

What are GMRS repeaters?

For Repeater-Assisted Communications

A typical low-power handheld radio might be able to communicate with a base station on top of a mountain or a tall building 15 miles to even 30 or more miles distant.

A **repeater station** is really just a special kind of base station which employs a very tall antenna. The repeater usually receives on a 467 MHz GMRS frequency. When it receives a signal (usually accompanied by a special code which this repeater listens for especially), the repeater then automatically (i.e., without further operator action or control) retransmits that same signal on the comparable 462 MHz frequency.

The advantage of the repeater is in its capability to receive a signal from a distant transmitter, and to retransmit a signal which can be heard by a distant receiver, because of the station's greater antenna height.

If a repeater with a tall antenna can hear a mobile signal 20 miles away (a typical distance for a well-sited repeater), then it can usually transmit to another mobile unit anywhere within that same 20-mile radius. The two mobile units themselves do not need to be near each other. They could be at opposite sides of the 20-mile radius of coverage of the repeater, or 40 miles apart from each other, and still be able to communicate through the repeater.

There are some *practical upper limits* on range. For example, a repeater whose antenna is mounted on a 100-foot tower in mostly flat terrain might cover a 15-mile radius. An additional 5 to 10 miles of coverage might be gained by each *doubling* of antenna height. Using this example (and with the same typical terrain), mounting the antenna on a 200-foot tower might provide a 25-mile radius of coverage. But to achieve a 35-mile radius, you would need a 400-foot tower. For a 45-mile radius of coverage, you would need an 800-foot tower. From this example, you can see that extending the range beyond 25 or 30 miles can come only from having access to a very tall antenna or (more likely) to a mountain top.

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Although there is the obvious advantage of additional communications range in communicating through a repeater station, there are also disadvantages. When one repeater is transmitting, it can block out or interfere with all other communications on that same frequency within that same area. Since there are only eight frequency pairs available for repeater communications, GMRS users must cooperate in sharing the use of these frequencies.

One method of cooperating is to use the repeater *only* when it is necessary to employ its extended range. When the corresponding units are close enough to each other so that the repeater is not needed, then the units should communicate with each other directly, *not* through the repeater.

Repeater users should also keep their communications as short as possible (namely, only necessary and urgent communications).

To Set Radio Mode

1. Press the MENU button repeatedly until the LCD display indicates as shown at right.
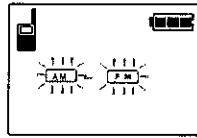
2. Press the ENTER button to set Radio mode. "AM" indicator will flash.
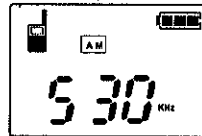   If you want to listen to AM, press the EN-TER button.
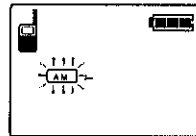
3. To change to FM mode, press the UP or DOWN button to set FM mode, then press the ENTER button.
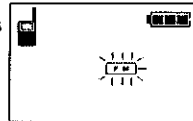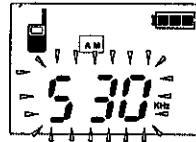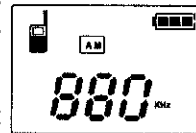
To Listen to AM

Set the unit in AM mode.
See "To Set Radio Mode".

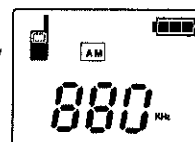1. Press the MENU button once. The frequency indication will flash.

2. Press the UP or DOWN button to set a desired AM station, then press the ENTER button.
   When pressing and holding the UP or DOWN button, frequency search becomes fast mode. To stop fast mode, press the ENTER button.

To Set AM Preset Memory Stations (Up to 10 Presets)

You can store the most frequently listening stations up to 10 presets.

1. Press the MENU button and set the frequency as desired and press the ENTER button.
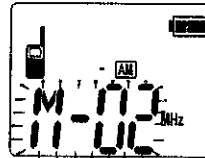   For example: 880KHz as shown at right

2. Press the MENU button twice. The LCD display indicates as shown at right.
If a memory number is flashing at normal speed and a frequency is not shown, a memory preset is free to store a channel.
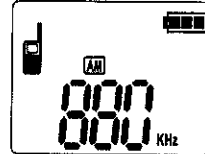
If a memory number is flashing at higher speed, that memory preset number is occupied and a frequency is displayed.

To see a memory number, press the MONITOR button.

3. Press the UP or DOWN button to set a desired memory preset number.
For example: Memory preset number M-02 as shown at right.

4. Press and hold the ENTER button for 2 seconds. You will hear a confirmation beep. A station is stored, then the display shows a stored frequency.

5. To enter a new station frequency to an occupied memory preset, set a desired frequency first. Then, press the MENU button. While a memory number flashes, press UP or DOWN button to select a desired memory number and press and hold the ENTER button for 2 seconds until a beep is heard.
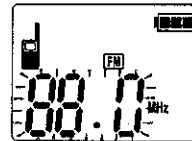
To Listen to FM

Set the unit in FM mode.
See "To Set Radio Mode".
To receive FM signals, it is recommended to
use an earphone into the Earphone jack. As a
cord works as FM antenna, adjust a cord posi-
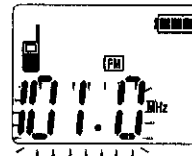tion to have the best reception.
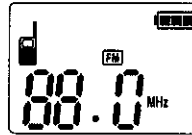
1. Press the MENU button once. The frequency
indication will flash.

2. Press the UP or DOWN button to set a de-
sired FM station, then press the ENTER but-
ton.
When pressing and holding the UP or DOWN
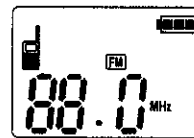button, frequency search becomes fast mode.

To Set FM Preset Memory Stations (Up to 10 Presets)

You can store the most frequently listening stations up to 10 pre-
sets.

1. Press the MENU button and set the fre-
quency as desired and press the ENTER
button.
For example: 88.1MHz as shown at right

2. Press the MENU button twice. The LCD display indicates as shown at right. If a memory number is flashing at normal speed and a frequency is not shown, a memory preset is free to store a channel.

If a memory number is flashing at higher speed, that memory preset number is occupied and a frequency is displayed.

To see a memory number, press the MONITOR button.

3. Press the UP or DOWN button to set a desired memory preset number. For example: Memory preset number M-02 as shown at right.

4. Press and hold the ENTER button for 2 seconds. You will hear a confirmation beep. A station is stored, then the display shows a stored frequency.

5. To enter a new station frequency to an occupied memory preset, set a desired frequency first. Then, press the MENU button. While a memory number flashes, press UP or DOWN button to select a desired memory number and press and hold the ENTER button for 2 seconds until a beep is heard.