MICROMOBILE™ GMRS 2-WAY RADIO

MXT100
Table of Contents

WELCOME TO THE WORLD OF MIDLAND RADIO .................................................. 3
FEATURES .............................................................................................................. 3
FCC NOTICE ........................................................................................................... 4
  Exposure To Radio Frequency Energy ............................................................... 4
INSTALLING YOUR RADIO ..................................................................................... 5
  Preparation for Installation .................................................................................. 5
  Installing the Mounting Bracket ......................................................................... 6
  Installing the Antenna ........................................................................................ 7
  Electrical and Rear Panel Connections .............................................................. 8
  Connecting the Microphone ................................................................................ 8
  Using an External Speaker ................................................................................. 8
CONTROLS AND INDICATORS ............................................................................... 9
  Operating Controls ............................................................................................. 9
  LCD Display ....................................................................................................... 10
  Rear Panel Connections ..................................................................................... 10
OPERATING YOUR RADIO ....................................................................................... 11
  About Range ....................................................................................................... 11
  Power On/Off ..................................................................................................... 12
  Selecting the Active Channel ............................................................................ 12
  Transmitting and Receiving a Call .................................................................... 12
UTILITY FUNCTIONS ................................................................................................. 13
  Flipping the Display ........................................................................................... 13
  Locking the Keypad ............................................................................................. 13
  Adjusting the Display Illumination ..................................................................... 14
  Using Monitor Mode ............................................................................................ 14
  Scanning for Active Channels .......................................................................... 15
“MENU” MODE FUNCTIONS .................................................................................. 16
  MXT100 “Menu” Mode Quick Reference Chart .................................................. 16
  Selecting a Privacy Code .................................................................................... 16
  Adjusting Squelch Sensitivity ............................................................................ 18
  Adjusting Audible Tones (Key Beeps) ............................................................... 18
  Selecting the Transmit (TX) Power Level .......................................................... 19
RESTORING THE DEFAULT SETTINGS ................................................................. 19
CARE AND MAINTENANCE .................................................................................... 20
TROUBLESHOOTING GUIDE ................................................................................ 20
SPECIFICATIONS .................................................................................................... 21
  GMRS Frequency Chart ....................................................................................... 21
  CTCSS Privacy Codes Frequency Chart ............................................................. 21
  DCS Privacy Codes Chart .................................................................................. 22
LIMITED WARRANTY (United States and Canada) ................................................ 23
WELCOME TO THE WORLD OF MIDLAND RADIO

Congratulations on your purchase of a high quality MIDLAND product. Your MXT100 2-way radio represents state-of-the-art high-tech engineering. Designed for General Mobile Radio Service (GMRS) operation, this compact package is big on performance. It is a quality piece of electronic equipment, skillfully constructed with the finest components. The circuitry is all solid-state and mounted on a rugged printed circuit board. Your MXT100 radio is designed for reliable and trouble-free performance for years to come.

FEATURES

- 15 GMRS Channels
- 142 Privacy Codes (38 CTCSS / 104 DCS)
- Monitor Function
- Keypad Lock
- Power HI/LO Settings
- External Speaker Jack

IMPORTANT!

Changes or modifications to this unit not expressly approved by MIDLAND RADIO CORPORATION could void your right to operate this unit. Your radio is set up to transmit a regulated signal on an assigned frequency. It is against the law to alter or adjust the settings inside the COMMUNICATOR to exceed those limitations. Any adjustment to your radio must be made by qualified technicians.
FCC NOTICE

The MXT100 operates on GMRS (General Mobile Radio Service) frequencies, which require a Federal Communications Commission (FCC) license. You must be licensed prior to operating on channels 1 - 7 or 15 - 22, which comprise the GMRS channels of the MXT100. Serious penalties may result from unlicensed use of GMRS channels, in violation of FCC rules, as stipulated in the Communications Act’s Sections 501 and 502 (amended). You will be issued a call sign by the FCC that should be used for station identification when operating your radio on GMRS channels. You should also cooperate by engaging in permissible transmissions only, avoiding channel interference with other GMRS users, and being prudent with the length of your transmission time.

To obtain a license or ask questions about the license application, contact the FCC at 1-888-CALL FCC or go to the FCC’s website:


Exposure To Radio Frequency Energy

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

- American National Standards Institute (ANSI)/Institute of Electrical & Electronics 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

To control your exposure and ensure compliance with the general population or uncontrolled environment exposure limits, transmit no more than 50% of the time. The radio generates measurable RF energy exposure only when transmitting.
INSTALLING YOUR RADIO

Preparation for Installation

This radio may be installed in any 12-volt negative ground system car or truck. Most current U.S. and Foreign vehicles use a negative ground system, but some older models and some newer large trucks may have a positive ground. Check the specifications for your vehicle before beginning installation. Generally, you have a negative-ground system if the negative (-) battery terminal is connected to the motor block. Contact your dealer if you are unable to determine your vehicle’s polarity system.

1. Read these instructions **completely** before beginning installation.
2. Read and follow all safety precautions in your vehicle’s Service Manual.
3. Make sure all necessary tools, materials, and parts are on hand.
4. Disconnect the negative (-) battery cable before installing your radio. Be sure to reconnect the cable when installation is complete.
5. Determine a mounting location for your radio. The MXT100 is designed to be installed under the dash or vertically on the center console. Choose a location that does not impair visibility or interfere with driving. Also take into consideration the routing and length of the lead wires and cables to the power source, antenna, and/or optional external speaker.

CAUTION: Extreme care should be exercised when drilling into the dash to avoid damage to underdash electronic ignition, cruise control, instrument and/or accessory wiring.
Installing the Mounting Bracket

1. Using the mounting bracket as a template, mark the location of each screw hole under the dash. Use a nail or other sharp pointed object to mark the hole locations.

   Drill a 1/8” hole for each screw hole in the mounting bracket.

2. Attach the bracket to the dash with the Phillips head sheet metal screws provided. Tighten the screws securely. DO NOT OVER-TIGHTEN.

3. Slide the radio into the mounting bracket. BE SURE the mounting bracket retainers engage the slots in the sides of the radio to prevent movement while driving.
Installing the Antenna

The MXT100 includes a “magnetic mount” antenna, intended to be attached to the vehicle’s roof, trunk or similar location. Specific installation requirements vary between vehicles. Use the following guidelines to install the antenna.

*Where you locate your antenna does make a difference.*

Some general rules for antenna location that can aid radio performance:

1. Metal surfaces covered by fiberglass or vinyl may affect radio range. Avoid these locations.
2. Mount the antenna as high on the vehicle as possible. The higher the better.
3. If possible, mount the antenna in the center of whatever surface you choose.
4. The antenna cable is 9.8 feet (3 meters) long. Be sure the mounting location will allow for connection of the cable to the radio.
5. Be sure the mounting location is clean and dry before installing the antenna.
6. Route the antenna cable through an accessible entry point, such as a rear door or trunk opening.
7. When routing the antenna cable inside the vehicle, keep the cable away from noise sources, such as the ignition system, gauges, etc.
8. Exercise care to prevent cable damage. Make use of existing gaskets, grommets and weather stripping to protect the cable along its route.
Electrical and Rear Panel Connections

Refer to Rear Panel Connections for rear panel connector locations.

NOTE: Radio antenna is installed separately.

1. The power cord supplied with the MXT100 is equipped with a cigarette lighter adapter for easy installation. Simply plug the connector into the vehicle’s cigarette lighter. If a “hardwired” installation is desired, connect the power cord to the vehicle’s electrical system as follows:
   - Cut the power cord just after the cigarette lighter adapter.
   - Connect the positive lead (RED wire with in-line fuse holder) to either (a) the fuse block or (b) directly to the positive post of the vehicle’s battery.

   NOTE: The fuse block is usually the most convenient connection point. The power cord positive lead can also be connected to the Accessory terminal on the fuse block or ignition switch, so the radio automatically turns off when the ignition is turned off.

   - Securely connect the ground lead (BLACK wire) directly to the vehicle’s metal frame. A good direct metal-to-metal ground is essential for optimum performance.

2. Connect the 2-pin plug-in connector of the power cable to the 13.8V DC jack on the rear panel.

3. Attach the antenna cable to the ANT jack on the rear panel.

4. If desired, an optional external speaker (purchased separately) can be connected to the EXT SPKR jack (see Using an External Speaker).

Connecting the Microphone

Insert the RJ11 connector into the front of the MXT100. Once the microphone is connected, use a small tool to insert the strain relief.

The microphone bracket can then be attached to the vehicle dash or other convenient location in a manner similar to the mounting bracket.

Using an External Speaker

The MXT100 provides a rear-panel jack for connection of an optional external speaker (purchased separately).
When selecting an external speaker, ensure the speaker has 8-ohm impedance and is rated for 4.0 watts.

**NOTE:** When an external speaker is connected, the radio’s internal speaker is automatically disabled.

**CONTROLS AND INDICATORS**

**Operating Controls**

1. **▲ Volume Up** – Press to increase radio volume.
2. **▲ Channel Up** – Press to scroll forward through available transmit/receive channels.
3. **Menu** – Press to place the radio in “Menu” mode. The Menu provides options for configuring several operating parameters for your radio.
4. **⃣ Power On/Off** – Press and hold for two seconds to turn the radio “on” or “off.”
5. **рект Monitor/Quiet Channel** – Press to monitor the currently selected channel for activity. Press again to exit Monitor mode.
6. **.scan Scan** – Press to enable/disable the “auto-scan” function.
7. **▼ Channel Down** – Press to scroll backward through available transmit/receive channels.
8. **LCD Display** – Displays the currently selected transmit/receive channel and other active operating parameters of the radio (see **LCD Display**).
10. **Microphone Jack** – Connector for external microphone (included).
LCD Display

1. **Receiving Icon** – Indicates the radio is receiving transmission from another user.

2. **CTCSS / DCS Icon** – Indicates a Continuous Tone Coded Squelch System (CTCSS) or Digitally Coded Squelch (DCS) Privacy Code has been enabled for the currently selected channel.

3. **Scanning Icon** – Indicates the “auto-scan” function is active.

4. **Keypad Lock Icon** – Indicates the keypad lock is currently enabled.

5. **Channel Icon** – Shows the currently selected transmit/receive channel.

6. **RX/TX Icon** – Indicates the strength of the current transmit or receive signal.

7. **Transmitting Icon** – Indicates the radio is transmitting to another user.

Rear Panel Connections
1. **ANT Jack** – PL-258 UHF connector for external antenna (included).

2. **EXT SPKR Jack** – 3.5mm Audio connector for optional external speaker (purchased separately) (see Using an External Speaker for specifications).

3. **13.8V DC Jack** – 2-pin DC connector for 12V DC nominal input power connection

**OPERATING YOUR RADIO**

**About Range**

Your MXT100 is designed to give you maximum operating range under optimum conditions.

![Maximum Range / No Sight Obstruction](image)

![Medium Range / Partial Obstruction to Line of Sight](image)

![Short Range / Major Obstruction to Line of Sight](image)

Optimum conditions for maximum operating range are:

- Over water
- In open rural areas without obstructions
- On flat areas where you can see the other radio user

To ensure you get maximum range:

- Be sure to mount the antenna (included) as high as possible on your vehicle
- Be sure to set your radio to use Hi power (see Selecting the Transmit (TX) Power Level)
Power On/Off

To turn the radio on and off:

1. With the radio off, press and hold the Power On/Off button for two seconds to turn the radio on.
   - The LCD display will show all icons for one second and then display the most recently selected channel.
2. With the radio on, press and hold the Power On/Off button for two seconds to turn the radio off.
   - The LCD display will go blank when the radio turns off.

Selecting the Active Channel

IMPORTANT! To communicate between two MXT100 radios, both radios must be set to the same channel and Privacy Code (see Selecting a Privacy Code) selections.

To select the active channel:

1. Be sure the radio is turned on (see Power On/Off).
2. Press the Channel Up button to scroll forward through the available channels. Press the Channel Down button to scroll backward through the available channels.
   - The Channel icon on the LCD display will show the currently selected channel.

Transmitting and Receiving a Call

IMPORTANT! To communicate between two MXT100 radios, both radios must be set to the same channel (see Selecting a Privacy Code) selections.

To transmit and receive a call:

1. Be sure the radio is turned on (see Power On/Off).
2. To transmit a call, press and hold the PTT button on the microphone, and speak into the microphone in a normal voice.
   - NOTE: For maximum clarity, hold the microphone 2 to 3 inches from your mouth when speaking.
3. To receive a call, release the PTT button on the microphone.
   - The RX/TX icon will show on the LCD display when your radio is receiving a transmission.

4. If necessary, press the Volume Up \(^\land\) or Volume Down \(^\lor\) button to increase or decrease radio volume.

**UTILITY FUNCTIONS**

Utility functions let you configure several operational parameters of the MXT100 to suit your personal preferences. For additional utility functions, see “MENU” MODE FUNCTIONS.

**Flipping the Display**

The MXT100 incorporates a unique Display Flip function that allows the unit to be installed upside-down, if required, and the display read from either orientation.

*To “flip” the LCD display:*

1. Be sure the radio is turned off (see Power On/Off).

2. Press and hold the ▼ Channel Down button, then press and hold the Power On/Off button for two seconds to turn the radio on.
   - The LCD display will rotate 180° from its most recent orientation.

3. Repeat steps 1 and 2 to return the LCD display to its previous orientation.

**Locking the Keypad**

You can use the keypad “lock” function to prevent accidentally changing your radio’s settings. When the function is enabled, the current radio settings are “locked” in place.

*NOTE:* When the “lock” function is enabled, the PTT button on the microphone and the Volume Up \(^\land\) / Volume Down \(^\lor\) buttons on the radio remain active.
To “lock” and “unlock” the keypad:

1. Be sure the radio is turned on (see Power On/Off).
2. Press and hold the Menu button for two seconds.
   - The Keypad Lock icon will show on the LCD display when the keypad is “locked.”
3. Repeat steps 1 and 2 to “unlock” the keypad.
   - The Keypad Lock icon will turn off when the keypad is “unlocked.”

Adjusting the Display Illumination

You can adjust the illumination of the LCD display to ensure optimum visibility under various daytime and nighttime lighting conditions. There are five levels of illumination, from off to full brightness.

To adjust display brightness:

1. Be sure the radio is turned on (see Power On/Off).
2. Briefly press and release the Power On/Off button.
   - Each time the button is pressed and released, the display illumination increases to the next brightness level.
   - When the maximum brightness level is reached and the button is pressed and released, the display illumination turns off.

Using Monitor Mode

Monitor mode lets you check for activity on the currently active channel. You can also use Monitor mode to adjust the volume of your radio when not receiving a signal.

To enter and exit Monitor mode:

1. Be sure the radio is turned on (see Power On/Off).
2. Be sure you have selected the desired channel (see Selecting the Active Channel).
3. Press the Monitor/Quiet Channel button to enter Monitor mode.
   - You will hear any activity on the currently selected channel.
4. Press the **Volume Up** \(\text{▲}\) or **Volume Down** \(\text{▼}\) button to increase or decrease radio volume.

5. Once the radio volume has been adjusted to the desired level, press the **Monitor/Quiet Channel** \(\text{/XML}\) button to exit Monitor mode.

**Scanning for Active Channels**

Your MXT100 includes an “auto-scan” mode that continuously scans all 15 available channels for activity. Additionally, if desired, you can remove one or more channels from the list of scanned channels.

**To enter and exit “auto-scan” mode:**

1. Be sure the radio is turned on (see **Power On/Off**).

2. Quickly press and release the **Scan** \(\text{XML}\) button to enter “auto-scan” mode.

   - The **Scanning** \(\text{XML}\) icon will show on the LCD display when the radio is in “auto-scan” mode.
   - Your radio will rapidly scan through the 15 available channels and will pause on any active channel.
   - “Auto-scan” will resume when there has been no activity on the current channel for four seconds.

3. To transmit during “auto-scan,” press and hold the **PTT** button on the microphone while the radio is paused on the desired channel.

   - The radio will remain on the active channel for three seconds after the **PTT** button is released.

4. To exit the “auto-scan” mode, quickly press and release the **Scan** \(\text{XML}\) button.

   - The **Scanning** \(\text{XML}\) icon will turn off when the radio is no longer in “auto-scan” mode.

**To remove a channel from “auto-scan” mode:**

1. Be sure the radio is turned on (see **Power On/Off**).

2. Use the **Channel Up** \(\text{▲}\) or **Channel Down** \(\text{▼}\) button to scroll forward or backward through the available channels until the **Channel** icon for the channel you wish to remove shows on the LCD display.
3. Press and hold the Scan button.
   - The selected channel is removed from the list of “scanned” channels and will not be included in “auto-scan.”

4. Repeat steps 1 through 3 to return a removed channel to the list of “scanned” channels.

“MENU” MODE FUNCTIONS

The “Menu” mode provides access to the features and functions shown in the chart below. For additional utility functions, see UTILITY FUNCTIONS.

MXT100 “Menu” Mode Quick Reference Chart

<table>
<thead>
<tr>
<th></th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
</tr>
</thead>
<tbody>
<tr>
<td>MENU</td>
<td>1~38</td>
<td>1~104</td>
<td>00~09</td>
<td>b0~b8</td>
<td>Hi/Lo</td>
</tr>
</tbody>
</table>

F1 – CTCSS Codes. Use this option to select and assign a Continuous Tone Coded Squelch System (CTCSS) Privacy Code for the currently active channel.

F2 – DCS Codes. Use this option to select and assign a Digitally Coded Squelch (DCS) Privacy Code for the currently active channel.

F3 – Squelch Sensitivity. Use this option to adjust squelch sensitivity.

F4 – Key “Beep” Volume. Use this option to set the volume level for the keypad audible “beep” tones

F5 – Transmit Power Level. Use this option to change the transmit power level to HI or LO.

Selecting a Privacy Code

Continuous Tone Coded Squelch System (CTCSS) and Digitally Coded Squelch (DCS) are systems that allow several users to share the same channel without disturbing each other. When CTCSS or DCS enabled for a selected channel, the channel is muted to all incoming signals unless they carry the correct CTCSS or DCS tone.
When a transmission with the correct tone is received, the mute is removed and the voice audio can be heard. When the transmission ends the channel is muted again. Transmissions that do not have the correct tone are not heard.

The MXT100 has 142 Privacy Codes (38 CTCSS codes and 104 DCS codes), which can be applied to any channel. If desired, you can select a different Privacy Code for each channel. See CTCSS Privacy Codes Frequency Chart and DCS Privacy Codes Chart for lists of available Privacy Codes.

**IMPORTANT!** To communicate between two MXT100 radios, both radios must be set to the same channel (see Selecting the Active Channel) and Privacy Code selections.

**To select a Privacy Code:**

1. Press the Menu button to place the radio in “Menu” mode.

2. Use the Channel Up ▲ or Channel Down ▼ button to scroll the menu options until the LCD display shows F1 (for CTCSS) or F2 (for DCS), as desired.

3. Press the Menu button again to confirm your selection.
   - The S (for CTCSS) or .nr (for DCS) icon will show on the LCD display, according to your selection.

4. Use the Channel Up ▲ or Channel Down ▼ button to scroll forward or backward through the available Privacy Codes until the desired Privacy Code is shown on the LCD display.

   **NOTE:** DCS Privacy Codes 100-104 are shown on the LCD display as A0-A4.

   **NOTE:** Selecting a Privacy Code of “oF” will disable the Privacy feature.

5. When the desired Privacy Code is shown on the LCD display, press the Menu button to confirm your selection. YOU MUST PRESS THE MENU BUTTON TO CONFIRM YOUR SELECTION OR THE PRIVACY CODE WILL NOT BE CHANGED.

**NOTE:** If you select a CTCSS Privacy Code, any pre-selected DCS Privacy Code will be cancelled, and vice-versa.
Adjusting Squelch Sensitivity

The MXT100 has adjustable squelch sensitivity. The minimum squelch level of 00 is the most sensitive, which allows the squelch to open on very weak signals. Setting the squelch to the maximum setting of 09 requires very strong signals to open the squelch.

*To adjust the squelch sensitivity:*
1. Press the Menu button to place the radio in “Menu” mode.
2. Use the Channel Up or Channel Down button to scroll the menu options until the LCD display shows F3.
3. Press the Menu button again to confirm your selection.
4. Use the Channel Up or Channel Down button to scroll forward or backward to select the desired squelch level, from 00 to 09.
   - The default squelch setting is 05, which generally provides reliable squelch operation for most applications.
5. When the desired squelch level is shown on the LCD display, press the Menu button to confirm your selection. YOU MUST PRESS THE MENU BUTTON TO CONFIRM YOUR SELECTION OR THE SQUELCH SENSITIVITY WILL NOT BE CHANGED.

Adjusting Audible Tones (Key Beeps)

The MXT100 sounds an audible “beep” tone each time a key is pressed. If the “beep tone” volume is too loud or too soft for your operating environment you can adjust it from off to one of 8 different volume levels.

*To adjust the “beep” tone volume level:*
1. Press the Menu button to place the radio in “Menu” mode.
2. Use the Channel Up or Channel Down button to scroll the menu options until the LCD display shows F4.
3. Press the Menu button again to confirm your selection.
4. Use the Channel Up or Channel Down button to scroll forward or backward to select the desired “beep” tone volume level, from b0 (volume off) to b8 (maximum volume level).
5. When the desired “beep” tone volume level is shown on the LCD display, press the Menu button (or wait 3 seconds) to confirm your selection.

Selecting the Transmit (TX) Power Level

The MXT100 provides two transmit power levels; HI and Lo. The Lo power level is generally suitable when operating under optimum conditions (see About Range). The HI power level is recommended to ensure you get maximum range from your radio.

To adjust the transmit power level:
1. Press the Menu button to place the radio in “Menu” mode.
2. Use the Channel Up or Channel Down button to scroll the menu options until the LCD display shows F5.
3. Press the Menu button again to confirm your selection.
4. Use the Channel Up or Channel Down button to toggle the transmit power setting between HI and Lo.
5. When the desired transmit power level is shown on the LCD display, press the Menu button to confirm your selection. YOU MUST PRESS THE MENU BUTTON TO CONFIRM YOUR SELECTION OR THE POWER LEVEL WILL NOT BE CHANGED.

RESTORING THE DEFAULT SETTINGS

You can restore the original (factory default) settings for your MXT100 at any time.

To restore the default settings:
1. Be sure the radio is turned off (see Power On/Off).
2. Press and hold the Volume Up button.
3. Press and hold the Power On/Off button for two seconds to turn the radio on.
4. Release both buttons.
   ■ The radio will enter “standby” mode at channel 1, with no Privacy Code selected.
## CARE AND MAINTENANCE

**CAUTION:** DO NOT use alcohol or cleaning solutions to clean the radio. DO NOT immerse the radio in water.

1. Use a soft cloth moistened with water to clean the radio.
2. Dry the radio with a dry lint-free cloth should it get wet.

## TROUBLESHOOTING GUIDE

If you experience difficulties using your MXT100, refer to the following chart to correct common operation problems. If you have a problem which you believe requires service, please call first and speak with a service technician at 816-241-8500. Many problems can be remedied over the phone without returning the unit for service.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Power</td>
<td>-- Check vehicle power source (battery); replace as needed.</td>
</tr>
<tr>
<td></td>
<td>-- Check input power connection and/or wires to vehicle power source.</td>
</tr>
<tr>
<td>Cannot Receive Messages</td>
<td>-- Verify both radios have the same channel selection and Privacy Code settings.</td>
</tr>
<tr>
<td></td>
<td>-- Make sure you are within range of the other radio.</td>
</tr>
<tr>
<td></td>
<td>-- Confirm communication is not affected by buildings and other structures (see About Range).</td>
</tr>
<tr>
<td>Keypad Is Not Responding</td>
<td>-- Make sure keypad “lock” is not on (see Locking the Keypad).</td>
</tr>
<tr>
<td></td>
<td>-- Reset the radio (turn radio off then back on).</td>
</tr>
<tr>
<td>Display Backlight Is Dim</td>
<td>-- Adjust the display illumination (see Adjusting the Display Illumination).</td>
</tr>
</tbody>
</table>
SPECIFICATIONS

Channels: 15 GMRS Channels
Privacy Codes: 38 CTCSS; 104 DCS
Operating Frequency: UHF; 462.5500 ~ 462.725 MHz
Power Source: 13.8 VDC Nominal

GMRS Frequency Chart

<table>
<thead>
<tr>
<th>Ch. No.</th>
<th>Ch. Freq. (MHz)</th>
<th>Ch. No.</th>
<th>Ch. Freq. (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>462.5625</td>
<td>15</td>
<td>462.550</td>
</tr>
<tr>
<td>2</td>
<td>462.5875</td>
<td>16</td>
<td>462.575</td>
</tr>
<tr>
<td>3</td>
<td>462.6125</td>
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<td>462.6375</td>
<td>18</td>
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<td></td>
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<td>22</td>
<td>462.725</td>
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CTCSS Privacy Codes Frequency Chart

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>67.0</td>
<td>9</td>
<td>91.5</td>
<td>17</td>
<td>118.8</td>
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Warranty Service Department
5900 Parretta Drive
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