Our Thanks to You
Thank you for purchasing a Cobra VHF/GMRS Dual Band radio. Properly used, this Cobra® product will give you many years of reliable service.

How Your Cobra VHF/GMRS Radio Works
This dual band radio is a battery-powered portable transceiver for use afloat or on land. In Marine VHF mode it gives you two-way vessel-to-vessel and vessel-to-shore station communications, primarily for safety and secondarily for navigation and operational purposes.

In GMRS mode it allows you to reach other GMRS capable radios for short-distance two-way land mobile communication. This mode is normally used for small group communication such as in a general residential area or during recreational group outings.

Note: GMRS radio usage requires an FCC License.

Customer Assistance
Should you encounter any problems with this product, or not understand its many features, please refer to this owner's manual. If you require further assistance after reading this manual, Cobra Electronics offers the following customer assistance services:

For Assistance in the U.S.A.
Automated Help Desk English only.
24 hours a day, 7 days a week 773-889-3087 (phone).
Customer Assistance Operators English and Spanish.
8:00 a.m. to 5:30 p.m. Central Time Mon. through Fri. (except holidays) 773-889-3087 (phone).
Questions English and Spanish.
Faxes can be received at 773-622-2269 (fax).

Technical Assistance English only.
www.cobra.com (on-line: Frequently Asked Questions),
English and Spanish. productinfo@cobra.com (e-mail).

For Assistance Outside the U.S.A.
Contact Your Local Dealer

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Chicago, Illinois 60707 USA
www.cobra.com

MR HH450 DUAL
Nothing Comes Close to a Cobra®

Introduction
Our Thanks to You
Customer Assistance
Radio Controls and Indicators
Owner's Manual

Our Thanks to You and Customer Assistance

Radio Controls and Indicators
Introduction

Backlit LCD Screen
- UIC Active Channel Map Icons
- Button Lock Icon
- Frequency Band Icons
- Call Alert Icon
- Weather Alert Icon
- Rewind-Say-Again® Icon
- Battery Power Icon
- Memory Icon
- Matrix Display
- USAR Icon
- Active Channel Map Icons

Product Features
- Power Settings
  - Selectable power settings produce 1, 3 or 6 Watts (marine) and 1, 3 or 4.5 Watts (GMRS) of output power for near or distant calling.
  - USA/International/Canada Channels
    - Allows operation on any of the three (3) different channel maps established for these areas.
  - All NOAA Weather Channels
    - Instant access to all National Weather Channels, 24 hours a day.
  - Submersible to JIS7/IPX7 Standards
    - Waterproof to 3.3 ft (1 m) of water for 30 minutes.
- Button/Key Lock
  - Prevents accidental setting changes when button lock is set.
- Channel Scan/Memory Scan
  - Use to scan through unlimited locations to find conversations in progress.
- Matrix Display
  - The display at the bottom of the LCD screen displays text letting the user know the current radio mode, function or operation.
- AA Battery Compatible
  - Good for emergency backup.
- Locking Desktop Charger
  - Holds the radio or battery in place while charging. Vertical or horizontal mounting.
- Call Tones (Selectable)
  - 10 selectable call tones
- Emergency Weather Alert with S.A.M.E.
  - Can alert you with an audible tone and visual alarm if threatening weather is nearby. The S.A.M.E. alerts provide you with additional alerts for specific local areas.
- Signal Strength Meter
  - Shows the strength of incoming or outgoing signals.
- Noise Canceling Microphone
  - Reduces effect of environmental noise when speaking.
- Illuminated Buttons
  - Allows high visibility of all function buttons.
- Roger Beep Tone (Selectable)
  - Confirmation tone indicates the completion of the user's transmission and signals to others it is clear to talk. On or Off selectable.
- BURP
  - The Cobra exclusive BURP feature expels water from the speaker grill if the unit is dropped in the water or is subjected to extreme rain and weather.

Product Features (continued)
- Bands
  - Dual VHF (Very High Frequency) and GMRS (General Mobile Radio Service) bands allow you to use different frequencies while using this radio either on land or water. VHF can be used for two-way vessel-to-vessel and vessel-to-shore station communications. GMRS can be used for small group communication such as in a general residential area or during recreational group outings. Note: GMRS radio usage requires an FCC License.
- Rewind-Say-Again®
  - Replays missed VHF and GMRS calls.
- Signal Strength Meter
  - Shows the strength of incoming or outgoing signals.
- Noise Canceling Microphone
  - Reduces effect of environmental noise when speaking.
- Illuminated Buttons
  - Allows high visibility of all function buttons.
- Roger Beep Tone (Selectable)
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Important Safety Information

Before installing and using your Cobra VHF/GMRS Dual Band radio, please read these general precautions and warnings.

Warning and Notice Statements

To make the most of this radio, it must be installed and used properly. Please read the installation and operating instructions carefully before installing and using the radio. Special attention must be paid to the WARNING and NOTICE statements in this manual.

WARNING Statements identify conditions that could result in personal injury or loss of life.

NOTICE Statements identify conditions that could cause damage to the radio or other equipment.

Safety Training Information

This Cobra VHF/GMRS Dual Band radio also complies with the following guidelines and standards regarding RF energy and electromagnetic energy levels as well as evaluation of those levels for human exposure:


Compliances with the guidelines and standards for protection against electromagnetic fields are ensured by the conformity with the following international standards:


Industry Canada Antenna Notice

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Avis d'antenne du Canada d'industrie

Conformément à la réglementation d’Industrie Canada, le présent émetteur peut fonctionner avec une antenne d’un type et d’un gain maximal (ou inférieur) approuvé par l’émiteur par Industrie Canada. Pour réduire les risques de bruitage radiodiffusé à l’intention des autres utilisateurs, il faut choisir le type d’antenne et son gain de sorte que la puissance d’interférence équivalente (p.i.r.e.) ne dépasse pas l’intensité nécessaire à l’établissement d’une communication satisfaisante.
NOTICE
Your radio is waterproof only when the batteries are properly installed.

AVOID using or storing the radio at temperatures below -4°F (-20°C) or above 140°F (60°C).

KEEP your radio at least 3 ft (0.9 m) away from your vessel’s magnetic navigation compass.

DO NOT attempt to service any internal parts yourself. Have any necessary service performed by a qualified technician.

This radio is supplied with a lithium-ion (LiION) rechargeable battery pack.

- Use only the Cobra charger to recharge lithium-ion (LiION) batteries in the radio.
- Do not short circuit the battery pack.
- When replacing the batteries, dispose of the old batteries properly. Batteries may explode if disposed of in a fire.

Changes or modifications to your radio MAY VOID its compliance with FCC (Federal Communications Commission) rules and make it illegal to use.

**Recommendations for Marine Communication**

The frequencies your radio uses are set aside to enhance safety afloat and for vessel navigation and operational messages over a range suitable for nearshore voyages.

If the 6 watt maximum output of your radio is not sufficient for the distances you travel from the coast, consider a higher powered handheld or installing a Cobra Marine fixed mount radio with up to 25 watts of output power. (Visit www.cobra.com or your local dealer for model availability.)

If traveling far offshore, you should consider adding even more powerful radio equipment such as HF single side band or satellite radio for your vessel.

The U.S. Coast Guard does not endorse cellular telephones as substitutes for marine radios. They generally cannot communicate with rescue vessels and, if you make a distress call on a cellular telephone, only the party you call will be able to hear you. Additionally, cellular telephones may have limited coverage over water and can be hard to locate. If you do not know where you are, the Coast Guard will have difficulty finding you if you are using a cellular telephone.

However, cellular telephones can have a place on board where cellular coverage is available — to allow social conversations and keep the marine frequencies uncluttered and available for their intended uses.

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**Sea Tow Automated Radio Check (ARC) System**

Please try the Sea Tow Automated Radio Check service. Areas where the safety check service is available include the East Coast, Gulf of Mexico, and Southern California, as well as in select inland regions. The first and only boating safety program of its kind, the Sea Tow Automated Radio Check service is fully automated and allows 24 hour a day automatic responses to radio check calls.

Conducting a radio check through the Sea Tow Automated Radio Check service couldn’t be simpler. All boaters need to do is tune their VHF radios to Channel 24, 25, 26, 27 or 28, depending on the region, key the mic, and ask for a radio check. The Automated Radio Check system responds to each radio check with an automated reply, and also replays to the boater’s original radio transmission, allowing him or her to assess the strength of the signal and confirm the VHF radio is in good working order.

To find the Sea Tow Automated Radio Check service channel in an area, owners should visit http://www.seatow.com/arc. The web page links to an instructional video demonstrating how to use the service step by step.
**VHF Marine Radio Procedures**

**Maintain Your Watch**
Whenever your boat is underway, the radio must be turned On and be tuned to Channel 16 except when being used for messages.

**Power**
Try 1 watt first, if the station being called is within a few miles. If there is no answer, switch to 3 watts and call again. You have the ability to go up to 6 watts of output power to increase your calling distance. Remember, the lower wattage outputs will conserve your battery and minimize interference to other users.

**Calling Coast Stations**
Call a coast station on its assigned channel. You may use Channel 16 when you do not know the assigned channel.

**Calling Other Vessels**
Call other vessels on Channel 16 or on Channel 9. (Channel 9 is preferred for recreational vessel use.) You may also call on ship-to-ship channels when you know that the vessel is listening on a ship-to-ship channel.

**Initial Calling on Channel 16 or 9**
The use of Channel 16 is permitted for making initial contact (hailing) another vessel. The limits on calling must be followed. Be reminded, Channel 16’s most important function is for Emergency Messages. If for some reason, Channel 16 is congested, the use of Channel 9, especially in U.S. waters, may be used as the initial contact (hailing) channel for non-emergency communication.

**Limits on Calling**
You must not call the same station for more than 30 seconds at a time. If you do not get a reply, wait at least two (2) minutes before calling again. After three (3) calling periods, wait at least 15 minutes before calling again.

**Change Channels**
After contacting another station on a calling channel, change immediately to a channel which is available for the type of message you want to send.

**Station Identification**
Identify, in English, your station by your FCC call sign (if available), vessel name and the state registration number, at both the beginning and at the end of the message.

---

**Prohibited Communications**
*You MUST NOT transmit:*
- False distress or emergency messages.
- Messages containing obscene, indecent or profane language.
- General calls, signals or messages (messages not addressed to a particular station) on Channel 16, except in an emergency or if you are testing your radio.
- When you are on land.
Introduction

Voice Calling

You are required to listen to Channel 16 while standing by. Channel 16 is the distress and safety channel used for establishing initial contact with another station and for emergency communication. The Coast Guard also monitors Channel 16 for safety purposes for everyone on the water.

NOTE

Channel 9 may be used by recreational vessels for general-purpose calling. This frequency should be used whenever possible to help relieve congestion on Channel 16. The Coast Guard generally does not make urgent marine information broadcasts or weather warnings on Channel 9. Boaters are still asked to "keep watch" on Channel 16 whenever the radio is turned on and not in use with another station.

To call another vessel or shore installation (e.g., lock or bridge tender):

- Make sure the radio is On.
- Make sure you are in standby listening mode on Channel 16. Make sure Channel 16 is not in use.
- When the channel is open (quiet), press the Talk button and call a vessel. Hold the radio or microphone several inches from your face and speak clearly and distinctly in a normal voice tone. Say "name or station being called," "THIS IS [your vessel name or call sign]."
- Once contact is made, you must leave Channel 16 and go to another working channel. See channel listing on page 60.

For Example

The vessel Corsair is calling the vessel Vagabond:

Corsair: "Vagabond, this is Corsair. Over."
Vagabond: "Please switch and answer on Channel 68 (or any proper working channel). Over."
Corsair: "Switching to Channel 68. Over."

NOTE

If the other does not respond, wait two (2) minutes and repeat. You are permitted to attempt contact three (3) times, two (2) minutes apart. If you still have not made contact, wait 15 minutes before trying again.

After communications are completed, each vessel must sign off with its call sign or vessel name and the word "out" and return to Channel 16.

NOTE

For best sound quality at the station you are calling, hold the microphone on the front of the radio at least 2 in. (51 mm) from your mouth and slightly off to one (1) side. Speak in a normal tone of voice.

NOTE

"Over and Out"
The most commonly misused procedure words are “over and out” within the same transmission. "Over" means you expect a reply. "Out" means you are finished and do not expect a reply.

NOTE

For best sound quality at the station you are calling, hold the microphone on the front of the radio at least 2 in. (51 mm) from your mouth and slightly off to one (1) side. Speak in a normal tone of voice.

NOTE

"Over and Out"
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Introduction

Nothing Comes Close to a Cobra® Emergency Messages and Distress Procedure

Radiotelephone Calls

Boaters may make and receive radiotelephone calls to and from any number on the telephone network by using the services of public coast stations. Calls can be made — for a fee — between your radio and telephones on land, sea and in the air. See the Appendix for the public correspondence (marine operator) channels.

If you plan to use these services, consider registering with the operator of the public coast station that you plan to work through. These services can provide you with detailed information and procedures to follow.

NOTICE

You may disclose privileged information during a radiotelephone call. Keep in mind that your transmission is NOT private, as it is on a regular telephone. Both sides of the conversation are being broadcast and can be heard by anyone who has a radio and tunes to the channel you are using.

Emergency Messages and Distress Procedure

The ability to summon assistance in an emergency is the primary reason to have a VHF marine radio. The marine environment can be unforgiving, and what may initially be a minor problem can rapidly develop into a situation beyond your control.

The Coast Guard monitors Channel 16, responds to all distress calls, and coordinates all search and rescue efforts. Depending on the availability of other capable vessels or commercial assistance operators in your vicinity, Coast Guard or Coast Guard Auxiliary craft may be dispatched.

In any event, communicate with the Coast Guard as soon as you experience difficulties and before your situation becomes an emergency. Use the emergency message procedures only after your situation has become grave or you are faced with a sudden danger threatening life or property and requiring immediate help. Use Channel 16 to communicate your emergency message. Make sure you transmit on high power. If you are merely out of gas, do not send an emergency message. Drop your anchor and call a friend or marina to bring the fuel you need or to give you a tow.
Introduction

Emergency Messages and Distress Procedure

Marine Emergency Signals

The three (3) spoken international emergency signals are:

**MAYDAY**
- The distress signal MAYDAY is used to indicate that a station is threatened by grave and imminent danger and requests immediate assistance.

**PAN**
- The urgency signal PAN is used when the safety of the vessel or person is in jeopardy. (This signal is properly pronounced pahn.)

**SECURITE**
- The safety signal SECURITE is used for messages about the safety of navigation or important weather warnings. (This signal is properly pronounced see-cure-ee-tay.)

When using an international emergency signal, the appropriate signal is to be spoken three (3) times prior to the message.

If You Hear a Distress Call

You must give any message beginning with one (1) of these signals priority over any other messages. ALL stations MUST remain silent on Channel 16 for the duration of the emergency unless the message relates directly to the emergency.

If you hear a distress message from a vessel, stand by your radio. If it is not answered, YOU should answer. If the distressed vessel is not nearby, wait a short time for others who may be closer to acknowledge. Even if you cannot render direct assistance, you may be in a position to relay the message.

Marine Distress Procedure

Speak slowly — clearly — calmly.

1. Make sure your radio is On.
2. Select Channel 16.
3. Press Talk button and say:
   "MAYDAY — MAYDAY — MAYDAY." (Or "PAN — PAN — PAN," or "SECURITE — SECURITE — SECURITE.")

4. Say:
   "THIS IS [your vessel name or call sign]," repeated three (3) times.

5. Say:
   "MAYDAY (or "PAN" or "SECURITE") [your vessel name or call sign]."

6. Tell where you are:
   (what navigational aids or landmarks are nearby).

7. State the nature of your distress.

8. State the kind of assistance needed.

9. Give number of persons aboard and conditions of any injured.

10. Estimate present seaworthiness of your vessel.

11. Briefly describe your vessel (length, type, color, hull).

12. Say:
    "I WILL BE LISTENING ON CHANNEL 16."

13. End message by saying:
    "THIS IS [your vessel name or call sign]. OVER."

14. Release Talk button and listen. Someone should answer.
    If not, repeat the call, beginning at step 3 above.

Keep the radio nearby. Even after your message has been received, the Coast Guard can find you more quickly if you can transmit a signal for a rescue boat to hone in on.
Emergency Messages and Distress Procedure

For Example

"Mayday — Mayday — Mayday"
"This is Corsair — Corsair — Corsair" [or "IL 1234 AB," repeated three (3) times]
"Mayday Corsair (or IL 1234 AB)"
"Navy Pier bears 220 degrees magnetic — distance 5 miles"
"Struck submerged object and flooding — need pump and tow"
"Four (4) adults, three (3) children aboard — no one injured"
"Estimate we will remain afloat one-half hour"
"Corsair (or IL 1234 AB) is 26 ft sloop with blue hull and tan deck house"
"I will be listening on Channel 16"
"This is Corsair (or IL 1234 AB)"
"Over"

It is a good idea to write out a script of the message form and post it where you and others on your vessel can see it when an emergency message needs to be sent.

Specific Area Message Encoding (SAME) Alerts

The MR HH450 DUAL radio is capable of receiving Specific Area Message Encoding (SAME) Alerts. During an NWR weather SAME alert, a code for your specific location will alert you to deteriorating weather conditions in a preprogrammed specific area or a specific event such as a Severe Thunderstorm Watch or Tropical Storm Warning. There are over 900 National Weather Radio (NWR) service stations using broadcast frequencies that transmit SAME alerts. You must program your county, parish or independent city or marine area into the radio.

NOTE
DO NOT program your radio for a louder or clearer station not designated as a SAME channel. You will not receive the local desired alerts.

The NWR service will then alert you only of weather and other emergencies for all areas programmed on this radio.

• When an NWR office broadcasts a warning, watch or non-weather emergency, it also broadcasts a digital SAME code that may be heard as a very brief static burst, depending on the characteristics of the radio. This SAME code contains the type of message; county(s) affected, and message expiration time.

• If programmed correctly, this radio will receive the weather channel so you can listen to the NWR SAME message. You will hear the 1050 Hz warning alarm tone as an attention signal, followed by the broadcast message.

• At the end of the broadcast message, you will hear a brief digital end-of-message static burst followed by a resumption of the NWR broadcast cycle.

SAME coverage areas are defined within the “NWR Broadcast Service Area” and are comprised of named counties, boroughs, metropolitan areas or portions thereof. NWR “Broadcast Service Area” coverage by State can be found at http://www.nws.noaa.gov/nwr or by telephone at 1-888-NWRSAME (1-888-697-7263).

The information at the following website, http://www.nws.noaa.gov/nwr/indexmenu.htm#sametable, will help to program the SAME alert county codes and respective frequencies into this radio. This site also lists SAME code Marine zones for bounded and named water areas.
Included in this Package

You should find all of the following items in the package with your Cobra VHF/GMRS radio:

- Radio
- Simple Battery Charger
- AC Charger
- Antenna
- SPI/Mounting Instruction Manual
- Spring Loaded Belt Clip
- Whistle Strip
- LMR Battery Pack
- Belt Clip
- Warning Battery Tray

Install/Remove Antenna

1. To install the antenna turn the antenna into the radio clockwise to tighten. Do not overtighten.
2. To remove the antenna turn the antenna counterclockwise. This radio transmitter IC: 906A-MRHH450 has been approved by Industry Canada to operate with the supplied antenna. Other antennas are strictly prohibited for use with this device.

Batteries and Charger

The radio is shipped with a sealed lithium-ion (LiON) battery pack (PN CM 110-026) that is rechargeable.

**WARNING**
The charger provided for this radio is only to be used to charge the battery pack provided. Do not charge any other type of batteries in the charger as fire, explosion or battery damage will occur. Avoiding extreme room temperatures will also help prolong the life of the battery pack for the radio.

When your rechargeable batteries begin to discharge too quickly, it is time to install a new battery pack. Your radio will also operate with five (5) high-quality AA alkaline batteries, using the included alkaline battery tray.

Installing the Battery Pack

1. Position the battery pack over the back of the radio.
2. Engage the battery pack into the radio by sliding to the top until battery pack is fully seated against radio housing.
3. Tighten the screw using the end of the belt clip to secure the battery pack to the radio. Do not overtighten. Only use the end of the belt clip to tighten the screw.
Wrist Strap and Belt Clip

Belt Clip

Use the spring-loaded belt clip to carry the radio on your person.
1. Slide the belt clip into the guide channel on the back of the radio until it is locked in place.
2. To attach the wrist strap, insert it through the hole at the top of the belt clip, feed it through the looped end and pull tight to secure to the belt clip.
3. Press open the belt clip, slide it over the belt and release the clip.
4. To remove the belt clip from the radio press the tab on the belt clip, which unlocks the clip, and slide it out.

Wrist Strap Attachment

Batteries and Charger

Initial Charge

The Cobra-provided LiON battery pack may be charged at home, in a car or in a boat using the appropriate 12V or 120V power cord with the charger.

1. Insert one (1) of the power cords into the back of the drop-in charger.
2. Insert the other end of the power cord into the appropriate 12V or 120V power source.
3. Remove battery pack spacer from the charger and insert the entire radio/battery into the charger. The metal charge contacts on the battery will contact the mating prongs in the charger to transfer the charging current.
4. Observe that the red light on the front of the charger glows to indicate that the battery pack is properly seated and the charger is operating.
5. Allow the batteries to charge for five (5) to six (6) hours before use. The light will change back to green when the battery is fully charged.

WARNING

Only the rechargeable LiON battery pack can be recharged. You MUST use one of the charging devices provided with this radio. Do not substitute any other type of charging adapter or charger base for this radio. Battery damage, fire or explosion may result. It is equally important to prevent the lithium-ion (LiON) battery pack from freezing to obtain best performance from the battery pack.

NOTE

If the drop-in charger is used on a boat, Cobra recommends you attach it to a horizontal shelf or vertical bulkhead (using the screw holes provided) to prevent possible damage due to the boat rolling or pitching. The charging base has been designed to hold the battery pack in place during rough sea conditions.
To Remove Battery Pack from Radio
1. Loosen the screw on the back of the battery pack.
2. Lift the bottom of the battery pack slightly to remove it from the radio housing.
3. Pull battery pack out of the radio housing.

NOTE
The LiON battery pack can also be charged in the battery charger without being installed in the radio. Insert the spacer into the battery charger to support the battery pack during this charging process. Follow the same procedures in “Initial Charge” to charge the battery pack.

NOTICE
Lithium-ion (LiON) batteries are toxic. Please dispose of properly. Some marine suppliers and electronics retailers accept old battery packs for recycling and some municipal waste disposal agencies have special provisions for battery disposal.

Alkaline Batteries
The alkaline battery tray acts as a backup or “Emergency” power source should the battery pack run low on power and need to be recharged. The radio will transmit at full power when using five (5) new AA alkaline batteries.

WARNING
Never attempt to recharge alkaline batteries. They are not made to be recharged, and should be disposed of in a proper manner.

Maintaining the Battery Charge
As you use your radio, the battery power icon will show the battery power remaining. When the icon begins to flash, it is time to recharge or change the batteries.

NOTE
Radio will continue to receive signals when blinking but cannot transmit.

NOTICE
Use only the drop-in charger provided by Cobra. Do not use the charger with alkaline batteries; only the LiON battery pack is rechargeable. Spent alkaline batteries must be discarded and replaced.

It is a good idea to keep a set of fresh, high-quality AA alkaline batteries with your radio. Should the rechargeable battery pack become discharged and no electrical power source is available, you can insert the included alkaline battery tray with fresh alkaline batteries and continue to use your radio.
Getting Started

Refer to the foldout at the front of this manual to identify the various controls and indicators on your radio. Throughout this manual you will be instructed to “Press” or to “Press and Hold” various buttons (except “Push to Talk”) on the radio. “Press” means a momentary press of approximately one (1) second. “Press and Hold” means to hold the button down for approximately two (2) seconds.

Whenever you press any button except the Talk button on your radio, a brief tone (beep) (if key tones are selected On) will sound to confirm the button press. With all button presses, the appropriate icon will appear on the LCD and the backlight will turn On. The backlight will stay On for 10 seconds after the button is released.

At times, you will hear two (2) other sounds. Two (2) beeps will sound to confirm your setting changes and three (3) beeps will sound to notify you of an error.

Common Radio Functions

The following procedures define common operating functions of the radio when in Marine Standby, GMRS Standby, or Weather (WX) Standby modes.

Power/Volume Control

- **Power On/Off Control**: The On/Off/Volume control is located at the upper right side of the radio. Turning the On/Off/Volume control past the detent position will turn the radio On or Off.
- **Volume Control**: Volume is controlled by turning the On/Off/Volume control.
  - To increase the volume, turn the On/Off/Volume control clockwise.
  - To decrease the volume, turn the On/Off/Volume control counterclockwise.

Band Control

The Band button allows you to select between the Marine (VHF), GMRS and weather bands: Press and release the band button to quickly toggle between the three radio bands.
Getting Started

Radio Speaker and Microphone
The internal Radio Speaker and Microphone are located on the bottom front face of the radio below the lower control buttons.

An optional Speaker/Microphone port is located at the top of the radio between the antenna and the Power/Volume control. Unthread the Speaker/Microphone port cover to access and install an optional Cobra speaker or microphone into this port.

Talk Button
Press and hold the Talk button to transmit messages. Release the Talk button to stop transmitting.

Backlight/Key Lock Button
To Display the Backlight Momentarily:
Press the Backlight/Key Lock button. The backlight will remain On for 10 seconds. If the backlight is already On, another press of the Backlight/Key Lock button will turn it Off.

Key Lock
To prevent accidental changes to your settings, you can lock all of the following buttons:
- Channel Up Button
- Channel Down Button
- Band Button
- REWIND Button
- SCAN Button
- MEM/ESC Button
- WX/H-M-L Button
- 16/9 Button
- TRI-WATCH Button
- Call/Enter/Setup Button

To Lock or Unlock the Buttons:
Press and hold the Backlight/Key Lock button for two (2) seconds. The Key Lock icon will appear or disappear in the LCD. When Key Lock is On, pressing any of the listed buttons on the front of the radio will result in a three (3) beep error message.

Both the Backlight/Key Lock button and the Talk button are active — you can Receive (Rx) or Transmit (Tx) a message with Key Lock On, but you cannot change the channel.

Channel Up/Down Buttons
Your radio will Receive (Rx) and Transmit (Tx) VHF/GMRS signals on the channel indicated on the LCD display. You can change the channel at any time using the Channel Up/Down buttons.

To Change Channels:
Press the Channel Up/Down button.
If you are on Channel 88, pressing the Channel Up button will advance to Channel 01. If you are on Channel 01, pressing the Channel Down button will advance to Channel 88. GMRS highest channel is 22, then will advance to channel 1. Weather highest channel is 10, then advances to channel 1). You can press and hold the Channel Up/Down button for fast advance. The beep sound will occur only at the first press of the button and not during fast advance.

If the new channel selected is restricted to low power, the radio will automatically switch to Low Power mode and the Low Power icon will appear on the LCD.

If the radio is in the Key Lock mode, the channel will not change and the three (3) beep error signal will sound.

SCAN Button
Press and release the SCAN button to enter all scanning modes - Marine, GMRS and memory. See the Advanced Operation section has more details on using the Scan modes. The SCAN icon will display on the LCD display. Scanning begins at lower channels, and scans to higher channels. Press the Channel Up/Down button to change the scan direction.
VHF Marine Radio Protocols

Getting Started

High/Medium/Low (H-M-L) Power Button
Your radio can transmit selectively at 1, 3 or 6 (or highest allowed ERP setting in GMRS mode) watts of power. Cobra suggests you maintain the low power setting for short-range communications. You will conserve battery life and avoid overpowering nearby stations with a low power setting signal. Use the high power setting for long-range communications or when you do not receive a response to a signal sent at 1 watt.

Call/Enter/Setup Button
The Call/Enter/Setup button has multiple functions. It is generally used in the following ways:

- Press and release to transmit your unique Call Tone signal to another radio.
- Press and hold to enter any Setup menu.
- Functions as an Enter button when making a selection in any Setup menu.

Channel 16/9 Button
Channel 16/9 mode gives you quick access to calling Channel 16 and Channel 9 from any operational mode.

To Switch to Channel 16 or Channel 9:
1. Press the Channel 16/9 button to change to Channel 16.
2. Press the Channel 16/9 button again to change to Channel 9.
3. Press the Channel 16/9 button a third time and return to the last used channel.

VHF Mode Programming

Setup Mode Programming

The following series of procedures is designed to allow you to set the programmable features of your radio. Correctly following these steps results in a minimal amount of radio setup programming time.

Note
When in any of the Setup modes (Marine (VHF), GMRS or Weather), if you stop programming for longer than 15 seconds, your entry will be saved and the radio will go back to Standby mode. While in the Setup mode, you will not receive any signal reception except when setting squelch.

Marine (VHF) Mode Programming

Programming these features will allow you to customize certain features of this radio to enhance your “On-Water” radio use.

Start from Marine Standby mode to begin Marine (VHF) Setup programming. Press and hold the Call/Enter/Setup button for two (2) seconds to enter the programming mode.

The mode programming follows this sequence:
- Squelch Level Set
- UIC Channel Map
- VOX On/Off
- VOX Sensitivity Level Set (this menu setting will be present when VOX is set to ON)
- Call Alert Tone/Vibrate Set
- Call Alert Tone Set
- Roger Beep On/Off
- Key Tone On/Off
- Rewind On/Off
- Priority 16 On/Off
VHF Mode Programming

Squelch Control
Squelch Control filters weak signals and radio frequency (RF) noise so that you will clearly hear the signals you want. The Squelch Control on this radio is set through the following keypad operation:

To Set Squelch Control:
1. With the power On, push and hold Call/Enter/Setup button to access the Setup menu.
2. Squelch control will be the first menu item to appear. Press the Channel Up and Channel Down buttons to set level. The signal level bar graph shows squelch level while you are in Setup mode on the squelch adjust function.
3. To adjust your squelch, press the Channel Down button until you hear a hissing sound, then press and release the Channel Up button until the hissing stops. This will establish a "Baseline" squelch.
4. By pressing the Channel Up button further, you will filter weak and medium strength signals. By pressing Channel Down button, you will receive weaker signals.
5. Press the Call/Enter/Setup button to save this entry and move to the next Setup mode programming.

NOTE
If the Squelch is set so that you can hear a continuous hissing sound, the Memory Scan and Tri-Watch functions will be blocked.

USA/International/Canada Channel Maps
Three (3) sets of VHF Channel Maps have been established for marine use in the USA, Canada, and the rest of the world (International). Most of the channels are the same for all three (3) maps, but there are definite differences (see table in the Appendix on page 62). Your radio has all three (3) maps built into it and will operate correctly in whichever area you choose.

To Set Channel Map Operating Area:
1. The Channel Map mode is the second mode on the Marine (VHF) Setup programming.
2. U, I, and C will display, with the current setting (the U icon is the default) flashing.
3. Press Channel Up/Down button to select the U, I, or C icon.
4. Press Call/Enter/Setup button to save this entry and move to the next Setup mode programming.
Voice Activated Transmit (VOX) Mode

In VOX mode, your radio can be used “hands-free,” automatically transmitting when you speak. You can also set the VOX sensitivity level to fit the volume of your voice and avoid transmissions triggered by background noise.

To turn VOX Mode On or Off:
1. Display will show VOX icon and ON or OFF flashing.
2. Press Channel Up/Down button to select ON or OFF.
3. Press Call/Enter/Setup button to save this entry and move to the next setup programming mode.

NOTE
Once set, this is a global setting when in all radio modes.

To set VOX Sensitivity Level:

NOTE
VOX sensitivity level is only visible when VOX is On.
1. The display will show VOX LEVEL and the current level will be flashing.
2. Press Channel Up/Down button to change the VOX level of your choice. Remember, this selection is your voice sensitivity level during hands-free operation.
   - 00 - indicates a Low (quiet) voice setting.
   - 03 - indicates a Medium voice setting.
   - 01 - indicates a High (loud) voice setting.
3. Press Call/Enter/Setup button to save this entry and move to the next setup programming mode.

NOTE
VOX will be turned Off automatically when the radio is turned Off. This will avoid accidental transmissions.

Call Alert

If Call Alert is set to On, the radio will alert you to a call from a compatible Cobra radio with a Call Alert.

Select the type of radio alert:
1. The display will show CALL ALERT and will be flashing OFF, TONE, VIBRATE, or VIB+TONE.
2. If TONE, VIBRATE, or VIB+TONE option is shown on the display then the appropriate BELL, VIBRATE, shake bars or combination VibAlert icon will be displayed.
3. Press Channel Up/Down button to select the alert mode of your choice.
4. Press Call/Enter/Setup button to save this entry and move to the next setup programming mode.
Call Tone Select

This setting will allow you to transmit a unique Call Tone alert to identify your radio when you transmit messages. You can select from one of 10 different Call Tone signals.

To Set Call Tone:
1. From the previous press of the Call/Enter/Setup button, the matrix will display CALL TONE SELECT and the display will flash the current Call Tone number (01 through 10).
2. Press the Channel Up/Down button to select a different Call Tone. An example of each call tone will sound for 1.5 seconds.
3. Press Call/Enter/Setup button to save this entry and move to the next Setup mode programming.

NOTE

Call Tones are not usually used for Marine VHF communications. We allow you to turn it On for your unique communication needs. It is only compatible with other Cobra VHF radios.

Roger Beep Mode

In Roger Beep mode, your listener will hear an audible tone when you release the Talk button. This alerts your listener that you are finished talking and it is OK for them to speak.

To Set Roger Beep On or Off:
1. Display will show ROG icon flashing and the matrix will display ROGER BEEP ON or OFF.
2. Press Channel Up/Down button to select ON or OFF. ROG will be displayed when On.
3. Press Call/Ent/Setup button to save entry.

NOTE

Once set, this is a global setting when in all radio modes.

Key Tone Mode

In Key Tone mode, an audible tone will sound each time a button is pressed or you change a setting.

To Set Key Tone On or Off:
1. Display will show Key Tone icon flashing and matrix will display KEY TONE ON or OFF.
2. Press Channel Up/Down button to select ON or OFF.
3. Press Call/Ent/Setup button to save entry.

NOTE

Once set, this is a global setting when in all radio modes.

Rewind On/Off

If Rewind is enabled, the last 20 seconds of incoming audio is recorded and you can play back missed VHF calls by pressing the Rewind button.

To Set Rewind On or Off:
1. Display will show the Rewind icon and the matrix will display REWIND ON or OFF.
2. Press Channel Up/Down button to select ON or OFF.
3. Press Call/Ent/Setup button to save entry.

NOTE

Once set, this is a global setting when in all radio modes.

Channel 16 Priority Mode

If Priority 16 is turned on, during channel scan the radio will frequently check the Channel 16 Safety and Distress channel for calls.

To Set Priority 16 On or Off:
1. The display matrix will show PRIORITY 16 ON or OFF.
2. Press the UP or DOWN button to select On or Off.
3. Press Call/Ent/Setup button to save entry.
Operating Your Radio

Programming these features will allow your radio to listen to all NOAA Hazard Alert radio channels. In this process, you will be programming the channel settings for the “Specific Area Message Encoding (SAME)” and “Emergency Alert Messages” sent by NOAA. See channels and frequencies listed on page 31. Start from Weather Standby mode to begin Weather Alert Setup programming. Momentarily Press the button to enter the programming mode.

Weather (WX) Mode Programming

Alert Functions
SAME is an advanced weather alert feature. Leave this set to OFF if you are not sure about your understanding of its operation. The weather mode can be set to respond to NOAA alerts in three ways:

- OFF - radio alerts are disabled.
- WX - radio will sound a max volume tone alert for 8 seconds when NOAA sends a 1050 Hz warning alert tone.
- SAME - radio will display the NOAA SAME alert message.

1. Select Alert and either OFF, WX or SAME will flash in the display.

NOTE
If WX Alert is turned on, the radio will receive NOAA voice alerts from a wide geographic area around you.

NOTE
If SAME Alert is turned on, the radio will receive detailed NOAA alerts from a geographic area immediately around you.

2. Press Channel Up/Down button to select OFF, WX or SAME.

3. Press the Call/Enter/Setup button to save entry and move to the next programming mode.

NOTE
Proceed to SAME programming section if SAME has been selected.

To Set WX Auto Search (SCAN) On or Off:

1. Display will show WX Alert icon and SCAN, ON or OFF is flashing.
2. Press Channel Up/Down button to select OFF, WX or SAME.
3. Press the Call/Enter/Setup button to save entry and move to the next programming mode.

NOTE
When WX Auto Search (SCAN) is set to On, weather channel scanning will start automatically and scan all available weather channels. When the user-selected weather channel falls below the preset squelch level, the weather channel will change to a new weather channel under the following conditions:

- WX Alert is engaged.
- WX received signal level falls below a preset squelch on the user-selected weather channel and
  - radio is in WX Standby OR
  - radio is in VHF or GMRS Standby and
  - there is no channel activity.

Squelch Control

Squelch Control filters weak signals and radio frequency (RF) noise so that you will clearly hear the signals you want. The Squelch Control in this radio is set through the following keypad operation.

To Set Squelch Control:

1. With the power On, momentarily press the Call/Enter/Setup button to enter the Setup mode programming.
2. Squelch control will be the first menu item to appear. Press the Channel Up and Channel Down buttons to set level. The signal level bar graph shows squelch level while you are in Setup mode on the squelch adjust function.
3. To adjust your squelch, press the Channel Down button until you hear a hissing sound, then press and release the Channel Up button until the hissing stops.
4. Press the Call/Enter/Setup button to save this entry and move to the next Setup mode programming.
To Set SAME FIPS Code Programming:

1. From Weather Standby Mode, press CALL/ENT/SETUP key until the display matrix shows SELECT ALERT: and WX, SAME, or OFF will be flashing.

2. Press Channel Up/Down buttons to select SAME. The first memory location ‘A’ will be displayed. Up to 10 FIPS codes can be entered A - J.

3. Press and release the CALL/ENT/SETUP button and the first FIPS memory A will be displayed. Use the Channel Up/Down buttons to select the FIPS memory location A-J.

4. Press the Call/Enter/Setup button to enter geographic weather locations as identified by FIPS (Federal Information Processing System) area in the United States.

   NOTE
   FIPS codes identify geographic areas in the United States as shown on the Internet website: http://www.nws.noaa.gov/nwr/indexnw.htm.

5. The display will show “-----”, or last entered FIPS code. One (1) digit in display will be flashing.

6. Press Channel Up/Down button to select first digit.

7. Press and release Call/Enter/Setup button to advance to next digit code. Press and release MEM/ESC button to back up. Repeating, press and release of the MEM/ESC button, will back up to the top level.

8. Continue steps 5 to 7 until all six (6) digits are entered.

9. Press the Call/Enter/Setup button to save the entered digits.

10. Use the Channel Up/Down buttons to select:
    - OFF - entered FIPS code is not active or,
    - ON - entered FIPS code is active.

11. Press the Call/Enter/Setup button to save the memory.

12. Repeat steps 3 through 10 to enter up to 10 FIPS codes in memory.

13. When all of the codes are entered, use the Channel Up/Down buttons to move to memory K.

14. Press the Call/Enter/Setup button and select:
    - ON - all entered FIPS codes are set active,
    - OFF - all entered FIPS codes are set inactive, or
    - OK - all entered FIPS codes are correctly entered, some On and some Off.

15. At least one FIPS code must be entered and made active (ON) or the SAME mode is disabled. The radio will warn you if no FIPS codes are on.

16. Press the Call/Enter/Setup button to exit back to weather standy.
GMRS Mode Programming

The GMRS (General Mobile Radio Service) feature is a landmobile service available for short-distance, two-way communications in the USA. You must have a valid FCC license to communicate on these channels (see page 28).

Start from GMRS Standby mode to begin GMRS Setup programming. Press and hold the Call/Enter/Setup button for two (2) seconds to enter the programming mode.

Squelch Control

Filters weak signals and radio frequency (RF) noise so that you will clearly hear the signals you want. The Squelch Control on this radio is set through the following keypad operation.

To Set Squelch Control:

1. With the power On, push and hold Call/Enter/Setup button to access the Setup menu.
2. Squelch control will be the first menu item to appear. Press the Channel Up and Channel Down buttons to set level. The signal level bar graph shows squelch level while you are in Setup mode on the squelch adjust function.
3. To adjust your squelch, press the Channel Down button until you hear a hissing sound, then press and release the Channel Up button until the hissing stops. This will establish a “Baseline” squelch.
4. By pressing the Channel Up button further, you will filter weak and medium strength signals. By pressing Channel Down button, you will receive weaker signals.
5. Press the Call/Enter/Setup button to save this entry and move to the next Setup mode programming.

NOTE

If the Squelch is set so that you can hear a continuous hissing sound, the Memory Scan and Tri-Watch functions will be blocked.

CTCSS and DCS Coding Mode

Continuous Tone Controlled Squelch System (CTCSS) and Digital Coded Squelch (DCS) coding are used in two-way radio systems. These are sub-audible frequencies or digital tones that are sent continuously with speech to engage other radios with this feature. This feature is generally used between talk groups on shared channels. Radios with the same subcode set will hear your transmission. Radios with both DCS and CTCSS set to Off or 00 will be able to hear your transmissions.

To Set CTCSS Code Entry:

1. Display will show CTCSS icon and OFF icon flashing.

NOTE

If CTCSS was previously set to a Code number, display will show the current GMRS channel and flash the CTCSS icon and Code number.

2. Codes begin at 00 (OFF) and go to 38, followed by 00, and return back to 01 again. The last used GMRS channel will be shown in the large digit display.

NOTE

If CTCSS is On, then DCS will be Off. If DCS is On, then CTCSS will be Off. The radio does this automatically.

3. Press Channel Up/Down button to change code number, or press and hold Channel Up/Down button to rapid advance (scroll).

4. Press Call/Enter/Setup button to save entry and move to the next setup programming mode.
To Set DCS Code Entry:
1. Display will show DCS icon and OFF icon flashing.

2. Codes begin at 01 and go to 38, followed by OFF, and return back to 01 again. The last used GMRS channel will be shown in the large digit display.

3. Press Channel Up/Down button to change code number, or press and hold Channel Up/Down button to rapid advance (scroll).

4. Press Call/Enter/Setup button to save entry and move to the next setup programming mode.

Voice Activated Transmit (VOX) Mode
In VOX mode, your radio can be used “hands-free.”

To turn VOX Mode On or Off:
1. Display will show VOX icon and ON or OFF flashing.
2. Press Channel Up/Down button to select ON or OFF.
3. Press Call/Enter/Setup button to save this entry and move to the next setup programming mode.

To set VOX Sensitivity Level:

1. The display will show VOX LEVEL and 01 will be flashing.
2. Press Channel Up/Down button to change volume level of your choice. Remember, this selection is your voice sensitivity level during hands-free operation.
   05 - indicates a Low (quiet) voice setting.
   03 - indicates a Medium voice setting.
   01 - indicates a High (loud) voice setting.
3. Press Call/Enter/Setup button to save this entry and move to the next setup programming mode.

NOTE
VOX will be turned Off automatically when the radio is turned Off. This will avoid accidental transmissions.
Operating Your Radio

English

VibrAlert Select

This setting will allow you to select whether your radio activates the VibrAlert shake in addition to the incoming call tone when receiving a call. Once the radio shakes, it will delay 20 seconds before shaking again to eliminate excessive VibrAlerts on a busy GMRS channel.

To Set VibrAlert:
1. From the previous press of the Call/Enter/Setup button, the matrix will display VIBRALERT OFF.
2. Press the Channel Up/Down button to select VIBRALERT ON. The VibrAlert icon will be activated on the display.
3. Press Call/Enter/Setup button to save this entry and move to the next Setup mode programming.

Call Tone Select

In Call Tone mode, you can select the tone the radio will use when transmitting a Call.

1. The display will show Call Tone Select and the current tone number will be flashing.
2. Press Channel Up/Down to select the tone you want to use.
3. Press Call/Enter/Setup button to save this entry and move to the next Setup mode programming.

Roger Beep Mode

In Roger Beep mode, your listener will hear an audible tone when you release the Talk button. This alerts your listener that you are finished talking and it is OK for them to speak.

To Set Roger Beep On and Off:
1. Display will show ROG icon flashing and the matrix will display ROGER BEEP ON or OFF.
2. Press Channel Up/Down button to select ON or OFF. ROG icon will be displayed when On.
3. Press Call/Enter/Setup button to save this entry and move to the next Setup mode programming.

NOTE

Once set, this is a global setting when in all radio modes.

Key Tone Mode

In Key Tone mode, an audible tone will sound each time a button is pressed or you change a setting.

To Set Key Tone On and Off:
1. Display will show Key Tone icon flashing and the matrix will display KEY TONE ON or OFF.
2. Press Channel Up/Down button to select ON or OFF.
3. Press Call/Enter/Setup button to save this entry.

NOTE

Once set, this is a global setting when in all radio modes.

Rewind On/Off

If Rewind is enabled, the last 20 seconds of incoming audio is recorded and you can play back missed VHF calls by pressing the Rewind button.

Example 1:
When engine noise, music or conversation creates too much noise to hear an inbound message clearly, press the Rewind button to hear the message a second time.

Example 2:
When listening to an urgent distress message of an excited caller with confusing background noise, press the Rewind button to hear the message a second time and get life saving information. Use this feature to record call details including position coordinates, call signs, registration numbers and store details that will help authorities locate the distressed vessel.

NOTE

Hold the Rewind button to lock the recording memory (the Rewind icon flashing) and save the currently recorded transmission.

NOTE

Rewind-Say-Again® feature to replay or record the last 20 seconds of an incoming audio transmission.

Example 1:
When engine noise, music or conversation creates too much noise to hear an inbound message clearly, press the Rewind button to hear the message a second time.

Example 2:
When listening to an urgent distress message of an excited caller with confusing background noise, press the Rewind button to hear the message a second time and get life saving information. Use this feature to record call details including position coordinates, call signs, registration numbers and store details that will help authorities locate the distressed vessel.

NOTE

Hold the Rewind button to lock the recording memory (the Rewind icon flashing) and save the currently recorded transmission.
**Tri-Watch Mode**

Tri-Watch mode gives you one (1) button access to scan a total of three (3) channels of most importance to you. Channel 16 is preprogrammed and will always be one (1) of the scanned locations. Two (2) other channels, either GMRS or VHF, of your choice can be stored in the radio. These channels can be edited and/or recalled during future engagements of Tri-Watch mode.

**NOTE**

The radio must be squelched for Tri-Watch mode to function. See page 18 for Squelch procedure.

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**Advanced Operation**

### Tri-Watch Setup

To Program or Edit the Tri-Watch Channels:

1. Press and hold the TRI-WATCH button from Marine or GMRS Standby mode for two (2) seconds to activate Tri-Watch Setup mode. The MEM icon on the display will turn On and the matrix will display TW MEM ENTER 01.

**NOTE**

The main channel number will flash to indicate channel position. If there is no input activity for 15 seconds, the radio will sound three (3) beeps and return to GMRS or Marine Standby mode.

2. Use the Band button to select Marine or GMRS channels.

3. Press Channel Up/Down button to select the desired Tri-Watch channel.

4. Press and release TRI-WATCH button or Call/Enter/Setup button to confirm entry.

5. Repeat steps 2 and 3 to program the remaining additional Tri-Watch memory channel.

6. After programming both Tri-Watch memory channels the radio will immediately engage Tri-Watch mode.

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**Using Tri-Watch**

**Tri-Watch Scan Mode:**

1. From Marine or GMRS Standby mode, press the TRI-WATCH button. The TW SCAN will display on the matrix along with the three channels stored in the Tri-Watch memory.

2. The radio will scan through the three (3) Tri-Watch memory channels.

3. A signal on any one (1) of the three (3) channels will stop the scan for 10 seconds to allow you to listen to the traffic on that location.

**NOTE**

After the Tri-Watch scan stops to monitor a channel, as long as you do not press any buttons within 10 seconds, your radio will automatically resume scanning the Tri-Watch channels.

4. Press the Channel Up/Down button to resume scanning the Tri-Watch channels or to change the scan direction.

5. To EXIT the Tri-Watch scan, press the TRI-WATCH button again, and the radio will return to Marine or GMRS Standby mode.

---

**Using Rewind-Say-Again® to Record VOICE Audio Transmission:**

**NOTE**

If the record memory is locked (rewind icon flashing), press and hold the NEW button to unlock.

1. Press and hold SCAN button for two (2) seconds to enter Record mode. The matrix will display MIC RECORDER.

2. Press and hold PTT button to begin recording from radio microphone. The PTT will turn off. The matrix will display MIC RECORDER ON and the seconds remaining will be shown in the lower right corner. If PTT button is released, recording stops. While recording, a 20-second countdown begins on display. When 20-second countdown time has ended, recording stops and two (2) beep tones will be heard.

3. Press and hold SCAN button again for two (2) seconds or press MEM/ESC button to cancel recording and return to last operation.
Memory Location Mode
Your radio has unlimited memory locations for storing your most frequently used channels. These memory locations can be selected individually or can be scanned. (See page 49 under Memory Location Scan.)

To enter Memory mode, press MEM/ESC button. The display will show the MEM icon and the Memory Channel bank will be displayed on the matrix.

To Program Memory Locations:
1. Press and hold the MEM/ESC button for two (2) seconds. The memory location number will be displayed on the matrix and the MEM icon will be turned On.
2. Use the Channel Up/Down button to advance to the memory location (00-99) you want to program.
3. Press the MEM/ESC button to select the memory location.
4. Use the Band button to select the GMRS or marine band.
5. Use the Channel Up/Down button to change to the channel you want to store into the selected memory location.
6. Press the MEM/ESC button to program that channel. The memory location will be displayed on the matrix again.
7. Press and hold the MEM/ESC button for two (2) seconds. This will return the radio to Memory mode.
8. Press and release the MEM/ESC button again to return to Marine or GMRS Standby mode.

To Recall a Stored Memory Location:
1. Press the MEM/ESC button. The MEM icon will be turned On.
2. Press the Channel Up/Down button to select the memory location. If a memory location has been programmed, its associated channel will display on the LCD. Your radio is now in Marine or GMRS Standby mode on the selected memory location.

To Exit Memory Location Mode:
Press the MEM/ESC button to return the radio to Marine or GMRS Standby mode. The last channel used in Marine or GMRS Standby mode will now be displayed on the LCD and the MEM icon will disappear.

To Erase Stored Memory Locations:
1. Press and hold the MEM/ESC button for two (2) seconds. The memory location number will be displayed on the matrix and the MEM icon will be turned On.
2. Use the Channel Up/Down button to advance to the memory location you want to erase.
3. Press the MEM/ESC button to select the memory location.
4. Use the Channel Up/Down button to change to the channel to read “00” at the selected memory location.
5. Press the MEM/ESC button to erase that channel. Repeat steps 2 through 5 to erase as many additional memories as you want.
6. Press and hold the MEM/ESC button for two (2) seconds. This will return the radio to Memory mode.
7. Press and release the MEM/ESC button again to return to Marine or GMRS Standby mode.
Operating Your Radio

Advanced Operation

Scan Modes
A signal on any channel will stop the scan for 10 seconds to allow you to listen to the traffic on that location. After 10 seconds, the radio will resume scanning. Press the Channel Up/Down button to resume scanning before the 10-second pause has completed or to change the scan direction.

VHF Channel Scan
During Channel Scan mode, the radio will rapidly switch from channel to channel through all the channels.

NOTE
The radio must be squelched for Channel Scan mode to function. See page 28 for Squelch procedure.

To Enter Marine Scan:
1. From Marine or GMRS Standby mode, press the SCAN button. The radio will immediately begin to scan the entire channel map selected in the active channel map. CHANNEL SCAN will display on the matrix.

NOTE
If Priority 16 feature has been selected, channel 16 will checked frequently for activity to insure you will not miss any calls.
2. To EXIT Channel Scan mode, press the SCAN or PTT button again. The SCAN icon will disappear from the LCD and the radio will return to Marine or GMRS Standby mode.

GMRS Scan
In GMRS mode, there are 3 types of scans - all GMRS channels, CTCSS tones (on the selected channel) and DCS codes (on the selected channel).

To Enter the GMRS Scans:
1. Successive press and release of the SCAN button will toggle between all channel scan, CTCSS tone scan and DCS code scan.
2. Press and hold the SCAN button to start the selected scan.
3. To exit a GMRS scan, press the MEM/ESC button or PTT.

Memory Location Scan
During Memory Location Scan mode, the radio will rapidly scan through all pre-assigned memory channels.

NOTE
The radio must be squelched for Memory Location Scan mode to function. See page 18 for Squelch procedure.

NOTE
If there are fewer than two (2) memory locations programmed in the radio, the Memory Location Scan option will not be available. To program at least two (2) memory locations, see page 34.

To Enter Memory Location Scan:
1. From Marine or GMRS Standby mode, press the MEM/ESC button.
2. Press the SCAN button. The radio will immediately begin to scan all pre-assigned memory channels.
3. To EXIT Memory Location Scan mode, press the SCAN or PTT button again. The MEM icon will disappear from the LCD and the radio will return to Marine or GMRS Standby mode.
Burp Feature
Cobra’s Burp feature allows the operator to expel water from inside the speaker grill. This is especially useful if the radio is dropped overboard or during extreme foul weather conditions. In these conditions, water can become trapped in the speaker grill and muffle the audio.

To Activate Burp:
1. Press and release the 16/9 and SCAN keys at the same time.
2. The Burp tone(s) at maximum level will sound from the internal speaker for eight seconds.
3. During this time, the matrix will display BURP.
4. Hold the radio with the speaker grill down to help the water drain out.
5. After an 8-second interval, the radio will return to standby.

Floating Radio
This radio is designed to float if dropped overboard. The orange center makes it visible and easy to retrieve. This rugged radio is also designed to meet JIS7 (IPX7) specifications. This means it’s designed to operate properly after being submerged in one meter deep water for 30 minutes.

NOTE
Do not leave the radio floating in water permanently. This could cause premature corrosion of the battery contacts and other damage.

The radio is only designed to float with its included Lithium-ion battery. Using other approved batteries might cause the radio to sink. This includes the optional AA battery tray, depending on the weight of the AA batteries used.
SAME Alert Codes

Your HH450 radio has the ability to alert you when NOAA sends out alerts from their Emergency Alert System (EAS). These alerts cover any weather related watches, warnings or statements. Using this system insures that you will always be aware of your local Weather, Civil, and National emergency events.

For a complete list of all the event codes your radio is capable of displaying, please go to the following web address:
http://www.nws.noaa.gov/oh/eas_codes.shtml#list
GMRS Standby Mode

The GMRS (General Mobile Radio Service) Standby feature is a land-mobile service available for short-distance, two-way communications in the USA. You must have a valid FCC license to communicate on these channels (see page XX).

While in GMRS Standby mode, the user will be able to Transmit (Tx) by pressing the Push to Talk (Talk) button. Signals in Receive (Rx) mode will be received on the selected channel(s).

When in GMRS Standby mode, the radio has the ability to receive calls as well as transmit calls.

NOTE

As GMRS channels are scrolled, you will see CTCSS or DCS icons displayed on the LCD screen if the codes have been previously programmed. You will only hear transmissions from other radios with the equivalent subcodes programmed.

When a transmission is received, the following icons will be displayed:
- Receive (Rx) Icon
- Bar Graph Icon

Transmit (Tx) and Receive (Rx) Modes

Transmit (Tx) and Receive (Rx) modes gives you the ability to interact with other GMRS radios. When you use this capability, be sure to follow the procedures and to observe the courtesies that govern its use so everyone benefits. (See pages XX through XX) to help you select the proper channels.

When a talk transmission occurs, the following icons will be displayed:
- Transmit (Tx) Icon
- Bar Graph Icon

To Transmit a Message:

1. Check to see that your radio is set to a proper channel for the type of message you plan to send.
2. Toggle to the Low Power setting.
3. With the microphone about 2 in. [51 mm] from your mouth, press and hold the Talk button and speak into the microphone. The Transmit icon will appear on the LCD.
4. Release the Talk button when you are finished speaking. Your radio can only operate in either Transmit (Tx) or Receive (Rx) mode at any given time. You will not hear the response to your message unless the Talk button is released. Battery Power icon is held at the level it was at during receive.

NOTE

If the Talk button is held down for five (5) minutes, the radio will automatically sound a series of beeps and cease transmitting to prevent unwanted signal generation and battery drain. As soon as the Talk button is released, it can be pressed again to resume transmission.

NOTE
**Maintenance**

Very little maintenance is required to keep your Cobra VHF/GMRS radio in good operating condition:

- Keep the radio and charger clean by wiping with a soft cloth and mild detergent. Do not use solvents or harsh or abrasive cleaners, which could damage the case or scratch the LCD screen.
- If the radio is exposed to salt water, wipe with a soft, moist cloth at least once a day to prevent buildup of salt deposits, which could interfere with button operation.
- If the radio will be stored for a long period, such as over the winter, remove the batteries from the battery tray and store them in a separate package. This is especially important if you are using alkaline batteries.

**Troubleshooting**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause(s)</th>
<th>Solution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No display on LCD when radio is turned On</td>
<td>Batteries are exhausted</td>
<td>Recharge or replace batteries</td>
</tr>
<tr>
<td>Batteries run down quickly</td>
<td>Batteries are at the end of their life</td>
<td>Replace with new batteries</td>
</tr>
<tr>
<td>Will transmit at one (1) or three (3) watts, but not at six (6) watts</td>
<td>Batteries are low</td>
<td>Recharge or replace batteries</td>
</tr>
<tr>
<td>Will not transmit</td>
<td>Selected channel is limited to receive only</td>
<td>Switch to another channel</td>
</tr>
<tr>
<td>No sound from speaker</td>
<td>Volume level is too low or squelch level is too deep</td>
<td>Re-adjust volume and squelch</td>
</tr>
<tr>
<td>No response to button press</td>
<td>Button lock is On</td>
<td>Press and hold Backlight/Key Lock button</td>
</tr>
<tr>
<td>No answer to calls</td>
<td>Out of range of other station Signal is blocked by terrain</td>
<td>Switch to Medium or High transmit power or move closer</td>
</tr>
</tbody>
</table>

**Specifications**

**General**

- Number of Channels: All U.S., Canadian, and International NOAA Weather Channels, 15 GMRS Channels
- Channel Spacing: VHF - 25 kHz Max., GMRS - 12.5 kHz
- Modulation: VHF - 5 kHz Max., GMRS - 2.5 kHz
- Input Voltage: 7.4 VDC
- Battery Life: Lithium-ion, 8 hrs @ High Power, 14 hrs @ Low Power
- Current Drain:
  - Stand-by: 45 mA
  - Receive: 150 mA
  - Transmit: 1.8 A @ High power, 650 mA @ Low Power
- Temperature Range: -20°C to 50°C
- Radio Dimensions: 4.8 in. x 2.4 in. x 1.4 in. (123 mm x 62 mm x 36 mm) not including antenna
- Radio Weight: 0 lbs 8 oz. (228 g) without batteries
- Receiver:
  - Frequency Range: VHF 156.050 to 163.275 MHz, GMRS 462.5500 to 467.7250 MHz
  - Receiver Type: Marine VHF: Double Conversion Super Heterodyne GMRS & WX: Low if direct conversion.
  - Sensitivity (typical): Marine VHF: 12 dB Sinad: -121 dBm
  - Adjacent Channel Selectivity: Marine: 70dB, GMRS: 50dB, WX: 65dB (typical)
  - AF Output: 400 mV < 5% distortion @ 8 ohms
- Transmitter:
  - Frequency Range: TX VHF 156.025 to 157.425 MHz, GMRS 462.5500 to 462.7250 MHz
  - RF Output Power: Marine 1.3 & 6 Watts/GMRS: 1.2 & 3 Watts
  - Spurious Emissions: -60 dBc @ High Power, -55 dBc @ Low Power
  - Microphone Type: Condenser
  - Frequency Stability: +/-5 ppm
  - FM Hum and Noise: 40 dB
- Specifications subject to change without notice.
Limited 3-Year Warranty

For Products Purchased In The U.S.A.
Cobra Electronics Corporation warrants that its Cobra VHF/GMRS radio, and the component parts thereof, will be free of defects in workmanship and materials for a period of three (3) years from the date of first consumer purchase. This warranty may be enforced by the first consumer purchaser, provided that the product is utilized within the U.S.A.

Cobra will, without charge, repair or replace, at its option, defective radios, products or component parts upon delivery to the Cobra Factory Service department, accompanied by proof of the date of first consumer purchase, such as a duplicated copy of a sales receipt.

You must pay any initial shipping charges required to ship the product for warranty service, but the return charges will be at Cobra's expense, if the product is repaired or replaced under warranty. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

Exclusions: This limited warranty does not apply:
1. To any product damaged by accident.
2. In the event of misuse or abuse of the product, or as a result of unauthorized alterations or repairs.
3. If the serial number has been altered, defaced, or removed.
4. If the owner of the product resides outside the U.S.A.

All implied warranties, including warranties of merchantability and fitness for a particular purpose are limited in duration to the length of this warranty. Cobra shall not be liable for any incidental, consequential or other damages; including, without limitation, damages resulting from loss of use or cost of installation. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you.

For Products Purchased Outside The U.S.A.

Please contact your local dealer for warranty information.

Trademark Acknowledgement

Cobra®, CobraMarine®, Nothing Comes Close to a Cobra®, and the snake design are registered trademarks of Cobra Electronics Corporation, USA.
Cobra Electronics Corporation™ is a trademark of Cobra Electronics Corporation, USA.
FCC Licensing Information
Cobra VHF/GMRS radios comply with the FCC (Federal Communications Commission) requirements that regulate the Maritime Radio Service and General Mobile Radio Service.

The radio operates on all currently allocated marine channels and is switchable for use according to U.S.A., International or Canadian regulations. It features instant access to emergency Channel 16 and calling Channel 9 as well as NOAA (National Oceanic and Atmospheric Administration) All Hazards Radio with Alert.

Station License
An FCC ship station license is no longer required for any vessel traveling in U.S.A. waters which uses a VHF marine radio, RADAR, or EPIRB (Emergency Position Indicating Radio Beacon), and which is not required to carry radio equipment. However, any vessel required to carry a marine radio on an international voyage, carrying an HF single side band radiotelephone, or carrying a marine satellite terminal must obtain a station license.

FCC license forms and applications for ship and land stations can be downloaded through the Internet at www.fcc.gov. Forms can also be obtained by calling the FCC at 888-225-5322.

International Station License
If your vessel will be entering the sovereign waters of a country other than the U.S.A. or Canada, you should contact that country’s communications regulatory authority for licensing information.

Radio Call Sign
Currently, the FCC does not require recreational boaters to have a license. The United States Coast Guard recommends that the boat’s registration number and state of registry (e.g., IL 1234 AB) be used as a call sign and be clearly visible on the vessel.

Canadian Ship Station License
You need a Radio Operator’s Certificate if your vessel is operated in Canadian waters. Radio Operator training and certification is available from the Canadian Power Squadron. Visit their website at http://www.cps-ecp.ca/

User Responsibility and Operating Locations
All users are responsible for observing domestic and foreign government regulations and are subject to severe penalties for violations. The VHF frequencies on your radio are reserved for marine use and require a special license to operate from land, including when your boat is on its trailer.

NOTE
This device complies with part 15 of the FCC Rules, and Industry Canada license-exempt RSS standards. Operation is subject to the following two (2) 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.

FCC Warnings: Replacement or substitution of transistors, regular diodes or other parts of a unique nature, with parts other than those recommended by Cobra may cause a violation of the technical regulations of part 80 of the FCC Rules, or violation of type acceptance requirements of part 2 of the rules.
GMRS Communication

This GMRS (General Mobile Radio Service) feature is a land-mobile service available for short-distance, two-way communications in the USA. You must have a valid FCC license to communicate on these channels.

The GMRS/FRS frequencies that this radio uses are set aside for communicating with others while hiking, biking, and working; keeping track of family and friends at a crowded public event; checking with travel companions in another car; talking with neighbors; arranging meeting spots with others while shopping at the mall.

Licensed users will be issued a call sign by the FCC, which should be used for station identification when operating this radio. GMRS users should also cooperate by engaging in permissible transmissions only, avoiding channel interference with other GMRS users, and being prudent with the length of their transmission time.

GMRS FCC Licensing

This two-way radio operates on GMRS (General Mobile Radio Service) frequencies which require an FCC (Federal Communications Commission) license. A user must be licensed prior to transmitting on the GMRS band with this radio. Serious penalties could result for unlicensed use of GMRS channels, in violation of FCC rules.

Operation of this radio is subject to additional rules specified in 47 C.F.R. Part 95.

For licensing information and application forms, please call the FCC Hotline at 800-418-FORM. Request form #159 and form #605. Questions regarding the license application should be directed to the FCC at 888-CALL-FCC. Additional information is available on the FCC’s website at www.fcc.gov.

NOTE

Even if you operate this radio on FRS (Family Radio Service) channels at low power (1 watt), you are required to have an FCC license. Because this radio operates in the 1 to 5 watt GMRS power range all GMRS rules apply and will require you have a GMRS license even for FRS (Family Radio Service) communication. Normal FRS only radios operate at a maximum power of 1/2 watt (500 milliwatt) power and have an integral (non-detachable) antenna.

GMRS/FRS Frequency Allocation and Compatibility

The channel numbers in the GMRS Mode on the MR HH450 DUAL model are designed to “match” the channels on Cobra and other GMRS radios manufactured over the last few years.

<table>
<thead>
<tr>
<th>Standard GMRS/FRS Channels</th>
<th>GMRS/FRS Channels</th>
<th>Service Type</th>
<th>Frequency (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>GMRS/FRS</td>
<td>462.5625</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>GMRS/FRS</td>
<td>462.5875</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>GMRS/FRS</td>
<td>462.6125</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>GMRS/FRS</td>
<td>462.6375</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>GMRS/FRS</td>
<td>462.6625</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>GMRS/FRS</td>
<td>462.6875</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>GMRS/FRS</td>
<td>462.7125</td>
</tr>
<tr>
<td>8</td>
<td>Not Available</td>
<td>FRS</td>
<td>467.5625</td>
</tr>
<tr>
<td>9</td>
<td>Not Available</td>
<td>FRS</td>
<td>467.5875</td>
</tr>
<tr>
<td>10</td>
<td>Not Available</td>
<td>FRS</td>
<td>467.6125</td>
</tr>
<tr>
<td>11</td>
<td>Not Available</td>
<td>FRS</td>
<td>467.6375</td>
</tr>
<tr>
<td>12</td>
<td>Not Available</td>
<td>FRS</td>
<td>467.6625</td>
</tr>
<tr>
<td>13</td>
<td>Not Available</td>
<td>FRS</td>
<td>467.6875</td>
</tr>
<tr>
<td>14</td>
<td>Not Available</td>
<td>FRS</td>
<td>467.7125</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>GMRS</td>
<td>462.5500</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>GMRS</td>
<td>462.5750</td>
</tr>
<tr>
<td>17</td>
<td>17</td>
<td>GMRS</td>
<td>462.6000</td>
</tr>
<tr>
<td>18</td>
<td>18</td>
<td>GMRS</td>
<td>462.6250</td>
</tr>
<tr>
<td>19</td>
<td>19</td>
<td>GMRS</td>
<td>462.6500</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
<td>GMRS</td>
<td>462.6750</td>
</tr>
<tr>
<td>21</td>
<td>21</td>
<td>GMRS</td>
<td>462.7000</td>
</tr>
<tr>
<td>22</td>
<td>22</td>
<td>GMRS</td>
<td>462.7250</td>
</tr>
</tbody>
</table>

NOTE

Older Cobra GMRS (non dual band) models with only 15 Channels may designate different channel numbers for the same frequency. For example, an older Cobra 15 Channel GMRS model would need to be tuned to Channel 11 in order to communicate with a 22 Channel GMRS tuned to Channel 15. Please use the manual for that product to match a frequency chart/map in this section.
VHF Marine Channel Assignments

Three (3) sets of VHF channels have been established for marine use in the U.S.A., Canada, and the rest of the world (International). Most of the channels are the same for all three (3) maps, but there are definite differences (see table on the following pages). Your radio has all three (3) maps built into it and will operate correctly in whichever area you choose.

The following is a brief outline of the channel assignments in the U.S.A. Channel Map.

Channel Assignments (English)

Distress, Safety, and Calling
Channel 16
Getting the attention of another station (calling) or in emergencies (distress and safety).

Calling
Channel 9
General-purpose (non-emergency) calling by non-commercial vessels. Recreational boaters are urged to use this channel to reduce congestion on Channel 16.

Intership Safety
Channel 6
Ship-to-ship safety messages and for search and rescue messages to Coast Guard ships and aircraft.

Coast Guard Liaison
Channel 22A
To talk to the Coast Guard, Canadian Coast Guard (non-emergency) after making contact on Channel 16.

Non-Commercial
Channels 67*, 68*, 69, 71, 72, 78A, 79A*, 80A*
Working channels for small vessels. Messages must be about needs of the vessel, such as fishing reports, berthing and rendezvous. Use Channel 72 only for ship-to-ship messages.

Commercial
Channels 1A, 7A, 8, 9, 10, 11, 16A, 19A, 63A, 67, 72, 78A, 80A, 88A*
Working channels for working ships only. Messages must be about business or needs of the ship. Use Channels 8, 67, and 88A only for ship-to-ship messages.

VHF Marine Channel Assignments

Asignación de canales de VHF para radio comunicación marítima

Existen tres (3) juegos de canales VHF para uso marítimo en los EE.UU., Canadá y el resto del mundo (Internacional). La mayoría de los canales coinciden en los tres (3) mapas, pero sin duda existen diferencias (consulte las tablas en las páginas siguientes). El radio incorpora los tres (3) mapas y funcionará correctamente en cualquiera de las tres áreas.

A continuación presentamos en forma resumida las asignaciones de canales del Mapa de canales para EE.UU.

Auxilio, seguridad y llamadas
Canal 16
Para ser oídos por otra estación (llamadas) o en casos de emergencia (auxilio y seguridad).

Llamadas
Canal 9
Llamadas de carácter general (excepto casos de emergencia) para embarcaciones no comerciales. Se le pide encarecidamente a la tripulación de las embarcaciones recreativas usar este canal para reducir la congestión del canal 16.

Seguridad entre embarcaciones
Canal 6
Para mensajes de seguridad entre embarcaciones y para mensajes de búsqueda y rescate enviados a barcos y aviones de la guardia costera.

Enlace con la guardia costera
Canal 22A
Para guardar un contacto con la guardia costera estadounidense y canadiense (excepto casos de emergencia) tras haber establecido contacto por el canal 16.

No comerciales
Canales 67, 68, 69, 71, 72, 78A, 79A, 80A*
Canales activos para pequeñas embarcaciones. Los mensajes deberán estar relacionados con necesidades de las embarcaciones, como por ejemplo, informes de pesca, atajos o ayuda. Use el canal 72 sólo para mensajes entre embarcaciones.

Comerciales
Canales 1A, 7A, 8, 9, 10, 11, 16A, 19A, 63A, 67, 72, 78A, 80A, 88A*
Canales activos para embarcaciones comerciales solamente. Los mensajes deberán estar relacionados con la actividad comercial o las necesidades de la embarcación. Use los canales 8, 67, 72 y 88A solamente para mensajes entre embarcaciones.
### Channel Assignments (English)

#### Sea Tow ARC (Automated Radio Check)
- **Channels 24, 25, 26, 27, 28**
  - Tune your radio to the proper channel for your community. Conduct a radio check as you normally would. Upon releasing the mic, the system will replay your transmission, letting you hear how you sound.

#### Public Correspondence (Marine Operator)
- **Channels 24, 25, 26, 27, 28**
  - For calls to marine operators at public coast stations. You can make and receive telephone calls through these stations.

#### Port Operations
- **Channels 1A*, 5A*, 12*, 14*, 20A, 63A*, 65A, 66A, 73, 74, 75, 76, 77**
  - Used for directing the movement of ships in or near ports, locks or waterways. Messages must be about operational handling, movement and safety of ships.

#### Navigational
- **Channels 13, 67**
  - Channels are available to all vessels. Messages must be about navigation, including passing or meeting other vessels. These are also the main working channels for most locks and drawbridges. You must keep your messages short and power output at no more than 1 watt.

#### Maritime Control
- **Channel 17**
  - For talking to vessels and coast stations operated by state or local governments. Messages must be about regulation and control, boating activities, or assistance.

#### Digital Selective Calling
- **Channel 70**
  - This channel is set aside for distress, safety and general calling using only digital selective calling techniques. Voice communication is prohibited; your radio cannot transmit voice messages on this channel.

#### Weather
- **Channels Wx 1 Thru 10**
  - Receive-only channels for NOAA and Canadian weather broadcasts. You cannot transmit on these channels.

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### Channel Assignments (Español)

#### Remolque Marino CAR (Chequeo Automatizado de la Radio)
- **Canales 24, 25, 26, 27, 28**
  - Sintonice su radio en el canal apropiado para su comunidad. Realice un chequeo de radio como lo hace normalmente. Al soltar el microfono, el sistema repetirá su transmisión, dejándolo como suena.

#### Correspondencia pública (operador marítimo)
- **Canales 24, 25, 26, 27, 28**
  - Llame a los operadores marítimos en estaciones costeras públicas. Usted puede realizar y recibir llamadas telefónicas a través de estas estaciones.

#### Operaciones portuarias
- **Canales 1A*, 5A*, 12*, 14*, 20A, 63A*, 65A, 66A, 73, 74, 75, 76, 77**
  - Usados para dirigir el movimiento de las embarcaciones dentro de áreas portuarias, esclusas o canales. Los mensajes deben estar relacionados con maniobras operacionales, movimientos y seguridad de las embarcaciones.

#### Navegación
- **Canales 13, 67**
  - Estos canales están disponibles para todas las embarcaciones. Los mensajes deben estar relacionados con navegación, incluyendo las maniobras para pasar o mantenerse a la distancia de otras embarcaciones. Estos también son los principales canales activos para la mayoría de las esclusas y puentes levadizos. Usted deberá transmitir mensajes cortos y mantener la potencia de salida en un valor como máximo.

#### Control marítimo
- **Canal 17**
  - Para comunicarse con embarcaciones y estaciones costeras operadas por entidad gubernamental local o estatal, entre otras. Los mensajes deben estar relacionados con regulación y control, asistencia a actividades de navegación.

#### Llamadas selectivas digitales
- **Canal 79**
  - Este canal está reservado para solicitudes de auxilio, seguridad y llamadas de carácter general que usen solamente técnicas de llamadas selectivas digitales. Las comunicaciones verbales están prohibidas; el radio no puede transmitir mensajes de voz por este canal.

#### Meteorología
- **Canales Wx 1 a 10**
  - Canales de recepción única para difusión de información meteorológica NOAA y canadiense. Usted no puede transmitir por estos canales.

---

**NOTE**

* These channels are restricted to the listed uses in certain parts of the country or for certain types of users only. Consult FCC rules or a knowledgeable radio operator before using them.

* El uso de estos canales está dedicado a las aplicaciones que aparecen en la lista, en ciertas partes del país o para ciertos tipos de usuarios. Consulte las normas de la FCC o a un operador de radio con experiencia antes de usarlos.
### VHF Marine Channel Assignments

<table>
<thead>
<tr>
<th>Channel</th>
<th>Frequency</th>
<th>Power Limits</th>
<th>US</th>
<th>Canada</th>
<th>Vessel Traffic</th>
<th>River Traffic</th>
<th>Weather</th>
<th>Coast Guard</th>
<th>Pilot</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>156.050 - 156.650</td>
<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
<td>156.050 - 156.650</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01A</td>
<td>156.050 - 156.050</td>
<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
<td>156.050 - 156.050</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>156.100 - 156.700</td>
<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
<td>156.100 - 156.700</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>156.150 - 156.750</td>
<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
<td>156.150 - 156.750</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03A</td>
<td>156.200 - 156.200</td>
<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
<td>156.200 - 156.200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>156.250 - 156.850</td>
<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
<td>156.250 - 156.850</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04A</td>
<td>156.250 - 156.250</td>
<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
<td>156.250 - 156.250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>156.300 - 156.300</td>
<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
<td>156.300 - 156.300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05A</td>
<td>156.350 - 156.350</td>
<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
<td>156.350 - 156.350</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>06</td>
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<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
<td>156.400 - 156.400</td>
<td></td>
<td></td>
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<tr>
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<td>1 watt EE.UU.</td>
<td>156.450 - 156.450</td>
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<td></td>
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</tr>
<tr>
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<td>1 watt USA</td>
<td>1 watt EE.UU.</td>
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</table>

**Public Correspondence (Marine Operator)**
- Correspondencia pública (operator marítimo)

**Port Operations and Commercial VTS in selected areas**
- Operaciones portuarias y comerciales; VTS en áreas selectas

**Public Correspondence (Marine Operator)**
- Correspondencia pública (operator marítimo)

**Public Correspondence (Marine Operator)**
- Correspondencia pública (operator marítimo)

**Public Correspondence (Marine Operator)**
- Correspondencia pública (operator marítimo)

**Public Correspondence (Marine Operator)**
- Correspondencia pública (operator marítimo)

**Public Correspondence (Marine Operator)**
- Correspondencia pública (operator marítimo)

**Public Correspondence (Marine Operator)**
- Correspondencia pública (operator marítimo)

**Public Correspondence (Marine Operator)**
- Correspondencia pública (operator marítimo)

**Commercial (Intership Only)**
- Comerciales (entre embarcaciones solamente)

**Boater Calling Channel Non-Commercial (Recreational)**
- Canal de llamada de la tripulación, no comercial (recreativo)

**Commercial**
- Comerciales

**Commercial**
- Comerciales

**Commercial**
- Comerciales

**Commercial**
- Comerciales

**Commercial**
- Comerciales

**Internship Navigation Safety (Bridge-to-Bridge)**
- Seguridad marítima entre embarcaciones (puente a puente).

In U.S. waters, large vessels maintain a listening watch on this channel.
## VHF Marine Channel Assignments

<table>
<thead>
<tr>
<th>Channel Number</th>
<th>USA</th>
<th>Frequency</th>
<th>Transmit</th>
<th>Receive</th>
<th>Power Limits</th>
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<td>15</td>
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<td>18A</td>
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<td>23B</td>
<td>Rx Only</td>
<td>157.150</td>
<td>161.750</td>
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</tbody>
</table>

### Channel Use (English)
- **Port Operations, VTS in selected areas**: Operaciones portuarias: VTS en áreas selectas.
- **Environmental (Receive Only)**, Used by Class C EPIRBs (Receive Only): Usado por radiobalizas de localización de sinistros (EPIRB) clase C.
- **International Distress, Safety and Calling**: Llamadas, seguridad y solicitud de auxilio internacional.
- **State Controlled (U.S.A. Only)**: Controlado a nivel estatal (EE.UU. solamente).
- **Commercial**: Comerciales.
- **Canada (Coast Guard Only)**, International: Canadá (guardia costera solamente); Internacional (operaciones portuarias, movimiento de embarcaciones).
- **Coast Guard Only – Weather Broadcasts**: Solamente Guardacostas – Transmisiones Meteorológicas.
- **Public Correspondence (Marine Operator)**: Correspondencia pública (operador marítimo).

### Channel Use (Spanish)
- **Operaciones portuarias: VTS en áreas selectas**.
- **Medioambiental (recepción solamente)**, Usado por radiobalizas de localización de sinistros (EPIRB) clase C.
- **Internacional (comunicación de a bordo)**.
- **Controlado a nivel estatal (EE.UU. solamente)**.
- **Operaciones portuarias, movimiento de embarcaciones**.
- **Operaciones portuarias**.
- **Operaciones portuarias, movimiento de embarcaciones**.
- **EE.UU. (entidades gubernamentales solamente)**, Canadá (guardia costera solamente).
- **Solamente Guardacostas – Transmisiones Meteorológicas**.
- **Correspondencia pública (operador marítimo)**.
- **Solamente Guardacostas – Transmisiones Meteorológicas**.
<table>
<thead>
<tr>
<th>Channel Number</th>
<th>Channel Map</th>
<th>Frequency</th>
<th>Power Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USA</td>
<td>International</td>
<td>Canada</td>
</tr>
<tr>
<td>24</td>
<td>•</td>
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<td>61</td>
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</tr>
<tr>
<td>61A</td>
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<td>62</td>
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<td>•</td>
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</tr>
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<td>62A</td>
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</tr>
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<td>63</td>
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</tr>
<tr>
<td>63A</td>
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<td>•</td>
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</tr>
<tr>
<td>65</td>
<td>•</td>
<td>•</td>
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</tr>
<tr>
<td>65A</td>
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<td>•</td>
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</tr>
<tr>
<td>66</td>
<td>•</td>
<td>•</td>
<td>•</td>
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</table>

**Channel Use (English)**
- Sea Tow ARC (Automated Radio Check)
- Sea Tow ARC (Automated Radio Check)
- Safety: Continuous Marine Broadcast (CMB) service by MCTS Canada
- Sea Tow ARC (Automated Radio Check)
- Sea Tow ARC (Automated Radio Check)
- Safety: Continuous Marine Broadcast (CMB) service by MCTS Canada
- Public Correspondence (Marine Operator), Port Operations, Ship Movement
- Public Correspondence (Marine Operator), Port Operations, Ship Movement
- Public Correspondence (Marine Operator), Port Operations, Ship Movement
- Public Correspondence (Marine Operator), Port Operations, Ship Movement
- Public Correspondence (Marine Operator), Port Operations, Ship Movement
- Public Correspondence (Marine Operator), Port Operations, Ship Movement
- Public Correspondence (Marine Operator), Port Operations, Ship Movement
- Public Correspondence (Marine Operator), Port Operations, Ship Movement
- Public Correspondence (Marine Operator), Port Operations, Ship Movement

**Uso de canales (Español)**
- Servicio de Remolque (Chequeo Automatizado de la Radio)
- Servicio de Remolque (Chequeo Automatizado de la Radio)
- Seguridad: Transmisión Marítima Continua (CMB) servicio por MCTS Canadá
- Servicio de Remolque (Chequeo Automatizado de la Radio)
- Servicio de Remolque (Chequeo Automatizado de la Radio)
- Seguridad: Transmisión Marítima Continua (CMB) servicio por MCTS Canadá
- Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
- Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
- Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
- Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
- Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
- Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
- Operaciones portuarias
- Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
### VHF Marine Channel Assignments

<table>
<thead>
<tr>
<th>Channel Number</th>
<th>Channel Map</th>
<th>Frequency</th>
<th>Power Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USA (left)</td>
<td>Transmit</td>
<td>USA Int'l</td>
</tr>
<tr>
<td></td>
<td>Canada</td>
<td>Receive</td>
<td>Canada</td>
</tr>
<tr>
<td>66A</td>
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<td>156.325</td>
<td>1 watt USA</td>
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<tr>
<td>67</td>
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<td>68</td>
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<td>156.525</td>
</tr>
<tr>
<td>71</td>
<td></td>
<td>156.575</td>
<td>1 watt USA</td>
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<td></td>
<td>156.775</td>
<td>1 watt USA</td>
</tr>
<tr>
<td>76</td>
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<td>1 watt USA</td>
</tr>
<tr>
<td>77</td>
<td></td>
<td>156.875</td>
<td>1 watt USA</td>
</tr>
</tbody>
</table>

### U.S. (Commercial). Used for bridge-to-bridge communications in lower Mississippi River (Intership Only); Canada (Commercial Fishing), S&R U.S. (no comercial, recreativo); Canadá (pesca comercial solamente); Internacional (comunicaciones entre embarcaciones, operaciones portuarias, movimiento de embarcaciones).

### U.S. (Non-Commercial, Recreational): Canada (Commercial Fishing Only); International (Ship Operations, Ship Movement) U.S. (comercial, recreativo); Canadá (pesca comercial); Internacional (operaciones portuarias, movimiento de embarcaciones).

### Digital Selective Calling (Voice communications not allowed) EE.UU. (comunicaciones verbales están prohibidas)

### Power Limits

- **Transmit:** 1 watt USA
- **Receive:** 1 watt USA

### Frequency Bands

- **156.325:** Port Operations
- **156.375:** Non-Commercial (Recreational)
- **156.425:** U.S. (Non-Commercial, Recreational); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)
- **156.475:** RX only
- **156.525:** U.S. (Port Operations); Canada (Commercial Fishing Only); International (Ship Operations, Ship Movement)
- **156.575:** U.S. (Port Operations); Canada (Commercial Fishing Only); International (Ship Operations, Ship Movement)
- **156.625:** Non-Commercial (Intership Only)
- **156.675:** U.S. (Port Operations); Canada (Commercial Fishing Only); International (Ship Operations, Ship Movement)
- **156.725:** U.S. (Port Operations); Canada (Commercial Fishing Only); International (Ship Operations, Ship Movement)
- **156.775:** 1 watt
- **156.825:** 1 watt
- **156.875:** 1 watt USA
- **156.925:** 1 watt USA

### Use of Channels

- **Port Operations:** Operaciones portuarias
- **Non-Commercial (Intership Only):** Operaciones portuarias
- **U.S. (Port Operations):** Operaciones portuarias
- **U.S. (Commercial):** Operaciones portuarias
- **Canada (Commercial Fishing Only):** Operaciones portuarias
- **International (Ship Operations, Ship Movement):** Operaciones portuarias
- **Digital Selective Calling:** Operaciones portuarias

### Additional Information

- **Port Operations (Intership Only):** Restricted to communications with pilots for movement and docking of ships.

**Nothing Comes Close to a Cobra®**
### VHF Marine Channel Assignments

<table>
<thead>
<tr>
<th>Channel Number</th>
<th>Channel Map (Maps de canales)</th>
<th>Frequency (Frecuencia)</th>
<th>Power Limits (Límites de potencia)</th>
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<tr>
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<td>156.925</td>
<td>161.525</td>
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<td>79A</td>
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</tr>
<tr>
<td>80</td>
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<td>157.025 157.025</td>
<td>Port Operations, Ship Movement</td>
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<tr>
<td>80A</td>
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<td>157.025 157.025</td>
<td>Commercial (Also Non-Commercial only in Great Lakes)</td>
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<tr>
<td>81</td>
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<td>157.075 157.075</td>
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<td>81A</td>
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<td>157.075 157.075</td>
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</tr>
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<td>157.125 157.125</td>
<td>U.S. (Government Only); Canada (Coast Guard Only)</td>
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<td>83A</td>
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<td>157.175 157.175</td>
<td>(Coast Guard Only)</td>
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<td>83B</td>
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<td>RX only</td>
<td>Weather Broadcasts</td>
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<td>157.225 157.225</td>
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<td>157.375 157.375</td>
<td>Public Correspondence (Ship to Shore)</td>
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<td>157.425 157.425</td>
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<td>157.425 157.425</td>
<td>Commercial Internship only</td>
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</table>

**Channel Use (English)**
- Public Correspondence (Marine Operator)
- Non-Commercial (Recreational)
- Port Operations, Ship Movement
- Commercial (Also Non-Commercial only in Great Lakes)
- Port Operations, Ship Movement
- Commercial (Also Non-Commercial only in Great Lakes)
- Port Operations, Ship Movement
- Commercial (Also Non-Commercial only in Great Lakes)
- Port Operations, Ship Movement
- Public Correspondence (Marine Operator), Port Operations, Ship Movement
- U.S. (Government Only); Canada (Coast Guard Only)
- Port Operations, Ship Movement
- (Coast Guard Only)
- Weather Broadcasts

**Uso de canales (Español)**
- Correspondencia pública (operador marítimo)
- No comercial (recreativo)
- Operaciones portuarias, movimiento de embarcaciones
- Comercial (en los Grandes Lagos también no comercial)
- Operaciones portuarias, movimiento de embarcaciones
- Comercial (en los Grandes Lagos también no comercial)
- Operaciones portuarias, movimiento de embarcaciones
- EE.UU. (entidades gubernamentales solamente); Canadá (guarda costera solamente)
- Operaciones portuarias, movimiento de embarcaciones
- Canadá (guarda costera solamente)
- Canadá (guarda costera solamente)
- Solamente Transmisiones Meteorológicas
- Correspondencia pública (operador marítimo)
- Correspondencia pública (operador marítimo)
- Correspondencia pública (operador marítimo)
- Correspondencia pública (entre embarcación y costa)
- Comercial entre embarcaciones solamente
**VHF Marine Channel Assignments**

**NOTE**
Many of the plain-numbered channels, such as 01, 02, and 03, transmit and receive on different frequencies. This is termed duplex operation. The rest of the plain-numbered channels and all of the A channels, such as 01A, 03A, and 04A, transmit and receive on a single frequency, which is termed simplex operation. Your radio automatically adjusts to these conditions. When in simplex operation, the A icon will appear on the LCD (see illustration on page A3).

**NOTE**
All channels are preprogrammed at the factory according to international regulations and those of the FCC (U.S.A.) and Industry Canada (Canada). They cannot be altered by the user nor can modes of operation be changed between simplex and duplex.

---

**Weather Channel Assignments**

### Asignaciones de canales meteorológicos

<table>
<thead>
<tr>
<th>Channel Number</th>
<th>RX Frequency MHz</th>
<th>Weather Channel</th>
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<td>162.550</td>
<td>NOAA</td>
</tr>
<tr>
<td>2</td>
<td>162.400</td>
<td>NOAA</td>
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<tr>
<td>3</td>
<td>162.475</td>
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<td>Canada</td>
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<tr>
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<td>161.775</td>
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<tr>
<td>10</td>
<td>163.275</td>
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</table>

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**NOTA**
Muchos de los canales de números simples, como 01, 02 y 03, transmiten y reciben en diferentes frecuencias. A esto se le llama operación dúplex. El resto de los canales de números simples y todos los canales A, como 01A, 03A y 04A, transmiten y reciben en una sola frecuencia, a la que se le llama operación simple (simplex). Su radio se ajusta automáticamente a estas condiciones. Cuando está en operación simple, el icono A aparecerá en la pantalla de cristal líquido (vea la ilustración de la página A3).

**NOTA**
Todos los canales vienen programados previamente de fábrica conforme a los reglamentos internacionales y a los de la FCC (EE. UU.) e Industry Canada (Canadá). No pueden ser alterados por el usuario, así como tampoco pueden cambiarse los modos de operación entre simple y dúplex.
Introduction

Optional Accessories

Accessories

Your Cobra radio has several optional accessories available to enhance the use of the radio. Some are listed below:

- **Alkaline Battery Tray**
  A special alkaline battery tray (P/N CM 110-024) is available as an optional accessory to have as an emergency backup. By using five (5) high-quality AA alkaline batteries, you can have a spare battery backup source for your radio.

  **NOTE**
  Alkaline batteries are not rechargeable.

- **Lapel Speaker/Microphone**
  A speaker/microphone that attaches to your lapel, by ordering P/N CM 330-001. This unique accessory allows you to wear the radio on your belt while still being able to communicate with other vessels. A small Push to Talk (PTT) button on the lapel speaker/microphone allows you to answer any incoming call.

- **LiON Battery**
  LiON replacement battery (P/N CM 110-026). Can be used with the charger included with this radio.

- **Antenna**
  Replacement Antenna P/N CM 300-003

- **Belt Clip**
  Replacement Belt Clip P/N CM 240-003

- **AC Charger**
  Replacement AC Charger P/N CM 120-005

- **DC Charger**
  Replacement DC Charger P/N CM 130-005

- **Drop-In Battery Charger**
  Replacement Drop-In Charger P/N CM 110-030