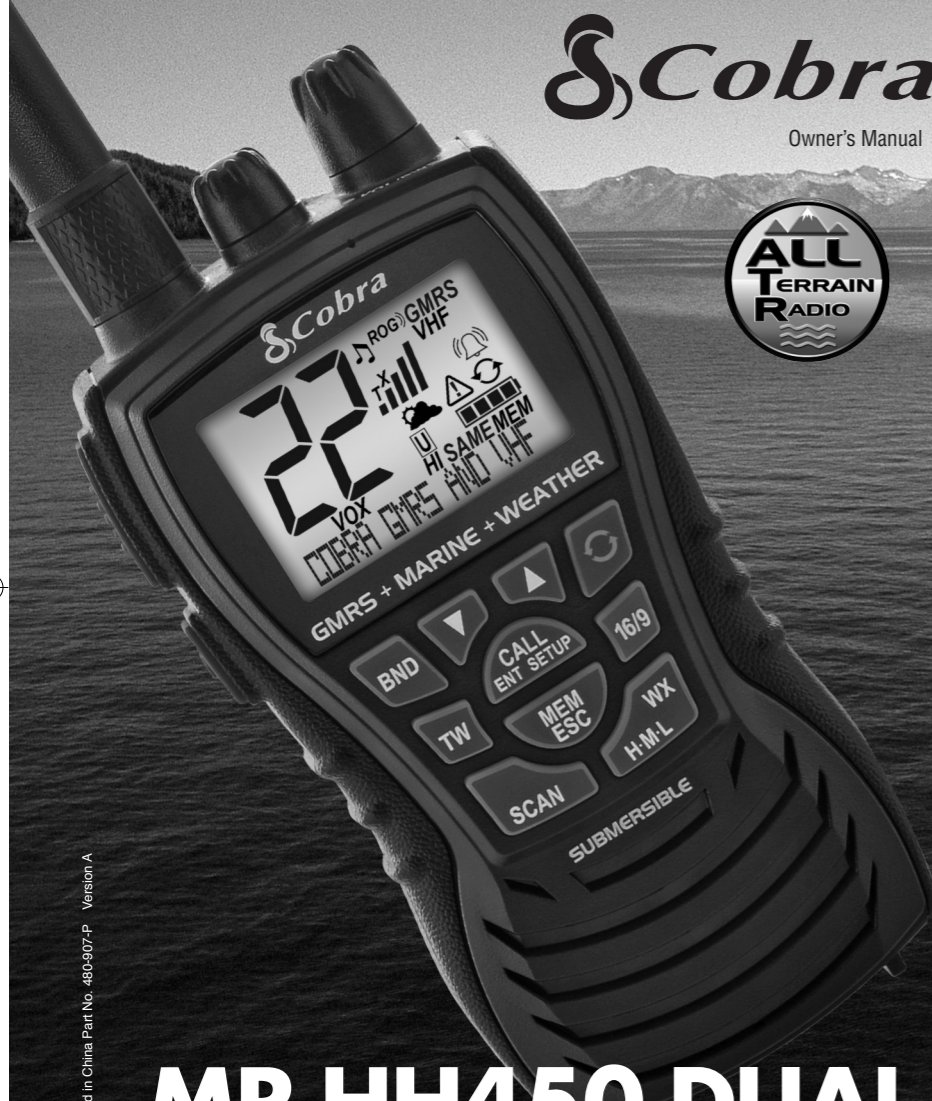


Cobra[®]

Owner's Manual



MR HH450 DUAL

Nothing Comes Close to a Cobra[®]

English

Printed in China Part No. 4810407-P Version A

Our Thanks to You and Customer Assistance

Introduction

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

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).

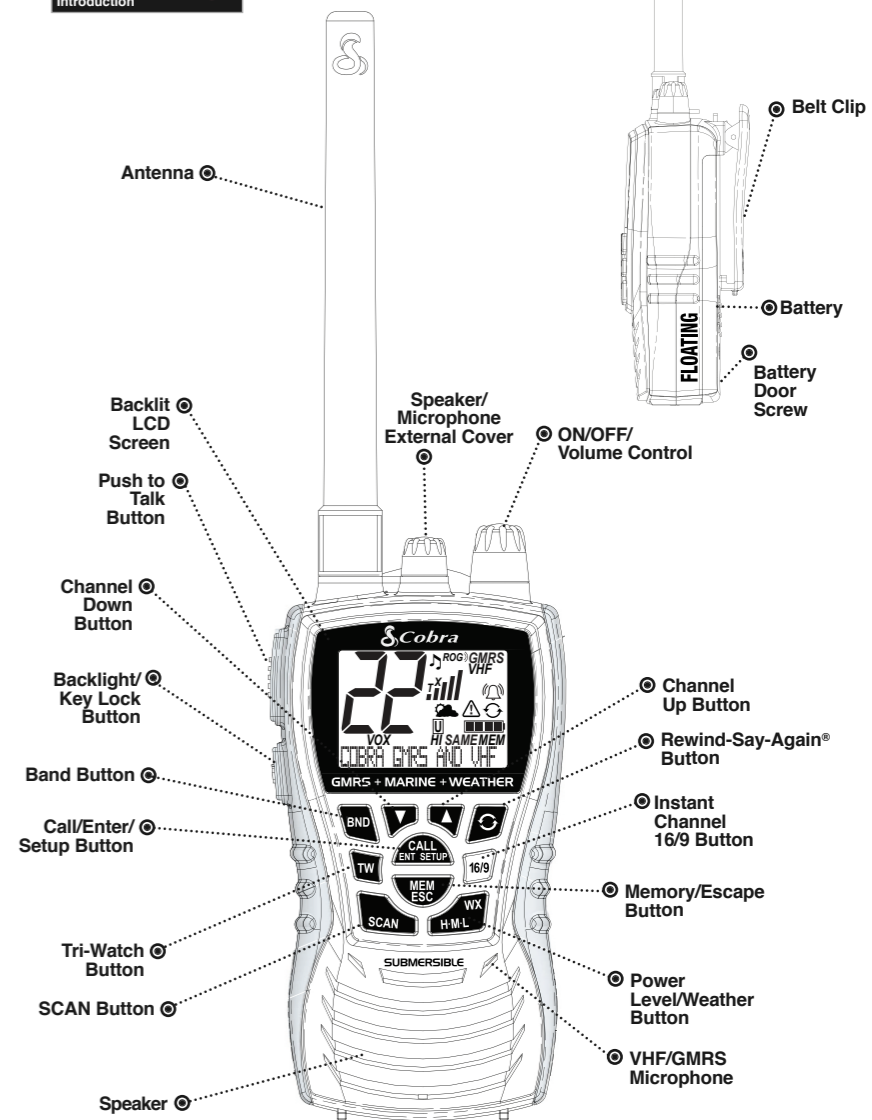
Technical Assistance English only.
www.cobra.com (on-line: Frequently Asked Questions).
English and Spanish. productinfo@cobra.com (e-mail).

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

A1 English

Radio Controls and Indicators

Introduction



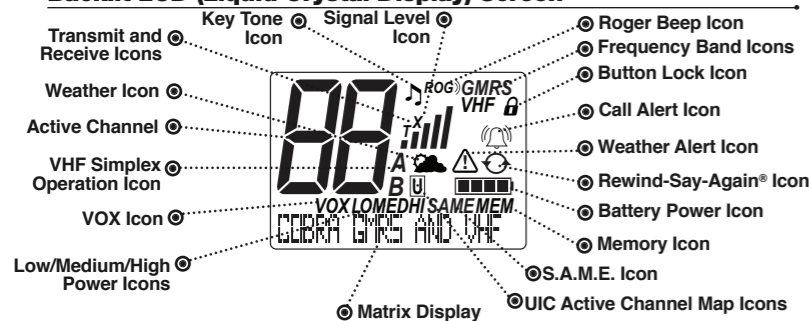
A2 English

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6500 West Cortland Street
Chicago, Illinois 60707 USA
www.cobra.com

Backlit LCD Screen and Product Features

Introduction

Backlit LCD (Liquid Crystal Display) Screen



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 channels or memory 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. Includes AA battery tray (P/N CM 110-024).

Instant Channel 16/9

Provides instant access to priority Channel 16 and calling Channel 9.

Tri-Watch

Use to monitor three (3) channels at once — Channel 16 and two (2) programmable channels.

Floating

This radio will float if dropped overboard. Must use included battery to float.

120V/12V Charger Included

Use to charge battery pack, at home, in a car or in a boat.

Product Features

Introduction

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.

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 SAME

Can alert you with an audible tone and visual alarm if threatening weather is nearby. The SAME alerts provide you with additional alerts for specific local areas.

Speaker/Mic Jack

Allows connecting optional Cobra Lapel Speaker/Mic and other Cobra accessories.

Unlimited Memory Channels

Allows programming of unlimited VHF and GMRS memory channels.

15 GMRS Channels

Seven (7) shared with GMRS/FRS and eight (8) GMRS only.

121 Privacy Codes

Allows semi-secure communications, creating up to 1815 privacy combinations (38 CTCSS codes-83 DCS codes).

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.

Notes

Introduction


Left blank intentionally for your notes




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Important Safety Information

Introduction

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:

- FCC OET Bulletin 65 Edition 97-01 Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
- American National Standards Institute (C95.1-1992), IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
- American National Standards Institute (C95.3-1992), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields — RF and Microwave.
- Industry Canada RSS-102-Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency bands).

Conformité d'exposition de la fréquence du Canada RSS-102-Radio d'industrie (rf) de l'appareillage de communication par radio (toutes les bandes de fréquence).

General Precautions

Introduction

General Precautions

The following **WARNINGS** and **NOTICE** information will make you aware of RF exposure hazards and how to assure you operate the radio within the FCC RF exposure limits established for the radio.



WARNINGS

Your radio generates electromagnetic RF (radio frequency) energy when it is transmitting. To ensure that you and those around you are not exposed to excessive amounts of that energy, **DO NOT** touch the antenna when transmitting. **KEEP** the radio at least two (2) inches (5 cm) away from yourself and others when transmitting.

DO NOT operate with more than a duty cycle of 5% transmit, 5% receive and 90% standby. The radio is transmitting when the **Talk** button is pressed and the transmit information shows on the LCD screen.

ALWAYS use only Cobra authorized accessories.

DO NOT operate the radio in an explosive atmosphere, near blasting sites, or in any area where signs are posted prohibiting radio transmissions.

NEVER place the transceiver or microphone/speaker where they might interfere with operation of your vessel or cause injury.

DO NOT allow children or anyone unfamiliar with proper procedures to operate the radio without supervision.

Failure to observe any of these warnings may cause you to exceed FCC RF exposure limits or create other dangerous conditions.

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 radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

General Precautions

Introduction



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.

Radio Check Procedure

Introduction

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

Introduction

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.

VHF Marine Radio Procedures

Installation

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.

Voice Calling

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.”

Voice Calling

Introduction

- 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.



Radiotelephone Calls

Introduction

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

Introduction

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.

Emergency Messages and Distress Procedure

Introduction

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 pah-n.)

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.

Emergency Messages and Distress Procedure

Introduction

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

Introduction

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

Introduction

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/indexnw.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

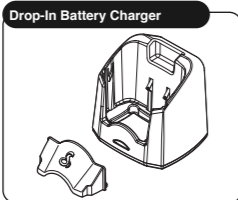
Introduction

Included in this Package

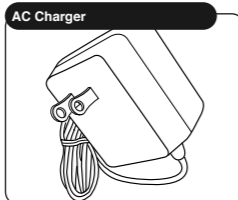
You should find all of the following items in the package with your Cobra VHF/GMRS radio:



Radio

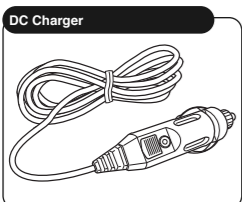


Drop-In Battery Charger



AC Charger

For connection to 120-volt power source.

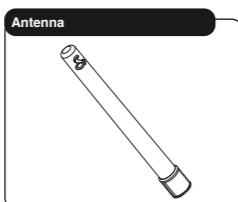


DC Charger

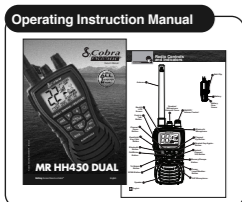
For connection to 12-volt power sources.



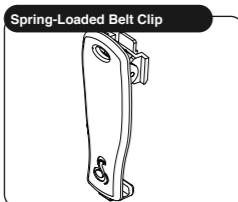
LiON Battery Pack



Antenna



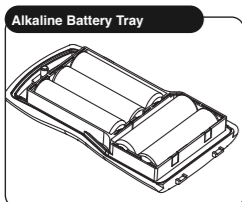
Operating Instruction Manual



Spring-Loaded Belt Clip



Wrist Strap

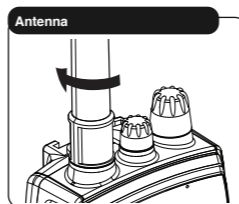


Alkaline Battery Tray

Install/Remove Antenna

Introduction

Install/Remove Antenna



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.

Cet émetteur radio IC: 906A-MRHH450 a été approuvé par Industrie Canada pour fonctionner avec l'antenne fournie. D'autres antennes sont strictement interdits pour une utilisation avec cet appareil.

Batteries and Charger



LiON Battery Pack

The radio is shipped with a sealed lithium-ion (LiON) battery pack (P/N 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.

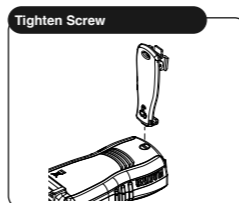


Install Battery Pack

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.



Tighten Screw

Wrist Strap and Belt Clip

Installation

Wrist Strap and Belt Clip

Belt Clip

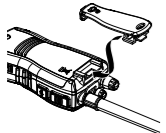


Belt Clip

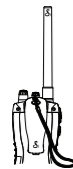
Use the spring-loaded belt clip to carry the radio on your person.

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.

Insert Belt Clip onto Radio



Wrist Strap Attachment



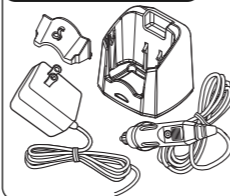
Secure Radio



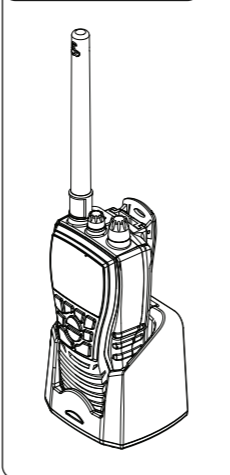
Installation

Batteries and Charger

Power Sources



Initial Battery Charge



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.



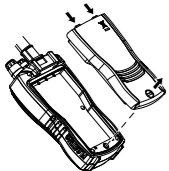
NOTE

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.

Batteries and Charger

Installation

Remove Battery



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

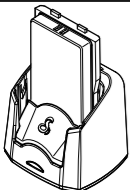
The LiON battery pack can also be charged in the battery charger without being installed in the radio. Insert the spacer into the battery charger to support the battery pack during this charging process. Follow the same procedures in “Initial Charge” to charge the battery pack.



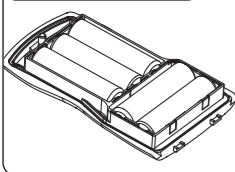
NOTICE

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.

Battery Pack Charging Only



Alkaline Battery Tray



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.

Batteries and Charger

Installation

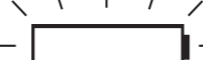
Fully Charged



Partially Charged



Fully Discharged



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

HH450 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.

Getting Started

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

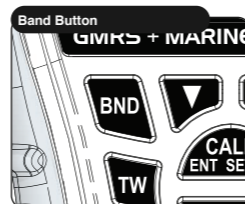
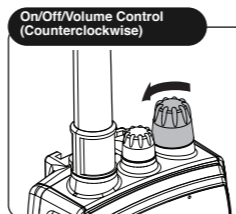
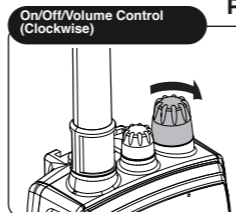
Power On/Off Control

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.