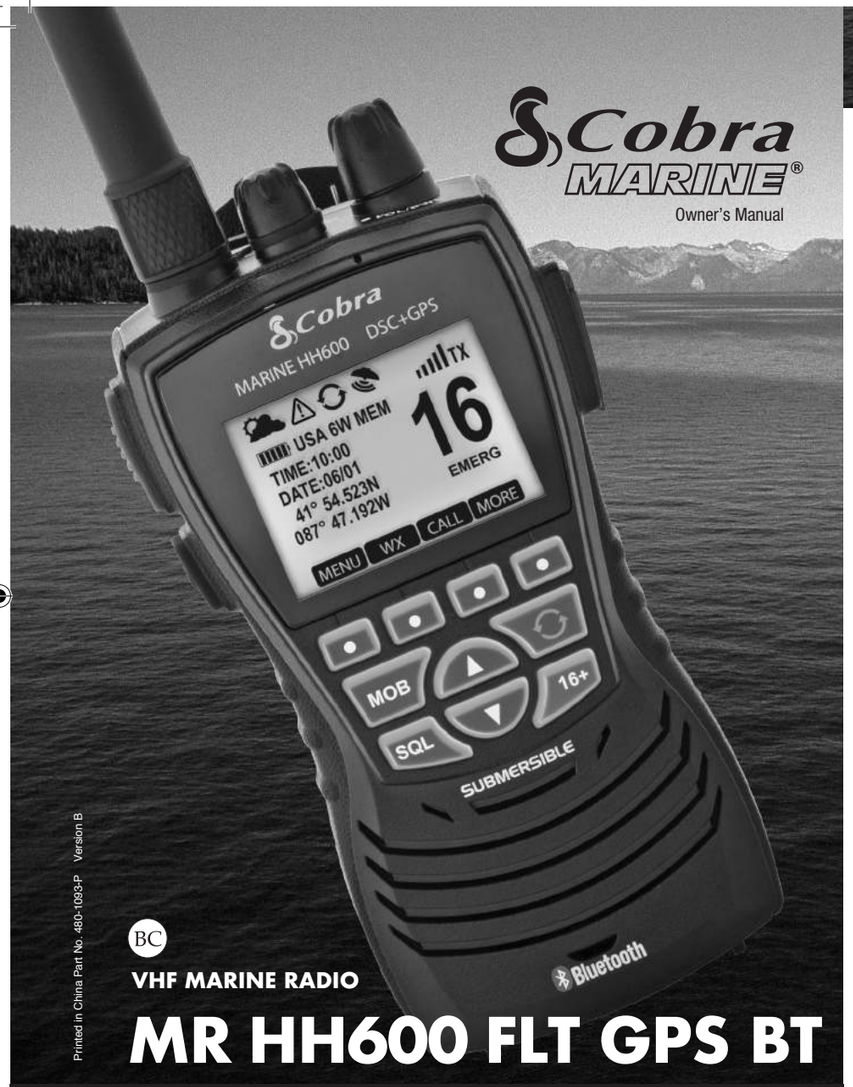


BC

VHF MARINE RADIO

MR HH600 FLT GPS BT

Printed in China Part No. 480-1093-P Version B

Nothing Comes Close to a Cobra®

English

Our Thanks to You and Customer Assistance

Our Thanks to You

Thank you for purchasing a CobraMarine® VHF radio. Properly used, this Cobra® product will give you many years of reliable service.

How Your CobraMarine VHF Radio Works

This radio is a battery-powered portable transceiver for use afloat. It gives you two-way vessel-to-vessel and vessel-to-shore station communications, primarily for safety and secondarily for navigation and operational purposes. With it, you can call for help, get information from other boaters, talk to lock or bridge tenders, and make radiotelephone calls to anywhere in the world through a marine operator.

Besides two-way communications, the radio can provide quick access to receive all the NOAA (National Oceanographic and Atmospheric Administration) weather channels and alert you to weather emergencies with a tone on a weather channel you can select for your area.

Global Positioning Sytem (GPS)

Your Cobra Marine radio includes a built-in GPS receiver. Your position will be continuously indicated on the LCD and, most importantly, it will be included automatically with any DSC Distress message you may need to send. That will take the "search" out of "search and rescue".

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.

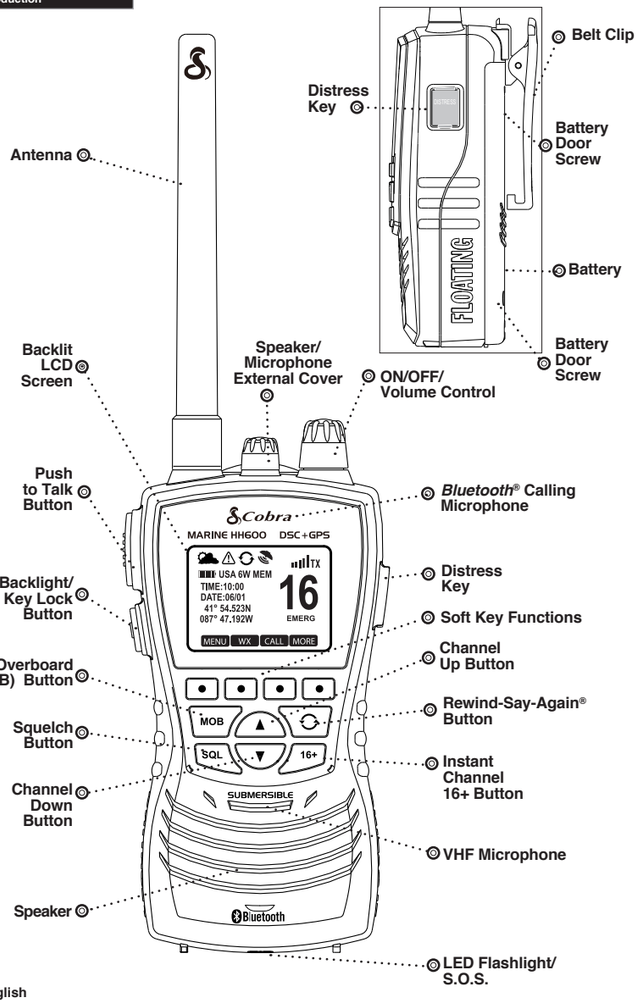
Automated Help Desk English only.
24 hours a day, 7 days a week 773-889-3087 (phone).

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).

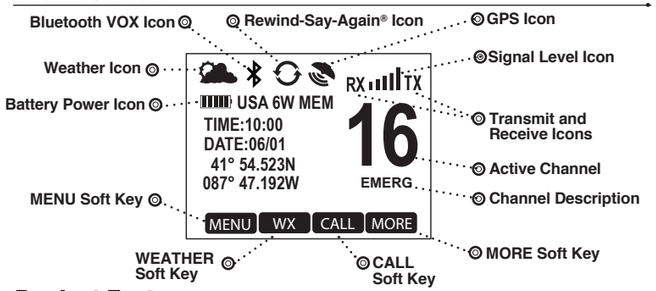
Technical Assistance English only.
www.cobra.com (on-line: Frequently Asked Questions).

Radio Controls and Indicators



Backlit Screen and Product Features

Backlit Screen



Product Features

Built-In GPS Receiver
Shows GPS coordinates on screen and automatically sends GPS location with DSC calls.

Digital Selective Calling (DSC Class-D)
Allows the ability to maintain a listening watch on VHF Channel 16 while simultaneously monitoring Channel 70 for DSC calls. Allows sending a distress message at the touch of a button as well as specific station-to-station calls. Radio utilizes two (2) built-in encoders (receivers).

MicroBlue™
Bluetooth® Wireless Technology in a unique noise canceling design. Widely compatible for all mobile phones with Bluetooth® wireless technology.

Easy Redial Operation
Redial of last phone number dialed.

Voice Dialing
Supports standard mobile phone voice dialing when paired to a compatible mobile phone.

Floating
This radio will float if dropped overboard. It has an orange stripe so it's easy to retrieve. Must use included battery to float.

Rewind-Say-Again®
Replays missed VHF calls.

6 Watt VHF
Select between 1, 3 or 6 watts for short and long range communication.

Flashlight/S.O.S. Light
The radio can be used as a flashlight, strobe light or S.O.S. signal.The light flashes when dropped in the water.

Submersible to IPX8 Standards
Waterproof to 3.3 ft (1 m) of water for 30 minutes.

All NOAA Weather Channels
Instant access to all National Weather Channels, 24 hours a day.

Emergency Weather Alert
Receive NOAA alerts when threatening weather is nearby.

Product Features

Product Features (continued)

MOB (Man Over Board)
The radio dedicated MOB button marks and memorizes the position information if a crew member falls overboard.

Noise Canceling Microphone
Reduces effect of environmental noise when speaking.

Basic Navigation
Basic navigation features include digital compass, waypoint navigation, course, speed, etc.

USA/International/Canada Channels
Allows operation on any of the three (3) different channel maps established for these areas.

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.

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

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

NMEA Out
NMEA 0183 output to display other vesels and their information transmitted by DSC or your chartplotter.

Unlimited Memory Channels
Allows programming of unlimited VHF memory channels.

Tri-Watch
Use to monitor three (3) channels at once — Channel 16, Channel 9 and one other selected channel.

Channel Names
Friendly VHF channel names under the channel number.

Channel Scan/Memory Scan
Use to scan through unlimited channels or memory locations to find conversations in progress.

Signal Strength Meter
Shows the strength of incoming or outgoing signals.

Button/Key Lock
Prevents accidental setting changes when button lock is set.

Illuminated Buttons
Allows high visibility of all function buttons.

AA Battery Compatible
Good for emergency backup.
Includes AA battery tray (P/N CM 110-035).

120V/12V Charger Included
Use to charge battery pack, at home, in a car or in a boat.

Locking Desktop Charger
Holds the radio or battery in place while charging. Vertical or horizontal mounting.

Notes

Left blank intentionally for your notes

Table of Contents

Important Safety Information

Important Safety Information

Before using your CobraMarine VHF radio, please read these general precautions and warnings.

Warning and Notice Statements

To make the most of this radio, it must be used properly.
Please read the installation and operating instructions carefully before 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 CobraMarine VHF radio 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

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 where it 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.

The device complies with RF specifications when the device is used at a distance 25mm from your front face and 0mm from your body, Maximun SAR Value (1g): 5.76 W/Kg.

Separation Distance:	Body: Face:	0mm 25mm
Maximum SAR Value (1g): (Specific Absorption Rate)	Body: Face:	5.76 W/Kg 3.51 W/Kg

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

En vertu de la réglementation de l'industrie du Canada, cet émetteur de radio ne peut fonctionner à l'aide d'une antenne d'un type et un maximum (ou moins) Gain approuvé pour l'émetteur par Industrie Canada. Pour réduire le risque d'interférence aux autres utilisateurs, le type d'antenne et son gain doivent être choisis afin que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas ce qui est nécessaire pour une communication réussie.

General Precautions

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 (LiON) rechargeable battery pack.

- Use only the Cobra charger to recharge lithium-ion (LiON) 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.

CAUTION Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

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 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.

FCC Licensing Information

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, Southern California, and select inland locations including the Great Lakes. 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 automated 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 radio to Channel 24, 25, 26, 27, 28 or 84 (channel varies by location), then key the mic and ask for a radio check. The system responds to each radio check with an automated reply including the location, and also replays the boater's original radio transmission, allowing them 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 boaters, radio owners should visit www.seatow.com/arc. The web page allows you to search for the local channel and has an instructional video on how to use the service step by step.

FCC Licensing Information

CobraMarine VHF radios comply with the FCC (Federal Communications Commission) requirements that regulate the Maritime Radio Service.

This CobraMarine radio incorporates a VHF FM transceiver designed for use in the frequency range of 156.025 to 163.275 MHz. It has a switchable RF output power of one (1), three (3) or six (6) watts.

The transceiver is capable of Class-D (Digital Selective Calling) operation in accordance with CFR Part 47, Section 80,225.

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.

FCC & IC Licensing Information

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.

FCC Statement

This device complies with part 15 of the FCC Rules. 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.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

NOTE

Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IC Statement

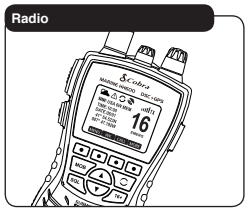
This device complies with Industry Canada licence-exempt RSS standard(s): Operation is subject to the following Two conditions:(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

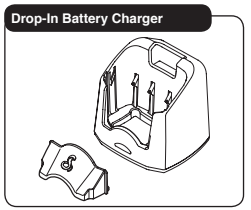
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

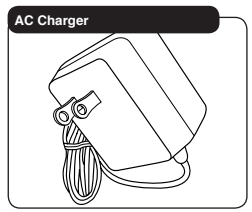
Included in this Package

Included in this package

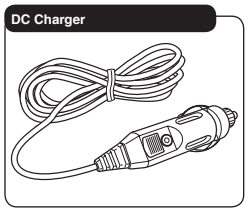
You should find all of the following items in the package with your CobraMarine VHF radio:


Radio

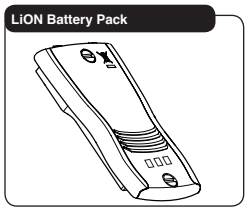

Drop-In Battery Charger

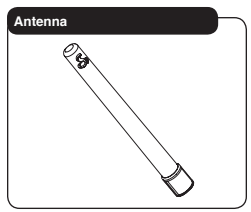

AC Charger

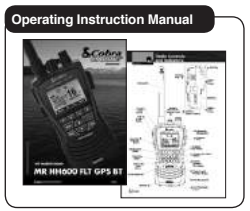
For connection to 120-volt power source.

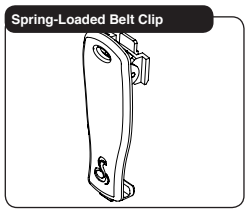

DC Charger

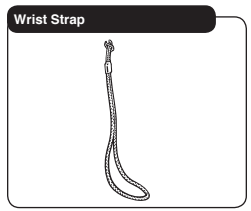
For connection to 12-volt power sources.

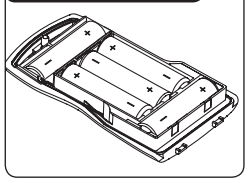

LiON Battery Pack

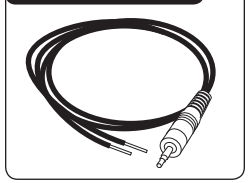

Antenna


Operating Instruction Manual


Spring-Loaded Belt Clip


Wrist Strap

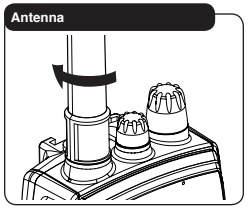

Alkaline Battery Tray


NMEA Output Cable

Install/Remove Antenna

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.

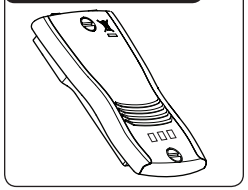
This radio transmitter IC: 906A-MRHH600 has been approved by Industry Canada to operate with the supplied antenna. Other antennas are strictly prohibited for use with this device.

Cet émetteur radio IC: 906A-MRHH600 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

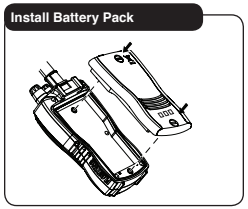
The radio is shipped with a sealed lithium-ion (LiON) battery pack (P/N CM 110-034) that is rechargeable.

LiON Battery Pack



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 may occur. Avoiding extreme temperatures will also help prolong the life of the battery pack for the radio. The device operating voltage is DC 6.29V - DC 8.40V.

Install Battery Pack

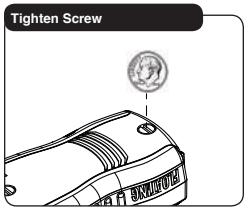


When your rechargeable batteries begin to discharge too quickly, it is time to install a new battery pack. Your radio will also operate with five (5) high-quality AA alkaline batteries, using the included alkaline battery tray.

Installing the Battery Pack

1. Position the battery pack over the back of the radio.
2. Engage the battery pack into the radio until battery pack is fully seated into the radio housing.
3. Tighten the screws using a coin or flat object to secure the battery pack to the radio. Do not overtighten.

Tighten Screw



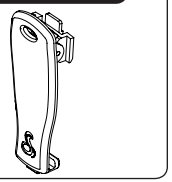
Wrist Strap and Belt Clip

Wrist Strap and Belt Clip

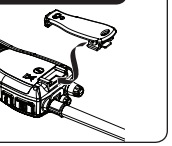
Use the spring-loaded belt clip to carry the radio on your person.

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.

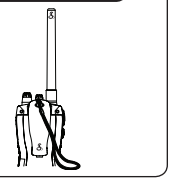
Belt Clip



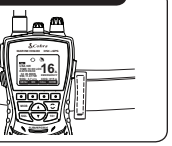
Insert Belt Clip onto Radio



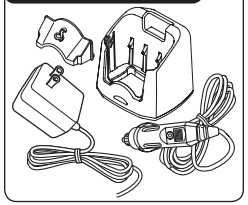
Wrist Strap Attachment



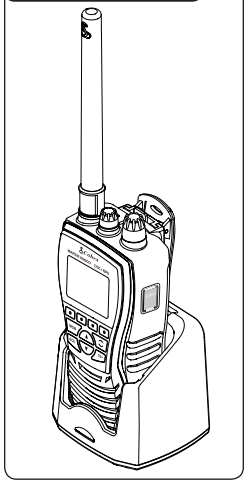
Secure Radio



Power Sources



Initial Battery Charge



Charging

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.

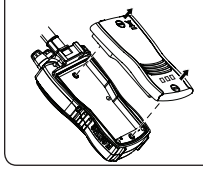
1. Insert one (1) of the power cords into the back of the drop-in charger.
2. Insert the other end of the power cord into the appropriate 12V or 120V power source.
3. Remove the battery pack spacer from the charger and insert the entire radio/battery into the charger. The metal charge contacts on the 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 charge light will turn off when the battery is fully charged.

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 may occur. Avoiding extreme temperatures will also help prolong the life of the battery pack for the radio.

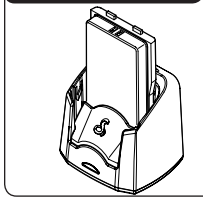
NOTE
If the drop-in charger is used on a boat, Cobra recommends you attach it to a horizontal shelf or vertical bulkhead (using the screw holes provided) to prevent possible damage due to the boat rolling or pitching. The charging base has been designed to hold the battery pack in place during rough sea conditions.

WARNING
The adapter shall be installed near the radio's charger and shall be easily accessible. The plug is considered a disconnect device of the charging base.

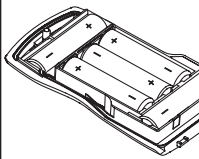
Remove Battery



Battery Pack Charging Only



Alkaline Battery Tray



Fully Charged

Partially Charged

Fully Discharged

To Remove Battery Pack from Radio

1. Loosen the screws 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 the 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.

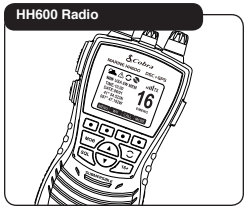
Maintaining the Battery Charge

As you use your radio, the battery power icon will show the battery power remaining. When the battery icon begins to flash, the battery is empty and needs to be recharged. The radio will beep three (3) times and flash "Low Battery" every 10 minutes until the radio turns off.

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

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.

HH600 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 (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.

Tones And Alarms

When your CobraMarine VHF radio is **On,** you can expect to hear the following tones and alarms. The volume of these sounds is controlled by the circuitry in the radio and is not affected by the volume set with the **On-Off Power/Volume** knob.

Confirmation Tone
Single high-pitched beep confirms all button presses except the **Talk** button. It can be turned **On** or **Off.** See set-up routines on page 30.

Error Tone
Three low-pitched beep indicates an invalid button press.

DSC Distress Alarm
High—low—high—low—high. Pause, then repeat. The volume of all alarms will increase after 10 seconds. Press any button to turn it Off.

NOTE
This alarm sounds only for DSC distress calls on Channel 70. It does not sound for voice calls on Channel 16 — you still must listen for those.

Distress Acknowledgement Alarm
High—low—high—low—high. Pause, then repeat. The volume of all alarms will increase after 10 seconds. Press any button to turn it Off.

DSC Routine Call Alarm
High—pause—high—pause—high. Long pause, then repeat. Press any button to turn it Off.

DSC Geographical Alarm
Loud, continuous, medium-pitched, high-low tones (warble) — sounds when a geographical call is received. Press any button to turn it Off.

DSC Position Request Alarm
Medium-loud, continuous, low-pitched series of closely spaced, four (4) beeps [three (3) short – one (1) long] groups — sounds when a position request call is received. Press any button to turn it **Off.**

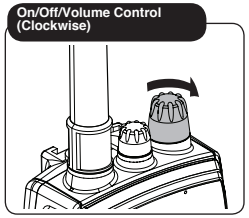
DSC Individual Alarm
High—pause—high—pause—high. Long pause, then repeat. Press any button to turn it Off.

Weather Alarm
Medium-loud, continuous, medium-pitched series of one-half (½) second beeps spaced one-half (½) second apart — sounds when weather alert is turned **On** and NOAA sends a 1050 Hz weather alert tone on the selected weather channel. Press any button to turn it **Off.**

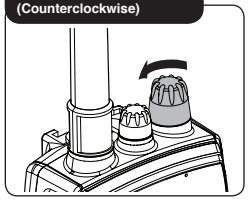
Common Radio Functions

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

On/Off/Volume Control (Clockwise)



On/Off/Volume Control (Counterclockwise)



Power/Volume Control

Power On/Off Control

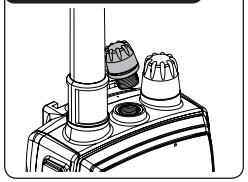
The **On/Off/Volume** control is located at the upper right side of the radio. Turning the **On/Off/Volume** control past the detent position will turn the radio On or Off.

Volume Control

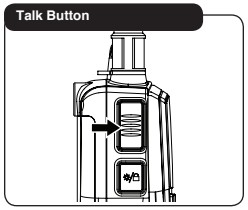
Volume is controlled by turning the **On/Off/Volume** control.

- To increase the volume, turn the **On/Off/Volume** control clockwise.
- To decrease the volume, turn the **On/Off/Volume** control counterclockwise.

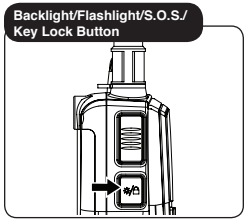
Speaker/Mic Port



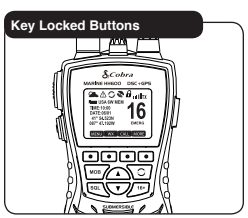
Talk Button



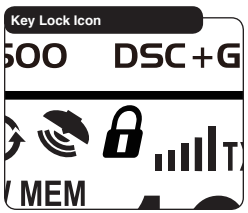
Backlight/Flashlight/S.O.S./ Key Lock Button



Key Locked Buttons



Key Lock Icon



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.

NOTE
Please make sure the port cover is secured and firmly tightened in place when the speaker/microphone is not is use.

Talk Button

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

Light/Key Lock Button

To Display the Backlight Momentarily:
Press the **Light/Key Lock** button. The backlight will remain On for 10 seconds. If the backlight is already On, another press of the **Light/Key Lock** button will cycle through the light mode.

To Activate the Flashlight, Strobe and S.O.S. Light:
Press the **Light/Key Lock** button two times to activate the flashlight function. Press again to activate the Strobe function, press a third time to activate S.O.S. signal and a fourth time to turn it off.

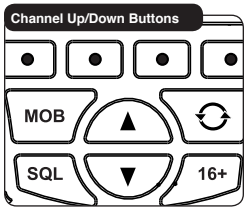
Key Lock

To prevent accidental changes to your settings, you can lock most of the buttons.

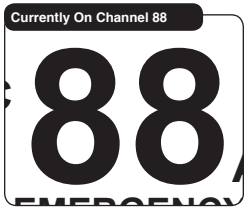
To Lock or Unlock the Buttons:
Press and hold the **Light/Key Lock** button for two (2) seconds. The **Key Lock** icon will appear or disappear in the LCD. When **Key Lock** is On, pressing any of the listed buttons on the front of the radio will result in a three (3) beep error messag and the radio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

The **Light/Key Lock** button, the Emergency 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.

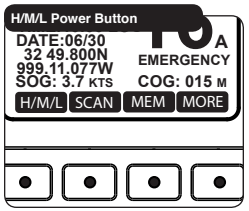
Channel Up/Down Buttons



Currently On Channel 88



H/M/L Power Button



Channel Up/Down Buttons

Your radio will **Receive (Rx)** and **Transmit (Tx)** VHF 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.

You can press and hold the **Channel Up/Down** button for 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.

High/Medium/Low (H/M/L) Power Selection

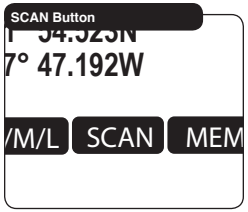
Your radio can transmit selectively at 1, 3 or 6 watts of power. Cobra suggests you maintain the low power setting for short-range communications. You will conserve battery life and avoid overpowering nearby stations with a low power setting signal. Use the high power setting for long-range communications or when you do not receive a response to a signal sent at 1 watt.

To Toggle Between H-M-L Power Modes:

Press the **MORE** soft key until the screen shows as illustrated. Pres the **H-M-L** soft key to set the power 1W, 3W, or 6W. The LCD will show which mode is in effect. Some channels are restricted for a maximum use of 1 watt. Your radio will automatically set the power to **Low Power** mode when you select those channels.

NOTE
Some channels, frequency bands and countries of use might not be able to operate in **High Power** mode.

NOTE
A few channels are Receive only and will not transmit in these channels.



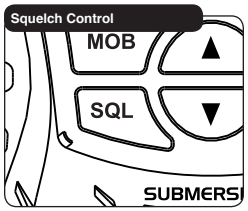
SCAN

Press and release the **SCAN** soft key to scan all channels. Scanning begins at the selected lower channel, and scans to higher channels. Press the **Channel Up/Down** button to change the scan direction.

When a signal is received in **SCAN** mode, the radio will pause 10 seconds before resuming **SCAN** operation. The scan will stop on the paused channel and remain there when the **Talk** button is pressed.

If memory channels are saved, press and release the **SCAN** button to scan all memory channels.

NOTE
If even one memory channel is saved, SCAN will only scan memory channels.



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:

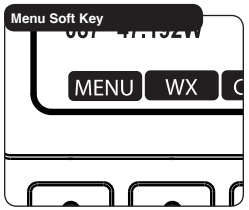
1. With the power On, press the **SQL** button to access the squelch screen.
2. Press the **Channel Up** and **Channel Down** soft keys to set level. The signal level graphic shows squelch level 1 - 8.
3. To adjust your squelch, press the **Channel Down** soft key until you hear a hissing sound, then press and release the **Channel Up** soft key until the hissing stops. This will establish a “Baseline” squelch.
4. By pressing the **Channel Up** soft key further, you will filter weak and medium strength signals. By pressing **Channel Down** soft key, you will receive weaker signals.
5. Press the **Enter** soft key to save this entry and move to the next **Setup** mode programming.

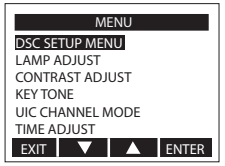
NOTE
If the **Squelch** is set so that you can hear a continuous hissing sound, the **Memory Scan** and **Tri-Watch** functions will be unusable.

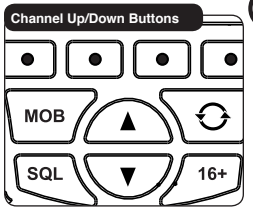
Set-Up Routines

Settings Menu

The **Settings** menu in the CobraMarine VHF radio allows you to turn **On** and **Off** many of its features, to adjust other features to suit your preferences, and to enter your user MMSI number.







To Enter The Settings Menu:

Press the **Menu** button.
The **Settings menu will appear on the LCD.**

After entering the Settings menu, you can scroll through it to make as many entries as you like.
Whenever the setting selection highlight appears in a feature portion of the menu, the current active setting is highlighted.

When you are finished with changes, you can exit the **Settings** menu by pressing the Exit soft key and return to **Standby** mode.

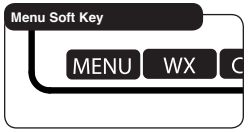
To Exit The Settings Menu:

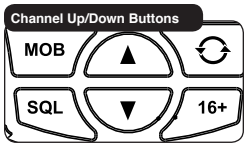
Use the Up/Down buttons to scroll down to EXIT at the bottom of the menu, or press the Exit soft key to move up through the menu until the radio returns to the **Standby mode.**

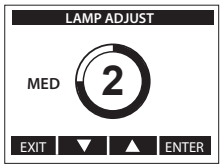
NOTE
Basic set-up routines are described here. For set-up routines that apply specifically to a particular function, they are included in the section for that function.

Backlight Lamp Adjust

The LCD has a **Backlight** lamp to make it visible in the dark.
This lamp can be adjusted for brightness or turned Off.







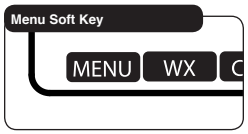
To Adjust The Backlight Level:

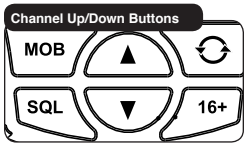
1. Enter the **Settings** menu and scroll to LAMPADJUST with the **Up/Down** soft keys or using the Up/Down channel buttons.
2. Press the **ENTR** soft key and observe the current backlight setting — HIGH, MEDIUM, LOW or OFF.
3. Use the **Up/Down** buttons or **Right/Left** soft keys to switch to the setting you want.
4. Press the **ENTR** soft key to select the backlight setting. Or press the **EXIT** soft key to EXIT without making changes to the backlight setting.
5. The radio will return to the Settings menu. The radio will remember the saved backlight setting, when powering off the radio, or disconnecting power to the radio.

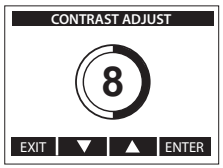
NOTE
Setting the radio to a lower backlight setting will conserve battery power.

LCD Contrast Adjust

The LCD backlight will not be visible in daylight, but the **LCD Contrast** can be adjusted to make it easier to read in different light conditions.





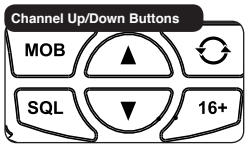


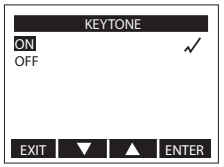
To Change The Contrast:

1. Enter the **Settings** menu and scroll to CONTRAST ADJUST **Up/Down** soft keys or the **UP/Down channel** buttons.
2. Press the **ENTR** soft key and observe the current contrast setting — a number between one 0 and 16.
3. Use the **Up/Down** buttons or the **Right/Left** soft keys to change the number up or down.
4. Press the **ENTR** soft key to select a contrast level. Or press the **EXIT** soft key to EXIT without making changes to the Contrast setting.
5. The radio will return to the settings menu. The radio will remember the saved contrast level, when powering off the radio, or disconnecting power to the radio.

Confirmation Key Tone

The **Confirmation Tone** sounds to confirm all button presses except for the **Talk** button. If you would prefer not to hear the **Confirmation Tone**, you can turn it **Off** and **On** as you choose.



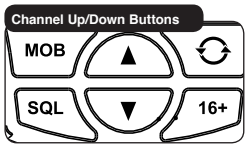


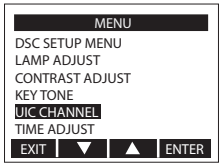
To Turn The Confirmation Tone On Or Off:

1. Enter the **Settings** menu and scroll to KEYTONE with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Press the **ENTR** soft key and observe the current confirmation tone setting — ON or OFF.
3. Use the **Up/Down** soft keys or the **Up/Down channel** buttons to switch to the setting you want.
4. Press the **ENTR** soft key to select the setting. Or press the **EXIT** soft key to EXIT without making changes to the Key Tone setting.
5. The radio will return to the settings menu. The radio will remember the saved Key Tone setting, when powering off the radio, or disconnecting power to the radio.

U.S.A./International/Canada Channel Maps

Three (3) sets of VHF **Channel Maps** 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 pages 68 through 83). Your radio has all three (3) maps built into it and will operate correctly in whichever area you choose.



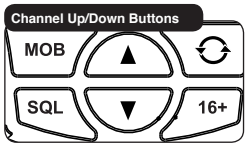


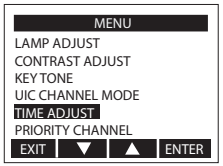
To Set Your Radio For The Area In Which You Will Be Using It:

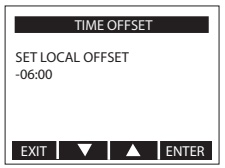
1. Enter the **Settings** menu and scroll to CHANNEL MODE with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Press the **ENTR** soft key and observe the current channel mode setting — USA,INTERNATIONAL, or CANADA.
3. Use the **Up/Down** soft keys or the **Up/Down channel** buttons to switch to the setting you want.
4. Press the **ENTR** soft key to select the setting. Or press the **EXIT** soft key to EXIT without making changes to the Channel Map setting.
5. The radio will return to the settings menu. The radio will remember the saved Channel Map setting, when powering off the radio, or disconnecting power to the radio.

Time Adjust

All VHF, DSC, and GPS activities use a 24-hour clock and Universal Coordinated Time (UTC) which was formerly known as Greenwich Mean Time (GMT). Time Adjust uses your built-in GPS to gather time input. **Time Adjust** will allow the radio to display the time as Local time or UTC time. For time input to be converted to local time, you need to enter the hour offset of your local time zone from Greenwich. (See world city time zone chart on page 88). You can also choose to have the time displayed in a 12 or 24 hour format.

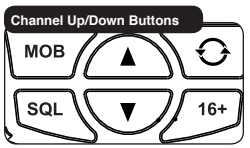


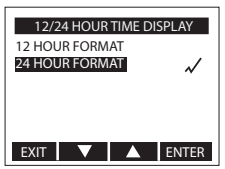




To Change The Time Offset/Adjustment:

1. Enter the **Settings** menu and scroll to TIME ADJUST with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Highlight the **TIME OFFSET** option in the menu.
3. Press the **ENTER** key and observe the current setting.
4. Use the **Up/Down** soft keys or the **UP/Down channel** buttons to change the setting for your local time zone.
5. Press the **ENTER** soft key to select the setting. Or press the **EXIT** soft key to EXIT without making changes to the Local Time Zone setting.
6. The radio will return to the Time Adjust menu. The radio will remember the saved Local Time Zone setting when powering off the radio. If a **TIME OFFSET** is saved the time will be displayed in local time.



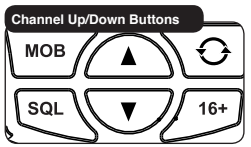


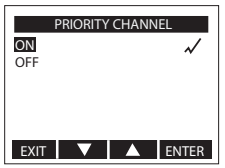
To Select 12 or 24 Hour Format Time Display:

1. Enter the **Settings** menu and scroll to TIME ADJUST with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Highlight the **12H/24H TIME DISP** option in the menu.
3. Press the **ENTER** key and observe the current setting.
4. Use the **Up/Down** soft keys or the **UP/Down channel** buttons to change the setting for how the radio will display the time (12 Hour or 24 Hour format).
5. Press the **ENTER** soft key to select the setting. Or press the EXIT soft key to EXIT without making changes to the time format display setting.
6. The radio will return to the Time Adjust menu. The radio will remember the saved 12 or 24 hour radio display setting when powering off the radio.

Priority Channel

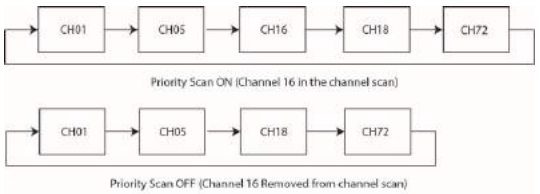
This setting will allow you to choose whether channel 16 is or is not included when channel scanning.





To Turn The Priority Channel On Or Off:

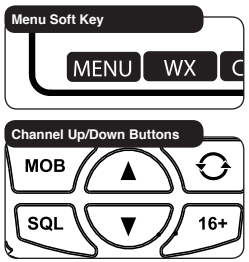
1. Enter the Settings menu and scroll to PRIORITY CHANNEL with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Press the **ENTER** soft key and observe the current priority channel setting — **ON** or **OFF**.
3. Use the **Up/Down** soft keys or the **Up/Down channel** buttons to switch to the setting you want.
4. Press the **ENTER** soft key to select the setting. Or press the EXIT soft key to EXIT without making changes to the priority channel setting.



Weather Alert

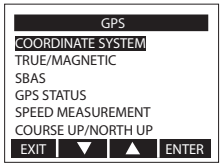
This setting will allow you to choose whether activate the Weather Alert feature.

When NOAA broadcasts a **Weather Alert Signal** and your radio is in the Weather Alert mode, you will hear a continuous audible tone and the radio will automatically switch to **Weather Radio** mode. The alert indicators will sound regardless of what channel you are operating on as soon as a NOAA alert signal is received



To Turn Weather Alert On Or Off:

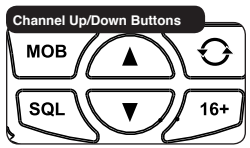
1. Enter the Settings menu and scroll to WEATHER ALERT with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Press the **ENTER** soft key and observe the current Weather Alert setting — ON or OFF.
3. Use the **Up/Down** soft keys or the **Up/Down channel** buttons to switch to the setting you want.
4. Press the **ENTER** soft key to select the setting. Or press the EXIT soft key to EXIT without making changes to the Weather Alert setting. The radio will turn on the Weather Icon and Weather Alert Icon to indicate that the Weather Alert is active.

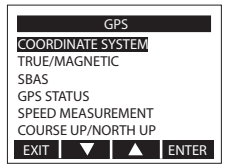


GPS Menu

All VHF Marine radios SHOULD / NEED to have a GPS receiver connected and operating to effectively use the DSC (Digital Selective Calling) features built-in to the radios. In an Emergency you want the rescue authorities and surrounding vessels to know where you are and to be able to quickly assist you in your time of need. Your MR HH600 handheld VHF radio has a GPS receiver built right in!

This menu allows you to select and allows you to test the GPS receiver to be sure that you are receiving good satellite information and check the GPS signal strength.



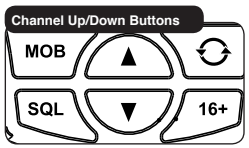


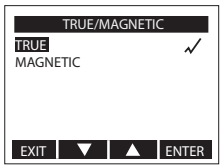
Coordinate System

The **Coordinate System** allows adjusting to your navigating preference. The most common is already selected.

To Select the Coordinate System:

1. Enter the Settings menu and scroll to GPS MENU with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Highlight the COORDINATE SYSTEM option in the menu.
3. Press the **ENTER** key and observe the current setting.
4. Use the **Up/Down** soft keys or the **UP/Down channel** buttons to change the setting to use the desired coordinate system.
5. Press the **ENTER** soft key to select the setting. Or press the EXIT soft key to EXIT without making changes to the Coordinate System setting.
6. The radio will return to the GPS menu. The radio will remember the saved Coordinate System setting when powering off the radio.



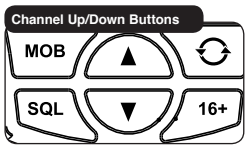


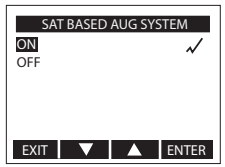
True or Magnetic System

Select **TRUE** or **MAGNETIC** to change if bearings are shown as relative to either true or magnetic north. If **MAGNETIC** is selected then the variation is computed and displayed automatically for every zone.

To Select True or Magnetic System:

1. Enter the Settings menu and scroll to GPS with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Highlight the TRUE/MAGNETIC option in the menu.
3. Press the **ENTER** key and observe the current setting.
4. Use the **Up/Down** soft keys or the **Up/Down channel** buttons to select the desired setting.
5. Press the **ENTER** soft key to select the setting. Or press the **EXIT** soft key to EXIT without making any changes to the True or Magnetic setting.
6. The radio will return to the GPS menu. The radio will remember the True or Magnetic setting when powering off the radio.



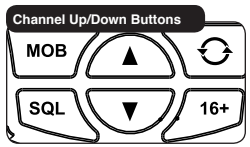


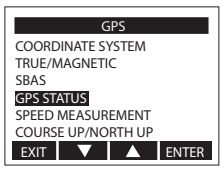
Satellite Based Augmentation (SBAS)

The **SBAS** can be turned **ON** or **OFF**. Some areas of the earth need it turned off for greater accuracy. It is set **ON** by default.

To Select the Satellite Based Augmentation System:

1. Enter the Settings menu and scroll to GPS with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Highlight the **SBAS** option in the menu.
3. Press the **ENTER** key and observe the current setting.
4. Use the **Up/Down** soft keys or the **Up/Down** buttons to select the desired setting.
5. Press the **ENTER** soft key to select the setting. Or press the EXIT soft key to EXIT without making changes to the Sat Based Aug Sys setting.



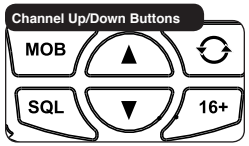


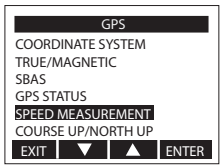
GPS Status

This screen allows you to test the GPS receiver to be sure it is receiving good satellite information and GPS signal strength.

To Select the GPS Status Screen:

1. Enter the Settings menu and scroll to GPS with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Highlight the **GPS STATUS** option in the menu.
3. Press the **ENTER** key and observe the current setting.
4. The GPS Status screen reports the following information:
   a. How many satellites are currently being tracked.
   b. The overall health of the GPS satellite signals being received.
5. Press the **EXIT** soft key to EXIT the GPS Status screen.
6. The radio will return to the GPS menu.



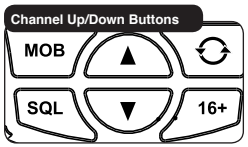


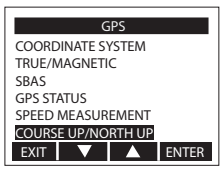
Speed Measurement Units

Select **KNOTS, MPH** or **KM/H** to change if speed is indicated in either nautical miles per hour, miles per hour or kilometers per hour.

To Select Speed Measurement Units:

1. Enter the Settings menu and scroll to GPS with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Highlight the SPEED MEASUREMENT option in the menu.
3. Press the **ENTER** key and observe the current setting.
4. Use the **Up/Down** soft keys or the **Up/Down channel** buttons to select the desired setting.
5. Press the **ENTER** soft key to select the setting. Or press the **EXIT** soft key to EXIT without making any changes to the Speed Measurement setting.
6. The radio will return to the GPS menu. The radio will remember the Speed Measurement setting when powering off the radio.



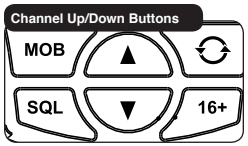


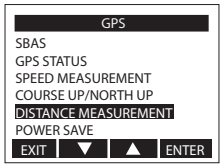
Course Up or North Up Option

This allows selecting either **COURSE UP** or **North Up**. This change the orientation of compass and navigation screens. With NORTH UP selected then North will always appear at the top of those screens. With COURSE UP selected then the direction of travel appears at the top of the screen.

To Course Up or North Up Option::

1. Enter the Settings menu and scroll to GPS with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Highlight the COURSE UP/NORTH UP option in the menu.
3. Press the **ENTER** key and observe the current setting.
4. Use the **Up/Down** soft keys or the **Up/Down channel** buttons to select the desired setting.
5. Press the **ENTER** soft key to select the setting. Or press the **EXIT** soft key to EXIT without making any changes to the Speed Measurement setting.
6. The radio will return to the GPS menu. The radio will remember the Course Up or North Up setting when powering off the radio.



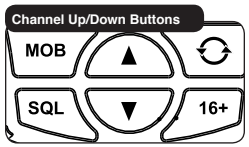


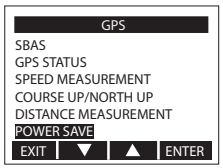
Distance Measurement

Select **STATUTE MILE, NAUTICAL MILE** or **KILOMETER** to change the unit used to display distance. This is used mainly for navigation and indicating a distance to a point.

To Distance Measurement Units:

1. Enter the Settings menu and scroll to GPS with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Highlight the DISTANCE MEASUREMENT option in the menu.
3. Press the **ENTER** key and observe the current setting.
4. Use the **Up/Down** soft keys or the **Up/Down channel** buttons to select the desired setting.
5. Press the **ENTER** soft key to select the setting. Or press the **EXIT** soft key to EXIT without making any changes to the Distance Measurement setting.
6. The radio will return to the GPS menu. The radio will remember the Distance Measurement setting when powering off the radio.





Power Save Mode for GPS

This menu will offers selecting from several Power Save modes. This will save power by shutting down the GPS receiver periodically to save power and prolong battery life. The most common setting is AUTO and it is recommended to leave the radio in AUTO for most users.

To Distance Measurement Units:

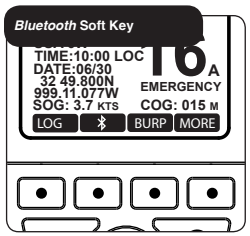
1. Enter the Settings menu and scroll to GPS with the **Up/Down** soft keys or the **Up/Down channel** buttons.
2. Highlight the POWER SAVE option in the menu.
3. Press the **ENTER** key and observe the current setting.
4. Use the **Up/Down** soft keys or the **Up/Down channel** buttons to select the desired setting.
5. Press the **ENTER** soft key to select the setting. Or press the **EXIT** soft key to EXIT without making any changes to the Power Save setting.
6. The radio will return to the GPS menu. The radio will remember the Power Save setting when powering off the radio.

Bluetooth® Mode Pairing and Programming

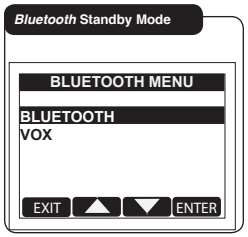
Bluetooth® wireless technology is a standard which has been developed for use in mobile phones and other devices. This process of linking your mobile phone and this radio requires a one-time "pairing" after which the two devices can be "connected" when they are within range. When connected, this radio can act as the speaker and microphone of your mobile phone while your phone is stowed in a safe and dry location.

This programming section shows you how to complete the pairing process. It also shows you how to change some settings related to the Bluetooth functionality of your radio.

Bluetooth Soft Key



Bluetooth Standby Mode



Bluetooth Radio On/Off

This setting allows you to turn On and Off the small Bluetooth radio inside this VHF radio. The default setting is OFF. Turning it Off can save some power. It can easily be switched On at any time.

1. From the **Standby** screen, press the **MORE** soft key until the **Bluetooth** soft key icon appears.
2. Press the **Bluetooth** icon soft key.
3. Press the **Channel Up/Down** soft keys to select Bluetooth and then press **Enter**.
4. Press the **Channel Up/Down** soft keys to select **On** or **Off**.
5. If set ON, the radio will go to discover mode as long as it's not already connected to a mobile phone.

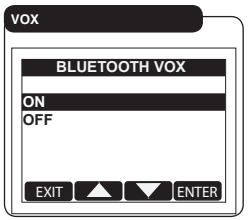
NOTE
This process only needs to be completed for first time operation. From then on, as long as your mobile phone is within 30 feet (10 meters) of the radio, the two units will "Connect" automatically.

Pairing Your Mobile Phone:

1. If **Bluetooth** is turned on, the MR HH600 is automatically ready to pair to your mobile phone.
2. Open the **Bluetooth** setting on your mobile phone and look for a new device called "MR HH600".
3. Select "MR HH600" on your mobile phone and wait to connect. If prompted use the code "0000".
4. You are now connected and ready to use hands-free calling.

Operating Your Radio
Bluetooth® Mode Pairing and Programming

VOX



VOX On or Off

The **VOX** function converts the radio microphone's pickup of your voice from being controlled with the **PTT** button to being always open. When **VOX** is On, the **PTT** button does not need to be pressed to transmit your voice, and you can just speak into the microphone.

When **VOX** is Off, you need to press the **PTT** button while speaking.

To Change Between VOX On and Off:

1. From the **Standby** screen, press the **MORE** soft key until the **Bluetooth** soft key icon appears.
2. Press the **Bluetooth** icon soft key.
3. Press the **Channel UP/Down** soft keys to select **VOX** and press **Enter**.
4. Pres the **Channel UP/Down** soft keys to select **On/Off**.

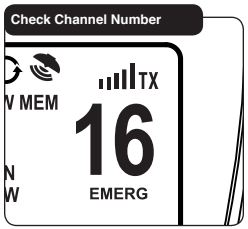
Standby/Receive and Transmit

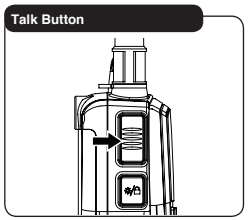
Standby/Receive and Transmit

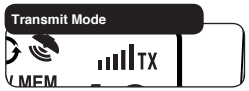
Marine Standby and Receive (Rx) Mode

Marine Standby mode is the default mode for the radio whenever it is turned on. From this mode, you can change current settings by becoming familiar with the different key functions in **Marine Standby** mode. While in **Marine Standby** mode, the user will be able to transmit by pressing the **Push to Talk (Talk)** button. Signals in **Receive (Rx)** mode will be received on the selected channel(s), and alerts broadcast by NOAA will activate the corresponding NOAA weather alert channels in your radio.

NOTE
Coast Guard alerts are broadcast on Channel 16. You must have the **WX Alert** enabled to receive NOAA weather alerts. While in **Marine Standby** mode, you will receive any voice messages sent on the channel to which you are tuned.







Transmit (Tx) Mode

Transmit (Tx) mode gives you the ability to interact with safety services, other vessels and shore stations. When you use this capability, be sure to follow the procedures and to observe the courtesies that govern its use so everyone benefits. See the Appendix to help you select the proper channels.

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. Select the desired **Low, Med or High 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.

Weather Mode Programming

Weather (WX) Alert Programming

NOAA Weather Channels and Alert

Monitoring the weather will probably be a frequent use of your radio. NOAA provides continuous, around-the-clock broadcasts of the latest weather information. Taped weather messages run every four (4) to six (6) minutes and are revised every two (2) or three (3) hours, or as needed. The Coast Guard also announces weather and other safety warnings on Channel 16. Smart boaters keep an eye on safety and an ear to the radio — and never let the weather catch them unaware.

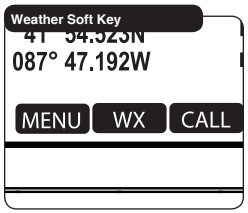
NOAA Emergency Weather Alert

In the event of a major storm or other weather condition requiring vessels at sea or on other bodies of water to be notified, NOAA broadcasts a 1050 Hz tone that receivers such as your CobraMarine VHF radio can detect and warn you of a weather alert condition. When the Weather Alert mode on your radio is set toOn, this signal will produce a loud tone from the speaker in the radio and will automatically switch to the alerting weather channel so the alert broadcast can be heard.

NOAA Test Alert System

To test this system, NOAA broadcasts the 1050 Hz signal every Wednesday sometime between 11 a.m. and 1 p.m. in each local time zone. Any receiver that can detect the weather alert tone may use this service to verify that this system is functioning properly.

Weather Soft Key



Weather (WX) Standby Mode

To enter the **WX Standby** mode, press the **WX** soft key.

The **Weather Standby Mode** will show the currently selected weather channel and the **Weather Alert** setting status as On or Off.

Press the Back soft key to return to VHF Radio Standby.

NOAA broadcasts weather information on the channels as described in the NOAA weather channels section on page 85 of this manual.

The following items will be displayed on the LCD display:

Weather Standby

NOTE

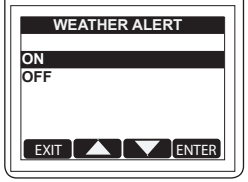
Only one (1) or two (2) of the weather channels will be operating in any given location [only in **Receive (Rx)** mode]. You will need to select the channel with the strongest signal in your location.

NOTE

When in the **WX Alert** mode, and NOAA sends the 1050 Hz alert tone, the radio will sound a series of loud beeps regardless of the volume control setting.

This setting will allow you to choose to activate the Weather Alert feature. When NOAA broadcasts a Weather Alert Signal, and your radio has Weather Alert turned On, you will hear a continuous audible tone and the radio will automatically switch to Weather Radio mode. The alert indicators will sound regardless of what channel you are operating on as soon as a NOAA alert signal is received.

WX Alert On/Off



Weather Radio Standby

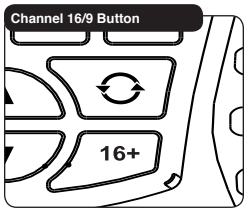
To Set WX Alert On or Off:

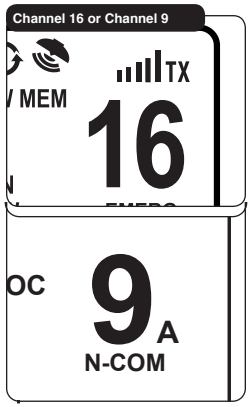
1. From the **Standby** mode, press **MENU** soft key to enter the **Weather Alert** programming.
2. Press **Channel Up/Down** button to select **WX ALERT**.
3. Press **ENTER** soft key to select **Weather Alert On/Off**.
4. With the **Channel Up/Down** soft keys select **On/Off**.
5. Press **ENTER** soft key to save this entry and **EXIT** soft key to exit menu.

Short Cut to WX Alert On or Off Select:

1. From the **Standby** screen, press the **WX** soft key.
2. Press **ALERT** soft key to switch **WX Alert** to On or Off.
3. Press **BACK** soft key to return to radio mode.

Advanced Operation





Channel 16+ Mode

Channel 16+ mode gives you quick access to calling on Channel 16 and Channel 9 from any operational mode.

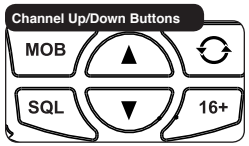
To Switch to Channel 16+ or Channel 9:

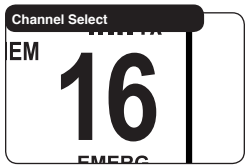
1. Press the **Channel 16+** button to change to Channel 16.
2. Press the **Channel 16+** button again to change to Channel 9.
3. Press the **Channel 16+** button a third time and return to the last used channel.

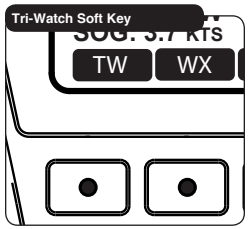
Tri-Watch

Tri-Watch gives you one (1) soft key access to scan the three (3) channels of most importance to you. Channel 16 and Channel 9 will always be included as scanned channels. The remaining channel will be the VHF channel in effect when you enter **Tri-Watch** mode.

NOTE
The radio must be squelched for tri-watch to function. See page 16 for squelch procedure.







To Enter Tri-Watch Mode:

1. In **Standby** mode, use the **Up/Down buttons** to go to the channel you want to add as the third location to be scanned.
2. Press the **Tri-Watch** soft key.

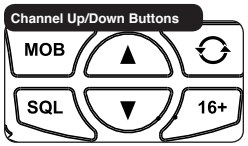
TRIP-WATCH will be indicated on the LCD and the radio will scan between Channel 16, Channel 9, and the third tri-watch channel you selected. A signal on any one (1) of the three (3) channels will stop the scan to allow you to listen to the traffic on the channel. The channel number will be displayed on the LCD.

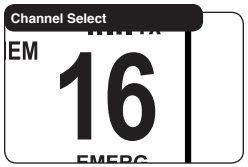
a. To exit Tri-Watch, press the **Tri-Watch** softkey or the TALK button. The radio will return to **Standby** mode on the selected third Tri-Watch channel.

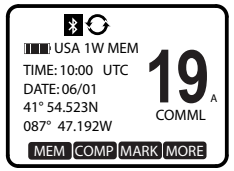
If you do not press any buttons, your radio will automatically resume scanning tri-watch channels when the incoming transmission is complete.

Memory Channels

You can program (or tag) any or all channels to be scanned in the **Memory Scan** mode.







To Program Memory Channels:

1. From **Standby** mode, select a channel to be tagged using the **Up/Down** buttons.
2. Press the **MORE soft key** (if necessary), then the **MEM soft key.** The channel will be tagged for scanning and **MEM** (memory channel) will appear on the LCD whenever that channel is selected.

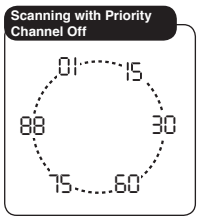
   Repeat steps 1 through 2 to add addition memory channels.

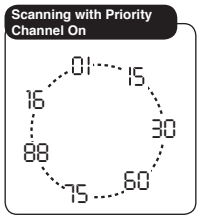
To Clear Memory Channels:

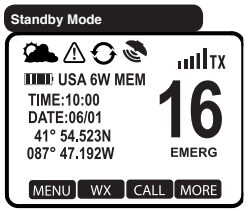
1. Simply reverse the steps above. MEM (Memory Channel) will no longer appear on the LCD whenever that channel is selected.

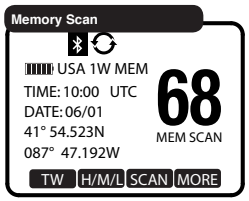
Memory Scan

During **Memory Scan**, the radio will rapidly switch from tagged channel to tagged channel. Whenever any activity is detected, the radio will stop the scan to allow you to listen to the activity on that channel. The radio will then continue to scan after 2 seconds of inactivity, unless you switch out of the **Memory Scan** mode.









NOTE
Memory channels must be programmed to use memory Scan. The radio will enter standard Scan Mode if no memory Channels are programmed.

NOTE
The radio must be squelched for the **Memory Scan** mode to function. See page 16 for squelch procedure.

To Enter Memory Scan:

From **Standby** mode, press the **MORE soft key** (if necessary), then the **SCAN soft key.**

The radio will immediately begin to scan the channels you tagged. MEM SCAN will be highlighted on the LCD.

The radio will then continue to scan after 2 seconds of inactivity, unless you switch out of the **Memory Scan** mode.

To exit Memory Scan, press the **SCAN soft key or Talk Button.** This will return the radio to **Standby** mode on the last selected channel.

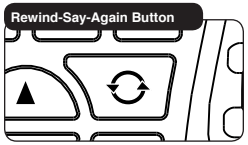
Rewind-Say-Again® Feature

The radio has a Cobra exclusive playback feature, **Rewind-Say-Again®.** This feature allows you to replay the last 20 seconds of an incoming audio transmission. It also allows you to record call details including position coordinates, call signs, registration numbers and store details that will help authorities locate a distressed vessel.

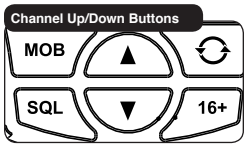
Example 1:
When engine noise, music or conversation creates too much noise to hear an inbound message clearly, press the **Rewind-Say-Again®** button to enter the **Rewind-Say-Again®** menu to be able to hear the message a second time. This feature eliminates asking the sender to repeat the message.

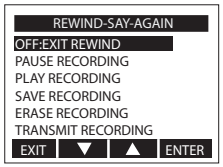
Example 2:
When listening to an urgent distress of an excited caller with confusing background noise, press the **Rewind-Say-Again®** button to enter the **Rewind-Say-Again®** menu to be able to hear the message a second time and get lifesaving information.

Rewind-Say-Again Button



Channel Up/Down Buttons



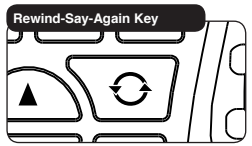


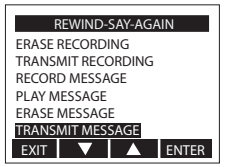
Operation of Rewind-Say-Again®

1. From the Standby mode, press the **Rewind** soft key after the last inbound audio transmission. The last recording will immediately start to play back.
2. Using the **Up/Down soft keys** or the **channel Up/Down buttons** scroll to the **PLAY RECORDING** menu option.
3. Press the **ENTER** soft key to hear the recording again.
4. The radio automatically replays the last 20 seconds of the previous audio transmission.
5. Press the **Rewind** key a second time to exit the Rewind menu and return to Standby mode.

Rewind-Say-Again Icon

Rewind-Say-Again Key





Setup and Advanced Operation of Rewind-Say-Again®
Operation of Rewind-Say-Again®:

1. **Rewind** is set to ON by default. The Rewind icon will appear on the Standby screen when Rewind is on (see illustration).
   a. **To Turn REWIND Off -** press the **Rewind** key to enter the Rewind-Say-Again menu. With **OFF: Exit REWIND** selected, press the Enter soft key to exit and turn OFF the Rewind function.
   b. **To Turn REWIND ON -** press the **Rewind** key to enter the Rewind-Say-Again menu. With **OFF: EXIT REWIND** highlighted, press the Rewind key. This turns on Rewind and exits to VHF Standby mode.

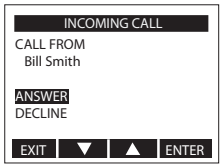
The Rewind-Say-Again function also has several advanced options. In addition to the recording of an incoming transmission the user can also record a personal message for playback later. This could be useful for navigation, emergency or vessel operation information if a pen and paper are not available or practical. The options available are:

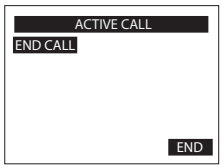
2. **PAUSE RECORDING -** Pause recording of incoming audio transmissions.
3. **PLAYBACK RECORDING -** Playback recorded incoming audio. This can be used to repeat the playback again.
4. **SAVE RECORDING -** Saves recorded incoming audio.
5. **ERASE RECORDING - Erases the saved recording.**
6. **TRANSMIT RECORDING - Transmit recorded message.**
7. **RECORD MESSAGE -** Record a message (using the microphone to record the message, using the PTT key to start and stop the recording).
8. **PLAY MESSAGE -** Playback the recorded message.
9. **SAVE MESSAGE -** Save the recorded message.
10. **ERASE MESSAGE -** Erases the saved message.
11. **TRANSMIT MESSAGE -** Transmit the recorded message.

Mobile Phone Operation with *Bluetooth®*

NOTE
Please refer to the **Bluetooth Mode Pairing and Programming** section on page 28 for instructions on how to pair your mobile phone with this device. The following section covers how to complete a phone call and other basic operations.

Answer Incoming Phone Calls





This handheld radio, once properly paired and connected to your Bluetooth® compatible mobile phone, can answer incoming calls received on your mobile phone. It can act as the speaker and microphone, while your mobile phone stays safe and dry. It will also improve audio quality on both ends of the conversation.

To Answer and End an Incoming Call:

1. The speaker will ring. The screen will display **ANSWER/ DECINE** and the caller ID, if available.
2. Press and release the **ENTER** soft key to answer the call. After the call is answered, the screen will display **ACTIVE CALL**.
3. Begin conversation with the caller by a pressing the **PTT** (Push to Talk) key and speaking into the small microphone above the LCD. This is very similar to a standard radio operation and it completely eliminates all background noise when you are not speaking.

NOTE
To enable hands-free conversation or **"VOX"** mode (pressing in the **PTT** key not required), see the Bluetooth setup instructions on page 29.

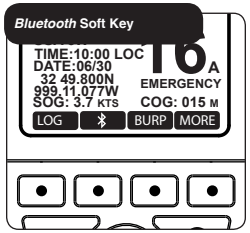
4. To end a call, press and release the **END** soft key. The radio will then return to previous **Standby** mode and resume normal operation.

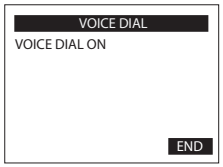
Initiate a Phone Call

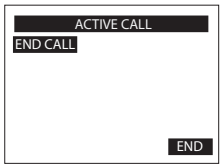
There are several ways to initiate a call. These include initiating (as normal) from the mobile phone, using voice dialing and last number redial.

To Initiate from the Mobile Phone

1. Simply dial a number on your mobile phone. (See manufacturer's instructions for making a call.) When the phone's **Send** key is pressed, the radio will respond by changing over to **Bluetooth** mode and the matrix will display **ACTIVE CALL** and the option to **END**.







Using Voice Dial

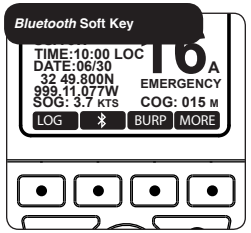
This feature allows you to use your voice to dial a contact from the contact list on your mobile phone.

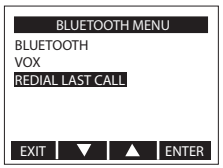
NOTE

Voice dialing is an advanced function and may not be supported by all phones. Cobra suggests you set it up and become familiar with it on your mobile phone before you attempt using it in conjunction with the radio or another Bluetooth device.

To Initiate a Voice Dial Call:

1. Press and hold the **Bluetooth** soft key from **VHF** mode. This will initiate the voice dial feature on the connected mobile phone.
2. You will hear a beep or audio command from the phone and the radio will show **VOICE DIAL ON**. Press and hold the **PTT** (Push to Talk) button and speak the command into the radio.
3. The mobile phone will begin to dial the contact it "recognizes." The call will be completed through the speaker and microphone of the radio.
4. Hang up by pressing the **END** soft key when you complete your call.





Last Number Redial

This feature allows you to redial the last number stored in the mobile phone's Call Log. This feature is supported by most mobile phones.

To Initiate a Last Number Redial:

1. Press and release the **Bluetooth** soft key to enter the **Bluetooth** menu.
2. Press the C**hannel Up/Down** soft key to select **REDIAL LAST CALL**.
3. Press **ENTER** soft key to redial.
3. The connected mobile phone will redial the last number. The call will be complete through the speaker and microphone of the radio.
4. Hang up by pressing the **END** soft key when you complete your call.

To Disconnect (At the End of the Day)

You might not want to take your calls through this VHF radio once you are back at the dock or in a dry location. See the instructions in the **Bluetooth Mode Programming** section on page 28 for instructions on how to turn Off the **Bluetooth** function of the radio.

NOTE

If switched to Off setting, then the radio will not reconnect with mobile phone on power up. The two devices will remain paired, but they will not connect until Bluetooth is turned back On again from the **Bluetooth Programming** mode.

General *Bluetooth* Operation and Frequently Asked Questions

■ **What is the Industry Standard Range for Bluetooth® Wireless Technology?**

The industry standard range for Bluetooth wireless technology is 30 feet (10 meters). The radio will loose its pairing with the mobile phone if the mobile phone and the radio are separated farther than this. The radio will automatically reconnect with the mobile phone when the user comes back into range.

■ **How many phones can the radio pair with?**

The radio can be paired with up to 8 mobile phones. However, it can only connect and operate with one mobile phone at a time.

■ **Do I need to have my mobile phone with me?**

Yes, the phone call is actually completed through your mobile phone and your mobile phone operator/carrier. The mobile phone must be with the 30 feet (10 meters) range of the radio. The radio does not increase the offshore range of your mobile phone.

■ **Can I use a standard Bluetooth® headset with this radio?**

No, the radio is using the headset profile of the Bluetooth specification to pair with your mobile phone. It cannot pair to another Bluetooth headset.

■ **Can I use this unit as a speakerphone or hands-free device?**

Turning on VOX allows you to use the radio without pressing the PTT (Push to Talk) button. The radio will still need to be operated in a face held position with the microphone close to the mouth. This radio uses a noise canceling microphone, and it will not operate well from the belt clip or another hands-free position.

Operating Your Radio

Mobile Phone Operation
With *Bluetooth®*

■ **Please make sure to note your VOX setting.**

If VOX is set to On, then the receiving caller might hear conversation and noise in your background. This setting is retained in memory. If switched On, then it will be On the next time the radio is switched On and connected.

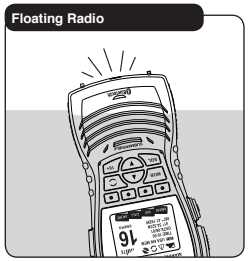
■ **Can I use my mobile phone for emergency use?**

No, Cobra does not endorse cellular telephones as a substitute for marine radios. They generally cannot communicate with rescue vessels and, if you make a distress call on your cellular telephone, only the party you call will be able to hear you.

Additionally, cellular telephones may have limited coverage over water. If you do not know where you are, the Coast Guard will have difficulty finding you if you are using your cellular telephone. However, cellular telephones can have a place onboard where cellular coverage is available – to allow social conversations and keep the marine frequencies uncluttered and available for their intended use.

Floating Feature

Floating Radio



Floating Radio

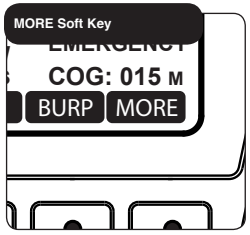
This radio is designed to float if dropped overboard. The flashing light at the bottom of the radio will activate as soon as it makes contact with water and the orange center makes it visible and easy to retrieve. This rugged radio is also designed to meet JIS8 (IPX8) specifications. This means it's designed to operate properly after being submerged in more than one meter deep water for 30 plus minutes.

NOTE
The radio must be turned on for the strobe light to operate.

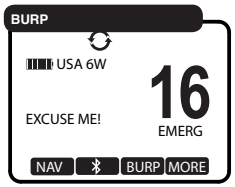
NOTE
Do not leave the radio floating in water permanently. This could cause premature corrosion of the battery contacts and other damage.

NOTE
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.

MORE Soft Key



BURP



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 the **MORE** soft key until the **BURP** soft key appears.
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 **EXCUSE ME!**.
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.

Maintenance and Troubleshooting

Maintenance

Very little maintenance is required to keep your CobraMarine VHF 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

Problem	Possible Cause(s)	Solution(s)
No display on LCD when radio is turned On	Batteries are exhausted Batteries not installed properly	Recharge or replace batteries Remove batteries and reinstall according to polarity markings
Batteries run down quickly	Batteries are at the end of their life	Replace with new batteries
Will transmit at one (1) or three (3) watts, but not at six (6) watts	Batteries are low Selected channel is imited to one (1) watt	Recharge or replace batteries Switch to another channel
Will not transmit	Selected channel is limited to receive only	Switch to another channel
No sound from speaker	Volume level is too low or squelch level is too deep	Re-adjust volume and squelch
No response to button press	Button lock is On	Press **Backlight/ Key Lock** button

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.

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 70.

For Example

The vessel Corsair calling the vessel Vagabond:

Corsair: “Vagabond, this is Corsair (station license number call sign).”

Vagabond: “Corsair, this is Vagabond. Over.”

Corsair: “Vagabond go to working Channel 68. Over.”

Both parties switch over to the agreed upon working channel...

Corsair: “Vagabond I need to talk to you about... Over.”

Vagabond: “Corsair in answer to your question about... Over.”

Corsair: “Vagabond, thanks for the information about... (call sign and **out**).”

After each transmission, say “OVER” and release the microphone Push to Talk (PTT) button. This confirms that the transmission has ended. When all communication with the other vessel is totally completed, end the message by stating your call sign and the word “OUT.” Remember, it is not necessary to state your call sign with each transmission, only at the beginning and end of the message.

NOTE
For best sound quality at the shore station or other vessel receiving your call, hold the microphone/speaker at least 2 in. (51 mm) from your mouth and slightly off to one (1) side. Speak in a normal tone of voice.

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.

WARNING
The device complies with RF specifications when the device used at 25mm from your front face and 0mm from your body, Maximun SAR Value (10g): 3.54 W/Kg.

MOB (Man Over Board)

Your radio features the Man Over Board function that marks and memorizes the postion information if a crew member falls overboard. The radio will help to navigate back to that location.

NOTE
The radio can’t calculate for the effects of tide, current and wind on your crew member’s location over time. The MOB function can only act as a guide for their possible location.

NOTE
The radio must have satellite recption for MOB to mark the position.

- Press the MOB button. The radio will save that MOB location. Pressing the NAV soft key activates the navigation screen to be able to navigate quickly to the MOB location.
- From the MOB screen, press the **Enter** soft key and radio’s screen will prompt to send a DSC emergency call. See detailed instructions for Digital Selective Calling (DSC) on page 52 for more information.

NOTE
Activating the MOB function does not send an emergency call.

Digital Selective Calling (DSC)

Digital Selective Calling (DSC)

Digital selective calling is a semi-automated system for establishing a radio call. It has been designed by the International Maritime Organization (IMO) as an international standard for VHF, MF, and HF calls and is part of the Global Maritime Distress and Safety System (GMDSS).

DSC will eventually replace aural (listening) watches on distress frequencies and will be used to announce routine and urgent maritime safety information broadcasts. Until DSC is fully implemented, it is still necessary to maintain a listening watch on Channel 16.

The DSC system allows mariners to instantly send a distress call with GPS position coordinates to the Coast Guard and other vessels within range of the transmission. DSC also allows mariners to initiate and receive distress, urgent, safety, routine, position request, position send, and group calls between vessels equipped with DSC capable radios.

Maritime Mobile Service Identity (MMSI)

Maritime Mobile Service Identity (MMSI)

The MMSI Number Is Available In The U.S.A. From Any Of Two (2) Sources:

- U.S. Power Squadron www.usps.org
- BoatU.S.– www.getmmsi.com

NOTE
The above references are for recreational vessels only. Commercial vessels should contact the FCC.

An MMSI is a nine (9) digit number used on a marine radio capable of using digital selective calling (DSC). It is used to selectively call other vessels or shore stations and is similar to a telephone number.

For your CobraMarine™ radio to operate in the **DSC** mode, you must enter your maritime mobile service identity (MMSI) number. See page 55 for instructions on how to enter it.

In Canada, Contact:

- Industry Canada Spectrum Management Office (only available on the Internet): www.ic.gc.ca and search for “MMSI”.

To Obtain An MMSI Number Outside The U.S.A.:

Users can obtain an MMSI from their country’s telecommunications authority or ship registry. This may involve amending or obtaining a ship station license.

WARNING
This equipment is designed to generate a digital maritime distress and safety signal to facilitate search and rescue. To be effective as a safety device, this equipment must be used only within communication range of a shore-based VHF marine channel to distress and safety watch system. The range of the signal may vary.

Digital Select Calling (DSC) Setup

DSC Set-Up

Digital selective calling — **DSC** — employs digital RF signals which tend to carry further and be less susceptible to distortion from noise and atmospheric conditions than analog ones. The result is greater range and more reliable message delivery per watt of output power.

But, that is not the only advantage of DSC equipped radios. Those radios are set up to interface with GPS and to automate many of the operations involved in sending and receiving messages. That results in more compact and accurate messages and less congestion of the airwaves.

The price of these benefits to the user is the time it takes to do the required set-up to make the DSC features work. A little time spent when your radio is new will pay dividends over its life.

User MMSI Number

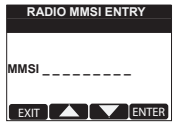
The nine (9) digit MMSI number, similar to a telephone number, is a unique identifier for a vessel. DSC incorporates this number into every message that is Sent (Tx) or Received (Rx). Enter the MMSI number as soon as you receive your MMSI number from the issuing agency.

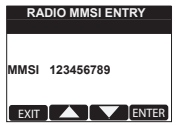
NOTE
The radio does not operate in the DSC mode until an official MMSI number is entered. An error tone will sound when attempting to operate in the DSC mode without an MMSI number.

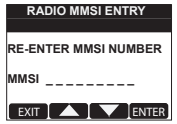
NOTE
An MMSI number can only be entered one time. To enter a new MMSI number, please contact Cobra customer service.

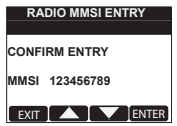
NOTE
An alert tone and message will sound each time you try and use the radio until an MMSI is programmed.

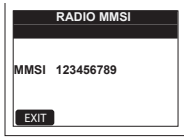
Digital Select Calling (DSC) Setup











To Enter Your MMSI Number:

1. Enter the Settings menu and scroll to DSC SETUP menu with the **Up/Down** soft keys or the **Channel Up/Down** buttons.
2. Press the **ENTER** soft key and scroll to **RADIO MMSI ENTRY** with the Up/Down soft keys or the channel Up/Down buttons.
3. Press the **ENTER** soft key. The blinking cursor will appear at the first digit under **RADIO MMSI ENTRY**.
4. Use the **Up/Down** soft keys or the **Channel Up/Down** buttons to scroll through the number list to the first digit of your number.
5. Press the **ENTER** soft key to select the digit and the blinking cursor will move to the next digit of the number.
6. Repeat steps 3 and 4 until all nine (9) digits of your MMSI number are entered.
7. Check that you have entered the number correctly. The radio will ask you to re-enter your number to confirm.
8. Press **ENTER** soft key to save the MMSI number and the radio will return to the DSC SETUP MENU.

NOTE
After the MMSI number has been entered, the RADIO MMSI ENTRY menu option will move to the bottom of the DSC SETUP MENU. This is done because the MMSI entry is entered only once.

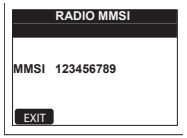
If You Incorrectly Enter Your MMSI Number

YOU CAN DO THIS ONLY ONCE! You will have to contact Cobra® Electronics (see product service on page 66 for details) for reset before you can enter a new MMSI number into the radio.

Because the MMSI number is so important to DSC operation, this limitation is imposed on all DSC capable radios to prevent constant changes and the potential introduction of errors in the process.

If You Transfer Your Radio To A Different Vessel

Contact the MMSI issuing agency from which you obtained your number and change the information associated with your number to correspond to vessel in which it will be mounted.

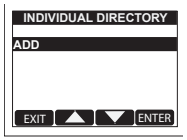


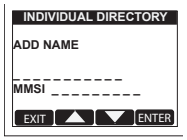
To View Your MMSI Number At Any Time:

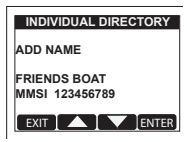
1. Enter the **DSC SETUP MENU** menu and scroll to RADIO MMSI ENTRY with the **Up/Down soft keys** or the **Up/Down channel buttons**.
2. Press the **ENTER** button and the already entered number will be displayed.
3. Press the **EXIT** soft key to return to the **DSC SETUP MENU.**

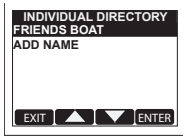
Individual Directory

DSC calling allows you to call another vessel or station directly if you know its MMSI number. Your CobraMarine VHF radio allows you to store up to twenty (20) names and their associated MMSI numbers for quick access.









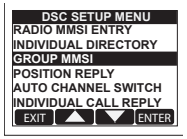
To Enter Or Edit Names And MMSI Numbers In The Directory:

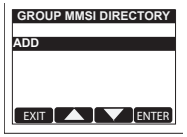
1. Enter the **DSC SETUP MENU** and scroll to INDIVIDUAL DIRECTORY with the **Up/Down soft keys** or the **Up/Down channel buttons**.
2. Select the ADD option in the menu. Press the **ENTER** soft key to ADD a new Name and MMSI number.
3. The cursor will begin to blink at the first character under **ADD NAME**.
4. Use the **Up/Down soft keys** or the **Up/Down channel buttons** to scroll through the character list.
5. Press the **ENTER** soft key to select a character. This will also move the blinking cursor to the next character.
6. Repeat steps 4 and 5 to enter additional characters — up to a maximum of eleven (11) — for the name.
7. After entering the name, press the **ENTER** soft key to move the blinking cursor to the first character under MMSI.
8. Repeat steps 4 and 5 until the nine (9) digit MMSI is entered.
9. Press the **ENTER** soft key to save the entry.
10. Press **ADD** to enter another name/MMSI number entry, or highlight the entry just entered and press the **ENTER soft key** to edit or delete the current entry, or press the **EXIT soft key** to return to the **DSC SETUP MENU**.

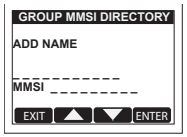
Group MMSI Number

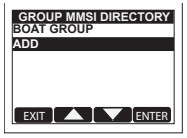
Nautical organizations such as yacht clubs and the organizers of events such as regattas can establish **Group MMSIs**. These allow a message to be sent automatically to all members of the group without having to call each one individually.

Each member of the group must enter the group MMSI number in his radio in order to receive group messages.









To Enter A Group MMSI Number:

1. Enter the **DSC SETUP MENU** and scroll to GROUP MMSI with the **Up/Down soft keys** or the **Up/Down channel buttons**.
2. Select he ADD option in the menu. Press the **ENTER** soft key to ADD a new Name and MMSI number.
3. The cursor will begin to blink at the first character under **ADD NAME**.
4. Use the **Up/Down soft keys** or the **Up/Down channel buttons** to scroll through the character list.
5. Press the **ENTER** soft key to select a character. This will also move the blinking cursor to the next character.
6. Repeat steps 4 and 5 to enter additional characters — up to a maximum of eleven (11) — for the name.
7. After entering the name, press the **ENTER** soft key to move the blinking cursor to the second character under MMSI (the first digit of a Group MMSI number always starts with a 0).
8. Repeat steps 4 and 5 until the nine (9) digit MMSI is entered.
9. Press the **ENTER** button to save the entry.
10. Select **ADD** to enter another name/MMSI number entry, or highlight the entry just entered and press the **ENTER** soft key to edit or delete the current entry, or press the **EXIT soft key** to return to the **DSC SETUP MENU**.

NOTE

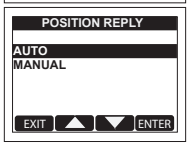
The group MMSI is established by modifying the MMSI assigned to one (1) of the group members. The last digit of that member's MMSI number is dropped and a zero (0) is inserted at the beginning. For example, member MMSI number 366123456 becomes group MMSI number 036612345.

Group MMSIs can be entered and changed any number of times without the need to have your radio reset

Position Request Reply Type

The ability to send your position to another station is an added feature of DSC radios that have GPS. It is handy for rendezvous and rescue situations.

Your CobraMarine VHF radio allows you to choose whether to have the radio automatically respond to all **Position Requests** it receives or to alert you to a **Position Request** and allow you to choose whether to respond or not — manual reply.

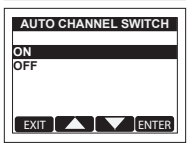


To Set The Position Request Reply Type:

1. Enter the **DSC SETUP MENU** menu and scroll to POSITION REPLY with the **Up/Down soft keys** or the **UP/Down channel buttons.**
2. Press the **ENTER** soft key and observe the current highlighted setting — **AUTO or MANUAL**.
3. Use the **Up/Down soft keys** or the **Up/Down channel buttons** to select the desired setting.
4. Press the **ENTER** soft key to select the setting and return to the **DSC SETUP MENU**.

Auto Channel Switch

This setting allows your radio to automatically switch to the requested channel when receiving an Individual Call. In some cases, automatically switching channels may not be wanted, especially if the radio is being used for Bridge to Bridge communications in a busy port or waterway.

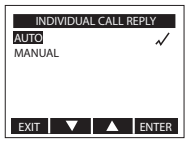


To Set The Automatic Channel Switch On or Off:

1. Enter the **DSC SETUP MENU** menu and scroll to AUTO CHANNEL SWITCH (Automatic Channel Switch) with the **Up/Down soft keys** or the **Up/Down channel buttons**.
2. Press the **ENTER** soft key and observe the current highlighted setting — **ON or OFF**.
3. Use the **Up/Down soft keys** or the **Up/Down channel buttons** to select the desired setting.
4. Press the **ENTER** soft key to select the setting and return to the **DSC SETUP MENU**.

Individual Call Reply

The Individual Call Reply feature is used when receiving Individual DSC calls. When receiving a Individual DSC Call, you may not want the radio to reply to the call automatically. This setting allows you to disable the automatic reply.

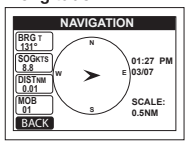


To Set The Individual Reply Auto or Manual:

1. Enter the **DSC SETUP MENU** menu and scroll to INDIVIDUAL CALL REPLY with the **Up/Down soft keys** or the **Up/Down channel buttons.**
2. Press the **ENTER** soft key and observe the current selected setting — **AUTO or MANUAL**.
3. Use the **Up/Down soft keys** or the **Up/Down channel buttons** to select the desired setting.
4. Press the **ENTER** soft key to select the setting and return to the **DSC SETUP MENU**.

Manual Position Entry

The Manual position entry feature allow you to enter the time (UTC time), Latitude and Longitude.



To Enter the Time, Latitude, and Longitude:

1. Enter the **DSC SETUP MENU** menu and scroll to MANUAL ENTRY with the **Up/Down soft keys** or the **Up/Down channel buttons.**
2. The cursor will begin to blink at the first number of the UTC time entry.
3. Use the **Up/Down soft keys** or the **Up/Down channel buttons** to scroll through the number list.
4. Press the **ENTER** soft key to select a number. This will also move the blinking cursor to the next number under UTC Time.
5. Repeat steps 3 and 4 to enter additional numbers.
6. After entering the UTC time, press the **ENTER** soft key to move the blinking cursor to the first number under **LAT (Latitude)**.
7. Repeat steps 3 and 4 until the seven (7) digit of the LAT is entered.
8. After entering the LAT (Latitude), press the **ENTER** soft key to move the blinking cursor to the first number under LON (Longitude).
9. Repeat steps 3 and 4 until the eight (8) digit of the LON is entered.
10. Press the **ENTER** button to save the entry and the radio will return to the **DSC SETUP MENU**.

MENU EXIT: You can exit the menu at any time by pressing the **EXIT** soft key on any screen. This method will exit to the next highest menu. Repeated presses of the **EXIT** soft key will return the radio to the radio standby mode.

Radiotelephone Calls

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

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

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.

VHF Marine Radio Protocols

Emergency Messages and Distress Procedure

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"

"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.

Marine Distress Procedure – DSC

Digital Selective Calling (DSC) is a semi-automated system that will allow you to press the Distress button from any routine to make a distress call. When the distress button is pressed, all other channels go to Standby mode and allow the digitally encoded "pre-programmed" message to take precedence. Important information such as your MMSI number, position and name will be transmitted on Channel 16. The distress alarm will sound for two (2) minutes or until the alarm is cleared.

The DSC system allows you to choose a "pre-programmed" distress call such as: "Man Overboard, Sinking, Collision." There are many pre-programmed choices to choose from. If a GPS is connected to your radio, your coordinates will also be sent to the Coast Guard as well as to other vessels that are within range of the transmission. DSC calling also allows the user to initiate and receive distress, urgent, safety, routine, position request, position send and group calls between vessels equipped with DSC capable radios.

WARNING
This radio will generate a digital maritime distress and safety signal to help facilitate search and rescue. This radio must be used only within communication range of a shore based VHF station with a distress and safety watch system. The range of the signal may vary.

Warranty and Trademark Acknowledgement

Limited 3-Year Warranty

For Products Purchased In The U.S.A.

Cobra Electronics Corporation warrants that its CobraMarine VHF 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

Product Service

Cobra first! DO NOT RETURN THIS PRODUCT TO THE STORE!
See customer assistance on page A1.

If your product should require factory service, please call Cobra first before sending your radio. This will ensure the fastest turn-around time on your repair. You may be asked to send your radio to the Cobra factory. It will be necessary to furnish the following to have the product serviced and returned:

1. For warranty repair, include some form of proof-of-purchase, such as a photocopy of a sales receipt. If you send the original receipt, it cannot be returned.
2. Send the entire product.
3. Enclose a description of what is happening with the radio. Include a typed or clearly printed name and address of where the radio is to be returned.
4. Pack radio securely to prevent damage in transit. If possible, use the original packing material.
5. Ship prepaid and insured by way of a traceable carrier such as United Parcel Service (UPS) or Priority Mail to avoid loss in transit to: Cobra Factory Service, Cobra Electronics Corporation, 6500 West Cortland Street, Chicago, Illinois 60707 U.S.A.
6. If the radio is in warranty, upon receipt of your radio, it will either be repaired or exchanged depending on the model. Please allow approximately three (3) to four (4) weeks before contacting Cobra for status. If the radio is out of warranty, a letter will automatically be sent informing you of the repair charge or replacement charge.
7. If your radio is returned for factory repair, it will be returned to you with default settings restored.

If you have any questions, please call 773-889-3087 for assistance.

Specifications

General	
Number of Channels	All U.S., Canadian, International and NOAA Weather Channels
Channel Spacing	25 kHz
Modulation	5 kHz Max.
Input Voltage	7.4 VDC
Battery Life: 5% TX, 5% RX, 90% Standby	LiON: 10 hours @ 6 watts
Current Drain: Standby Receive (Rx) Transmit (Tx)	45 mA 200 mA 1.8 A @ High Power, 700 mA @ Low Power
Temperature Range	-20˚C to 40˚C
Radio Dimensions	5.71" H X 2.83" W X 1.87" D (131mm X 72mm X 47mm) not including antenna
Radio Weight	0 lbs, 11.6 oz. (329 g) with LiON battery
Receiver	
Frequency Range	156.050 to 163.275 MHz
Receiver Type	Double Conversion Super-Heterodyne
Sensitivity: 12 dB Sinad	-120 dBm
Adjacent Channel Selectivity	-60 dB
Intermodulation and Rejection	-70 dB
AF Output	250 mW @ 8 Ohms
Transmitter	
Frequency Range (Tx):	156.025 to 157.425 MHz
RF Output Power	1, 3 or 6 Watts Max (5 Watts rated)
Spurious Emissions	-60 dB
Microphone Type	Condenser
Frequency Stability	±5 ppm
FM Hum and Noise	40 dB
GPS	
Receiver	56 channels
Hot: Nominal: < 1 second, Limit: +/- 5 seconds Cold: Nominal: < 35 second, Limit: +/- 10 seconds	Warm Nominal: < 33 second, Limit: +/- 5 seconds Update Rate: Up to 5 Hz
Antenna Type	Internal patch antenna
GPS receiver first lock sensitivity	Nominal: -148dBm
GPS receiver tracking sensitivity	Nominal: -165dBm
Differential System Compatibility	WAAS (United States), EGNOS (Europe), MSAS (Japan)
NMEA Info: Output Specification Electrical Standard NMEA Sentences	NMEA 0183- ASCII serial output EIA-422 GGA, GLL, GSA, GSV, RMC, VTG, ZDA
Bluetooth®	
Classification	Class 2
Version	4.1
Range	10 Meters

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 assignment types in the U.S.A. Channel Map. See the deatiled channel map pages for assignments of each channel.

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

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

Non-Commercial

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

Working channels for working ships only. Messages must be about business or needs of the ship. Use Channels 8, 67, 72 and 88A only for ship-to-ship messages.

Asignación de canales de VHF para radiocomunicación 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 se ofrece un breve resumen de los tipos de asignación de canal en el canal EE.UU mapa. Vea las páginas del mapa de canales deatiled para asignaciones de cada canal.

Asignaciones de canales (Español)

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

Para hablar con las guardias costeras estadounidenses y canadienses (excepto casos de emergencia) tras haber establecido contacto por el canal 16.

No comerciales

Canales activos para pequeñas embarcaciones. Los mensajes deberán estar relacionados con necesidades de las embarcaciones, como por ejemplo, informes de pesca, atraques y agrupamientos. Use el canal 72 solamente para mensajes entre embarcaciones.

Comerciales

Canales activos para embarcaciones activas 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.

VHF Marine Channel Assignments

Channel Assignments (English)

Sea Tow Automated Radio Check (ARC)

Channels 24, 25, 26, 27, 28, 84

Tune your radio to the proper channel for your area (see seatow.com/arc). 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)

For calls to marine operators at public coast stations. You can make and receive telephone calls through these stations.

Port Operations

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 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

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.

VHF Marine Channel Assignments

Asignaciones de canales (Español)

Control de radio automatizado remolque del mar (CAR)

Canales 24, 25, 26, 27, 28, 84

Sintonice su radio en el canal adecuado para su área (ver seatow.com/arc). Llevar a cabo una comprobación de la radio como lo haría normalmente. Al soltar el micrófono el sistema se volverá a reproducir la transmisión que le permite escuchar cómo suena.

Correspondencia pública (operador marítimo)

Para llamadas a operadores marítimos en estaciones costeras públicas. Usted puede realizar y recibir llamadas telefónicas a través de estas estaciones.

Operaciones portuarias

Usados para dirigir el movimiento de las embarcaciones dentro de áreas portuarias, esclusas o canales. Los mensajes deberán estar relacionados con maniobras operacionales, movimientos y seguridad de las embarcaciones.

Navegación

Estos canales están disponibles para todas las embarcaciones. Los mensajes deberán estar relacionados con la navegación, incluidas las maniobras para pasar o alcanzar otras embarcaciones. Éstos 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 vatio como máximo.

Control marítimo

Para comunicarse con embarcaciones y estaciones costeras operadas por entidades gubernamentales locales o estatales. Los mensajes deberán estar relacionados con regulación y control, asistencia o actividades de navegación.

Llamadas selectivas digitales

Canal 70

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.

VHF Marine Channel Assignments

Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l ntemac	Canada Canadá	Transmit Transm.	Receive Recepción	
01		•	•	156.050	160.650	
01A	•			156.050	156.050	
02		•	•	156.100	160.700	
03		•	•	156.150	160.750	
03A	•	•		156.150	156.150	
04		•		156.200	160.800	
04A			•	156.200	156.200	
05		•		156.250	160.850	
05A	•		•	156.250	156.250	
06	•	•	•	156.300	156.300	
07		•		156.350	160.950	
07A	•		•	156.350	156.350	
08	•	•	•	156.400	156.400	
09	•	•	•	156.450	156.450	
10	•	•	•	156.500	156.500	
11	•	•	•	156.550	156.550	
12	•	•	•	156.600	156.600	
13	•	•	•	156.650	156.650	1 watt USA 1 vatio EE.UU.

VHF Marine Channel Assignments

Channel Use (English)	Uso de canales (Español)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Port Operations and Commercial, VTS in selected areas	Operaciones portuarias y comerciales; VTS en áreas selectas
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Coast Guard Only	**guardia costera solamente**
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo) operaciones portuarias,movimiento de embarcaciones
West Coast (Coast Guard Only); East Coast (Commercial Fishing)	**Costa occidental (guardia costera solamente);** Costa oriental (pesca comercial)
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo) operaciones portuarias,movimiento de embarcaciones
Port Operations, VTS in selected areas	Operaciones portuarias; VTS en áreas selectas
Intership Safety	Seguridad entre embarcaciones
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo) operaciones portuarias,movimiento de embarcaciones
Commercial	Comerciales
Commercial (Intership Only)	Comercial (entre embarcaciones solamente)
Boater Calling Channel, Non-Commercial (Recreational)	Canal de llamada de la tripulación, no comercial (recreativo)
Commercial	Comerciales
Commercial, VTS in selected areas	Comercial; VTS en áreas selectas
Port Operations, VTS in selected areas	Operaciones portuarias; VTS en áreas selectas
Intership Navigation Safety (Bridge-to-Bridge). In U.S. waters, large vessels maintain a listening watch on this channel.	Seguridad marítima entre embarcaciones (de puente de mando a puente de mando). En aguas estadounidenses, las grandes embarcaciones se mantienen vigilantes con sus radios sintonizados en este canal

VHF Marine Channel Assignments

Channel Number Número de canal	Channel Map Mapa de canales USA EE.UU.	Int'l nternac	Canada Canadá	Frequency Frecuencia Transmit Transm.	Receive Recepción	
14	•	•	•	156.700	156.700	
15	•			Rx Only	156.750	
15		•	•	156.750	156.750	1 watt CAN 1 vatio Canadá
16	•	•	•	156.800	156.800	
17	•	•	•	156.850	156.850	1 watt CAN 1 vatio Canadá
18		•		156.900	161.500	
18A	•		•	156.900	156.900	
19		•		156.950	161.550	
19A	•		•	156.950	156.950	
1019		•		156.950	156.950	
2019		•		161.550	161.550	
20	•	•	•	157.000	161.600	1 watt CAN 1 vatio Canadá
20A	•			157.000	157.000	
1020		•		157.000	157.000	
2020		•		161.500	161.500	
21		•		157.050	161.650	
21A	•		•	157.050	157.050	
21B			•	RX only	161.650	
22		•		157.100	161.700	
22A	•		•	157.100	157.100	
23		•	•	157.150	161.750	

Appendix

VHF Marine Channel Assignments

Channel Use (English)	Uso de canales (Español)
Port Operations, VTS in selected areas	Operaciones portuarias; VTS en áreas selectas
Environmental (Receive Only).	Medioambiental (recepción solamente). Usado por radiobalizas de localización de siniestros (EPIRB) clase C
Canada (EPIRB Buoys Only); International (On-Board Communication)	Canadá (boyas de EPIRB solamente); Internacional (comunicación de a bordo)
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)
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
Commercial	Comerciales
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
Commercial	Comerciales
Port Operations	Operaciones portuarias
Port Operations	Operaciones portuarias
Canada (Coast Guard Only); International (Port Operations, Ship Movement)	**Canadá (guardia costera solamente);** Internacional (operaciones portuarias, movimiento de embarcaciones)
Port Operations	Operaciones portuarias
Port Operations	Operaciones portuarias
Port Operations	Operaciones portuarias
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
U.S. (Government Only); Canada (Coast Guard Only)	**EE.UU. (entidades gubernamentales solamente); Canadá (guardia costera solamente)**
Coast Guard Only – Weather Broadcasts	**Solamente Guardacostas –** Transmisiones Meteorológicas
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
U.S. and Canadian Coast Guard Liaison and Maritime Safety Information Broadcasts that are announced on Channel 16	Enlace entre las guardias costeras estadounidenses y canadienses, y difusión de información sobre seguridad marítima anunciada por el canal 16
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)

VHF Marine Channel Assignments

Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l nternac	Canada Canadá	Transmit Transm.	Receive Recepción	
23A	•			157.150	157.150	
23B			•	Rx Only	161.750	
24	•	•	•	157.200	161.800	
25	•	•	•	157.250	161.850	
25B			•	RX only	161.850	
26	•	•	•	157.300	161.900	
27	•	•	•	157.350	161.950	
28	•	•	•	157.400	162.000	
28B			•	RX only	162.000	
60		•	•	156.025	160.625	
61		•		156.075	160.675	
61A			•	156.075	156.075	
62		•		156.125	160.725	
62A			•	156.125	156.125	
63		•		156.175	160.775	
63A	•		•	156.175	156.175	
64		•	•	156.225	160.825	
64A			•	156.225	156.225	
65		•		156.275	160.875	
65A	•		•	156.275	156.275	

VHF Marine Channel Assignments

Channel Use (English)	Uso de canales (Español)
Coast Guard Only	**Solamente Guardacostas**
Coast Guard Only – Weather Broadcasts	**Solamente Guardacostas –** Transmisiones Meteorológicas
Sea Tow ARC (Automated Radio Check)	RMCAR (Chequeo Automatizado de la Radio)
Sea Tow ARC (Automated Radio Check)	RMCAR (Chequeo Automatizado de la Radio)
Safety: Continuous Marine Broadcast (CMB) service by MCTS Canada	**Seguridad: Transmisión Marítima Continua (CMB) servicio por MCTS Canadá**
Sea Tow ARC (Automated Radio Check)	RMCAR (Chequeo Automatizado de la Radio)
Sea Tow ARC (Automated Radio Check)	RMCAR (Chequeo Automatizado de la Radio)
Sea Tow ARC (Automated Radio Check)	RMCAR (Chequeo Automatizado de la Radio)
Safety: Continuous Marine Broadcast (CMB) service by MCTS Canada	**Seguridad: Transmisión Marítima Continua (CMB) servicio por MCTS Canadá**
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator) Port Operation, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
Canada (Coast Guard Only); **West Coast (Coast Guard Only);** East Coast (Commercial Fishing)	**Canadá (guardia costera solamente); Costa occidental (guardia costera solamente);** Costa oriental (pesca comercial)
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
West Coast (Coast Guard Only); East Coast (Commercial Fishing)	**Costa occidental (guardia costera solamente);** Costa oriental (pesca comercial)
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
Port Operations and Commercial, VTS in selected areas, Canada Tow Boats-BCC	Operaciones portuarias y comerciales; VTS en áreas selectas, Barcos-BCC de la remolque de Canadá
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
U.S. (Government Only); Canada (Commercial Fishing)	**EE.UU. (entidades gubernamentales solamente);** Canadá (pesca comercial)
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
Port Operations	Operaciones portuarias

VHF Marine Channel Assignments

Channel Number Número de canal	Channel Map Mapa de canales USA EE.UU.	Int'l nternac	Canada Canadá	Frequency Frecuencia Transmit Transm.	Receive Recepción	Power Limits Límites de potencia
66		•		156.325	160.925	
66A	•		•	156.325	156.325	
67	•	•	•	156.375	156.375	
68	•	•	•	156.425	156.425	
69	•	•	•	156.475	156.475	
70	•	•	•	RX only	156.525	
71	•	•	•	156.575	156.575	1 watt USA
72	•	•	•	156.625	156.625	
73	•	•	•	156.675	156.675	
74	•	•	•	156.725	156.725	
75	•	•	•	156.775	156.775	1 watt
76	•	•	•	156.825	156.825	1 watt
77	•	•	•	156.875	156.875	1 watt USA

Appendix

VHF Marine Channel Assignments

Channel Use (English)	Uso de canales (Español)
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
Port Operations	Operaciones portuarias
U.S. (Commercial). Used for bridge-to-bridge communications in lower Mississippi River (Intership Only); Canada (Commercial Fishing), S&R	EE.UU. (comercial). Usado para comunicaciones de puente de mando a puente de mando en la parte baja del Río Misisipí (entre embarcaciones solamente); Canadá (pesca comercial) (transmisión y recepción)
Non-Commercial (Recreational)	No comercial (recreativo)
U.S. (Non-Commercial, Recreational); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)	EE.UU. (no comercial, recreativo); Canadá (pesca comercial solamente); Internacional (comunicaciones entre embarcaciones, operaciones portuarias, movimiento de embarcaciones)
Digital Selective Calling (Voice communications not allowed)	**Llamadas selectivas digitales (las comunicaciones verbales están prohibidas)**
U.S. and Canada (Non-Commercial, Recreational); International (Port Operations, Ship Movement)	EE.UU. y Canadá (no comercial, recreativo); Internacional (operaciones portuarias, movimiento de embarcaciones)
Non-Commercial (Intership Only)	No comercial (entre embarcaciones solamente)
U.S. (Port Operations); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)	EE.UU. (operaciones portuarias); Canadá (pesca comercial solamente); Internacional (comunicaciones entre embarcaciones, operaciones portuarias, movimiento de embarcaciones)
U.S. (Port Operations); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)	EE.UU. (operaciones portuarias); Canadá (pesca comercial solamente); Internacional (comunicaciones entre embarcaciones, operaciones portuarias, movimiento de embarcaciones)
Port Operations (Intership Only)	Operaciones portuarias (entre embarcaciones solamente)
Port Operations (Intership Only)	Operaciones portuarias (entre embarcaciones solamente)
Port Operations (Intership only). Restricted to communications with pilots for movement and docking of ships.	Operaciones portuarias (entre embarcaciones solamente). Restringido a comunicaciones con pilotos para el movimiento y atraque de embarcaciones.

VHF Marine Channel Assignments

Channel Number Número de canal	Channel Map Mapa de canales USA EE.UU.	 Int'l ntemac	 Canada Canadá	Frequency Frecuencia Transmit Transm.	 Receive Recepción	Power Limits Límites de potencia
78		•		156.925	161.525	
78A	•		•	156.925	156.925	
1078		•		156.925	156.925	
2078		•		161.525	161.525	
79		•		156.975	161.575	
79A	•		•	156.975	156.975	
1079		•		156.975	156.975	
2079		•		161.575	161.575	
80		•		157.025	161.625	
80A	•		•	157.025	157.025	
81		•		157.075	161.675	
81A	•		•	157.075	157.075	
82		•		157.125	161.725	
82A	•		•	157.125	157.125	
83		•		157.175	161.775	
83A	•		•	157.175	157.175	
83B			•	RX only	161.775	
84	•	•	•	157.225	161.825	
85	•	•	•	157.275	161.875	
86	•	•	•	157.325	161.925	
87	•	•	•	157.375	157.375	
88	•	•	•	157.425	157.425	
88A	•			157.425	157.425	

Appendix

VHF Marine Channel Assignments

Channel Use (English)	Uso de canales (Español)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Non-Commercial (Recreational)	No comercial (recreativo)
Port Operations	Operaciones portuarias
Port Operations	Operaciones portuarias
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
Commercial (Also Non-Commercial only in Great Lakes)	Comercial (en los Grandes Lagos también no comercial)
Port Operations	Operaciones portuarias
Port Operations	Operaciones portuarias
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
Commercial (Also Non-Commercial only in Great Lakes)	Comercial (en los Grandes Lagos también no comercial)
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
U.S. (Government Only; Environmental Protection Operations)	**EE.UU. (entidades gubernamentales solamente; operaciones de protección medioambiental)**
Public Correspondence (Marine Operator), Port Operation, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
U.S. (Government Only); Canada (Coast Guard Only)	**EE.UU. (entidades gubernamentales solamente); Canadá (guardia costera solamente)**
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
(Coast Guard Only) **(Coast Guard Only)**	**Canadá (guardia costera solamente)** **Canadá (guardia costera solamente)**
Coast Guard Only – Weather Broadcasts	**Solamente Guardacostas –** Transmisiones Meteorológicas
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
U.S. (Commercial). Port Operations and VTS (International & Canada).	EE.UU. (comercial). Operaciones Portuarias y VTS (Internacional y Canadá).
Commercial Intership only	Comercial entre embarcaciones solamente

VHF Marine Channel Assignments

Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l nternac	Canada Canadá	Transmit Transm.	Receive Recepción	
1001	•			156.050	156.050	
1005	•			156.250	156.250	
1007	•			156.350	156.350	
1018	•			156.900	156.900	
1019	•			156.950	156.950	
1020	•			157.000	157.000	
1021	•			157.050	157.050	
1022	•			157.100	157.100	
1023	•			157.150	157.150	
1063	•			156.175	156.175	
1065	•			156.275	156.275	
1066	•			156.325	156.325	
1078	•			156.925	156.925	
1079	•			156.975	156.975	
1080	•			157.025	157.025	
1081	•			157.075	157.075	
1082	•			157.125	157.125	
1083	•			157.175	157.175	

Appendix

VHF Marine Channel Assignments

Channel Use (English)	Uso de canales (Español)
Port Operations / Vessel Traffic Service	Operaciones portuarias / Servicio de Tránsito de Embarcaciones
Port Operations / Vessel Traffic Service	Operaciones portuarias / Servicio de Tránsito de Embarcaciones
Commercial	Comercial
Commercial	Comercial
Port Operations	Operaciones portuarias
Port Operations	Operaciones portuarias
Coast Guard Only	**Solamente Guardacostas**
Coast Guard Only	**Solamente Guardacostas**
Coast Guard Only	**Solamente Guardacostas**
Port Operations / Vessel Traffic Service	Operaciones portuarias / Servicio de Tránsito de Embarcaciones
Port Operations / Vessel Traffic Service	Operaciones portuarias / Servicio de Tránsito de Embarcaciones
Port Operations / Vessel Traffic Service	Operaciones portuarias / Servicio de Tránsito de Embarcaciones
Commercial/Non-Commercial	Comercial / No Comercial
Commercial/Non-Commercial	Comercial / No Comercial
Commercial/Non-Commercial	Comercial / No Comercial
Commercial/Environmental	Comercial/ Medioambiental
Commercial/U.S. (Government Only)	Comercial/ EE.UU. entidades gubernamentales solamente
Commercial/ Coast Guard Only	Comercial/ Solamente Guardacostas

VHF Marine Channel Assignments

VHF Marine Channel Assignments (English)

NOTE

Many of the plain-numbered channels, such as 01, 02 and 03, transmit and receive on different frequencies. This is termed duplex operation. Some other 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. This radio also includes new four digit channels to be complient with the latest and future regulations.

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.

Asignación de canales de VHF para radiocomunicación marítima (Español)

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 esté en operación simple, el icono A aparecerá en la pantalla de cristal líquido (vea la ilustración de la página A3). Esta radio también incluye nuevos canales de cuatro dígitos para cumplir con las regulaciones más recientes y futuras.

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.

Weather Channel Assignments

Weather Channel Assignments
Asignaciones de canales meteorológicos

Weather

Channels Wx 1 Thru 10

Receive-only channels for NOAA and Canadian weather broadcasts. You cannot transmit on these channels.

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.

Meteorología

Canales Wx 1 a 10

Canales de recepción únicamente para difusión de información meteorológica NOAA y canadiense. Usted no puede transmitir por estos canales.

NOTA

* 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 usuario solamente. Consulte las normas de la FCC o a un operador de radio con experiencia antes de usarlos.

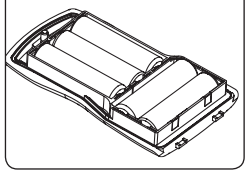
Channel Number Número de canal	RX Frequency MHz Frecuencia de recepción (MHz)	Weather Channel Weather Channel
1	162.550	NOAA
2	162.400	NOAA
3	162.475	NOAA
4	162.425	NOAA
5	162.450	NOAA
6	162.500	NOAA
7	162.525	NOAA
8	161.650	Canada
9	161.775	Canada
10	163.275	NOAA

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

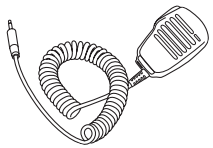


Alkaline Battery Tray

A special alkaline battery tray (P/N CM 110-035) 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

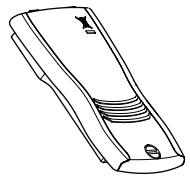


Lapel Speaker/Microphone

A speaker/microphone that attaches to your lapel. Part number 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 Pack



LiON Battery

LiON replacement battery (P/N CM 110-034).

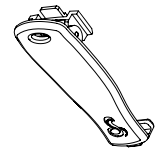
Antenna

Antenna

Replacement Antenna P/N CM 300-002.

Optional Accessories

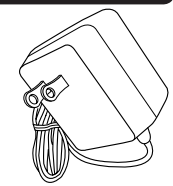
Belt Clip



Belt Clip

Replacement Belt Clip P/N CM 240-003

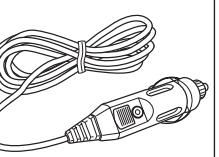
AC Charger



AC Charger

Replacement AC Charger P/N CM 120-007

DC Charger



DC Charger

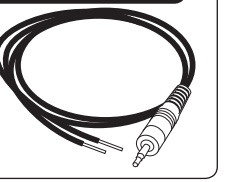
Replacement DC Charger P/N CM 130-005

Drop-In Battery Charger

Drop-In Battery Charger

Replacement Drop-In Charger P/N CM 110-032

NMEA Output Cable



NMEA Pouput Cable

P/N CM 140-003

World City Time Zones

World City Time Zones

In order to set correct local time as compared to different World City Time Zones, enter the hour "offset" as listed below. The correct local time appears on the VHF for Cities all over the world. See page 43 for setup information.

Longitudinal Zone	Offset	City
E172.50 to W172.50	-12	IDLW (International Date Line West)
W172.50 to W157.50	-11	Nome
W157.50 to W142.50	-10	Honolulu
W142.50 to W127.50	-9	Yukon STD
W127.50 to W112.50	-8	Los Angeles STD
W112.50 to W097.50	-7	Denver STD
W097.50 to W082.50	-6	Chicago STD
W082.50 to W067.50	-5	New York STD
W067.50 to W052.50	-4	Caracas
W052.50 to W037.50	-3	Rio de Janeiro
W037.50 to W022.50	-2	Fernando de Noronha
W022.50 to W007.50	-1	Azores Islands
W007.50 to E007.50 GMT	+0	London
E007.50 to E022.50	+1	Rome
E022.50 to E037.50	+2	Cairo
E037.50 to E052.50	+3	Moscow
E052.50 to E067.50	+4	Abu Dhabi
E067.50 to E082.50	+5	Maldives
E082.50 to E097.50	+6	Dhuburi
E097.50 to E112.50	+7	Bangkok
E112.50 to E127.50	+8	Hong Kong
E127.50 to E142.50	+9	Tokyo
E142.50 to E157.50	+10	Sydney
E157.50 to E172.50	+11	Solomon Islands
E172.50 to W172.50	+12	Auckland