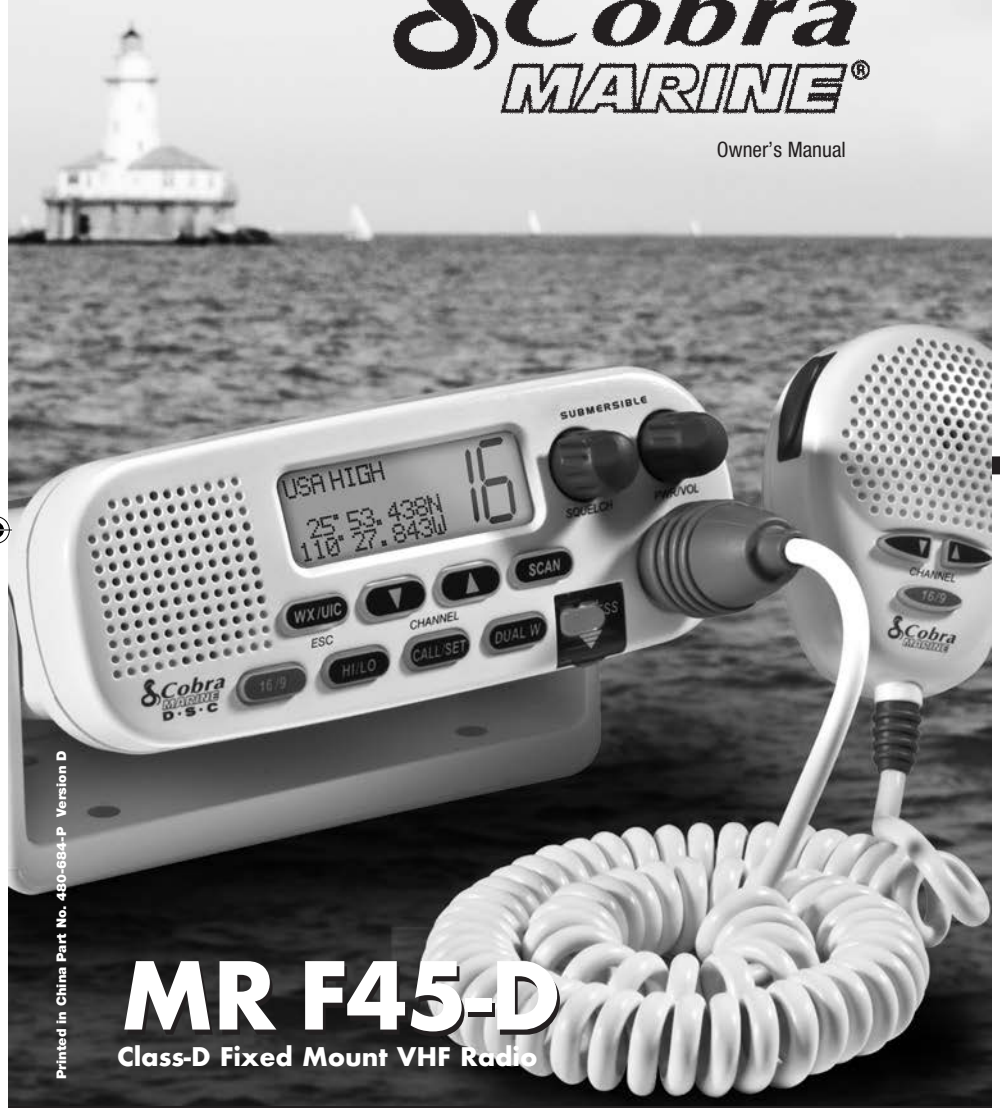
Cobra MARINE®

Owner's Manual



MR F45-D

Class-D Fixed Mount VHF Radio

Printed in China Part No. 480-684-P Version D

Nothing Comes Close to a Cobra®

English

Introduction

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 VHF transceiver for fixed mounting on your boat. It gives you 2-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 2-way communications, in the U.S.A., this radio can provide quick access to receive seven NOAA (National Oceanographic and Atmospheric Administration) and two Canadian weather channels for alerting you to weather emergencies with a tone on a weather channel you can select for your area.

Customer Assistance

Customer Assistance

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

For Assistance in the U.S.A.

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

Customer Assistance Operators English and Spanish.
8:00 a.m. to 5:30 p.m. Central Time Mon. through Fri. (except holidays)
773-889-3087 (phone).

Questions English and Spanish.
Faxes can be received at 773-622-2269.

Technical Assistance English only.
www.cobra.com/support/faqs/marine-radios

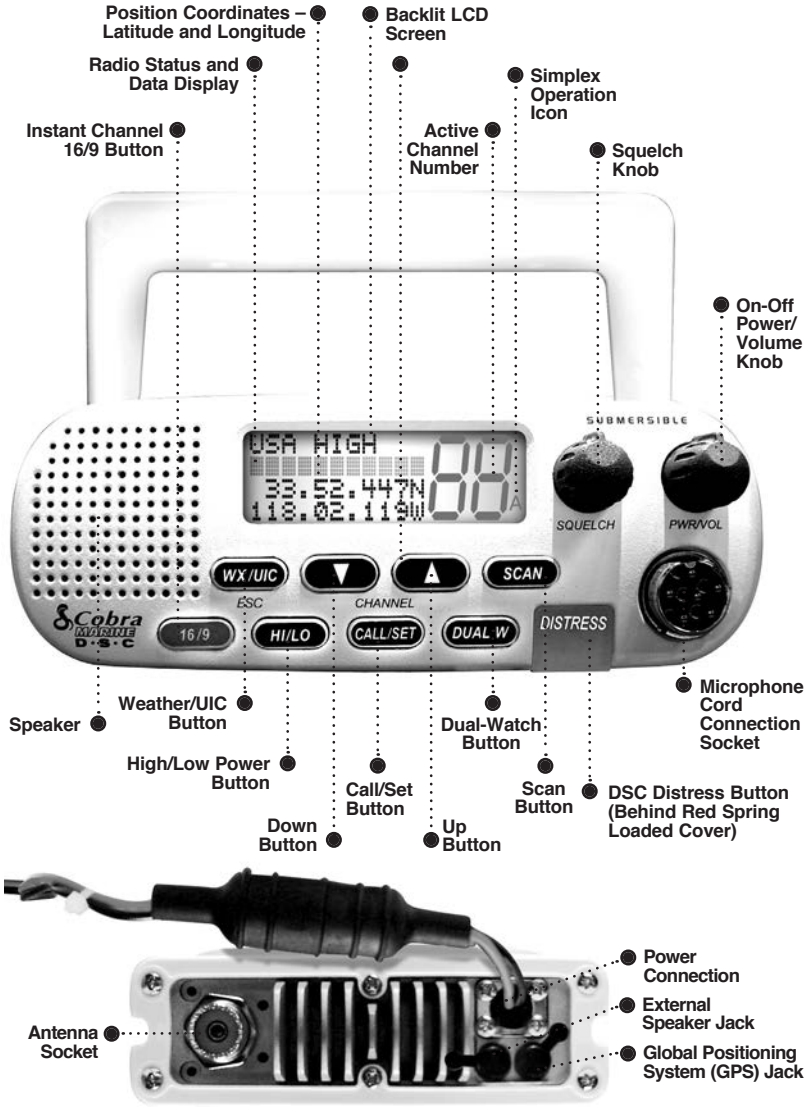
For Assistance Outside The U.S.A.

Contact Your Local Cobra Dealer

©2018 Cobra Electronics Corporation
6500 West Cortland Street
Chicago, Illinois 60707 USA
www.cobra.com

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Transceiver Controls, Indicators And Connections

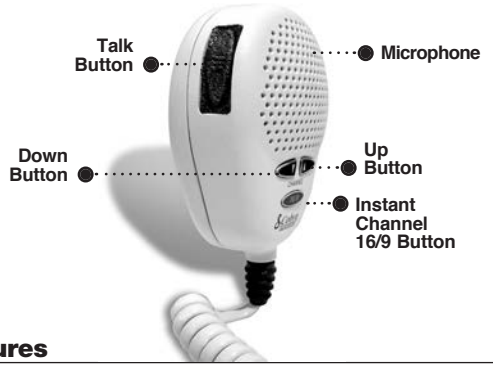


Microphone And Product Features

Microphone With Auxiliary Controls

Up/Down Buttons
Can be used instead of those on the transceiver.

Instant Channel 16/9 Button
Can be used instead of the one on the transceiver.



Product Features

Dual Power
Selectable to 1 or 25 Watts output power for near or distant calling.

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

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

Emergency Weather Alert
Alerts you with an audible tone and visual alarm if threatening weather is nearby.

Instant Channel 16/9
Instant access to the priority Channel 16 and calling Channel 9.

Digital Selective Calling (DSC Class-D)
Allows the ability to maintain a listening watch on a VHF Channel 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 built-in receivers.

Scan
Lets you scan through all channels in the active channel map to find conversations in progress.

Dual-Watch
Lets you monitor two channels at once — Channel 16 and one user selectable channel.

Controls On The Microphone
Handy control buttons on the microphone let you operate one handed at a distance from the radio.

Illuminated Buttons
Helps you quickly find the buttons you need in low light conditions.

Mounting Kits Included
Radio can be mounted on or under almost any flat surface using the included brackets.

Waterproof
Submersible to one meter of water for 30 minutes — meets JIS7 (IPX7) Standards.

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Important Safety Information

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

Warning And Caution Statements

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

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

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

Safety Training Information

This CobraMarine radio is designed for and classified as "Occupational Use Only." It must only be used in the course of employment by individuals aware of both the hazards and the ways to minimize those hazards. This radio is NOT intended for use in an uncontrolled environment by the "General Population."

This radio has been tested and complies with the FCC RF exposure limits for "Occupational Use Only." This CobraMarine VHF radio also complies with the following guidelines and standards regarding RF energy and electromagnetic energy levels as well as evaluation of those levels for human exposure:

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

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

WARNINGS
Your radio generates electromagnetic RF (radio frequency) energy when it is transmitting. To insure that you and those around you are not exposed to excessive amounts of that energy, **DO NOT** touch the antenna when transmitting and **KEEP** yourself and all others on your vessel the required distance away from the antenna while transmitting. SEE page 20 in the antenna requirements section for further information.

DO NOT operate the radio without a proper antenna or equivalent dummy load attached. Doing so may expose you to excessive RF energy and will damage the radio.

DO NOT transmit more than 50% of the time the radio is in use — 50% duty cycle. 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 connect the transceiver to AC power. It can be a fire hazard, may cause an electric shock, and may damage the transceiver.

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

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

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

NOTE
Throughout this manual, the term "Transceiver" will be used to identify the main unit containing the LCD screen and controls. The term "Radio" will be used to identify the entire equipment including transceiver, microphone, antenna and any attached external speakers.

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Recommendations For Marine Communication

CAUTIONS

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

NEVER connect the transceiver to DC power greater than 16 volts or to any DC source with reversed polarity. Doing so will damage the transceiver.

DO NOT cut the power cables attached to the transceiver. Improper reconnection with reversed polarity will damage the transceiver.

POSITION your radio, external speakers, and cables at least three feet (0.9 m) away from your vessel's magnetic navigation compass. CHECK your compass before and after installation to be sure that it has not introduced any deviation.

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

DO NOT drop the transceiver or microphone. Doing so may crack the case or damage a waterproof seal. Once these items have been dropped, the original waterproofing cannot be guaranteed.

DO NOT use chemicals or solvents such as mineral spirits and alcohol to clean your radio. They may damage the case surfaces.

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 25 watt maximum output of your radio isn't sufficient for the distances you travel from the coast, consider installing 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 mobile 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 don't know where you are, the Coast Guard will have difficulty finding you if you're using a cellular telephone.

However, mobile telephones can have a place on board where mobile 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 Communication 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 requires 13.8 volts DC and has a switchable RF output power of 1 or 25 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 by pressing one key.

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 a 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. 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.

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VHF Marine Radio Procedures

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 (http://www.cps-ecp.ca/english/newradiocard.html), contact the nearest field office or write: Industry of Canada, Radio Regulatory Branch, Attn: DOSP, 300 Slater Street, Ottawa, Ontario, Canada K1A 0C8.

User Responsibility And Operating Locations

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

NOTE This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

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

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. Try a second call after waiting two minutes. If there is no answer, switch to a higher power. This will conserve your battery and minimize interference to other users by avoiding repeated calls.

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) with 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.

Voice Calling

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 minutes before calling again. After three 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, ship name, the state registration number, or other official number at both the beginning and end of each message.

Prohibited Communications

You **MUST NOT** transmit:

- False distress or emergency messages.
- Messages containing obscene, indecent, or profane words or meaning.
- 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

To Call Another Vessel Or A Shore Installation Such As A Lock Or Bridge Tender:

- Make sure your radio is **On**.
- Select Channel 16 and listen to make sure it is not being used.

NOTE
Channel 9 may be used by recreational vessels for general-purpose calling. This frequency should be used whenever possible to relieve congestion on Channel 16.

- When the channel is quiet, press the **Talk** button and call the ship you wish to call. (Hold the microphone a few inches from your face and speak directly into it in a normal tone of voice — clearly and distinctly.) Say "[name of station being called] THIS IS [your vessel's name or call sign]."
- Once contact is made on the calling channel, you must switch to a proper working channel. See the channel listing on page 58 through 61.

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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 side. Speak in a normal tone of voice.

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 (requires a GPS receiver to be connected to the radio) 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)

The MMSI Number Is Available In The U.S.A. From Two Sources:

- U.S. Power Squadron www.usps.org
- Boat U.S: 1-800-563-1536 – www.boatus.com/mmsi

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

An MMSI is a nine 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 with **DSC**, you must enter your maritime mobile service identity (MMSI) number. See page 41 for instructions on how to enter it.

In Canada, Contact:

- Industry Canada Spectrum Management Office (only available on the Internet): http://strategis.ic.gc.ca/epic/internet/insmt-gst.nsf/vwGeneratedInterE/sf01742e.html

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 within communication range of a shore-based VHF marine channel to distress and safety watch system. The range of the signal may vary, but under normal conditions should be approximately 20 nautical miles.

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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 an event, communicate with the Coast Guard as soon as you experience difficulties and before your situation becomes an emergency. Use the emergency (distress) 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 marine to bring the fuel you need or to give you a tow.

Marine Emergency Signals

The three 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-it-tay.)

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

If You Hear A Distress Call

You must give any message beginning with one 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.

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Marine Distress Procedure

Speak slowly — clearly — calmly.

1. Make sure your radio is **On**.
2. Select VHF 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]." Repeat 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 near).
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 item 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.

For Example

"Mayday — Mayday — Mayday"
"This is Corsair — Corsair — Corsair" [or "Illinois 1234 AB" three (3) times]
"Mayday Corsair (or Illinois 1234 AB)"
"Navy Pier bears 220 degrees magnetic — distance 5 miles"
"Struck submerged object and flooding — need pump and tow"
"Four adults, three children aboard — no one injured"
"Estimate we will remain afloat one-half (½) hour"
"Corsair (or Illinois 1234 AB) is 26 foot sloop with blue hull and tan deck house"
"I will be listening on Channel 16"
"This is Corsair (or Illinois 1234 AB)"
"Over"

NOTE
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 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 within communication range of a shore based VHF station with a distress and safety watch system. The range of the signal may vary, however, under normal conditions should be approximately 20 nautical miles.

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Included In This Package

Included In This Package

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

Transceiver*



Transceiver Surface Mount Kit



Microphone



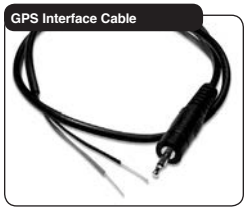
Microphone Mounting Kit



Operating Instruction Manual



GPS Interface Cable



Accessories Order Info

Optional Accessories

You can find quality Cobra products and accessories at your local Cobra dealer. In the U.S.A., you can order directly from www.cobra.com.

1.



2.



Item#	Description
1. CM 300-005	GPS Cobra Positioning System
2. CM 210-001	Flush Mount Kit (White)

Ordering From U.S.A.

Call 773-889-3087 for pricing

For Credit Card Orders
Call 773-889-3087 [Press one from the main menu] 8:00 a.m. to 5:30 p.m. Central Time, Monday through Friday.

We Accept Checks or Money Orders Payable To
Cobra Electronics, Attn: Accessories Dept.,
6500 West Cortland Street, Chicago, IL 60707 U.S.A.

To Order Online
Please visit our website: www.cobra.com

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Mounting And Powering The Radio

Before using your CobraMarine VHF radio, it must be installed on your vessel.

Installing Your Radio

Choose a location for your radio where it will be conveniently accessible with the following factors in mind:

- The leads to the battery and the antenna are best kept as short as possible.
- The antenna must be mounted at least 10 feet (3 m) from the transceiver.
- The radio and all speakers need to be far enough from any magnetic compass to avoid deviation due to the speaker magnet.
- There needs to be free air flow around the heat-sink fins on the back of the transceiver.

Surface Mount

A **Surface Mounting** kit is included with your CobraMarine VHF radio to allow its installation on any flat surface.

Surface Mounting Kit



To Mount The Transceiver On A Flat Surface:

1. Use the mounting bracket as a template to drill holes for the mounting screws.
2. Attach the mounting bracket to the chosen surface with the mounting bracket screws and washers.
3. Attach the transceiver to the mounting bracket with the tilt lock knobs.
4. Tilt the transceiver to a convenient angle and tighten the tilt lock knobs.

Tilt Lock Knobs



Microphone Bracket



Microphone Bracket

To Install The Microphone Bracket:

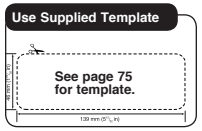
Install the microphone bracket on a vertical surface near the transceiver using the supplied stainless steel screws.

Flush Mount Kit (Not Included)

A **Flush Mounting** kit is available as an optional accessory for your CobraMarine VHF radio to allow its installation in a flat surface. See page 15 for ordering information.

To Mount The Transceiver Flush On A Flat Surface:

Use Supplied Template



1. Use the supplied template to mark and cut an opening in the flat surface. See page 77 for template.

NOTICE
Before cutting, be sure the area behind the flat surface is clear of any instruments or wires that might be damaged in the process.

Insert Transceiver



2. Insert the transceiver into the cut out opening.

Attach Mounting Brackets



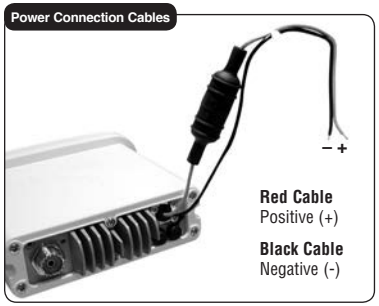
3. Attach the mounting brackets to the sides of the transceiver with the adjusting screw flanges facing the back of the flat surface.
4. Tighten the adjusting screws against the back of the flat surface until the flange on the front of the transceiver is tight against the flat surface. Do not over-tighten.

Adjust Screws



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Power Connection Cables



Electrical Power Connection

Your CobraMarine VHF radio is powered from the vessel's 13.8-volt negative ground direct current electrical system (12-volt nominal). A 10A fused power connection lead is provided at the back of the transceiver.

To Connect To A Power Source:

1. Attach the **black** (-) wire to a **negative** (-) ground.
2. Attach the fused (10A) **red power** (+) wire to the **positive** (+) side of the power system.

NOTE
This radio will draw up to 8 amps when transmitting at full power.

NOTICES
A reverse polarity connection will damage the radio.

When replacing the fuse in your transceiver, use only the size and type originally provided.

NOTE
All wiring is best kept as short as possible. If the power leads must be extended, use a high-quality, marine-grade cable sized for up to 10 amps of current. To minimize voltage drop, choose a wire gauge as follows:

Length	Wire Gauge
Up to 1.5m (4.9ft)	1.6 mils (#14)
Up to 3.0m (9.8 ft)	2.0 mils (#12)
Up to 5.0m (16.4 ft)	2.6 mils (#10)
Up to 6.0m (19.7 ft)	3.3 mils (#8)

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Antenna Requirements and Attachment

Antenna Requirements

Your CobraMarine VHF radio requires an external marine antenna to send signals into the air and to receive them. The radio is arranged to use any of the popular marine VHF antennas, but it is up to you to choose which antenna to use.

Since it represents the link between your radio and the outside world, Cobra suggests you purchase only the best quality antenna, coaxial cable and connectors. This is best accomplished with the advice and guidance of a knowledgeable dealer who can assess the variables involved with your particular boat and preferences.

WARNING
Compliance with FCC requirements for Radio Frequency Exposure is the responsibility of both the antenna installer and the radio operator.

Safe Maximum Permissible Exposure (MPE) Radius
To avoid health hazards from excessive exposure to RF energy, FCC OET Bulletin 65 establishes an MPE radius of 10 ft (3 m) for the maximum power of your radio with an antenna having a maximum power gain of 9 dBi. This means that all persons must be at least 10 ft (3 m) away from the antenna when the radio is transmitting.

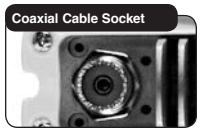
Installation Requirements

- An omnidirectional antenna with a gain not greater than 9 dBi must be mounted at least 16.4 ft (5 m) above the highest deck where people may be during radio transmissions, measured vertically from the lowest point of the antenna. This provides the minimum separation distance to comply with RF exposure requirements and is based on the MPE radius of 10 ft (3 m) plus the 6.6 ft (2 m) height of an adult.
- For vessels without structure to mount the antenna as described in A, it must be mounted as follows AND all persons must be outside the 10 ft (3 m) MPE radius during radio transmissions. The antenna must be mounted so that its lowest point is at least 3.3 ft (1 m) vertically above the heads of all persons during radio transmissions.

Installation And Start-Up
Antenna Requirements And Attachment

WARNING
Do not transmit when anyone is within the MPE radius of the antenna unless that person or persons are shielded from the antenna by a grounded metallic barrier. This is especially important on vessels with antennas mounted as described in B where no one may be within 10 ft (3 m) horizontally from the base of the antenna during transmissions.

FAILURE TO OBSERVE THE ABOVE LIMITS MAY EXPOSE THOSE WITHIN THE MPE RADIUS TO RF ENERGY ABSORPTION IN EXCESS OF THE FCC MAXIMUM PERMISSIBLE EXPOSURE. IT IS THE RADIO OPERATOR'S RESPONSIBILITY TO ENSURE THAT MPE LIMITS ARE HEEDED AND THAT NO ONE IS WITHIN THE MPE RADIUS DURING TRANSMISSIONS.



Antenna Lead Attachment

Once the antenna is installed, the Coaxial Cable Lead can be attached to the coaxial cable socket at the back of the transceiver.

NOTICE
Attempting to transmit without an antenna attached will damage your CobraMarine VHF radio.

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External Devices And Connections

Your CobraMarine VHF radio is set up to connect auxiliary devices for navigation, convenience, and added versatility. As is the case with the antenna, choosing these devices is best done with the advice and guidance of a knowledgeable dealer. Standard connectors are provided on the front and back of the transceiver.



Microphone Attachment

Connect the **Microphone** to the cord socket located at the right side of the front of the transceiver.

To Connect The Microphone Attachment:

1. Align the connector and push it firmly into the socket.
2. Tighten the captive nut to hold the connector in place.
3. Slide the waterproof sleeve over the nut until it seats in the recess around the socket.



External Speaker (Not Included)

An **External Speaker** can provide greater volume to hear messages than the speaker incorporated in the CobraMarine transceiver.

To Install An External Speaker:

Connect the speaker lead to the external speaker jack on the back of the transceiver.

Global Positioning System (GPS) Device (Not Included)

Cobra strongly recommends that you obtain and connect a (CM 300-005) **GPS** device to your CobraMarine VHF radio. By having a **GPS** connected, your position will be continuously indicated on the LCD and, most importantly, it will be included automatically in any DSC distress message you may need to send. That will take the “search” out of “search and rescue.”

NOTE

FCC rules require the radio to prompt the user with visual and audible (beeps) alerts if a GPS is not connected or position information is not entered manually every four hours.



To Install A GPS Device:

1. Install the GPS device in a convenient location according to its manufacturer’s directions.
2. Bond the NMEA out negative wire to the black wire of the GPS interface cable.
3. Bond the NMEA out positive wire to the red wire of the GPS interface cable.



NOTE

When bonding the wires, make sure connections are secure and properly insulated.

4. Connect the new combination cable to the GPS device and to the back of the transceiver.

NOTE

Satellite acquisition time is dependent on the GPS device.



Quickly add GPS capability to your fixed mount with this plug-and-play Cobra Positioning System (CM300-005).

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Getting Started

Refer to the foldout on the front cover 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 buttons on the transceiver or on the microphone. Press means a momentary press, then release; press and hold means to hold the button.

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

Two 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 beeps [three short – one 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**.

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Volume

The **On-Off Power/Volume** knob on the transceiver controls the speaker volume. The volume adjustment applies only to what you hear from the speaker and does not affect the volume of your outgoing messages. That is controlled by the circuitry of your radio.



To Increase The Volume:

Turn the **On-Off Power/Volume** knob clockwise.

To Decrease The Volume:

Turn the **On-Off Power/Volume** knob counter-clockwise.

Squelch

Squelch control filters weak signals and radio frequency noise so that you can more clearly hear the signals you want. You can think of it as a variable barrier that blocks what you don't want to hear.









To Squelch Your Radio:

1. With the **Squelch** knob turned fully counter-clockwise, turn the **On-Off/Volume** knob clockwise until you hear a hissing (noise) sound.
2. Turn the **Squelch** knob clockwise until the hissing sound stops.

Turning the **Squelch** knob further clockwise (higher barrier) will filter weak and medium strength signals until only the strongest signal can get through at the highest squelch setting.

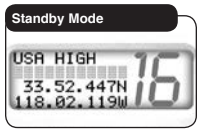
NOTE

To receive Weaker Signals

Turn the **Squelch** Knob counterclockwise (lower bearier). If the squelch is set so that you can hear a continuous hissing sound, the scan and dual-watch functions will be blocked.

Standby And Receive

Standby mode is the usual mode for the radio whenever it is turned **On**.



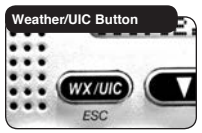
From Standby Mode, You Can:

- Change your radio's settings using set-up routines.
- Receive messages on the current channel as well as DSC messages.
- Receive NOAA alerts if **Weather Alert** mode is turned **On**.
- Switch to **Transmit** mode using the **Talk** button.

While the radio is in **Standby** mode, the **Receive** mode is entered whenever a strong enough signal to break squelch is sent to the radio. You will hear the message through whichever speakers are connected to the radio.







To Change The Channel You Are Listening To You Can Choose One Of The Following:

- Press the **Up/Down** buttons. This will take you to the next higher or lower VHF channel. For rapid advance, press and hold the **Up** or **Down** button.
- Press the **Channel 16/9** button. This will take you to Channel 16 with one press and to Channel 9 with a second press. Additional presses will toggle between Channels 16 and 9.
- Press the **Weather/UIC** button. This will toggle the radio between **Standby** mode and **Weather Radio** mode. When in **Weather Radio** mode, the **Up/Down** buttons will change the weather channel.

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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.

Call/Set Button



Settings Menu



Up/Down Buttons



Exit



To Enter The Settings Menu:

Press and hold the **Call/Set** 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 arrow appears in a feature portion of the menu, it will point to the setting that was in effect when you entered the menu.

When you are finished with changes, you can exit the **Settings** menu and return to **Standby** mode.

To Exit The Settings Menu:

1. Use the **Up/Down** buttons to scroll down to EXIT at the bottom of the menu.
2. With the arrow pointing to EXIT, press the **Call/Set** button to return the radio to **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.

LCD 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**.

Lamp Adjustment



High/Medium/Low/Off



To Adjust The Backlight Level:

1. Enter the **Settings** menu and scroll to LAMP ADJ (lamp adjustment).
2. Press the **Call/Set** button and observe the current backlight setting — HIGH, MEDIUM, LOW or OFF.
3. Scroll to switch to the setting you want.
4. Press the **Call/Set** button to select the backlight setting.
5. Scroll to EXIT.
6. Press the **Call/Set** button to return to **Standby**.

When the backlight is turned **On** to any intensity, the lamp will be lit whenever the radio is **On**.

LCD Contrast (Contrast)

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.

Contrast



Contrast Setting



To Change The Contrast:

1. Enter the **Settings** menu and scroll to CONTRAST.
2. Press the **Call/Set** button and observe the current contrast setting — a number between one (1) and 16.
3. Scroll to change the number up or down.
4. Press the **Call/Set** button to select a contrast level.
5. Scroll to EXIT.
6. Press the **Call/Set** button to return to **Standby**.

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Confirmation Tone (Key Tone)

The **Confirmation Tone** sounds when your CobraMarine VHF radio is turned **On** and 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 KEY TONE.
2. Press the **Call/Set** button and observe the current confirmation tone setting — ON or OFF.
3. Scroll to switch to the setting you want.
4. Press the **Call/Set** button to select the setting.
5. Use the **Up/Down** buttons to scroll to EXIT.
6. Press the **Call/Set** button to return to **Standby**.

Time Offset

All VHF, DSC, and GPS activities use a 24-hour clock and Coordinated Universal Time (UTC) which was formerly known as Greenwich Mean Time (GMT). **Time Offset** uses your connected GPS to gather time inputs. For time inputs 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 74.)





To Change The Time Offset:

1. Enter the **Settings** menu and scroll to TIME OFFST (time offset).
2. Press the **Call/Set** button and observe the current setting.
3. Scroll to change the setting to your local time zone.
4. Press the **Call/Set** button to select the setting.
5. Scroll to EXIT.
6. Press the **Call/Set** button to return to **Standby**.

NOTE
If you leave the time offset at zero (0), the LCD will show the time as UTC. If you enter the hour offset for your time zone, the LCD will show the local time. In either event, DSC messages will always be based on UTC.

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

Three 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 maps, but there are definite differences (see table on pages 58 through 72). Your radio has all three 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. From **Standby** mode, press and hold the **Weather/UIC** button. The radio will shift one channel map and the active channel map will show on the top line of the LCD.
2. Repeat step 1 to shift to the next channel map(s) in the sequence USA, INT (International), CAN (Canada) then back to USA.

The radio will return to **Standby** mode each time the button is released.

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Voice Transmission

Transmit mode gives you the ability to communicate 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. (The tables on pages 58 through 72 will help you select the proper channels.)

Before pressing the **Talk** button to transmit a message, you should select the appropriate channel and transmit power output.

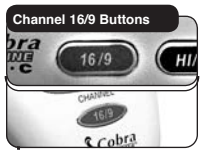
Channels

You can transmit voice messages on most VHF **Channels**. Refer to the VHF marine channel assignments on pages 58 through 72 to select a channel according to the type of message you are going to send.

Up/Down Buttons



Channel 16/9 Buttons



To Change The Channel You Can Choose From One Of The Following:

- Press the **Up/Down** buttons. This will take you to the next higher or lower VHF channel. For rapid advance, press and hold the **Up** or **Down** buttons. (The confirmation tone will sound only for each button press, not during rapid advance.)
- Press the **Channel 16/9** button. This will take you to Channel 16 with one press and to Channel 9 with a second press. Additional presses will toggle between Channel 16 and Channel 9. Press and hold the **Channel 16/9** button to return to **Standby** mode.

Transmit Power Output

Your radio can **Transmit** selectively at 1 or 25 watts of power. Cobra suggests you maintain the low power setting for short-range communications and to avoid overpowering nearby stations with your 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.

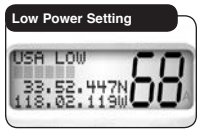
High/Low Power Button



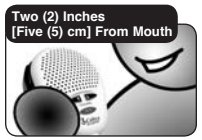
High/Low Power



Low Power Setting



Two (2) Inches [Five (5) cm] From Mouth



Talk Button



Transmit Icon



To Toggle Between The High And Low Power Modes:

Press the **High/Low Power** button.
The LCD will show which mode is in effect.

Some channels are restricted to use at a maximum of one watt. Your radio will automatically switch to **Low Power** mode when you select those channels.

While using the U.S.A. channel map, if, in an emergency, you need to increase the output power on Channel 13 and Channel 67 for your signal to be heard, you can override the **Low Power** mode by pressing and holding the **High/Low Power** button.

Transmit A Message

To Transmit A Message:

1. Check to see that your unit is set to a proper channel for the type of message being sent.
2. Toggle to the low power setting by pressing the **High/Low Power** button.
3. With the microphone about two inches [five cm] from your mouth, press and hold the **Talk** button and speak into the microphone. **TX (Transmit)** displays on the LCD display.
4. Release the **Talk** button when you are finished speaking. To hear a response, the **Talk** button must be released.

NOTE

If the **Talk** button is held down for five minutes, the radio will automatically cease transmitting to prevent unwanted signal generation. As soon as the **Talk** button is released, it can be pressed again to resume transmission.

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Weather Radio And Alert

NOAA All Hazards/Weather Radio And Alert

NOAA broadcasts **Weather** information as described in the NOAA weather channels section on page 73 of this manual. You can listen to one or two of these receive-only channels at any time depending on your area.

NOTE

Usually only one or two of the weather channels will be operating in any given location. You will need to select the channel with the strongest signal in your location. This is the channel the radio will scan for the weather alert signal.

Weather/UIC Button



Weather Mode



To Listen To The Weather Channels:

1. From **Standby** mode, press the **Weather/UIC** button. The unit will enter the **Weather** mode and show it on the LCD.
2. Scroll to change the weather channels — hold the button for fast advance.
3. To exit the **Weather** mode and return to **Standby** mode, press the **Weather/UIC** button again.

Weather Alert Set-Up

You must have **Weather Alert** mode turned **On** to benefit from the **Weather Alert** condition signal described in the NOAA weather channels section on page 73.

Weather Alert



On/Off



To Turn Weather Alert On:

1. Enter the **Settings** menu and scroll to WX ALERT (weather alert).
2. Press the **Call/Set** button and observe the current setting — ON or OFF.
3. Scroll to change to the setting.
4. Press the **Call/Set** button to select the setting.
5. Scroll to EXIT.
6. Press the **Call/Set** button to return to **Standby**.

Advanced Operation

Weather Alert Signal

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.

When You Hear The Alert:

Press any key to turn **Off** the alert alarm and LCD indicator.

Advanced Operation

Cobra has incorporated several features in your CobraMarine VHF radio to give you quick access to the voice calling channels and to let you monitor more than one channel at once.

Channel 16/9

This function gives you quick access to calling **Channel 16** or **Channel 9** from any operational mode.

Channel 16/9 Buttons



Channel 16/9 Toggle



To Switch To Channel 16 Or Channel 9:

1. Press the **Channel 16/9** button to change to Channel 16.
2. Press the **Channel 16/9** button again to change to Channel 9.

Additional presses of the **Channel 16/9** button will toggle back and forth between the two channels.

To exit the **Channel 16/9** mode and return to the previous channel, press and hold the **Channel 16/9** button.

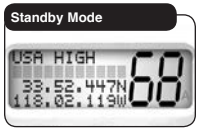
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Dual-Watch

Dual-Watch gives you one button access to scan the two locations of most importance to you. Channel 16 will always be included as a scanned location. The remaining location will be the VHF channel in effect when you enter **Dual-Watch** mode.

NOTE
The radio must be squelched for dual-watch to function. See page 26 for squelch procedure.

Standby Mode



Dual-Watch Button



To Enter Dual-Watch Mode:

1. In **Standby** mode, use the **Up/Down** buttons to go to the channel you want to add as the second location to be scanned.
2. Press the **Dual-Watch** button.

Dual-watch will be indicated on the LCD and the radio will scan between Channel 16 and the second dual-watch location you selected. A signal on any one of the two 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.

To Exit Dual-Watch Mode:

Press the **Dual-Watch** button. The radio will return to **Standby** mode.

Dual-Watch Mode



During Dual-Watch (while receiving an incoming transmission), You Can Choose From The Following:

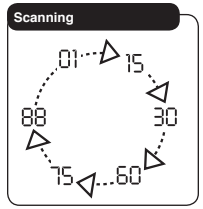
- Press the **Talk** button to remain on that dual-watch location and return to **Standby** mode.
- Press the **Up/Down** buttons to resume scanning dual-watch locations.

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

During Dual-Watch (while not receiving a transmission):

Press the **Talk** button to communicate on the last dual-watch location scanned and return to **Standby** mode.

Scanning



Scan

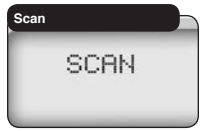
During **Scan**, the radio will rapidly switch from channel to channel through all the channels. Whenever any activity is detected, the radio will stop the scan for ten seconds to allow you to listen briefly on that channel. It will then continue to scan unless you switch out of the **Scan** mode.

NOTE
The radio must be squelched for **Scan** mode to function. See page 26 for squelch procedure.

Scan Button



Scan



To Enter Scan:

From **Standby** mode, press the **Scan** button.

The radio will immediately begin to scan the entire channel map selected in the active channel map. SCAN will show on the LCD.

To Exit Scan:

From **Scan** mode, press the **Scan** button.

This will return the radio to **Standby** mode on the last scanned channel.

During Scan (while receiving an incoming transmission), You Can Choose From The Following:

- Press the **Talk** button to remain on that channel and end scanning. This will return the radio to **Standby** mode.
- Press the **Up/Down** buttons to resume scanning.

If you do not press any buttons within ten seconds, your radio will automatically resume scanning.

During Scan (while not receiving a transmission):

Press the **Talk** button to communicate on the last channel scanned and return to **Standby** mode.

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Digital Select Calling (DSC) Setup

Digital Selective Calling (DSC) uses digital signals to increase messaging range. This provides the most reliable message delivery per watt of output power. Digital signals are less susceptible to distortion from noise and atmospheric conditions than analog signals.

DSC equipped radios also interface with GPS and automate many operations for sending and receiving messages. This results in compact, accurate messages and less airwave congestion.

Setup procedures for all DSC features use the **Setup** menu. Refer to page 28 for information on entering and exiting the **Setup** menu.

User MMSI Number

The nine 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 listed on page 9.

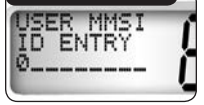
NOTE
The radio does not operate in the **DSC** mode until an official MMSI number is entered. An error tone will sound when attempting to operate in the DSC mode without an MMSI number.

NOTE
An MMSI number can only be entered one time. To enter a new MMSI number, the unit must be reset by the dealer.

User MMSI



User MMSI ID Entry



To Enter Your MMSI Number:

1. Enter the **Settings** menu and scroll to USER MMSI.
2. Press the **Call/Set** button and the blinking cursor will appear at the first digit under USER MMSI ID ENTRY.
3. Scroll through the number list to that digit of your number.
4. Press the **Call/Set** button to select the digit and the blinking cursor will move to the next digit of the number.
5. Repeat steps 3 and 4 until all nine digits of your MMSI number are entered.

NOTE
Press the **High/Low Power** button to backspace and erase the last selected number.

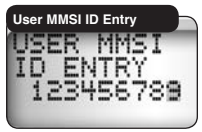
6. Check that you have entered the number correctly. The unit will ask you to re-enter your number to confirm.
7. Press and hold the **Call/Set** button to return to the **Settings** menu.

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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 **Settings** menu and scroll to USER MMSI.
2. Press the **Call/Set** button and the blinking cursor will appear at the first digit of your already entered number under USER MMSI ID ENTRY.
3. Press and hold the **WX/ESC** button to return to the **Settings** 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.

Group MMSIs can be entered and changed any time without resetting the radio. Each member of a group must enter the group MMSI number in their radio to receive group messages.





To Enter A Group MMSI Number:

1. Enter the **Settings** menu and scroll to GROUP MMSI.
2. Press the **Call/Set** button and the blinking cursor will appear at the first digit under GROUP MMSI ID ENTRY.
3. Scroll through the number list to that digit of your number.
4. Press the **Call/Set** button to select the digit and the blinking cursor will move to the next digit of the number.
5. Repeat steps 3 and 4 until all nine digits of the group MMSI number are entered.

NOTE
Press the **High/Low Power** button to backspace and erase the last selected number.

6. Check that you have entered the number correctly. The unit will ask you to re-enter your number to confirm.
7. Press and hold the **Call/Set** button to return to the **Settings** menu.

The group MMSI is established by modifying the MMSI assigned to one of the group members. The last digit of that member's MMSI number is dropped and a zero is inserted at the beginning. **Example:** Member MMSI number 366123456 becomes group MMSI number 036612345.

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Position Request Reply Type

The ability to send your position to another station is an added feature of DSC radios that have GPS attached. 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.

Position Reply



Auto/Manual/Exit



To Set The Position Request Reply Type:

1. Enter the **Settings** menu and scroll to POS RPLY (position reply).
2. Press the **Call/Set** button and observe the current setting — AUTO or MANUAL.
3. Scroll to change the setting.
4. Press the **Call/Set** button to select the setting.
5. Scroll to EXIT.
6. Press the **Call/Set** button to return to the **Settings** 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 10 names and their associated MMSI numbers for quick access.

Individual Directory



Location 01



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

1. Enter the **Settings** menu and scroll to INDV DIR (individual directory).
2. Press the **Call/Set** button to enter a memory location (1-10).
3. Scroll through the memory locations to one you want to select.

New Individual



4. Press the **Call/Set** button to select the memory location. The cursor will begin to blink at the first character under NAME.
5. Scroll through the character list.
6. Press the **Call/Set** button to select a character. This will also move the blinking cursor to the next character under NAME.
7. Repeat steps 5 and 6 to enter additional characters — up to a maximum of nine — for the name.

NOTE
Press the **High/Low Power** button to backspace and erase the last selected character.

Enter MMSI



Next/Exit



8. After entering the name, press and hold the **Call/Set** button to move the blinking cursor to the first character under MMSI.
9. Scroll through the number list.
10. Press the **Call/Set** button to select the number and move the cursor to the next character under MMSI.
11. Repeat steps 9 and 10 until the nine digit MMSI is entered.
12. Press and hold the **Call/Set** button to move to the next memory location or exit.
13. Select NEXT or EXIT with the **Call/Set** button.

    If NEXT is selected, pressing the **Call/Set** button will move to the next memory location where another name can be entered by repeating steps 3 through 11.

    If EXIT is selected, pressing the **Call/Set** button will return you to the **Settings** menu.

You can enter a total of 10 names and MMSI numbers in the directory.

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Digital Selective Calling (DSC) Operation

DSC Operation

Sending DSC calls is done from menus similar to the **Settings** menu. Whereas entering the **Settings** menu required a press and hold of the **Call/Set** button, the sending menus appear with a press of the **Distress** button.

All received DSC calls will sound one or another of the alarms to alert you to them. See pages 24 through 25 for descriptions of the different alarms. Pressing any button will turn **Off** the alarm while maintaining the received call information on the LCD.

Sending Distress Calls

Sending and receiving distress calls and acknowledgements on Channel 70 can be a lifesaver for boaters.

NOTE

The DSC call will:

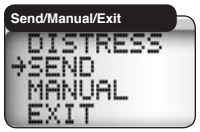
- Sound the distress alarm at all receiving stations.
- Informs receiving stations of the sender's identity (MMSI).
- Informs receiving stations of the nature of the emergency.
- Informs receiving stations of sending position when a GPS device is connected or a position is manually entered.

DSC operation does not provide receiving stations with information like number of persons aboard or injuries. This specific information must be communicated by voice on Channel 16 to the station that acknowledges a DSC Distress call.

Distress Button



Send/Manual/Exit

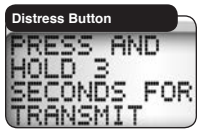


To Send a DSC Distress Call:

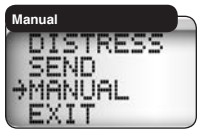
1. From **Standby** mode, lift the spring-loaded red door on the transceiver and press the **Distress** button. The **Distress** menu displays with an arrow pointing to SEND. There are three choices:
   - Send a distress call automatically, with your position, if you are connected to a GPS. Or send the call, without your position, if not connected to a GPS.
   - Include a Nature of Distress message with the distress call.
   - Abort the distress call process and return to **Standby** mode.

Digital Selective Calling (DSC) Operation

Distress Button



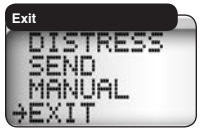
Manual



Position Entry Screen



Exit



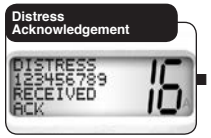
Transmit USA High



Distress Waiting



Distress Acknowledgement



2. Choose one of the following:

To Send An Automatic Distress Call:

Press and hold the **Distress** button.

Include a Nature of Distress Message with Distress Call:

a. Press and release the **Distress** button.

b. Press the **Channel Up/Down** buttons to manually select from the list of pre-programmed Nature of Distress calls — UNDEFINE, FIRE, FLOODING, GROUNDIN, COLLISIO, MORE.

c. Press and hold the **Distress** button for three seconds to transmit the distress signal.

Abort The Distress Call Process:

If the **Distress** button is pressed by mistake or to discontinue resending an automatic distress message:

a. Press the **Channel Up/Down** buttons to move the arrow to EXIT.

b. Press the **Distress** button to return to **Standby** mode.

NOTE

You may also press the **WX/ESC** (escape) button to return to the **Standby** mode.

The **Distress** alarm sounds to confirm that the message is transmitted. At the end of the transmission, the radio maintains a watch on Channel 16 and Channel 70 for an acknowledgement. Press any button to turn Off the alarm and return to **Standby** mode.

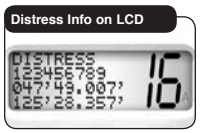
- If an acknowledgement is received, the **Distress** alarm sounds again and the responding party's MMSI number displays on the LCD.
- If no acknowledgement is received, the radio resends the message at approximately four minute intervals until an acknowledgement is received or the Distress call is aborted.

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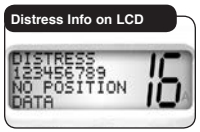
Receiving Distress Calls

When a vessel is within range of a DSC Distress call, the radio receives the call, sounds the **Distress** alarm, and switches to Channel 16. All DSC calls that are received will sound one alert alarm. See pages 24-25 for descriptions of the different alarms. Press any button to turn Off the alarm. The received call information continues to display on the LCD.

Distress Info on LCD



Distress Info on LCD



When A Distress Call Is Heard:

1. Press any button to turn **Off** the alarm and return to **Standby** mode.
2. Read and write down the distress information on the LCD (there may or may not be position data shown), then determine whether you should answer the call.
3. Respond, if appropriate, by pressing and holding the **Talk** button to transmit on Channel 16.

NOTE
Your radio will automatically switch to Channel 16 upon receiving a DSC distress call.

Regarding Distress Relay Calls

This radio cannot send **Distress Relay** calls. Only large ships and shore stations, with specially equipped radios, can send **Distress Relay** calls.

Receiving Distress Relay Calls

This radio does respond to a received **Distress Relay** call juat as it responds to a Distress call.

Sending a Test Call

Allows you test and confirm the DSC operation of your radio.

To Send a Test Call:

1. Press the **Call/Set** button to enter the **Call/Send** menu.
2. Scroll to TEST CALL and press the **Call/Set** button to enter the **TEST CALL** menu.
3. Using the **Up/Down** buttons to enter the STORED DIRECTORY or MANUAL to allow you to enter the MMSI number of the radio to be called.
4. After selecting the radio to be called, press the **Call/Set** key to transmit the **TEST CALL**.
5. Your radio will wait for the called radio to reply and will show the acknowledgement on the display.

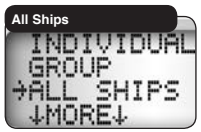
Sending An All Ships Calls

Use DSC **All Ships** call is used for the same urgency and safety purposes as the Pan and Securite voice calls as well as to send routine messages to all stations at once. The DSC **All Ships** call reaches all stations within range of your radio. Use the DSC **All Ships** call if you have an urgent, but not life-threatening, situation or a safety warning to broadcast to all vessels in your area.

Standby Mode



All Ships



Urgency/Safety/Routine



Urgency Waiting



Routine Waiting



To Send An All Ships Call:

1. Press the **Call/Set** button to enter the **Call Send** menu.
2. Scroll to ALL SHIPS.
3. Press the **Call/Set** button to move to the message type menu.
4. Scroll to select a message type — URGENCY or SAFETY.
5. Press the **Call/Set** button to send the message.

After urgency and safety calls, the radio will switch to Channel 16 and wait for you to press the **Talk** button to send the urgent or safety message by voice.

DSC equipped radios that receive your message will be automatically switched to Channel 16.

To return to **Standby** mode without sending a message, use the **Up/Down** buttons to scroll to EXIT and press the **Call/Set** button.

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Receiving An All Ships Call

All Ships calls sent by stations within range of your radio will sound the distress alarm on your radio and switch your radio to Channel 16.

All Ships Call



When An All Ships Call Is Heard:

1. Press any button to turn **Off** the alarm and return to **Standby** mode.
2. Read and write down the MMSI of the vessel sending the call as well as the date and time of the call.
3. Listen to the voice message sent on the channel your radio was switched to by the incoming all ships call. Some All Ships calls have channel information.

Sending A Geographical Call

Your radio cannot send **Geographical** calls. Only large ships and shore stations with specially equipped radios can send **Geographical** calls.

Receiving A Geographical Call

Geographical calls are sent by specially equipped radios to all stations in a particular geographical area to alert only those stations of the call and not stations in unaffected areas. If you are in an area to which a **Geographical** call is made, the radio will sound the geographical alarm and switch to the channel chosen by the transmitting station.

Geographical Call



When A Geographical Call Sounds:

1. Press any button to turn **Off** the alarm.
2. Read and write down the MMSI of the vessel sending the call as well as the date and time of the call in case you will want to respond.
3. Listen to the voice message sent on the channel your radio was switched to by the incoming Geographical call.
4. Press one of the following three buttons to switch from geographical call receive to **Standby** mode: **Call/Set** button or **Channel 16/9** button.

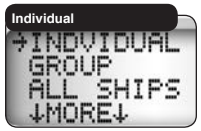
Sending An Individual Call

The DSC **Individual** call feature allows you to notify one, and only one, station that you want to communicate with that station. The DSC Individual call does not alert all other stations within range.

Standby Mode



Individual



Select Name



Individual Waiting



Send/Exit



To Send An Individual Call:

1. In **Standby** mode, select a channel on which you want to communicate.
2. Press the **Call/Set** button to enter the **Call Send** menu.
3. Scroll to INDIVIDUAL.
4. Press the **Call/Set** button to move to the individual directory.
5. Scroll to select the name you want to call from the directory.
6. Press the **Call/Set** button to send the message or return to **Standby** mode if EXIT was chosen.

If the radio you are calling sends back an automatic DSC response of “able to comply,” the individual alarm will sound. Wait for a voice message from the called station.

If the called radio does not send an “able to comply” response, your radio will wait eight seconds and resend the message.

If an “unable to comply” response or no reply is received, your radio will go to the **Unavailable** menu.

At the **Unavailable** menu, you can choose SEND or EXIT with the **Up/Down** buttons. If you choose SEND, your radio will restart the individual call. If you choose EXIT, you will be returned to the individual location on the **Call Send** menu.

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Caller Identified



Receiving An Individual Call

When another station makes an **Individual** call to your radio, the individual alarm will sound, the caller will be identified on the LCD, and your radio will be switched to the channel selected by the caller. Press any button to turn **Off** the alarm.

To Answer An Individual Call:

Press the **Talk** button and greet the caller.

Sending A Group Call

Sending a **Group** call is very similar to sending an individual call, except that the group MMSI is used and the resend and DSC responses do not apply. See page 41 for creating and entering a group MMSI.

Standby Mode



Group



Send/Exit



Group Waiting



To Send A Group Call:

1. In **Standby** mode, select a channel on which you want to communicate.
2. Press the **Call/Set** button to enter the **Call Send** menu.
3. Scroll to GROUP.
4. Press the **Call/Set** button to move to the send or exit menu.
5. Scroll to select SEND or EXIT.
6. Press the **Call/Set** button to send the message or return to the **Call Send** menu if EXIT was chosen.

All radios will be switched to the channel selected in step 1. Press and hold the **Talk** button to send your voice message to everyone in the group.

Anyone in the group can now also transmit on that channel.

Receiving A Group Call

When another station makes a **Group** call to your radio, the individual alarm will sound, the caller will be identified on the LCD, and your radio will be switched to the channel selected by the caller, just as for an individual call. Press any button to turn **Off** the alarm.

Caller Identified



To Answer A Group Call:

1. Listen for the group voice message.
2. Press the **Talk** button and respond only if appropriate.

Sending A Position Request

Position Request mode enables a DSC radio to obtain the position (latitude and longitude) of a station that has a GPS device connected to the DSC radio at that station. In most cases, a reply will be forthcoming. If for some reason, your request is not acknowledged in five minutes, the user will be prompted to Resend the request or exit the menu.

Standby Mode



Position Request



Individual Directory



Position Request

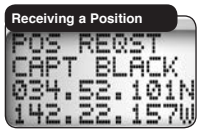


To Request The Position Of Another Station:

1. In **Standby** mode, select a channel on which you want to communicate.
2. Press the **Call/Set** button to enter the **Call Send** menu.
3. Scroll to POS REQST (position request) on the menu.
4. Press the **Call/Set** button to enter the **Individual Directory** menu.
5. Scroll to the name of the station whose position you want to request.
6. Press the **Call/Set** button. Your radio will send the position request and there will be one of three possible responses:
   - You will receive the position.
   - You will receive a no position data response, meaning the station you queried is not connected to a GPS device and cannot send its position.
   - You will receive a no reply response, meaning the operator of that station has chosen not to reply to your request.

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Sending A Position Request continued







Choose one of the following:

If You Receive A Position:

The requested position with the station name and MMSI will show on your screen.

Press the **Call/Set** button to return to **Standby** mode after you have noted the station's position.

If The Station You Called Cannot Send Its Position:

NO POS DATA (no position data) will show on your screen.

1. Press the **Call/Set** button to return to the **Individual Directory** menu.
2. Scroll to EXIT.
3. Press the **Call/Set** button to return to the **Call Send** menu.
4. Scroll to EXIT.
5. Press the **Call/Set** button to return to **Standby** mode.

If The Station You Called Chose Not To Reply:

NO REPLY will show on your screen.

You will have two choices:

- RESEND the request.
- EXIT the Position Request mode.

To Resend Your Position Request:

1. Use the Up/Down buttons to scroll to RESEND.
2. Press the Call/Set button.

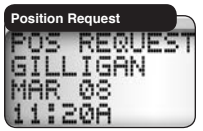
To Exit The Position Request Mode:

1. Use the Up/Down buttons to scroll to EXIT.
2. Press the Call/Set button to return to the Individual Directory menu.
3. Use the Up/Down buttons to scroll to EXIT.
4. Press the Call/Set button to return to the Call Send menu.
5. Use the Up/Down buttons to scroll to EXIT.
6. Press the Call/Set button to return to Standby mode.

Receiving A Position Request

When you went through the DSC set-up process, you set a position request reply type. (See page 52 to change your setting.) Depending on the setting you chose, when a **Position Request** message is received, your radio will enter either:

- The **Auto Reply** mode.
- The **Manual Reply** mode.



When The Radio Is In Auto Reply Mode:

A position request will sound the position request alarm and show the name of the requesting station on the LCD. Your radio will automatically respond. It will send your position, if you have a GPS connected to your radio, or NO POS DATA (no position data), if you do not have a GPS device connected.

Press any button to silence the alarm and exit the display.





When The Radio Is In The Manual Reply Mode:

A position request message will sound the position request alarm and show the name of the requesting station. You can choose to:

- Reply and send your position.
- Exit without sending your position.

If You Choose To Reply With Your Position:

1. Scroll to select REPLY.
2. Press the **Call/Set** button to send your position.
3. Press any button to return to **Standby** mode.

If You Choose Not To Reply:

1. Scroll to select EXIT.
2. Press the **Call/Set** button to return to **Standby** mode without sending your position.

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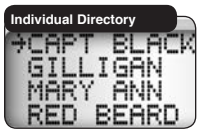
Standby Mode



Position Send



Individual Directory



Transmit Position



Send/Exit



Sending A Position Send

Position Send uses your connected GPS in similar fashion to the position request function, except that you initiate the activity to let another station know where you are.

To Send A Position Send Message:

1. In **Standby** mode, select a channel on which you want to communicate.
2. Press the **Call/Set** button to enter the **Call Send** menu.
3. Scroll to POS SEND (position send).
4. Press the **Call/Set** button to enter the individual directory.
5. Scroll to select the station to which you want to send your position.
6. Press the **Call/Set** button to send your position.

After your position is sent, the LCD will show POS SEND (position send). You will have two choices.

- Resend your position to the same station.
- Exit from **Position Send** mode.

To Resend Your Position:

1. Use the **Up/Down** buttons to select SEND.
2. Press the **Call/Set** button to resend your position.

To Exit From The Position Send Mode:

1. Use the **Up/Down** buttons to select EXIT.
2. Press the **Call/Set** button to return to the **Call Send** menu.

Receiving A Position Send

Position Send



When another station sends you its position in **Position Send** mode, the individual alarm will sound and the station's name and position will be shown on the LCD. Press any button to turn **Off** the alarm and return to **Standby** mode.

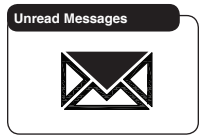
Call Log Menu



All Messages Viewed



Unread Messages



Call Log and Distress Log

Call Log functions similarly to the caller ID function on your telephone. It will capture the caller's MMSI identification number and any other data included in a DSC message.

NOTE
The call waiting memory can hold up to 20 messages. Once the memory becomes full, each new call will erase the oldest call information on a first-in first-out basis.

To Review Call Log Messages Received While In DSC Standby Mode:

1. From **Standby** mode, press the **Call/Set** button to enter the **Call Send** menu.
2. Scroll to CALLLOG
3. Press the **Call/Set** button to enter the **Call Log** mode.

NOTE
The fourth line will show the type of message.

4. Scroll to move from message to message in the call log memory.
5. Press the **Call/Set** button to return to **Standby** mode.

To Clear Messages From The Call Log Memory:

1. From **Standby** mode, press the **Call/Set** button to enter the **Call Send** menu.
2. Scroll to CALLLOG (call waiting).
3. Press the **Call/Set** button to enter the **Call Log** mode.

NOTE
The fourth line will show the type of message.

4. Scroll to select the message you want to delete.
5. Press and hold the **Memory Scan/Memory Clear** button for one (1) second or more. Repeat steps 4 through 5 to delete additional messages.
6. Press the **Call/Set** button to return to **Standby** mode.

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Maintenance And Troubleshooting

Maintenance

Very little maintenance is required to keep your CobraMarine VHF radio in good operating condition.

- Keep the radio clean by wiping with a soft cloth and mild detergent. Rinse with fresh water. 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, rinse it in fresh water at least once a day to prevent build-up of salt deposits, which could interfere with button operation.

Troubleshooting

Problem	Possible Cause(s)	Solution(s)
No display on LCD when radio is turned **On**	Improper power connection	Insure power connections are proper and secure
Will transmit at one (1) watt, but not at 25 watts	Selected channel is limited to one (1) watt	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	Readjust volume and squelch
No answer to calls	Out of range of other station Signal is blocked by terrain, check antenna connections	Switch to high power (25 watts) or move closer Move until you have a “line-of-sight” to the other station
Connected an external GPS receiver but coordinates do not appear on the screen.	GPS interface cables connected in reverse polarity.	Switch or reverse the GPS interface cables connection. It will not damage the radio or GPS.

Specifications

Specifications

General	
Number of Channels	All U.S.A., Canadian, International and all NOAA Weather Channels
Channel Spacing	25 kHz
Modulation	5 kHz Max.
Input Voltage	13.8 VDC
Current Drain: Stand-by Receive Transmit	 20 mA 200 mA 5A @ High power 1A @ Low
Temperature Range	-15˚ C to +55˚ C
Unit Dimensions	6.25” x 2.25” x 7.125” (15.9 cm x 5.7 cm x 18 cm)
Unit Weight	2 lbs., 6.8 oz. (1100 g)
Receiver	
Frequency Range	156.050 to 163.275 MHz
Receiver Type	Double Conversion Super-Heterodyne
Sensitivity: 20 dB Quieting 12 dB Sinad	 0.35 uV 0.30 uV
AF Output	4 Watts @ 8 Ohms
Transmitter	
Frequency Range: TX	156.025 to 157.425 MHz
RF Output Power	1 and 25 Watts
Spurious Emissions	-60 dB High -55 dB Low
Microphone Type	Electret
Frequency Stability	+/-10 ppm
FM Hum and Noise	40 dB

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VHF Marine Channel Assignments

Three 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 maps, but there are definite differences (see table on the following pages). Your radio has all three maps built into it and will operate correctly in whichever area you choose.

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

Channel Assignments (English)

Distress, Safety, and Calling

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

Calling

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

Intership Safety

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

Coast Guard Liaison

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

Non-Commercial

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

Commercial

Channels 1A, 7A, 8, 9, 10, 11, 18A, 19A, 63A, 67, 72, 79A, 80A, 88A*
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 mapas 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 mapas, pero sin duda existen diferencias (consulte las tablas en las páginas siguientes). El radio incorpora los tres mapas y funcionará correctamente en cualquiera de las tres áreas.

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

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

Canal 22A
Para hablar con las guardias costeras estadounidenses y canadienses (excepto casos de emergencia) tras haber establecido contacto por el canal 16.

No comerciales

Canales 68*, 69, 71, 72, 78A, 79A*, 80A*
Canales activos para pequeñas embarcaciones. Los mensajes deberán estar relacionados con necesidades de las embarcaciones, como por ejemplo, informes de pesca, atraques y agrupamientos. Use el canal 72 solamente para mensajes entre embarcaciones.

Comerciales

Canales 1A, 7A, 8, 9, 10, 11, 18A, 19A, 63A, 67, 72, 79A, 80A, 88A*
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.

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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.

Port Operations

Channels 1A*, 5A*, 12*, 14*, 18, 19, 20A, 21, 22, 63A*, 65A, 66A, 73, 74, 75, 76, 77*, 79, 80, 81, 82

Used for directing the movement of ships in or near ports, locks or waterways. Messages must be about operational handling, movement and safety of ships.

Navigational

Channels 13, 67

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

Maritime Control

Channel 17

For talking to vessels and coast stations operated by state or local governments. Messages must be about regulation and control, boating activities, or assistance.

Digital Selective Calling

Channel 70

This channel is set aside for distress, safety and general calling using only digital selective calling techniques. Voice communication is prohibited; your radio cannot transmit voice messages on this channel.

Weather

Channels Wx 1 Thru 10

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

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.

VHF Marine Channel Assignments

Asignaciones de canales (Español)

Sea Tow Control de radio automatizado (ARC)

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

Sintonice su radio en el canal correcto 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.

Operaciones portuarias

Canales 1A*, 5A*, 12*, 14*, 18, 19, 20A, 21, 22, 63A*, 65A, 66A, 73, 74, 75, 76, 77*, 79, 80, 81, 82

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

Canales 13, 67

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

Canal 17

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.

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.

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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
01		•	•	156.050	160.650	Canada
01A/1001	•			156.050	156.050	
02		•	•	156.100	160.700	
03		•	•	156.150	160.750	
03A/1003	•			156.150	156.150	
04		•		156.200	160.800	
1004			•	156.200	156.200	
05		•		156.250	160.850	
05A/1005	•		•	156.250	156.250	
06	•	•	•	156.300	156.300	
07		•		156.350	160.950	
07A/1007	•		•	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

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VHF Marine Channel Assignments

Channel Number / Número de canal	Channel Map / Mapa de canales			Frequency / Frecuencia		
	USA EE.UU.	Int'l nternac	Canada Canadá	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/1018	•		•	156.900	156.900	
19		•		156.950	161.550	
19A/1019	•		•	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/1020	•	•		157.000	157.000	
2020		•		161.600	161.600	
21		•		157.050	161.650	
21A/1021	•		•	157.050	157.050	
2021			•	RX only	161.650	
22		•		157.100	161.700	
22A/1022	•		•	157.100	157.100	
23		•	•	157.150	161.750	

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, 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)

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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/1023	•			157.150	157.150	
2023			•	Rx Only	161.750	
24	•	•	•	157.200	161.800	
25	•	•	•	157.250	161.850	
2025			•	RX only	161.850	
26	•	•	•	157.300	161.900	
27	•	•	•	157.350	161.950	
28	•	•	•	157.400	162.000	
2028			•	RX only	162.000	
60		•	•	156.025	160.625	
61		•		156.075	160.675	
1061			•	156.075	156.075	
62		•		156.125	160.725	
1062			•	156.125	156.125	
63		•		156.175	160.775	
63A/1063	•		•	156.175	156.175	
64		•	•	156.225	160.825	
1064			•	156.225	156.225	
65		•		156.275	160.875	
65A/1065	•		•	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

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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	
66		•		156.325	160.925	
66A/1066	•		•	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

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.

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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	
78		•		156.925	161.525	
78A/1078	•		•	156.925	156.925	
1078		•		156.925	156.925	
2078		•		161.525	161.525	
79		•		156.975	161.575	
79A/1079	•		•	156.975	156.975	
1079		•		156.975	156.975	
2079		•		161.575	161.575	
80		•		157.025	161.625	
80A/1080	•		•	157.025	157.025	
81		•		157.075	161.675	
81A/1081	•		•	157.075	157.075	
82		•		157.125	161.725	
82A/1082	•		•	157.125	157.125	
83		•		157.175	161.775	
83A/1083	•		•	157.175	157.175	
2083			•	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/1088	•			157.425	157.425	

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

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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. The rest of the plain-numbered channels (including 4 digit channels) and all of the A channels, such as 01A, 03A and 04A, transmit and receive on a single frequency, which is termed simplex operation. Your radio automatically adjusts to these conditions. When in simplex operation, the A or 4 digits will appear on the LCD (see illustration on page A2).

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 (Incluyendo canales de 4 digitos) 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 ó los 4digitos aparecerán en la pantalla de cristal líquido (vea la ilustración de la página A3).

NOTA

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

Weather Channel Assignments

Weather Channel Assignments
Asignaciones de canales meteorológicos

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

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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

Warranty and Trademark

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 years from the date of first consumer purchase. This warranty may be enforced by the first consumer purchaser, provided that the product is utilized within the U.S.A.

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

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

Exclusions: This limited warranty does not apply:

1. To any product damaged by accident.
2. In the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs.
3. If the serial number has been altered, defaced, or removed.
4. If the owner of the product resides outside the U.S.A.

All implied warranties, including warranties of merchantability and fitness for a particular purpose are limited in duration to the length of this warranty. Cobra shall not be liable for any incidental, consequential or other damages; including, without limitation, damages resulting from loss of use or cost of installation.

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you.

For Products Purchased Outside The U.S.A.

Please contact your local dealer for warranty information.

Trademark Acknowledgement

Cobra®, CobraMarine®, Nothing Comes Close to a Cobra®, and the snake design are registered trademarks of Cobra Electronics Corporation, USA.

Cobra Electronics Corporation™ is a trademark of Cobra Electronics Corporation, USA.

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Product Service

Product Service

If you have any questions about operation or installing your new CobraMarine VHF product, or if you are missing parts…

Please call 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 mechanical reproduction or carbon 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.

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

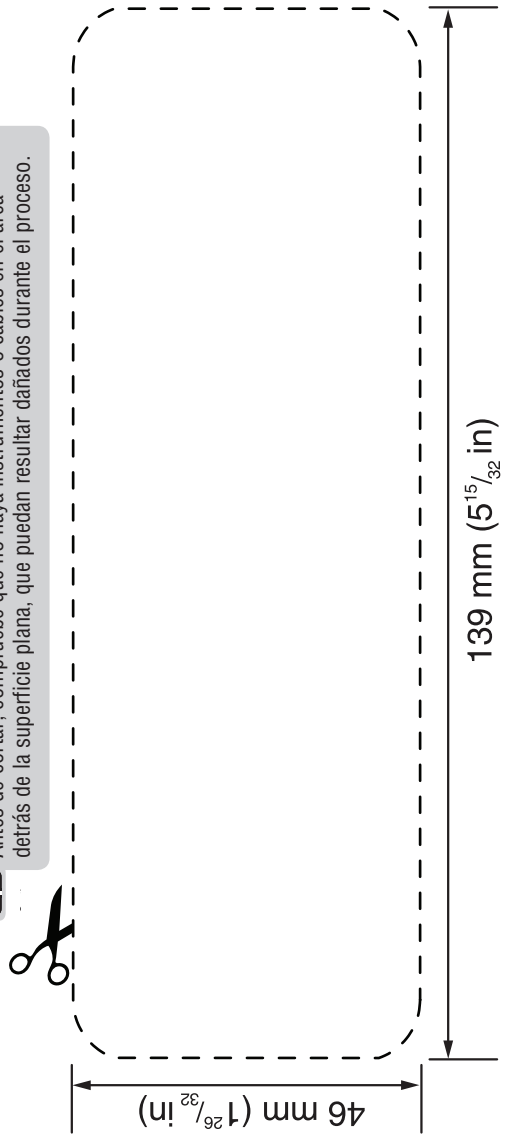
Flush Mount Template / Plantilla para montaje empotrado

Use this supplied template to mark and cut an opening in the flat surface.

CAUTION
Before cutting, be sure the area behind the flat surface is clear of any instruments or wires that might be damaged in the process.

Use esta plantilla suministrada para marcar y cortar el agujero en la superficie plana.

PRECAUCIÓN
Antes de cortar, compruebe que no haya instrumentos o cables en el área detrás de la superficie plana, que puedan resultar dañados durante el proceso.



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