

Cobra MARINE™

Owner's Manual

VHF MARINE RADIO

MR HH400X VP

Nothing comes close to a Cobra®

English

Our Thanks to You and Customer Assistance

Introduction

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

How your CobraMarine™ VHF radio works

This radio is a battery powered portable transceiver for use afloat. It gives you 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, the radio can provide quick access to receive all ten (10) NOAA (National Oceanographic and Atmospheric Administration) weather channels and alert you to weather emergencies with a tone on a weather channel you can select for your area.

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 6:00 p.m. CT Mon. through Fri. (except holidays) 773-889-3087 (phone).

Questions English and Spanish.

Faxes can be received at 773-622-2269 (fax).

Technical assistance English only.

www.cobra.com (on-line: Frequently Asked Questions).

English and Spanish. productinfo@cobra.com (e-mail).

For assistance outside the U.S.A.

Contact your local dealer

©2004 Cobra® Electronics Corporation
6500 West Cortland Street
Chicago, Illinois 60707 USA
www.cobra.com

A1 English

Radio Controls and Indicators

Introduction



Antenna

Squelch Knob

On-Off Power/
Volume Knob

Backlight/
Key Lock
Button

Talk
Button

Channel
Up/Down
Buttons

Weather/
UIC Button

High/Low
Power Button

Speaker/
Microphone

Belt Clip
Engagement
Knob

Battery
Compartment

Wrist
Strap
Connector

Memory
Button

Scan
Button

Backlit
LCD Screen

Instant
Channel
16/9 Button

Tri-Watch
Button

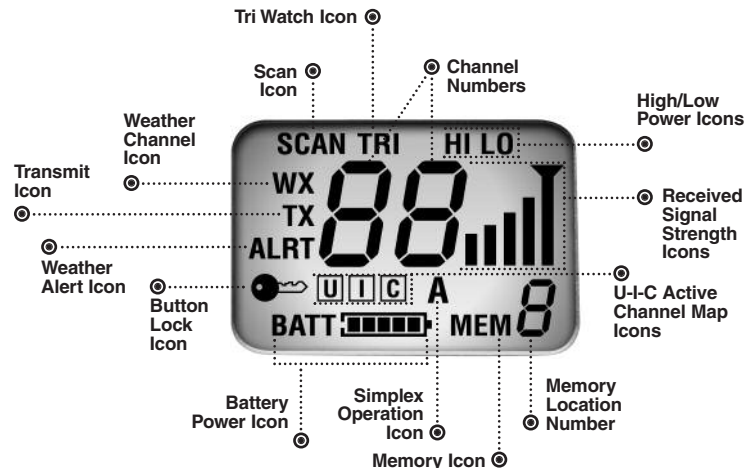
Charging
Contacts

Cobra
MARINE™
MR HH400

Backlit LCD Screen and Product Features

Introduction

Backlit LCD (Liquid Crystal Display) screen



Tri Watch Icon

Scan
Icon

Channel
Numbers

High/Low
Power Icons

Weather
Channel
Icon

Transmit
Icon

Weather
Alert Icon

Button
Lock
Icon

Battery
Power Icon

Simplex
Operation
Icon

Memory
Icon

Received
Signal
Strength
Icons

U-I-C Active
Channel Map
Icons

Memory
Location
Number

Product Features

Dual Power

Selectable to one or five 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.

10 NOAA Weather Channels

Instant access to all of the national weather channels, 24 hours a day.

Emergency Weather Alert

Can alert you with an audible tone and visual alarm if threatening weather is nearby.

Waterproof

Submersible to one meter of water for 30 minutes — meets JIS7 Standards.

Channel Scan/Memory Scan

Lets you scan through all channels or up to 10 selected memory locations to find conversations in progress.

Button Lock

Prevents accidental changes to your settings when you set this feature.

Instant Channel 16/9

Instant access to priority Channel 16 and calling Channel 9.

Tri-Watch

Lets you monitor three channels at once — Channel 16 and two user programmable channels.

Six AA Rechargeable NiMH Batteries Included

Provides extended operating time compared to alkaline batteries with no memory effect.

Drop-in 120v/12v Desk Charger Included

Lets you charge the batteries right in the radio — at home, in your car, or in your boat.



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Important Safety Information

Before assembling 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 assembled and used properly. Please read the assembly and operating instructions carefully before assembling 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.



WARNING

Your CobraMarine™ radio generates electromagnetic RF (radio frequency) energy when it is transmitting. To ensure that you and those around you are not exposed to excessive amounts of that energy (beyond FCC allowable limits for occupational use):

ALWAYS hold the radio, especially the antenna, at least two (2) inches [five (5) cm] away from you when you are transmitting.

NEVER allow the antenna to touch any part of your body when transmitting.

KEEP the radio and antenna at least as far from bystanders as from yourself.

DO NOT operate the radio without the supplied antenna or a Cobra® authorized replacement attachment. In addition to the RF energy exposure hazard, doing so may 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** icon shows on the LCD screen.

ALWAYS use only Cobra® authorized accessories (antennas, batteries, belt clips, etc.).

DO NOT operate the radio where RF energy generated during transmission may cause electromagnetic interference or incompatibility with other devices or systems. This includes aircraft, blasting sites, and hospitals.

TURN OFF the radio in explosive atmospheres and where signs are posted prohibiting radio transmissions.

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

**CAUTION**

Your radio is waterproof only when the antenna and batteries are properly installed.

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

KEEP your radio at least three (3) feet (0.9 m) away from your vessel's magnetic navigation compass.

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

This radio is supplied with six (6) NiMH (Nickel-Metal Hydride) rechargeable batteries.

- Use only the Cobra® charger to recharge NiMH batteries in the radio.
- Do not short circuit the battery pack.
- When replacing the batteries, dispose of the old batteries properly. NiMH batteries may explode if disposed of in a fire.

Changes or modifications to your radio MAY VOID its compliance with FCC 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 five (5) watt maximum output of your radio isn't sufficient for the distances you travel from the coast, consider installing a CobraMarine™ fixed mount radio with up to 25 watts of output power. (Visit www.cobra.com or your local dealer for model availability.)

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

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

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

**FCC LICENSING INFORMATION**

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

The radio operates on all currently allocated marine channels and is switchable for use according to U.S.A., International, or Canadian regulations. It features instant access to emergency Channel 16 and calling Channel 9 as well as NOAA (National Oceanic and Atmospheric Administration) All Hazards Radio with Alert that can be accessed by pressing one (1) 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., Illinois 1234 AB) be used as a call sign and be clearly visible on the vessel.

Canadian ship station license

This portable VHF radiotelephone is suitable **ONLY** for voluntary carriage onboard Canadian ships **NOT** subject to the Ship Station (Radio) Regulations, 1999. You may need a license if your vessel is operated in Canadian waters. Please contact the nearest field office or write: Industry of Canada, Radio Regulatory Branch, Attn: DOSP, 300 Slater Street, Ottawa, Ontario, Canada K1A 0G8.

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 (2) conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

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



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 one (1) watt first if the station being called is within a few miles. If there is no answer, switch to a higher power. This will conserve your battery and minimize interference to other users.

Calling coast stations

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

Calling other vessels

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

Limits on calling

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

Change channels

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

Station identification

Identify, in English, your station by your FCC call sign, 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 pages 14 through 15.

For Example

The vessel Corsair calling the vessel Vagabond:

Corsair: “Vagabond, this is Corsair.”

Vagabond: “Corsair, this is Vagabond. Reply 72 (or any proper working channel).”

Corsair: “72” or “Roger”

- After communications are completed, each vessel must sign off with its call sign or vessel name and switch to Channel 16.



NOTE

For best sound quality at the station you are calling, hold the microphone on the front of the radio at least two (2) inches [five (5) cm] from your mouth and slightly off to one (1) side. Speak in a normal tone of voice.

Radiotelephone calls

Boaters may make and receive radiotelephone calls to and from any number on the telephone network by using the services of public coast stations. Calls can be made — for a fee — between your radio and telephones on land, sea, and in the air. See pages 14 through 23 for the public correspondence (marine operator) channels.

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



CAUTION

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



Emergency messages and distress procedure

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

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

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



Marine emergency signals

The three (3) spoken international emergency signals are:

MAYDAY

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

PAN PAN

The urgency signal **PAN PAN** is used when the safety of the vessel or person is in jeopardy. (This signal is properly pronounced pah-n-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 (3) times prior to the message.

If you hear a distress call

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

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



Marine distress procedure

Speak slowly — clearly — calmly.

1. Make sure your radio is **On**.
2. Select VHF Channel 16.
3. **Press Talk button and say:**
“MAYDAY — MAYDAY — MAYDAY.”
(Or “PAN PAN — PAN PAN — PAN PAN,”
or “SECURITE — SECURITE — SECURITE.”)
4. **Say:**
“THIS IS [your vessel name or call sign].”
5. **Say:**
“MAYDAY (or “PAN 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 five (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”

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.



VHF marine channel assignments

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

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

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 (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.



Public Correspondence (Marine Operator)

Channels 24, 25, 26, 27, 28, 84, 84A, 85, 85A, 86, 86A, 87, 87A, 88*

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

Port Operations

Channels 1A*, 5A*, 12*, 14*, 20A, 63A*, 65A, 66A, 73, 74, 77*

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

Navigational

Channels 13, 67

Channels are available to all vessels. Messages must be about navigation, including passing or meeting other vessels. These are also the main working channels for most locks and drawbridges. You must keep your messages short and power output at no more than one (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 weather broadcasts. You cannot transmit on them.



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

VHF Marine Radio Protocols

Channel Number	Channel Map			Frequency		Power Limits
	USA	Int'l	Canada	Transmit	Receive	
01		•	•	156.050	160.650	
01A	•			156.050	156.050	
02		•	•	156.100	160.700	
03		•	•	156.150	160.750	
03A	•			156.150	156.150	
04		•		156.200	160.800	
04A			•	156.200	156.200	
05		•		156.250	160.850	
05A	•		•	156.250	156.250	
06	•	•	•	156.300	156.300	
07		•		156.350	160.950	
07A	•		•	156.350	156.350	
08	•	•	•	156.400	156.400	
09	•	•	•	156.450	156.450	
10	•	•	•	156.500	156.500	
11	•	•	•	156.550	156.550	
12	•	•	•	156.600	156.600	
13	•	•	•	156.650	156.650	1 Watt USA and CAN
14	•	•	•	156.700	156.700	
15	•			Rx Only	156.750	
15		•	•	156.750	156.750	1 Watt CAN and INT
16	•	•	•	156.800	156.800	
17	•	•	•	156.850	156.850	1 Watt CAN



VHF Marine Channel Assignments

VHF Marine Radio Protocols

Channel	Use
01	Public Correspondence (Marine Operator)
01A	Port Operations and Commercial, VTS in selected areas
02	Public Correspondence (Marine Operator)
03	Public Correspondence (Marine Operator)
03A	Government Only
04	Public Correspondence (Marine Operator), Port Operations, Ship Movement
04A	West Coast (Coast Guard Only); East Coast (Commercial Fishing)
05	Public Correspondence (Marine Operator), Port Operations, Ship Movement
05A	Port Operations, VTS in selected areas
06	Intership Safety
07	Public Correspondence (Marine Operator), Port Operations, Ship Movement
07A	Commercial
08	Commercial (Intership Only)
09	Boater Calling Channel, Non-Commercial (Recreational)
10	Commercial
11	Commercial, VTS in selected areas
12	Port Operations, VTS in selected areas
13	Intership Navigation Safety (Bridge-to-Bridge). In U.S. waters, large vessels maintain a listening watch on this channel.
14	Port Operations, VTS in selected areas
15	Environmental (Receive Only). Used by class C EPIRB's.
15	Canada (EPIRB Buoys Only); International (On-Board Communication)
16	International Distress, Safety and Calling
17	State Controlled (U.S.A. Only)



VHF Marine Channel Assignments

VHF Marine Radio Protocols

Channel Number	Channel Map			Frequency		Power Limits
	USA	Int'l	Canada	Transmit	Receive	
18		•		156.900	161.500	
18A	•		•	156.900	156.900	
19		•		156.950	161.550	
19A	•		•	156.950	156.950	
20	•	•	•	157.000	161.600	1 Watt CAN
20A	•			157.000	157.000	
21		•	•	157.050	161.650	
21A	•		•	157.050	157.050	
22		•		157.100	161.700	
22A	•		•	157.100	157.100	
23		•	•	157.150	161.750	
23A	•			157.150	157.150	
24	•	•	•	157.200	161.800	
25	•	•	•	157.250	161.850	
26	•	•	•	157.300	161.900	
27	•	•	•	157.350	161.950	
28	•	•	•	157.400	162.000	
60		•	•	156.025	160.625	
61		•		156.075	160.675	
61A	•		•	156.075	156.075	
62		•		156.125	160.725	
62A			•	156.125	156.125	



VHF Marine Channel Assignments

VHF Marine Radio Protocols

Channel	Use
18	Port Operations, Ship Movement
18A	Commercial
19	Port Operations, Ship Movement
19A	Commercial
20	Canada (Coast Guard Only); International (Port Operations, Ship Movement)
20A	Port Operations
21	Port Operations, Ship Movement
21A	U.S. (Government Only); Canada (Coast Guard Only)
22	Port Operations, Ship Movement
22A	U.S. and Canadian Coast Guard Liaison and Maritime Safety Information Broadcasts that are announced on Channel 16
23	Public Correspondence (Marine Operator)
23A	Government Only
24	Public Correspondence (Marine Operator)
25	Public Correspondence (Marine Operator)
26	Public Correspondence (Marine Operator)
27	Public Correspondence (Marine Operator)
28	Public Correspondence (Marine Operator)
60	Public Correspondence (Marine Operator)
61	Public Correspondence (Marine Operator), Port Operation, Ship Movement
61A	U.S. (Government Only); Canada (Coast Guard Only); West Coast (Coast Guard Only); East Coast (Commercial Fishing)
62	Public Correspondence (Marine Operator), Port Operations, Ship Movement
62A	West Coast (Coast Guard Only); East Coast (Commercial Fishing)



VHF Marine Channel Assignments

VHF Marine Radio Protocols

Channel Number	Channel Map			Frequency		Power Limits
	USA	Int'l	Canada	Transmit	Receive	
63		•		156.175	160.775	
63A	•			156.175	156.175	
64		•	•	156.225	160.825	
64A	•		•	156.225	156.225	
65		•		156.275	160.875	
65A	•		•	156.275	156.275	
66		•		156.325	160.925	
66A	•		•	156.325	156.325	1 Watt CAN
67	•	•	•	156.375	156.375	1 Watt USA
68	•	•	•	156.425	156.425	
69	•	•	•	156.475	156.475	
70	•	•	•	RX only	156.525	
71	•	•	•	156.575	156.575	
72	•	•	•	156.625	156.625	
73	•	•	•	156.675	156.675	
74	•	•	•	156.725	156.725	
77	•	•	•	156.875	156.875	1 Watt CAN



VHF Marine Channel Assignments

VHF Marine Radio Protocols

Channel	Use
63	Public Correspondence (Marine Operator), Port Operations, Ship Movement
63A	Port Operations and Commercial, VTS in selected areas
64	Public Correspondence (Marine Operator), Port Operations, Ship Movement
64A	U.S. (Government Only); Canada (Commercial Fishing)
65	Public Correspondence (Marine Operator), Port Operations, Ship Movement
65A	Port Operations
66	Public Correspondence (Marine Operator), Port Operations, Ship Movement
66A	Port Operations
67	U.S. (Commercial). Used for bridge-to-bridge communications in lower Mississippi River (Intership Only); Canada (Commercial Fishing), S&R
68	Non-Commercial (Recreational)
69	U.S. (Non-Commercial, Recreational); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)
70	Digital Selective Calling (Voice communications not allowed)
71	U.S. and Canada (Non-Commercial, Recreational); International (Port Operations, Ship Movement)
72	Non-Commercial (Intership Only)
73	U.S. (Port Operations); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)
74	U.S. (Port Operations); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)
77	Port Operations (Intership only). Restricted to communications with pilots for movement and docking of ships.



VHF Marine Channel Assignments

VHF Marine Radio Protocols

Channel Number	Channel Map			Frequency		Power Limits
	USA	Int'l	Canada	Transmit	Receive	
78		•		156.925	161.525	
78A	•		•	156.925	156.925	
79		•		156.975	161.575	
79A	•		•	156.975	156.975	
80		•		157.025	161.625	
80A	•		•	157.025	157.025	
81		•		157.075	161.675	
81A	•		•	157.075	157.075	
82		•		157.125	161.725	
82A	•		•	157.125	157.125	
83		•	•	157.175	161.775	
83A	•		•	157.175	157.175	
84	•	•	•	157.225	161.825	
84A	•			157.225	157.225	
85	•	•	•	157.275	161.875	
85A	•			157.275	157.275	
86	•	•	•	157.325	161.925	
86A	•			157.325	157.325	
87	•		•	157.375	161.975	
87		•		157.375	157.375	
87A	•			157.375	157.375	
88	•		•	157.425	162.025	
88		•		157.425	157.425	
88A	•			157.425	157.425	



NOTE

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



VHF Marine Channel Assignments

VHF Marine Radio Protocols

Channel	Use
78	Public Correspondence (Marine Operator)
78A	Non-Commercial (Recreational)
79	Port Operations, Ship Movement
79A	Commercial (Also Non-Commercial only in Great Lakes)
80	Port Operations, Ship Movement
80A	Commercial (Also Non-Commercial only in Great Lakes)
81	Port Operations, Ship Movement
81A	U.S. (Government Only; Environmental Protection Operations)
82	Public Correspondence (Marine Operator), Port Operation, Ship Movement
82A	U.S. (Government Only); Canada (Coast Guard Only)
83	Canada (Coast Guard Only)
83A	U.S. (Government Only); Canada (Coast Guard Only)
84	Public Correspondence (Marine Operator)
84A	Public Correspondence (Marine Operator)
85	Public Correspondence (Marine Operator)
85A	Public Correspondence (Marine Operator)
86	Public Correspondence (Marine Operator)
86A	Public Correspondence (Marine Operator)
87	Public Correspondence (Marine Operator)
87	Public Correspondence (Marine Operator)
87A	Public Correspondence (Marine Operator)
88	Public Correspondence (Ship to Coast). In U.S. only within 75 miles of Canadian Border.
88	Commercial Intership only
88A	Commercial Intership only



NOTE

All channels are pre-programmed 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.

NOAA Weather Channels And Alert

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

NOAA Emergency Weather Alert

In the event of a major storm or other weather condition requiring vessels at sea or on other bodies of water to be notified, NOAA broadcasts a 1050 Hz tone that receivers such as your CobraMarine™ VHF radio can detect and warn you of a weather alert condition. When the **Weather Alert** mode on your radio is **On**, this signal will produce a loud tone from the speaker in the radio and a flashing “ALRT” icon on the LCD to signal that a weather alert is being broadcast. To hear the warning itself, you will need to switch to the weather channel you selected.

Test

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

Weather Frequency

Channel	RX Frequency MHz
1	162.550
2	162.400
3	162.475
4	162.425
5	162.450
6	162.500
7	162.525
8	161.650
9	161.775
10	163.275

Included In This Package

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



Radio



Wrist Strap



Drop-In Battery Charger



Flexible Antenna



Battery Charger Power Cord



Battery Tray With 6 AA NiMH Batteries

For connection to 120 volt wall outlet.



Battery Charger Power Cord



Operating Instruction Manual



Belt Clip

For connection to 12 volt source through cigarette lighter.

Antenna, Wrist Strap, And Belt Clip



Antenna Installation

The flexible **Antenna** for the radio is shipped separately in the package and must be attached before you use the radio.

1. Align the base of the antenna with the socket in the top of the radio.
2. Screw it all the way into the socket. Be sure that the seal seats properly.



CAUTION

Operating the radio without the antenna in place may damage the unit. The radio is not waterproof until the antenna and battery pack are in place with their seals properly seated.



Wrist Strap

Your radio comes with the **Wrist Strap** already attached. It can be easily removed if you choose not to use it.



Belt Clip

Use the **Belt Clip** to carry your radio around with you.

1. Slide the clip onto your belt.
2. Insert the knob on the back of the radio into the channel on the back of the belt clip. You must have the radio upside-down, as shown, to insert or remove it from the belt clip.
3. Once the knob has been inserted all the way into the belt clip channel, the radio will swing freely while being securely retained.



Batteries And Charger



The radio is shipped with six (6) rechargeable NiMH (Nickel-Metal Hydride) **Batteries** in the package. When your rechargeable **Batteries** begin to discharge too quickly, it is time to install new ones. It will also operate with six (6) high quality alkaline **Batteries**.



Installing The Batteries

1. Open the battery compartment by turning the screw counter-clockwise one-quarter ($\frac{1}{4}$) turn.
2. Slide the empty battery tray out of the radio.
3. Align the batteries with the slots in the battery tray and insert them. Be sure to match the polarity markings on the batteries with those on the tray.
4. Slide the full battery tray into the radio. Be sure the seal is in its groove and not pinched between the tray and the body of the radio.
5. Turn the screw one-quarter ($\frac{1}{4}$) turn clockwise to lock the battery tray in place.



After the NiMH batteries are installed in the radio, they will need to be charged before they can be used.



CAUTION

The gasket on the base of the battery pack is essential for the radio to be waterproof. Be certain that it is not dislodged and that it fits properly into the radio.



CAUTION

NiMH batteries are toxic. Please dispose of the old ones properly. Some marine suppliers accept old batteries for recycling and many municipal waste disposal agencies have special provisions for battery disposal.

Batteries And Charger

Power Sources



Insert Radio



Initial Charge

The Cobra® provided NiMH batteries can be **Charged** at home, in your automobile, or in your boat using the appropriate 12 or 120 volt power cord with the charger.

1. Insert one (1) of the power cords into the back of the drop-in charging cradle.
2. Insert the other end of the power cord into the appropriate 12 or 120 volt power source.
3. Insert the radio into the charger. The metal pads on the radio will contact mating pads in the charger to transfer the charging current.
4. Observe that the red light on the front of the charger glows to indicate that the radio is properly seated and the charger is operating.
5. Allow the batteries to charge for 15 to 18 hours.



WARNING

Only the rechargeable NiMH batteries can be recharged.



NOTE

If the drop-in charger is to be used on a boat, Cobra® recommends you attach it to a shelf or bulkhead (using the screw holes provided) to prevent damage due to the boat rolling or pitching.

Batteries And Charger

Fully Charged



Partially Charged



Fully Discharged



Maintaining The Battery Charge

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

You can monitor incoming calls while the radio is charging. However, you should remove it from the charger to transmit. Charging will be quicker if the radio is turned **Off**.



CAUTION

Use only the drop-in charger provided by Cobra®. Do not use the charger with alkaline batteries; only the NiMH batteries are rechargeable. Spent alkaline batteries must be discarded and replaced.

It is a good idea to keep a set of fresh, high quality alkaline batteries with your radio. Should the rechargeable batteries become discharged and no electrical power source be available, you can insert the alkaline batteries and continue to use your radio until you can return to using the rechargeable ones.

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 radio. Press means a momentary press, then release; press and hold means to hold the button down.

Whenever you press any button except the **Talk** button on your radio, a brief tone (beep) will sound to confirm the button press. With all button presses, the appropriate icon will appear on the LCD and the backlight will turn **On**. The backlight will stay **On** for five (5) seconds after the button is released.

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

Power On-Off

The **On-Off Power/Volume** knob on the top of the radio is held in the **Off** position by a click stop.

Squelch Knob



To Turn Your Radio On:

1. Turn the **Squelch** knob half-way counter-clockwise (when viewed from above).
2. Turn the **On-Off Power/Volume** knob clockwise until you hear and feel a click.

When the radio is powered **On**, a brief tone will sound, the display backlight will turn **On**, and the display will show all icons for two (2) seconds. All buttons will be inoperative during these two (2) seconds.

After two (2) seconds, the radio will return to the settings in effect when it was last powered **Off**, the LCD will show the appropriate icons, and all controls will be operative. The radio will then be in **Standby** mode.

To Turn Your Radio Off:

1. Turn the **On-Off Power/Volume** knob all the way counter-clockwise until you hear and feel a click.

On-Off Power/Volume Knob



On-Off Power/Volume Knob



Volume

The **On-Off Power/Volume** knob also 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, which is controlled by the circuitry of your radio.

To Increase The Volume:

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

To Decrease The Volume:

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

On-Off Power/Volume Knob



Squelch Knob



Squelch

Squelch control filters weak signals and radio frequency noise so that you can more clearly hear the signals you want.

To Squelch Your Radio:

1. With the **Squelch** knob turned fully counter-clockwise, turn the **On-Off Power/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 will filter weak and medium strength signals until only the strongest signal can get through at its highest setting.

To receive weaker signals, turn the **Squelch** knob counter-clockwise.

If the squelch is set so you can hear a continuous hissing sound, the scan and tri-watch functions will be blocked.

Getting Started

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

Three (3) sets of VHF **Channel Maps** have been established for marine use in the U.S.A., Canada, and the rest of the world (International). Most of the channels are the same for all three (3) maps, but there are definite differences (see table on pages 16 through 23). Your radio has all three (3) maps built into it and will operate correctly in whichever area you choose.



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

1. From **Standby** mode, press and hold the **Weather/UIC** button for two (2) seconds. The radio will shift one (1) channel map and the **Active Channel Map** icon on the LCD will show the change on the LCD.

Repeat step 1 to shift to the next channel map(s).

Channels

Your radio will receive and transmit VHF signals on the **Channel** indicated on the LCD. You can change the **Channel** at any time using the **Channel Up** and **Channel Down** buttons.

To Change Channels:

1. Press the **Channel Up** or **Channel Down** button.

You are on Channel 88, pressing the **Channel Up** button will advance to Channel 1. If you are on Channel 1, pressing the **Channel Down** button will advance to Channel 88.

You can hold the **Channel Up** or **Channel Down** button for fast advance.

The beep sound will occur only at the first press of the button and not during fast advance.

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

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

Getting Started



Transmit Power Output

Your radio can **Transmit** selectively at one (1) or five (5) watts of power. Cobra® suggests you maintain the low power setting for short-range communications, to conserve battery life, 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 one (1) watt.

To Toggle Between The High And Low Power Modes:

1. 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 (1) watt. Your radio will automatically set the power 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.

Backlight

The LCD will be illuminated by the **Backlight** as long as any key is pressed and will remain on for five (5) seconds after the button is released.



If You Need To Turn On The Backlight Without Disturbing Any Settings:

1. Press the **Backlight/Key Lock** button. The backlight will remain **On** for ten (10) seconds.

If the backlight is **On**, a press of the **Backlight/Key Lock** button will turn it **Off**.



Key Lock

To prevent accidental changes to your settings, you can **Lock**:

- Channel Up Button
- Channel Down Button
- Scan Button
- Memory Button
- Weather/UIC Button
- 16/9 Button
- High/Low Power Button
- Tri-Watch Button

To Lock Or Unlock The Buttons:

1. Press and hold the **Backlight/Key Lock** button for three (3) seconds. The key icon will appear or disappear in the LCD.

When key lock is **On**, pressing any of the listed buttons on the front of the radio will result in a three (3) beep error message. Both the **Backlight/Key Lock** button and the **Talk** button are active — you can receive or transmit a message with key lock **On**, but you cannot change the channel.

Standby/Receive And Transmit

Standby And Receive

Standby is the usual mode for the radio whenever it is turned **On**. From this mode, you can change your settings using the buttons on the front of the radio and switch to **Transmit** mode using the **Talk** button. Signals will be **Received** on the selected channel(s) and alerts broadcast by the Coast Guard and NOAA will activate the corresponding routines in your radio.



NOTE

Coast Guard alerts are broadcast on Channel 16 and you need to have weather alert turned **On** to receive NOAA alerts.

While in **Standby** mode, you will receive any messages sent on the channel to which you are tuned.



Transmit

Transmit mode gives you the ability to interact with safety services, other vessels, and shore stations. When you use this capability, be sure to follow the procedures and to observe the courtesies that govern its use so everyone benefits. (See pages 14 through 23 to help you select the proper channels.)

To Transmit A Message:

1. Check to see that your radio is set to a proper channel for the type of message you plan to send.
2. Toggle to the low power setting.
3. With the microphone about two (2) inches [five (5) cm] from your mouth, press and hold the **Talk** button and speak into the microphone. The **Transmit** icon will appear on the LCD.
4. Release the **Talk** button when you are finished speaking. Your radio can only operate in either the **Transmit** or the **Receive** mode at any given time. You will not hear the response to your message unless the **Talk** button is released.

If the **Battery Power** icon begins blinking on the LCD when the **Talk** button is depressed, the radio will NOT transmit and the **Transmit** icon will blink. If the **Talk** button is held down for five (5) minutes, the radio will automatically cease transmitting to prevent unwanted signal generation and battery drain. As soon as the **Talk** button is released, it can be pressed again to resume transmission.

NOAA All Hazards/Weather Radio And Alert

Weather Radio

NOAA broadcasts **Weather** information as described in the NOAA weather channels section on page 24 of this manual. You can listen to one (1) or two (2) of these ten (10) channels at any time (only in the **Receive** mode).



NOTE

Only one (1) or two (2) 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.

To Listen To The Weather Channels:

1. From **Standby** mode, press the **Weather/UIC** button. The radio will enter the **Weather** mode and the icon will show on the LCD.
2. Press the **Channel Up** or **Channel Down** button to change the weather channels — hold the button for fast advance.

To exit the **Weather** mode and return to **Standby** mode, press the **Weather/UIC** button again.

Weather Alert

NOAA also broadcasts special **Weather Alerts** to warn of severe weather. These are preceded by a special signal that your radio can detect. However, you must set your radio to the weather channel that broadcasts a strong signal in the area where you are, and you must activate the **Weather Alert** mode on your radio to benefit from this signal.

To Activate Weather Alert:

1. Enter the **Weather** mode and select a station with a strong signal as described above.
2. Press and hold the **Weather/UIC** button for two (2) seconds to turn the **Weather Alert** mode **On** or **Off**. The **Alert** icon on the LCD will turn **On** or **Off**.

To exit the **Weather** mode and return to **Standby** mode, press the **Weather/UIC** button again.

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 **Alert** icon will flash on the LCD. The alert indicators will sound and flash regardless of what channel you are operating on as soon as a NOAA alert signal is received.

When You Hear The Alert:

1. Press any key to turn **Off** the alert indicators.
2. Switch to the weather channel you selected to hear the NOAA emergency broadcast.

Advanced Operation

Channel 16/9

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



To Switch To Channel 16 Or Channel 9:

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

To exit the **Channel 16/9** mode and return to whatever status existed before entering this mode, press the **Channel 16/9** button a third time.

While at Channel 16 or 9 in the **Channel 16/9** mode, you can also press the **Channel Up** and **Channel Down** buttons to change channels. In that event, another press of the **Channel 16/9** button will switch your radio to Channel 16 and the sequence will start over at step 1. If you press this button when **Key Lock** mode is **On**, you will get a three (3) beep error message and your radio will not change mode.

Tri-Watch

Tri-Watch gives you one (1) button access to scan the three (3) locations of most importance to you. Channel 16 will always be one (1) of the scanned locations. The other two (2) locations will be stored in the radio. They can be edited and/or recalled for future engagements of **Tri-Watch** mode.



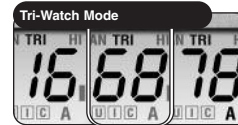
NOTE

The radio must be squelched for tri-watch to function. See page 31 for squelch procedure.



To Program Or Edit The Tri-Watch Locations:

1. Press and hold the **Tri-Watch** button for three (3) seconds. The **Tri-Watch** and **Memory** icons on the LCD will be turned **On**.
2. Press the **Channel Up** or **Channel Down** button to move to the channel you want to enter into tri-watch location one (1).
3. Press the **Tri-Watch** button. You will hear a two (2) beep confirmation signal.
4. Press the **Channel Up** or **Channel Down** button to move to the channel you want to enter into tri-watch location two (2).
5. Press the **Tri-Watch** button. You will hear a two (2) beep confirmation signal and the **Memory** icon will disappear from the LCD. The radio will immediately engage tri-watch (see page 39 for further details).



To Enter Tri-Watch Mode:

1. From **Standby** mode, press the **Tri-Watch** button.

The **Tri-Watch** icon will appear on the LCD and the radio will scan among Channel 16, tri-watch location one (1), and tri-watch location two (2). A signal on any one (1) of the three (3) locations will stop the scan for ten (10) seconds to allow you to listen to the traffic on that location.

To Exit Tri-Watch Mode:

1. Press the **Tri-Watch** button.

The icon will disappear from the LCD and the radio will return to **Standby** mode status.

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

- a. Press the **Talk** button to remain on that tri-watch location and return to **Standby** mode.
- b. Press the **Channel Up** or **Channel Down** button to resume scanning tri-watch locations.

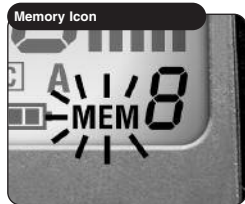
If you do not press any buttons within ten (10) seconds, your radio will automatically resume scanning tri-watch locations.

During Tri-Watch (while not receiving a transmission), You Can Choose From The Following:

- a. Press the **Talk** button to communicate on the last tri-watch location scanned and return to **Standby** mode.
- b. Press the **Channel Up** or **Channel Down** button to change scan direction.

Memory Locations

Your radio has ten (10) **Memory Locations** for storing your most frequently used channels. These **Memory Locations** can be selected individually or can be scanned. (See page 42 under memory location scan.)



To Program Memory Locations:

1. Press and hold the **Memory** button for three (3) seconds. The memory location number will start flashing and **Memory** icon will be turned **On**.
 2. Use the **Channel Up** or **Channel Down** button to change to the memory location (0 to 9) you want to program.
 3. Press the **Memory** button to select the memory location. The memory channel number will stop flashing and the channel number will start flashing.
 4. Use the **Channel Up** or **Channel Down** buttons to change to the channel you want to store in the selected memory location.
 5. Press the **Memory** button to program that channel. The memory location number will flash again.
- Repeat steps 2 to 5 to program as many additional memories as you want, up to a total of ten (10).
6. Press and hold the **Memory** button for three (3) seconds. This will return the radio to **Memory** mode.
 7. Press and release the **Memory** button again to return to **Standby** mode.

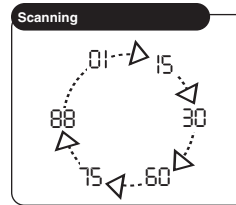
To Recall A Stored Memory Location:

1. Press the **Memory** button. The **Memory** icon will be turned **On**.
2. Press the **Channel Up** or **Channel Down** button to select the memory location (0 to 9). If a memory location has been programmed, its associated channel will be shown on the LCD.

Your radio is now in **Standby** mode on the selected memory location.

To Exit Memory Location Mode:

1. Press the **Memory** button to return the radio to **Standby** mode on the last channel shown on the LCD before entering **Memory Location** mode.



Channel Scan

During **Channel 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 (10) 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 the channel scan to function. See page 31 for squelch procedure.

To Enter Channel Scan:

1. From **Standby** mode, press the **Scan** button. The radio will immediately begin to scan the entire channel map selected in the active channel map. The **Scan** icon will show on the LCD.

To Exit Channel Scan:

1. From **Scan** mode, press the **Scan** button. This will return the radio to **Standby** mode on the last scanned channel.

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

- a. Press the **Talk** button to remain on that channel and end scanning. This will return the radio to **Standby** mode.
- b. Press the **Channel Up** or **Channel Down** button to resume scanning channels.

If you do not press any buttons within ten (10) seconds, your radio will automatically resume scanning channels.

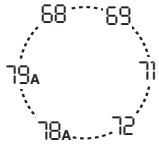
During Channel Scan (while not receiving a transmission), You Can Choose From The Following:

- a. Press the **Talk** button to communicate on the last memory location scanned and return to **Standby** mode.
- b. Press the **Channel Up** or **Channel Down** button to change scan direction.



Advanced Operation

Memory Location Scan



Memory Location Scan

During **Memory Location Scan**, the radio will rapidly switch from memory location to memory location. Whenever any activity is detected, the radio will stop the scan for ten (10) seconds to allow you to listen briefly on that memory location. It will then continue to scan unless you switch out of the **Scan** mode.



NOTE

The radio must be squelched for the memory location scan to function. See page 31 for squelch procedure.



NOTE

If there are fewer than two (2) memory locations programmed in the radio, the memory location scan option will not be available. To program at least two (2) memory locations, see page 40.

Advanced Operation

Memory Button



Scan Button



Memory Scan Mode



Talk or Channel Up/Down



To Enter Memory Location Scan:

1. From **Standby** mode, press the **Memory** button.
2. Press the **Scan** button.

The radio will immediately begin to scan the channels you programmed into the memory. The **Scan** and **Memory** icons will show on the LCD.

To Exit Memory Location Scan:

1. From **Memory Location Scan** mode, press the **Scan** button. This will return the radio to **Memory** mode on the last scanned memory location.
2. Press the **Memory** button to return to **Standby** mode on the last channel shown before entering memory scan.

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

- a. Press the **Talk** button to remain on that memory location and end scanning. This will return the radio to **Standby** mode.
- b. Press the **Channel Up** or **Channel Down** button to resume scanning memory locations.

If you do not press any buttons within ten (10) seconds, your radio will automatically resume scanning memory locations.

During Memory Location Scan (while not receiving a transmission), You Can Choose From The Following:

- a. Press the **Talk** button to communicate on the last memory location scanned and return to **Standby** mode.
- b. Press the **Channel Up** or **Channel Down** button to change scan direction.

Maintenance

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

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

Troubleshooting

Problem	Possible Cause(s)	Solution(s)
No display on LCD when radio is turned On	Batteries are exhausted Batteries not installed properly	Recharge or replace batteries Remove batteries and reinstall according to polarity markings
NiMH batteries run down quickly	Batteries are at the end of their life	Replace with new batteries
Will transmit at one (1) watt, but not at five (5) watts	Batteries are low Selected channel is limited to one (1) watt	Recharge or replace batteries Switch to another channel
Will not transmit	Selected channel is limited to receive only	Switch to another channel
No sound from speaker	Volume level is too low or squelch level is too deep	Re-adjust volume and squelch
No response to button press	Key lock is On	Press Backlight/Key Lock button
No answer to calls	Out of range of other station Signal is blocked by terrain	Switch to five (5) watts or move closer Move until you have a "line-of-sight" to the other station

Specifications

General	
Number of Channels	All U.S., Canadian, and International 10 NOAA Weather Channels
Channel Spacing	25 kHz
Modulation	16 KOF3E
Input Voltage	7.2 VDC
Battery Life: 5% TX, 5% RX, 90% Stand-by	2100mAh NiMH: 21 hours, 30 minutes, @ 5 watts, 38 hours @ 1 watt
Current Drain: Stand-by Receive Transmit	40 mA 200 mA 1.8 A @ High power 0.7 A @ Low
Temperature Range	-20°C to 60°C
Radio Dimensions	5.5" x 2.2" x 1.4" (14 cm x 5.6 cm x 3.6 cm)
Radio Weight	1.1 lbs (0.5 kg)
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
Adjacent Channel Selectivity	-60 dB
Intermodulation and Rejection	-60 dB
Spurious and Image Rejection	-60 dB
AF Output	250 mW @ 8 Ohms
Transmitter	
Frequency Range: TX	156.025 to 157.425 MHz
RF Output Power	1 and 5 Watts
Spurious Emissions	-60 dB High -55 dB Low
Microphone Type	Condenser
Frequency Stability	+/-5 ppm
FM Hum and Noise	-40 dB



Limited 3-Year Warranty

For Products Purchased In The U.S.A.

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

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

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

Exclusions: This limited warranty does not apply:

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

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

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

For Products Purchased Outside The U.S.A.

Please contact your local dealer for warranty information.



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.

Order Form

Name

Address (No P.O. Boxes)

City

State/Province

Zip

Country

Telephone

Credit Card Number

Type: Visa MasterCard Discover

Exp. Date

Customer Signature

Amount Shipping/Handling*

\$10.00 or less	\$3.00
\$10.01-\$25.00	\$5.50
\$25.01-\$50.00	\$7.50
\$50.01-\$90.00	\$10.50
\$90.01-\$130.00	\$13.50
\$130.01-\$200.00	\$16.50
\$200.01 plus 10% of purchase	

*For AK, HI and PR add additional \$26.95 for FedEx Next Day or \$10.95 for FedEx 2nd Day. Excludes weekend and holiday shipments.

Please allow 2-3 weeks for delivery in the U.S. Prices subject to change without notice.

The Cobra® line of quality products includes:

CB Radios
 microTALK® Radios
 Radar/Laser Detectors
 Safety Alert® Traffic Warning Systems
 Accessories
 GPS (Global Positioning System)
 HighGear® Accessories
 VHF Marine Radios
 Power Inverters

Item #	U.S. Cost Each	Qty	Amount
Tax Table			U.S. Subtotal
Wisconsin add 5%			(Tax if Applicable)
Indiana, Ohio, Michigan add 6%			Shipping/Handling
California add 7.25%			Total
Illinois add 8.75%			

Optional Accessories

You can find quality Cobra® products and accessories at your local Cobra® dealer, or in the U.S.A., you can order directly from Cobra®.

Ordering From U.S.A.

Call 773-889-3087 for pricing or visit www.cobra.com.

For credit card orders, complete and return this order form to fax number 773-622-2269. Or call 773-889-3087 (Press 1 from the main menu) 8:00 a.m. to 6:00 p.m. CT, Monday through Friday.

Make check or money order payable to:

Cobra® Electronics, Attn: Accessories Dept.
 6500 West Cortland Street, Chicago, IL 60707 USA

To order online, please visit our website: www.cobra.com