



Maintenance and Troubleshooting

Operating Your Radio

Maintenance

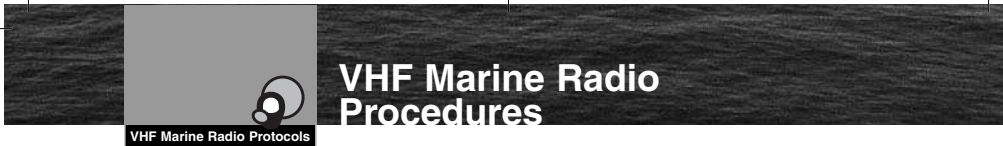
Very little maintenance is required to keep your CobraMarine VHF radio in good operating condition:

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

Troubleshooting

Problem	Possible Cause(s)	Solution(s)
No display on LCD when radio is turned On	Batteries are exhausted	Recharge or replace batteries
	Batteries not installed properly	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 three (3) watts	Batteries are low	Recharge or replace batteries
	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	Re-adjust volume
No response to button press	Button lock is On	Press Backlight/Key Lock button
No answer to calls	Out of range of other station	Switch to three (3) watts or move closer
	Signal is blocked by terrain	Move until you have a "line-of-sight" to the other station

Nothing Comes Close to a Cobra® 27



VHF Marine Radio Procedures

Maintain Your Watch

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

Power

Try 1 watt first if the station being called is within a few miles. If there is no answer, switch to 3 watts and call again. Remember, the lower wattage output will conserve your battery and minimize interference to other users.

Calling Coast Stations

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

Calling Other Vessels

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

Initial Calling on Channel 16 or 9

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

Limits on Calling

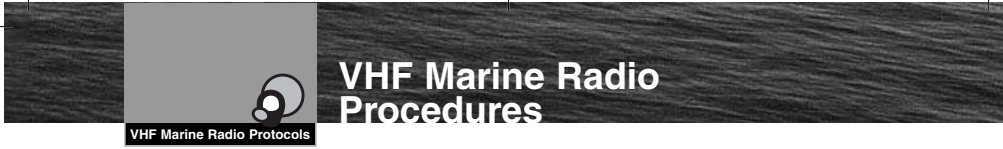
You must not call the same station for more than 30 seconds at a time. If you do not get a reply, wait at least two (2) minutes before calling again. After three (3) calling periods, wait at least 15 minutes before calling again.

Change Channels

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

Station Identification

Identify, in English, your station by your FCC call sign, vessel name or the state registration number, at both the beginning and at the end of the message.



Prohibited Communications

You **MUST NOT** transmit:

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



Voice Calling

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



NOTE

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

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

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

For Example

The vessel Corsair is calling the vessel Vagabond:

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

Vagabond: “Please switch and answer on Channel 68 (or any proper working channel). Over.”

Corsair: “Switching to Channel 68. Over.”



Voice Calling & Radiotelephone Calls

VHF Marine Radio Protocols

- If the other party does not respond, wait two (2) minutes and repeat. You are permitted to attempt contact three (3) times, two (2) minutes apart. If you still have not made contact, wait 15 minutes before trying again.
- After communications are completed, each vessel must sign off with its call sign or vessel name and the word “out” and return to Channel 16.



NOTE

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



NOTE

“Over and Out”

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

Radiotelephone Calls

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

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



NOTICE

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



Emergency Messages and Distress Procedure

VHF Marine Radio Protocols

Emergency Messages and Distress Procedure

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

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

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

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 pahn pahn.)

SECURITE

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

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



VHF Marine Radio Protocols

Emergency Messages and Distress Procedure

If You Hear a Distress Call

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

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

Marine Distress Procedure

Speak slowly — clearly — calmly.

1. Make sure your radio is On.
2. Select Channel 16.
3. **Press Talk button and say:**
“MAYDAY — MAYDAY — MAYDAY.”
(Or “PAN PAN— PAN PAN— PAN PAN,”
or “SECURITE — SECURITE — SECURITE.”)
4. **Say:**
“THIS IS [your vessel name or call sign],” repeated three (3) times.
5. **Say:**
“MAYDAY (or “PAN PAN” or “SECURITE”)
[your vessel name or call sign].”
6. **Tell where you are:**
(what navigational aids or landmarks are nearby).
7. State the nature of your distress.
8. State the kind of assistance needed.
9. Give number of persons aboard and conditions of any injured.
10. Estimate present seaworthiness of your vessel.
11. Briefly describe your vessel (length, type, color, hull).
12. **Say:**
“I WILL BE LISTENING ON CHANNEL 16.”
13. **End message by saying:**
“THIS IS [your vessel name or call sign]. OVER.”
14. Release **Talk** button and listen. Someone should answer.
If not, repeat the call, beginning at step 3 above.

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



VHF Marine Radio Protocols

Emergency Messages and Distress Procedure

For Example

“Mayday — Mayday — Mayday”

“This is Corsair — Corsair — Corsair” [or “IL 1234 AB,” repeated three (3) times]

“Mayday Corsair (or IL 1234 AB)”

“Navy Pier bears 220 degrees magnetic — distance 5 miles”

“Struck submerged object and flooding — need pump and tow”

“Four (4) adults, three (3) children aboard — no one injured”

“Estimate we will remain afloat one-half hour”

“Corsair (or IL 1234 AB) is 26 ft sloop with blue hull and tan deck house”

“I will be listening on Channel 16”

“This is Corsair (or IL 1234 AB)”

“Over”

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

Warranty and Trademark Acknowledgement

Warranty

Limited 1-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 One (1) year from the date of first consumer purchase. This warranty may be enforced by the first consumer purchaser, provided that the product is used 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.

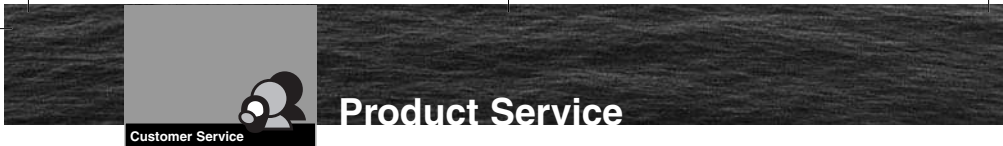
For Products Purchased Outside The U.S.A.

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, U.S.A..

Cobra Electronics Corporation™ is a trademark of Cobra Electronics Corporation, U.S.A.



Product Service

For any questions about operating or installing this new Cobra product, or if parts are missing...**PLEASE CALL COBRA FIRST**...do not return this product to the store.

If this product should require factory service, please call Cobra first before sending the product. This will ensure the fastest turnaround time on any repair. If Cobra asks that the product be sent to its factory, the following must be furnished 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. Make sure the date of purchase and product model number are clearly readable. If the originals are sent, they cannot be returned;
2. Send the entire product;
3. Enclose a description of what is happening with the product. Include a typed or clearly printed name and address of where the product is to be returned, with phone number (required for shipment).
4. Pack the product 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 product is in warranty, upon receipt of the product, it will either be repaired or exchanged depending on the model. Please allow approximately 3 – 4 weeks before contacting Cobra for status. If the product is out of warranty, a letter will automatically be sent with information as to the repair charge or replacement charge.

For any questions, please call 773-889-3087 for assistance.



Specifications

Specifications

Specifications

General	
Number of Channels	All U.S., Canadian, International and NOAA Weather Channels
Channel Spacing	25 kHz
Modulation	5 kHz Max.
Input Voltage	6.0 VDC
Battery Life: 5% TX, 5% RX, 90% Standby	NIMH: 9.4 hours @ 3 watts 12 hours @ 1 watt Alkaline: 26 hours @ 3 watts 33 hours @ 1 watt
Current Drain: Standby Receive (Rx) Transmit (Tx)	40 mA 100 mA 1.1 A @ High Power, 700 mA @ Low Power
Temperature Range	-20°C to 50°C
Radio Dimensions	4.0" x 2.4" x 1.2" (102 mm x 62 mm x 31 mm) not including antenna
Radio Weight	0 lbs 5 oz. (228 g) without batteries
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 or 3 watts
Spurious Emissions	-60 dB @ High Power, -55 dB @ Low Power
Microphone Type	Condenser
Frequency Stability	+/-10 ppm
FM Hum and Noise	40 dB



VHF Marine Channel Assignments

Appendix

VHF Marine Channel Assignments

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

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

Channel Assignments (English)

Distress, Safety, and Calling

Channel 16

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

Calling

Channel 9

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

Intership Safety

Channel 6

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

Coast Guard Liaison

Channel 22A

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

Non-Commercial

Channels 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

Apéndice

Asignación de canales de VHF para radiocomunicación marítima

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

A continuación 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

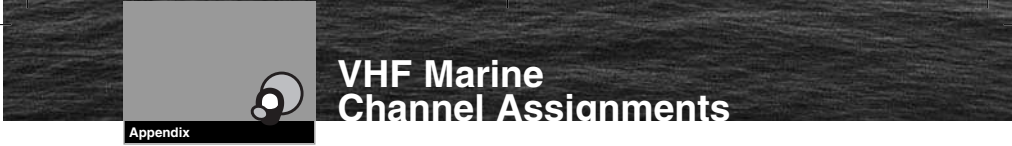
Canales 68*, 69, 71, 72, 78A, 79A*, 80A*

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.



VHF Marine Channel Assignments

Appendix

Channel Assignments (English)

Public Correspondence (Marine Operator)

Channels 24, 25, 26, 27, 28, 60, 61, 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*, 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.

Asignación de canales de VHF para radiocomunicación marítima

Apéndice

Asignaciones de canales (Español)

Correspondencia pública (operador marítimo)

Canales 24, 25, 26, 27, 28, 60, 61, 84, 84A, 85, 85A, 86, 86A, 87, 87A, 88*

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

Operaciones portuarias

Canales 1A*, 5A*, 12*, 14*, 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

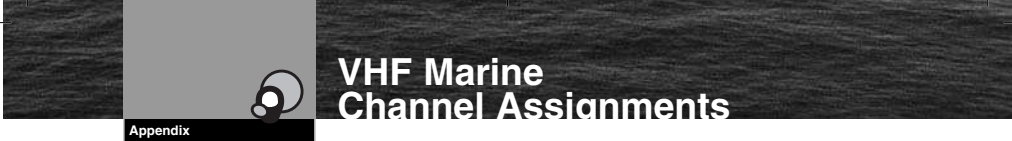
Canales Wx 1 a 10

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.



VHF Marine Channel Assignments

Appendix

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



VHF Marine Channel Assignments

Appendix

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



VHF Marine Channel Assignments

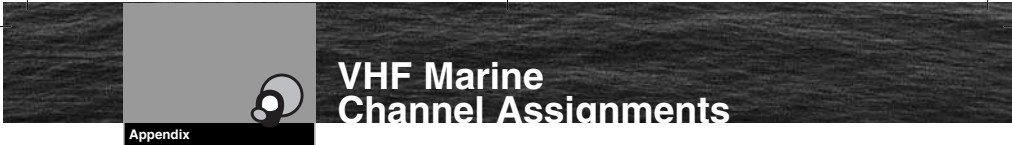
Appendix

Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l Internac	Canada Canadá	Transmit Transm.	Receive Recepción	
14	•	•	•	156.700	156.700	
15	•			Rx Only	156.750	
15		•	•	156.750	156.750	1 watt CAN and INT 1 vatio Canadá y Internac.
16	•	•	•	156.800	156.800	
17	•	•	•	156.850	156.850	1 watt USA and CAN 1 vatio EE.UU. y Canadá
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 1 vatio Canadá
20A	•			157.000	157.000	
21		•	•	157.050	161.650	
21A	•		•	157.050	157.050	
21B			•	RX only	161.650	
22		•		157.100	161.700	
22A	•		•	157.100	157.100	
23		•	•	157.150	161.750	
23A	•			157.150	157.150	

VHF Marine Channel Assignments

Appendix

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
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, 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)
Government Only	Entidades gubernamentales solamente



VHF Marine Channel Assignments

Appendix

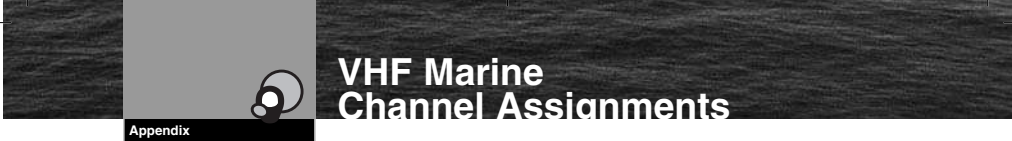
Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l Internac	Canada Canadá	Transmit Transm.	Receive Recepción	
24	•	•	•	157.200	161.800	
25	•	•	•	157.250	161.850	
25B			•	RX only	161.850	
26	•	•	•	157.300	161.900	
27	•	•	•	157.350	161.950	
28	•	•	•	157.400	162.000	
28B			•	RX only	162.000	
60		•	•	156.025	160.625	
61		•		156.075	160.675	
61A	•		•	156.075	156.075	
62		•		156.125	160.725	
62A			•	156.125	156.125	
63		•		156.175	160.775	
63A	•			156.175	156.175	
64		•	•	156.225	160.825	
64A	•		•	156.225	156.225	
65		•		156.275	160.875	
65A	•	•	•	156.275	156.275	
66		•		156.325	160.925	

VHF Marine Channel Assignments

Appendix

Channel Use (English)	Uso de canales (Español)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
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)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
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
U.S. (Government Only); Canada (Coast Guard Only); West Coast (Coast Guard Only); East Coast (Commercial Fishing)	EE.UU. (entidades gubernamentales solamente); 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	Operaciones portuarias y comerciales; VTS en áreas selectas
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
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones

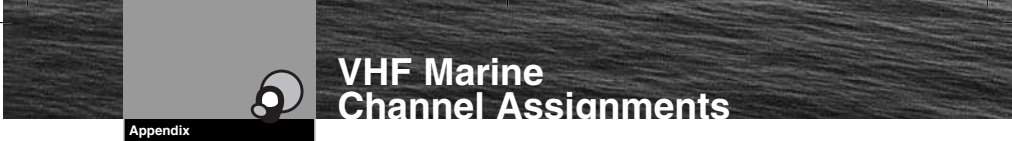
Nothing Comes Close to a Cobra®/Nada se compara a Cobra® 47



VHF Marine Channel Assignments

Appendix

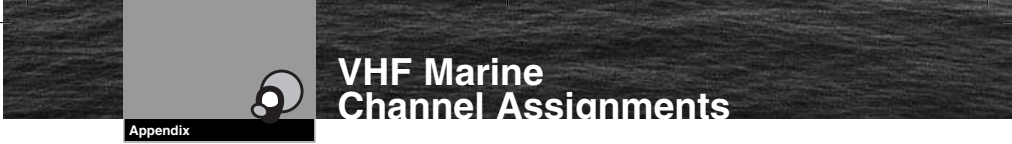
Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l Internac	Canada Canadá	Transmit Transm.	Receive Recepción	
66A	•	•	•	156.325	156.325	1 watt CAN 1 vatio Canadá
67	•	•	•	156.375	156.375	1 watt USA 1 vatio EE.UU.
68	•	•	•	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	
75		•		156.775	156.775	1 watt Only Int. Sólo 1 vatio Int.
76		•		156.825	156.825	1 watt Only Int. Sólo 1 vatio Int.
77	•	•	•	156.875	156.875	1 watt USA and CAN 1 vatio EE.UU. y Canadá



VHF Marine Channel Assignments

Appendix

Channel Use (English)	Uso de canales (Español)
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 Misisipi (entre embarcaciones solamente); Canadá (pesca comercial) (transmisión y recepción)
Non-Commercial (Recreational)	No comercial (recreativo)
U.S. (Non-Commercial, Recreational); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)	EE.UU. (no comercial, recreativo); Canadá (pesca comercial solamente); Internacional (comunicaciones entre embarcaciones, operaciones portuarias, movimiento de embarcaciones)
Digital Selective Calling (Voice communications not allowed)	Llamadas selectivas digitales (las comunicaciones verbales están prohibidas)
U.S. and Canada (Non-Commercial, Recreational); International (Port Operations, Ship Movement)	EE.UU. y Canadá (no comercial, recreativo); Internacional (operaciones portuarias, movimiento de embarcaciones)
Non-Commercial (Intership Only)	No comercial (entre embarcaciones solamente)
U.S. (Port Operations); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)	EE.UU. (operaciones portuarias); Canadá (pesca comercial solamente); Internacional (comunicaciones entre embarcaciones, operaciones portuarias, movimiento de embarcaciones)
U.S. (Port Operations); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)	EE.UU. (operaciones portuarias); Canadá (pesca comercial solamente); Internacional (comunicaciones entre embarcaciones, operaciones portuarias, movimiento de embarcaciones)
Port Operations (Intership Only)	Operaciones portuarias (entre embarcaciones solamente)
Port Operations (Intership Only)	Operaciones portuarias (entre embarcaciones solamente)
Port Operations (Intership only). Restricted to communications with pilots for movement and docking of ships.	Operaciones portuarias (entre embarcaciones solamente). Restringido a comunicaciones con pilotos para el movimiento y atraque de embarcaciones.



VHF Marine Channel Assignments

Appendix

Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l Internac	Canada Canadá	Transmit Transm.	Receive Recepción	
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	
83B	•		•	RX only	161.650	
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	
87A	•			157.375	157.375	
88	•	•	•	157.425	162.025	
88A	•			157.425	157.425	



VHF Marine Channel Assignments

Appendix

Channel Use (English)	Uso de canales (Español)
Public Correspondence (Marine Operator) Non-Commercial (Recreational)	Correspondencia pública (operador marítimo) No comercial (recreativo)
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
Commercial (Also Non-Commercial only in Great Lakes) Port Operations, Ship Movement	Comercial (en los Grandes Lagos también no comercial) Operaciones portuarias, movimiento de embarcaciones
Commercial (Also Non-Commercial only in Great Lakes) Port Operations, Ship Movement	Comercial (en los Grandes Lagos también no comercial) 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)
Canada (Coast Guard Only)	Canadá (guardia costera solamente)
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
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)
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)
Public Correspondence (Ship to Coast). In U.S. only within 75 miles of Canadian Border.	Correspondencia pública (entre embarcación y costa). En los EE.UU., solamente dentro de los casi 121 kilómetros (75 millas) de la frontera canadiense
Commercial Intership only	Comercial entre embarcaciones solamente

VHF Marine Channel Assignments

Appendix

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

**NOTE**

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

Asignación de canales de VHF para radiocomunicación marítima (Español)

**NOTA**

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

**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

Appendix

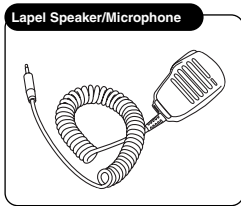
Weather Channel Assignments Asignaciones de canales meteorológicos

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



Accessories

Optional Cobra accessories can enhance the use of the radio and offer convenience to the end user.



Lapel Speaker/Microphone

A speaker/microphone, that attaches to your lapel.
Order P/N CM 330-001.

This unique accessory allows you to wear the radio on your belt while still being able to communicate with other vessels. A small **Push to Talk** button on the lapel speaker/microphone allows you to answer any incoming call.