

# Your VHF-DSC Marine Radio



**United Safe  
Boating Institute**

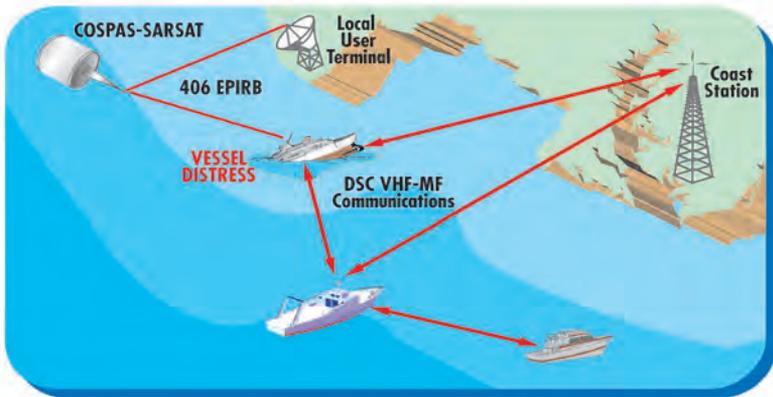


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# OVERVIEW

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The International Maritime Organization (IMO) has developed an international maritime safety system called the GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM, usually referred to simply as **GMDSS**.



**GMDSS BASIC CONCEPT**

One of the **primary** components of this system and one of the most important to the recreational boater is the **VHF-DSC** (*Very High Frequency Digital Selective Calling*) **marine radio** which can be very useful for recreational boaters in routine communication between boats, and between boats and the Coast Guard. In addition to routine communications capability, **the VHF – DSC radio includes greatly improved distress alerting features.**

To further enhance the GMDSS system, the U.S. Coast Guard has updated their communication equipment under a program known as *Rescue 21*. This updated equipment now offers not only improved voice communications, but a direction finding function and a greatly improved rescue capability for vessels equipped with a valid MMSI (Maritime Mobile Service Identity) number installed VHF-DSC marine radio, particularly if also connected to a Global Positioning System (GPS) or a GPS/chartplotter.

While cellular telephones are very useful on land, they should not be considered an adequate substitute for a VHF-DSC marine radio. Because the VHF-DSC radio enables contact with other vessels in the vicinity as well as the Coast Guard, it is extremely effective in an emergency. It provides much better offshore coverage.

## VHF-DSC RADIO

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If you have purchased or are considering purchasing a new marine radio, you will notice that the new radios have a distinctive red flap over one of the switches, labeled **DISTRESS**.

Additionally, you may have noticed that the new radio is likely no longer referred to as just a VHF radio; it is called a VHF-DSC radio. The DSC stands for *Digital Selective Calling*.

These new VHF-DSC radios incorporate many new useful features which you are encouraged to become familiar with and take advantage of.



**IMPORTANT** - *To utilize the capabilities of digital selective calling, and to get the optimum performance out of the VHF-DSC radio, it is **essential** that boaters obtain and install a unique “identity” number, known as the MMSI, in the radio. If your vessel is equipped with GPS, ensure that the DSC radio is properly connected to the GPS unit.*

The **MMSI** consists of nine digits, the first three identifying the country of origin – for example in the continental United States the numbers are 303, 338, 366, 367, 368 or 369, while Canadian vessels are assigned 316. The exceptions to this are “Fleet” or “Group” vessels which have 0, and coast stations which have 00 preceding the country identifier. **MMSI** numbers

are available free of charge for recreational boaters in the U.S. and can be obtained from BoatUS, Sea Tow, West Marine, United States Power Squadrons (USPS), the Federal Communications Commission (FCC) and from Industry Canada for boaters from Canada. If the vessel is to be operated outside U.S. waters, the MMSI must be obtained from the FCC or Industry Canada.

Because various VHF-DSC radio manufacturers use somewhat different procedures in the operation of their radios it is very *important* to read the instruction manual included with the radio if the many features are to be fully utilized. It would also be helpful to take a course offered by organizations such as United States Power Squadrons (USPS), USCG Auxiliary, or Canadian Power and Sail Squadrons (CPS).

Boaters are required to access a menu in the “DSC” mode of the radio and select the specific function they wish to use, such as, selecting the directory of other boats, making a routine call to another boat, making an All Ships call, etc.

Most radios have provision for a directory, much like a cell phone speed-dial directory that lists the MMSI numbers the boater most frequently uses. It is also possible to store the “Group” or “Fleet” MMSI numbers in your radio. As mentioned earlier, these numbers begin with the number 0 and provide a capability to call a number of vessels at one time.

Many DSC radios now have a “Test Call” feature that provides an automatic response confirming that the radio’s DSC functions are operational.

With VHF-DSC radios there is no longer a need to establish routine contact with another vessel on the usually very busy calling /distress Channel 16. It can be done digitally using Channel 70.

Use of the DSC functions for routine communications, not only assures a degree of privacy, but assists greatly in reducing the present congestion on Channel 16. Boaters are encouraged to use the DSC function.

Typically, to make a “routine call” to another boat or coast station, simply select the channel you wish to use for your voice communications when you have established contact, and then enter the MMSI number of the station you wish to contact. Your DSC radio will discretely contact or “alert” the other station on Channel 70. When the other station acknowledges the call, *both radios are automatically switched over to the desired voice communication channel* originally specified, and voice communication may begin!

The use of the “**DISTRESS**” function will ensure the most expeditious response by rescue organizations as well as nearby boats, particularly if the VHF-DSC radio has been interfaced with a GPS or chartplotter, thereby transmitting an accurate position of the boat. The “**DISTRESS**” button should be held down for the time suggested in the instruction manual supplied with the radio.

Summarizing, the VHF-DSC radio enables vessels to quickly transmit a **DISTRESS** alert and message, digitally alerting other vessels that an **URGENCY** or **SAFETY** message is about to be sent, and establish contact with other vessels and coast stations discretely without having to use Channel 16. The VHF-DSC radio automatically, and silently, maintains a listening watch on Channel 70.

**REMEMBER, TO GET THE MOST OUT OF YOUR DSC RADIO:**

- Obtain an MMSI number
- Enter the MMSI number into your radio
- Connect the radio to your GPS system

## **GPS & CHARTPLOTTERS**

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As mentioned previously, to ensure accurate position information is available, particularly in distress situations, it is highly desirable to connect a GPS or chartplotter to the DSC radio. This is not difficult and instructions on how to do this are usually in the instruction manual included with the GPS, chartplotter and VHF-DSC radio. If you are unsure how to properly connect your GPS or chartplotter to your DSC radio, contact a marine electronics specialist for assistance.



Alternatively, if such positioning system is not available, some VHF-DSC radios may permit the input of the boat’s position (Latitude – Longitude) manually. If so, the vessel’s position should be entered frequently.

## 406 MHz EPIRBs

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*Another very useful piece of GMDSS equipment, particularly for vessels operating some distance from shore, is the 406 MHz Emergency Position Indicating Radio Beacon, or EPIRB.*

The EPIRB is small, buoyant, and may be designed to float free from a sinking vessel. These beacons operate on the international distress frequency 406 MHz, and when activated automatically transmit a distress message digitally to orbiting satellites. Many also incorporate a GPS unit for more precise position information and are recommended.

*EPIRB's must be registered in a national database. In the U.S. contact the National Oceanographic and Atmospheric Administration (NOAA)*

**TEL: 1-888-212-7283**

[www.sarsat.noaa.gov](http://www.sarsat.noaa.gov).

*In Canada, the Canadian Beacon Registry*

**TEL: 1-877-406-7671**

[www.canadianbeaconregistry.forces.gc.ca](http://www.canadianbeaconregistry.forces.gc.ca).



## EDUCATION

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Recreational boaters are encouraged to learn more about GMDSS and particularly DSC before installing this equipment in their vessels.

A major concern is the high number of “false alerts” being experienced with this system. A large percentage is attributable to inadequate familiarity with the equipment and lack of operator proficiency.

GMDSS is a relatively new system and as such, all mariners including recreational boaters, should obtain some training in the proper use of this equipment, particularly the VHF-DSC radio. Boater education organizations such as U.S. Power Squadrons, U.S. Coast Guard Auxiliary and others can assist with the required training.

**BoatUS offers an excellent on line tutorial “Can You Hear Me?”.**

[www.boatus.com/foundation](http://www.boatus.com/foundation)

Regular use and practice using the digital selective functions of your VHF-DSC radio will assist you in becoming thoroughly familiar with the radio.

# GLOSSARY

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Chartplotter	Combined GPS and ENC display
DSC	Digital Selective Calling
ENC	Electronic Navigational Chart
EPIRB	Emergency Position Indicating Radio Beacon
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System
KHz	Kilohertz (1000 Hertz)
MHz	Megahertz (1000 kHz)
MMSI	Maritime Mobile Service Identity
VHF	Very High Frequency (30-300 MHz)

## **EMERGENCY DSC DISTRESS PROCEDURES**

Always follow your radio manufacturer's recommendations

- **HAVE ALL PERSONS PUT ON LIFE JACKETS**
- **IF YOU HAVE AN EPIRB TURN IT ON – MAKE SURE RADIO IS ON, LIFT PLASTIC COVER AND PRESS DISTRESS BUTTON FOR 5 SECONDS AND RELEASE**
- **ONCE CALL IS ANSWERED, VERIFY RADIO IS SET ON CHANNEL 16**
- **IF CALL IS NOT ANSWERED, CHANGE TO CHANNEL 16**
- **PRESS MICROPHONE TRANSMIT BUTTON AND CLEARLY SAY: “MAYDAY, MAYDAY, MAYDAY”**
- **GIVE YOUR:**
  - VESSEL NAME AND DESCRIPTION**
  - POSITION AND/OR LOCATION**
  - NATURE OF EMERGENCY**
  - NUMBER OF PERSONS ON BOARD**
  - INCLUDING YOURSELF**
- **RELEASE TRANSMIT BUTTON**
- **WAIT FOR 10 SECONDS – IF NO RESPONSE**
- **REPEAT “MAYDAY” CALL**

**ONCE CALL IS ANSWERED DO NOT CHANGE FROM CHANNEL 16 UNLESS INSTRUCTED TO DO SO. IF CONTACT IS LOST, CALL AGAIN ON CHANNEL 16**

# FOR MORE INFORMATION ON GMDSS CONTACT:

**Commanding Officer**  
USCG Navigation Center, MS 7310,  
7323 Telegraph Road,  
Alexandria, VA 20598 - 7310  
Tel:1-703-313-5900  
www.navcen.uscg.gov

**Commandant (CG-652)**  
**Spectrum Management & Telecommunications Policy Division**  
**U.S. Coast Guard**  
2100 2nd St SW, Stop 7101  
Washington, DC 20593-7101  
Tel: 1-202-475-3555

**Commandant (CG-5422)**  
**U.S. Coast Guard Headquarters**  
**Boating Safety Division**  
2100 Second Street SW – STOP 7581,  
Washington, D.C . 20593 - 7581  
Tel:1-202-372-1066 Fax: 1-202-372-1908

**Canadian Coast Guard Headquarters**  
200 Kent street,  
Ottawa, ON K1A 0E6  
Tel: 1-613-993-0999 Fax; 1-613-990-1866  
www.ccg-gcc.gc.ca/eng/CCG/MCTS\_Gmdss

## UNITED SAFE BOATING INSTITUTE

1504 Blue Ridge Road,  
Raleigh, NC 27622  
www.usbi.org

**For details on U.S. boating safety**  
**classes call: 1-800-336-BOAT**

**For details on Canadian boating safety**  
**classes call: 1-888-277-BOAT**



## USBI Member Organizations

- American Red Cross
- American Canoe Association
- United States Coast Guard Auxiliary Association, Inc.
- United States Power Squadrons
- United States Sailing Association
- Canadian Power and Sail Squadrons

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