You must have a VHF set on board and a current FCC ship station license before a single sideband radio may be installed. If you have a licensed VHF system aboard, and you need more than 20+ miles of range when out at sea, then single sideband communications is your next step.

CHAPTER 3

The Marine Single Sideband (SSB) Service

Don't let the words "single sideband" scare you. It's simply a type of radio transmission. The military has been using single sideband for years to transmit messages throughout the world. Ham radio operators, who are permitted to select almost any type of worldwide transmission mode, have been using single sideband for years on worldwide frequencies, to talk to their buddies anywhere and everywhere.

In 1971, the Federal Communications Commission (FCC) phased in SSB transmissions for the long distance marine radio service. At the same time, it introduced the expanded marine VHF service for local communications. It also phased out the older double sideband sets.

A single sideband signal concentrates your voice onto a tightly compacted radio wave capable of traveling from hundreds to thousands of miles. This very efficient, compacted radio signal is a faithful reproduction of your actual voice. Unlike a commercial AM broadcast station, that sends out duplicate double voice wave forms plus an energy robbing "carrier," marine single sideband eliminates the unneeded mirrorlike lower sideband, the power robbing "carrier" that does nothing more than hush background noise when nothing is on the air. Marine SSB puts all of the radio energy from your voice into a compacted upper sideband wave form that gives you worldwide talk power.

If you don't speak into the mic, your transmitter doesn't put out any energy. Only when you speak will radio energy jump out into the air

waves. In between each word, your transmitter and battery system relax! This means that you can talk further with less current demands from your battery system.

Your compressed, upper sideband signal, is captured by a distant receiver, and that receiver converts your radio signal into crystal clear reception.

When the FCC phased out double sideband equipment and introduced SSB, it doubled the number of available channels for marine communications. More new SSB channels were also added in 1991!

By compressing the transmitted signal into a very narrow band width, distant receivers are able to reject almost half the normal noise and interference level from the air waves. FCC-required frequency tolerances keep SSB sets precisely on frequency to minimize that sound distortion on receive. By simply adjusting a single "clarifier" knob on your SSB receiver, you can produce the normal sounding voice that was transmitted by a distant ship or shore station.

Coast Guard

Since safety at sea communications deserve the highest priority, let's first examine the United States Coast Guard and its role in the high frequency marine single sideband service. Our Coast Guard and other distress agencies throughout the world, guard 2182 kHz as the International Distress frequency. This allows you to contact shore-side and marine rescue agencies immediately when outside of VHF Channel 16 range. Since 2182 kHz is an international distress frequency, you will find that there are literally thousands of stations guarding this channel for a distress call, 24 hours a day.

In 1999, 2182 was replaced by 2187.5 as the International Distress frequency. This new frequency asisignment is part of the new GMDSS service required on vessels over 310 tons. Use of 2182 will be phased out and replaced by digital (DSC) watch on 2187.5.

The United States Coast Guard also offers additional working channels on its Automated Mutual-Assistance Vessel Reserve frequencies in each of the popular single sideband bands. Imagine using your marine SSB set to place a call for help when you're thousands of miles away from any shore station. Through the Coast Guard AMVER system, they can readily pinpoint the position of commercial and military vessels passing through your area and signal them to immediately alter course and steam to your location to render assistance. Believe it or not, you just thought you were all alone out on the ocean. There are actually many commercial and military vessels that could reach you within a matter of hours accounted for and pinpointed via SSB AMVER system radio communications. The AMVER system uses a full range of SSB frequencies to provide world-wide safety to ocean-going vessels. See appendix for frequencies.

Phone Home?

Want to place a telephone call? Shore-side commercial telephone stations are standing by on hundreds of frequencies to place your phone call. These shore-based phone companies operate extensive transmitting and receiving antenna systems to bring in your signals loud and clear. Remember, their revenue depends on your satisfaction. You can be assured that they have the most going for them when it comes to powerful transmitters, sensitive receivers, and huge antenna arrays that beam in on your single sideband signal. These same telephone stations also transmit "traffic lists" for ships at sea who have telephone calls waiting from shore-side parties. They also broadcast weather reports, storm warnings, and other notices to mariners where safety at sea is important. If an emergency should arise the phone companies with their massive antenna systems can also patch you into rescue coordination centers, hospitals, and emergency-at sea medical systems without charge. See appendix for frequencies.

E-Mail

Your new marine SSB can also send and receive electronic mail over public common carrier, narrow band direct printing channels. It is just like sending e-mail from your home or office through a specific using your secret password over phone lines. SSB e-mail relies on the

airwaves and ionosphere in place of phone lines. Your e-mail provider can be reached from anywhere in the world with up to 12 network stations standing by for your computer traffic. An e-mail connection will provide a significant $$$ savings over conventional, high-frequency, SSB voice or satellite-phone communications from your vessel to your business or home; or to anyone who has an e-mail or FAX capability on shore. Shore stations can automatically reach your computer, by dialing a single phone number to get to your e-mail network provider. If you have a lap-top computer onboard, your present or new ICOM SSB may need only a small modem and software to complete the e-mail connection.

More about SSB e-mail in Chapter 3, with a complete listing of narrow-band direct printing frequencies listed in the appendix, plus a map showing a radio e-mail electronic worldwide network of stations also found in the appendix.

It is a plug-in affair to hook your marine SSB into e-mail via the airwaves.

Ship-To-Ship

There are many ship-to-ship frequencies allocated for communicating over long distances to other vessels with marine SSB gear. Without incurring any "land line" charges, you can communicate from one ship to another ship in opposite parts of the world, free of charge, with crystal clear reception. Thanks to Mother Nature, which we'll talk about

in a few moments, your signals can travel thousands of miles to other vessels with SSB equipment with almost no loss of voice quality. See appendix for frequencies.

Ship-To-Shore For Free

Private shore stations share ship-to-ship channels. This allows you to communicate directly with a marine supply company that can help you replace the part that fell off your anchor windless 3,000 miles away. There is no land line charge in this communication service because you are transmitting directly to a distant marine parts or marine electronics store. These "private coast stations" can also include private marine business, yacht club and marine salvage companies, private air ambulance companies, and any other type of marine business that need to regularly communicate over hundreds or even thousands of miles to distant ship stations. You may even be able to set up a marine SSB base station at your office to stay in touch regarding marine matters when you're far out at sea. Your sideband may also be operated in the SITOR mode, allowing for digital-transmission and reception of documents, such as yacht race standings, business transactions, and detailed manifests. See appendix for voice and SITOR frequencies.

Shortwave

Your marine SSB radio from ICOM can also be used to receive (and in certain cases, transmit) other services that share frequencies adjacent to the marine band.

You can tune into worldwide international broadcast stations and find out the latest news, here and abroad. You can eavesdrop on military and State Department communications that fill the high frequency spectrum. See appendix for frequencies.

Weather Facsimile Charts Free

You can tie your weather facsimile receiver into your marine sideband set and receive crystal clear weather charts in your particular area of cruising. See appendix for frequencies.

Ham Radio

You can also tune into amateur radio frequencies, and listen for local weather reports on the maritime mobile amateur radio nets. Licensed amateur operators may use ICOM SSB transceivers that are capable of transmitting on amateur frequencies. The "No Code Technician" license allows you worldwide ham privileges when cruising within Mexico with a valid Mexican reciprocal operating permit. And even if you don't obtain the ham license to talk, all ICOM marine SSB transceivers easily tune into ham calls so you can listen to the valuable maritime mobile weather nets, both upper and lower sideband.

Military

Use your marine SSB set as an ultra-sensitive shortwave receiver You can tune into foreign embassies, the Air Force and the Navy, "secret" shortwave stations, and any other type of communications that can be found on the worldwide high frequency spectrum.

Time Signals

Oh yes, one last thing—if you forgot to set your watch, you can tune into the international time signals wherever you cruise. Tick, tick tick, at the sound of the tone, it is exactly. . . See appendix for frequencies.

Worldwide Reception for Free

If time ticks don't interest you, consider the following that can be received on your new marine single sideband, all-band transceiver:

U.S. Air Force in-flight communications
Strategic Air Command
Air Force 1 (the President's plane)
Civil Air Patrol
United States Intelligence Agencies
Antarctic Stations
Interpol
U.S. Weather ships
Hurricane Research Center
Volmet-Aviation Weather Broadcasts

Morse Code News and Weather for Free

It's also possible to tune in radio facsimile broadcasts and CW Morse code broadcasts from national news agencies, i.e. United Press International and Associated Press. These broadcasts take place on international frequencies that can be picked up just about anywhere in the world. There are Morse code readers and teleprinter displays that are easily hooked up to your ICOM transceiver and will instantly read out what is being sent! It's almost as good as your morning newspaper.

While your ICOM marine SSB may be capable of transmitting on any or all of these frequencies, you should not! Transmitting outside of your authorized maritime and ham limits is illegal. If you hold a valid amateur radio license, you will be permitted to transmit on ham bands—but transmitting outside of the marine and ham bands would be illegal except in an emergency to signal for help.

So get that modem and lap-top computer hooked up your ICOM marine SSB by the plug-in jacks on the back.

- Send and receive e-mail.
- Tune into weather facsimile broadcasts, and watch the weather charts unfold on your computer screen. Decode the dots and dashes of Morse code computer programs.
- Tune into Navtex broadcasts from the Coast Guard, and check out the latest weather report or navigational warning.
- Your computer and your SSB make a perfect marriage to add information and safety to your cruising.