



# The Cruising Club of America

## **EMERGENCY CARD**

For the

**ICOM IC - M710 & M710RT**

**MARINE SSB RADIOS**

**Version 10.1**

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February 2010

**Disclaimer:** This document was compiled by a member of the Cruising Club of America with reference to the Instruction Manual for this radio. The reader is referred to Icom America Inc. for more detailed and current information. While the Club has no reason to believe that any of the information is inaccurate, it has not confirmed the accuracy or completeness of the information and makes no representation with respect thereto. Furthermore, this document does not purport to supply all of the information about the operation of this radio that someone should have before embarking on an offshore passage.

## FORWARD

This paper was first suggested by the CCA Fleet Surgeon who wanted a simple paper for the crew to use as a guide in an emergency. He was concerned that the crew might not be able to summon help in an emergency in which he is not available. He now requires everyone crewing on his boat to review his Emergency Card before casting off.

The good doctor found the guidance of simplified operating directions overcomes the novice radio operator's fear of doing something wrong. In addition, he noticed they become comfortable with the radio and tend to use it when off watch. I encourage you to do the same.

As with all of the papers in this series, I've asked for comments and suggestions. They are always welcomed and I try to respond to each of them as received. Surprisingly and with only one exception, there haven't been any for this paper during the past two years which is remarkable based upon previous responses.

Now that we are back on land, we subscribe to a bundled cable service at our home which means a new ISP. The premium service of my former Internet Service Provider (**ISP**) supposedly had a feature which would forward email to an alternate address. I continued to subscribe to the old ISP for almost two years to be able to receive comments and wondered every now and then why there weren't any, good or bad. I finally tested it by sending an email to myself and discovered it wasn't working as advertised and emails to that address were getting lost in the ozone.

My apologies if you were unable to contact me at the old address. I now have an email address ( [@b-bcs.com](mailto:@b-bcs.com)) which should always work no matter where we are and would be happy to receive any comments you may have tried to send if you still have them.

In addition to apologies, my belated thanks to "sharp eyes" David Arnold who caught some mistakes and was able to write about them.

As you go through this paper, you'll notice a lot of abbreviations are used. It might be helpful to list them separately as you progress through the paper the first time.

Finally, I sincerely hope you don't have an occasion to have a need for the card that follows.

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## INTRODUCTION

The captain is usually busy trying to contain the problem when a crisis develops aboard a yacht. Worse yet, it could be that the captain in need of assistance for a medical reason or injury. Unfortunately and typically, only the captain has a working knowledge of the radio and with many short handed crews, the call for help is left to someone who doesn't know or is unsure of what to do.

In preparing the boat for offshore, simplified radio instructions should be reviewed with members of the crew which would enable them to summon help in an emergency. The instructions should be written in step-by-step fashion so a panic-stricken novice will be able to operate the radio without additional instruction. These instructions, on an "Emergency Card" should be posted close to the radio and available at a moment's notice.

This paper briefly discusses:

1. The Single Side Band (**SSB**) radio's advantages in an emergency.
2. Some pertinent **FCC** (Federal Communications Commission) regulations.
3. An outline of the system design concepts of the Icom M-710 & M-710RT MF/HF Marine Transceivers from a user perspective.
4. Recommended revisions to factory loaded frequencies.
5. A suggested Emergency Card on the last two pages which should be photocopied and laminated back to back for placement near the SSB.

The M-710 and M710RT are nearly identical in operation and appearance. The differences are, the face plate or Controller on the M-710RT is separate from the main body of the radio and the M-710RT has key buttons on the microphone for some channel and function selection. Aside from the added microphone controls, these radios operate the same and are treated as one in the following discussions.

This version, 10.1 hopefully corrects some readability and grammatical errors in previous versions along with technical corrections which are highlighted in yellow. Revisions to the Emergency Card are not highlighted to avoid confusion in an emergency.

## ADMINISTRATIVE NOTES:

1. All frequencies are kilo Hertz (**kHz**) unless otherwise noted.
2. The emission mode is Upper Side Band (**USB**) unless otherwise noted.
3. Although Ham radios and other equipment operate in single sideband mode, SSB here pertains to Marine Single Sideband Radios.
4. The International Telegraphic Union (**ITU**) is a UN body located at Geneva, Switzerland responsible for establishing radio regulations including frequency and channel allocations for use by the member countries. The US along with most maritime countries is party to treaties supporting these regulations.
5. These regulations are promulgated in the US by the **FCC** and administered by various agencies. The US Coast Guard has responsibility for maritime applications.

6. The International Maritime Organization (**IMO**), another UN agency, is responsible for improving maritime safety and preventing pollution from ships. Based in the UK, membership is now at **169** countries plus **3** Associate Member countries.
7. Computers running Windows XP require Acrobat Reader Version 6.0 or higher for correct printouts. Later versions of Acrobat Reader (available free at this website and many others) will do the job properly.
8. An index for this paper is provided in Acrobat Reader and works well. To activate this feature, click on "Edit" on the Tool Bar, then "Find" and type in a reference word. The program does the rest and very well. Adobe Acrobat Version 8 has a separate "Find" tab on the lower Tool Bar on the right side.
9. Margins, top and bottom, left and right and gutter have been set as follows:
  - a. Top and bottom – 0.5"
  - b. Left and right – 0.5"
  - c. Header and footer – 0.5"
  - d. Gutter – Left (for binders) – 0.5"

## **SIGNIFICANT CHANGES AND CORRECTIONS**

Technical changes, revisions and corrections in this version other than editorial corrections are highlighted in yellow in the text.

### **Changes and corrections – 14 Mar 2004**

1. Corrected frequency typos (4125 and 6215 kHz).

### **Changes and corrections – Ver. 5.1, 21 Aug 2005**

2. Added "Significant Changes and Corrections" page.
3. Revised USCG Watchkeeping frequencies.

### **Changes and corrections – Ver. 6.2, 17 Aug 2006**

4. Added 8291 kHz for all USCG stations in the watchkeeping frequency table.

### **Changes and corrections – Ver. 10.1, 22 Feb 2010**

5. Yachts equipped with VHF and /or SSB are now required to maintain a watch. Channel 16 for VHF and 2182 kHz for SSB.
6. Updated Russell Radio frequencies and times.
7. Corrected the Emergency Card to put CH/FREQ back on the lower right side of the keypad.
8. Added 4125 kHz to frequencies used by airplanes.
9. Added 6215 kHz to USCG hailing frequencies.

## ADVANTAGES OF THE SSB RADIO

Within a range of 20 to 30 miles from shore, **VHF** radio is well suited for summoning aid. Other vessels as well as the USCG maintain a watch on Channel 16 **and on Channel 70, the DSC Channel**. Once outside that range however and certainly when off soundings, the SSB radio is the best way to call for help.

The SSB has some distinct advantages over other equipment including satellite phones:

1. It is common equipment on most offshore cruising yachts.
2. The USCG maintains watchkeeping on SSB; 2182 kHz simplex for short range and several simplex channels for longer range. These are listed below and on the Emergency Card.
3. Authorities in other countries maintain a watch on SSB. For example, Bermuda watches 2182 and 4125 kHz in addition to 2187.5 kHz for DSC.
4. Other vessels on the high seas out of VHF range but close enough to help are hopefully maintaining a watch on 2182 kHz. This is a requirement on most regulated vessels offshore **and now on yachts equipped with SSB as well.**
5. All vessels within range can hear the call for help.
6. **A SSB can communicate with airplanes (See the paper "Frequencies, Nets, WX Schedules and Tables" for frequency details).**
7. **There are no additional charges for using a SSB and it can be used as often as you like. There is also nothing extra to buy once you have the transceiver and antenna tuner unless you elect to add equipment such as a Pactor to subscribe to an email service.**

Not all of these points are unique to SSB, but SSB has them all.

Unfortunately, there is no such thing as a free lunch and SSB has some drawbacks as well. One of them is "Skip Zone" where a close vessel can't hear you because the signal is going "over head" while a vessel farther away can hear perfectly well. This occurs with all frequency bands including 2182 kHz. Skip Zone extends with higher frequencies so using the lowest possible frequency helps to reach closer vessels. This is discussed later.

## HAM RADIO vs MARINE SSB

Some yachts install a Ham radio in place of a marine SSB. These radios can substitute for many of the SSB functions although many do not have duplex capability i.e. the ability to transmit on one frequency and receive on another. This means that some GMDSS functions now used by most maritime countries and merchant vessels at sea may not work. They may also not be able to communicate with the USCG's working channels when offshore.

Another drawback is that many Ham radios are rated at 100 Watts while the standard marine SSB peak effective power is normally 150 Watts. This isn't important in good conditions but having 50% more power when the weather is bad and things are not good makes a difference.

Further, Ham radios which tend to be adjustment prone and more complex to operate. Finally, Ham radios are typically not type approved by the **FCC** making them illegal to transmit on

Maritime bands. It is also illegal for an individual lacking a Ham license to transmit on one unless supervised by an authorized Ham. All this aside, anything goes in a life threatening emergency.

Any self-respecting Amateur Radio operator can overcome these differences with ease. However, this paper is not written for the skilled operator but for the frightened novice in a crises situation who needs to summon help and in a hurry.

With satellite technology improving and costs declining, it can be expected it will become the way of the future. But it isn't here yet in spite of the advertising copy. For example, there are blank areas out there (such as off the coast of Portugal) and in today's environment, it is unlikely a skipper in need of help will have the phone number of a vessel just over the horizon that could come to assist.

The bottom line is SSB has many advantages not well addressed by other equipment at this time. Most significant is that all regulated ships at sea are equipped with at least one SSB radio and they are used by most offshore cruising yachts to communicate with other cruisers.

## **GMDSS (GLOBAL MARINE DISTRESS AND SAFETY SYSTEM)**

New on the scene during the past several years is **GMDSS**, a system intended to alert, locate and coordinate Search and Rescue (**SAR**) efforts. It has or is being implemented by many maritime nations, particularly those in Europe. Merchant vessels on the high seas visiting those waters are now required to be in compliance. Unfortunately, implementation in the US didn't really start until 2004 and encountered unexpected complications soon after. At present, the system is running in some areas although not declared operational.

From the USCG's write-up on GMDSS:

"GMDSS provides for automatic distress alerting and locating in cases where a radio operator doesn't have time to send an SOS or MAYDAY call, and, for the first time, requires ships to receive broadcasts of maritime safety information which could prevent a distress from happening in the first place."

GMDSS is an obvious answer to a vessel in distress and a crew unfamiliar with the SSB radio. However, with the required land station equipment not yet operational, few US yachts today are equipped for automatic **DSC** (Digital Selective Calling) alerts using SSB. Accordingly, this paper will not address GMDSS operations at this time. For more details with emphasis on VHF DSC which is up and running in most areas around the US, see the paper "Digital Selective Calling and Search and Rescue Areas" on the CCA website at:

[http://www.cruisingclub.org/seamanship/seamanship\\_offshore.htm](http://www.cruisingclub.org/seamanship/seamanship_offshore.htm)

**Note:** The **GMDSS** system reverts to standard SSB channels once an alarm has been acknowledged (automatic by the system). The USCG will respond to the vessel sending the alarm on the safety channel for the frequency range or band of the alarm. They will then request switching to their duplex working channels (formerly used for watchkeeping) to communicate and to clear the safety channel for other traffic.

## **FCC REGULATIONS**

The **FCC** establishes the rules for use of the airways in US waters and for US flagged vessels anywhere (unless there is a conflict with local regulations) under the terms of the ITU treaty. These

regulations stipulate the type of vessels required to have an operating SSB radio and for the most part, this applies to most commercial (regulated) vessels on the high seas.

The rules stipulate that regulated vessels are required to maintain a watch on 2182 kHz and one additional frequency which varies with the area, time of day, season, etc. This means that commercial vessels at sea within a range of about 100 to 250 miles (a day's sail for slower vessels) will hear your call for help on this frequency because their radio is always on.

This rule can be expected to be modified to the DSC frequencies once the US declares this part of GMDSS operational. It was originally planned for sometime in 2006 but is now delayed until at least 2012 for a variety of reasons including budgetary and technical difficulties.

These rules now apply to yachts under 65' (referred to as voluntary or recreational vessels). Voluntarily equipped vessels with VHF radios must maintain a watch on VHF Channel 16 whenever underway. In the recent change, yachts voluntarily equipped with SSB are required to maintain a watch on 2182 kHz.

The prudent skipper will maintain a watch on 2182 kHz anyway with the expectation that should there ever be a need, other yachts on the high seas are also maintaining a watch on their radio along with regulated vessels and can respond to a call for help.

## THE EMERGENCY CARD

If there are drawbacks to any marine SSB, it is that they are complex devices and the manuals are difficult to read requiring concentrated study. Anyone planning to read the manual to learn how to use the SSB after casting off will find this isn't easy with the many distractions and the fatigue usually experienced while underway.

With typically only one person on board who is competent with the SSB, there is need for others to know enough about the radio to summon help. This is particularly important if the knowledgeable person is the reason for the crises. Using the SSB however can be a daunting task for a novice running on crisis induced adrenalin. The novice can be expected to have great difficulty in these situations.

An Emergency Card can provide assistance in these situations and a sample card is attached to the end of this paper. It is intended to enable a person completely unfamiliar with the radio to call for help in a crisis.

The set of step-by-step instructions on the card is for the uninitiated as well as those with some knowledge of radio but not familiar with the Icom M710 / M710RT. It is purposely arranged for the pages to be placed back-to-back and laminated to protect it from getting frayed or wet. Obviously, the card should be placed in an accessible location near the radio and the crew should know about it.

Even the Emergency Card might appear complicated to a crew member at first sight. Fatigue and panic will make the situation worse. To overcome this, the card should be reviewed with the entire crew with everyone individually taking a turn at a practice session before casting off. Further, the prudent captain should appoint someone else to be the radio operator so the skill is shared.

[Old Emergency Cards should be destroyed and replaced to ensure known errors have been corrected. Updated Cards have the Version and date on the bottom of the page.](#)

## ABOUT THE M-710 & M-710RT RADIOS

The M-710 and M-710RT operate alike aside from the microphone. The M-710RT microphone has two added features: a “P” and “Up” and “Down” buttons. All other controls are the same.

The M-710 was introduced in the US prior to 1999 and continues in production. The M-710RT is no longer produced although used radios are available. An option on both radios was a key button on the face of the instrument to directly access 2182 kHz. This button is located above the Volume Control and labeled “2182KHz **RESET**”.

Some of these radios were programmed at the factory to automatically default to **AM** mode when using this automatic feature. Although 2182 will work somewhat in AM mode, USB is stipulated by the FCC and strongly recommended. Unfortunately, this button is not user programmable and should be corrected to default to **USB** by a dealer or radio technician. As a temporary measure, program 2182 kHz USB into Channel 1 and ignore the automatic feature until the emission mode is corrected.

As a practical matter, USB also works better – much better. If you want to be heard in an emergency, make sure the right mode is programmed on your radio and that’s USB.

For additional information about these radios and their operation, see "Using the Icom IC M-710 and 710RT Marine SSB Radios" at:

[www.cruisingclub.org/seamanship/seamanship\\_offshore.htm](http://www.cruisingclub.org/seamanship/seamanship_offshore.htm)

## THE ANTENNA TUNER

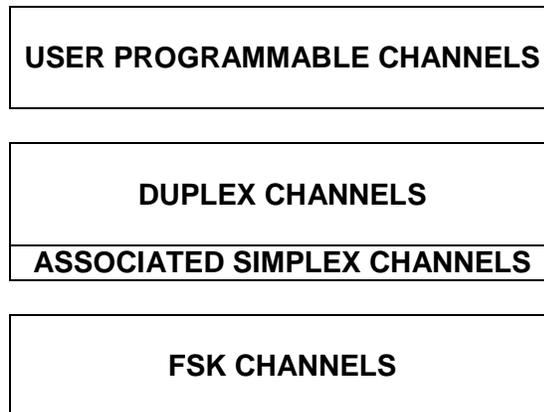
The Icom AT-130 Antenna Tuner normally installed with this radio receives power through the control cable and does not have a separate On/Off switch. However, other manufacturer’s tuners if installed in place of the AT-130 may require a separate power switch. When this is the case, it should be clearly labeled and located close to the SSB so the novice in a panic will remember it must be switched on.

## MEMORY CHANNELS CONCEPT

From a user perspective, the M-710 and M-710RT can be thought of as being organized into three separate memories with an Appendix to one of them. For lack of a better definition, we will call them:

1. User Programmable Channels
2. Duplex Channels with an Appendix called “Associated Simplex Channels”
3. FSK Channels

Conceptually, it can be visualized as:



### **1. User Programmable Channels:**

There are 160 User Programmable channels which are the channels most often used by cruisers. These channels can be programmed with either simplex or duplex frequencies. Simplex means that the radio transmits and receives on the same frequency while duplex means that transmit and receive frequencies are different. The order of these channels is random since they are all programmable and frequencies in sequence are not necessarily programmed into sequential channels.

### **2. Duplex Channels:**

This memory section contains almost every duplex channel authorized by the FCC for marine SSB. There are a total of 242 channels in this memory section. Since they are all duplex, there is a separate transmit and receive frequency for each channel resulting in 484 frequencies in this section of the memory. The frequencies in this memory are not user programmable.

These channels are organized by frequency bands. They are: 4, 6, 8, 12, 16, 18, 22 and 25 MHz.

### **3. Associated Simplex Channels**

Attached to each of the Duplex bands are 9 simplex channels. These 9 additional channels for the eight bands result in a total of 72 additional simplex frequencies organized by frequency band.

The frequencies programmed in these channels may be revised but only with frequencies of that band and must be simplex. For example, 6224 kHz can only be entered in the 6 MHz band and not in other bands such as the 4 or 8 MHz bands.

### **4. Frequency Shift Keying Channels:**

There are 662 **FSK** (Frequency Shift Keying) duplex channels preprogrammed into this memory section. These channels are included for special auxiliary equipment requiring this technology. These channels are often deactivated by the dealer because they lead to confusion for the novice operator.

They can also be deactivated via controls on the radio when equipment requiring these channels is not present. Deactivating them is strongly recommended if not already done so and they are rarely used by cruisers. Instructions for deactivating FSK can be found on Page 12 of the Icom Instruction Manual. They can be reactivated later on if FSK equipment is added.

This Emergency Card assumes that the FSK channels have been inhibited. Therefore, only the first two memory groups, "User Programmable Channels" and "Duplex Channels" with their "Associated Simplex Channels" are discussed.

With FSK disabled, these radios still have provision for 232 (160 + 72) simplex and 242 duplex channels for a total of 474 channels. It is easy to get lost with channel selection and users quickly appreciate the practicality of developing a list of frequencies with a description of their use.

Duplication in the Associated Simplex Channel memory is easily contained since there are only 110 authorized simplex frequencies. Cruisers seldom use frequencies above the 12MHz band reducing the channels of interest to 83.

## **SSB RANGE AND SKIP ZONE**

The great range of SSB is achieved by bouncing transmitted signals off the ionosphere. Simplistically, the ionosphere acts as a reflecting surface with higher frequencies penetrating deeper into the ionosphere before being reflected. This greater altitude results in longer range for higher frequencies. The converse is also true in that lower frequencies don't penetrate as deep before being reflected resulting in shorter range.

The ionosphere lowers when the sun ionizes the atmosphere and rises at night when the sun is no longer visible. Since the range of a transmission at a particular frequency varies with the altitude of the ionosphere or reflected surface, the range of a particular frequency will vary depending upon whether it is daytime or nighttime with longer ranges occurring at night up to a point.

Another characteristic of SSB is a blank zone around the antenna in all directions where transmissions cannot be heard. This blank area is called the **Skip Zone**. It follows that higher frequencies have longer skip zone distances than lower frequencies.

With the skip zone in mind and to communicate with the closest vessels, calls and particularly distress calls should be made starting with the lowest frequency.

## **THE INTERNATIONAL DISTRESS, SAFETY AND HAILING FREQUENCIES**

The SSB frequency bands of 2, 4, 6, 8, 12, and 16 MHz have one frequency designated for use as a Safety and Hailing Frequency (sometimes just called the Safety frequency). Besides safety communications, they are used by cruisers to contact each other. They are all simplex and USB (Upper Sideband) only.

2182 kHz is the primary International Emergency Frequency as well as the Hailing Frequency for the 2MHz band. Most cruisers are reluctant to use it for concern of interfering with an emergency and usually resort to 4125 kHz to make calls to other cruisers.

**The Safety and Hailing frequencies are:**

<b>Channel</b>	<b>Freq - kHz</b>	<b>M-710 &amp; 710RT Channel</b>	<b>Mode</b>	<b>Approximate Range Day / Night</b>
	2182	0 or 1*	Simplex - USB	150 / 250
	4125	4 -1	Simplex - USB	300 / 800
	6215	6 -1	Simplex - USB	400 / 1000
	8291	8 -1	Simplex - USB	500 / 1200
	12290	12 -1	Simplex - USB	2000 / 800
	16420	16 - 1*	Simplex - USB	4000 /Unreliable

- Depending upon Channel 0 programmed in AM
- Upon Request

**Note 1:** Use the first column to notate where these frequencies are located if not programmed into the proper Associated Simplex Channel locations.

**Note 2:** These frequencies can be reached by entering the channel on the keyboard. The “-“ is located between 9 and CH/FREQ buttons on the keyboard.

**Note 3:** The frequency bands of 18, 22 and 25 MHz do not have assigned Safety and Hailing channel.

**Note 4:** The nighttime range for 12 MHz and higher frequencies decreases and become unreliable.

The USCG changed over to these frequencies to comply with GMDSS requirements. They should be used to contact them with the exception of 16420 kHz which is only available on request. The CG will ask you to switch to one of their working duplex channels once contact is made to clear the Hailing Channel.

The CG maintains a 24 hour watch on 2182 kHz at all local shore stations as well as CG vessels at sea. Due to range limitations on this low frequency however, a yacht more than about 150 miles offshore may be able to hear the Coast Guard on 2182 or their working channel 2670 kHz but not be able to reach them in response. Of course, the next higher frequency, 4125 kHz should be used when this occurs.

## **USCG COMMUNICATION STATIONS**

The Coast Guard maintains communication stations at Chesapeake, VA and Pt. Reyes, CA called Master Stations. These are their primary communication sites for continental US. Other CG stations in the US are relayed into these two which means that when you talk to NMG, New Orleans for example, you are really talking to someone at NMN, Chesapeake.

The following illustrates the remote stations and their link into the two Master Stations. Exceptions are Guam which partially remotes to Hawaii and, Kodiak, AK which is independent.

**Coast Guard remote links to Master Stations:**

Station	Location		Station	Location	
NMA	Miami, FL	Remote			
NMF	Boston, MA (Marshfield)	Remote	NMN	Chesapeake, VA (Norfolk)	Master
NMG	New Orleans (Belle Chase)	Remote			
NMO	Honolulu, HI	Remote			
NRV	Guam	Partial Remote	NMC	Pt. Reyes, CA (San Francisco)	Master
NOJ	Kodiak, AK	Independent			

**USCG WATCHKEEPING SCHEDULE**

The USCG switched to the International Safety and Hailing frequencies on January 1, 2005. These are the frequencies used by most countries in compliance with GMDSS protocol. They are all simplex so others can hear the hail or safety concern and possibly provide assistance.

Depending upon where the Coast Guard's station is located determines the time and frequencies watched since propagation can be expected to vary from daytime to nighttime affecting the area of coverage by any particular station.

The Coast Guard's Watchkeeping frequencies and schedule **effective 01 Sep 08** is:

**US East & Gulf Coasts**

<--- Yacht --->		NMN	NMF	NMG	NMA
TX	RX	Chesapeake	Boston	N Orleans	Miami
2182	2182	---	24 Hrs	24 Hrs	24 Hrs
4125	4125	2300 -1100	2300-1100	2300 -1100	2300 -1100
<b>6215</b>	<b>6215</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>	<b>24 Hrs</b>
8291	8291	24 Hrs	24 Hrs	24 Hrs	24 Hrs
12290	12290	1100 – 2300	1100-2300	1100-2300	1100-2300



## FACTORY PROGRAMMING

Many of the 160 User Programmable Channels were shipped from the factory pre-programmed for use on both the US East and West Coasts since Icom had no idea ahead of time where the radios were to be used. In some earlier radios, Alaskan frequencies were included along with a few Ham frequencies using Lower Side Band (**LSB**), some broadcast stations on **AM**, the AT&T High Seas Radio Frequencies (no longer in business) and so on. Some dealers will reload frequencies for the area of intended use and since these channels are user programmable, most skippers eventually revise them for personal preference and interest.

Previously mentioned, the mode for the button "**2182kHz RESET**" on some early production radios was set at the factory to **AM**, also called **H3E** or **DSB** (Double Side Band). These are names for essentially the same emission and a carry over from the days when radios at sea used these emission modes. Although older radios are "grandfathered", FCC regulations require USB (also called **J3E**) for new equipment.

If the display on your radio indicates a mode other than USB or J3E when depressing "2182 KHz Reset", an Icom dealer should be contacted to have it corrected. Until this is changed, 2182 kHz USB should be programmed into Channel 1 as a temporary fix.

**Note:** Another vessel watching 2182 kHz USB will receive an AM signal at only about half strength. This is definitely not what you want when you need help.

## REVISING THE PROGRAMMING

To minimize confusion by an inexperienced operator in a crisis, the frequencies in the first several channels of the Programmable Channels should be revised. The purpose is to enable the unfamiliar crewmember in a state of panic to access these critical channels immediately and without having to search for them.

The suggested first twenty channels should all be USB and revised to:

Channel	ITU	Yacht TX	Yacht RX	Purpose & Function
0*		2.182.0	2.1820	USCG Watchkeeping & Safety & Hailing
1**		2.182.0	2.1820	USCG Watchkeeping & Safety & Hailing
2		4.125.0	4.1250	USCG Watchkeeping & Safety & Hailing
3		6.215.0	6.2150	USCG Watchkeeping & Safety & Hailing
4		8.291.0	8.2910	USCG Watchkeeping & Safety & Hailing
5		12.290.0	12.2900	USCG Watchkeeping & Safety & Hailing
6		16.420.0	16.4200	USCG Watchkeeping & Safety & Hailing
7		2.670.0	2.6700	USCG Working Channel
8	424	4.134.0	4.4260	USCG Working Channel
9	601	6.200.0	6.5010	USCG Working Channel
10	816	8.240.0	8.7640	USCG Working Channel
11	1205	12.242.0	13.0890	USCG Working Channel
12	1625	16.432.0	17.3140	USCG Working Channel
13				Area Cruiser SSB Net
14				Area Cruiser SSB Net

15				Area Cruiser Ham Net
16		2.738.0	2.7380	Ship To Air
17		2.830.0	2.8300	Ship To Air
18		4.125.0	4.1250	Ship To Air
19		3.023.0	3.0230	Search & Rescue (SAR) & Ship To Air
20		5.680.0	5.6800	Search & Rescue (SAR) & Ship To Air

\* Available on most radio versions but not always USB

\*\* Recommended only when Channel 0 is not present or is not USB

This sequence puts the CG's Watchkeeping and International Safety and Hailing Frequencies first, the CG's Working Channels next followed by Cruiser and Ham nets in the area of intended usage. Ship - To - Air frequencies follow and finally, Search and Rescue frequencies (which are also Ship - To - Air).

**Note 1:** Channel 8 through 12 are the CG's duplex working channels. They will ask you to switch to one of these in the same frequency band as the Safety and Hailing Channel you contacted them at.

**Note 2:** Duplex channels can be directly dialed on the keyboard by entering the ITU number. For example, to get the CG's 8MHz working frequency at ITU Channel Number 816, key in **816 RX**

**Note 3:** A few of these radios and particularly European versions were equipped with a **DSC** (Digital Selective Calling) option. Those frequencies should be added to the list as appropriate. For more on this, see Offshore Communications and Electronics on the sidebar on the left at [www.cruisingclub.org](http://www.cruisingclub.org) and select "Digital Selective Calling and Search & Rescue Areas".

## THE ASSOCIATED SIMPLEX CHANNELS

Another important revision to be made to the programming is the inclusion of the Safety & Hailing frequencies in the group of simplex channels which follow the duplex channels in memory for each of the frequency bands. These frequencies should be programmed into Channel 4-1, 6-1 and so on respectively.

While this may seem like duplication, they should have all been there in the first place. With the factory loaded programming, 4125 kHz was typically programmed in Channel 4-1 but the rest of the Safety and Hailing frequencies were either not included or not in the appropriate channel position. The Emergency Card assumes they are.

Safety and Hailing frequencies to be programmed into the Associated Simplex Channels:

CHANNEL	TX/RX	USE	MODE	APPROX. RANGE DAY / NIGHT
4 – 1	4.125.0 / 4.1250	USCG, SAFETY & HAILING	USB	300 / 800
6 – 1	6.215.0 / 6.2150	USCG, SAFETY & HAILING	USB	400 / 1000
8 – 1	8.291.0 / 8.2910	USCG, SAFETY & HAILING	USB	500 / 1200
12 – 1	12.290.0 / 12.2900	USCG, SAFETY & HAILING	USB	2000 / 800
16 – 1	16.420.0 / 16.4200	USCG, SAFETY & HAILING	USB	4000 / Unreliable

Keep in mind that anything to help the novice summon help is good. The prudent skipper should confirm these frequencies haven't been accidentally changed through experimentation by the crew.

## CRUISER AND HAM NETS

Both Cruiser and Ham nets exist all over the world and can be a ready source of assistance. For example, the Ham Mobile Maritime Net at 14300 kHz is up 24 hours per day and is pretty much worldwide for radios enabled for Ham. Authorized Ham bands are not the same as those authorized for SSB although the frequencies are close to each other in this range.

These SSB radios can readily receive Ham signals by "turning the knobs" or entering the frequency into a User Programmable Channel. However, the radio must be enabled to transmit on these Ham bands. A valid Amateur Radio "General" license or better is required by the dealer to make this adjustment which is done via software.

One of the most popular SSB nets in the North Atlantic is the Southbound II weather net with Herb Hilgenberg that comes up for Check-In at 1930 Z daily on 12359 kHz. Herb provides this valuable service free of charge and is a real gift for most cruisers. For more information, see [www3.sympatico.ca/hehilgen/vax498.htm](http://www3.sympatico.ca/hehilgen/vax498.htm).

The next cruiser to thank Herb for more than just a weather forecast won't be the first.

### Southbound II Schedule

	Time	Channel	Freq	Name	Day / Night
Check - In	1930 Z	12 - 4	12359	12 Charlie	2000 / 800
Net Start	2000 Z	12 - 4	12359	12 Charlie	2000 / 800
No Signal on 12C	2000 - 2030 Z	8 - 2	8294	8 Alpha	500 / 1200

**Note:** Yachts within 150 miles of shore may have difficulties receiving Herb on 12359 kHz although Herb can usually receive them. They should check in on 12 Charlie advising Herb they will be standing by on 8 Alpha.

Similarly, Russell Radio in the Bay of Islands near Auckland, New Zealand watches the following schedule also free of charge for the southwest Pacific every day. Note that the SSB frequencies and time of day lead to a range of about 400 miles.

For more information, see [www.russellradio.org.nz](http://www.russellradio.org.nz)

### Russell Radio Schedule

NZ Time	NZ Time	Ham - SSB	Freq	Name	Day / Night
0700 - 0715	1900 - 1930	SSB	4417	4 Charlie	300 / 800
0715 - 0730	By Request Only	SSB	6516	6 Delta	400 / 1000
0730 - 0800	1830 - 1900	Ham - LSB	4445		
0800 - 0830	By Request Only	Ham - LSB	13101		

Both of these volunteer services are excellent and free of charge. Their equipment costs are not free however and a small contribution to help them along is always appreciated.

These frequencies and others depending upon where you are should be added to your list to make it easier to ask for assistance in your cruising area. For additional information on the times and frequencies for nets, see the paper "Frequencies, Nets, WX Schedules and Tables" previously mentioned.

## **CHANNEL DIRECTORY**

One final thought about programming the channels. With all the user programmable channels accessible on these radios, it is easy to get lost. Placing a list of channels / frequencies in a loose-leaf binder or under a clear plastic sheet on the chart table helps and quickly becomes indispensable.

For additional information about SSB radio and these radios in particular, please see two other papers in this series. They are the "Offshore Communications Memorandum" and "Using The Icom IC-M710 and 710RT SSB Radios". These papers are occasionally updated so be sure to have the latest with corrections and additions before casting off.

Please remember:

### **PRACTICE WITH THE CREW BEFORE CASTING OFF MAKES A LOT OF SENSE**

**NOTE:** The following Emergency Card has been modified. These changes are NOT highlighted in yellow to avoid confusion with a novice in panic mode. Old emergency cards should be destroyed and replaced with the following version.

# **EMERGENCY CARD - ICOM IC-M710 and M710RT**

**READ THOROUGHLY FIRST, THEN EACH SECTION AGAIN – DO NOT SKIP AHEAD**

1. Turn the radio on by pressing the power button near the lower left corner. Adjust volume for slight “hiss”.
2. The display will indicate one of three combinations of frequencies, channels or words depending upon how the radio was last used. For example, this could be frequencies on both the top & bottom lines such as:

4.1250 USB

4.125.0

With a channel number on top and a receive frequency below:

605 USB

6.513.0

Or with a channel on top and a word below such as:

12 - 4 USB

12CHARL

Frequencies (the first illustration) have one or two decimals. Channels (the second and third) can be one to four numbers and sometimes have a dash. The lines are not aligned and the bottom line is slightly smaller.

3. All vessels at sea are required to monitor 2182 kHz, the International Distress and Hailing frequency. Be ready to state the type of emergency, the name of the vessel, location, number of people on board, etc. The type of alert and the vessel name are each spoken three times. “MAYDAY” (MAY- DAY) means a situation threatened by grave and immediate danger; request immediate assistance. “PAN PAN” (PAH-N) means an urgent message concerning the safety of a person or vessel. The least critical and used for advisory safety or navigational information is “SECURITY” (SEA - CURE - EE – TAY).

4. Some radios have THREE DEPRESSABLE BUTTONS above the **VOLUME** Control, one above the other. If yours does, go to Step 5. If yours doesn't, skip Steps 5, 6 & 7 and go to Step 8.

5. If your radio has THREE DEPRESSABLE BUTTONS above the VOLUME Control, press the center button labeled **2182KHZ** **RESET**. The display should indicate:

2.1820 USB or, 0 USB

2.182.0

EMERGEN

If AM displays instead of USB, go to step 8.

6. Press **2182KHZ** **RESET** to tune the radio to this frequency. Listen to see if it is being used. When clear, press the top and bottom buttons together (TX FREQ and ALARM) to start broadcasting an alarm which you will hear. After 10 or 15 seconds, press just ALARM to stop the alarm broadcast.

**NOTE:** If this is an emergency, continue to Step 7. If practicing, **do not** transmit the alarm - go directly to Step 8.

7. Press and hold the button on the left side of the microphone to call. Do not press the “P” or the Up or Down Arrows on the M710RT microphone. Release the microphone side button to listen. Wait a few moments to give them time to respond. Call again a few times. If no one responds, press 2182KHz **RESET** and go to Step 8.

8. If your radio DOES NOT HAVE the THREE buttons in Step 4 or you have no response, press CH/FREQ once or twice on the Keyboard at the lower right to get any frequency (with decimals on both lines) and then press 1 RX to get 2182 kHz. If it is not there, turn the Channel Knob (on the right) clockwise to find it. Listen to the channel to see if it is being used.

9. When clear, press and hold the side button on the microphone to talk. You must release the microphone button to listen. Yelling makes you difficult to be understood by someone who might not understand English well so don't yell and talk slowly. Wait a few moments to give them time to respond. Repeat your message a few times. If there is no response, go to Step 10.

**MESSAGE EXAMPLE:** *“MAYDAY, MAYDAY, MAYDAY - This is sailing vessel Nefertari, Nefertari, Nefertari, WBJ 6623 requiring immediate assistance. Our position is Latitude 34 degrees 20 minutes North and Longitude 67 degrees 44 minutes West, about 180 miles North West of Bermuda. We have struck a submerged object and are taking on water. There are four people on board and we have life vests on. Please acknowledge.”*

10. Press the CH/FREQ button on the keyboard at the lower right to get decimal numbers on both top and bottom lines. Turn the large knob on the right clockwise one click at a time. Look for 4125 and then start calling as in Step 9 above. If no one answers, repeat this process looking for 6215, 8291, 12290 and 16420 in that order.

CHANNEL	TX / RX	USE	MODE	APPROX. RANGE
LOCATION				DAY / NIGHT
	2.182.0 / 2.1820	EMERGENCY & HAILING	USB	100 / <b>300</b>
	4.125.0 / 4.1250	SAFETY & HAILING	USB	300 / <b>800</b>
	6.215.0 / 6.2150	SAFETY & HAILING	USB	400 / <b>1000</b>
	8.291.0 / 8.2910	SAFETY & HAILING	USB	500 / <b>1200</b>
	12.290.0 / 12.2900	SAFETY & HAILING	USB	2000 / <b>800</b>
	16.420.0 / 16.4200	SAFETY & HAILING	USB	4000 / <b>Unreliable</b>

**Write the channel location for these frequencies so you will know where to find them later.**

11. These are the International Safety frequencies. The US Coast Guard, they will ask you to switch to one of their working channels on the same frequency band to clear the channel. For example, they will ask you to switch to Channel 816 if you reached them on 8291 kHz.

The following channels can be dialed directly by using the keyboard. To do this, enter a channel number and then press RX at the lower left on the keyboard. For example, to key in channel 424, press 4 2 4 RX. In the same way, for channel 601, press 6 0 1 RX, and so on. Both transmit and receive frequencies will appear.

ITU	TX / RX	USE	MODE	APPROX. RANGE
CHANNEL	(TOP) (BOTTOM)			DAY / NIGHT
424	4.4260 / 4.134.0	USCG	USB	300 / <b>800</b>
601	6.5010 / 6.200.0	USCG	USB	400 / <b>1000</b>
816	8.7640 / 8.240.0	USCG	USB	500 / <b>1200</b>
1205	13.0890 / 12.242.0	USCG	USB	2000 / <b>800</b>
1625	17.3140 / 16.432.0	USCG	USB	4000 / <b>Unreliable</b>

12. Be sure the mode is always set to USB at the right on the display. If not, press the MODE key on the left below the display several times until USB appears.

13. If you are unable to reach anyone, go to Channel 1 by keying 1 RX on the keyboard. Then turn the large knob on the left labeled GROUP nine clicks clockwise. If you don't see 4.125, turn the large right knob either way until you do. Confirm it is frequency 4.125 by pushing the CH/FREQ key. If it is not, turn the right knob until you find it.

14. If the radio has been modified and you still can't find it, turn the large knob on the left two more clicks clockwise, then the large knob on the right until you find 6.215. If you still can't find it, turn the left knob two more clicks to repeat the process for 8.291. Go to Step 9 above when you find it.

Be sure to give someone listening a chance to respond or get someone who speaks English.

15. If you still can't find these channels or frequencies, push CH/FREQ to get frequencies top and bottom and go back to Channel 1 by pressing 1 RX. Then by turning only the CHANNEL knob on the right clockwise, keep turning until you find any channel with someone talking. Skip blank channels - just keep turning.

If it is a life-threatening situation, break in and start calling MAYDAY. If it is eminent danger, wait for a break in the conversation and then start calling PAN PAN. If someone is talking, someone is listening.

**Write down who is responding and what they have to say about getting help to you so you don't forget and will know who to thank later on.**