# USING THE

# ICOM   IC M – 700 PRO

## MARINE SSB RADIO

**Revised January 2007**

Walter R. Paul

**Foreword**


SSB radios are sometimes called transceivers, meaning a combination of both transmitter and receiver in one unit. Although this radio has many advanced features, the basic operation is direct and easy to use once you catch on to it.

This booklet is intended to be a simple reference for the Icom M-700PRO MF/HF Marine Transceiver and is not intended to be a replacement for the Instruction Manual. Its purpose is to assist crewmembers unfamiliar with this SSB radio. It assumes the radio has been installed with a proper antenna connection, a good ground and has been determined to be operating satisfactorily by a qualified person or technician.


A few administrative notes about this paper:


1. All frequencies and SSB modes described are kHz and USB unless otherwise noted.

2. Although other equipment including Ham radios operate in single sideband mode, SSB throughout this paper refers to Marine Single Sideband Radios.

3. The International Telegraphic Union (ITU) is a UN body located at Geneva, Switzerland responsible for regulating radio usage including frequency and channel allocations. The US along with most maritime countries is party to treaties supporting these regulations. They are promulgated in the US by the Federal Communications Commission (FCC) and administered by various agencies. The US Coast Guard has responsibility for maritime applications.

4. It has been suggested that an index be added. Actually, a facility in Adobe Acrobat is available for this. Simply click on "Edit" on the Tool Bar, then "Find" and type in the reference word. The program will do the rest.

5. Downloading this paper to a computer running on Windows requires Acrobat Reader Version 5.0 or higher. This version was released prior to Windows XP however and while it will appear correct on computers running Windows XP, printing it out requires Acrobat Version 6.0 or better available free at this website.

6. Margins, top and bottom, left and right have been set to:

        a. Top and bottom       – 1.0"
        b. Left and right        – 0.6"
        c. Header and footer    – 0.5"

7. Additional information about what to do with a marine SSB once you know how to use it may be found in the paper "OFFSHORE COMMUNICATIONS MEMORANDUM" and its Appendix renamed "FREQUENCIES, NETS, WX SCHEDULES AND TABLES" at the CCA website, www.cruisingclub.org by clicking on the sidebar "Offshore Communications".

8. Information about SSB Transmissions, Connections and Grounds may also be found at that same page.

I want to thank CCA Fleet Surgeon E. G. Fischer, MD for his review and comments on the original draft of this paper and others who have written since.

Comments, corrections and suggestions are more than welcomed and I try to respond to each of these when received. Since we spend as much time as we can on our boat, please send them to me via email.

Have a good time with this great radio.

<div style="margin-left: 50%;">

Walt Paul
nefertari@b-bcs.com

Chair
Offshore Communications and Electronics
Cruising Club of America

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## CHANGES AND CORRECTIONS

Major changes, additions and corrections in this version are printed blue where practical to assist in recognizing them and to accommodate "black only" printers. Where a new section or paragraph has been added, the title in the Table of Contents and the title (only) in the body of the paper are highlighted.

**Version 5.01**

Revised version numbering (year – issue)

Revised USCG Distress and Safety Watchkeeping Channels to reflect the change effective 1 Jan 05.

Minor editorial corrections

**Version 7.01**

Minor corrections and reorganization
Removed USCG frequencies which was redundant with the Emergency Card

## TABLE OF CONTENTS

# 1 THE ICOM DEALER

Continuing support is available from the Icom Dealer.  This includes:

   1.  Correcting the emission mode for 2182 kHz to USB if it is factory set to AM or DSB.  This is not programmable by the user.

   2.  The radio can be adjusted for "Ham" operation for licensed Ham Operators.  To do this, the operator must produce a "General" or above Ham License for the Dealer's inspection. Similarly, the Dealer can also adjust the TX high frequency limitation to enable 10-meter operation.

   3.  The stored frequencies can be quickly modified by dealer for the area you sail.

In the event an Icom dealer is not available, Icom America can be contacted at:

   Main switchboard:    Tel:    1 – 800 – 872 – 4266
                                1 – 425 – 454 – 7619
                        Fax:    1 – 425 – 454 – 1509

   Technical Questions:          marine@icomamerica.com

   Information on parts:          parts@icomamerica.com

   Web Site:                      www.icomamerica.com

# 2  JUST A LITTLE TECHNICAL BACKGROUND FOR THE UNFAMILIAR

The Federal Communications Commission (FCC) regulates radio transmission on medium and high frequencies (MF & HF) under a treaty with the International Telegraphic Union (ITU), an agency of the UN. Certain specified frequencies have been allocated for marine SSB use in the 2, 4, 6, 8, 12, 16, 18, 22 and 25 mega Hertz (MHz) ranges or bands.  These frequencies dovetail some of the authorized Amateur Radio Operator ("Ham") frequency bands, but are not the same and do not overlap.

Transmit (TX) and Receive (RX) frequencies are sometimes thought of as "pairs" and are assigned together to a channel in the radio's memory.  Each channel is numbered for easy identification. The more channels in a radio, the more pairs of frequencies can be stored and directly accessed rather than keying in or dialing new TX and RX frequencies each time there is a need to change frequencies.

When a "pair" or both a TX and RX frequency in a channel are the same, the channel is called "a simplex channel".  In this type of operation, a listener hears everything spoken by either party.  When the TX and RX frequencies are different, the channel is called "a duplex channel" and normally only one side of the conversation can be heard by a listener.  Duplex channels are mainly used to communicate to shore side stations and provide a degree of confidentiality.

## 3  IN PRACTICE

Yachts with marine SSB radios talk to other yachts in simplex mode and always Upper Side Band (USB). Weather faxes, voice forecasts, news broadcasts from Voice Of America or BBC are all on USB but are in receive mode only, meaning that there is normally no transmit frequency for these channels.

Generally, yachts talk to each other in the 4 and 6 MHz frequency ranges and sometimes even as high as the 8 MHz frequencies depending on the distance.  Some long-range SSB nets use one of the 12 MHz frequencies, but they are the exception.  The higher frequencies usually mean greater range, but at a price; these signals normally "skip" over the top of yachts close in who then can't receive the transmission. There is no such thing as a free lunch.

In the Caribbean, most SSB nets are on 4 or 6 MHz while in the Mediterranean, it is 8 MHz because of the added distance and difficult terrain.

Some yachts use their SSB to make high seas telephone calls or send and receive e-mail via shore stations.  Operations with shore stations normally involve duplex channels and are USB.  Doing email normally requires an accessory like a modem to manage the data.  More details on this are covered in the primary paper in this series, "Offshore Communications Memorandum"  at the CCA website, www.cruisingclub.org under the sidebar "Offshore Communications".

Some foreign WX faxes are on Lower Side Band (LSB), but this is the rare exception.

Local radio broadcast stations are normally AM as are WWV & WWVH.

Hams generally operate in simplex mode within their designated frequency bands.  This is similar to SSB, but not quite the same.  Hams may select any frequency within their authorized frequency bands while marine SSB has specific designated frequencies or channels in the marine SSB bands.  Also, Hams use LSB up to 7300 kHz and USB above whereas all marine SSB is USB.

The M-700 PRO is normally enabled to listen to the Ham bands but not transmit on them.  As noted above, any Icom dealer can enable transmission on the Ham bands with the presentation of a "General" or better license.

**Note:**  The USCG Distress and Safety Watchkeeping Channels have been revised to the international Safety and Hailing channels. These are not the same as those used to broadcast voice Weather Forecasts (WX) as in the past.  With this in mind, it is recommended that these frequencies if not already programmed on your radio, be added to allow direct access to the USCG if in distress.  In addition to 2182 kHz, they are: 4125, 6215, 8291 and 12290 kHz, all USB and simplex.  16420 kHz is also available upon request.

The former Watchkeeping Channels are still used by the Coast Guard for distress communications and should be retained on your radio.  Further, these frequencies are also used for their Weather Forecast broadcasts which should be separately programmed to avoid accidental transmission during a WX broadcast.

For more information about this, see the paper "Using The Icom IC – M700PRO SSB Radio In An Emergency" also under the "Offshore Communications" sidebar at the CCA website.

## 4  <u>HOW THE RADIO IS ORGANIZED</u>

This radio has three memory groups identified by the letters A, B and C.  Each group has 50 storage locations called channels and each channel can store one pair of frequencies. These stored frequencies can be either simplex or duplex frequencies and are accessed by turning the two large knobs.   They can also be programmed for a "receive only" frequency such as for weather fax broadcasts, VOA, BBC, etc.

Memory Organization Concept:

|  | GROUP A | GROUP B | GROUP C |
|---|---|---|---|
|  |  |  |  |
| CHANNEL | 1 | 1 | 1 |
| CHANNEL | 2 | 2 | 2 |
| CHANNEL | 3 | 3 | 3 |
| CHANNEL | 4 | 4 | 4 |
| CHANNEL | 5 | 5 | 5 |
| CHANNEL | . | . | . |
| CHANNEL | . | . | . |
| CHANNEL | . | . | . |
| CHANNEL | . | . | . |
| CHANNEL | . | . | . |
| CHANNEL | 46 | 46 | 46 |
| CHANNEL | 47 | 47 | 47 |
| CHANNEL | 48 | 48 | 48 |
| CHANNEL | 49 | 49 | 49 |
| CHANNEL | 50 | 50 | 50 |

## 5  <u>GETTING STARTED</u>

To assist with the following concepts, it would be helpful to turn the radio on and look at the display as the various aspects of the radio are discussed.

1. Turn the radio on by depressing the power button near the lower left corner of the radio.

2. The display will indicate a frequency on the top line and a channel or the word "FREQ" on the bottom line.  This could look like:

> 12.290.0 *USB*　　　or,　　　12.290.0 *USB*
> 　　SIMP
> *A  --  10*　　　　　　　　　*FREQ*

3.  Depress the button labeled CH/FREQ at the lower right on the keypad to get any channel on the bottom line. Channels start with the letters A, B or C followed by a number and appear as illustrated above.

4.  Turning the large knob on the left labeled **GROUP** selects one of the three groups, A, B or C. Turning the large knob on the right labeled **CHANNEL** selects a specific channel in that group of 50 channels.

If the **GROUP** knob is turned clockwise beyond Group C, the selection remains at Group C.  Similarly, if the **GROUP** knob is turned counterclockwise past A, the selection remains at A. If the **CHANNEL** knob is turned clockwise, the channel selection increases until Channel 50 is reached and then starts over again at Channel 1.  The reverse is true when turned counterclockwise.

## 6  THE DISPLAY

The **DIMMER** button for the LCD display is adjacent to the **POWER** button.  The radio used in preparing this paper had only two positions; on or off.  However, contrast and brightness may be controlled via "SET MODE" on page 13 of the Instruction Manual.

### 6.1  CHANNELS OR FREQUENCY (MEMORY MODE OR VFO)

The **CH/FREQ** button near the lower right corner of the keypad toggles between the two operating displays.  In one position, the display presents the channel group and number on the bottom line. This is called **Memory Mode** in the Instruction manual.  In the other position, the word FREQ is displayed on the bottom line and is called the **VFO Mode** (Variable Frequency Operation). The frequency on the top line does not change when switching from one display mode to the other.

The use of the word "Mode" can be confusing.  As used here, it is not related to EMISSION MODES discussed in below.  Here, **Memory Mode** and **VFO Mode** refer to the selection of channels and frequencies stored in the memory.  In **Memory Mode**, turning the Channel Knob on the right selects a new channel.  In **VFO Mode**, turning either knob changes the frequency in that channel.

An easier way of thinking about this is to drop the word "Mode" and simply refer to these two ways of operating the radio as "**Memory**" and "**VFO**".

### 6.2  RECEIVING FREQUENCY INDICATOR

Also on the upper row of the display is the symbol **RX** on the left indicating the RECEIVE frequency.

### 6.3  REPROGRAMMING INDICATOR

A small triangle appears alongside the **RX** symbol when the frequency is being changed in **Memory Mode** only.

### 6.4   SIMPLEX OR DUPLEX

The words **SIMP** or **DUP** will appear between the two rows when in **Memory Mode** only;  the line will be  blank when in the **VFO Mode**.

**SIMP** refers to SIMPLEX, meaning that both transmit and receive frequencies are the same for that channel.   It also means that anyone listening to that frequency hears both sides of the conversation.  In practice, most cruising yacht SSB transmissions are Simplex.

**DUP** refers to DUPLEX, meaning that transmit and receive frequencies are different and anyone listening to that frequency can hear only one side of the conversation, affording some privacy.  For cruising yachts, duplex is used mainly to communicate with shoreside stations such as a high seas telephone operator, the USCG, or the like.

**A blank line** (with two decimal points) above the Group letter and Channel number indicates a receive frequency has not been programmed for this channel.

A channel may have a receive frequency but no transmit frequency in **Memory Mode**.  This is normal when tuned to broadcast stations such as the Voice of America, BBC, local broadcast stations and voice weather forecasts or facsimile broadcasts.  Transmitting on these frequencies creates interference and is not looked at kindly by the authorities or anyone else trying to listen.

A channel must have a receive frequency programmed before a transmit frequency can be entered.  **Memory Mode** can be either SIMPLEX or DUPLEX. **VFO Mode** is always SIMPLEX.

## 7   THE BUTTONS UNDER THE DISPLAY

The buttons under the display are **MODE, AGC, NB, SQL and SCAN**.  Additional buttons are the **TUNE** button located between the knobs and **TX FREQ** above the Volume knob.

### 7.1   MODES

The first button at the lower left corner of the display is the **MODE** button.

On the upper right of the display are two or three letters indicating the type of emission; that is, the type of radio signal transmitted or received.  For marine SSB operation, it should read **USB**.  There are some exceptions such as listening to standard broadcast stations or WWV when the mode should be AM.

When using 2.1820 MHz, the International Emergency & Hailing Channel, the mode should be **USB**.  If the mode is anything other than USB, depress the "MODE" button as many times as it takes to change it back to USB.

Continued depressing the "**MODE**" button will change the display to R3E, AM, LSB, J2B, FSK, CW and then back to USB.

7.1.1 **USB** stands for Upper Sideband and is the type of emission or operating mode used for all marine SSB transmissions.

7.1.2 **R3E** means Single Sideband reduced carrier for analog voice operations on lower sideband.

7.1.3 **AM** stands for Amplitude Modulation and is the same type of emission as on the home AM radio.  This is sometimes called DSB or Double Sideband and was the standard emission in years gone.  It is no longer used except for commercial radio broadcasts and some government operations.

7.1.4 **LSB** stands for Lower Sideband and is used for Ham operations at frequencies below 7.300 MHz.  Ham operations above 7.300 MHz are USB.

7.1.5 **J2B** stands for Audio Frequency Shift Keying or **AFSK.**  It is an emission technique used in advanced applications beyond the scope of this paper.

7.1.6 **FSK** stands for Frequency Shift Keying, another emission used in advanced applications and beyond the scope of this paper.

7.1.7 **CW** stands for Continuous Wave and is the type of emission used for Morse code.  It is sometimes called A1A.

## 7.2    Emission Codes

The modes displayed on this radio may sometimes differ from the mode coding used by the FCC and sometimes they are used interchangeably.  The following is a conversion table of emissions available on this radio:

| 700PRO MODE | EMISSION |
|---|---|
| | |
| AM or DSB | H3E |
| CW | A1A |
| FSK | F1B |
| AFSK | J2B |
| LSB | J3E |
| R3E | R3E |
| USB | J3E |

### 7.3   THE OTHER BUTTONS

The remaining buttons under the display are **AGC, NB, SQL and SCAN** plus the **TUNE** button located between the knobs and **TX FREQ** above the Volume knob.

7.3.1   **AGC** or AUTOMATIC GAIN CONTROL:  **Normally On**

> AGC adjusts the receiver's gain to ensure week signals are received at the same volume as strong signals.  If it is off, the AGC icon with lines through it will appear on the display.  If this is the case, depress the AGC button to turn it on (no symbol or indication).

**Note:**  Weather Fax reception can sometimes be improved by temporarily turning the AGC off.

7.3.2   **NB** or NOISE BLANKER:  **Normally Off**

> NB is used to eliminate repetitive noise interference from things like fluorescent lights, motors, etc. on board that radiate signals.  It is on when the letters NB appear on the right side of the display.

7.3.3   **SQL** or Squelch:  **Normally Off**

> SQL eliminates the hiss heard on SSB, but it can also reduce sensitivity to weak signals. When it is on, the letters SQL appear on the right side of the display.

**Note:** You won't hurt anything by depressing these buttons (**AGC, NB** or **SQL**).  However, it will help if you set them to the default setting indicated above.  They are mainly to enhance reception. Also note that the use of **NB** can create interference with radios on neighboring vessels.

7.3.4   **SCAN** is a function that sequences the receiver through all the channels of any <u>one</u> of the three groups.  The receiver will sequence from what ever the starting channel is to the next higher, pausing approximately two seconds (adjustable up to ten seconds) at each channel to determine if anything is heard. The scan, when it gets to Channel 50, continues on to Channel 1 in the same group, starting the cycle again.  Scan continues until the **SCAN** button or the microphone button is depressed.  It does not stop when a signal is received.

> If you are currently in Group A and want to scan Group B, turn the GROUP knob to move to that group and then push **SCAN**.  You may have to activate **SQL** (Squelch) to stop normal background noise from interfering with the scan although this could also result in missing weak signals.

7.3.5   **TUNE** can be ignored if your radio is equipped with an ICOM AT-130 Automatic Antenna Tuner.  With the AT-130, the system will tune automatically when the channel is changed or, when the microphone button is depressed depending how it is set up.  The tuning is near instantaneous, silent and draws very little current.

The "Set Mode" instructions on page 11 of the Instruction Manual discusses this in **(2) Automatic tuning condition**. The "On" position, Push To Talk (PTT) is recommended.

Theoretically, the antenna tuner does not have to be retuned to receive any frequency although it seems to help with weak signals. It generally does not have to be re-tuned to receive or transmit on frequencies close to each other such as from 4.006 to 4.009 MHz.

If the radio is set to PPT (not re-tune with a channel change), the Automatic Tuner should be re-tuned for transmissions when shifting from one frequency <u>band</u> to another, such as from a 4 MHz to an 8 MHz frequency to peak the tuner to the new frequency band. This is easily done by momentarily depressing the microphone button.

Depressing the **TUNE** button peaks the antenna system to the indicated transmit frequency in the same way as depressing the microphone button if set up that way.

To conserve ship's battery power and since re-tuning is not normally necessary, tuning by activating the microphone key is preferred over re-tuning every time the CHANNEL knob is turned.

**Note:** Tuning can sometimes interfere with the reception of other nearby vessels and sometimes, those not necessarily close by. PPT tuning is almost instantaneous, minimizing interference.

If another brand or model tuner is being used, the tune button must be depressed before transmitting if the frequency band has been changed. When the **TUNE** button is depressed, the word **TUNE** will appear on the left side of the display.

7.3.6   **TX FREQ** or TRANSMIT FREQUENCY is the button at the top above the **VOLUME** knob. Depressing this button indicates the transmit frequency. If SIMP is displayed, it is the same as the receive frequency. Conversely, if DUP is displayed, it will be different.

## 8  OPERATING THE RADIO

To operate the radio, turn it on by depressing the power button near the lower left corner of the radio and select the frequency you want by turning the knobs to get to the corresponding Group and Channel. Listen a few minutes to see if there is any traffic. Wait until that traffic is finished before starting with your traffic. No one likes to be "walked on" any more than you do.

a.  If the antenna tuner is <u>not</u> an AT-130 or otherwise automatic with the microphone button, push **TUNE** to peak the antenna to the frequency you want to talk or listen to.

b.  To transmit, hold the mike an inch or two away from your mouth, depress the button and speak in a normal voice. Shouting doesn't help and can even impair the clarity of your traffic. Holding the mike too close to your mouth will also make you difficult to understand. Remember to  depress the mike button before speaking and hold it down until you finish.

You must release the mike button to hear.

SSB radios work on a concept of Receive or Transmit, one at a time, but not both at the same time.  This means, you won't be heard if you talk while someone else is talking nor will you hear what he or she have to say.  This is called "Doubling" when it happens and can be avoided by saying "over" when you have finished with what you have to say.

Remember to identify yourself with the name of the vessel and the Ship Radio Call Sign  (top line - right) on the SHIP/AIRCRAFT RADIO STATION LICENSE posted somewhere in the vicinity of the radio.

## 9  CHANGING THE PROGRAMMABLE FREQUENCIES

The keypad at the right side of the radio is used for programming new frequencies in any of the 150 channels. In addition to the **CH/FREQ** button already discussed, note the buttons toward the bottom of the keypad labeled **CL, T ONLY**, and **ENT**.

**CL** means CLEAR and is used when a mistake is made while entering a frequency.

**T ONLY** stands for TRANSMIT ONLY and is used when changing the TX frequency.

**ENT** stands for ENTER and is depressed when the complete frequency has been entered.

### 9.1  SIMPLEX FREQUENCIES:

To change a Simplex frequency (both TX and RX are the same) to a new common frequency:

a.  Go to the **GROUP** and **CHANNEL** where you want to place the new frequency by turning the knobs to the desired location.

b. On the keypad, enter the new frequency remembering to include a trailing zero.  Note that as soon as you start to do this, a triangle appears at the left of the display, the old frequency disappears and the number just entered appears at the right.  Also, the radio beeps each time a key is depressed.

c. Depress **ENT** and hold until three beeps are heard and the little triangle disappears.  Both the RX and TX frequencies will have changed to the new frequency and SIMP will appear between the lines on the display.  The GROUP and CHANNEL remain the same. Make a note of these and the new frequency so you can quickly returned to it.

### 9.2  DUPLEX FREQUENCIES

To change a Duplex frequency, that is, a frequency where the TX and RX are different:

a. Go to the **GROUP** and **CHANNEL** where you want to place the new duplex frequency by turning the knobs.

b. On the keypad, enter the new RX frequency remembering to include a trailing zero. Note that as soon as you start to do this, a triangle appears at the left of the display, the old frequency disappears and the number you just entered appears at the right. Also, the radio beeps each time a key is depressed.

c. Depress **ENT** and hold until three beeps are heard. The little triangle disappears. Both the RX and TX frequencies will have changed to the new frequency and SIMP will appear between the lines on the display.

So far this is the same as for SIMPLEX above.

d. Key in the new transmit frequency, remembering to add a trailing zero. Note that as soon as you start to do this, the small triangle again appears at the left of the display, the old frequency disappears and the number you just entered appears at the right. Also, the radio beeps each time a key is depressed.

e. Depress the **T ONLY** button and hold until three beeps are heard. The CE symbol will disappear. At the same time, the word DUP and the RX frequency will reappear.

f. Depress the **TX FREQ** button above the **Volume Control** to confirm that the correct TX frequency has been programmed.

g. Make a note of the new frequencies and their location (GROUP and CHANNEL) so they can be quickly retrieved.

h. To clear the channel, enter zero (0) and press ENT or T ONLY.

The new frequency or frequencies are now ready for use. If a mistake was made entering a frequency, go back over it. If the wrong button was depressed while entering a frequency, depress **CL** to delete what was already entered and start over.


**IMPORTANT NOTE**: You shouldn't just use any frequency you might want for SSB. As noted above, frequencies and their use are specified under international agreements and controlled in the US by the FCC. This applies to US flagged vessels anywhere unless in conflict with local regulations.

The FCC takes a dim view of independent frequency selection and they back this up with fines that can be stiff. In addition, using something other than designated listed frequencies can and does create interference with other radio transmissions.

There are plenty of authorized frequencies available for maritime use. For a more comprehensive list of these frequencies along with nets, WX Facsimiles and so on, please see another paper in this series entitled "FREQUENCIES, NETS, WX SCHEDULES AND TABLES".

One final note on programming these radios: With 150 programmable channels available on this radio, it is very easy to forget what is where. Placing a list of channels / frequencies in a loose leaf binder or under a clear plastic sheet on the chart table helps. It facilitates knowing what channel to go to and in short order, becomes indispensable.

## 10    SCROLLING – THE VFO MODE

Scrolling is a technique used by Ham operators when using the Amateur frequency bands where frequency selection is flexible within the authorized band.  Restated, a Ham can use any frequency within a set range that has been set aside for Amateur use.  Scrolling enables changing the frequency in small steps by turning the knobs without reprogramming or key entry.   Depressing **CH/FREQ** enables this feature, called "VFO Mode" (Variable Frequency Operation). The word FREQ appears on the bottom line of the display.

In VFO Mode, turning the GROUP knob will change the frequency in steps of 0.001 MHz or as normally expressed, "a kilo Hertz (kHz)". In the same way, turning the CHANNEL knob will change the frequency in steps of 0.0001 or "a tenth of a kHz" for fine-tuning.

VFO Mode is available for SIMPLEX operations only.  Both the TX and RX frequencies change together and are SIMPLEX at the new RX frequency indicated on the display.

If the radio was in a DUPLEX operation and **CH/FREQ** was depressed to get VFO Mode (with FREQ on the bottom line), scrolling changes the operation to SIMPLEX at the Receive frequency.   Depressing **CH/FREQ** again will bring the radio back to the original Memory Mode, in this case, DUPLEX.

The scrolled frequencies obtained using the VFO Mode are not retained in memory.  They can however be programmed into memory by reentering them when in Memory Mode.

IMPORTANT NOTE:  Under  FCC rules, you can listen to any frequency and many yacht crews listen to Ham frequencies to get the weather or just listen in to their nets (called reading the mail).  However, only those operators with a proper license are authorized to transmit on the Ham frequencies.  The Amateur frequency bands are for the exclusive use by Hams except in a bona fide emergency when anything goes..

## 11    EMERGENCY HAILING

Several versions of this radio were produced for the US market.  Some versions will send an automatic signal on 2182 kHz, the International Emergency and Hailing frequency for 2 MHz transmissions.  Radios with three depressible key buttons immediately above the volume knob can send an automatic signal, but those with only two depressible keys and a blank do not.

> **2182 KHz RESET** - The center key button:
>
> Pressing this button switches the radio's operating mode to RX on 2182 kHz, bypassing the current channel selections.  This is called Channel "0" in the manual and is not programmable by the user.  The display should indicate:
>
> 2.182.0 *USB*
> SIMP
> *EMER*

Pressing this key button again will return the operation back to the previous channel selection. This key button is a convenient way to maintain a watch on 2182 kHz while underway.

Note: If AM, DSB or H3E appear instead of USB (or J3E) on the display for Channel "0", the dealer should be contacted to have this corrected to USB.

**ALARM** – The lower button:

The lower key button will activate a distress alarm on 2182 kHz when pushed in conjunction with the top button labeled TX FREQ. You can hear this alarm signal.

Some versions of this radio have a blank installed instead of a depressible button in the lower position. The distress alarm signal is not available on these units.

Whether the radio is equipped with the alarm feature or not, Channel A-1 should be programmed to RX / TX on 2182 kHz **USB** unless Channel 0 has been corrected to USB. If Channel 0 is not USB, someone listening on USB will receive only a reduced signal with your transmission. This is clearly not something you want in an emergency.

Reiterating a previous note, see the paper "Using The Icom IC – M700PRO SSB Radio In An Emergency" in these series for more discussion on this.

Finally, while 2182 kHz is designated as the International Emergency and Safety frequency, it is also the hailing frequency for the 2 MHz frequency band. As such, it is available for use to make calls at short ranges beyond VHF.

Some of this is expected to change when GMDSS becomes activated in the US. However at sea, we have found that commercial vessels watch both 2182 kHz and VHF 16.