ICOM

INSTRUCTION MANUAL

VHF MARINE TRANSCEIVER

# IC-M423
# IC-M424


This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

Icom Inc.

# FOREWORD

Thank you for purchasing this Icom product. The IC-M423/IC-M424 VHF MARINE TRANSCEIVER is designed and built with Icom's state of the art technology and craftsmanship. With proper care, this product should provide you with years of trouble-free operation.

We appreciate you making the IC-M423/IC-M424 your radio of choice, and hope you agree with Icom's philosophy of "technology first." Many hours of research and development went into the design of your IC-M423/IC-M424.

### ◇ *FEATURES*

- ❍ *Simple operation with large keys*
- ❍ *Easy to hear speaker*
- ❍ *Built-in DSC meets ITU Class D requirement*
- ❍ *Rugged waterproof construction*
- ❍ *Optional COMMANDMICIV™ (HM-195)*
- ❍ *Easy to make an individual DSC calls using the optional MA-500TR Class B AIS Transponder*

**CLEAN THE TRANSCEIVER AND MICROPHONE THOROUGHLY WITH FRESH WATER** after exposure to water including salt, otherwise, the keys and switch may become inoperable due to salt crystallization.

# IMPORTANT

**READ ALL INSTRUCTIONS** carefully and completely before using the transceiver.

**SAVE THIS INSTRUCTION MANUAL** — This instruction manual contains important operating instructions for the IC-M423/IC-M424.

# EXPLICIT DEFINITIONS

| WORD | DEFINITION |
|---|---|
| ⚠**WARNING!** | Personal injury, fire hazard or electric shock may occur. |
| **CAUTION** | Equipment damage may occur. |
| **NOTE** | If disregarded, inconvenience only. No risk of personal injury, fire or electric shock. |

***For Canada:***
This device complies with RSS-310 of Industry Canada. Operation is subject to the condition that this device does not cause harmful interference.

Cet appareil est conforme au CNR-310 d'Industrie Canada. Son exploitation est autorisee sous reserve que l'appareil ne cause pas de brouillage prejudiciable.

# IN CASE OF EMERGENCY

If your vessel requires assistance, contact other vessels and the Coast Guard by sending a Distress call on Channel 16.

***USING CHANNEL 16***

DISTRESS CALL PROCEDURE

1. "MAYDAY MAYDAY MAYDAY."
2. "THIS IS ....." (name of vessel).
3. Say your call sign or other description of the vessel (AND 9 digit DSC ID if you have one).
4. "LOCATED AT ....." (your position).
5. State the nature of the distress and assistance required.
6. Give any other information which might facilitate the rescue.

Or, transmit your Distress call using digital selective calling on Channel 70.

***USING DIGITAL SELECTIVE CALLING (Ch 70)***

DISTRESS CALL PROCEDURE

1. While lifting up the key cover, hold down [DISTRESS] for 3 seconds until you hear 3 short beeps and then one long beep.
2. Wait for an acknowledgment on Channel 70 from a coast station.
   - After the acknowledgement is received, Channel 16 is automatically selected.
3. Hold down [PTT], then transmit the appropriate information as listed above.

# RADIO OPERATOR WARNING


Icom requires the radio operator to meet the FCC Requirements for Radio Frequency Exposure. An omnidirectional antenna with gain not greater than 9 dBi must be mounted a minimum of 5 meters (measured from the lowest point of the antenna) vertically above the main deck and all possible personnel. This is the minimum safe separation distance estimated to meet all RF exposure compliance requirements. This 5 meter distance is based on the FCC Safe Maximum Permissible Exposure (MPE) distance of 3 meters added to the height of an adult (2 meters) and is appropriate for all vessels.

For watercraft without suitable structures, the antenna must be mounted so as to maintain a minimum of 1 meter vertically between the antenna, (measured from the lowest point of the antenna), to the heads of all persons AND all persons must stay outside of the 3 meter MPE radius.

Do not transmit with radio and antenna when persons are within the MPE radius of the antenna, unless such persons (such as driver or radio operator) are shielded from antenna field by a grounded metallic barrier. The MPE Radius is the minimum distance from the antenna axis that person should maintain in order to avoid RF exposure higher than the allowable MPE level set by FCC.

**FAILURE TO OBSERVE THESE LIMITS MAY ALLOW THOSE WITHIN THE MPE RADIUS TO EXPERIENCE RF RADIATION ABSORPTION WHICH EXCEEDS THE FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE) LIMIT.**
**IT IS THE RESPONSIBILITY OF THE RADIO OPERATOR TO ENSURE THAT THE MAXIMUM PERMISSIBLE EXPOSURE LIMITS ARE OBSERVED AT ALL TIMES DURING RADIO TRANSMISSION. THE RADIO OPERATOR IS TO ENSURE THAT NO BYSTANDERS COME WITHIN THE RADIUS OF THE MAXIMUM PERMISSIBLE EXPOSURE LIMITS.**

**Determining MPE Radius**
**THE MAXIMUM PERMISSIBLE EXPOSURE (MPE) RADIUS HAS BEEN ESTIMATED TO BE A RADIUS OF ABOUT 3M PER OET BULLETIN 65 OF THE FCC.**
**THIS ESTIMATE IS MADE ASSUMING THE MAXIMUM POWER OF THE RADIO AND ANTENNAS WITH A MAXIMUM GAIN OF 9dBi ARE USED FOR A SHIP MOUNTED SYSTEM.**

# AVERTISSEMENT POUR LES OPÉRATEURS RADIO

**AVERTISSEMENT**

Icom exige que l'opérateur radio se conforme aux exigences de la FCC en matière d'exposition aux radiofréquences. Une antenne omnidirectionnelle dont le gain ne dépasse pas 9dBi doit être fixée à une distance minimale de 5 mètres (mesurée depuis le point le plus bas de l'antenne) verticalement au-dessus du pont principal et de tout le personnel qui peut s'y trouver. Il s'agit de la distance de sécurité minimale prévue pour satisfaire aux exigences de conformité en matière d'exposition aux RF. Cette distance de 5 mètres est établie en fonction de l'exposition maximale admissible sécuritaire de 3 mètres établie par la FCC, à laquelle on ajoute la hauteur d'un adulte (2 mètres); cette distance convient pour tous les navires.

Dans le cas des embarcations sans structure convenable, l'antenne doit être fixée de façon à maintenir une distance minimale de 1 mètre verticalement entre cette antenne (mesurée depuis son point le plus bas) et la tête de toute personne présente; toutes les personnes présentes doivent se tenir à l'extérieur d'un rayon d'exposition maximale admissible de 3 mètres.

Ne pas émettre à l'aide de la radio et de l'antenne lorsque des personnes se trouvent à l'intérieur du rayon d'exposition maximale admissible de cette antenne, à moins que ces personnes (comme le conducteur ou l'opérateur radio) ne soient protégées du champ de l'antenne par un écran métallique relié à la masse. Le rayon d'exposition maximale admissible équivaut à la distance minimale que cette personne doit maintenir entre elle et l'axe de l'antenne pour éviter une exposition aux RF supérieure au niveau d'exposition maximale admissible fixé par la FCC.

**LE NON-RESPECT DE CES LIMITES PEUT CAUSER, POUR LES PERSONNES SITUÉES DANS LE RAYON D'EXPOSITION MAXIMALE ADMISSIBLE, UNE ABSORPTION DE RAYONNEMENT DE RF SUPÉRIEURE À L'EXPOSITION MAXIMALE ADMISSIBLE FIXÉE PAR LA FCC.**
**L'OPÉRATEUR RADIO EST RESPONSABLE D'ASSURER QUE LES LIMITES D'EXPOSITION MAXIMALE ADMISSIBLE SOIENT RESPECTÉES EN TOUT TEMPS PENDANT LA TRANSMISSION RADIO. L'OPÉRATEUR RADIO DOIT S'ASSURER QU'AUCUNE PERSONNE PRÉSENTE NE SE SITUE À L'INTÉRIEUR DU RAYON D'EXPOSITION MAXIMALE ADMISSIBLE.**

**Établir le rayon d'exposition maximale admissible**
**ON ESTIME QUE LE RAYON D'EXPOSITION MAXIMALE ADMISSIBLE EST D'ENVIRON 3 M, TEL QUE STIPULÉ DANS LE BULLETIN OET 65 DE LA FCC. CETTE DISTANCE ESTIMÉE TIENT COMPTE D'UN SYSTÈME INSTALLÉ SUR UN NAVIRE UTILISANT LA PUISSANCE MAXIMALE DE LA RADIO ET DES ANTENNES DONT LE GAIN MAXIMAL EST DE 9dBi.**

# FCC INFORMATION

**• FOR CLASS A UNINTENTIONAL RADIATORS:**
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

# NOTE

**A WARNING STICKER** is supplied with the U.S.A. version transceiver.
To comply with FCC regulations, this sticker must be affixed in such a location as to be readily seen from the operating controls of the radio as in the diagram below. Make sure the chosen location is clean and dry before applying the sticker.

EXAMPLE

# PRECAUTIONS

⚠**WARNING! NEVER** connect the transceiver to an AC outlet. This may pose a fire hazard or result in an electric shock.

⚠**WARNING! NEVER** connect the transceiver to a power source of more than 16 V DC or use reverse polarity. This will ruin the transceiver.

⚠**WARNING! NEVER** cut the DC power cable between the DC plug at the back of the transceiver and fuse holder. If an incorrect connection is made after cutting, the transceiver may be damaged.

**CAUTION: NEVER** place the transceiver where normal operation of the vessel may be hindered or where it could cause bodily injury.

**KEEP** the transceiver and microphone at least 1 m away from the vessel's magnetic navigation compass.

**DO NOT** use or place the transceiver in areas with temperatures below –20°C (–4°F) or above +60°C (+140°F) or, in areas subject to direct sunlight, such as the dashboard.

**DO NOT** use harsh solvents such as benzine or alcohol to clean the transceiver, as they will damage the transceiver's surfaces. If the transceiver becomes dusty or dirty, wipe it clean with a soft, dry cloth.

**DO NOT** disassemble or modify the transceiver for any reason.

**BE CAREFUL!** The transceiver rear panel will become hot when operating continuously for long periods of time.

Place the transceiver in a secure place to avoid inadvertent use by children.

**BE CAREFUL!** The transceiver and the optional HM-195 COMMANDMIC IV™ meet IPX7 requirements for waterproof protection. However, once the transceiver has been dropped, waterproof protection cannot be guaranteed because of possible damage to the transceiver's case or the waterproof seal.

* Except for the DC power connector, NMEA In/Out leads and AF Out leads.

***For U.S.A. only***

**CAUTION:** Changes or modifications to this device, not expressly approved by Icom Inc., could void your authority to operate this device under FCC regulations.

# TABLE OF CONTENTS

# 1 OPERATING RULES

## ◇ Priorities

- Read all rules and regulations pertaining to call priorities, and keep an up-to-date copy handy. Safety and distress calls take priority over all others.
- You must monitor Channel 16 when you are not operating on another channel.
- False or fraudulent distress calls are prohibited under law.

## ◇ Privacy

- Information overheard, but not intended for you, cannot lawfully be used in any way.
- Indecent or profane language is prohibited.

## ◇ Radio licenses

**(1) SHIP STATION LICENSE**

You may require a current radio station license before using the transceiver. It is unlawful to operate a ship station which is not licensed, but required to be.

If required, contact your dealer or the appropriate government agency for a Ship-Radiotelephone license application. This government-issued license states the call sign which is your craft's identification for radio purposes.

**(2) OPERATOR'S LICENSE**

A Restricted Radiotelephone Operator Permit is the license most often held by small vessel radio operators when a radio is not required for safety purposes.

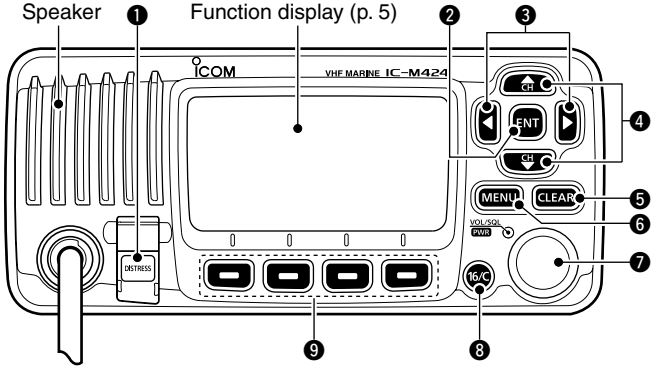
If required, the Restricted Radiotelephone Operator Permit must be posted or kept with the operator. If required, only a licensed radio operator may operate a transceiver.

However, non-licensed individuals may talk over a transceiver if a licensed operator starts, supervises, ends the call and makes the necessary log entries.

A current copy of the applicable government rules and regulations is only required to be on hand for vessels in which a radio telephone is compulsory. However, even if you are not required to have these on hand it is your responsibility to be thoroughly acquainted with all pertinent rules and regulations.

**NOTE:** Even though the transceiver is capable of operation on VHF marine channels 3, 21, 23, 61, 64, 81, 82 and 83, according to FCC regulations these simplex channels cannot be lawfully used by the general population in USA waters.

## ■ Front panel




**❶ DISTRESS KEY [DISTRESS]** (pp. 24, 25)
Hold down for 3 seconds to transmit a Distress call.

**❷ ENTER KEY [ENT]** (pp. 8, 10, 75)
Push to set the input data, selected item, and so on.

**❸ LEFT AND RIGHT KEYS [◀]/[▶]**
- ➥ Push to switch to the previous or next key function that is assigned to the softkeys. (p. 7)
- ➥ Push to select the desired character or number in the table while in the channel name, position, MMSI code programming mode, and so on. (pp. 8, 13, 23)

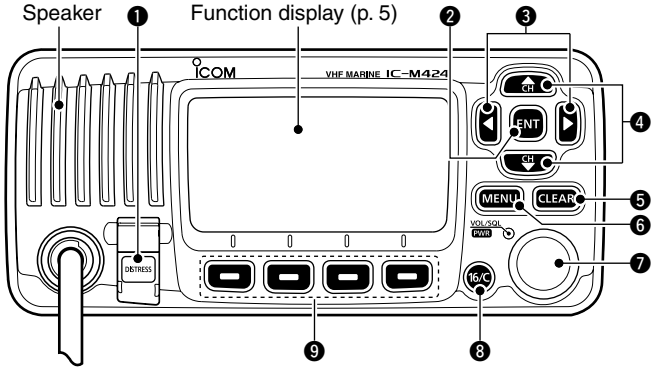
**❹ UP AND DOWN/CHANNEL SELECT KEYS [▲•CH]/[▼•CH]**
- ➥ Push to select the operating channels, Menu items, Menu settings, and so on. (pp. 11, 75)
- ➥ While scanning, push to check Favorite channels, change the scanning direction or manually resume a scan. (p. 18)

**❺ CLEAR KEY [CLEAR]** (pp. 8, 13, 75)
Push to cancel the entered data, or to return to the previous screen.

**❻ MENU KEY [MENU]** (p. 75)
Push to enter or exit the Menu screen.

**❼ VOLUME AND SQUELCH SWITCH/POWER SWITCH [VOL/SQL•PWR]**
- ➥ When the power is OFF, hold down for 1 second to turn ON power. (p. 11)
- ➥ Hold down for 1 second to turn OFF power.
- ➥ When the power is ON, push to enter the volume level adjustment mode.* (p. 15)
  - Each push of this switch toggles the mode between the volume level adjustment, squelch threshold level adjustment, operating channel selection and the LCD and key backlight brightness adjustment, if assigned.
- ➥ Rotate to adjust the volume level.* (p. 15)

*The desired function can be assigned in the Menu screen.




**❽ CHANNEL 16/CALL CHANNEL KEY [16/C]**

- ➥ Push to select Channel 16. (p. 9)
- ➥ Hold down for 1 second to select the Call channel. (p. 9)
  - "CALL" appears when the Call channel is selected.
- ➥ When the Call channel is selected, hold down for 3 seconds to enter Call channel programming mode. (p. 13)

**❾ SOFTKEYS**

Desired functions as described below can be assigned in the Menu screen.

**Scan [SCAN]** (p. 18)

Push to start or stop a Normal or Priority scan.

**Dualwatch/Tri-watch [DW]** (p. 19)

- ➥ Push to start a Dualwatch or Tri-watch.
- ➥ Push to stop a Dualwatch or Tri-watch when either is activated.

**High/Low [HI/LO]** (p. 11)

Push to set the power to high or low.

- Some channels are set to only low power.

**Channel/Weather channel [CHWX]*** (pp. 9, 11)

Push to selects and toggles the regular channel and Weather channel.

*Only U.S.A. and Australian version transceivers.

**Channel [CHAN]*** (p. 9)

Push to select a regular channel.

*Only Chinese version transceiver.

**Public address [PA]** (p. 73)

Push to enter the PA (Public Address) mode.

**RX Speaker [RX◀)]** (p. 73)

Push to turn the RX Speaker mode ON or OFF.

**Horn [HORN]** (p. 74)

Push to enter the Horn mode.

**Intercom [INCM]** (p. 72)

Push to enter the Intercom mode.

**AquaQuake [AQUA] (p. 16)**

While holding down, the AquaQuake function is activated to clear water away from the speaker grill.

**Favorite channel [★] (p. 18)**

➥ Push to set or clear the displayed channel as a Favorite (Tag) channel.

➥ Hold down for 3 seconds to clear or set all Favorite channels in the selected channel group.

**Name [NAME] (p. 13)**

Push to enter the channel name programming mode.

**Backlight [BKLT] (p. 16)**

Push to enter the LCD and key backlight brightness adjustment mode.

• While in the adjustment mode, push [▲]/[▼]/[◀]/[▶] or rotate Dial to adjust the brightness of the LCD and key backlight.

**LO/DX [LO/DX]*** (p. 11)

Push to turn the Attenuator function ON or OFF.

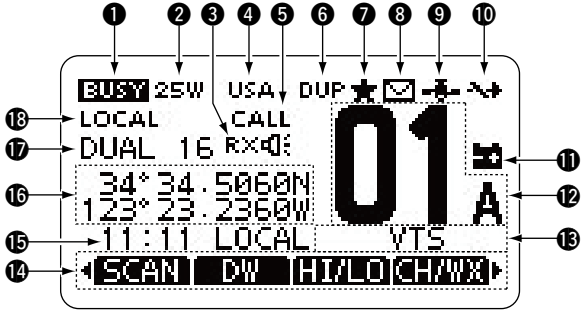
• "LOCAL" appears when the Attenuator function is ON.

*Only U.S.A. and Australian version transceivers.

**Log [LOG] (p. 63)**

Push to enter "RCVD CALL LOG" in the DSC CALLS menu.

## ■ Function display




**❶ BUSY/TRANSMIT ICON** (p. 11)
- ➥ "BUSY" appears when receiving a signal or when the squelch is open.
- ➥ "TX" appears while transmitting.

**❷ POWER ICON** (p. 11)
- ➥ "25W" appears when high power is selected.
- ➥ "1W" appears when low power is selected.

**❸ RX SPEAKER ICON** (p. 73)
Appears while in the RX Speaker mode.

**❹ CHANNEL GROUP ICON** (p. 10)
- ➥ A selected channel group icon, U.S.A. "USA," International "INT" or Canadian "CAN" appears, depending on the transceiver version.
- ➥ "WX" appears when the weather channel is selected.*

*Only U.S.A. and Australian version transceivers.

**❺ CALL CHANNEL ICON** (p. 9)
Appears when the Call channel is selected.

**❻ DUPLEX ICON** (p. 10)
Appears when a duplex channel is selected.

**❼ FAVORITE CHANNEL ICON** (p. 18)
Appears when a Favorite (Tag) channel is selected.

**❽ MESSAGE ICON** (p. 63)
Blinks when there is an unread DSC message.

**❾ GPS ICON**
- ➥ Stays ON when the GPS receiver is activated and valid position data is received.
- ➥ Blinks when invalid position data is being received.

**❿ SWITCH ICON** (p. 67)
Appears when the "CH 16 SWITCH" in DSC Settings is set to 'OFF.'

**⓫ LOW BATTERY ICON**
Blinks when the battery voltage drops to approximately 10 V DC or less.

**⓬ CHANNEL NUMBER READOUT**
Shows the selected operating channel number.
- When a simplex channel is selected, "A" appears.

**⓭ CHANNEL NAME FIELD**
The channel name appears, if programmed. (p. 13)

**Count on us!**

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