ICOM®

INSTRUCTION MANUAL

VHF MARINE TRANSCEIVER

IC-M504

Icom Inc.

FOREWORD

Thank you for purchasing this Icom product. The IC-M504 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 want to take a couple of moments of your time to thank you for making the IC-M504 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-M504.

◇ *FEATURES*

- ❍ *Simple operation with large keys*
- ❍ *Easy to hear speaker*
- ❍ *Built-in DSC meets ITU Class D requirement*
- ❍ *Rugged waterproof construction*
- ❍ *Optional COMMANDMIC (HM-162/HM-157) are available*
- ❍ *Easy to make individual DSC calls using Icom's MA-500TR Class B AIS Transponder*

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-M504.

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.

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.

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 indication 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, push and hold **[DISTRESS]** for 5 sec. until you hear 5 short beeps change to 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. Push and hold **[PTT]**, then transmit the appropriate information as listed above.

NOTE

A WARNING STICKER is supplied with the 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

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.

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PRECAUTIONS

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

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

⚠**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.

CAUTION: KEEP the transceiver and microphone at least 3.3 ft (1 m) away from the vessel's magnetic navigation compass.

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

DO NOT use chemical agents such as benzine or alcohol when cleaning, as they may damage the transceiver surfaces. If the transceiver becomes dusty or dirty, wipe it clean with a soft, dry cloth.

BE CAREFUL! The transceiver rear panel will become hot when operating continuously for long periods.
Place the transceiver in a secure place to avoid inadvertent use by children.

BE CAREFUL! The transceiver and the optional HM-162 COMMANDMIC III™/HM-157 COMMANDMIC II™ meet IPX8 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.

Approved Icom optional equipment is designed for optimal performance when used with an Icom transceiver.
Icom is not responsible for the destruction or damage to an Icom transceiver in the event the Icom transceiver is used with equipment that is not manufactured or approved by Icom.

◇ PRIORITIES

- Read all rules and regulations pertaining to 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 signals are prohibited and punishable by 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 must have a current radio station license before using the transceiver. It is unlawful to operate a ship station which is not licensed.

Inquire through 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.

The Restricted Radiotelephone Operator Permit must be posted or kept with the operator. 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.

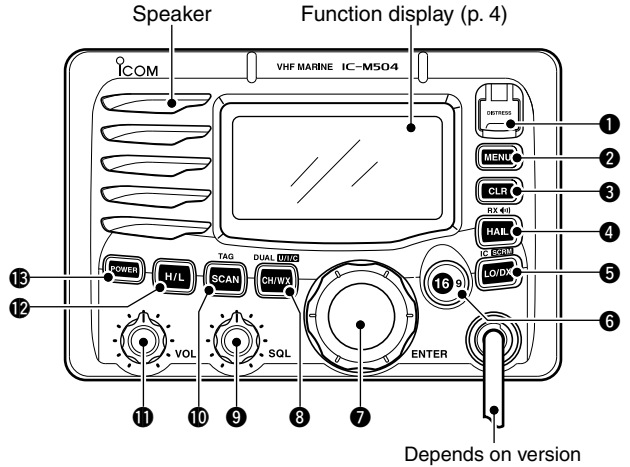
Keep a copy of the current government rules and regulations handy.

Radio license for boaters (U.S.A. only)

The Telecommunications Act of 1996 permits recreational boaters to have and use a VHF marine radio, EPIRB, and marine radar without having an FCC ship station license. Boaters traveling on international voyages, having an HF single sideband radiotelephone or marine satellite terminal, or required to carry a marine radio under any other regulation must still carry an FCC ship station license. For further information, see the FCC Ship Radio Stations Fact Sheet.

2 PANEL DESCRIPTION

■ Front panel



❶ DISTRESS KEY [DISTRESS]
Push for 5 sec. to transmit a Distress call. (p. 23)

❷ DSC MENU KEY [MENU]
Push to toggle the DSC menu appear or disappear. (p. 15)

❸ CLEAR KEY [CLR]
Push to cancel the entered function, exit Set mode. (p. 55)

❹ HAIL/RX SPEAKER KEY [HAIL•RX]
- ➥ Push to turn the hailer mode ON or OFF. (p. 52)
- ➥ Push and hold for 1 sec. to turn the RX Speaker mode ON or OFF. (p. 51)
- ➥ While pushing and holding **[H/L]**, push to turn the auto foghorn function ON. (p. 54)

❺ ATTENUATOR/INTERCOM KEY [LO/DX•IC•SCRM]
- ➥ Push to turn the Attenuator function ON or OFF. (p. 8)
  - •"LOC" appears when the Attenuator function is turned ON.
- ➥ Push and hold for 1 sec. to activate an optional Intercom function. (p. 50)
- ➥ Push and hold to call the optional command microphone while in Intercom mode. (p. 50)
- ➥ While pushing and holding **[H/L]**, push to turn the voice scrambler function ON or OFF. (p. 11)

❻ CHANNEL 16/CALL CHANNEL KEY [16•9]
- ➥ Push to select Channel 16. (p. 6)
- ➥ Push and hold for 1 sec. to select Call channel. (p. 6)
  - •"CALL" appears when Call channel is selected.
- ➥ Push and hold for 3 sec. to enter Call channel programming condition when Call channel is selected. (p. 9)
- ➥ While pushing and holding **[H/L]**, push to enter the channel comment programming condition. (p. 10)
- ➥ Advance the cursor while in the channel comment programming condition. (p. 10)
- ➥ While turning power ON, push to enter Set mode. (p. 55)

❼ CHANNEL SELECTOR [DIAL•ENTER]
- ➥ Rotate to select the operating channels, Set mode settings, etc. (pp. 6–8, 55)
- ➥ While pushing and holding **[H/L]**, rotate to adjust the brightness of the LCD and key backlight. (p. 10)
- ➥ Push to enter the input channel comment, selected item, etc. (pp. 10, 55)
- ➥ Rotate to check TAG channels, changes scanning direction or resumes the scan manually during scan. (p. 13)
- ➥ While pushing and holding **[HAIL•RX 🔊]**, rotate to adjust the audio level in RX Speaker mode. (p. 51)
- ➥ Push and hold for 1 sec. to display the GPS information when a GPS receiver is connected. (p. 22)

❽ CHANNEL/WEATHER CHANNEL KEY [CH/WX•DUAL•U/I/C]
- ➥ Selects and toggles the regular channel and Weather channel when pushed momentarily. (p. 7)
- ➥ Push and hold for 1 sec. to start Dualwatch or Tri-watch. (p. 14)
- ➥ Push to stop Dualwatch or Tri-watch when either is activated. (p. 14)
- ➥ Move the cursor backward while in the channel comment programming condition. (p. 10)
- ➥ While pushing and holding **[H/L]**, push to select one of three channel groups in sequence. (p. 7)
  - U.S.A., International and Canadian channels are available.

❾ SQUELCH CONTROL [SQL]
Rotate to set the squelch threshold level. (p. 8)

❿ SCAN/TAG KEY [SCAN•TAG] (p. 13)
- ➥ Push to start and stop Normal or Priority scan.
- ➥ Push and hold for 1 sec. to set or clear the displayed channel as a TAG (scanned) channel.
- ➥ While pushing and holding **[H/L]**, push for 3 sec. to clear or set all TAG channels in the selected channel group.

⓫ VOLUME CONTROL [VOL] (p. 8)
Rotate to adjust the audio level.

⓬ TRANSMIT POWER KEY [H/L]
- ➥ Push to toggle the power high or low. (p. 8)
  - Some channels are set to low power only.
- ➥ While pushing this key, some keys perform secondary functions.

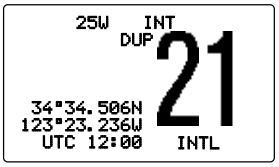
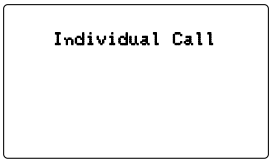
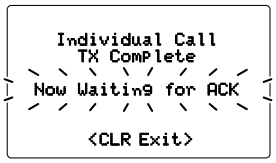
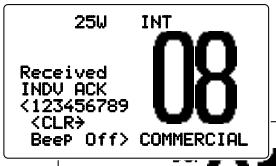
⓭ POWER KEY [POWER] (p. 8)
- ➥ Push to turn power ON.
- ➥ Push and hold for 1 sec. to turn power OFF.

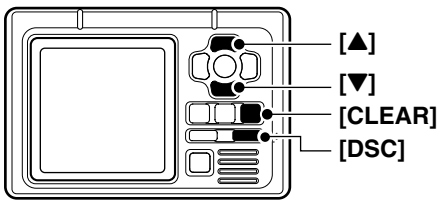
MAKING AN INDIVIDUAL DSC CALL USING AN AIS TRANSPONDER

When the Icom MA-500TR CLASS B AIS TRANSPONDER is connected to your IC-M504/IC-M505/IC-M603/IC-M604 VHF MARINE TRANSCEIVER, an individual DSC call can be transmitted to a selected AIS target using the transponder, without needing to enter the target's MMSI code.
See the transponder's manual for connecting instructions.

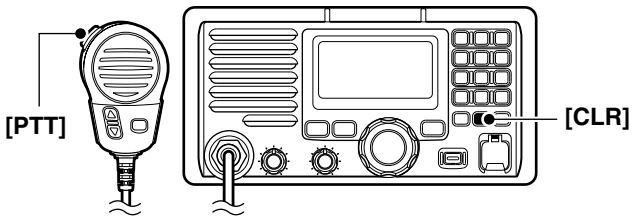
To ensure correct operation of the DSC function, make sure you correctly set the transceiver's squelch.

These instructions are based on using the IC-M604. The displayed screens, indications or operations may differ slightly from the instructions, depending on the transceiver.

Procedures	Transponder's display	Transceiver's display
Step ①: Transponder's operation Select a desired AIS target on the plotter, target list or danger list display. • You can also go to the next step whenever the detail screen of the AIS target is displayed. • Make sure the transceiver is in the normal operating mode. Otherwise, you cannot make an individual DSC call using the transponder.		 (Example)
Step ②: Transponder's operation Push **[DSC]** to display the voice channel selection screen, and then push **[▲]** or **[▼]** to select a desired voice channel*. • Voice channels are already preset into the transponder in recommended order. *When a base station is selected in step ①, a voice channel will be specified by the base station, therefore you cannot change the channel. The transponder will display "Voice Channel is specified by the Base station," in this case.		
Step ③: Transponder's operation Push **[DSC]** to make the transceiver to transmit an individual DSC call to the AIS target. • If Channel 70 is busy, the transceiver stands by until the channel becomes clear. • If the transceiver cannot make the call, the transponder will display "DSC Transmission FAILED."		
Step ④: Transponder's operation After making the individual DSC call, the transponder will display "DSC Transmission COMPLETED." • Push **[CLEAR]** to return to the previous screen before you entered the voice channel selection screen in step ②. • The transceiver stands by on Channel 70 until an acknowledgement is received.		
Step ⑤: Transceiver's operation When the acknowledgement 'Able to comply' is received, beeps sound and the transceiver automatically selects the channel specified in step ②. If the acknowledgement 'Unable to comply' is received, beeps sound and the transceiver's display returns to the operating channel selected before making the individual DSC call. • Push **[CLR]** to stop the beeps. • You can check the MMSI code or the name (if programmed) of the AIS target on the display.		'Able to comply' is received   'Unable to comply' is received
Step ⑥: Transceiver's operation After receiving the acknowledgement 'Able to comply' in step ⑤, push and hold **[PTT]** to communicate with the AIS target.		



TRANSPONDER



TRANSCEIVER (IC-M603/M604)