



## INSTRUCTION MANUAL

VHF MARINE TRANSCEIVERS  
**IC-M400BB**  
**IC-M400BBE**

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.**



*COMMANDMICIV™ (HM-195)*  
may not be supplied, depending  
on the transceiver version.

Thank you for choosing this Icom product.

This product 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.

### ◇ **FEATURES**

- *Built-in DSC meets ITU Class D requirement*
- *Rugged waterproof construction*
- *COMMANDMICIV™ (HM-195) supplied\*.*
- *Easy to make an individual DSC calls using the optional Class B AIS Transponder*
- *Built-in GPS receiver with a supplied GPS antenna (For only the IC-M400BBE)*

\* May not be supplied, depending on the transceiver version.

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## 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-M400BB/IC-M400BBE.

## EXPLICIT DEFINITIONS

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

Icom is not responsible for the destruction or damage to the Icom transceiver, if the malfunction is because of:

- Force majeure, including, but not limited to, fires, earthquakes, storms, floods, lightnings, or other natural disasters, disturbances, riots, war, or radioactive contamination.
- The use of Icom transceiver with any equipment that is not manufactured or approved by Icom.

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## IN CASE OF EMERGENCY

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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.

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## INSTALLATION NOTE

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### **Installation:**

The installation of this equipment should be made in such a manner as to respect the EC recommended electromagnetic field exposure limits. (1999/519/EC)

The maximum RF power available from this device is 25 watts. The antenna should be installed as high as possible for maximum efficiency and the installation height should be at least 1.4 meters above any accessible position. In the case where an antenna cannot be installed at a reasonable height, then the transmitter should neither be continuously operated for long periods if any person is within a distance of 1.4 meters of the antenna, nor operated at all if any person is touching the antenna.

It is recommended that antenna of a maximum gain of 3 dB are used. If higher gain antenna are required then please contact your Icom distributor for revised installation recommendations.

### **Operation:**

The exposure to RF electromagnetic field is only applicable when this device is transmitting. This exposure is naturally reduced due to the nature of alternating periods of receiving and transmitting. Keep your transmissions to the minimum necessary.

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## RADIO OPERATOR WARNING

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Icom requires the radio operator to meet the FCC and IC 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 and IC 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 and IC.

**FAILURE TO OBSERVE THESE LIMITS MAY ALLOW THOSE WITHIN THE MPE RADIUS TO EXPERIENCE RF RADIATION ABSORPTION WHICH EXCEEDS THE 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 3 M 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 9 dBi ARE USED FOR A SHIP MOUNTED SYSTEM.**

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## AVERTISSEMENT POUR LES OPÉRATEURS RADIO

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### AVERTISSEMENT

Icom exige que l'opérateur radio se conforme aux exigences de la FCC et d'IC en matière d'exposition aux radiofréquences. Une antenne omnidirectionnelle dont le gain ne dépasse pas 9 dBi 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 et d'IC, 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 et d'IC.

**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.**

**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 TIEN COMPTE D'UN SYSTÈME INSTALLÉ SUR UN NAVIRE UTILISANT LA PUISSANCE MAXIMALE DE LA RADIO ET DES ANTENNES DONT LE GAIN MAXIMAL EST DE 9 dBi.**

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## FCC INFORMATION

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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.

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

**NOTE: A WARNING STICKER is supplied with the USA 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. Make sure the chosen location is clean and dry before applying the sticker.

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## RECOMMENDATION

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**CLEAN THE TRANSCEIVER AND MICROPHONE THOROUGHLY WITH FRESH WATER** after exposure to saltwater, and dry it before operating. Otherwise, the transceiver's keys, switches and controllers may become unusable, due to salt crystallization.

**NOTE:** If the transceiver's waterproof protection appears defective, carefully clean it with a soft, damp (fresh water) cloth, then, dry it before operating.

The front panel may lose its waterproof protection if the case, jack cap, or connector cover is cracked or broken, or the front panel has been dropped. Contact your Icom distributor or your dealer for advice.

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## PRECAUTIONS

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**⚠ 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 such as a 24 V DC. This could cause a fire or damage the transceiver

**⚠ WARNING! NEVER** reverse the DC power cable polarity when connecting to a power source. This could damage 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.

**⚠ WARNING! NEVER** operate the transceiver during a lightning storm. It may result in an electric shock, cause a fire or damage the transceiver. Always disconnect the power source and antenna before a storm.

**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  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) or above  $+60^{\circ}\text{C}$  ( $+140^{\circ}\text{F}$ ) 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 supplied or optional HM-195 COMMANDMICIV™ 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.

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## ◇ 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 1021, 1023, 1081, 1082 and 1083, according to FCC regulations these simplex channels cannot be lawfully used by the general population in USA waters.

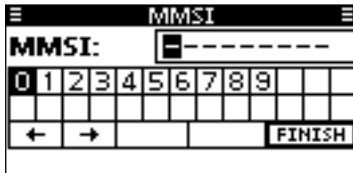
## ■ MMSI code programming

The 9 digit MMSI (Maritime Mobile Service Identity: DSC self ID) code can be programmed at power ON.

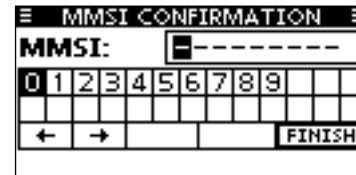
The code is programmed by using the HM-195.

**This initial code setting can be performed only once. After being set, it can be changed by only your dealer or distributor. If your MMSI code has already been programmed, this programming is not necessary.**

- ① Hold down [PWR](Dial) to turn ON the power.
  - Three short beeps sound, and “NO DSC MMSI” is displayed.
- ② Push [ENT] to start the MMSI code programming.
  - Push [CLEAR] twice to cancel the programming, and go to the normal operating screen. In this case, the transceiver cannot make a DSC call. To program the MMSI code, turn OFF the power, then turn it ON again.
- ③ Enter your MMSI code in the following manner:
  - Select a desired number using Dial, or [▲]/[▼]/[◀]/[▶].
  - Push [ENT] or Dial to set it.
  - To move the cursor, select either arrow, “←” or “→,” then push [ENT] or Dial.



- ④ Repeat step ③ to enter all 9 digits.
- ⑤ After entering the 9 digit code, “FINISH” is automatically selected, and then push [ENT] or Dial to set it.
- ⑥ The “MMSI CONFIRMATION” screen is displayed.



- ⑦ Enter your MMSI code again for confirmation.
  - Enter in the same manner as steps ③ through ⑤.
- ⑧ When your MMSI code programming is successfully completed, the screen as shown below is briefly displayed.
  - After that, the normal operating screen is displayed.



The programmed MMSI code can be checked in the MENU screen.

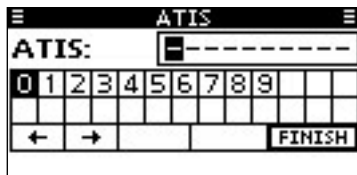
**NOTE:** Depending on the transceiver version, the ATIS code programming may be required after programming the MMSI code. See the next page for details.

## ■ ATIS code programming (For Dutch version and German version\* transceivers)

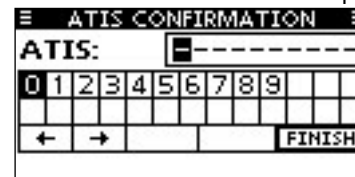
The 10 digit ATIS (Automatic Transmitter Identification System) code can be programmed at power ON. The code is programmed by using the HM-195.

**This initial code setting can be performed only once. After being set, it can be changed by only your dealer or distributor. If your ATIS code has already been programmed, this programming is not necessary.**

- ① After programming the MMSI code, "Push [ENT] to Register Your ATIS" is displayed.
- ② Push [ENT] to start the ATIS code programming.
  - Push [CLEAR] twice to cancel the programming, and go to the normal operating mode. In this case, the ATIS function is disabled. To program the ATIS code, turn OFF the power, then turn it ON again.
- ③ Enter your ATIS code in the following manner:
  - Select a desired number using Dial, or [▲]/[▼]/[◀]/[▶].
  - Push [ENT] or Dial to set it.
  - To move the cursor, select either arrow, "←" or "→," then push [ENT] or Dial.



- ④ Repeat step ③ to enter all 10 digits.
- ⑤ After entering the 10 digit code, "FINISH" is automatically selected, and then push [ENT] or Dial to set it.
- ⑥ The "ATIS CONFIRMATION" screen is displayed.



- ⑦ Enter your ATIS code again for confirmation.
  - Enter in the same manner as steps ③ through ⑤.
- ⑧ When your ATIS code programming is successfully completed, the screen shown below is briefly displayed.
  - After that, the normal operating screen is displayed.



The programmed ATIS code can be checked in the MENU screen.

\* Presetting is required to use the ATIS mode in the German version. Contact your dealer for details.

## ■ Making an Individual call using an AIS transponder

When the optional MA-500TR/MA-510TR CLASS B AIS TRANSPONDER is connected to your transceiver, an individual DSC call can be transmitted to a selected AIS target, without needing to enter the target's MMSI code. In this case, the call type is automatically set to Routine. See page 7 for connecting instructions.

/// To ensure correct operation of the DSC function, make sure you correctly set the CH70 SQL LEVEL. See (25) of the HM-195 instruction manual.

### Step 1: Transponder's operation

/// This instruction is for the MA-500TR. See the MA-510TR Instruction manual for the MA-510TR's step.

- ① 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.
- ② 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 coast station is selected in step ①, a voice channel will be specified by the coast station, therefore you cannot change the channel. The transponder will display "Voice Channel is specified by the Base station," in this case.

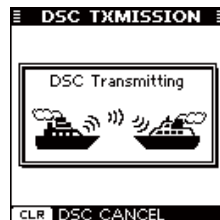


Transponder's display



Microphone's display

- ③ Push [DSC] 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."



Transponder's display

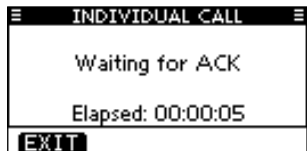


Microphone's display

- ④ After making the individual DSC call, the transponder will display “DSC Transmission COMPLETED”
- Push [CLEAR] to return to the screen displayed before you entered the voice channel selection screen in step ②.
  - The transceiver stands by on Channel 70 until an acknowledgement is received.



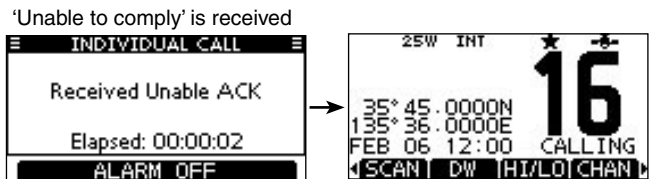
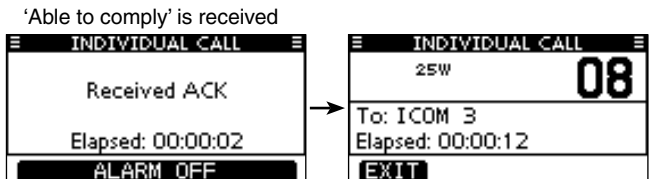
Transponder's display



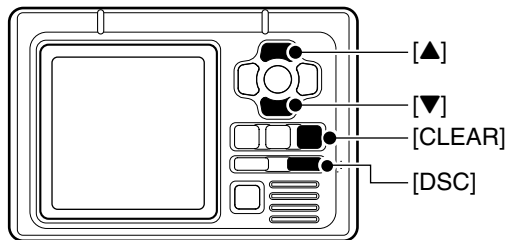
Microphone's display

**Step 2: Transceiver's operation**

- ⑤ When the acknowledgement is received, beeps sound.
- ➔ If the acknowledgement 'Able to comply' is received, push [ALARM OFF] to stop the beeps, and then select the intership channel specified in step ②.
    - A different intership channel will be selected if the station you called cannot use the channel.
    - To reply, push [PTT] and speak at a normal voice level.
    - You can check the MMSI code or the name, if programmed, of the AIS target on the display.
  - ➔ If the acknowledgement 'Unable to comply' is received, push [ALARM OFF] to stop the beeps, and then return to the operating channel before you entered the MENU screen.



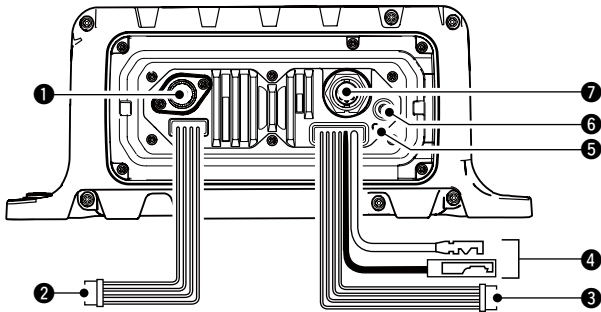
- ⑥ After the communication is finished, push [EXIT] to return to the normal operating mode.



TRANSPONDER

## ■ Connections

- The figure shows the IC-M400BBE.



### ❶ ANTENNA CONNECTOR

Connects to a marine VHF antenna cable's PL-259 connector.

/// **CAUTION: DO NOT** transmit without an antenna.

### ❷ NMEA IN/OUT LEADS

#### **Brown: Talker B (Data-L)**

Connects to an NMEA In Negative line of a PC or NMEA0183 ver. 3.01 sentence format DSC, DSE compatible navigation equipment, to receive position data from other ships.

#### **White: Talker A (Data-H)**

Connects to an NMEA In Positive line of a PC or NMEA0183 ver. 3.01 sentence format DSC, DSE compatible navigation equipment, to receive position data from other ships.

#### **Green: Listener B (Data-L)**

Connects to an NMEA Out Negative line of a GPS receiver for position data.

- A NMEA0183 ver. 2.0 or 3.01 RMC, GGA, GNS, GLL and VTG sentence format compatible GPS receiver is required. Ask your dealer about suitable GPS receivers.

#### **Yellow: Listener A (Data-H)**

Connects to an NMEA Out Positive line of a GPS receiver for position data.

- A NMEA0183 ver. 2.0 or 3.01 RMC, GGA, GNS, GLL and VTG sentence format compatible GPS receiver is required. Ask your dealer about suitable GPS receivers.

### ❸ AF OUT LEADS

#### **Orange: Public Address Speaker (+)**

#### **Gray: Public Address Speaker (-)**

Connects to a PA speaker.

- PA output power: More than 10 W at 10% distortion with a 4 Ω load

Both **black and blue** leads are used only for maintenance purpose.

#### /// **NOTE for NMEA In/Out and AF Out leads:**

- /// The connectors are attached to keep the leads together.
- /// Before connecting to a piece of equipment, you should cut the leads to remove the connector.

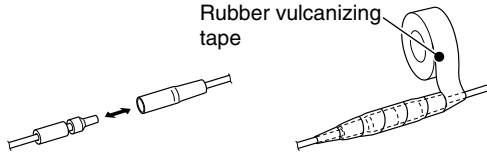
**4 DC POWER CONNECTOR**

Connects to a 13.8 V DC power source.

**MAKE SURE** the DC power cable polarity is correct.

Red: Positive ⊕ terminal, Black: Negative ⊖ terminal

**CAUTION:** After connecting the DC power cable, NMEA leads, external speaker leads and PA speaker leads, cover the connector and leads with an adhesive tape, as shown below, to prevent water seeping into the connection.



**5 GROUND TERMINAL**

Connects to a vessel ground to prevent electrical shocks and interference from other equipment occurring. Use a PH M3 × 6 screw (not supplied).

**NOTE for the IC-M400BB:** The location of the ground terminal is the same as the GPS antenna connector on the IC-M400BBE.

**◇ Connecting to the MA-500TR/MA-510TR**

An Individual DSC call can be made to the AIS target using the transponder without entering the target's MMSI code. See the transponder's instruction manual for connection details.

Connect each lead to the appropriate lead of the OPC-2014 as shown to the right.

**6 GPS ANTENNA CONNECTOR**

Connects to the supplied GPS antenna. (For only the IC-M400BBE)

**NOTE:** Be sure the GPS antenna is positioned where the GPS antenna has a clear view to receive signal from satellites, and fixed using the supplied double-sided adhesive pad.

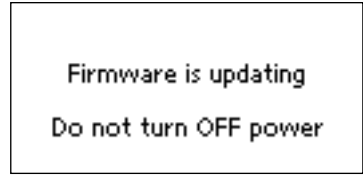
**7 COMMAND MICROPHONE JACK**

Connects to the HM-195.

**NOTE: For those who purchased the IC-M400BB/IC-M400BBE and HM-195 separately.**

When connecting the HM-195 for the first time, a firmware update (if needed) will automatically start, and the monitor displays the message shown to the right. The update will take a maximum of 2 minutes.

**DO NOT** turn OFF the transceiver, or disconnect the microphone until the update is completed.

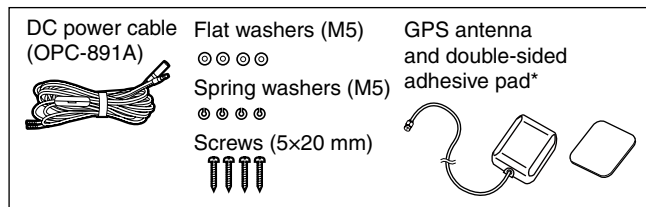


- **Listener A (Data-H) (Yellow):** To lead 3.
- **Listener B (Data-L) (Green):** To lead 2.
- **Talker A (Data-H) (White):** To lead 5.
- **Talker B (Data-L) (Brown):** To lead 4.

**NOTE:** This instruction is for the MA-500TR. See the MA-510TR Instruction manual for the MA-510TR's connecting instructions.

## 4 CONNECTIONS AND MAINTENANCE

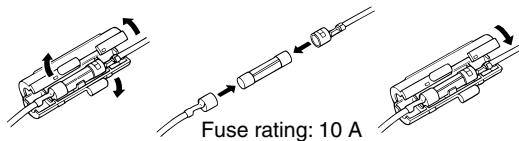
### ■ Supplied accessories



\* Not supplied, or the type is different, depending on the transceiver's versions.

### ■ Fuse replacement

One fuse is installed in the supplied DC power cable. If the fuse blows or the transceiver stops functioning, track down the source of the problem, repair it, and replace the damaged fuse with a new one of the proper rating.



### ■ Cleaning

If the transceiver becomes dusty or dirty, wipe it clean with a soft, dry cloth.



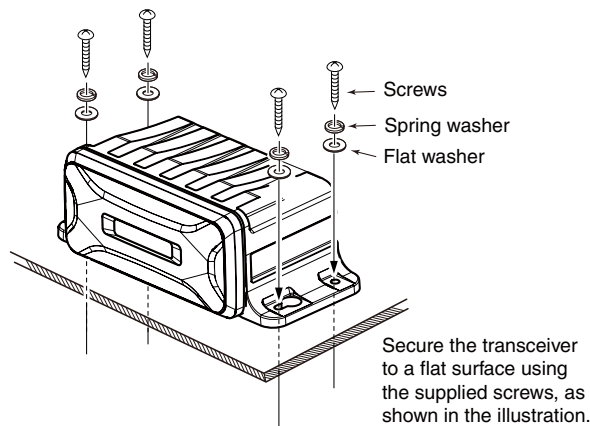
**DO NOT** use harsh solvents such as benzene or alcohol, as they will damage transceiver surfaces.

### ■ Mounting the transceiver

Using the supplied template on the leaflet, mount the IC-M400BB/IC-M400BBE securely to a surface which is more than 10 mm thick and can support more than 5 kg using the 4 supplied screws (5 × 20 mm), as illustrated below.

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

**NOTE for the IC-M400BBE:** Be sure the GPS antenna is positioned where the GPS antenna has a clear view to receive signal from satellites, and fixed using the supplied double-sided adhesive pad.





## ■ Antenna

A key element in the performance of any communication system is the antenna. Ask your dealer about antennas and the best place to mount them.

## ■ Microphone installation

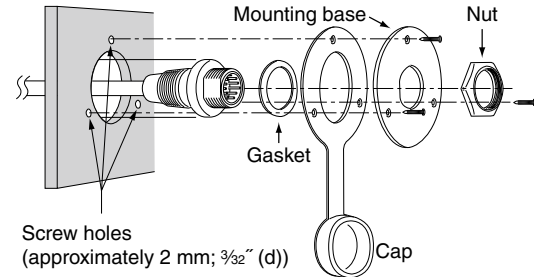


The HM-195 should be connected to the transceiver using the supplied OPC-1540 connection cable. The cable is used to operate from a longer distance. The cable connector can also be installed as a built-in plug on a cabinet or wall.

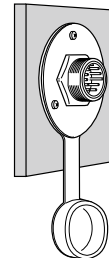
To operate from even longer distances, the optional 6 meter long OPC-1541 extension cable can be used between the transceiver and the OPC-1540. Up to two OPC-1541 can be added.

### ◇ Installation

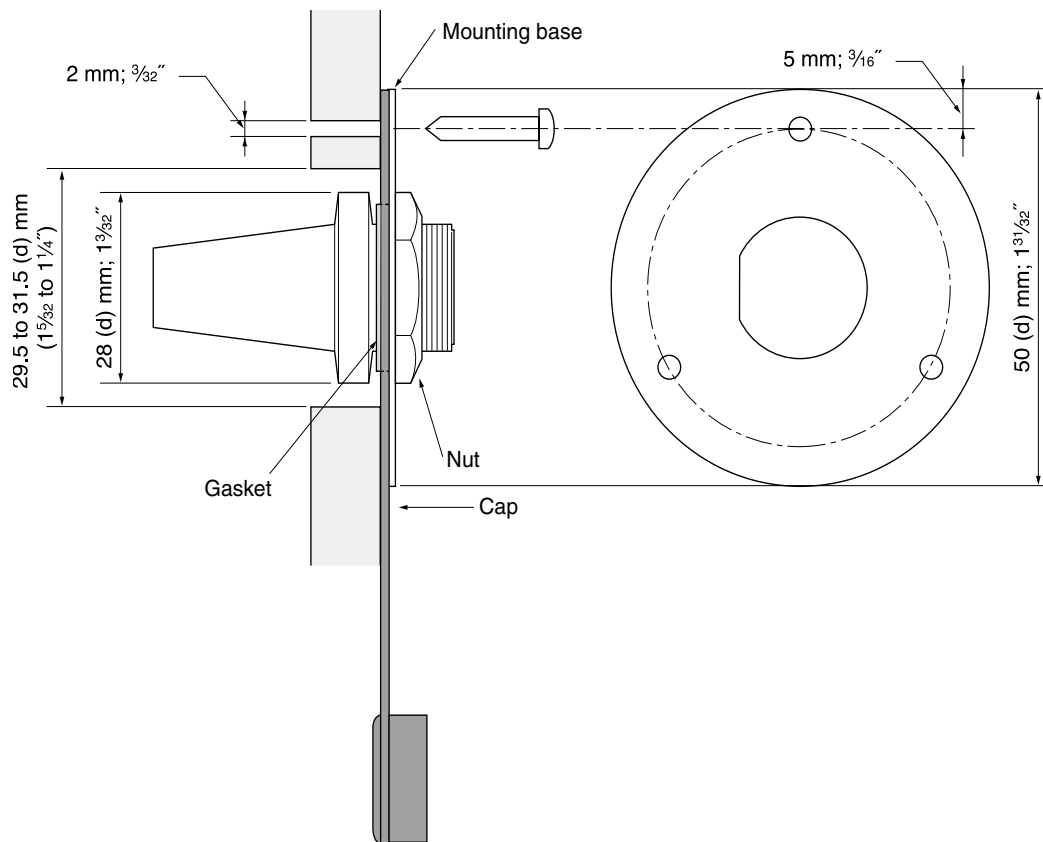
- ① Insert the OPC-1540 cable connector into the command microphone jack, and tighten the nut.
- ② To use the cable connector as a wall socket, install it as described to the right.
- ③ Using the mounting base as a template, carefully mark the holes where the cable and three screws will be fastened.
- ④ Drill holes at these marks.
- ⑤ Install the mounting base using the supplied screws, as shown below.



- ⑥ The completed installation should look like this.



## 4 CONNECTIONS AND MAINTENANCE



## ■ Specifications

Measurements made without an antenna.

All stated specifications are subject to change without notice or obligation.

### ◇ General

- Frequency coverage
  - European versions : Tx 156.000–161.450 MHz  
Rx 156.000–163.425 MHz
  - USA versions : Tx 156.025–157.425 MHz  
Rx 156.050–163.275 MHz
- Mode : FM (16K0G3E),  
DSC (16K0G2B)
- Channel spacing : 25 kHz
- Operating temp. range : –20°C to +60°C ; –4°F to +140°F
- Current drain (at 13.8 V) : TX high 5.5 A maximum  
Max. audio 3.5 A maximum
- Power supply requirement : 13.8 V DC nominal  
(negative ground)
- Frequency stability : ±1.5 kHz (–20°C to +60°C)
- Antenna impedance : 50 Ω nominal
- Dimensions (approximate) : 216(W) × 79(H) × 125(D) mm  
(Projections not included) ; 8.5(W) × 3.1(H) × 4.9(D) inches
- Weight (approximate) : 830 g ; 29 oz

### ◇ Transmitter

- Output power : 25 W/1 W
- Modulation system : Variable reactance frequency modulation

- Max. frequency deviation : ±5.0 kHz
- Spurious emissions
  - European versions : Less than 0.25 μW
  - USA versions : Less than –70 dBc (High)  
Less than –56 dBc (Low)

### ◇ Receiver

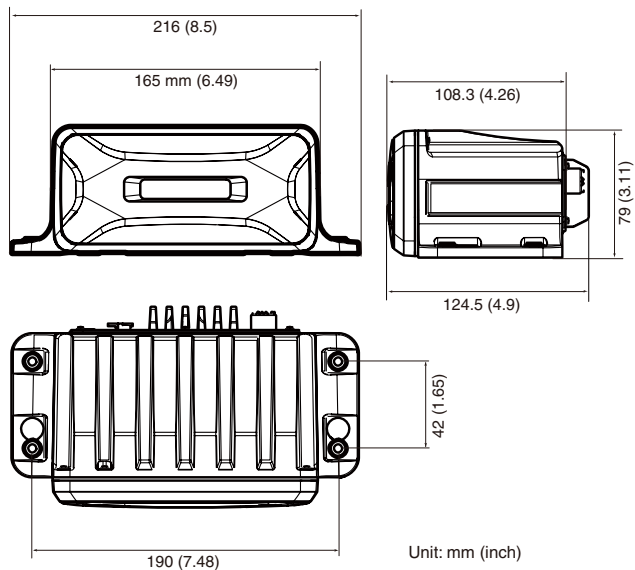
- Receive system : Double conversion  
superheterodyne
- Sensitivity
  - European versions (20 dB SINAD) : –5 dBμ emf (typical)
  - USA versions (12 dB SINAD) : –13 dBμ (typical)
- Squelch sensitivity
  - European versions : Less than –2 dBμ emf
  - USA versions : Less than –10 dBμ
- Intermodulation rejection ratio
  - European versions : More than 68 dB
  - USA versions : More than 70 dB
- Spurious response rejection ratio : More than 70 dB
- Adjacent channel selectivity : More than 70 dB
- Audio output power : More than 10 W at 10% distortion  
with a 4 Ω load (RX SP)  
: More than 2 W at 10% distortion  
with a 4 Ω load (HM-195)

## 5 SPECIFICATIONS AND OPTIONS

### ◇ GPS (IC-M400BBE)

- Frequency : 1575.42 MHz
- Channel : 66 ch

### ◇ Dimensions



## ■ Options

### • HM-195 COMMANDMICIV™

External microphone-type controller. A 6 m (20 ft) microphone cable is included. Black and white colors are available.

### • OPC-1541 MICROPHONE EXTENSION CABLE

A 6 m (20 feet) microphone extension cable for the HM-195 COMMANDMICIV™. Up to two OPC-1541s can be connected. Maximum usable length is 18 m (60 ft).

### • MA-500TR/MA-510TR CLASS B AIS TRANSPONDER

To transmit individual DSC calls to selected AIS targets.

# CHANNEL LIST

# 6

| Channel Number |        |       |          |         | Frequency (MHz) |        |        |          |         | Channel Number |        |        |          |         | Frequency (MHz) |      |         |          |         |  |
|----------------|--------|-------|----------|---------|-----------------|--------|--------|----------|---------|----------------|--------|--------|----------|---------|-----------------|------|---------|----------|---------|--|
| USA*10         | INT    | CAN*5 | Transmit | Receive | USA*10          | INT    | CAN*5  | Transmit | Receive | USA*10         | INT    | CAN*5  | Transmit | Receive | USA*10          | INT  | CAN*5   | Transmit | Receive |  |
|                | 01     | 01    | 156.050  | 160.650 |                 |        | 21     | 157.050  | 161.650 | 1065           | 1065*5 | 1065*2 | 156.275  | 156.275 | 85              | 85*6 | 85      | 157.275  | 161.875 |  |
| 1001           | 1001*5 |       | 156.050  | 156.050 | 1021            | 1021*5 | 1021   | 157.050  | 157.050 |                | 66     |        | 156.325  | 160.925 | 86              | 86*6 | 86      | 157.325  | 161.925 |  |
|                | 02     | 02    | 156.100  | 160.700 |                 |        | 2021   | RX only  | 161.650 | 1066           | 1066*5 | 1066*2 | 156.325  | 156.325 | 87              | 87   | 87      | 157.375  | 157.375 |  |
|                | 03     | 03    | 156.150  | 160.750 |                 |        | 22     | 157.100  | 161.700 | 67*1           | 67     | 67     | 156.375  | 156.375 | 88              | 88   | 88      | 157.425  | 157.425 |  |
|                | 04     |       | 156.200  | 160.800 | 1022            | 1022*5 | 1022   | 157.100  | 157.100 | 68             | 68     | 68     | 156.425  | 156.425 | P4*7            |      | 161.425 |          | 161.425 |  |
|                |        | 1004  | 156.200  | 156.200 |                 |        | 23     | 157.150  | 161.750 | 69             | 69     | 69     | 156.475  | 156.475 |                 |      |         |          |         |  |
|                | 05     |       | 156.250  | 160.850 | 1023            | 1023*5 |        | 157.150  | 157.150 | 71             | 71     | 71     | 156.575  | 156.575 |                 |      |         |          |         |  |
| 1005           | 1005*5 | 1005  | 156.250  | 156.250 |                 |        | 2023*5 | RX only  | 161.750 | 72             | 72     | 72     | 156.625  | 156.625 |                 |      |         |          |         |  |
| 06             | 06     | 06    | 156.300  | 156.300 | 24              | 24*6   | 24     | 157.200  | 161.800 | 73             | 73     | 73     | 156.675  | 156.675 |                 |      |         |          |         |  |
|                | 07     |       | 156.350  | 160.950 | 25              | 25*6   | 25     | 157.250  | 161.850 | 74             | 74     | 74     | 156.725  | 156.725 |                 |      |         |          |         |  |
| 1007           | 1007*5 | 1007  | 156.350  | 156.350 |                 |        | 2025   | RX only  | 161.850 |                | 75*2   | 75*2   | 156.775  | 156.775 |                 |      |         |          |         |  |
| 08             | 08     | 08    | 156.400  | 156.400 | 26              | 26*6   | 26     | 157.300  | 161.900 |                | 76*2   | 76*2   | 156.825  | 156.825 |                 |      |         |          |         |  |
| 09             | 09     | 09    | 156.450  | 156.450 | 27              | 27     | 27     | 157.350  | 161.950 | 77*2           | 77     | 77*2   | 156.875  | 156.875 |                 |      |         |          |         |  |
| 10             | 10     | 10    | 156.500  | 156.500 |                 |        | 1027*5 | 157.350  | 157.350 |                | 78     |        | 156.925  | 161.525 |                 |      |         |          |         |  |
| 11             | 11     | 11    | 156.550  | 156.550 | 28              | 28     | 28     | 157.400  | 162.000 | 1078           | 1078   | 1078   | 156.925  | 156.925 |                 |      |         |          |         |  |
| 12             | 12     | 12    | 156.600  | 156.600 |                 |        | 1028*5 | 157.400  | 157.400 |                | 2078   |        | RX only  | 161.525 |                 |      |         |          |         |  |
| 13*1           | 13     | 13*2  | 156.650  | 156.650 |                 |        |        | 2028     | RX only | 162.000        |        | 79     |          | 156.975 | 161.575         |      |         |          |         |  |
| 14             | 14     | 14    | 156.700  | 156.700 |                 |        | 31*2/9 | 157.550  | 162.150 | 1079           | 1079   | 1079   | 156.975  | 156.975 |                 |      |         |          |         |  |
| 15*4           | 15*2   | 15*2  | 156.750  | 156.750 | 1037*7          | 1037*8 |        | 157.850  | 157.850 |                | 2079   |        | RX only  | 161.575 |                 |      |         |          |         |  |
| 16             | 16     | 16    | 156.800  | 156.800 |                 |        | 60     | 156.025  | 160.625 |                | 80     |        | 157.025  | 161.625 |                 |      |         |          |         |  |
| 17*2           | 17*3   | 17*2  | 156.850  | 156.850 |                 |        | 61     | 156.075  | 160.675 | 1080           | 1080*5 | 1080   | 157.025  | 157.025 |                 |      |         |          |         |  |
|                | 18     |       | 156.900  | 161.500 |                 |        | 1061   | 156.075  | 156.075 |                | 81     |        | 157.075  | 161.675 |                 |      |         |          |         |  |
| 1018           | 1018*5 | 1018  | 156.900  | 156.900 |                 |        | 62     | 156.125  | 160.725 | 1081           | 1081*5 | 1081   | 157.075  | 157.075 |                 |      |         |          |         |  |
|                | 19     |       | 156.950  | 161.550 |                 |        | 1062   | 156.125  | 156.125 |                | 82     |        | 157.125  | 161.725 |                 |      |         |          |         |  |
| 1019           | 1019   | 1019  | 156.950  | 156.950 |                 |        | 63     | 156.175  | 160.775 | 1082           | 1082*5 | 1082   | 157.125  | 157.125 |                 |      |         |          |         |  |
|                | 2019   |       | RX only  | 161.550 | 1063            | 1063*5 | 1063*5 | 156.175  | 156.175 |                | 83     |        | 157.175  | 161.775 |                 |      |         |          |         |  |
| 20             | 20     | 20*2  | 157.000  | 161.600 |                 |        | 64     | 156.225  | 160.825 | 1083           | 1083*5 | 1083   | 157.175  | 157.175 |                 |      |         |          |         |  |
| 1020           | 1020   |       | 157.000  | 157.000 |                 |        | 1064   | 156.225  | 156.225 |                |        | 2083   | RX only  | 161.775 |                 |      |         |          |         |  |
|                | 2020   |       | RX only  | 161.600 |                 |        | 65     | 156.275  | 160.875 | 84             | 84*6   | 84     | 157.225  | 161.825 |                 |      |         |          |         |  |

\*1 Momentary high power. \*2 Low power only. \*3 Low power only for the UK, EUR, Dutch and German versions.  
 \*4 RX only for the USA and UK versions. \*5 For only the USA version. \*6 For only the UK, EUR, Dutch and German versions.  
 \*7 UK Marina Channel: M1=1037 (157.850 MHz), M2=P4 (161.425 MHz) for only the UK version.  
 \*8 For only the UK and Dutch versions (UK Marina Channel: M1=1037 (157.850 MHz) for the UK version), and Low power only for the Dutch version. \*9 For only the Dutch version. \*10 For only the USA and UK versions.

| WX channel*5 | Frequency (MHz) |         |
|--------------|-----------------|---------|
|              | Transmit        | Receive |
| 1            | RX only         | 162.550 |
| 2            | RX only         | 162.400 |
| 3            | RX only         | 162.475 |
| 4            | RX only         | 162.425 |
| 5            | RX only         | 162.450 |
| 6            | RX only         | 162.500 |
| 7            | RX only         | 162.525 |
| 8            | RX only         | 161.650 |
| 9            | RX only         | 161.775 |
| 10           | RX only         | 163.275 |

**NOTE:**

- Simplex channels, 1021, 1023, 1081, 1082 and 1083 **CANNOT** be lawfully used by the general public in USA waters.
- When the "CH Display" setting in the Menu screen is set to "3 Digits," the channel number is displayed in 3 digits. (For example: "1001" is displayed as "01A.")

5  
6

## ■ About CE and DOC



Hereby, Icom Inc. declares that the versions of IC-M400BB/IC-M400BBE which have the “CE” symbol on the product, comply with the essential requirements of the Radio Equipment Directive, 2014/53/EU, and the restriction of the use of certain hazardous substances in electrical and electronic equipment Directive, 2011/65/EU. The full text of the EU declaration of conformity is available at the following internet address:

<https://www.icomjapan.com/support/>

## ■ Disposal



The crossed-out wheeled-bin symbol on your product, literature, or packaging reminds you that in the European Union, all electrical and electronic products, batteries, and accumulators (rechargeable batteries) must be taken to designated collection locations at the end of their working life. Do not dispose of these products as unsorted municipal waste. Dispose of them according to the laws in your area.

| PROBLEM   | POSSIBLE CAUSE  | SOLUTION  | REF.                                  |
|---|---|---|---------------------------------------|
| The transceiver does not turn ON.   | <ul style="list-style-type: none"> <li>• Bad connection to the power supply.</li> </ul>   | <ul style="list-style-type: none"> <li>• Check the connection to the transceiver and power supply.</li> </ul>   | p. 6                                  |
| Little or no sound comes from the speaker.  | <ul style="list-style-type: none"> <li>• Squelch level is set too high.</li> <li>• Volume level is set too low.</li> <li>• Speaker has been exposed to water.</li> </ul>  | <ul style="list-style-type: none"> <li>• Set the squelch to the threshold point.</li> <li>• Set the volume to a suitable level.</li> <li>• Remove the water with the AquaQuake function.</li> </ul> | <b>11*</b><br><b>10*</b><br><b>9*</b> |
| Transmitting is impossible, or high power cannot be selected.   | <ul style="list-style-type: none"> <li>• Some channels are programmed for low power or receive only by regulations.</li> <li>• The output power is set to low.</li> </ul> | <ul style="list-style-type: none"> <li>• Change channels.</li> <li>• Push [HI/LO] to select high power.</li> </ul>  | <b>5*</b> ,<br>p. 13<br><b>6*</b>     |
| Scan does not start.  | <ul style="list-style-type: none"> <li>• Favorite channels are not programmed.</li> </ul>   | <ul style="list-style-type: none"> <li>• Set the desired channels as Favorite channels.</li> </ul>  | <b>13*</b>                            |
| No beep sounds.   | <ul style="list-style-type: none"> <li>• Beep tones are turned OFF.</li> </ul>  | <ul style="list-style-type: none"> <li>• Turn the beep tones ON in the CONFIGURATION menu.</li> </ul>   | <b>30*</b>                            |
| Distress calls cannot be transmitted.   | <ul style="list-style-type: none"> <li>• MMSI (DSC self ID) code is not programmed.</li> </ul>  | <ul style="list-style-type: none"> <li>• Program the MMSI (DSC self ID) code.</li> </ul>  | p. 2                                  |
| “NO POSITION” and “NO TIME” are displayed instead of the position and time. (For only the IC-M400BBE) | <ul style="list-style-type: none"> <li>• The GPS signal is not correctly received.</li> <li>• The position and time have not been manually entered.</li> </ul>            | <ul style="list-style-type: none"> <li>• Check the GPS antenna is positioned where it has a clear view to receive signal from satellites.</li> <li>• Enter the position and time.</li> </ul>        | p. 8<br><br><b>18*</b>                |

\* Refer to the HM-195 COMMANDMICIV™ instruction manual.

**Count on us!**

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