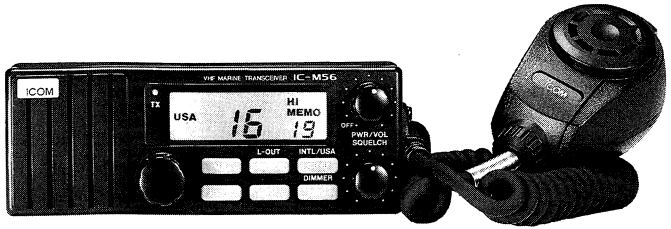
ICOM

INSTRUCTION MANUAL

VHF MARINE TRANSCEIVER

IC-M56



Icom Inc.

IMPORTANT SAFETY PRECAUTIONS

Before using the transceiver, read all instructions carefully and completely.

SAVE THESE INSTRUCTIONS – This instruction manual contains important safety and operating instructions for the IC-M56.

NEVER connect the transceiver to more than a 16 V DC power source or an AC outlet. This will ruin the transceiver.

NEVER allow children to touch the transceiver.

NEVER put the transceiver in water. **AVOID** using in rain and snow.

AVOID using or placing the transceiver in areas with temperatures below –20°C (–4°F) or over +60°C (+140°F).

AVOID placing the transceiver in direct sunlight.

KEEP the antenna cable and DC power cord as far away as possible from electrical pumps, generators and other electrical instruments to prevent instrument malfunctions.

BE CAREFUL! If the transceiver is not securely mounted with bolts and nuts, personal injury or transceiver damage could occur due to wave shock, vibrations, etc.

BE CAREFUL! The heatsink may become hot when the transceiver transmits continuously for a long time.

BE CAREFUL! The transceiver is only weather-resistant when four screws are securely tightened to the sides of the transceiver.

TABLE OF CONTENTS

FOREWORD

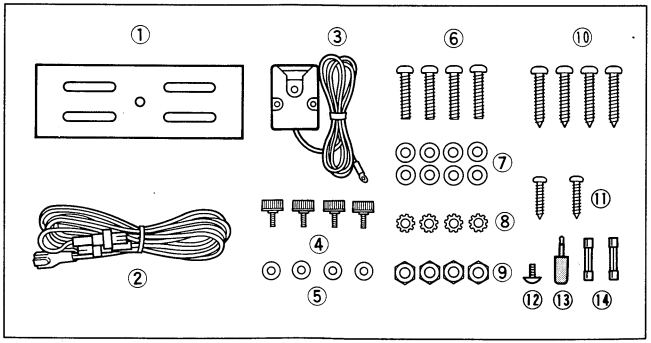
Thank you for purchasing the **IC-M56 VHF MARINE TRANSCEIVER.** Icom has produced this easy-to-operate marine transceiver using the most advanced technology.

The **IC-M56** has the following advanced features:

- Strong weather-resistant, dust-tight case
- Voltage source deviation indicator
- 25 W of high transmission output power
- Dual watch and a variety of scans
- 20 user-programmed memory channels
- Momentary high power on Channels 13 and 67
- Single-tone, double high-tone and double low-tone beeps
- High sensitivity and strong intermodulation rejection

To fully appreciate the capabilities of your new **IC-M56,** please read this instruction manual thoroughly. For further information, please feel free to contact your nearest Icom Dealer or Service Center.

UNPACKING



①	Mounting bracket	1
②	DC power cable (OPC-044A)	1
③	Microphone hanger cable (OPC-117B)	1
④	Mounting bracket knobs	4
⑤	Flat washers (M4)	4
⑥	Mounting screws (M5 x 20)	4
⑦	Flat washers (M5)	8
⑧	Star washers (M5)	4
⑨	Nuts (M5)	4
⑩	Mounting screws (A0 5 x 20)	4
⑪	Mic hanger screws (A0 3.5 x 30)	2
⑫	Ground screw for OPC-117B (M3 x 10)	1
⑬	External speaker plug	1
⑭	Fuses (10 A)	2

(1) PRIORITIES

1) 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.

2) You must monitor Channel 16 while you do not operate on another channel.

3) False or fraudulent distress signals are prohibited and punishable by law.

(2) PRIVACY

1) Information overheard but not intended for you cannot lawfully be used in any way.

2) Indecent or profane language is prohibited.

(3) RADIO LICENSES

1) Ship Station License

When your craft is equipped with a VHF FM transceiver, 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. Your 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. You can usually obtain this permit by mail.

The Restricted Radiotelephone Operator Permit must be posted near the transceiver or be 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, and ends the call, and makes the necessary log entries.

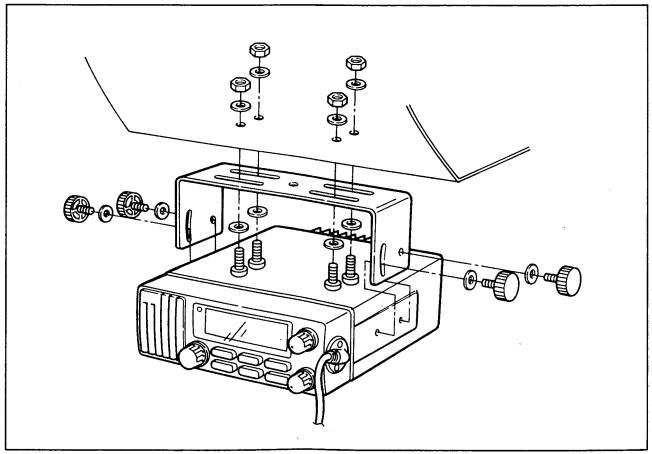
A current copy of the applicable government rules and regulations is usually required to be kept.

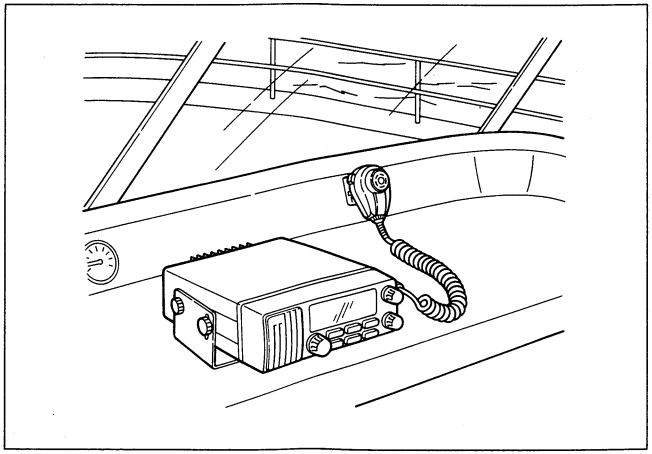
2 INSTALLATION

(1) MOUNTING THE TRANSCEIVER

The universal bracket supplied with your transceiver allows "overhead" or "dashboard" mounting. Please read the following instructions carefully.

- Install the bracket so the transceiver is adequately supported, thus protecting it from wave shock and vibrations.
- Try to avoid drilling new mounting holes in the bracket, as the balance of the transceiver may be affected.
- An optional MB-28 FLUSH MOUNT is available from Icom. If you need special hardware for installation, any good marine store may assist you.





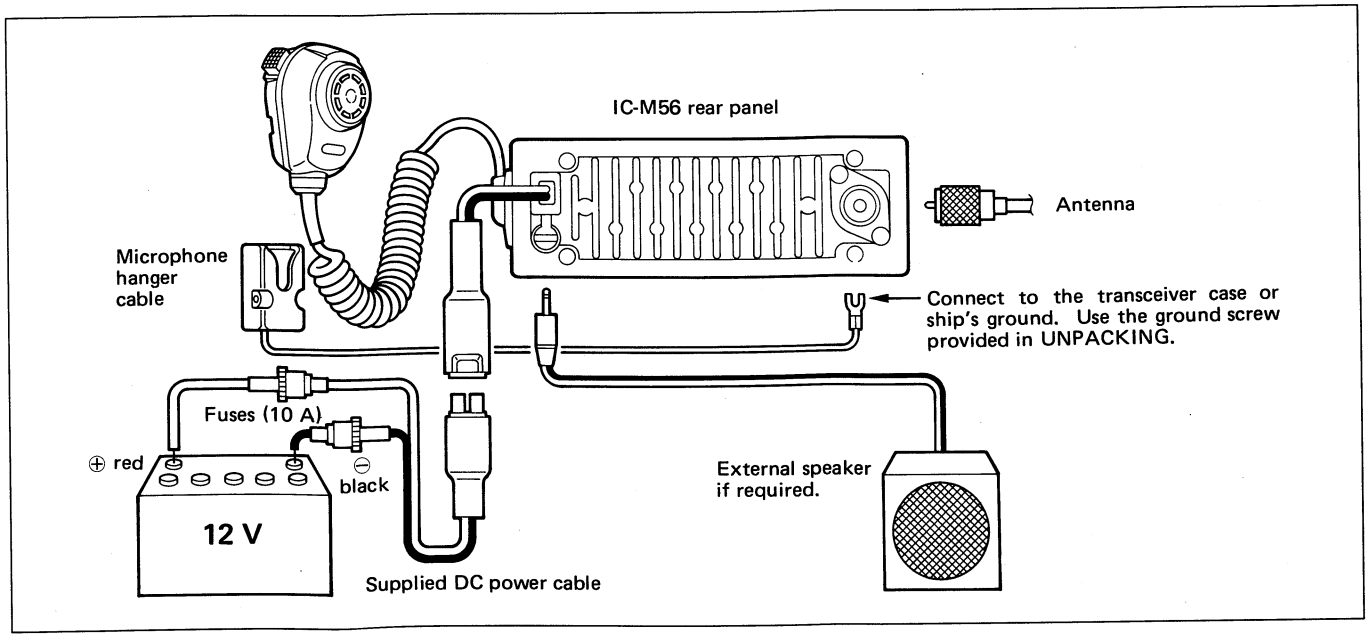
(2) CONNECTION

Use a 12 V DC power source and be sure of the following points:

- **AVOID** long cable runs to the antenna and power source.
- **KEEP** these cables as far as possible from electrical pumps, generators and other electronic instruments.

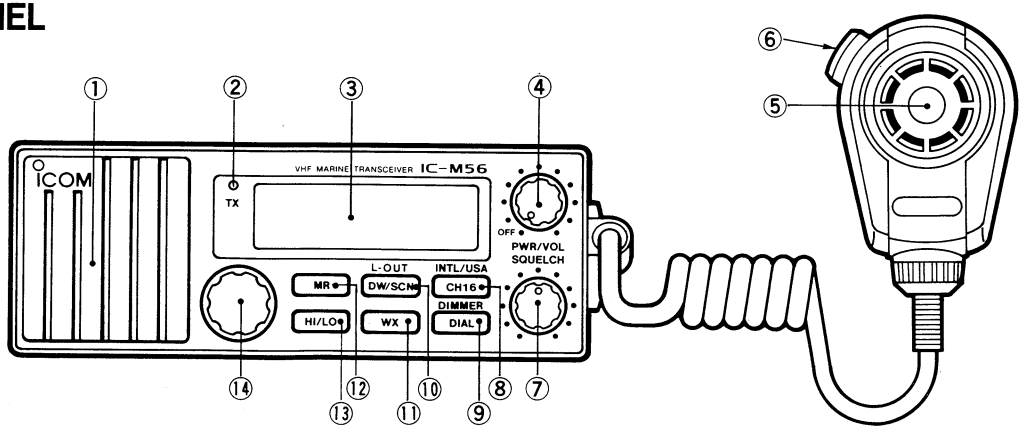
(3) ANTENNA

The single, most important item that influences the performance of any communication system is the antenna. Ask your dealer about antennas and the best place to mount them.



3 PANEL DESCRIPTION

3-1 FRONT PANEL



① SPEAKER

② TX INDICATOR [TX]
Lights when transmitting.

③ FUNCTION DISPLAY
Displays the current operating channel and additional information. Refer to Section 3 - 3 FUNCTION DISPLAY.

④ VOLUME CONTROL/POWER SWITCH [PWR/VOL]
Turns power ON and OFF and adjusts the speaker volume.

⑤ MICROPHONE

⑥ PTT (Push-To-Talk) SWITCH
Push and hold to transmit and release to receive.

⑦ SQUELCH CONTROL [SQUELCH]
Rotate clockwise to eliminate audio noise.

When a signal is received, the squelch opens and audio is emitted from the speaker.

⑧ CHANNEL 16 SWITCH [CH 16]
Selects Channel 16. Used for emergency and distress calls and as call channel.

While pushing [HI/LO], push this switch to select the U.S.A. or International channels.

⑨ **DIAL SWITCH [DIAL]**
Selects the dial mode.

While pushing [HI/LO], push this switch to turn ON and OFF the function display backlight.

⑩ **DUAL WATCH AND SCAN SWITCH [DW/SCN]**
Push this switch to start dual watch.
Push and hold this switch to start scanning.

While pushing [HI/LO], push this switch to program or cancel the lockout function for a specific channel.

⑪ **WEATHER CHANNEL SWITCH [WX]**
Selects the weather channel mode.

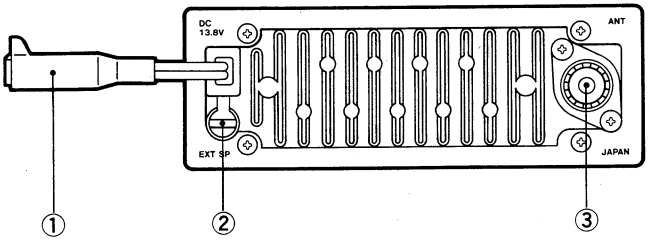
⑫ **MEMORY SWITCH [MR]**
Push this switch to select the memory mode.
Push and hold this switch to write a memory.

⑬ **TRANSMIT POWER SWITCH [HI/LO]**
Selects the high or low transmitter output power.

This switch also activates the secondary function of the [DW/SCN], [CH 16] and [DIAL] switches. The secondary function is printed above the switch.

⑭ **CHANNEL SELECTOR**
Selects an operating channel.

3-2 REAR PANEL



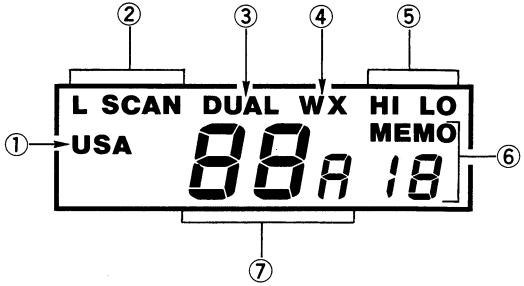
① **DC POWER CONNECTOR**
Connect the supplied DC power cable from this connector to an external 12 V DC power source.

② **EXTERNAL SPEAKER JACK**
4 Ω speaker jack.

③ **ANTENNA CONNECTOR**
Connects an antenna with a PL-259 connector to the transceiver.

CAUTION: Transmitting without an antenna will damage the transceiver.

3-3 FUNCTION DISPLAY



① U.S.A. CHANNEL INDICATOR

"USA" appears when U.S.A. channels are selected. There is no indicator for international channels.

② SCAN INDICATOR

- "SCAN" appears while scanning.
- "L SCAN" appears while scanning if channels have been locked out.
- "L" appears when a channel has been locked out.

③ DUAL WATCH INDICATOR

Appears during dual watch operation.

④ WEATHER CHANNEL INDICATOR

Appears when receiving on a weather channel.

⑤ TRANSMIT POWER INDICATOR

Displays transmit output power "HI" (HIGH) or "LO" (LOW).

Blinks when the power source is more than 16.5 V ("HI") or less than 11 V ("LO").

CAUTION: When these indicators blink, disconnect the DC power cable and check the power source.

⑥ MEMORY INDICATOR

Displays "MEMO" and the memory channel number when the memory mode is selected.

⑦ CHANNEL INDICATOR

Displays the operating channel.

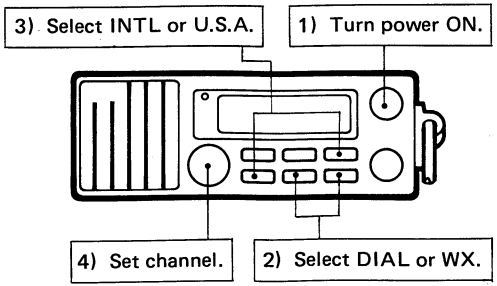
4-1 SELECTING A CHANNEL

1) Rotate [PWR/VOL] clockwise to turn ON power.
   • Channel 16 is displayed.

2) Select your desired mode.
   • Dial mode : push [DIAL].
   • Weather channel mode : push [WX].

3) When you have pushed [DIAL], select U.S.A. or international channels. If you have pushed [WX], proceed to step 4.
   • To switch between U.S.A. and International channels, push and hold [HI/LO] and then push [CH 16].

4) Rotate the channel selector to set your desired channel.



4-2 INSTANT ACCESS TO CHANNEL 16

Channel 16 is an emergency, distress and call channel. Access Channel 16 instantly in any of the following ways:

① Push [CH 16].

② Turn power OFF and then turn it ON again.

③ Hang the microphone on the microphone hook.

4-3 RECEIVING

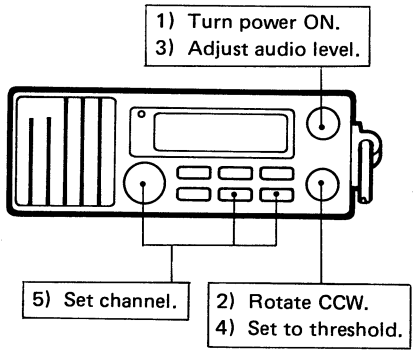
1) Rotate [PWR/VOL] to turn ON power.

2) Rotate [SQUELCH] completely counterclockwise.

3) Adjust [PWR/VOL] to a suitable audio level.

4) Rotate [SQUELCH] clockwise until the noise is quieted.

5) To set the desired channel, refer to Section 4 - 1 SELECTING A CHANNEL.
   - When a signal is received, the squelch opens and audio is emitted from the speaker.



4-4 TRANSMITTING

■ CALL PROCEDURES

You must identify yourself when you transmit and you must respect time limits.

1) Give your call sign each time you call another vessel or a coast station. If you have no call sign, identify the station by giving the vessel name and the name of the licensee.

2) Give your call sign at the end of each transmission that lasts more than 3 minutes.

3) You must break and give your call sign at least once every 15 minutes during long ship-to-shore calls.

4) Keep your calls short (less than 30 seconds). Wait 2 minutes before repeating the call.

5) Unnecessary transmissions are not allowed.

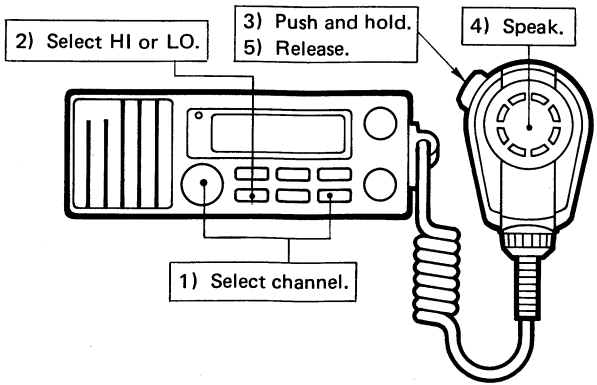
1) Select the operating channel. See Section 4 - 1 for details.

2) Push [HI/LO] to select transmit power.
- Either "HI" or "LO" is displayed.
- Transmission is restricted on some channels.

3) Push and hold the PTT switch to transmit.
- The red [TX] indicator lights.

4) Speak into the microphone at your normal voice level.
- Do not hold the microphone close to your mouth or speak with a loud voice. This may distort the signal.

5) Release the PTT switch to receive.



■ TRANSMITTER RESTRICTIONS

CHANNEL NUMBER	U.S.A. CHANNELS	INTERNATIONAL CHANNELS
13	Momentary high power*	No restriction
15	Receive only	Low power only
17	Low power only	Low power only
67	Momentary high power*	No restriction
WEATHER CHANNELS	Receive only	

***MOMENTARY HIGH POWER:**
On these channels, transmissions using high power are momentarily possible. To transmit using high power, push and hold [HI/LO] and [PTT].

5 FUNCTION OPERATION

5-1 MEMORY CHANNEL

The transceiver has 20 memory channels. The memory channels are especially useful to quickly call up channels you often use.

(1) READING A MEMORY CHANNEL

1) Push [MR] to select the memory mode.

2) Rotate the channel selector to select the desired channel.

> **NOTE:** Only channels you have already programmed can be selected. If no memory channel is programmed, the channel selector is deactivated.

(2) WRITING A MEMORY CHANNEL

1) Push and hold [MR] until the memory channel number blinks.

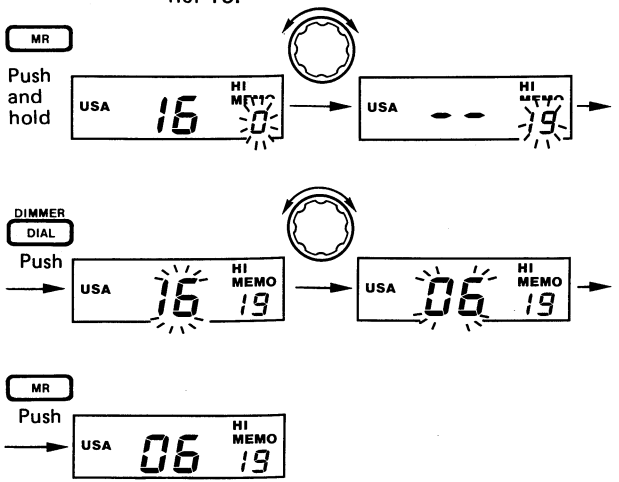
2) Rotate the channel selector to select the desired memory channel number.

3) Push [DIAL] or [WX] to select the desired mode.
   - When the dial mode has been selected, choose U.S.A. or international channels.

4) Rotate the channel selector to select the desired channel you want to program.
   - When the dial mode has been selected in step 3, choose high or low transmit programming.

5) Push [MR] to complete programming.

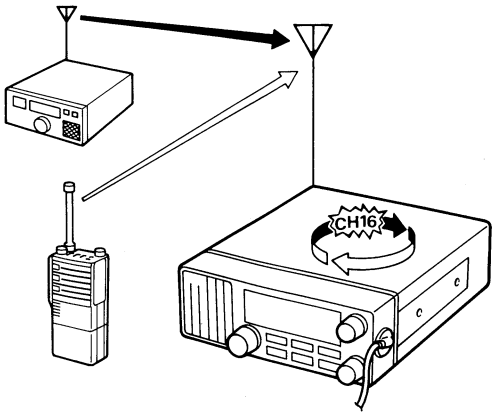
[EXAMPLE] Writing Channel 06 into memory channel 19.



5-2 DUAL WATCH

The dual watch function monitors Channel 16 while you use another channel.

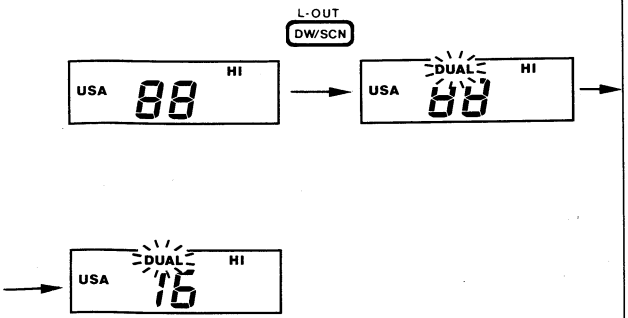
• DUAL WATCH SIMULATION



- If a signal is received on Channel 16, dual watch stops on Channel 16 until the signal disappears.
- During dual watch, you cannot transmit on Channel 16.

1) Select the desired operating channel.
   - When Channel 16 is selected, dual watch deactivates.
2) Rotate [SQUELCH] until the audio noise disappears.
3) Push [DW/SCN] to start the dual watch function.
   - "DUAL" blinks on the function display.
4) Push [DW/SCN] again to cancel the dual watch function.

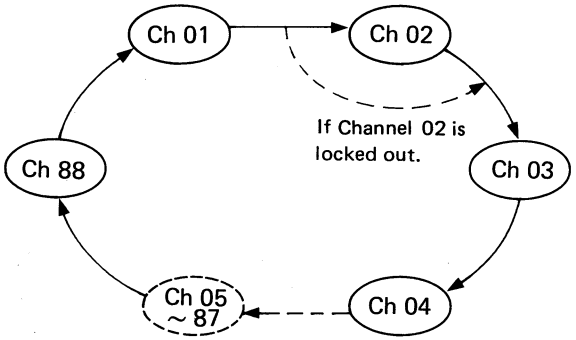
[EXAMPLE] Operating dual watch on Channel 88.



When a signal is received on Channel 16.

5-3 SCANNING

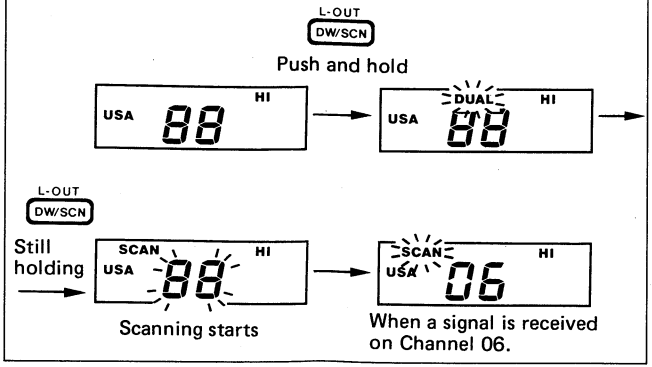
The transceiver has three scans: dial scan, weather channel scan and memory scan. Scanning skips over channels that are locked out.



- When a signal is received, scanning stops and "SCAN" blinks on the function display until the signal disappears.
- Transmitting during a scan cancels the scan.
- The channel selector is deactivated while scanning.

1) Select the desired mode.
   - Push [DIAL] for the dial mode.
   - Push [WX] for the weather channel mode.
   - Push [MR] for the memory mode.
2) Rotate [SQUELCH] until the audio noise disappears.
3) Push and hold [DW/SCN] until "SCAN" appears on the function display.
   - Scanning starts after "DUAL" blinks twice and three beeps are heard.
4) To cancel the scanning, push [DW/SCN] again.

[EXAMPLE] Starting a scan.



■ CHANNEL LOCKOUT

This function allows you to skip certain channels while scanning, shortening interval scanning time.

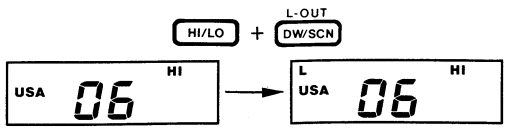
1) To select the desired mode, push [DIAL], [WX] or [MR].

2) Rotate the channel selector to select the channel to be locked out.

3) While pushing [HI/LO], push [DW/SCN].
   • "L" appears on the function display.

4) To cancel the lockout function for that channel, repeat step 3.

[EXAMPLE] Locking out Channel 06.



5-4 DIMMER CONTROL

The backlight intensity of the function display can be adjusted or turned OFF.

(1) TURNING OFF THE BACKLIGHT

1) While pushing [HI/LO] push [DIAL] to turn OFF the display backlight.

2) To turn the backlight ON again, repeat step 1.

(2) ADJUSTING THE BACKLIGHT

1) While pushing [HI/LO], push and hold [DIAL].

2) Hold [DIAL], release [HI/LO], then rotate the channel selector.
   • The backlight intensity changes.

6 MAINTENANCE

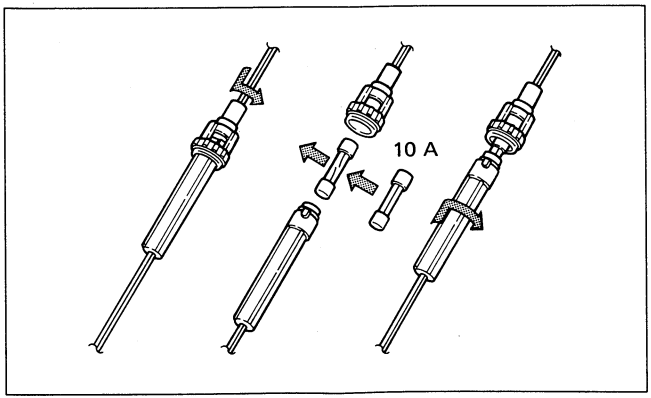
6-1 TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
• No power.	• Power connector has a poor contact. • Blown fuse.	• Check the connector pin. • Check the polarity of the power connection, then replace the fuse.
• No sound from the speaker.	• [SQUELCH] is turned too far clockwise. • An external speaker or cable is broken, if connected.	• Rotate [SQUELCH] counterclockwise. • Unplug the external speaker jack.
• Sensitivity is low and only strong signals are audible.	• Antenna feedline is cut or short-circuited. • Bad connection at the antenna connector.	• Check the feedline and correct any improper condition. • Check the antenna connector and clean the center conductor of the plug.
• Cannot transmit at high power or cannot transmit at all.	• Transmission is restricted on some channels.	• See page 9 for details.
• The displayed channel does not change.	• Channel 16 is selected.	• Push [DIAL] then rotate the channel selector.
• The memory channel cannot be changed.	• Memory channels have not been programmed.	• Program at least two memory channels. See p. 10.
• Scanning or dual watch does not function.	• Channel 16 is displayed. • The squelch opens. • Memory channels have not been programmed if operating the memory scan.	• Push [DIAL] then start scanning. • Rotate [SQUELCH] clockwise. • Program at least two memory channels. See p. 10.
• The function display occasionally displays erroneous information.	• The internal CPU has malfunctioned.	• Reset the CPU. See p. 15.

6-2 FUSE REPLACEMENT

Two fuses are installed in the DC power cable. If the fuses blow or the transceiver stops functioning, track down the source of the problem, if possible, and replace the damaged fuse with a new, rated fuse.

• Fuse rating : 10 A



6-3 RESETTING THE CPU

If the function display occasionally displays erroneous information when the power is turned ON or when operating, reset the CPU.

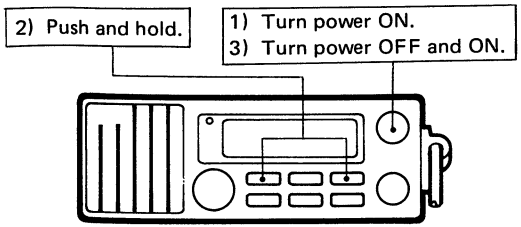
BE CAREFUL! After resetting the CPU, all information you have programmed into the memory channels will be erased.

1) Turn power ON.

2) Push and hold [CH 16] and [MR].

3) Turn power OFF and then turn it ON again.
   • The function display illuminates all characters for a second.

4) Release [CH 16] and [MR].



6-4 BACKUP BATTERY

The built-in lithium battery retains the information programmed into the memory channels. The life of the lithium battery is approximately five years. If the battery is exhausted, the transceiver operates normally but the information in the memory channels is not retained.

NOTE: Backup battery replacement **MUST** be done by an authorized Icom Dealer or Icom Service Center.

6-5 CLEANING

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

AVOID the use of strong chemical agents such as benzine or alcohol, as they may damage the transceiver's surfaces.

Tech Talk from Icom

Q. How far does a signal reach when transmitted over a sea or lake?

A. For practical purposes, there is very little signal propagation beyond the line-of-sight range when using VHF frequencies.

In theory, the distance of possible communication between 2 stations is obtained using the following formula:

$$D\ (nm) = 1.22 \times (\sqrt{h1} + \sqrt{h2})$$

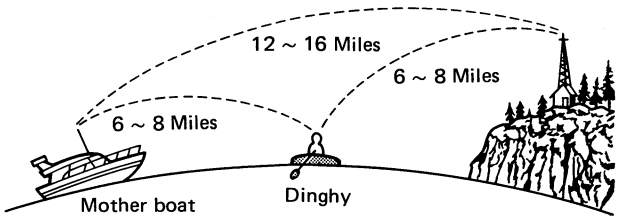
D : Distance h1, h2 : Antenna height (ft)

For instance, where h1 = 8 ft and h2 = 8 ft, the distance is:

$D\ (nm) = 1.22 \times (\sqrt{8} + \sqrt{8})$

= Approx. 7 nm = Approx. 8 miles

• TYPICAL APPLICATION



Depending on weather conditions and your location, some signals may not reach 8 miles and others may extend beyond 8 miles.

VHF MARINE CHANNEL CHART

Channel No.	Frequency (MHz)		Transmit output power
	Transmit	Receive	
01	156.050	160.650	25 W & 1 W
01A	156.050	156.050	25 W & 1 W
02	156.100	160.700	25 W & 1 W
02A	156.100	156.100	25 W & 1 W
03	156.150	160.750	25 W & 1 W
03A	156.150	156.150	25 W & 1 W
04	156.200	160.800	25 W & 1 W
04A	156.200	156.200	25 W & 1 W
05	156.250	160.850	25 W & 1 W
05A	156.250	156.250	25 W & 1 W
06	156.300	156.300	25 W & 1 W
07	156.350	160.950	25 W & 1 W
07A	156.350	156.350	25 W & 1 W
08	156.400	156.400	25 W & 1 W
09	156.450	156.450	25 W & 1 W
10	156.500	156.500	25 W & 1 W
11	156.550	156.500	25 W & 1 W
12	156.600	156.600	25 W & 1 W
13	156.650	156.650	25 W & 1 W
14	156.700	156.700	25 W & 1 W
15	156.750	156.750	1 W only
16	156.800	156.800	25 W & 1 W
17	156.850	156.850	1 W only
18	156.900	161.500	25 W & 1 W
18A	156.900	156.900	25 W & 1 W
19	156.950	161.550	25 W & 1 W
19A	156.950	156.950	25 W & 1 W
20	157.000	161.600	25 W & 1 W
20A	157.000	157.000	25 W & 1 W
21	157.050	161.650	25 W & 1 W
21A	157.050	157.050	25 W & 1 W
22	157.100	161.700	25 W & 1 W
22A	157.100	157.100	25 W & 1 W
23	157.150	161.750	25 W & 1 W
23A	157.150	157.150	25 W & 1 W
24	157.200	161.800	25 W & 1 W
25	157.250	161.850	25 W & 1 W
26	157.300	161.900	25 W & 1 W
27	157.350	161.950	25 W & 1 W
28	157.400	162.000	25 W & 1 W
60	156.025	160.625	25 W & 1 W
60A	156.025	156.025	25 W & 1 W
61	156.075	160.675	25 W & 1 W
61A	156.075	156.075	25 W & 1 W
62	156.125	160.725	25 W & 1 W
62A	156.125	156.125	25 W & 1 W
63	156.175	160.775	25 W & 1 W
63A	156.175	156.175	25 W & 1 W
64	156.225	160.825	25 W & 1 W
64A	156.225	156.225	25 W & 1 W
65	156.275	160.875	25 W & 1 W
65A	156.275	156.275	25 W & 1 W
66	156.325	160.925	25 W & 1 W
66A	156.325	156.325	25 W & 1 W
67	156.375	156.375	25 W & 1 W
68	156.425	156.425	25 W & 1 W
69	156.475	156.475	25 W & 1 W
70	156.525	156.525	1 W only
71	156.575	156.575	25 W & 1 W
72	156.625	156.625	25 W & 1 W
73	156.675	156.675	25 W & 1 W
74	156.725	156.725	25 W & 1 W
75	-----	-----	Guard
76	-----	-----	Guard
77	156.875	156.875	25 W & 1 W
78	156.925	161.525	25 W & 1 W
78A	156.925	156.925	25 W & 1 W
79	156.975	161.575	25 W & 1 W
79A	156.975	156.975	25 W & 1 W
80	157.025	161.625	25 W & 1 W
80A	157.025	157.025	25 W & 1 W
81	157.025	161.675	25 W & 1 W
81A	157.075	157.075	25 W & 1 W
82	157.125	161.725	25 W & 1 W
82A	157.125	157.125	25 W & 1 W
83	157.175	161.775	25 W & 1 W
83A	157.175	157.175	25 W & 1 W
84	157.225	161.825	25 W & 1 W
84A	157.225	157.225	25 W & 1 W
85	157.275	161.875	25 W & 1 W
85A	157.275	157.275	25 W & 1 W
86	157.325	161.925	25 W & 1 W
86A	157.325	157.325	25 W & 1 W
87	157.375	161.975	25 W & 1 W
87A	157.375	157.375	25 W & 1 W
88	157.425	162.025	25 W & 1 W
88A	157.425	157.425	25 W & 1 W
WX 1	-----	162.550	RX only
WX 2	-----	162.400	RX only
WX 3	-----	162.475	RX only
WX 4	-----	162.425	RX only
WX 5	-----	162.450	RX only
WX 6	-----	162.500	RX only
WX 7	-----	162.525	RX only
WX 8	-----	161.650	RX only
WX 9	-----	161.775	RX only
WX10	-----	163.275	RX only

8 SPECIFICATIONS

■ GENERAL

- Type of emission : 16K0G3E
- Antenna impedance : 50 Ω
- Usable temperature range : −20°C ~ +60°C (−4°F ~ +140°F)
- Frequency stability : ±0.0005 %
- Power supply voltage : 13.8 V DC negative ground
- Dimensions : 140 (W) x 55 (H) x 155 (D) mm, 5.5 (W) x 2.2 (H) x 6.1 (D) in (Projections not included)
- Weight : 1.1 kg (2.4 lb)

■ RECEIVER

- Frequency range : 156 ~ 163 MHz
- Sensitivity : 0.3 μV for 12 dB SINAD
- Audio output power : 4 W with a 4 Ω load
- Intermediate frequency : 1st 21.8 MHz, 2nd 455 kHz
- Current drain : 190 mA (standby condition with no display backlight)
  1.0 A (at max. audio with brightest display)

■ TRANSMITTER

- Frequency range : 156 ~ 157.5 MHz
- Output power : HIGH 25 W, LOW 1 W
- Microphone impedance : 600 Ω
- Current drain : 5.5 A at HIGH output power
  1.4 A at LOW output power

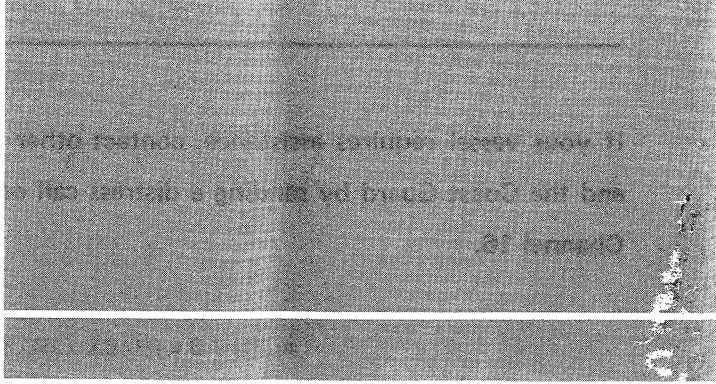
All stated specifications are subject to change without notice or obligation.

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

DISTRESS CALL PROCEDURE

1. "MAYDAY MAYDAY MAYDAY"
2. "THIS IS " (name of vessel)
3. "LOCATED AT " (vessel's position)
4. Give the reason for the distress call.
5. Explain what assistance you need.
6. Give additional information:
   - Vessel type
   - Vessel length
   - Vessel color

Count on us!



A-5032S-1US-①
Printed in Japan

Icom Inc.
6-9-16, Kamihigashi, Hirano-ku, Osaka 547, Ja[illegible]