



INSTRUCTION MANUAL

VHF MARINE TRANSCEIVER **IC-M302**

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Icom Inc.

FOREWARD

Thank you for purchasing this Icom product. The IC-M302 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-M302 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-M302.

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-M302.

EXPLICIT DEFINITIONS

WORD	DEFINITION
 WARNING!	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	Recommended for optimum use. No risk of personal injury, fire or electric shock.

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. Your call sign or other indication of the vessel (AND 9-digit DSC ID if you have one).
4. "LOCATED AT" (your position)
5. The nature of the distress and assistance required.
6. 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 switch cover, push and hold [DISTRESS] for 5 sec. until you hear 5 short beeps change to one long beep.
2. Wait for an acknowledgment from a coast station.
 - Channel 16 is automatically selected.
3. Push and hold [PTT], then transmit the appropriate information as at left.

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. (p. ?)

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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PRECAUTION

⚠ 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.

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

NEVER cut the DC power cable between the DC plug and fuse holder. If an incorrect connection is made after cutting, the transceiver may be damaged.

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

KEEP the transceiver at least 3.3 ft (1 m) away from the ship's navigation compass.

DO NOT use or place the transceiver in areas with temperatures below -4°F (-20°C) or above $+140^{\circ}\text{F}$ ($+60^{\circ}\text{C}$) or, in areas subject to direct sunlight, such as the dashboard.

AVOID the use of chemical agents such as benzine or alcohol when cleaning, as they may damage the transceiver surfaces.

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 optional HM-127 employ waterproof construction, which corresponds to JIS waterproof specification, Grade 7 (1 m/30 min.). However, once the transceiver or microphone has been dropped, waterproofing cannot be guaranteed due to the fact that the case may be cracked, or the waterproof seal damaged, etc.

◆ 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.

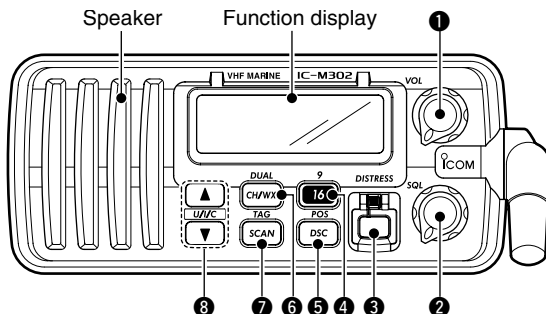
However, non-licensed individuals may talk over a transceiver if a licensed operator starts, supervises, ends the call and makes the necessary log entries.

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.

■ Panel description



① POWER/VOLUME CONTROL [VOL]

Turns power ON and OFF and adjusts the audio level. (p. 7)

② SQUELCH CONTROL [SQL]

Sets the squelch threshold level. (p. 7)

③ DISTRESS SWITCH [DISTRESS]

Transmits distress call when pushed for 5 sec.

④ CHANNEL 16/CALL CHANNEL SWITCH [16•9]

- ➔ Selects channel 16 when pushed. (p. 5)
- ➔ Selects call channel when pushed for 1 sec. (p. 5)
 - “CALL” appears when call channel is selected.
- ➔ Push for 3 sec. to enter call channel programming condition when call channel is selected. (p. 8)
- ➔ While pushing [CH/WX•DUAL], enters channel name programming condition. (p. 8)
- ➔ Enters set mode when pushed while turning power ON. (p. 12)

⑤ DSC/POSITION SWITCH [DSC•ENT•POS]

- ➔ Selects the DSC menu when pushed.
- ➔ Shows current position and time from a GPS receiver, etc. when pushed for 1 sec.

⑥ CHANNEL/WEATHER CHANNEL SWITCH [CH/WX•DUAL]

- ➔ Selects and toggles the regular channels and weather channel when pushed momentarily. (p. 6)
- ➔ Starts dualwatch or tri-watch when pushed for 1 sec. (p. 9)
- ➔ Stops dualwatch or tri-watch when either is activated.

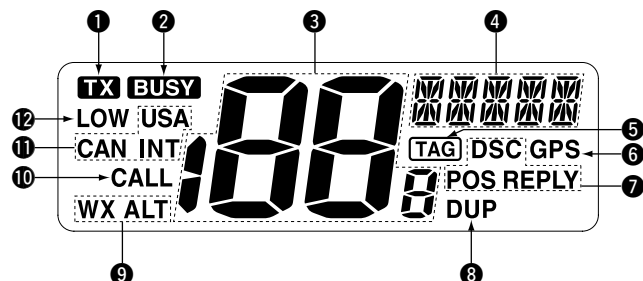
⑦ SCAN SWITCH [SCAN•TAG]

- ➔ Starts and stops normal or priority scan.
- ➔ Sets or clears the displayed channel as a tag (scanned) channel when pushed for 1 sec.
- ➔ While pushing [HI/LO] on the microphone, clears all tag channels in the selected channel group when pushed for 3 sec.

⑧ CHANNEL UP/DOWN SWITCHES [▲]/[▼]•[U/I/C]

- ➔ Selects an operating channel. (p. 6)
- ➔ Selects the SET mode condition of item. (p. 12)
- ➔ While pushing [SCAN•TAG], push [▲]/[▼] to adjust the brightness of the LCD and switch backlight.
- ➔ Selects one of 3 regular channels in sequence when both switch are pushed. (p. 6)
 - International, U.S.A. and Canadian channels are available for regular channels.

■ Function display



1 TRANSMIT INDICATOR (p. 7)

"TX" appears while transmitting.

2 BUSY INDICATOR (p. 7)

"BUSY" appears when receiving a signal or when the squelch opens.

3 CHANNEL NUMBER READOUT

- Indicates the selected operating channel number. "A" appears when a simplex channel is selected. (p. 6)
- In set mode, indicates the selected condition. (p. 12)

4 CHANNEL NAME INDICATOR

- Channel name appears if programmed. (p. 8)
- "LOW BATTERY" scrolls when the battery voltage drops to approx. 10 V DC or below.
- "TWT" blinks during dualwatch; "TWT" blinks during tri-watch. (p. 9)

5 TAG CHANNEL INDICATOR (p. 11)

Appears when a tag channel is selected.

6 GPS INDICATOR

- "GPS" appears while valid position data is received.
- "GPS" blinks when invalid position data is received.
- "GPS" disappears when no GPS receiver is connected.

7 DSC INDICATOR

➤ Indicates the DSC status.

8 DUPLEX INDICATOR (p. 6)

Appears when a duplex channel is selected.

9 WEATHER CHANNEL INDICATOR (p. 6)

- "WX" appears when a weather channel is selected.
- "WX ALT" appears when the weather alert function is in use; blinks when an alert tone is received.

10 CALL CHANNEL INDICATOR

"CALL" appears when the call channel is selected. (p. 5)

11 CHANNEL GROUP INDICATOR

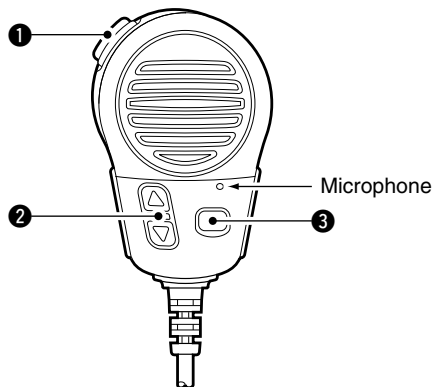
Indicates whether a U.S.A. (USA), International (INT), or Canadian (CANADA) channel is in use.

12 LOW POWER INDICATOR (p. 7)

"LOW" appears when low power is selected.

2 PANEL DESCRIPTION

■ Microphone



① PTT SWITCH [PTT]

Push and hold to transmit; release to receive. (p. 7)

② CHANNEL UP/DOWN SWITCHES [▲]/[▼]

Push either switch to change the operating memory channel, set mode contents, etc. (pgs. 6, 12)

③ TRANSMIT POWER SWITCH [HI/LO]

Toggles high and lower power when pushed. (p. 7)

- Some channels are set to low power only.

■ Channel selection

◇ Channel 16

Channel 16 is the distress and safety channel. It is used for establishing initial contact with another station and for emergency communications. Channel 16 is monitored during both dualwatch and tri-watch. While standing by, you must monitor Channel 16.

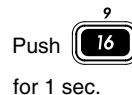
- ➡ Push [16•9] momentarily to select channel 16.
- ➡ Push [CH/WX•DUAL] to return to the condition before selecting Channel 16, or push [▲]/[▼] to select operating channel.



◇ Channel 9 (Call channel)

Each regular channel group has a separate leisure-use call channel. The call channel is monitored during tri-watch. The call channels can be programmed (p. 8) and are used to store your most often used channels in each channel group for quick recall.

- ➡ Push [16•9] for 1 sec. to select the call channel of the selected channel group.
 - “CALLING” and call channel number appear.
 - Each channel group may have an independent call channel after programming a call channel.
- ➡ Push [CH/WX•DUAL] to return to the condition before selecting call channel, or push [▲]/[▼] to select an operating channel.

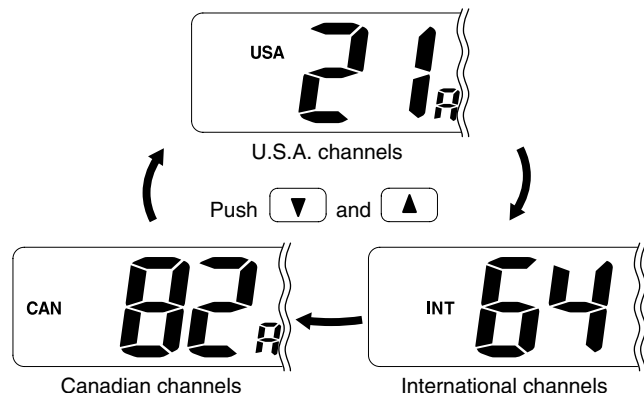


3 BASIC OPERATION

◆ U.S.A., Canadian and international channels

There are 57 U.S.A., 61 Canadian and 57 international channels. These channel groups may be specified for the operating area.

- ① Push [CH/WX•DUAL] to select a regular channel.
 - If a weather channel appears, push [CH/WX•DUAL] again.
- ② Push both [▲] and [▼] to change the channel group, if necessary.
 - U.S.A., International (INT) and Canadian channels can be selected in sequence.
- ③ Push [▲] or [▼] to select a channel.
 - “DUP” appears for duplex channels.
 - “A” appears for simplex channels.

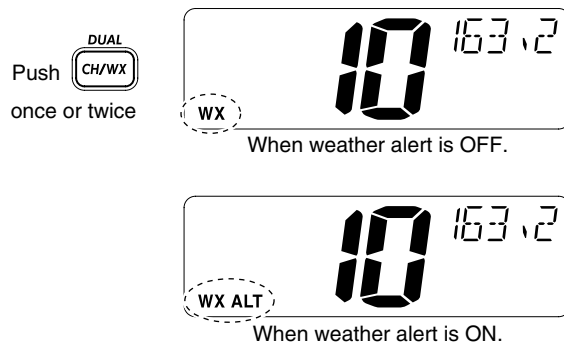


◆ Weather channels

There are 10 weather channels. Used for monitoring weather channels from the NOAA (National Oceanographic and Atmospheric Administration) broadcasts.

The transceiver can detect a weather alert tone on the selected weather channel while receiving the channel, during standby on a regular channel or while scanning. (p. 13)

- ① Push [CH/WX•DUAL] once or twice to select a weather channel.
 - “WX” appears when a weather channel is selected.
 - “WX ALT” appears when the weather alert function is in use. (p. 13)
- ② Push [▲] or [▼] to select a channel.



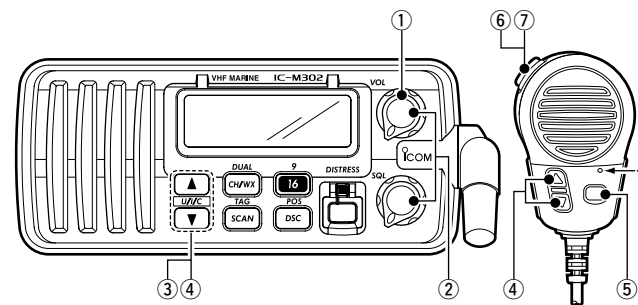
■ Receiving and transmitting

CAUTION: Transmitting without an antenna may damage the transceiver.

- ① Rotate [VOL] to turn power ON.
- ② Set the audio and squelch levels.
 - ➡ Rotate [SQL] fully counterclockwise in advance.
 - ➡ Rotate [VOL] to adjust the audio output level.
 - ➡ Rotate [SQL] clockwise until the noise disappears.
- ③ To change the channel group, push both [▲] and [▼]. (p. 6)
- ④ Push [▲]/[▼] to select the desired channel. (p. 6)
 - When receiving a signal, “**BUSY**” appears and audio is emitted from the speaker.
 - Further adjustment of [VOL] may be necessary at this point.
- ⑤ Push [HI/LO] on the microphone to select the output power if necessary.
 - “**LOW**” appears when low power is selected.
 - Choose high power for longer distance communications.
 - Some channels are for low power only.
- ⑥ Push and hold [PTT] to transmit, then speak into the microphone (*).
- ⑦ Release [PTT] to receive.
 - “**TX**” appears.
 - Channel 70 cannot be used for transmission (for GMDSS use).

Simplex channels, 3, 21, 23, 61, 64, 81, 82 and 83 **CANNOT** be lawfully used by the general public in U.S.A. waters.

IMPORTANT: To maximize the readability of your transmitted signal, pause a few sec. after pushing [PTT], hold the microphone 2 to 4 inches (5 to 10 cm) from your mouth and speak to * at a normal voice level.

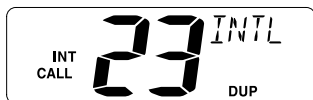


3 BASIC OPERATION

■ Call channel programming

The call channel is used to select Channel 9, however, you can program your most often-used channels in each channel group for quick recall.

- ① Push both [▲] and [▼] one or more times to select the desired channel group (U.S.A., International, Canada) to be programmed.
- ② Push [16•9] for 1 sec. to select the call channel of the selected channel group.
 - "CALL" and call channel number appear.
- ③ Push [16•9] again for 3 sec. (until a long beep changes to 2 short beeps) to enter call channel programming condition.
 - Channel number starts blinking.
- ④ Push [▲]/[▼] to select the desired channel.
- ⑤ Push [16•9] to program the displayed channel as the call channel.
 - Push [CH/WX•DUAL] to cancel.
 - The channel number stops blinking.



■ Channel names

Memory channels can be tagged with alphanumeric names of up to 10 characters each.

Capital letters, small letters (except f, j, p, s, y, x, z), 0 to 9, some symbols (= * + - . /) and space can be used.

- ① Select the desired memory channel.
 - Cancel dual watch, tri-watch or scan in advance.
- ② While pushing [CH/WX•DUAL], push [16•9] to edit the channel name.
 - A cursor and the first character starts blinking alternately.
- ③ Select the desired character by pushing [▲]/[▼].
- ④ Push [CH/WX•DUAL] or [16•9] for cursor movement.
- ⑤ Repeat steps ③ and ④ to input all characters.
- ⑥ Push [DSC•POS] to set the channel name.
- ⑦ Repeat steps ① to ⑥ to program other memory channel names, if desired.



■ Microphone lock function

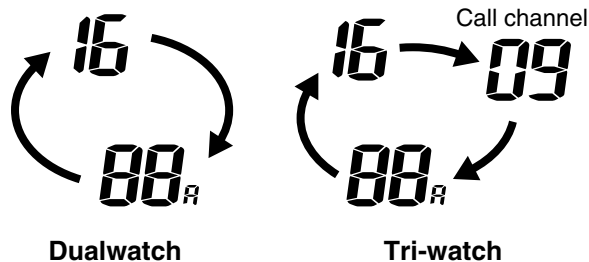
The microphone lock function electrically locks the [▲]/[▼] and [HI/LO] switches on the supplied microphone. This prevents accidental channel changes and function access.

- ➡ While pushing [HI/LO] on the microphone, turn power ON to toggle the lock function ON and OFF.

■ Description

Dualwatch monitors Channel 16 while you are receiving another channel; tri-watch monitors Channel 16 and the call channel while receiving another channel.

DUALWATCH/TRI-WATCH SIMULATION



- If a signal is received on Channel 16, dualwatch/tri-watch pauses on Channel 16 until the signal disappears.
- If a signal is received on the call channel during tri-watch, tri-watch becomes dualwatch until the signal disappears.
- To transmit on the selected channel during dualwatch/tri-watch, push and hold [PTT].

■ Operation

- ① Select the desired operating channel.
- ② Push [SCN•DUAL] for 1 sec. to start dualwatch or tri-watch (depending on SET mode setting).
 - “TW” blinks during dualwatch; “TW” blinks during tri-watch.
 - A beep tone sounds when a signal is received on Channel 16.
- ③ To cancel dualwatch/tri-watch, push [SCN•DUAL] again.

[Example]:

Operating dualwatch on INT channel 25



Tri-watch starts.



Signal is received on Channel 16 takes priority.



Dualwatch resumes after the signal disappears.

Operating tri-watch on INT channel 25



Tri-watch starts.



Signal is received on call channel.



Signal is received on Channel 16 takes priority.



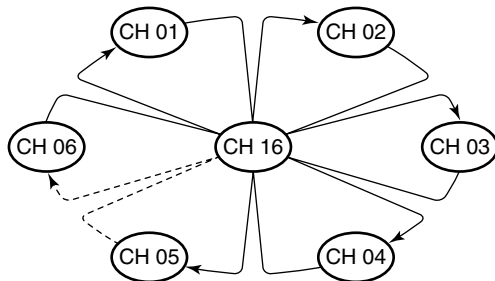
Tri-watch resumes after the signal disappears.

■ Scan types

Scanning is an efficient way to locate signals quickly over a wide frequency range. The transceiver has priority scan and normal scan.

When the weather alert function is in use, the selected weather channel is checked while scanning. (p. 13)

PRIORITY SCAN

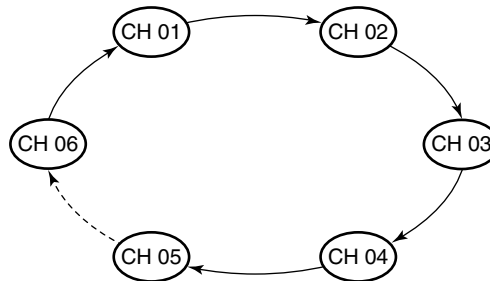


Priority scan searches through all tag channels in sequence while monitoring Channel 16. When a signal is detected on Channel 16, scan pauses until the signal disappears; when a signal is detected on a channel other than Channel 16, scan becomes dualwatch until the signal disappears.

Set the tag channels (scanned channel) before scanning. Clear the tag channels which inconveniently stop scanning, such as digital communication use.

/// Choose priority or normal scan in SET mode. (p. 13)

NORMAL SCAN



Normal scan, like priority scan, searches through all tag channels in sequence. However, unlike priority scan, Channel 16 is not checked unless Channel 16 is set as a tag channel.

■ Setting tag channels

For more efficient scanning, add desired channels as tag channels or clear the tag for unwanted channels.

Non-tag channels will be skipped during scanning. Tag channels can be assigned to each channel group (USA, INT, CAN) independently.

- ① Select the desired channel group (USA, INT, CAN) by pushing both [▲] and [▼], if desired.
- ② Select the desired channel to set as a tag channel.
- ③ Push [SCAN•TAG] for 1 sec. to set the displayed channel as a tag channel.
 - “TAG” appears in the function display.
- ④ To cancel the tag channel setting, push [SCAN•TAG] for 1 sec.
 - “TAG” disappears.

✓ Clearing all tag channels in the selected channel group

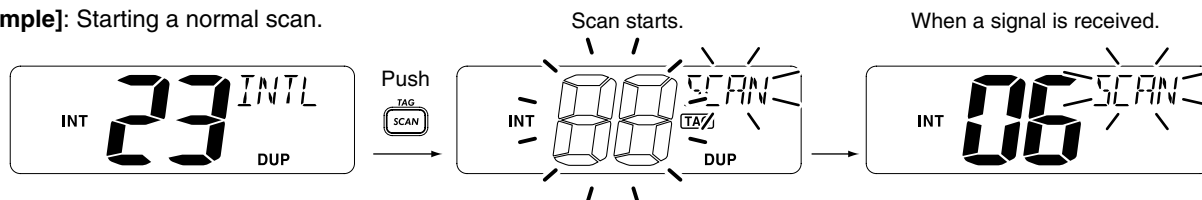
While pushing [HI/LO] on the microphone, push [SCAN•TAG] for 3 sec. to clear all tag channels in the selected channel group.

■ Starting a scan

Set scan type (priority or normal) and scan resume timer in advance, using SET mode. (p. 13)

- ① Set tag channels as described at left.
- ② Make sure the squelch is closed to start a scan.
- ③ Select the desired channel group (USA, CAN, INT) by pushing both [▲] and [▼], if desired.
- ④ Push [SCAN•TAG] to start priority or normal scan.
 - “SC 16” or “SCAN” appears in the function display.
 - When a signal is detected, scan pauses until the signal disappears or resumes after pausing 5 sec. according to set mode setting. (Channel 16 is still monitored during priority scan.)
 - Push [▲] or [▼] to check the scanning tag channels, to change the scanning direction or resume the scan manually.
 - “16” on channel name indicator blinks and a beep tone sounds when a signal is received on Channel 16 during priority scan.
- ⑤ To stop the scan, push [SCAN•TAG].

[Example]: Starting a normal scan.



■ Set mode programming

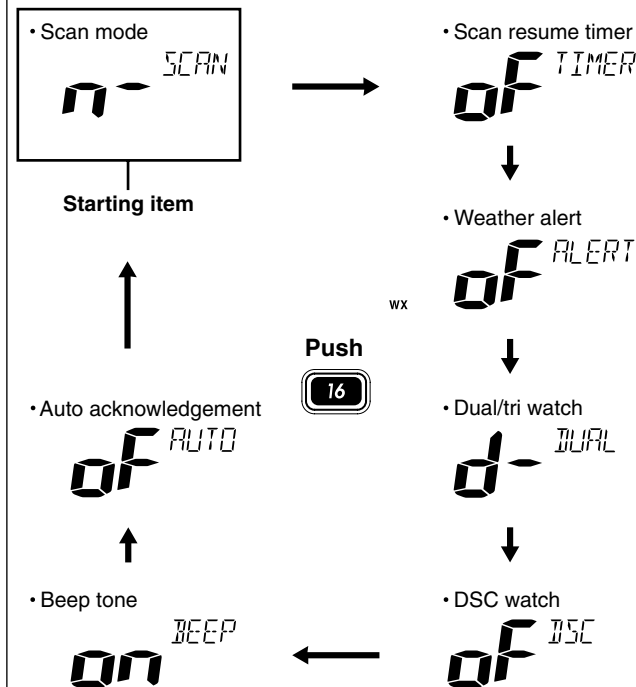
Set mode is used to change the conditions of the transceiver's functions: scan type (normal or priority), scan resume timer, weather alert, dual/tri-watch, DSC watch, transceiver's beep tone and Auto ACK.

/// Available functions may differ depending on dealer setting.

◇ SET mode operation

- ① Turn power OFF.
- ② While pushing [16•9], turn power ON to enter SET mode.
 - "SCAN" appears on channel name indicator.
- ③ After the display appears, release [16•9].
- ④ Push [16•9] to select the desired item, if necessary.
- ⑤ Push [▲]/[▼] to select the desired condition of the item.
- ⑥ Turn power OFF, then ON again to exit set mode.

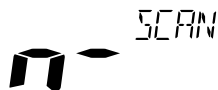
◇ SET MODE CONSTRUCTION



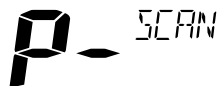
■ SET mode items

◇ Scan type

The transceiver has 2 scan types: normal scan and priority scan. Normal scan searches all tag channels in the selected channel group. Priority scan searches all tag channels in sequence while monitoring Channel 16.



Normal scan (default)



Priority scan

◇ Scan resume timer

The scan resume timer can be selected as a pause (OFF) or timer scan (ON). When OFF is selected, the scan pauses until the signal disappears. When ON is selected, the scan pauses 5 sec. and resumes even if a signal has been received on channels except for Channel 16.



Scan timer OFF (default)



Scan timer ON

◇ Weather alert

An NOAA broadcast station transmits a weather alert tone before important weather information. When the weather alert function is turned ON, the transceiver detects the alert, then the "WX ALT" indicator blinks until the transceiver is operated. The previously selected (used) weather channel is checked any time during standby or while scanning.

- "WX ALT" appears instead of "WX" indication when the function is set ON.



Weather alert OFF (default)



Weather alert ON

◇ Dual/Tri-watch

This item can be selected as dual watch or tri-watch. (p. 9)



Dual watch (default)



Tri-watch

6 SET MODE

◆ DSC watch

DSC watch monitors Channel 70 while you are receiving another channel.

If a distress signal is received on Channel 70, the transceiver monitors Channel 16 and 70 alternately until the distress signal disappears. If a signal is received on another channel, DSC watch pauses until the signal disappears.

/// This function may not be available for some channel groups depending on dealer setting.

The display shows the word "DSC" in a small font, and below it, the word "OFF" in a large, stylized, blocky font.

DSC watch OFF (default)

The display shows the word "DSC" in a small font, and below it, the word "ON" in a large, stylized, blocky font.

DSC watch ON

◆ Beep tone

You can select silent operation by turning beep tones OFF or you can have confirmation beeps sound at the push of a switch by turning beep tones ON.

The display shows the word "BEEP" in a small font, and below it, the word "ON" in a large, stylized, blocky font.

Beep tone ON (default)

The display shows the word "BEEP" in a small font, and below it, the word "OFF" in a large, stylized, blocky font.

Beep tone OFF

◆ Auto acknowledgement

The transceiver automatically transmits position reply or position report reply when a position request or position report call is received, respectively when this function is turned ON.

The display shows the word "AUTO" in a small font, and below it, the word "OFF" in a large, stylized, blocky font.

Auto acknowledgement
OFF (default)

The display shows the word "AUTO" in a small font, and below it, the word "ON" in a large, stylized, blocky font.

Auto acknowledgement
ON

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
The transceiver does not turn ON.	• Bad connection to the battery pack.	• Check the connection to the transceiver.	p. ?
No sound from speaker.	• Squelch level is too deep. • Volume level is too low. • Speaker has been exposed to water.	• Set squelch to the threshold point. • Set [VOL] to a suitable level. • Drain water from the speaker.	p. 7 p. 7 —
Transmitting is impossible, or high power can not be selected.	• Some channels are for low power or receive only. • The output power is set to low.	• Change channels. • Push [HI/LO] on the microphone to select high power.	pgs. 5, 6, 16 p. 7
Scan does not start.	• “TAG” channels are not programmed.	• Set the desired channels as “TAG” channels.	p. 11
No beeps.	• Beep tones are turned OFF. • The squelch is open.	• Turn the beep tone ON in SET mode. • Set squelch to the threshold point.	p. 14 p. 7
Distress call cannot be transmitted.	• MMSI (DSC self ID) code is not programmed.	• Program the MMSI (DSC self ID) code.	p. ?

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CHANNEL LIST

Channel number			Frequency (MHz)	
USA	INT	CAN	Transmit	Receive
	01	01	156.050	160.650
01A			156.050	156.050
	02	02	156.100	160.700
	03	03	156.150	160.750
03A			156.150	156.150
	04		156.200	160.800
		04A	156.200	156.200
	05		156.250	160.850
05A		05A	156.250	156.250
06	06	06	156.300	156.300
	07		156.350	160.950
07A		07A	156.350	156.350
08	08	08	156.400	156.400
09	09	09	156.450	156.450
10	10	10	156.500	156.500
11	11	11	156.550	156.550
12	12	12	156.600	156.600
13 ²	13	13 ¹	156.650	156.650
14	14	14	156.700	156.700
15 ²	15 ¹	15 ¹	156.750	156.750
16	16	16	156.800	156.800
17 ¹	17	17 ¹	156.850	156.850
	18		156.900	161.500
18A		18A	156.900	156.900
	19		156.950	161.550

Channel number			Frequency (MHz)	
USA	INT	CAN	Transmit	Receive
19A		19A	156.950	156.950
20	20	20 ¹	157.000	161.600
20A			157.000	157.000
	21	21	157.050	161.650
21A		21A	157.050	157.050
		21b	Rx only	161.650
	22		157.100	161.700
22A		22A	157.100	157.100
	23	23	157.150	161.750
23A			157.150	157.150
24	24	24	157.200	161.800
25	25	25	157.250	161.850
		25b	Rx only	161.850
26	26	26	157.300	161.900
27	27	27	157.350	161.950
28	28	28	157.400	162.000
		28b	Rx only	162.000
	60	60	156.025	160.625
	61		156.075	160.675
61A		61A	156.075	156.075
	62		156.125	160.725
		62A	156.125	156.125
	63		156.175	160.775
63A			156.175	156.175
	64	64	156.225	160.825

Channel number			Frequency (MHz)	
USA	INT	CAN	Transmit	Receive
64A		64A	156.225	160.825
	65		156.275	160.875
65A	65A	65A	156.275	156.275
	66		156.325	160.925
66A	66A	66A ¹	156.325	156.325
67 ²	67	67	156.375	156.375
68	68	68	156.425	156.425
69	69	69	156.475	156.475
70 ³	70 ³	70 ³	156.525	156.525
71	71	71	156.575	156.575
72	72	72	156.625	156.625
73	73	73	156.675	156.675
74	74	74	156.725	156.725
77 ¹	77	77 ¹	156.875	156.875
	78		156.925	161.525
78A		78A	156.925	156.925
	79		156.975	161.575
79A		79A	156.975	156.975
	80		157.025	161.625
80A		80A	157.025	157.025
	81		157.075	161.675
81A		81A	157.075	157.075
	82		157.125	161.725
82A		82A	157.125	157.125
	83	83	157.175	161.775

Channel number			Frequency (MHz)	
USA	INT	CAN	Transmit	Receive
83A		83A	157.175	157.175
		83b	Rx only	161.775
84	84	84	157.225	161.825
84A			157.225	157.225
85	85	85	157.275	161.875
85A			157.275	157.275
86	86	86	157.325	161.925
86A			157.325	157.325
87	87	87	157.375	161.975
87A			157.375	157.375
88	88	88	157.425	162.025
88A			157.425	157.425
WX channel			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

¹Low power only. ²Momentary high power. ³Receive only.

NOTE: Simplex channels, 3, 21, 23, 61, 64, 81, 82 and 83 **CANNOT** be lawfully used by the general public in U.S.A. waters.

■ Specifications

◆ General

- Frequency coverage :
 Transmit 156.025–157.425 MHz
 Receive 156.050–163.275 MHz
- Mode : FM (16K0G3E)
 DSC(16K0G2B)
- Channel spacing : 25 kHz
- Current drain (at 13.8 V) : TX high 5.5 A max.
 Max. audio 1.5 A max.
- Power supply requirement : 13.8 V DC
- Frequency stability : ± 10 ppm (-20°C to $+60^{\circ}\text{C}$; -4°F to $+140^{\circ}\text{F}$)
- Dimensions : $153(\text{W}) \times 67(\text{H}) \times 141.6(\text{D})$ mm
- Dimensions (Projection not included) : $6 \frac{1}{32}(\text{W}) \times 2 \frac{5}{8}(\text{H}) \times 5 \frac{9}{16}(\text{D})$ in
- Weight : 825 g ; 1.8 lb

◆ Transmitter

- Output power : 25 W and 1 W
- Modulation system : Variable reactance frequency modulation
- Max. frequency deviation : ± 5.0 kHz
- Spurious emissions : Less than -70 dB

◆ Receiver

- Receive system : Double conversion superheterodyne
- Sensitivity (12 dB SINAD) : Less than $0.22\mu\text{V}$ (typical)
- Squelch sensitivity : Less than $0.22\mu\text{V}$ (typical)
- Intermodulation rejection ratio : More than 70 dB
- Spurious response rejection ratio : More than 70 dB
- Adjacent channel selectivity : More than 70 dB
- Audio output power : More than 4.5W at 10% distortion with a 4 Ω load

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

■ Options

• MB-69 FLUSH MOUNT

For mounting the transceiver to a panel.

• MB-92 DUST COVER

For mounting the transceiver to a front panel to avoid exposure the keys and knobs to water when the transceiver is not used.

Count on us!

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