ICOM

INSTRUCTION MANUAL

VHF MARINE TRANSCEIVER
IC-M23

Icom Inc.

DOC

CE versions of the IC-M23 which display the "CE" symbol on the serial number label, comply with the essential requirements of the European Radio and Telecommunication Terminal Directive 1999/5/EC.

This warning symbol indicates that this equipment operates in non-harmonised frequency bands and/or may be subject to licensing conditions in the country of use. Be sure to check that you have the correct version of this radio or the correct programming of this radio, to comply with national licensing requirement.

• List of Country codes (ISO 3166-1)

	Country	Codes		Country	Codes
1	Austria	AT	18	Liechtenstein	LI
2	Belgium	BE	19	Lithuania	LT
3	Bulgaria	BG	20	Luxembourg	LU
4	Croatia	HR	21	Malta	MT
5	Czech Republic	CZ	22	Netherlands	NL
6	Cyprus	CY	23	Norway	NO
7	Denmark	DK	24	Poland	PL
8	Estonia	EE	25	Portugal	PT
9	Finland	FI	26	Romania	RO
10	France	FR	27	Slovakia	SK
11	Germany	DE	28	Slovenia	SI
12	Greece	GR	29	Spain	ES
13	Hungary	HU	30	Sweden	SE
14	Iceland	IS	31	Switzerland	CH
15	Ireland	IE	32	Turkey	TR
16	Italy	IT	33	United Kingdom	GB
17	Latvia	LV			

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iCOM

DECLARATION OF CONFORMITY

We Icom Inc. Japan
1-1-32, Kamiminami, Hirano-ku
Osaka 547-0003, Japan

Declare on our sole responsibility that this equipment complies with the essential requirements of the Radio and Telecommunications Terminal Equipment Directive, 1999/5/EC, and that any applicable Essential Test Suite measurements have been performed.

Kind of equipment: VHF MARINE TRANSCEIVER

Type-designation: IC-M23

Version (where applicable):

This compliance is based on conformity with the following harmonised standards, specifications or documents:
i)   EN 301 178-2 V1.2.2 (2007-02)
ii) EN 60945:2002
iii) EN 60950-1:2006/A11:2009
iv) EN 300 698-2 V1.2.1 (2009-12)
v)   EN 300 698-3 V1.2.1 (2009-12)
vi)

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Bad Soden 31st Jan. 2011
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Signature

Icom Inc.

i

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 description of the vessel.

4. "LOCATED AT …………… " (your position)

5. The nature of the distress and assistance required.

6. Any other information which might facilitate the rescue.

RECOMMENDATION

CLEAN THE TRANSCEIVER 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: DO NOT submerge the transceiver in water if there is any reason to suspect the waterproof protection may not be effective. For example, in cases where the battery cover or [DC] jack cap rubber seal is damaged, the transceiver/battery cover/[DC] jack cap is cracked or broken, or the transceiver has been dropped, or when the battery cover, antenna or DC Jack cap are detached from the transceiver.
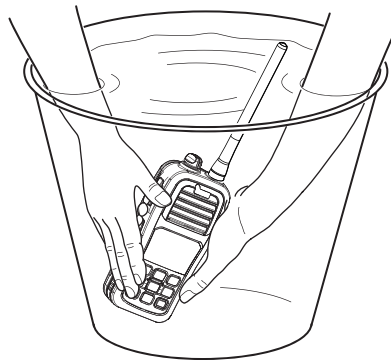
FOREWORD

Thank you for purchasing this Icom radio. The IC-M23 VHF MARINE TRANSCEIVER is designed and built with Icom's state of the art technology and craftsmanship. With proper care this radio should provide you with years of trouble-free operation.

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-M23.

EXPLICIT DEFINITIONS

WORD	DEFINITION
⚠DANGER!	Personal death, serious injury or an explosion may occur.
⚠WARNING!	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	If disregarded, only inconvenience. No risk of personal injury, fire or electric shock.

FEATURES

☞ **Floats on water**
The transceiver floats in fresh or salt water even when the supplied accessories are attached.
• When a third-party battery pack, strap, antenna, etc. is used, it may sink.

☞ **Floats and flashes**
An LED sends out intermittent light from a transparent section on the bottom of the radio, while floating in the water. As the LED light stands out in the dark (like a flashing fishing float), the radio can be easily retrieved from the water. This function works even when the radio is turned OFF.

PRECAUTIONS

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

⚠️WARNING! NEVER hold the transceiver so that the antenna is closer than 2.5 cm from exposed parts of the body, especially the face or eyes, while transmitting. The transceiver will perform best if the microphone is 5 to 10 cm away from the lips and the transceiver is vertical.

CAUTION: NEVER connect the transceiver to a power source other than the BC-199 or BP-266. Such a connection will ruin the transceiver.

DO NOT use or place the transceiver in direct sunlight or in areas with temperatures below –15°C or above +55°C.

KEEP the transceiver out of the reach of children.

KEEP the transceiver at least 0.9 meters away from your vessel's magnetic navigation compass.

BE CAREFUL! The transceiver meets 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.

* Only when the flexible antenna, battery cover and [DC] jack cap are securely attached.

MAKE SURE the flexible antenna and battery cover are securely attached to the transceiver, and that the antenna and battery cover are dry before attachment. Exposing the inside of the transceiver to water will result in serious damage to the transceiver.

TABLE OF CONTENTS

◇ 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.

2 SUPPLIED ACCESSORIES AND ATTACHMENTS

■ Supplied accessories

Handstrap   Battery pack   Charger*

Flexible antenna

Belt clip

*Not supplied or different types are supplied, depending on the version.
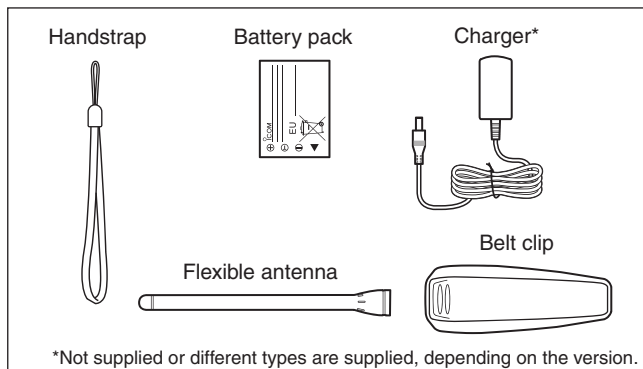
■ Attachments

◇ Flexible antenna

Connect the supplied flexible an-tenna to the antenna connector.

CAUTION:
• **NEVER** carry the transceiver by holding just the antenna.
• Transmitting without an antenna can damage the transceiver.
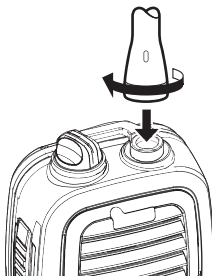
◇ Handstrap

Pass the handstrap through the loop on the back side of the transceiver as shown.
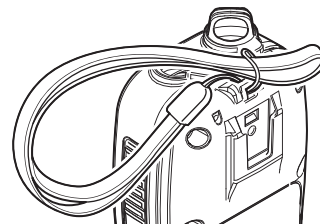
◇ Belt clip

Attach the belt clip to, or detach the belt clip from the transceiver.

To attach the belt clip
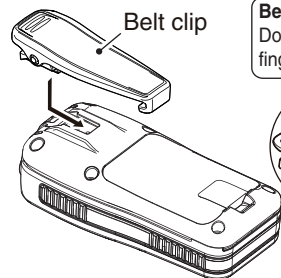
Belt clip

Be careful!
Don't break your fingernail.

To detach the belt clip

Lift the tab up (➊), and slide the belt clip in the direction of the arrow (➋).
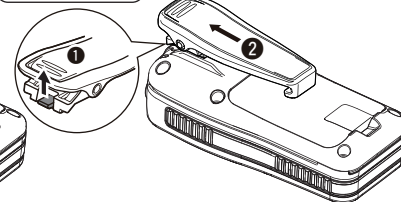
◇ Battery pack

To remove the battery pack:
Slide the latch and then lift the battery cover to remove it. Then remove the battery pack, as shown.

Latch

Battery cover
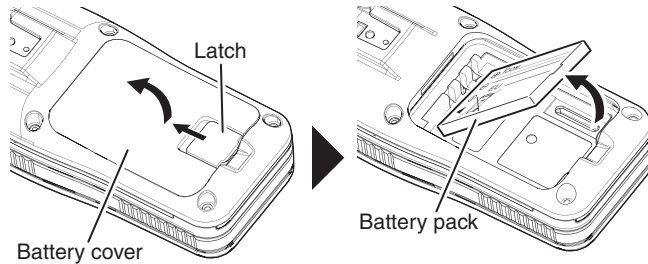
Battery pack

To insert the battery pack:
Place the battery pack into the transceiver so it fits flat, and then securely attach the battery cover, as shown.

Push the cover until the latch comes back to the locked position.

"Click"
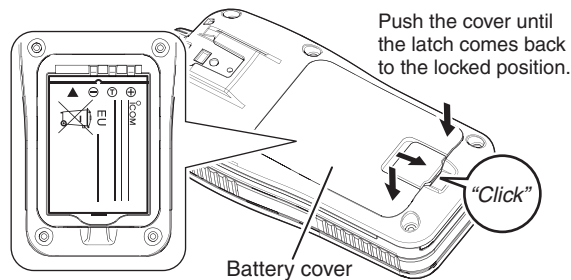
Battery cover

NEVER remove the battery cover when the transceiver is wet or soiled. This may result in water or dust getting into the transceiver/battery pack, and may result in the transceiver being damaged.

CAUTION:
• When attaching or removing the battery cover, make sure the rubber seal is correctly set in the groove of the cover. If the seal is not correctly in the groove, it may be damaged when attaching the battery cover. If the seal is damaged, waterproof protection is not guaranteed.
• When attaching the battery cover, make sure dust or other material does not adhere to the rubber seal. If dust or other material is on the seal when attaching the battery cover, waterproof protection may not be guaranteed.

Make sure the rubber seal is properly seated in the groove and there is dust or other material is on it.
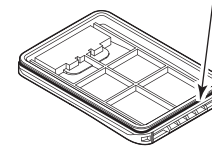
Correct position   **Incorrect position**

Rubber seal

Groove

Battery cover   Battery cover

3 PANEL DESCRIPTION
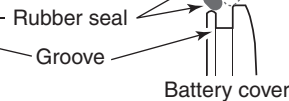
■ Front, top and side panels

Speaker

Microphone

Function
display
(pp. 6, 7)
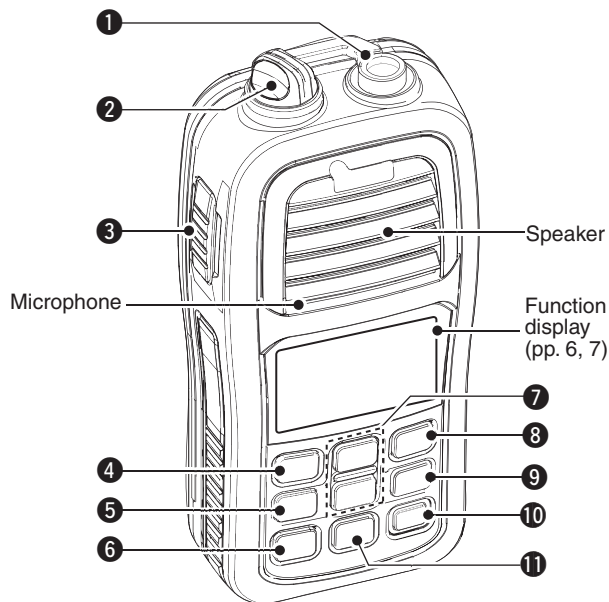
q **ANTENNA CONNECTOR** (p. 2)
Connect the supplied antenna here.

w **DC JACK [DC]** (p. 23)
Connect the charger or optional cable here.

① To remove the **[DC]** jack cap, rotate it
counter clockwise.

② Pull the cap up to detach it.

NOTE: Attach the **[DC]** jack cap when the charger or op-
tional cable is not connected. Otherwise, water will get into
the transceiver. When attaching the **[DC]** jack cap, make
sure dust or other material does not adhere to the rubber
seal. If dust or other material is on the seal when attaching
the cap, waterproof protection may not be guaranteed.

e **PTT SWITCH [PTT]**
Hold down to transmit; release to receive. (p. 11)

r **CHANNEL 16 KEY [16 C]**
➥ Push to select Channel 16. (p. 8)
➥ Hold down for 1 second to select the Call channel. (p. 8)
➥ When the Call channel is selected, hold down for 3 seconds
to enter the Call channel programming mode. (p. 12)
➥ While in the Set mode, push to return to the normal op-
erating mode. (p. 17)

❺ VOLUME/SQUELCH/MONITOR KEY [VOL/SQL MONI]
➥Push to enter the volume adjustment mode or the squelch adjustment mode. (p. 10)

Normal operating mode
↓ **PUSH**
Volume adjustment mode
↓ **PUSH**
Squelch adjustment mode
PUSH

➥Hold down for 1 second to activate the Monitor function. (p. 13)
➥While holding down this key, hold down **[⏻]** to turn ON the power and enter the Set mode. (p. 17)
➥While in the Set mode, push to select an item. (p. 17)
➥While holding down this key, push [▼] to turn ON the Volume Mute function. Do the same steps again to turn OFF the function. (p. 12)
➥While holding down this key, push [▲] to turn ON the Volume Loud function. Do the same steps again to turn OFF the function. (p. 12)

❻ SCAN/DUAL KEY [SCAN DUAL]
➥Push to start or stop a normal or priority scan. (p. 15)
➥Hold down for 1 second to enter the Dual/Tri-watch mode. (p. 16)
➥Push to exit the watch mode. (p. 16)
➥Hold down this key and **[Hi/Lo]** for 1 second, to activate the AquaQuake function. (p. 13)

❼ UP/DOWN KEYS [▲] or [▼]
➥Push to select an operating channel. (pp. 8, 9)
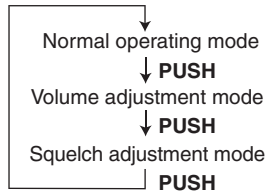➥While in the Set mode, push to select the setting or value of an item. (p. 17)
➥Push to check TAG channels or change scanning direction during a scan. (p. 15)

❽ FAVORITE/TAG KEY [FAV TAG]
➥ Push to sequentially select the favorite (TAG) channels, while ignoring untagged channels, in a channel group. (p. 8)
➥ Hold down for 1 second to set or clear the TAG for the displayed channel. (p. 15)
➥ While holding down, turn ON the power to clear or set all TAG channels in the selected channel group. (p. 15)

❾ CHANNEL KEY [CH]
➥Hold down for 1 second, one or more times, to select a channel group from USA*[1], International, Canada*[2] and ATIS*[3]. (p. 9)
➥Push to return to the previous channel before selecting Channel 16 or the Call channel. (p. 8)
*[1] U.K. and China versions only.
*[2] China version only.
*[3] German and Holland versions only.

❿ POWER KEY [⏻]
Hold down to turn power ON or OFF.

⓫ TRANSMIT POWER/LOCK KEY [Hi/Lo ⌗]
➥Push to select the high or low output power. (p. 11)
➥Hold down for 1 second to turn the Lock function ON or OFF. (p. 13)

3 PANEL DESCRIPTION

■ **Function display**
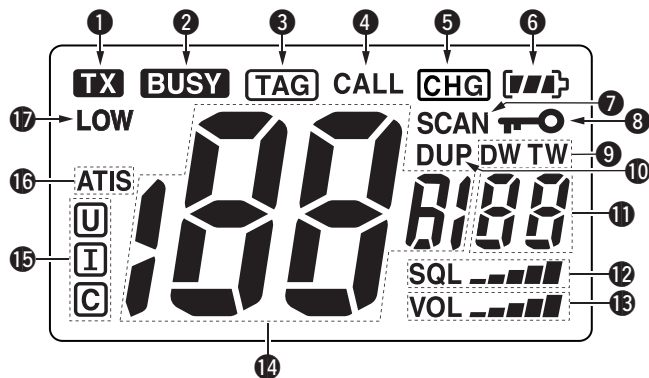
q **TRANSMIT ICON** (p. 11)
Appears while transmitting.

w **BUSY ICON**
➥Appears while receiving a signal or when the squelch opens. (p. 11)
➥Blinks while monitoring. (p. 13)

e **TAG CHANNEL ICON** (p. 15)
Appears when a TAG channel is selected.

r **CALL CHANNEL ICON** (p. 8)
Appears when the Call channel is selected.

t **CHARGE ICON** (p. 23)
Appears while charging.

y **BATTERY ICONS**
➥Displays the remaining battery capacity.

Indication	[▮▮▮▷	[▮▮ ▷	[▮ ▷	[▷
Battery status	Full	Middle	Charging required	Exhausted

[▮▮▮▷ blinks when the battery is over charged.
➥Scrolls while charging. (p. 23)

[▷→[▮ ▷→[▮▮ ▷→[▮▮▮▷
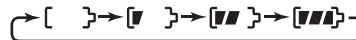
u **SCAN ICON** (p. 15)
Blinks during a scan.

i **LOCK ICON** (p. 13)
Appears when the Lock function is turned ON.

o **DUALWATCH/TRI-WATCH ICONS** (p. 16)
"**DW**" appears during Dualwatch; "**TW**" appears during Triwatch.

!0 **DUPLEX ICON**
Appears when a duplex channel is selected.

⓫ **SUB CHANNEL READOUT**
➥Displays Channel 16 during a priority scan, Dualwatch or Tri-watch. (p. 16)
➥Displays the Set mode item while in the Set mode. (p. 17)
➥Displays the volume level while in the volume adjustment mode. (p. 10)
➥Displays the squelch level while in the squelch adjustment mode. (p. 10)

⓬ **SQUELCH LEVEL ICON**
➥Displays the squelch level.
➥"**SQL**" blinks while adjusting the squelch level. (p. 10)

⓭ **VOLUME LEVEL ICON**
➥Displays the volume level.
➥The bars repeatedly appear in ascending order when the Volume Loud function is turned ON. (p. 12)
➥The bars blink while the Volume Mute function is turned ON. (p. 12)
➥"**VOL**" blinks while adjusting the volume level. (p. 10)

⓮ **CHANNEL NUMBER READOUT**
➥Displays the selected operating channel number.
➥In the Set mode, displays the selected setting or value. (p. 17)

⓯ **CHANNEL GROUP ICON** (p. 9)
"Ⓤ" appears when USA; "Ⓘ" appears when International;
"Ⓒ" appears when Canadian channel group is selected.

⓰ **ATIS ICON** (p. 9)
"**ATIS**" appears when the channel group, which ATIS function is activated, is selected.
(Available with German and Holland versions only.)

⓱ **LOW POWER ICON** (p. 11)
➥"**LOW**" appears when low power is selected.
➥"**LOW**" blinks when switching to the low power mode is forced because of a high temperature error or low voltage.

BASIC OPERATION

■ Channel selection

IMPORTANT: Prior to using the transceiver for the first time, the battery pack must be fully charged for optimum life and operation (p. 23). To avoid damage to the transceiver, turn OFF the power while charging.

◇ Channel 16

Channel 16 is the distress and safety channel. It is used for establishing initial contact with a station, and for emergency communications. Channel 16 is monitored during both Dualwatch and Tri-watch. While in the standby mode, you must monitor Channel 16.

① Push **[16]** momentarily to select Channel 16.
② Push **[CH]** to return to the channel used before selecting Channel 16, or push **[▲]** or **[▼]** to select a different channel.

Push

Convenient!
While holding down **[FAV]**, push [▲] or **[▼]** to select the favorite (TAG) channels.
• Pushing **[FAV]** only advances the displayed TAG channel.
• The favorite channels are selected using the TAG channel setting. (p. 15)

◇ 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, and are used to store your most often used channel in each channel group, for quick recall. (p. 12)

① Hold down **[C]** (16) for 1 second to select the Call channel of the selected channel group.
• "**CALL**" and the Call channel number appear.
② Push **[CH]** to return to the channel used before selecting the Call channel, or push **[▲]** or **[▼]** to select a different channel.

Hold down for 1 second

◇ USA, International, Canadian and ATIS channels

The transceiver is pre-programmed with USA*[1], International, Canadian*[2] and ATIS*[3] channels. Choose the appropriate channel groups for your operating area.

① Push **[CH]** to select a regular channel.
② Hold down **[CH]** for 1 second, one or more times, to select the desired channel group.
  • The selectable channel groups are different, depending on the version.
③ Push **[▲]** or **[▼]** to select a channel.
  • "**DUP**" appears for duplex channels.
  • "A" appears when a simplex channel is selected.

*[1] U.K. and China versions only.
*[2] China version only.
*[3] German and Holland versions only.

For UK version
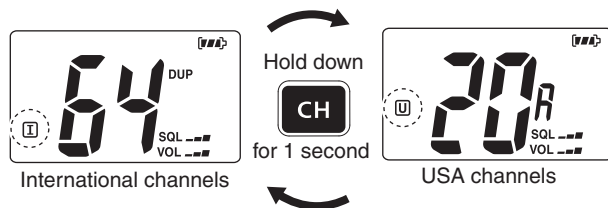
International channels   Hold down **CH** for 1 second   USA channels

For German and Holland versions

International channels   Hold down **CH** for 1 second   ATIS channels

For China version

International channels

Hold down **CH** for 1 second

USA channels   Canadian channels
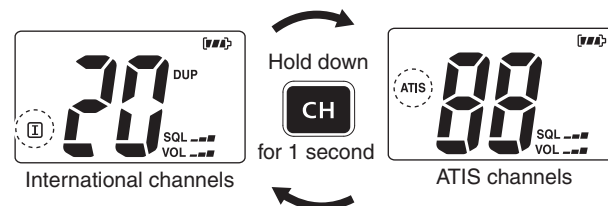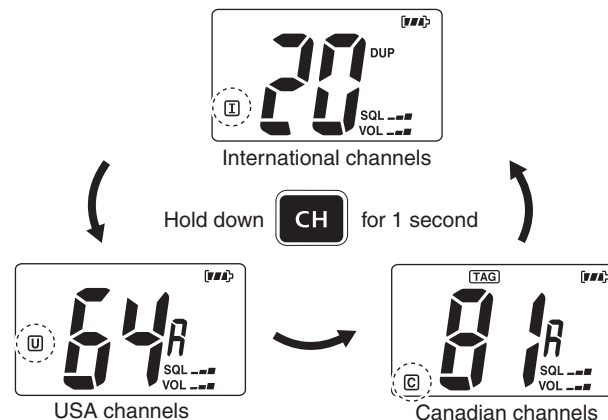
■ Adjusting the volume level

The volume level can be adjusted using **[VOL/SQL]** and **[▲]** or **[▼]**.

① Push **[VOL/SQL]** once to enter the volume adjustment mode, then push **[▲]** or **[▼]** to adjust the volume level.
 • The "**VOL**" icon starts blinking.
 • The transceiver has 31 volume levels and OFF.
 • When no key operation is performed for 5 seconds, the transceiver returns to the normal mode.
② Push **[VOL/SQL]** twice to exit the volume adjustment mode.

Displays the volume level.

Blinks in the volume adjustment mode.
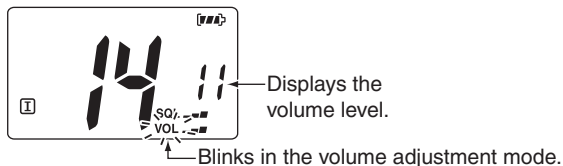
■ Adjusting the squelch level

The squelch level can be adjusted using **[VOL/SQL]** and **[▲]** or **[▼]**.
In order to properly receive signals, as well as for the scan to effectively function, the squelch must be adjusted to the proper level.

① Push **[VOL/SQL]** twice to enter the squelch adjustment mode, then push **[▲]** or **[▼]** to adjust the squelch level.
 • The "**SQL**" icon starts blinking.
 • The transceiver has 11 squelch levels: OP is completely open; 10 is tight squelch; 1 is loose squelch.
 • When no key operation is performed for 5 seconds, the transceiver returns to the normal mode.
② Push **[VOL/SQL]** again to exit the squelch adjustment mode.

Displays the squelch level.

Blinks in the squelch adjustment mode.
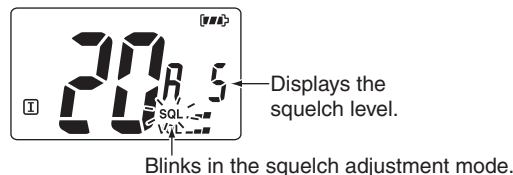
■ Receiving and transmitting

CAUTION: Transmitting without an antenna can damage the transceiver.

① Hold down **[⏻]** to turn ON the power.

② Set the volume and squelch levels.
   You can enter each adjustment mode by pushing **[VOL/SQL]**.
   ➥ Enter the squelch adjustment mode, and then push **[▼]** one or more times to open the squelch.
   ➥ Enter the volume adjustment mode, and then push **[▲]** or **[▼]** to adjust the volume level.
   ➥ Enter the squelch adjustment mode again, and push **[▲]** until the noise just disappears.

③ Push **[VOL/SQL]** again to exit the squelch adjustment mode.

④ Push **[▲]** or **[▼]** to select a desired channel.
   • When receiving a signal, " **BUSY** " appears and audio is heard from the speaker.
   • You may want to further adjust the audio level.

⑤ Push **[Hi/Lo]** to select the output power if necessary.
   • "**LOW**" appears when low power is selected; no icon is displayed when high power is selected.
   • Choose low power for short range communications; choose high power for longer distance communications.
   • Some channels are for only low power communication.

⑥ Hold down **[PTT]** to transmit, then speak into the microphone.
   • " **TX** " appears.
   • Channel 70 cannot be used for transmission.

⑦ Release **[PTT]** to receive.

IMPORTANT: To maximize the readability of your transmitted signal, pause for a second after pushing **[PTT]**, hold the microphone 5 to 10 cm from your mouth and speak into the microphone at a normal voice level.

NOTE: To conserve battery power, the transceiver's Power Save function automatically activates when no signal is received for 5 seconds.

⑥ Push to transmit.
⑦ Release to receive.

Microphone

② Adjust the volume and squelch level.

④ Set channel.

① Power ON.

⑤ Set output power.

② Enter the volume and squelch adjustment mode.
③ Exit the squelch adjustment mode.
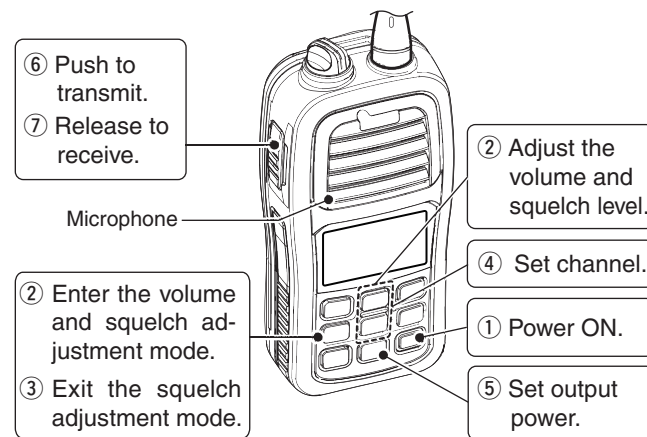
■ Call channel programming

Call channel is used to access Channel 16 (default; may differ depending on the version). However, you can program the Call channel with your most often-used channel in each channel group, for quick recall.

① Hold down **[CH]** for 1 second, one or more times, to select the desired channel group to be programmed. (p. 9)
② Hold down **[C]** (16) for 1 second to select the Call channel of the selected channel group.
 • "**CALL**" and the Call channel number appear.
③ Hold down **[C]** (16) again for 3 seconds (until a long beep changes to 2 short beeps) to enter the Call channel programming mode.
 • The channel number starts blinking.
④ Push **[▲]** or **[▼]** to select the desired channel.
⑤ Push **[C]** (16) to program the displayed channel as the Call channel.
 • The channel number stops blinking.
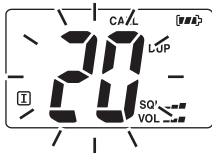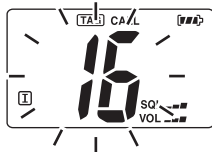
■ Volume Loud function

The Volume Loud function temporarily maximizes the volume level.
▨ This function has no effect when the volume level is 31.

① While holding down **[VOL/SQL]**, push **[▲]** to turn ON the Volume Loud function.
 • The volume level is set to the maximum level (level 31).
 • The bars of the volume level icon repeatedly appear in ascending order.
② Push **[VOL/SQL]** and **[▲]** again to turn OFF the Volume Loud function.

■ Volume Mute function

The Volume Mute function temporarily mutes the audio output.
▨ This function has no effect when the volume level is OFF.

① While holding down **[VOL/SQL]**, push **[▼]** to turn ON the Volume Mute function.
 • The volume level is set to the minimum level (OFF).
 • The bars of the volume level icon blink.
② Push **[VOL/SQL]** and **[▼]** again to turn OFF the Volume Mute function.

■ Lock function

This function electronically locks all keys (except for **[PTT]**, **[VOL/SQL]**, **[MONI]** (VOL/SQL), **[ ]** (Hi/Lo) and **[▲]** or **[▼]***) to prevent accidental changing of the channel and function access.

* Only in the volume or squelch adjustment mode, and volume loud and Volume Mute functions.

➡ Hold down **[ ]** (Hi/Lo) for 1 second to turn the Lock function ON and OFF.

Appears while the Lock function is activated.

Hold down for 1 second

■ Monitor function

The Monitor function opens the squelch. The monitor key action can be selected in the Set mode. (p. 19)

➡ The Monitor function is activated by holding down **[MONI]** (VOL/SQL).
 • " BUSY " blinks and the squelch opens.

Blinks while the monitor function is activated.

Hold down
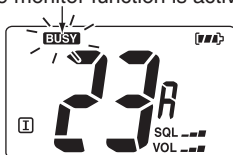
■ Automatic backlighting

This function lights the function display and keys, and is convenient for night-time operation. The automatic backlighting can be activated in the Set mode. (p. 19)

➡ Push any key except for **[PTT]** to turn ON the backlight.
 • The backlight is automatically turned OFF after 5 seconds of inactivity.

■ AquaQuake Water Draining function

The AquaQuake Water Draining function removes water from the speaker grill. Without this function, water may muffle the sound coming from the speaker. The transceiver makes a vibrating sound when this function is activated.

➡ Hold down both **[SCAN]** and **[Hi/Lo]**.
 • A low vibration tone sounds for 9 seconds to drain water, regardless of the volume level setting.
 • The transceiver does not accept key operations while the AquaQuake Water Draining function is activated.

5 SCAN OPERATION (Except Holland version)

■ Scan types

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

In addition, the Auto Scan function is selectable for standby convenience. This function can be simultaneously activated, depending on the setting in the Set mode. (p. 18)

Set the TAG channels (scanned channels) before scanning. Clear the TAG for unwanted channels which inconveniently stop scanning, such as those for digital communications. (p. 15)

Choose the desired scan type from "Priority" or "Normal" in the Set mode. (p. 18)

PRIORITY SCAN
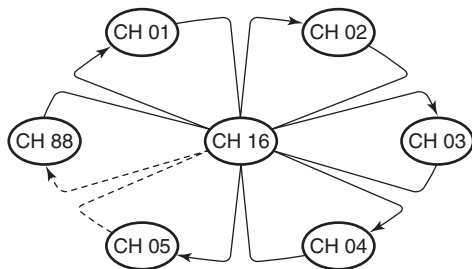
A priority scan sequentially searches through all TAG channels while monitoring Channel 16. When a signal is detected on Channel 16, the scan pauses until the signal disappears; when a signal is detected on a channel other than Channel 16, the scan switches to Dualwatch, until the signal disappears.

NORMAL SCAN
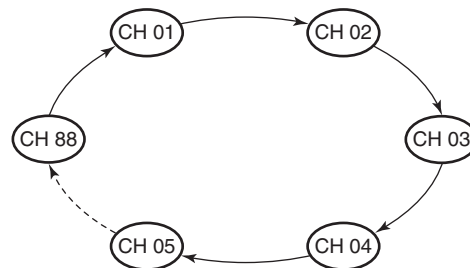
A normal scan, like a priority scan, sequentially searches through all TAG channels. However, unlike a priority scan, Channel 16 is not checked unless Channel 16 is set as a TAG channel.

■ Setting TAG channels

For more efficient scanning, add the desired channels as TAG channels, or clear the TAG on unwanted channels. Channels that are not tagged will be skipped while scan. TAG channels can be independently assigned to each USA, International, Canada and ATIS channel group.

① Hold down **[CH]** for 1 second one or more times to select the desired channel group.
② Select the desired channel to be set as a TAG channel.
③ Hold down **[TAG]** (FAV) for 1 second to set the displayed channel as a TAG channel.
   • " TAG " appears on the display.
④ To cancel a TAG channel setting, hold down **[TAG]** (FAV) for 1 second.
   • " TAG " disappears.

✔ **Clearing (or setting) all tagged channels**
While holding down **[TAG]** (FAV), turn ON the power to clear all TAG channels in the selected channel group.
• Repeat above procedure to set all channels as TAG channels (when no TAG channel has been set.)

■ Starting a scan

Set the Priority Scan function, Scan Resume Timer and Auto Scan function in advance, in the Set mode. (p. 18)

① Hold down **[CH]** for 1 second one or more times to select a desired channel group.
② Push **[SCAN]** to start a priority or normal scan.
   • "**SCAN**" blinks while scanning.
   • "16" appears on the sub channel readout during a priority scan.
   • When a signal is received, the scan pauses until the signal disappears, or resumes after pausing 5 seconds, depending on the Set mode setting.
   • Push [▲] or [▼] to sequentially select TAG channels, change the scanning direction or manually resume the scan.
③ To stop the scan, push **[SCAN]** again.
   • "**SCAN**" disappears.
   • Pushing **[PTT]**, **[16]**, **[CH]** or **[FAV]** also stops the scan.

[Example]: Starting a normal scan.

Scanning starts

When a signal is received

Push [SCAN DUAL]

Blinks

Appears

Blinks

DUALWATCH/TRI-WATCH (Except Holland version)
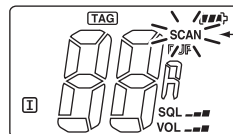
■ Description

Dualwatch monitors Channel 16 while you are receiving on another channel; Tri-watch monitors Channel 16 and the Call channel while receiving another channel. Dualwatch/Tri-watch are convenient for monitoring Channel 16 when you are operating on another channel.

DUALWATCH/TRI-WATCH SIMULATION

Call channel

Ch 16   Ch 88   Ch 88   Ch 16   Ch 88   Ch 20
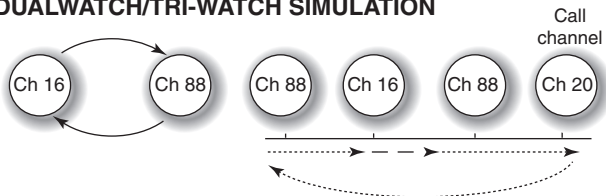
Dualwatch   **Tri-watch**

• 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, Hold down **[PTT]**.

■ Operation

① Select Dualwatch or Tri-watch in the Set mode. (p. 19)
② Select the desired channel.
③ Hold down **[DUAL]** (SCAN) for 1 second to start Dual-watch or Tri-watch, depending on the Set mode setting.
 • "**DW**" blinks during Dualwatch; "**TW**" blinks during Tri-watch.
 • A beep tone sounds when a signal is received on Channel 16.
 • Tri-watch switches to Dualwatch when receiving a signal on the Call channel.
④ To cancel Dualwatch/Tri-watch, push **[DUAL]** (SCAN) again.

[Example]: Operating Tri-watch on INT channel 07.

Tri-watch starts.

A signal is received on the Call channel.

Tri-watch resumes after the signal disappears.

The signal received on Channel 16 takes priority.
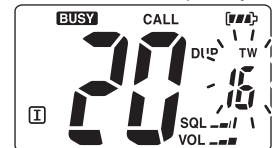
■ Set mode programming

The Set mode is used to change the settings of transceiver's functions: Beep Tone function, Priority Scan function*, Scan resume timer*, Auto Scan function*, Dual/Tri-watch function*, Monitor key action, Automatic backlighting, LCD contrast setting and Power Save function.
*Not available with Holland version.

◇ Set mode operation
① Turn OFF the power.
② While holding down **[VOL/SQL]**, turn ON the power to enter the Set mode.
  • "bP" appears.
③ Push **[VOL/SQL]** to select a desired item. Or while holding down **[VOL/SQL]**, push **[▲]** or **[▼]** also selects an item.
④ Push **[▲]** or **[▼]** to select a desired option of the item.
⑤ To exit the Set mode, push **[16]**.

SET MODE ITEMS (The display shows the current settings, and the selected item is displayed in the dotted circle.)

• Beep Tone

Starting item

• Priority Scan*

• Scan resume timer*

• Auto Scan*

→ : Push [VOL/SQL MONI] or Push [VOL/SQL MONI] + [▲]

←--- : Push [VOL/SQL MONI] + [▼]

*Not available with Holland version.

• Dual/Tri-watch*

• Power Save

• LCD contrast

• Automatic backlighting

• Monitor key action

17
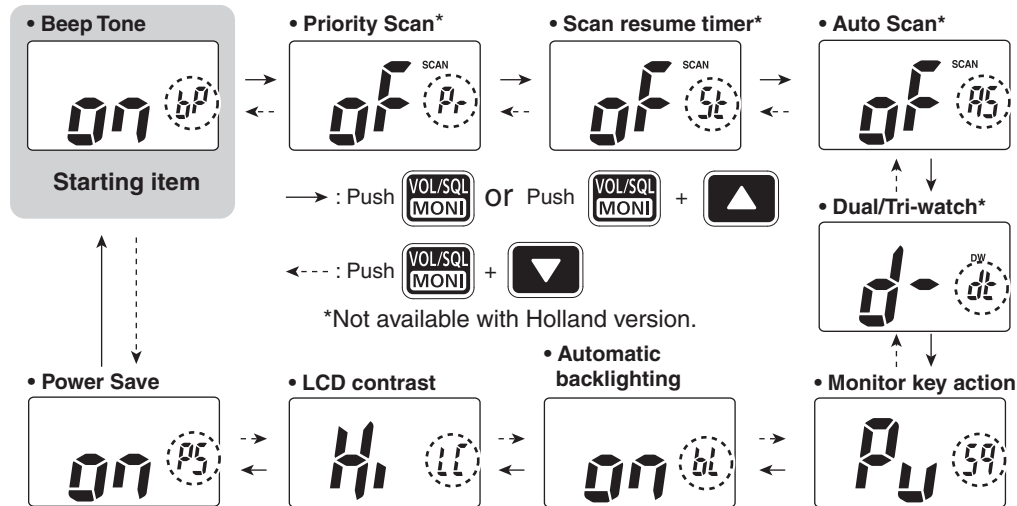
■ Set mode items

◇ Beep Tone function   "bP"
Turn the key touch beep sound ON or OFF.
• OFF: For silent operation.
• ON : A beep sounds.

Beep tone ON (default)   Push   Beep tone OFF

◇ Priority Scan function   "Pr"
(Not available with Holland version)
The transceiver has 2 scan types— normal (OFF) and priority (ON) scan. A normal scan searches all TAG channels in the selected channel group. A priority scan sequentially searches all TAG channels while monitoring Channel 16.

Normal scan (default)   Push   Priority scan

◇ Scan resume timer   "St"
(Not available with Holland version)
The Scan resume timer can be set as a pause (OFF) or timer scan (ON).
• OFF: When a signal is detected, the scan pauses on the channel until the signal disappears, and then resumes.
• ON : When a signal is detected, the scan pauses on the channel for 5 seconds, and then resumes.

Scan resume timer OFF   Push   Scan resume timer ON

◇ Auto Scan function   "AS"
(Not available with Holland version)
The Auto Scan function automatically starts a normal or priority scan when no signal is received, and no operation is performed for 30 seconds.

Auto scan OFF (default)   Push   Auto scan ON

◇ **Dual/Tri-watch function** "dt"

(Not available with Holland version)

Set the watch type to Dualwatch or Tri-watch. (p. 16)

Push

Dualwatch function
(default)

Tri-watch function

◇ **Monitor key action** "Sq"

The monitor key temporarily opens the squelch. This item sets the key action.

• Pu (PUSH) : The Monitor function is activated by holding down **[MONI]** (VOL/SQL). The squelch stays open while holding down the key.

• Ho (HOLD) : The Monitor function is activated by holding down **[MONI]** (VOL/SQL) for 1 second. The squelch stays open until any key is pushed.

Push

Push setting (default)

Hold setting

◇ **Automatic backlighting** "bL"

This function is convenient for night-time operation. The backlight can be selected from ON and OFF.

• The backlight is automatically activated when any key except **[PTT]** is pushed.

• The backlight is automatically turned OFF after 5 seconds of inactivity.

Push

Auto backlighting ON
(default)

Auto backlighting OFF

◇ **LCD contrast setting** "LC"

Set the LCD contrast level to High contrast or Low contrast.

The LCD contrast level has little effect during indoor use.

Push

High contrast (default)

Low contrast

7 SET MODE

◇ Power Save function "PS"

The Power Save function reduces current drain by turning OFF the receiver circuit for preset intervals.

• OFF : The Power Save function is turned OFF.
• ON : The Power Save function is turned ON. The Power Save function will be activated when no signal is received, and no operation is performed for 5 seconds

Power Save ON
(default)

Push

Power Save OFF

■ Battery caution

Misuse of Lithium-ion batteries may result in the following hazards: smoke, fire, or the battery may rupture. Misuse can also cause damage to the battery or degradation of battery performance.

⚠ **DANGER!** Use and charge only specified Icom battery pack with Icom radios or Icom chargers. Only Icom battery packs are tested and approved for use and charge with Icom radios or Icom chargers. Using third-party or counterfeit battery packs or chargers may cause smoke, fire, or cause the battery to burst.

◇ Battery caution
⚠ **DANGER! DO NOT** hammer or otherwise impact the battery. Do not use the battery if it has been severely impacted or dropped, or if the battery has been subjected to heavy pressure. Battery damage may not be visible on the outside of the case. Even if the surface of the battery does not show cracks or any other damage, the cells inside the battery may rupture or catch fire.

⚠ **DANGER! NEVER** use or leave battery pack in areas with temperatures above +50˚C. High temperature buildup in the battery, such as could occur near fires or stoves, inside a sun-heated car, or by setting the battery in direct sunlight may cause the battery to rupture or catch fire. Excessive temperatures may also degrade battery performance or shorten battery life.

⚠ **DANGER! DO NOT** expose the battery to rain, snow, saltwater, or any other liquids. Never charge or use a wet battery. If the battery gets wet, be sure to wipe it dry before using. The battery by itself is not waterproof.

⚠ **DANGER! NEVER** incinerate a used battery pack since internal battery gas may cause them to rupture or may cause an explosion.

⚠ **DANGER! NEVER** solder the battery terminals, or **NEVER** modify the battery pack. This may cause heat generation, and the battery may rupture, emit smoke or catch fire.

⚠ **DANGER!** Use the battery only with the transceiver for which it is specified. Never use a battery with any other equipment, or for any purpose that is not described in this instruction manual.

⚠ **DANGER!** If fluid from inside the battery gets in your eyes, blindness can result. Rinse your eyes with clean water, without rubbing them, and see a doctor immediately.**WARNING!** Immediately stop using the battery if it emits an abnormal odor, heats up, or is discolored or deformed. If any of these conditions occur, contact your Icom dealer or distributor.

WARNING! Immediately wash, using clean water, any part of the body that comes into contact with fluid from inside the battery.

WARNING! NEVER put the battery in a microwave oven, high-pressure container, or in an induction heating cooker. This could cause overheating, a fire, or cause the battery to rupture.

CAUTION: Always use the battery within the specific temperature range for the transceiver (–15˚C to +55˚C) and the battery itself (–20˚C to +60˚C). Using the battery out of its specific temperature range will reduce the battery's performance and battery life. Please note that the specified temperature range of the battery may exceed that of the transceiver. In such cases, the transceiver may not work properly because it is out of its operating temperature range.

■ Battery caution (continued)

CAUTION: Shorter battery life could occur if the battery is left fully charged, completely discharged, or in an excessive temperature environment (above +50˚C) for an extended period of time. If the battery must be left unused for a long time, it must be detached from the radio after discharging. You may use the battery until the remaining capacity is about half, then keep it safely in a cool dry place with the temperature range as follows:

–20˚C to +50˚C (within a month)

–20˚C to +35˚C (within three months)

–20˚C to +25˚C (within a year)

◇ Charging caution

Charge the battery pack at least once every six months, even if it has been not used for a long period of time. The battery pack will have slowly self-discharged, even though it has not been used. If the battery pack is left for a long period without being charged, its life cycle will be shorter, or worse, it will never accept a charge again.

Due to the characteristics of the Li-ion rectangular battery, the battery pack may change its shape as the charge and discharge cycles are repeated. This is a normal phenomenon, and it is quite safe to continue to use the pack, as long as it is properly handled. However, when the shape of the battery pack is so changed that the battery pack or battery cover can not be correctly attached to the transceiver, it is time to replace it with a new one. Otherwise, the transceiver can be damaged due to the loss of air tightness.

⚠ **DANGER! NEVER** charge the battery pack in areas with extremely high temperatures, such as near fires or stoves, inside a sun-heated car, or in direct sunlight. In such environments, the safety/protection circuit in the battery will activate, causing the battery to stop charging.

WARNING! DO NOT charge or leave the battery in the battery charger beyond the specified time for charging. If the battery is not completely charged by the specific time, stop charging and remove the battery from the battery charger. Continuing to charge the battery beyond the specific time limit may cause a fire, overheating, or the battery may rupture.

WARNING! NEVER insert the transceiver (battery attached to the transceiver) into the charger if it is wet or soiled. This could corrode the battery charger terminals or damage the charger. The charger is not waterproof.

CAUTION: DO NOT charge the battery outside of the specified temperature range: ±0˚C to +45˚C. Icom recommends charging the battery at +20˚C. The battery may heat up or rupture if charged out of the specified temperature range, and battery performance or battery life may be reduced.

■ Supplied battery charger

◇ Charging

Do not use a charger other than the specified one.

① Turn OFF the transceiver's power.
② Connect the charger as shown below.
  • "CHG" appears, and the battery icon scrolls while charging.

③ The charging is completed in approximately 8.5 hours, depending on the remaining capacity before charging.
  • "CHG" and "▐▐▐▐" appear, and "FL" is also displayed on the function display when charging is completed.

Charger*
[DC] jack
Power OFF
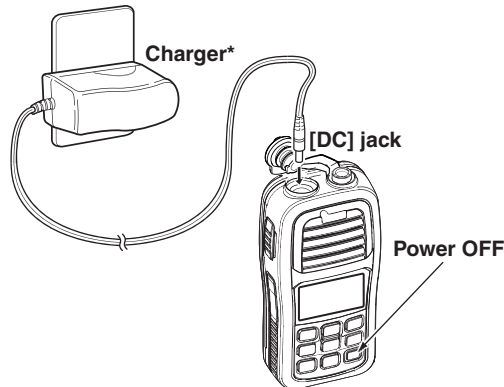
*Not supplied or different types are supplied, depending on the version.

NOTE: "▐▐▐▐" and "CHG" blink, and "Er" is also displayed on the function display, when the battery pack is not attached.

■ Optional battery charger

Do not place the charger on a surface with any vibration. Otherwise the battery pack might come out of the charger, or the charger itself might fall.

◇ AD-123 installation

The AD-123 CHARGER ADAPTER must be installed into the BC-119N DESKTOP CHARGER or BC-121N MULTI-CHARGER before charging.

①Connect the AD-123 and the BC-119N or BC-121N as shown.
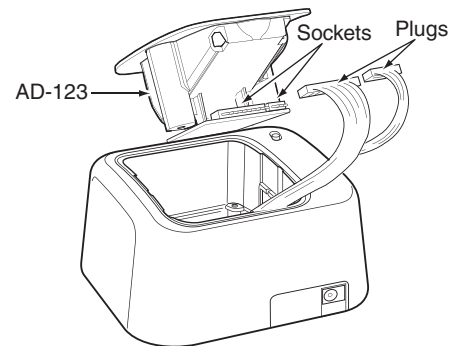
Sockets   Plugs
AD-123

This illustration is for the BC-119N.

8 BATTERY CHARGING

◇ **AD-123 installation (continued)**
② Install the AD-123 into the holder space of the BC-119N or BC-121N with the supplied screws as shown.

Screws supplied with the charger adapter

Carefully fold the cables, as you set the adaptor in place
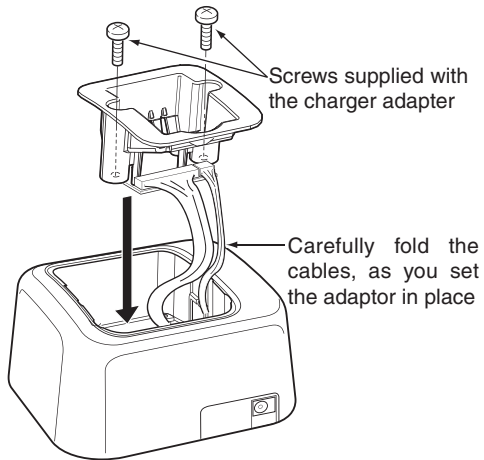
This illustration is for the BC-119N.

◇ **Charging**
• **For BC-119N**
The optional BC-119N provides rapid charging of the Li-ion battery pack. (Charging time: Approximately 2.5 hours)

The following items are additionally required:
• AD-123 CHARGER ADAPTER (purchase separately)
• An AC adapter (may be supplied with BC-119N depending on version) or the DC power cable (OPC-515L/CP-23L).

See the instruction manual for details of the charger, LED indication, operation, etc.

BP-266

AD-123 charger adapter is installed in the BC-119N.

AC adapter
(Not supplied or different types are supplied, depending on the version.)

Black: ⊖
White: ⊕

BC-119N

Optional OPC-515L (for 13.8 V power source) or CP-23L (for 12 V cigarette lighter socket) can be used instead of the AC adapter.

IMPORTANT!:
Ensure the battery pack snaps flat in the AD-123.

BP-266

AD-123

CAUTION: When using the OPC-515L DC power cable
NEVER reverse the polarity of an OPC-515L connected between a power source and the battery charger. This will ruin the charger.
White line: +   Black line: –

• For BC-121N

The optional BC-121N allows up to six battery packs to be charged simultaneously.
Charging time: Approximately 2.5 hours

The following items are additionally required.
• Six AD-123 CHARGER ADAPTERS (purchase separately)
• An AC adapter or the DC power cable (OPC-656)

See the instruction manual for details of the charger, LED indication, operation, etc.

AD-123 charger adapters are installed in each slot.

BP-266

AC adapter (Purchased separately)

DC power cable (OPC-656)
(Connect to a DC
 power supply;
 13.8 V/at least 7 A)

BC-121N

IMPORTANT!:
Ensure the battery pack snaps flat in the AD-123.

BP-266

AD-123
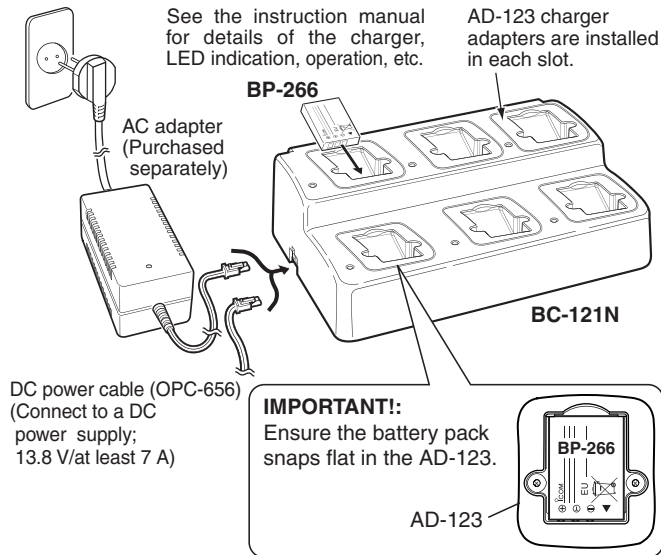
◇ Charging from a cigarette lighter socket

Use the optional CP-24 CIGARETTE LIGHTER CABLE charge from a cigarette lighter socket.
Charging time: Approximately 8.5 hours.

[DC] jack

Power OFF

CP-24

To a cigarette lighter socket (12/24 V DC)
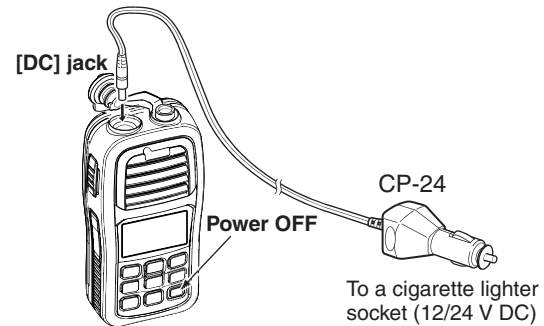
• **CAUTION: BE SURE** to remove the CP-24 from the cigarette lighter socket when charging is finished, because a slight current still flows in the CP-24 and will drain the vehicle's battery.
• The CP-24 is equipped with a 2 A fuse. If the fuse blows, determine and fix the problem, then replace it with a new rated fuse.

Fuse (2 A /250 V)
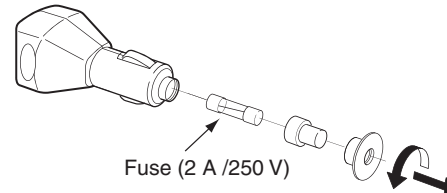
TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
The transceiver does not turn ON.	• The battery is exhausted. • The battery pack is not correctly inserted.	• Recharge the battery pack. • Correctly insert the battery pack.	p. 23 p. 3
No sound from speaker.	• The squelch level is too high. • Volume level is too low. • Speaker has been exposed to water.	• Set the squelch level to the threshold level. • Adjust the audio level to a suitable level. • Remove water from the speaker grill.	p. 10 p. 10 p. 13
Transmitting is impossible, or high power can not be selected.	• Some channels are limited to low power or only receive. • The output power is set to low. • The battery is exhausted.	• Change the channel. • Push **[Hi/Lo]** to select high power. • Recharge the battery pack.	pp. 8, 9, 27 p. 11 p. 23
The displayed channel cannot be changed.	• The Lock function is activated.	• Hold down **[ ]** (Hi/Lo) for 1 second to turn OFF the function.	p. 13
Scan does not start	• "TAG" channels are not programmed.	• Set desired channels as "TAG" channels.	p. 15
No beep sounds.	• Beep Tone function is turned OFF.	• Turn ON the Beep Tone in the set mode.	p. 18

Channel number			Frequency (MHz)	
USA*3	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*1	13	13*1	156.650	156.650
14	14	14	156.700	156.700
15*1	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
19A		19A	156.950	156.950
20	20	20*1	157.000	161.600
20A			157.000	157.000

Channel number			Frequency (MHz)	
USA*3	INT	CAN	Transmit	Receive
	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
37A*2			157.850	157.850
	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
64A		64A	156.225	156.225
	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

Channel number			Frequency (MHz)	
USA*3	INT	CAN	Transmit	Receive
67*1	67	67	156.375	156.375
68	68	68	156.425	156.425
69	69	69	156.475	156.475
70	70	70	RX only	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
75*1	75*1	75*1	156.775	156.775
76*1	76*1	76*1	156.825	156.825
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
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

Channel number			Frequency (MHz)	
USA*3	INT	CAN	Transmit	Receive
86	86	86	157.325	161.925
86A			157.325	157.325
87	87	87	157.375	161.975
87A	87A	87A	157.375	157.375
88	88	88	157.425	162.025
88A	88A	88A	157.425	157.425
P4*2			161.425	161.425

*1 Low power only.
*2 UK marina channels: M1=37A (Tx/Rx: 157.850 MHz), M2=P4 (Tx/Rx: 161.425 MHz) for U.K. version only.
*3 For U.K. and China versions.
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.

11 SPECIFICATIONS AND OPTIONS

■ Specifications

◇ GENERAL

- Frequency coverage : Transmitting 156.000–161.450 MHz
  Receiving 156.000–163.425 MHz
- Mode : FM (16K0G3E)
- Antenna impedance : 50 Ω (nominal)
- Power supply requirement : BP-266 only
- Current drain (approximately) : TX (5 W/1.0 W/0.5 W) 2.3 A/0.9 A/0.7 A
  Maximum audio 0.35 A typical
  Power save 8 mA typical
- Frequency stability : ±1.5 kHz
- Operating temperature range : –15°C to +55°C
- Dimensions : 58.5 (W) × 128.5(H) × 34.5(D) mm
  (Projections not included)
- Weight : Approximately 260 g
  (including battery pack, antenna, belt clip)

◇ TRANSMITTER

- Output power : 5 W (approx.; High)/1 W (Low)/0.5 W (E_Low)*
  *1 W (High) and 0.5 W (Low) for German version, depending on the pre-programmed setting
- Modulation system : Variable reactance frequency modulation
- Maximum frequency deviation : ±5 kHz
- Adjacent channel power : 70 dB
- Spurious emissions : 0.25 µW
- Audio harmonic distortion : 10% (at 60% deviation)
- Residual modulation : 40 dB
- Audio frequency response : +1 dB to –3 dB of 6 dB oct. from 300–3000 Hz

◇ RECEIVER

- Receive system : Double-conversion superheterodyne
- Intermediate frequency : 1st 21.7 MHz, 2nd 450 kHz
- Sensitivity (20 dB SINAD) : –4 dBµ emf typical
- Squelch sensitivity : –5 dBµ emf typical (at threshold)
- Intermodulation : 68 dB
- Hum and noise : 40 dB
- Audio frequency response : +1 dB to –3 dB of –6 dB oct. from 300–3000 Hz
- Spurious response : 70 dB
- Adjacent channel selectivity : 70 dB
- Audio output power (8 Ω) : 0.6 W (at 1 kHz, 10% distortion)

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

■ Options

◇ BATTERY PACK

• **BP-266** Li-ion BATTERY PACK
  Voltage/Capacity   : 3.7 V/1500 mAh (minimum), 1590 mAh (typical)

◇ CHARGERS

• **BC-199S** AC ADAPTER
  For regular charging of the battery pack.
  Charging time   : Approximately 8.5 hours
• **BC-119N** DESKTOP CHARGER **+ AD-123** CHARGER ADAPTER
  + BC-145S AC ADAPTER
  For rapid charging of the battery pack. The AC adapter, BC-145S, is not sup-
  plied with some versions.
  Charging time   : Approximately 2.5 hours
• **BC-121N** MULTI-CHARGER **+ AD-123** CHARGER ADAPTER **+ BC-157S**
  AC ADAPTER
  For simultaneously rapid charging up to six battery packs (six AD-123s are
  required). An AC adapter must be separately purchased.
  Charging time   : Approximately 2.5 hours

◇ OTHER OPTIONS

• **FA-SC58V** ANTENNA
• **MB-124** BELT CLIP
• **CP-24** CIGARETTE LIGHTER CABLE
• **CP-23L** CIGARETTE LIGHTER CABLE
  For BC-119N
• **OPC-515L** DC POWER CABLE
  For BC-119N

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

Some options may not be available in some countries. Please ask your dealer for details.

Count on us!

< Intended Country of Use >

☐AT ☐BE ☐CY ☐CZ ☐DK ☐EE
☐FI ☐FR ☐DE ☐GR ☐HU ☐IE
☐IT ☐LV ☐LT ☐LU ☐MT ☐NL
☐PL ☐PT ☐SK ☐SI ☐ES ☐SE
☐GB ☐IS ☐LI ☐NO ☐CH ☐BG
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