



INSTRUCTION MANUAL

SURVIVAL CRAFT 2-WAY RADIO

IC-GM1600E

Icom Inc.



RECOMMENDATION

CLEAN THE TRANSCEIVER THOROUGHLY IN A BOWL OF 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, and/or the charging terminals of the battery pack may corrode.

NOTE: If the transceiver's waterproof protection appears defective, carefully clean it with a soft, damp (fresh water) cloth, then dry it before operating. The transceiver may lose its waterproof protection if the case, jack cap, or connector cover is cracked or broken, or the transceiver has been dropped. Contact your Icom distributor or your dealer for advice.

DISPOSAL



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

PREFACE

Thank you for choosing this Icom product. The IC-GM1600E SURVIVAL CRAFT 2-WAY RADIO 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.

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-GM1600E.

EXPLICIT DEFINITIONS

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

PRECAUTION

⚠ WARNING! NEVER connect the transceiver directly 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 very close to, or touching 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.

⚠ WARNING! NEVER use or charge Icom battery packs with non-Icom transceivers or non-Icom chargers. Only Icom battery packs are tested and approved for use with Icom transceivers or charged with Icom chargers. Using third-party or counterfeit battery packs or chargers may cause smoke, fire, or cause the battery to burst.

CAUTION: DO NOT place or leave the transceiver in direct sunlight or in places with temperatures below -20°C or above $+55^{\circ}\text{C}$.

CAUTION: DO NOT operate the transceiver unless the flexible antenna, battery pack, and jack cover are securely attached to the transceiver and that the antenna and battery pack are dry before attachment. Exposing the inside of the transceiver to dust or water will result in serious damage to the transceiver. After exposure to water, clean the battery contacts thoroughly with fresh water and dry them completely to remove any water or salt residue.

NEVER place the transceiver in an insecure place to avoid inadvertent use by unauthorized persons.

KEEP the transceiver and microphone at least 0.9 m away from the vessel's magnetic navigation compass.

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Icom is not responsible for the destruction, damage to, or performance of any Icom or non-Icom equipment, if the malfunction is because of:

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

◇ **Priorities**

- Read all rules and regulations pertaining to priorities and keep an up-to-date copy handy. Safety and distress calls take priority over all others.
- You must monitor Channel 16 when you are not operating on another channel.
- False or fraudulent distress 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

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. This license includes the call sign which is your craft's identification for radio purposes.

(2) OPERATOR'S LICENSE

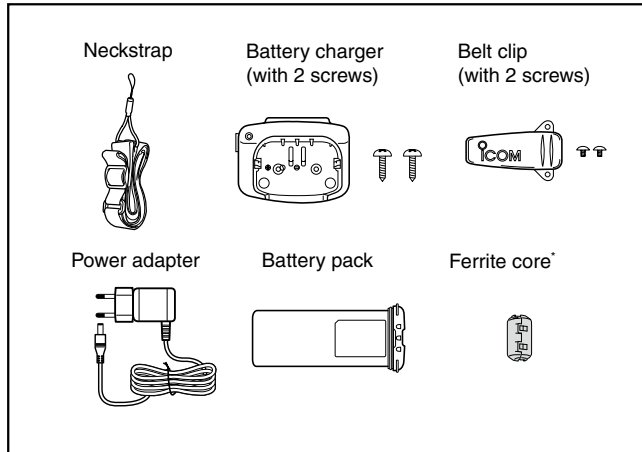
A restricted Radiotelephone Operator Permit is the license most often held by small vessel radio operators when a radio is not required for safety purposes.

The Restricted Radiotelephone Operator Permit must be posted 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, 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.

■ Supplied accessories

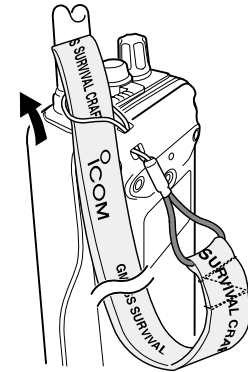


*Attach the ferrite core to the power adapter before charging.
See page 16 for details.

■ Attachments

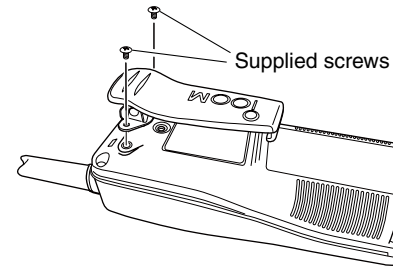
◇ Neckstrap

Pass the neckstrap through the loop on the top of the transceiver as illustrated at right.



◇ Belt clip

Attach the belt clip to the transceiver as shown below.



◇ **Battery pack**

To remove the battery pack:

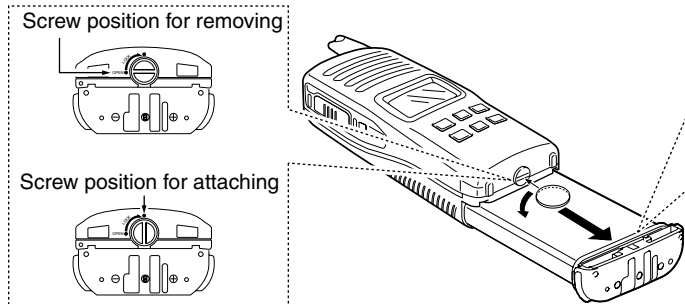
Turn the lock screw counterclockwise, then pull the battery pack in the direction of the arrow as shown below.

To attach the battery pack:

Insert the battery pack into the IC-GM1600E completely, then turn the lock screw clockwise.

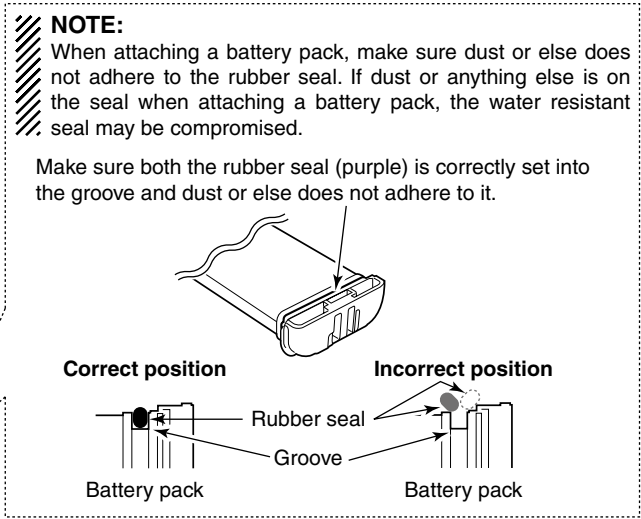
NEVER remove or insert the battery pack when the transceiver is wet or soiled. This may result in water or dust getting into the transceiver and battery pack, and may result in them being damaged.

NOTE: When the lock screw does not easily turn (feels tight), check to ensure the battery pack is correctly inserted to the transceiver. **DO NOT** strike or otherwise impact the battery, as this may damage the battery pack or the transceiver.



BE CAREFUL!: The latch is tightly locked, so use caution when releasing it. **DO NOT** use your fingernail. Use the edge of a coin or screwdriver tip to carefully release it.

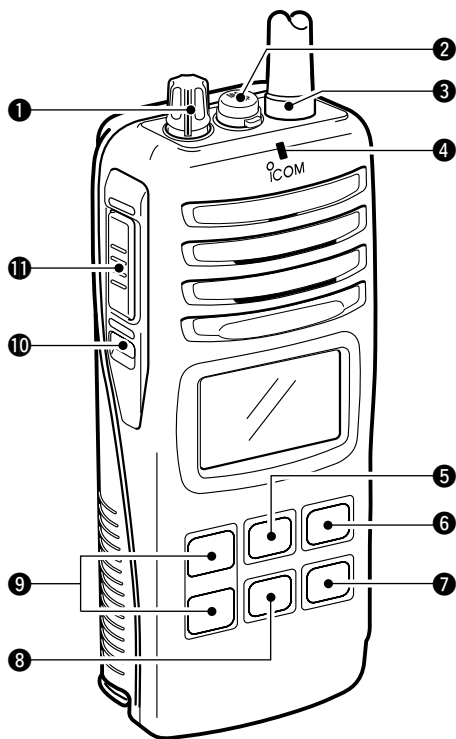
CAUTION!: When attaching or removing a battery pack, make sure the rubber seal is set in the groove of the battery pack correctly. If the seal is not neatly in the groove it may be damaged when attaching the battery pack. If the seal is damaged, waterproofing is not guaranteed.



3

PANEL DESCRIPTION

■ Front, top and side panels



① VOLUME CONTROL [VOL]

Turns power ON and adjusts the audio level.

② MICROPHONE CONNECTOR [MIC/SP]

DO NOT use this connector.

NOTE: Attach the jack cover. Otherwise, water may get into the transceiver.

③ ANTENNA

Fixed type.

④ TRANSMIT/RECEIVE INDICATOR

Lights green while receiving a signal or when the squelch is open. Lights red while transmitting.

⑤ CALL CHANNEL KEY [CALL]

➤ Push to select the Call channel. (p. 7)

• Channel 16 is factory default.

➤ Hold down for 3 seconds to enter the call channel entry mode. (p. 9)

⑥ CHANNEL KEY [CH]

Push to return the previous condition when the priority channel or call channel is selected. (p. 7)

⑦ TRANSMIT POWER/LOCK KEY [Hi/Lo.

➤ Push to select high or low power. (p. 8)

➤ Hold down for 1 second to turn the lock function ON or OFF. (p. 10)

8 CHANNEL 16 KEY [16]

Push to select Channel 16. (p. 7)

9 CHANNEL UP/DOWN KEYS [▲]/[▼]

- ➔ Selects an operating channel. (pgs. 7, 8)
- ➔ Selects an item in the SET mode. (p. 11)
- ➔ In the SET mode, while holding down [SQL], push to select an option for the item. (p. 11)

10 SQUELCH SWITCH [SQL•MONI]

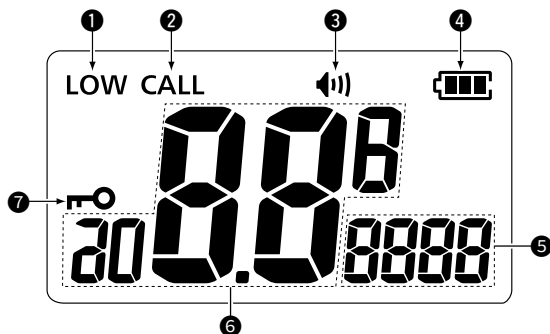
- ➔ Push this switch, then adjust the squelch level with [▲]/[▼]. (p. 9)
- ➔ Hold down to manually opens the squelch for monitoring the channel. (p. 10)
- ➔ Holding down this switch, turn ON the transceiver power to enter the SET mode. (p. 11)

11 PTT SWITCH [PTT]

Hold down to transmit, release to receive.

3 PANEL DESCRIPTION

■ Function display



- ❶ **TRANSMIT POWER INDICATOR** (p. 8)
 - ➔ “LOW” appears when low TX power is selected.
 - ➔ No indication for high TX power.
- ❷ **CALL CHANNEL INDICATOR** (p. 7)
Appears when the call channel is selected.
- ❸ **MONITOR INDICATOR** (p. 10)
Appears while the monitor function is activated.

- ❹ **BATTERY INDICATOR**
Displays the battery's remaining power.
 - Using rechargeable battery pack

Indication				
Battery level	Full	Mid	Charging required	Battery exhausted

blinks when the battery is overcharged.

- Using BP-234 battery pack

Indication				
Battery level	Full	Mid	Battery replacement is required	Battery exhausted

- ❺ **SET MODE ITEM READOUT**
Displays the SET mode items while in the SET mode. (p. 11)
- ❻ **CHANNEL NUMBER READOUT**
 - ➔ Indicates the selected operating channel number.
 - ➔ In the SET mode, indicates the selected item or option.
- ❼ **LOCK INDICATOR**
Appears while the Lock function is activated. (p. 10)

⚡ **NOTE:** The backlight is ON at all time.

■ Channel selection

◇ Channel 16

Channel 16 is the distress and safety channel. It is used to establish the initial contact with a station and, for emergency communications. While in the standby mode, you must monitor Channel 16.

- ① Push [16] to select Channel 16.
- ② Push [CH] to return to the previous channel, before you selected Channel 16, or push [▲]/[▼] to select the operating channel.

Push 



◇ Call channel

The Call channels can be re-entered (p. 9) and may be used to store your most often used channels for quick recall.

- ① Push [CALL] to select the Call channel.
 - “CALL” and the Call channel number appear.
 - Call channel can be re-entered. See “Call channel entry” on page 9 for details.
- ② Push [CH] to return to the previous channel, before you selected the call channel, or push [▲]/[▼] to select the operating channel.


Push 



4 BASIC OPERATION

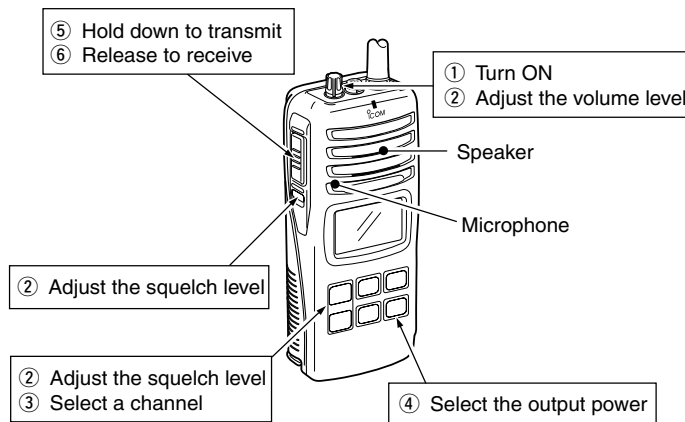
■ Receiving and transmitting

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

- ① Rotate [VOL] clockwise to turn ON the transceiver power.
- ② Adjust the volume and squelch level.
 - Push [SQL•MONI], and push [▼] to open the squelch.
 - Push [SQL•MONI] to disappears the “SqL”, then rotate [VOL] to adjust the volume level.
 - Push [SQL•MONI], and push [▲]/[▼] to adjust the squelch level.
- ③ Push [▲]/[▼] to select the channel to call.
 - When a signal is received, the [TRANSMIT/RECEIVE] indicator lights green and the audio is emitted from the speaker.
 - Further adjustment of [VOL] may be necessary at this point.
- ④ Push [Hi/Lo•] to select the output power if necessary.
 - “LOW” appears when low power is selected. (No indication for high power)
 - Choose low power to conserve the battery power, choose high power for longer distance communications.
 - Some channels are limited to low power.
- ⑤ Hold down [PTT] to transmit and speak into the microphone at a normal voice level.
 - The [TRANSMIT/RECEIVE] indicator lights red while transmitting.
- ⑥ Release [PTT] to receive.

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

/// **NOTE:** To conserve battery power, the Power Save function automatically turns ON when no signal is received for 5 seconds.



■ Call channel entry

The Call channel switch is used to select Channel 16 by default, however, you can set your most often-used channel for a quick recall.

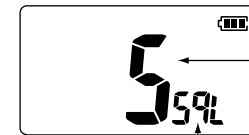
- ① Push [CALL] to select the Call channel.
 - “CALL” and call channel number is displayed.
- ② Hold down [CALL] again for 3 seconds (until a long beep changes to 2 short beeps), to enter the Call channel entry mode.
 - Call channel number to be programmed flashes.
- ③ Push [▲]/[▼] to select the channel.
- ④ Push [CALL] to set the displayed channel as the Call channel.
 - The call channel number stops flashing.



■ Adjusting the squelch level

Squelch enables the audio to be heard only while receiving a signal that is stronger than the set level. A higher level blocks weak signals, which enables you to receive only stronger signals. A lower level enables you to hear weak signals.

- ① Push [SQL•MONI], then push [▲]/[▼] to adjust the squelch level.
 - “Sql” indicator is displayed.
 - Adjust the level between 1 and 10, or “OP” (open). 10 is tight squelch, 1 is loose squelch level.
- ② Push [SQL•MONI] again to return to the normal mode.
 - When no switch is pushed for 5 seconds, the transceiver returns to the normal mode.





Indicates the squelch level.

Displayed while adjusting the squelch level.

4 BASIC OPERATION

■ Lock function

The Lock function electronically locks all keys (except for [PTT], [SQL•MONI] and [Hi/Lo•]). This function prevents you from accidentally changing the channel, or accessing the functions.

➡ Push [Hi/Lo•] for 1 second to turn the lock function ON and OFF.



Appears while the lock function is used.

■ Monitor function

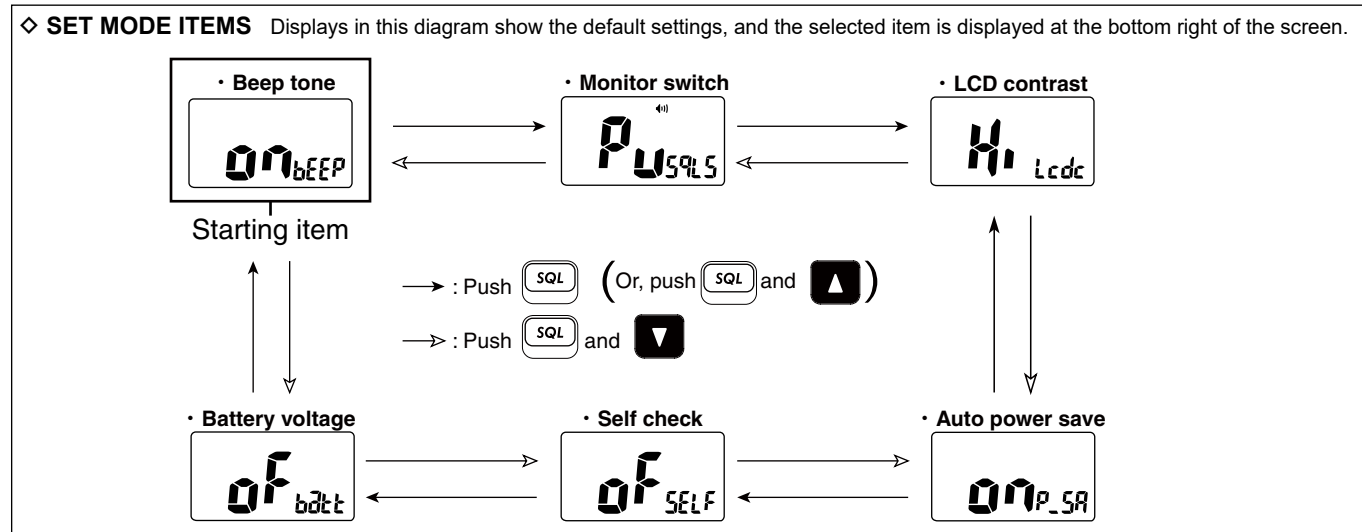
The Monitor function temporarily cancels the Squelch function to check for weak signals. See page 12 for details of the monitor switch action.

■ SET mode settings

The SET mode is used to change 6 transceiver functions: Beep tone function, Monitor switch action, LCD contrast selection, Auto power save function, Self check function and Battery voltage indicator.

◇ SET mode operation

- ① Turn OFF the transceiver.
- ② While holding down [SQL•MONI], turn ON the power to enter the SET mode.
 - “bBEEP” (Beep tone function setting) appears.
- ③ Push [SQL•MONI], or [SQL•MONI] and [▲]/[▼], to select the desired item.
- ④ Push [▲]/[▼] to select the desired option of the item.
- ⑤ Push [16] to exit the SET mode.



5 SET MODE

■ SET mode items

◇ Beep tone function “bBEEP”

You can select silent operation by turning the beep tones OFF, or When “ON” is selected, a fixed beep (Pi) sounds.

- Beep tone synchronizes with the volume level.
- The beeps sound during call channel entry even if this function is turned OFF.



Beep tone ON (default)



Beep tone OFF

◇ Monitor switch action “SqLS”

The monitor switch action temporarily cancels the squelch function. This switch action contains PUSH (Pu) or HOLD (Ho) settings as shown below.

- Pu (PUSH): After holding down [SQL•MONI] for 1 second, the squelch opens and emits audio. The squelch is opened while holding down [SQL•MONI]. (default)
- Ho (HOLD): After holding down [SQL•MONI] for 1 second, the squelch opens and emits audio even if [SQL•MONI] is released. To close the squelch, push any switch.



PUSH setting (default)



HOLD setting

◇ LCD contrast selection “Lcdc”

The contrast of the LCD can be adjusted High(Hi) or Low(Lo).



High contrast
(default)



Low contrast

◇ Auto power save function “P_SA”

The Auto Power Save function reduces the battery drain by deactivating the receiver circuit for preset intervals.

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



Power save ON (default)



Power save OFF

◇ Self check function “SELF”

The Self Check function checks various transceiver status by itself, and informs you if a problem is found. The self checking automatically and quickly runs through its diagnostic steps each time the transceiver is turned ON. After that, the radio switches to normal operation mode.

- Temperature : Outside of -35°C to +80°C (approximate)
- Connected battery voltage

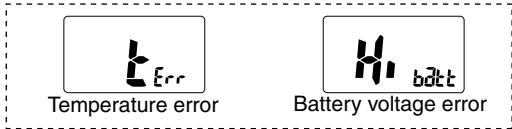


Self check OFF (default)



Self check ON

When the error messages as shown below are displayed, see the troubleshooting for advice. (p. 20)



5 SET MODE

◇ Battery voltage indicator “batt”

Select whether or not to display the voltage of the battery on the LCD at power ON.

- The voltage of the battery pack is displayed for 2 seconds after power is turned ON.



Battery voltage indicator OFF
(default)



Battery voltage indicator ON

SET MODE LIST

Function	Indication	Setting
Beep tone function	“bBEEP”	OFF/ON*
Monitor switch action	“SqLS”	PUSH*/HOLD
LCD contrast selection	“Lcdc”	High*/Low
Auto power save function	“P_SA”	OFF/ON*
Self check function	“SELF”	OFF*/ON
Battery voltage indicator	“batt”	OFF*/ON

*default setting

The IC-GM1600E is certified as a GMDSS survival craft portable transceiver **ONLY** when used with the BP-234 Lithium battery pack.

For reasons of shelf-life and air cargo regulations, the BP-234 Lithium battery pack is listed as an option but its use in GMDSS applications is mandatory.

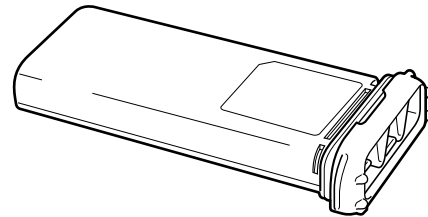
Always ensure the sufficient BP-234 Lithium battery packs are available for use in any distress situation and their sealed bag are intact and that their shelf-life has not expired.

The BP-234 Lithium battery pack is not rechargeable and must be replaced after any use.

The following precautions must be observed.

- **NEVER** dispose of the BP-234 battery pack in a fire. This could result in an explosion.
- **DO NOT** short-circuit the BP-234 battery pack. Metal contact (such as a paper clip, another battery, and so on.) across the battery contacts can result in a sustained high rate discharge, which could damage the battery, void the warranty and create a burn or a fire hazard.
- **NEVER** expose of the BP-234 battery pack to excessive heat of 55°C or above. This could result in electrolyte leakage, possibly causing an explosion or fire.
- **NEVER** attempt to recharge the BP-234. Lithium batteries may explode or cause a fire in such cases.
- **DO NOT** disassemble the BP-234 battery pack. The BP-234 battery pack contains no user serviceable parts. Internal battery gas can cause throat irritation. Also, exposed lithium may generate heat and ignite.

- **DO NOT** apply excessive pressure to the battery. This may result in electrolyte leakage, possibly causing an explosion.
- The storage life of the BP-234 is about 5 years. Once the expiration date on the battery pack passes, a new battery pack **must** be purchased.
- For safety reasons, once the BP-234 is used, a spare one should be purchased. The original battery pack can be continued to be used for regular communications; save the spare one for emergency situations.



BP-234 Lithium battery pack

IMPORTANT!

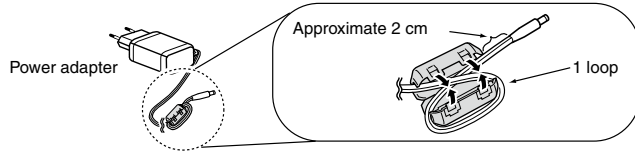
- This battery pack is for **EMERGENCY USE ONLY**.
- Usable temperature range is within -20°C to $+55^{\circ}\text{C}$.
- Stored temperature range is within -30°C to $+35^{\circ}\text{C}$.
- Once this bag's seal is broken, a new emergency battery pack must be used for **EMERGENCY** use.

7

BATTERY CHARGING (FOR ONLY ON-BOARD USE)

■ Important!

Attach the supplied ferrite core to the power adapter as follow before charging the battery.



■ Battery charging

Prior to using the transceiver for the first time, the battery pack must be fully charged for optimum life and operation.

/// **CAUTION:** To avoid damage to the transceiver, turn the power OFF while charging.

- Recommended temperature range for charging: 10°C to 40°C
- Use the specified chargers (BC-173). **NEVER** use another manufacturer's charger.
- Use the supplied power adapter for the BC-173. **NEVER** use another manufacturer's adapters.

Turn the transceiver OFF when charging an attached battery pack. Otherwise, the battery pack may not fully charge or may not properly charge.

■ Battery cautions

Misuse of Li-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's performance.

⚠ **DANGER! NEVER** strike 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** expose the battery to rain, snow, seawater, or any other liquids. Do not charge or use a wet battery. If the battery gets wet, be sure to wipe it dry before using.

⚠ **DANGER! NEVER** place or leave battery packs near fire. Fire or heat may cause them to rupture or explode. Dispose of used battery packs in accordance with local regulations.

⚠ **DANGER! NEVER** use or leave battery pack in areas with temperatures above 60°C. High temperature buildup in the battery, such as could occur near fires or stoves, inside a sun-heated vehicle, vehicle, or in direct sunlight for long periods of time may cause the battery to rupture or catch fire. Excessive temperatures may also degrade battery's performance or shorten battery life.

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

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

⚠ **DANGER! NEVER** let fluid from inside the battery get in your eyes. If it does, blindness can result. Rinse your eyes with clean water, without rubbing them, and immediately go to a doctor.

⚠ **WARNING! NEVER** let fluid from inside the battery come in contact with your body. If it does, immediately wash with clean water.

⚠ **WARNING! NEVER** use 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! NEVER** use deteriorated battery packs. They could cause a fire.

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

BE SURE to replace the battery pack with a new one approximately five years after manufacturing, even if it still holds a charge. The inside battery material will become weak after a period of time, even with little use. The estimated number of times you can charge the battery is between 300 and 500.

Even when the battery appears to be fully charged, the operating time of the transceiver may become short when:

- Approximately five years have passed since the battery was manufactured.
- The battery has been repeatedly charged.

Attention to the swelled battery pack

The battery cells may deteriorate and swell due to their characteristics if used in an environment and conditions such as: frequently charged, recharged immediately after full charge, used or saved in a hot place, or charged by methods other than the instructions. If the battery pack swells, it has reached the end of its life due to deterioration. Replace it with a brand new one.

7 BATTERY CHARGING (FOR ONLY ON-BOARD USE)

◇ Charging caution

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

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

⚠ **WARNING! NEVER** charge or leave the battery in the battery charger beyond the specific 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!** Occasionally observe the battery pack condition while charging. If any abnormal condition occurs, discontinue using the battery pack.

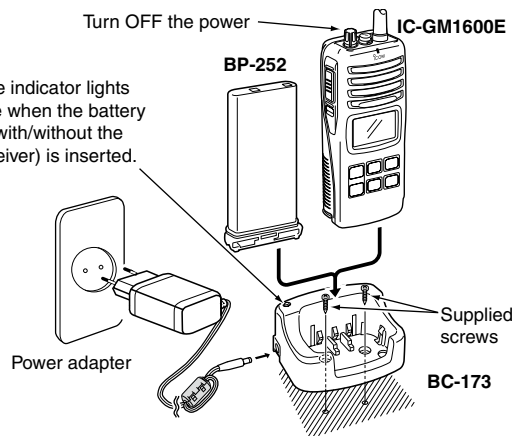
⚠ **WARNING! NEVER** insert the transceiver (battery attached to the transceiver) into the charger if it is wet or soiled. This could corrode the battery charger terminals or damage the charger. The charger is not waterproof.

CAUTION: DO NOT charge the battery outside of the specific temperature range: 10°C to 40°C. Icom recommends charging the battery at 20°C. The battery may heat up or rupture if charged out of the specific temperature range. Additionally, battery performance or battery life may be reduced.

◇ Charging connections

- ① Attach the BC-173 to a flat surface, such as a desk.
- ② Connect the power adapter.
- ③ Insert the battery pack with/without the transceiver into the charger.
 - The charge indicator lights orange while charging.
 - When the charging is finished, the charge indicator lights green.
 - The charger indicator blinks orange (or orange/green alternately) when the protector is activated.
- ④ Charge the battery pack for approximately 10 hours, depending on the remaining power.

⚠ **NOTE** The battery charger, BC-173, has a charging timer. The timer stops the charging process after approximately 14 hours.



CHANNEL LIST FOR SURVIVAL OPERATION

8



Channel number	Frequency (TX/RX)	Channel number	Frequency (TX/RX)	Channel number	Frequency (TX/RX)
06	156.300 MHz	08	156.400 MHz	09	156.450 MHz
10	156.500 MHz	11	156.550 MHz	12	156.600 MHz
13	156.650 MHz	14	156.700 MHz	15	156.750 MHz
16	156.800 MHz	17	156.850 MHz	67	156.375 MHz
68	156.425 MHz	69	156.475 MHz	71	156.575 MHz
72	156.625 MHz	73	156.675 MHz	74	156.725 MHz
77	156.875 MHz				

7

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9

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
The transceiver does not turn ON.	<ul style="list-style-type: none"> The battery is exhausted. The Battery pack is not correctly attached. 	<ul style="list-style-type: none"> Change to a new battery pack (Survival). Recharge the battery pack (On-board). Correctly attach the battery pack. 	<p>p. 15 pp. 16 ~ 18 p. 3</p>
No sound from the speaker.	<ul style="list-style-type: none"> Squelch level is set too high. Volume level is set too low. The speaker has been exposed to water. Water has entered to the [MIC/SP] connector. 	<ul style="list-style-type: none"> Set the squelch to the threshold point. Set the volume to a suitable level. Remove the water from the speaker. Dry the [MIC/SP] connector. 	<p>p. 9 p. 8 — —</p>
You cannot transmit, or select high power.	<ul style="list-style-type: none"> Some channels are limited to low power, or for only receive. The battery is exhausted. The output power is set to low. 	<ul style="list-style-type: none"> Change channels. Change to a new battery pack (Survival). Recharge the battery pack (On-board). Push [Hi/Lo•] to select high power. 	<p>pp. 8, 19 p. 15 pp. 16 ~ 18 p. 8</p>
The displayed channel cannot be changed.	<ul style="list-style-type: none"> Lock function is activated. 	<ul style="list-style-type: none"> Push [Hi/Lo•] for 1 second to cancel the function. 	p. 10
No beeps sound.	<ul style="list-style-type: none"> Beep tone is set to OFF. 	<ul style="list-style-type: none"> Set the beep tone to ON (Fix Beep) in the SET mode. 	p. 12
Self check error. (Temperature)	<ul style="list-style-type: none"> The temperature is outside of -35°C to $+80^{\circ}\text{C}$ (approximate). 	<ul style="list-style-type: none"> Leave the transceiver at room temperature for a while. Turn the power ON to check if the internal temperature has returned to normal. 	—
Self check error. (Battery voltage)	<ul style="list-style-type: none"> The connected battery pack's voltage is more than 11 V. 	<ul style="list-style-type: none"> Verify that the battery voltage is correct. 	—

SPECIFICATIONS 10

◇ GENERAL

- Frequency coverage (TX/RX): 156.300–156.875 MHz
- Mode: 16K0G3E
- Channel spacing: 25 kHz
- Power supply requirement: Battery pack (BP-234 or BP-252)
- Current drain (at 7.2 V DC):
 - TX High (2 W): Approximately 1.0 A
 - TX Low (1.2 W): Approximately 0.7 A
 - RX Maximum audio (EXT): Approximately 0.2 A
 - RX Maximum audio (INT): Approximately 0.4 A
- Usable temperature range: –20°C to +55°C
- Antenna impedance: 50 Ω nominal
- Dimensions: 65(W) × 145(H) × 44(D) mm
(projections not included)
- Weight (with BP-234): Approximately 385 g

◇ TRANSMITTER

- Output power (at 7.2 V DC): 2 W (High) and 1.2 W (Low)
- Modulation system: Variable reactance frequency modulation
- Frequency error: ±1.5 kHz (–20°C to +55°C)
- Microphone impedance: 2 kΩ
- Maximum frequency deviation: ±5.0 kHz
- Adjacent channel power: 70 dB
- Residual modulation: 40 dB
- Audio harmonic distortion: 10% at 60% deviation
- Spurious emissions: 0.25 μW at 150 kHz to 1 GHz
1.00 μW at 1 GHz to 2 GHz

◇ RECEIVER

- Receive system: Double-conversion superheterodyne
- Sensitivity (at 20 dB SINAD): –6 dBμ emf typical
- Squelch sensitivity (at threshold): –4 dBμ emf typical
- Intermodulation rejection ratio: 65 dB
- Spurious response rejection ratio: 70 dB
- Adjacent channel selectivity: 70 dB
- Hum and noise: 40 dB
- Audio output power: 0.2 W with 8 Ω (EXT)
0.7 W typical with 8 Ω
at 1 kHz (INT)

- **All stated specifications are subject to change without notice or obligation.**
- **Measurements made without an antenna.**

11 OPTIONS

◇ BATTERY PACKS

<FOR SURVIVAL CRAFT USE>

- **BP-234** LITHIUM BATTERY PACK
Voltage: 9.0 V
Capacity: 3300 mAh (typical)

<FOR ON-BOARD USE>

- **BP-252** Li-ion BATTERY PACK
Voltage: 7.2 V
Capacity: 1000 mAh (minimum) / 1050 mAh (typical)

◇ BELT CLIPS

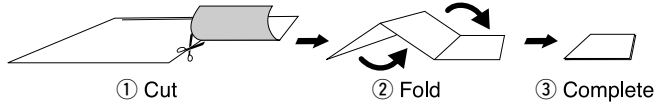
- **MB-103Y** BELT CLIP
The same as supplied with the transceiver.

◇ CHARGERS <FOR ON-BOARD USE ONLY>

- **BC-173** DESKTOP CHARGER + **BC-147SE** AC ADAPTER
Used for regular charging of battery pack. The same as supplied with the transceiver. Charging time: approximately 10 hours (BP-252).

QUICK REFERENCE 12

Important operating instructions are summed up in this and the following page for your simple reference. By cutting along the line and folding on the dotted line, it will become a card sized operating guide which can easily be carried in a card case or wallet, and so on.



◀CUT HERE▶

■ CALL CHANNEL ENTRY (p. 9)

- ① Push [CALL] to select the call channel.
 - "CALL" and call channel number is displayed.
- ② Hold down [CALL] again for 3 seconds (until a long beep changes to 2 short beeps), to enter Call channel entry mode.
 - Call channel number to be programmed flashes.
- ③ Push [▲]/[▼] to select the channel.
- ④ Push [CALL] to set the displayed channel as the call channel.
 - The call channel number stop flashing.

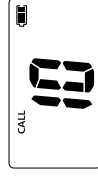
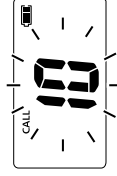
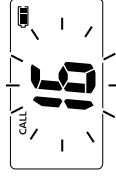
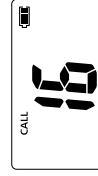
ICOM OPERATION GUIDE IC-GM1600E

■ IN CASE OF EMERGENCY

m 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.
4. "LOCATED AT (your position)"
5. The nature of the distress and assistance required.
6. Any other information which might facilitate the rescue.



12 QUICK REFERENCE

■ SET MODE (pp. 11–14)

- ① While pushing [SQL•MONI], turn power ON.
- ② Push [SQL•MONI] again to select an item.
- ③ Push [▲]/[▼] to select the desired condition.
- ④ Push [16] to return to regular operating mode.



Refer to pp. 11–14 for set mode item.

■ SET MODE LIST (p. 14)

Function	Indication	Switch
Beep tone function	"bEEP"	OFF/ON*
Monitor switch action	"SQLS"	PUSH/HOLD
LCD contrast selection	"Lcdc"	High/Low
Auto power save function	"p_SA"	OFF/ON*
Self check function	"SELF"	OFF/ON*
Battery voltage indicator	"batt"	OFF/ON*

*default setting

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How the World Communicates

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