STANDARD HORIZON

Nothing takes to water like Standard Horizon

HX870

6 Watt VHF/FM

Floating Marine Transceiver with DSC Class D and GPS

Owner's Manual

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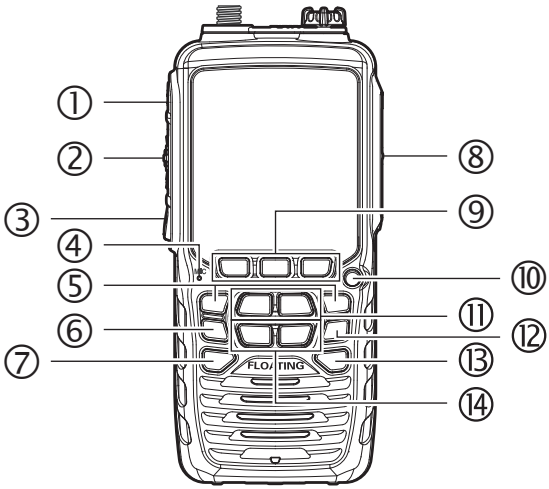
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QUICK REFERENCE GUIDE

The **HX870** is equipped with the E2O (Easy-To-Operate) system. Basic operation may be accomplished by following the procedure below:

① **POWER**: Press and hold to turn on/off the transceiver.
② **PTT** (Push-To-Talk): Activates the transmitter when pressed.
③ **SQL**: Press to display the SQL level setting screen, then press the **CH▲** key to squelch or press the **CH▼** to un-squelch the radio.
④ **MIC**: Speak slowly and clearly into the **MIC** hole having it about 1/2 to 1 inch (1.2 to 2.5 cm) away from your mouth while pressing the **PTT** key.
⑤ **◄/►**: Press to toggle the on-screen menus to right/left.
⑥ **CLR**: Press to cancel a function or menu selection.
⑦ **MENU**: Press to access MENU.
⑧ **DISTRESS**: Sends a DSC distress call. Lift the red cover, press the **DISTRESS** once, then press and hold until the radio alarms.
⑨ **Soft keys**: These three programmable keys can be customized through the setup menu mode. By pressing one of these keys briefly, display the key functions at the bottom of the display.
⑩ **TX/BUSY** Indicator: Press to toggle the on-screen menus up/down.
⑪ **CH▲/CH▼**: Press to change the operating channel.
⑫ : Press and hold to lock and unlock the keypad.
⑬ **16/S**: Press to recall channel 16. Press and hold to recall channel 9.
⑭ **VOL−/VOL+**: Press to adjust the speaker audio volume.



Congratulations on your purchase of the **HX870**! Whether this is your first portable marine VHF transceiver, or if you have other STANDARD HORIZON equipment, the STANDARD HORIZON organization is committed to ensuring your enjoyment of this high performance transceiver, which should provide you with many years of satisfying communications even in the harshest of environments. STANDARD HORIZON technical support personnel stands behind every product sold, and we invite you to contact us by phone (800) 767-2450.

We appreciate your purchase of the **HX870**, and encourage you to read this manual thoroughly, so as to learn and fully understand the capabilities of the **HX870**.

RADIO CARE

Before using the radio:

1. It is recommended the battery be charged. Please see section "**6.1.4 Using the SBH-12 Charger Cradle**" for details.
2. Insure the speaker microphone jack, antenna and battery are in place and firmly tightened.
3. Care must be taken if the radio was dropped and a close inspection may be needed to insure the radio case and gaskets are in adequate condition.

NOTE

This is to keep the rubber switches and speaker grill clean and in top operating condition after exposure to water: Clean the radio with fresh water after exposure to salt water by rinsing the radio under a sink faucet or by dunking the radio in a bucket of fresh water. After washing, use a soft cloth and thoroughly dry all parts of the radio.

1 GENERAL INFORMATION

The STANDARD HORIZON **HX870** Portable Marine transceiver is designed to be used in USA, International, and Canadian Marine bands. The **HX870** can be operated from 11 to 16 VDC and has a switchable RF output power of 1 watt, 2 watts or 6 watts.

The **HX870** is capable of DSC (Digital Selective Calling) ITU Class D operation. Class D operation allows continuous receiving of Digital Selective Calling functions on channel 70 even if the radio is receiving a call. The **HX870** operates on all currently-allocated marine channels which are switchable for use with USA, International, or Canadian regulations. Emergency channel 16 can be immediately selected from any channel by pressing the red **16/S** key. NOAA weather channel can also be accessed immediately by selecting **[WX]** on the main menu screen.

With the internal high-performance GPS receiver, WASS and QZSS satellites can be received.

2 PACKING LIST

When the package containing the transceiver is first opened, please check it for the following contents:

- **HX870** Transceiver
- **CAT460*** Antenna
- **SBR-13LI** 7.4V 1800mAh Li-ion Battery Pack
- **SBH-12** Charger Cradle for **HX870**
- **SAD-11B** 120VAC Wall Charger for **SBH-12**
- **E-DC-19A** DC Cable with 12 V Cigarette Lighter Plug for **SBH-12**
- **SBT-13** Alkaline Battery Case for AAA x 5 pcs
- **Clip-22** Belt Clip
- **YS-05-01** Hand Strap
- **T9101606** USB Cable (Type USB “A” plug to Type USB mini “B” plug)
- Owner’s Manual

* Antenna gain: -1.5 dBi
Impedance: 50 ohms

3 OPTIONAL ACCESSORIES

MH-73A4B .....Submersible Speaker/Microphone
MH-57A4B ..... Mini Speaker/Microphone
VC-24 .....VOX Headset
SSM-55A .....Earpiece/Microphone
SSM-10 ..... Submersible Speaker/Microphone with Earphone Jack
SEP-10 ..... Earphone for SSM-10
CN-3 ..... Radio-to-Ship's-Antenna Adapter
SBH-12 ..... Charger Cradle
SBR-13 LI .....7.4V 1800mAh Li-ion Battery Pack
SBT-13 .....Alkaline Battery Case (AAA x 5 pcs)
E-DC-19A .....DC Cable with 12 V Cigarette Lighter Plug
SAD-11B/C/U※ ..... Wall Charger for the **SBH-12**
E-DC-6 ..... DC Cable; plug and wire only

※: "**B**" suffix is for use with 120 VAC (Type-A plug), "**C**" suffix is for use with 230 VAC (Type-C plug), and "**U**" suffix is for use with 230 VAC (Type-BF plug).

4 ONLINE WARRANTY REGISTRATION (in USA or Canada only)

Please visit www.standardhorizon.com to register the **HX870** Marine VHF. It should be noted that visiting the website from time to time may be beneficial to you, as new products are released they will appear on the STANDARD HORIZON website.

PRODUCT SUPPORT INQUIRIES

If you have any questions or comments regarding the use of the **HX870**, you can visit the STANDARD HORIZON website to send an E-Mail or contact the Product Support team at (800) 767-2450 M-F 8:00-5:00 PST.

5 ABOUT THIS RADIO

5.1 PROHIBITED COMMUNICATIONS

The FCC prohibits the following communications:

- False distress or emergency messages:
- Messages to “any boat” except in emergencies and radio tests;
- Messages to or from a vessel on land;
- Transmission while on land;
- Obscene, indecent, or profane language (potential fine of $10,000).

5.2 ABOUT VHF RADIO

The radio frequencies used in the VHF marine band lie between 156 and 158 MHz with some shore stations available between 161 and 163 MHz. The marine VHF band provides communications over distances that are essentially “line of sight” (VHF signals do not travel well through objects such as buildings, hills or trees). Actual transmission range depends much more on antenna type, gain and height than on the power output of the transmitter. On a fixed mount 25W radio transmission expected distances can be greater than 15 miles, for a portable 6W radio transmission the expected distance can be greater than 5 miles in “line of sight”.

5.3 DISTRESS AND HAILING (CHANNEL 16)

Channel 16 is known as the Hail and Distress Channel. An emergency may be defined as a threat to life or property. In such instances, be sure the transceiver is on and set to CHANNEL 16. Then use the following procedure:

1. Press the **PTT** (Push-To-Talk) button and say “***Mayday***, ***Mayday***, ***Mayday***. This is _____ , _____ , _____ ” (your vessel’s name).
2. Then repeat once: “***Mayday***, _____ ” (your vessel’s name).
3. Now report your position in latitude/longitude, or by giving a true or magnetic bearing (state which) to a well-known landmark such as a navigation aid or geographic feature such as an island or harbor entry.
4. Explain the nature of your distress (sinking, collision, aground, fire, heart attack, life-threatening injury, etc.).
5. State the kind of assistance your desire (pumps, medical aid, etc.).
6. Report the number of persons aboard and condition of any injured.
7. Estimate the present seaworthiness and condition of your vessel.
8. Give your vessel’s description: length, design (power or sail), color and other distinguishing marks. The total transmission should not exceed 1 minute.
9. End the message by saying “***OVER***”. Release the **PTT** button and listen.
10. If there is no answer, repeat the above procedure. If there is still no response, try another channel.

NOTE

The **HX870** has the DSC Distress calling, that can transmit a distress call digitally to all ships with compatible DSC radios. Refer to section "**10 DIGITAL SELECTIVE CALLING (DSC)**".

5.4 CALLING ANOTHER VESSEL (CHANNEL 16 OR 9)

Channel 16 may be used for initial contact (hailing) with another vessel. However, its most important use is for emergency messages. This channel must be monitored at all times except when actually using another channel.

It is monitored by the U.S. and Canadian Coast Guards and by other vessels. **Use of channel 16 for hailing must be limited to initial contact only.** Calling should not exceed 30 seconds, but may be repeated 3 times at 2-minute intervals. In areas of heavy radio traffic, congestion on channel 16 resulting from its use as a hailing channel can be reduced significantly in U.S. waters by using **channel 9** as the initial contact (hailing) channel for non-emergency communications. Here, also, calling time should not exceed 30 seconds but may be repeated 3 times at 2-minute intervals.

Prior to making contact with another vessel, refer to the channel charts in this manual, and select an appropriate channel for communications after initial contact. For example, Channels 68 and 69 of the U.S. VHF Charts are some of the channels available to non-commercial (recreational) boaters. Monitor your desired channel in advance to make sure you will not be interrupting other traffic, and then go back to either channel 16 or 9 for your initial contact.

When the hailing channel (16 or 9) is clear, press the **PTT** button and state the name of the other vessel you wish to call and then ***"this is***" followed by the name of your vessel and your Station License (Call Sign) then release the **PTT** button. When the other vessel returns your call, immediately request another channel by pressing the **PTT** button and saying "***go to***", the number of the other channel, say "***over***" and release the **PTT** button. Then switch to the new channel. When the new channel is not busy, call the other vessel.

After a transmission, say "***over***", and release the **PTT** button. When all communication with the other vessel is completed, end the last transmission by stating your Call Sign and the word "***out***". Note that it is not necessary to state your Call Sign with each transmission, only at the beginning and end of the contact.

Remember to return to Channel 16 when not using another channel. Some radios automatically monitor Channel 16 even when set to other channels or when scanning.

5.5 MAKING TELEPHONE CALLS

To make a radiotelephone call, use a channel designated for this purpose. The fastest way to learn which channels are used for radiotelephone traffic is to ask at a local marina. Channels available for such traffic are designated ***Public Correspondence*** channels on the channel charts in this manual. Some examples for USA use are Channels 24, 25, 26, 27, 28, 84, 85, 86, and 87. Call the marine operator and identify yourself by your vessel's name. The marine operator will then ask you how you will pay for the call (telephone credit card, collect, etc.) and then link your radio transmission to the telephone lines.

The marine telephone company managing the VHF channel you are using may charge a link-up fee in addition to the cost of the call.

5.6 BRIDGE CHANNELS 13 AND 67

Channel 13 is used at docks, bridges and by vessels maneuvering in port. Messages on this channel must concern navigation only, such as meeting and passing in restricted waters.

Channel 67 is used for navigational traffic between vessels.

By regulation, power is normally limited to 1 Watt on these channels. Your radio is programmed to automatically reduce power to this limit on these channels. However, in certain situations it may be necessary to temporarily use a higher power. See Page xx for means to temporarily override the low-power limit on these two channels.

5.7 AUTOMATED RADIO CHECK SERVICE

In areas across the country, Sea Tow offers boaters a way to conduct radio checks. To use Sea Tow's free Automated Radio Check service, simply tune your VHF radio to the appropriate channel for your location and conduct a radio check as you typically would. Upon releasing your radio's microphone, the system will play an automated message and relay your transmission back to you, thereby letting you know how your signal will sound to other boaters.

The Automated Radio Check Service is currently available in the areas listed below.

West Coast	Sea Tow Newport/LA - Ch. 27
	Sea Tow San Diego - Ch. 27
Northeast	Sea Tow Portland-Midcoast (Maine) - Ch. 27
	Sea Tow Boston - Ch. 27
	Sea Tow South Shore (Mass.) - Ch. 28
	Sea Tow Rhode Island - Ch. 24
	Sea Tow Eastern Long Island - Ch. 27
	Sea Tow Huntington (N.Y.) - Ch. 27
	Sea Tow Manasquan (N.J.) - Ch. 28
Mid-Atlantic	Sea Tow Northern Chesapeake (Md.) - Ch. 28
	Sea Tow Central Chesapeake (Md.) - Ch. 27
	Sea Tow Hampton Roads (Va.) - Ch. 28
North Carolina	Sea Tow Wrightsville Beach - Ch. 28
	Sea Tow Ocean Isle Beach - Ch. 28
Florida	Sea Tow Sebastian - Ch. 28
	Sea Tow Fort Lauderdale - Ch. 27
	Sea Tow Charlotte Harbor - Ch. 24
	Sea Tow Tampa Bay - Ch. 27
	Sea Tow Horseshoe Beach - Ch. 27
	Sea Tow Carrabelle/St. Marks - Ch. 27
	Sea Tow Pensacola/Orange Beach (Ala.) - Ch. 27

6 GETTING STARTED

NOTE

Before operating the **HX870** for the first time, it is recommended that the battery be charged. Please see section "**6.1.4 Using the SBH-12 Charger Cradle**" for details.

6.1 BATTERIES AND CHARGERS

If the radio has never been used, or its charge is depleted, it may be charged by connecting the **SBH-12** Charger Cradle with the **SAD-11B** battery charger, as shown in the illustration. If 12V DC power is available, the **E-DC-19A** DC Cable with 12 V Cigarette Lighter Plug or the optional **E-DC-6** DC Cable may be used for charging the battery. The **SAD-11B**, **E-DC-19A** and **E-DC-6** will charge a completely discharged **SBR-13LI** battery pack in about 3 hours.

The **SBR-13LI** is a high performance Li-ion battery providing high capacity in a compact package.

SBR-13LI Rechargeable Battery Pack

Capacity	1800 mAh
Nominal Voltage	7.4 V

Temperature Range	**Minimum**		**Maximum**	
	°C	**°F**	**°C**	**°F**
Charge	5	41	35	95
Discharge	–20	–4	60	140
Storage	–10	14	35	95

CAUTION

To avoid risk of explosion and injury, **SBR-13LI** battery pack should only be removed, charged or recharged in non-hazardous environments.

6.1.1 Battery Safety

Battery packs for your transceiver contain Li-ion batteries. This type of battery stores a charge powerful enough to be dangerous if misused or abused, especially when removed from the transceiver. Please observe the following precautions:

DO NOT SHORT BATTERY PACK TERMINALS: Shorting the terminals that power the transceiver can cause sparks, severe overheating, burns, and battery cell damage. If the short is of sufficient duration, it is possible to melt battery components. Do not place a loose battery pack on or near metal surfaces or

objects such as paper clips, keys, tools, etc. When the battery pack is installed on the transceiver, the terminals that transfer current to the transceiver are not exposed. The terminals that are exposed on the battery pack when it is mounted on the transceiver are charging terminals only and do not constitute a hazard.

DO NOT INCINERATE: Do not dispose of any battery in a fire or incinerator. The heat of fire may cause battery cells to explode and/or release dangerous gases.

Battery Maintenance

For safe and proper battery use, please observe the following:

- Battery packs should be charged only in non-hazardous environments;
- Use only STANDARD HORIZON-approved batteries;
- Use only a STANDARD HORIZON, (a Marine Division of YAESU USA) approved charger. The use of any other charger may cause permanent damage to the battery.
- Follow charging instructions provided with the chargers.
- Keep the battery contacts clean.

Battery Storage

Store the batteries in a cool place to maximize storage life. Since batteries are subject to self-discharge, avoid high storage temperatures that cause large self-discharge rates. After extended storage, a full recharge is recommended.

Battery Recycling

DO NOT PLACE USED BATTERIES IN YOUR REGULAR TRASH!
LI-ION BATTERIES MUST BE COLLECTED, RECYCLED OR DISPOSED OF IN AN ENVIRONMENTALLY SOUND MANNER.

The incineration, land filling or mixing of Li-ion batteries with the municipal solid waste stream is PROHIBITED BY LAW in most areas.

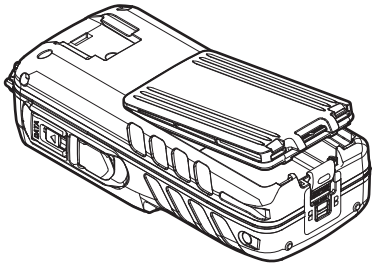


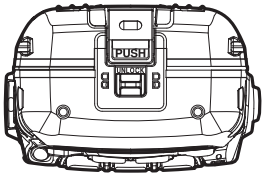
Return batteries to an approved Li-ion battery recycler. This may be where you purchased the battery.

Contact your local waste management officials for other information regarding the environmentally sound collection, recycling and disposal of Li-ion batteries.

6.1.2 Battery Installation/Removal

1. To install the battery pack, slide the battery cover lock switch to the "**UNLOCK**" position, then press "**PUSH**" to open the battery cover. Install the battery pack aligning it to the battery contacts until it clicks. Attach the battery cover, then slide the battery cover lock switch to the "**LOCK**" position.
2. To remove the battery pack, turn the transceiver off, open the battery cover, then remove the battery pack.



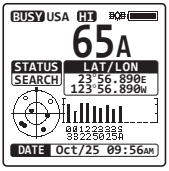


NOTE

The battery lock must be set to "**LOCK**" position to ensure water integrity and from the battery coming loose.

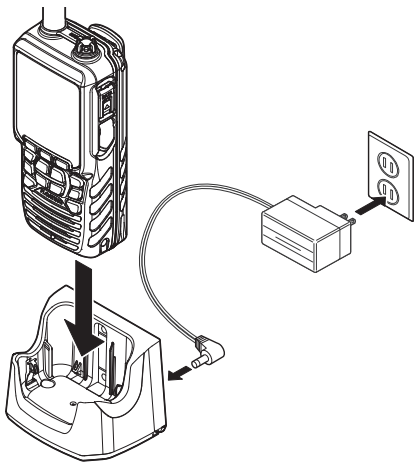
6.1.3 Battery Life Information

When the battery charge is almost depleted, a "▬" icon will appear on the display. When the "▬" icon appears, it is recommended that you charge the battery soon.



▬	: Full battery power
▬	: Enough battery power
▬	: Low battery power
▬	: Poor battery power
▬	: Charge (or replace) the battery

6.1.4 Using the SBH-12 Charger Cradle



1. Turn the transceiver off.
2. Insert the DC plug from the **SAD-11B** into the DC jack on the **SBH-12** bottom panel, then plug the **SAD-11B** into the AC line outlet.
3. Insert the **HX870** (with the battery pack) into the **SBH-12**; the antenna should be at the left side when viewing the charger from the front.
4. If the **HX870** is inserted correctly, the **HX870**'s LCD display will show the battery charging icon. A fully-discharged pack will be charged completely in approximately 3 hours.
5. When charging is completed, the battery charging icon will disappear.

CAUTION

The **SBH-12** is NOT designed to be waterproof. Charge the radio in a dry location.

NOTE

The **SBH-12** is only designed for the charging of the **HX870**'s battery, and is not suitable for other purposes. The **SBH-12** may contribute noise to TV and radio reception in the immediate vicinity, so we do not recommend its use adjacent to such devices.

6.2 CONNECTING A USB DATA TERMINAL TO THE PC

The **HX870** outputs the following NMEA 0183 sentences 9600: GLL, GGA, GSA, GSV, RMC, DSC and DSE.

If you have further inquires, please feel free to contact Product Support at:

Phone: (800) 767-2450

Email: marinetech@yaesu.com

To connect a PC, use the supplied USB cable to connect the HX870 to the USB jack of the PC.

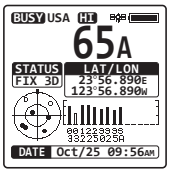
NOTE

When mounting the **HX870** inside of a cabin where GPS reception is limited, choose a place where GPS satellite reception is good enough referring to the GPS status display.

6.3 CHECKING GPS SIGNAL (GPS STATUS DISPLAY)

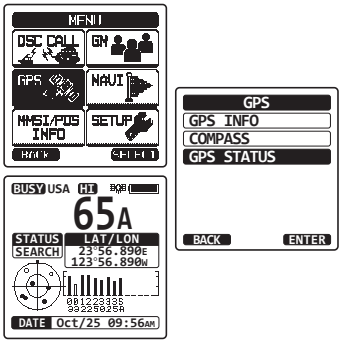
The **HX870** has a GPS status display which shows the satellites currently being received, along with a graphical (bar-graph) representation of the relative signal strengths from the satellites.

When the **HX870** receives the GPS signal through the internal GPS, a small satellite icon or "" will appear on the top right corner of the display and your current location (latitude/longitude) is shown on the display.



(GPS STATUS DISPLAY MODE)

1. Press the **MENU** key to display "MENU", then select "GPS" with the **CH▲/CH▼/◄/►** key.
2. Press the **[SELECT]** soft key, then select "GPS STATUS" with the **CH▲/CH▼** key.
3. Press the **[ENTER]** soft key to display the GPS status currently being received.
4. Press the **CLR** key to return to radio operation.

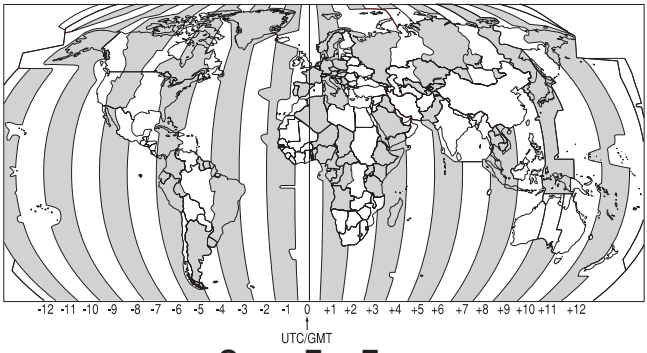


NOTE

When the **HX870** is first turned on, it may take several minutes to compute a fix of your position. This is normal, as the **HX870** is downloading "almanac" information from the GPS satellites.

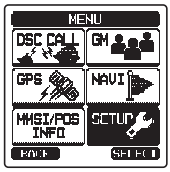
6.4 CHANGING THE GPS TIME

From the factory the **HX870** shows GPS satellite time or UTC (Universal Time Coordinated) time. A time offset is needed to show the local time in your area. The time offset must be changed in order for the radio to display the current time in your area. See the Offset Time Table below.

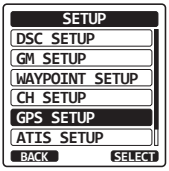


OFFSET TIME TABLE

1. Press the **MENU** key to display "MENU", then select "SETUP" with the **CH▲/CH▼/◄/►** key.
2. Select "GPS SETUP" with the **CH▲/CH▼** key.
3. Press the **[SELECT]** soft key, then select "TIME OFFSET" with the **CH▲/CH▼** key.
4. Press the **[SELECT]** soft key, then press the **CH▲/CH▼** key to select time offset of your location. See illustration above to find your offset time. If "00:00" is assigned, the time is the same as UTC or GPS satellite time.
5. Press the **[ENTER]** soft key to store the time offset.
6. Press the **CLR** key to return to radio operation.





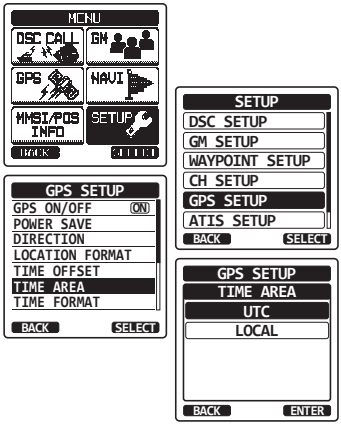




6.5 CHANGING THE TIME LOCATION

This menu selection allows the radio to show UTC time or local time with the offset.

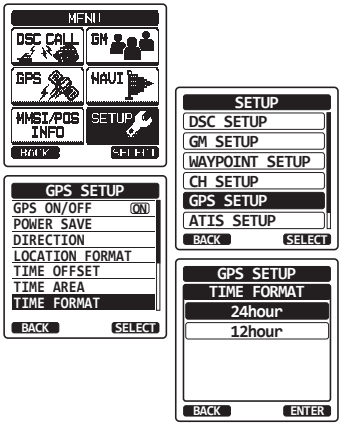
1. Press the **MENU** key to display "MENU", then select "SETUP" with the **CH▲/CH▼/◄/►** key.
2. Select "GPS SETUP" with the **CH▲/CH▼** key.
3. Press the **[SELECT]** soft key, then rotate the **CH▲/CH▼** key to "TIME AREA".
4. Press the **[SELECT]** soft key.
5. Press the **CH▲/CH▼** key to select "UTC" or "LOCAL".
6. Press the **[ENTER]** soft key to store the selected setting.
7. Press the **CLR** key to return to radio operation.



6.6 CHANGING THE TIME FORMAT

This menu selection allows the radio to setup to show time in 12-hour or 24-hour format.

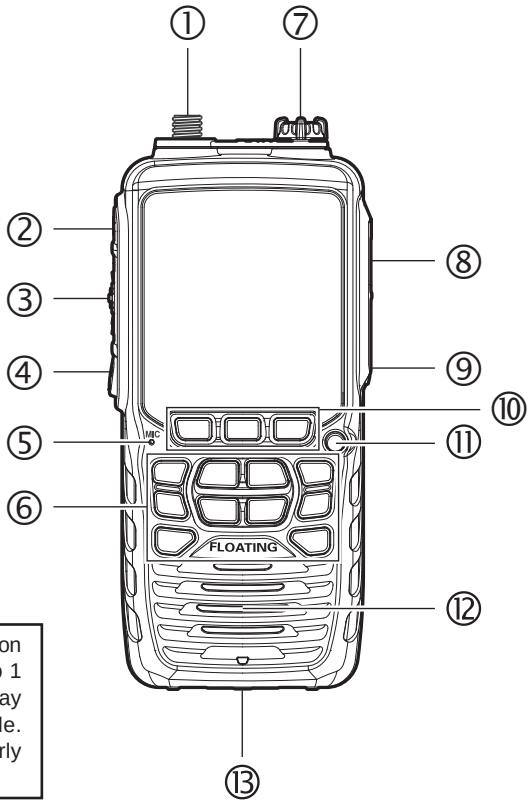
1. Press the **MENU** key to display "MENU", then select "SETUP" with the **CH▲/CH▼/◄/►** key.
2. Select "GPS SETUP" with the **CH▲/CH▼** key.
3. Press the **[SELECT]** soft key, then rotate the **CH▲/CH▼** key to select "TIME FORMAT".
4. Press the **[SELECT]** soft key.
5. Press the **CH▲/CH▼** key to select "12 HOUR" or "24 HOUR".
6. Press the **[ENTER]** soft key to store the selected setting.
7. Press the **CLR** key to return to radio operation.



7 CONTROLS AND INDICATORS

NOTE

This section defines each control of the transceiver. See illustration at the next page for location of controls. For detailed operating instructions refer to chapter 8 of this manual.



NOTE

When transmitting, position your mouth about 1/2 to 1 inch (1.2 ~ 2.5 cm) away from the small mic hole. Speak slowly and clearly into the microphone.

① **ANT** Jack (Top Panel)
The supplied **CAT460** flexible antenna is attached here.

② **POWER** switch
Press and hold to toggle the radio on or off.

③ **PTT** (Push-To-Talk) button (Left side)
When pushed activates the transmitter.

④ **SQL** switch

Press this key to activate the squelch adjusting mode. Press the **CH▲** or **CH▼** key to adjust the squelch threshold level.

Press and hold this key for 3 seconds to open the squelch, allowing you to monitor the operating channel. Release the key to resume normal (quiet) monitoring.

⑤ **MIC**

The internal microphone is located here.

NOTE

> When transmitting, position your mouth about 1/2 to 1 inch (1.2 ~ 2.5 cm) away from the small mic hole. Speak slowly and clearly into the microphone.

⑥ Keypad

MENU Key

Press to access MENU.

CH▲ Key

This key is used to change the operating channel, receiver volume level, and squelch threshold level.

Press the key momentarily, the channel (or level) increases one step. Holding the key, the channel (or level) increases continuously.

CH▼ Key

This key is used to change the operating channel, receiver volume level, and squelch threshold level.

Press the key momentarily, the channel (or level) decreases one step. Holding the key, the channel (or level) decreases continuously.

Key

Hold down this key to lock the keypad so that they are not accidentally changed. "**LOCK**" will appear on the entire screen, to indicate that the functions are locked. Hold down this key until "**UNLOCK**" appears to unlock the radio.

◄/► Key

Press to toggle the on-screen menus to right/left.

VOL+ Key

Press to increase the speaker audio volume level.

VOL− Key

Press to decrease the speaker audio volume level.

16/S Key

Pressing this key immediately recalls channel 16 from any channel location. Holding down this key recalls the SUB channel (The default setting is channel 9). Pressing this key again reverts to the previous selected working channel.

CLR Key

Press this key to cancel a menu selection and/or keypad entry.

⑦ **MIC/SP** Jack (Top Panel)

The jack accepts the optional **MH-73A4B** Submersible Speaker/Microphone, **MH-57A4B** Mini Speaker/Microphone, **VC-24** VOX Headset, **SSM-10** Submersible Speaker/Microphone, or **SSM-55A** Earpiece/Microphone. When this jack is used, the internal speaker and microphone are disabled.

⑧ **DATA** jack (Right side)

Use the USB mini type B jack to output the NMEA data, configure the transceiver settings and download the GPS logger data.

⑨ **DISTRESS** Key (Right side)

Used to send a DSC Distress Call. To send the distress call, refer to section "**9.3.1 Transmitting a DSC Distress Call**".

⑩ Soft Keys

The 3 programmable soft keys can be customized by the Setup Menu mode described in section "**12.7 SOFT KEYS**". When one of the soft keys is pressed briefly, the functions will appear above each key on the display.

⑪ **Strobe Light** Indicator

When the Emergency feature is activated, this indicator blinks the internationally-recognized Morse Code "S.O.S" message.

⑫ Speaker

The internal speaker is located here.

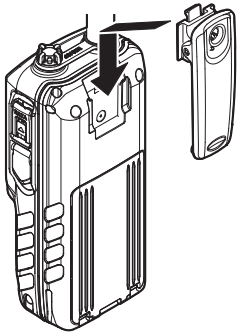
⑬ Battery Pack Lock (Bottom side)

Turn the Battery Pack Lock to the "**UNLOCK**" position for battery removal.

BELT CLIP INSTALLATION / REMOVAL

INSTALLATION

To install the Belt Clip: align the Belt Clip to the groove of the Battery pack, then press the Belt Clip downward until it locks in place with a “Click”.



REMOVAL

To remove the Belt Clip: press the Belt Clip Tab away from the battery pack to unlock the Belt Clip, then slide the Belt Clip upward to remove it.

8 BASIC OPERATION

8.1 INITIAL SETUP

1. Install the battery pack on the transceiver (see section "**6.1.2 Battery Installation/Removal**").
2. Install the antenna onto the transceiver, hold the bottom end of the antenna, then screw it onto the mating connector on the transceiver until it is snug. Do not over-tighten.

NOTE

Water resistance of the transceiver is assured only when the battery cover is attached to the transceiver, DATA jack cover is locked and **MIC/SP** cap is installed in the **MIC/SP** jack.

8.2 RECEPTION

1. Press and hold the **POWER** key until the radio turns on.
2. Press the **SQL** key, then press the **CH▼** key. This state is known as "squelch off".
3. Press the **VOL−/VOL+** key until noise or audio from the speaker is at a comfortable level.
4. Press the **SQL** key, then press the **CH▲** key until the random noise disappears. This state is known as the "squelch threshold".
5. Press the **CH▲/CH▼** key to select the desired channel. Refer to the channel chart on Page 136 for available channels.
6. When a message is received, adjust the volume to the desired listening level. The "**[BUSY]**" indicator on the display indicates that communications are being received.

8.3 TRANSMISSION

1. Perform steps 1 through 5 of RECEPTION.
2. Before transmitting, monitor the channel to ensure it is clear.
   THIS IS AN FCC REQUIREMENT!
3. Press the **PTT** (push-to-talk) button. The "**[TX]**" indicator on the LCD is displayed.
4. Speak slowly and clearly into the **MIC**.
5. When the transmission is finished, release the **PTT** button.

NOTE

This is a noise-canceling microphone. Position "**MIC**" within 1/2" (1.5 cm) from the mouth for optimum performance.

8.4 TRANSMIT TIME - OUT TIMER (TOT)

When the **PTT** button is held down, transmit time is limited to 5 minutes. This limits unintentional transmissions due to a stuck microphone. About 10 seconds before automatic transmitter shutdown, a warning beep will be heard from the speaker(s). The transceiver will automatically go to receive mode, even if the **PTT** button is continually held down. Before transmitting again, the **PTT** button must first be released and then pressed again.

8.5 SIMPLEX/DUPLEX CHANNEL USE

Refer to the VHF MARINE CHANNEL CHART (Page 136) for instructions on use of simplex and duplex channels.

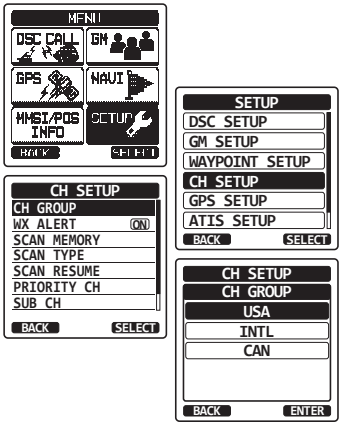
NOTE

> All channels are factory-programmed in accordance with FCC (USA), Industry Canada (Canada), and International regulations. Mode of operation cannot be altered from simplex to duplex or vice-versa.

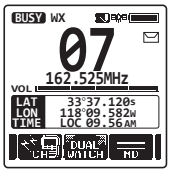
8.6 USA, INTERNATIONAL, AND CANADA MODE

To change the channel group from USA to International or Canada:

1. Press the **MENU** key to display "MENU", then select "SETUP" with the **CH▲/CH▼/◄/►** key.
2. Press the **CH▲/CH▼** key to select "CH SETUP".
3. Press the **[SELECT]** soft key, then press the **CH▲/CH▼** key to select "CH GROUP".
4. Press the **[SELECT]** soft key.
5. Press the **CH▲/CH▼** key to select desired channel group "USA", "INTL", or "CAN".
6. Press the **[ENTER]** soft key to store the selected setting.
7. Press the **CLR** key to return to radio operation.



8.7 NOAA WEATHER CHANNELS



1. To receive a NOAA weather channel on the main menu screen, press ◄/► key repeatedly until the **[WX]** soft key is displayed at the bottom of the screen.
2. Press the **[WX]** soft key. The "**WX**" indicator appears on the top part of the screen.
3. Press the **CH▲/CH▼** key to select a different NOAA weather channel.
4. To exit from the NOAA weather channels, press the **[CH]** soft key. The transceiver returns to the channel it was on prior to a weather channel and the "**WX**" icon disappears from the display.

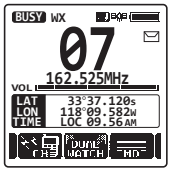
8.7.1 NOAA Weather Alert

In the event of extreme weather disturbances, such as storms and hurricanes, the NOAA (National Oceanic and Atmospheric Administration) sends a weather alert accompanied by a 1050 Hz tone and subsequent weather report on one of the NOAA weather channels.

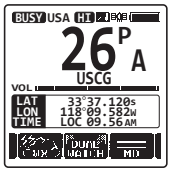
The **HX870** can receive weather alerts when on a weather channel and on the last selected weather channel during scanning modes or while on another channel.

When an alert is received on a NOAA weather channel, scanning will stop and the transceiver will emit a loud beep to alert the user of a NOAA broadcast. Press any key to stop the alert. After stopping the beep sound, the weather alert reception confirmation screen will appear. Press **[OK]** to display a confirmation screen. The confirmation screen will ask you whether to move to the weather channel or return in the marine channel. Press **[YES]** to remain in the weather channel, and press **[NO]** to return to the marine channel.

To disable the weather alert function, refer to section "**13.6 WEATHER ALERT**".











NOTE

If any key is not pressed the alert will sound for 5 minutes and then the weather report will be received.

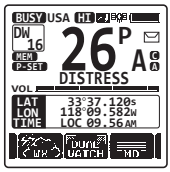
8.7.2 NOAA Weather Alert Testing

NOAA tests the alert system ever Wednesday between 11AM and 1PM. To test the **HX870**'s NOAA weather feature, on Wednesday between 11AM and 1PM, setup as in section "**8.7.1 NOAA Weather Alert**" and confirm the alert is heard.

8.8 DUAL WATCH (TO CHANNEL 16)

Dual watch is used to scan two channels for communications. One channel is a normal VHF channel and the other is the priority, Channel 16. When a signal is received on the normal channel the radio briefly switches between the normal channel and Channel 16 to look for a transmission. If the radio receives communications on Channel 16 the radio stops and listens to Channel 16 until communication ends and then starts dual watch scan again.

1. Press the **SQL** key, then press the **CH▲/CH▼** key until the background noise disappears.
2. Press the **CH▲/CH▼** key to select a channel you wish to watch.
3. Press one of the soft keys, then press the **[DW]** soft key.
   The radio will monitor CH16 and the channel that was selected in step 2.
   If a transmission is received on the channel selected in step 2, the **HX870** will dual watch to CH16.



4. To stop dual watch, press one of the soft keys, then press the **[DW]** soft key again.

NOTE

> The priority channel may be changed from CH16 to another channel. Refer to section "**13.5 PRIORITY CHANNEL**".

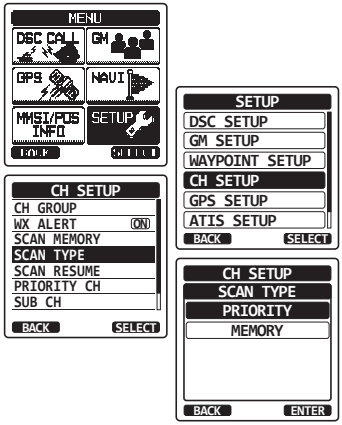
8.9 SCANNING

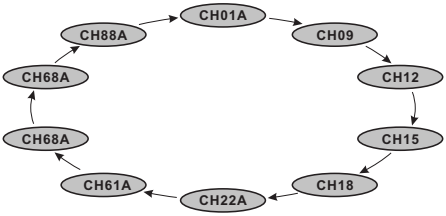
The **HX870** will automatically scan channels programmed into the preset channel memory and also the scan channel memory, and the last selected weather channel.

When an incoming signal is detected on one of the channels during scan, the radio will pause on that channel, allowing you to listen to the incoming transmission. The radio will automatically start scanning again after the transmission stops.

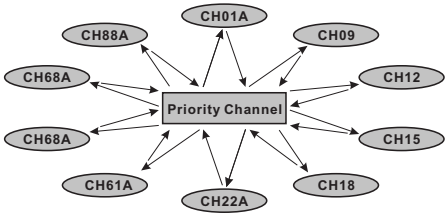
8.9.1 Selecting the Scan Type

1. Press the **MENU** key to display "MENU".
2. Press the **CH▲/CH▼/◄/►** key to select "CH SETUP".
3. Press the **[SELECT]** soft key, then select "SCAN TYPE" with the **CH▲/CH▼** key.
4. Press the **[SELECT]** soft key.
5. Press the **CH▲/CH▼** key to select "PRI SCAN" or "MEM SCAN".
6. Press the **[ENTER]** soft key to store the selected setting.
7. Press the **CLR** key to return to radio operation.



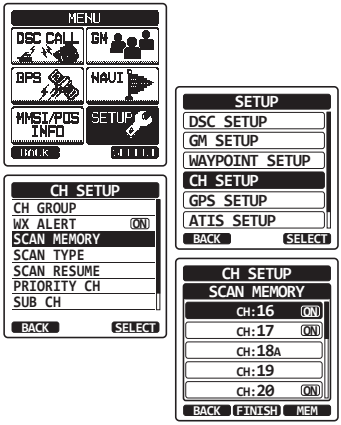


MEMORY SCAN (M-SCAN)



PRIORITY SCAN (P-SCAN)

8.9.2 Programming Scan Memory

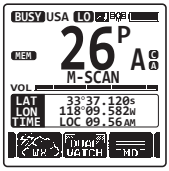


1. Press the **MENU** key to display "MENU".
2. Press the **CH▲/CH▼/◄/►** key to select "CH SETUP".
3. Press the **[SELECT]** soft key, then press the **CH▲/CH▼** key to select "SCAN MEMORY".
4. Press the **[SELECT]** soft key.
5. Press the **CH▲/CH▼** key to select a desired channel to be scanned, then press the **[MEM]** soft keys. "**ON**" icon will appear at the right side of the selected channel.
6. Repeat step 5 for all the desired channels to be scanned.
7. To DELETE a channel from the list, select the channel then press the **[MEM]** soft key. "**ON**" icon of the selected channel will disappear.
8. When you have completed your selection, press the **CLR** key to return to radio operation.

When "SCAN MEMORY" is assigned to the soft key, every time you press the **[MEM]** soft key, the memory function switches between on and off.

To check the scanned channel on the normal display, while pressing **[SCAN]**, press the **CH▲/CH▼** key.

8.9.3 Memory Scanning (M-SCAN)



1. Press the **SQL** key, then press the **CH▲/CH▼** key until background noise disappears.
2. Press the **◄/►** key repeatedly, then press the **[SCAN]** soft key. "M-SCAN" appears on the display. Scanning will proceed from the lowest to the highest programmed channel number and preset channel (described in the next section) and will stop on a channel when a transmission is received.

   The channel number will blink during reception.
3. To stop scanning, press the **16/S**, **[SCAN]** or **CLR** key.