

# ***STANDARD HORIZON***

*Nothing takes to water like Standard Horizon*

## **HX40**

**VHF FM Marine Transceiver**

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## **Owner's Manual**



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## 1. GENERAL INFORMATION

### 1.1 INTRODUCTION

Congratulations on your purchase of the **HX40**! 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 stand behind every product sold, and we invite you to contact us should you require technical advice or assistance by calling (800)767-2450 Monday through Friday 8AM to 5PM Pacific time.

The **HX40** is a Submersible 6-Watt portable two-way marine transceiver. The transceiver has all allocated USA, International, or Canadian channels. It has emergency channel 16 which can be immediately selected from any channel by pressing the [16/S] key.

The **HX40** includes the following features: Memory Scanning, Priority Scanning, Dual and Triple watch, NOAA Weather Alert, easy-to-read large LCD display, Battery Life display on the LCD, and a transmit Time-Out Timer (TOT).

The **HX40** transmitter provides a full 6 Watts of transmit power which is also selectable to 1 Watt to assist the user in ensuring maximum battery life.




We appreciate your purchase of the **HX40**, and encourage you to read this manual thoroughly, so as to learn and fully understand the capabilities of the **HX40**.

## 2. SAFETY PRECAUTIONS





### Be sure to read the safety precautions, and use this product safely.

Yaesu is not liable for any failures or problems caused by the use or misuse of this product by the purchaser or any third party. Also, Yaesu is not liable for damages caused through the use of this product by the purchaser or any third party, except in cases where ordered to pay damages under the laws.




#### Types and meanings of the marks



	<b>DANGER</b>	This mark indicates an imminently hazardous situation, which, if not avoided, could result in death or serious injury.
	<b>WARNING</b>	This mark indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
	<b>CAUTION</b>	This mark indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury or only property damage.

#### Types and meanings of symbols





	These symbols signify prohibited actions, which must not be done to use this product safely. For example:  indicates that the product should not be disassembled.
	These symbols signify required actions, which must be done to use this product safely. For example:  indicates that the power plug should be disconnected.



### **DANGER**

-  **Do not operate the device when flammable gas is generated.**  
Doing so may result in fire and explosion.
-  **Do not transmit with this device in a crowded place for the safety of persons using a medical device such as a cardiac pacemaker.**  
The radio wave emitted from this product can cause the medical device to malfunction and result in an accident.
-  **Do not touch any liquid leaking from the liquid display with your bare hands.**  
There is a risk of chemical burns occurring when the liquid comes into contact with the skin or gets into the eyes. In this case, seek medical treatment immediately.

-  **Do not touch any material leaking from the battery pack with bare hands.**  
The chemical that has stuck to your skin or entered your eye can cause chemical burns. In such a case, consult the doctor immediately.
-  **Do not solder or short-circuit the terminals of the battery pack.**  
A fire, leak, overheating, explosion, or ignition may result.  
Do not carry the battery pack together with a necklace, hairpin, or small metal objects. A short circuit can result.

### **WARNING**

-  **Do not power this transceiver with a voltage other than the specified power supply voltage.**  
A fire, electric shock, or damage may result.
-  **Do not make very long transmissions.**  
The main body of the transceiver may overheat, resulting component failure or operator burns.
-  **Do not disassemble or make any alteration to this product.**  
An injury, electric shock, or failure may result.
-  **Never touch the antenna during transmission.**  
This may result in injury, electric shock and equipment failure.

-  **Do not handle the battery pack or charger with wet hands. Do not insert or remove the power plug with wet hands.**  
An injury, leak, fire, or failure may result.
-  **If smoke or a strange odor is emitted from the main body, battery pack, or battery charger, immediately turn the transceiver off; remove the battery pack.**  
A fire, chemical leak, overheating, component damage, ignition, or failure may result. Please contact the dealer from which you purchased this product.



## CAUTION



**Do not place the transceiver on an unsteady or sloping surface, or in a location with extreme vibration.**

The transceiver may fall or drop, resulting in fire, injury and equipment damage.



**Stay as far away from the antenna as possible during transmission.**

Long-term exposure to electromagnetic radiation may have a negative effect on the human body.



**Do not dangle or throw the transceiver by holding its antenna.**

This may injure others and may also result in damage and failure of the transceiver.



**Do not wipe the case using thinner and benzene etc.**

Use only a soft, dry cloth to wipe stains from the case.



**Keep this product out of the reach of children.**

Injury to the child, or damage to the transceiver may result.



**Do not use any products other than the specified options and accessories.**

Failure or miss operation may result.



**If the transceiver will not be used for an extended period, turn it OFF and remove the battery pack for safety.**



**Do not throw the transceiver, or subject it to strong impact forces.**

Physical abuse may result in component damage and equipment failure.



**Keep magnetic cards and videotapes away from the transceiver.**

The data recorded on cash cards or videotapes may be erased.



**Do not use the transceiver in a crowded place.**

The antenna may strike others and result in an injury.



**Install the hand strap and belt clip securely.**

Improper installation may cause the transceiver to fall or drop, resulting in an injury or damage.



**Before discarding a depleted battery pack, affix tape or insulating covering to its terminals.**

## 3. ABOUT THIS RADIO

### 3.1 ABOUT THE VHF MARINE BAND

The radio frequencies used in the VHF marine band lie between 156 and 158 MHz with NOAA Weather stations available between 161 and 163 MHz. The marine VHF band provides communications over distances that are essentially “Line of sight” Actual transmission range depends much more on antenna type, gain and height than on the power output of the transmitter. On a fixed mount 25 W radio transmission expected distances can be greater than 15 miles, for a portable 5 W radio transmission the expected distance can be greater than 5 miles in “Line of sight”.

The user of a Marine VHF radio is subject to severe fines if the radio is used on land. The reasoning for this is you may be near an inland waterway, or propagation anomalies may cause your transmission to be heard in a waterway. If this occurs, depending upon the marine VHF channel on which you are transmitting, you could interfere with a search and rescue case, or contribute to a collision between passing ships. For VHF Marine channel assignments refer to section “**10. VHF MARINE CHANNEL ASSIGNMENTS**”.

#### WARNING

This radio is capable of transmitting on Marine VHF radio frequencies.

The FCC allows the use of VHF Marine band on water areas only. Use of the VHF Marine band when on land is not permitted. If persons use the VHF Marine Band on land and interfere with other communications, the FCC will be notified and search for the interference. Responsible parties found to be transmitting on the VHF Marine Band on land could be fined up to \$10,000 for the first offense.

### 3.2 ABOUT WATER PROTECTION

The **HX40** is only submersible\* when the MIC/SP cap is installed in the MIC/SP jack.

※ IPX7 Specification for submersibility: 3 ft. (1 m) for 30 minutes.

### 3.3 DISTRESS AND HAILING (CHANNEL 16)

Channel 16 is designated 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 turned ON, and set to “Channel 16”. Then use the following procedure:

1. Press the **PTT** (Push-To-Talk) switch 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 you 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** switch and listen.
10. If there is no answer, repeat the above procedure. If there is still no response, try another channel.

### **3.4 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, 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). When the other vessel returns your call, immediately request another channel by saying "**go to**", the number of the other channel, and "**over**". 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** (Push-To-Talk) switch. 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.

### **3.5 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 14 for means to temporarily override the low-power limit on these two channels.

### **3.6 SIMPLEX/DUPLEX CHANNEL USE**

Refer to the section “**10. VHF MARINE CHANNEL ASSIGNMENTS**” for instructions on use of simplex and duplex channels.

#### **NOTE**

All channels are factory-programmed in accordance with FCC (USA), ISED (Canada) and International regulations. The mode of operation cannot be altered from simplex to duplex or vice-versa. Simplex (ship to ship) or duplex (marine operator) mode is automatically activated, depending on the channel and whether the USA, International or Canadian operating band is selected.



### **3.7 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

## 4. ACCESSORIES

### 4.1 PACKING LIST

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

<b>HX40</b>	Transceiver
<b>CAT460</b>	Antenna*
<b>SAD-23B</b>	AC Adaptor for SBH-27 (100-240 VAC, Type-A plug)
<b>E-DC-19A</b>	DC Cable with 12 V Cigarette Lighter Plug
<b>SBH-27</b>	Charger Cradle
<b>SHB-19</b>	Belt Clip
	Hand Strap
	Owner's Manual

\* Antenna gain: -1.5 dBi, Impedance: 50 ohm

### 4.2 OPTIONS

<b>SAD-23B/C/U*</b>	AC Adaptor for SBH-27
<b>SSM-14A</b>	Submersible Speaker / Microphone with Earphone Jack
<b>SEP-10A</b>	Earphone for SSM-14A
<b>MH-73A4B</b>	Submersible Speaker / Microphone
<b>SSM-64A</b>	VOX Headset
<b>SSM-55A</b>	Earpiece / Microphone
<b>CN-3</b>	Radio-to-Ship's-Antenna Adapter
<b>SCH-11</b>	Belt Clip Hanger
<b>SCH-29</b>	Floating Jacket

"B" suffix is for use with 100-240 VAC (Type-A plug), "C" suffix is for use with 100-240 VAC (Type-C plug), and "U" suffix is for use with 100-240 VAC (Type-BF plug).

**Note:** Before operating the **HX40** for the first time, it is recommended that the battery be charged. Please see section "**5.2.2 BATTERY CHARGING**" for details.

## 5. GETTING STARTED

### 5.1 RADIO CARE

After using the **HX40** in a salt water environment, it is recommended to clean the radio with fresh 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. This is to keep the rubber switches and speaker grill clean and in top operating condition.

### 5.2 BATTERIES AND CHARGERS

If the radio has never been used, or its charge is depleted, it may be charged by connecting the **SBH-27** Charger Cradle with the **SAD-23B** AC Adapter, see section “**5.2.2 BATTERY CHARGING**”. If 12V DC power is available, the supplied **E-DC-19A** DC Cable with 12 V Cigarette Lighter Plug may be used for charging the battery. The **SAD-23B** and **E-DC-19A** will charge a completely discharged built-in battery in approximately 3 hours.

#### CAUTION

To avoid risk of explosion and injury, the built-in battery pack should only be charged or recharged in non-hazardous environments.

#### 5.2.1 BATTERY SAFETY

The built-in battery of this transceiver contains 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:

- The built-in battery should be charged only in non-hazardous environments.

- Use only STANDARD HORIZON approved batteries.
- Do not exceed the specified temperature limits.
- Do not reverse the charge polarity. Use only the proper charger. If this is tampered with or another charger is used, permanent damage may result.
- Use only a STANDARD HORIZON approved charger. The use of any other charger may cause permanent damage to the battery.
- Follow charging instructions provided with the chargers.

### Battery Recycling

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



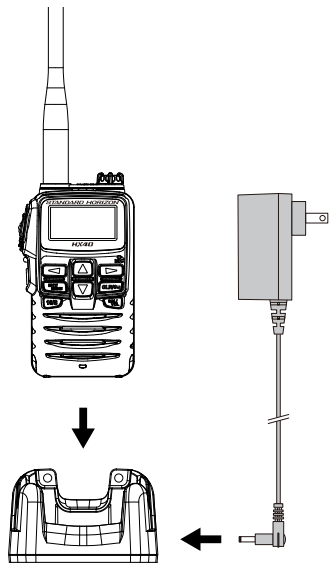
Incinerating Li-ion batteries, placing them in the land fill, or mixing them with the municipal solid waste collection, is PROHIBITED BY LAW in most areas.

Return batteries to an approved Li-ion battery recycler. This may be available 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.

### 5.2.2 BATTERY CHARGING

1. Turn the transceiver OFF.
2. Insert the DC plug from the **SAD-23B** into the DC jack at the bottom of the **SBH-27**, then plug the **SAD-23B** into the AC line outlet.
3. Place the **HX40** into the **SBH-27**; the antenna should be at the left side when viewing the charger from the front.
4. When the **HX40** is inserted correctly, the **HX40**'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.
6. Disconnect the Charge Cable from the **HX40**, then unplug the **SAD-23B** from the AC line outlet.



### CAUTION

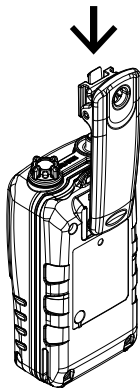
The **SAD-23** and **SBH-27** are NOT designed to be waterproof. Do not attempt to charge in water hazardous locations.

### NOTE

- The **SAD-23B** is only designed for the charging of the **HX40**'s built-in battery, and is not suitable for other purposes. The **SAD-23B** may introduce noise to TV and radio reception in the immediate vicinity, so it is not recommended for use adjacent to such devices.
- When carefully maintained, a built-in battery should be useful for about 300 charge/discharge cycles.
- Contact Standard Horizon dealer or Factory Service about the built-in battery replacement. Refer to the section "**9.2 FACTORY SERVICE**".

## 5.3 BELT CLIP INSTALLATION / REMOVAL

- To install the Belt Clip: align the Belt Clip to the niche on the rear of the transceiver, then slide the Belt Clip downward until it locks in place with a "Click".



- To remove the Belt Clip: press the Belt Clip Tab away from the rear of the transceiver to unlock the Belt Clip, then slide the Belt Clip upward to remove it.

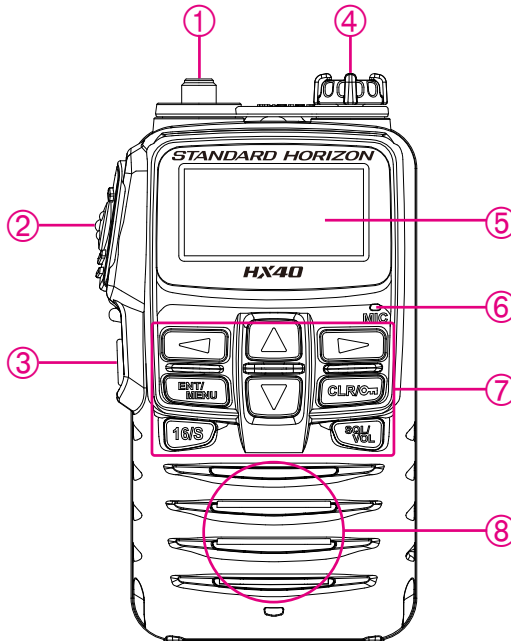


## 6. CONTROLS AND INDICATORS

### 6.1 CONTROLS AND SWITCHES

#### NOTE

This section defines each control of the transceiver. For detailed operating instructions, refer to section “7. BASIC OPERATION”. Refer to the below illustration for the locations of the following controls, switches, and connections.



- ① **ANT** Jack (Top Panel)  
The supplied **CAT460** flexible antenna is attached here.
- ② **PTT** (PUSH-TO-TALK) Switch (Left Side Panel)  
When pushed activates the transmitter.
- ③ **POWER** Switch (Left Side Panel)  
Press and hold this key to turn the radio “ON” or “OFF”.
- ④ **MIC/SP** Jack (Top Panel)  
The jack accepts the optional **SSM-14A** Speaker/Microphone, **MH-73A4B** Submersible Speaker/Microphone, **SSM-64A** VOX Headset, or **SSM-55A** Earpiece/Microphone. When this jack is used, the internal speaker and microphone are disabled.

⑤ LCD Display

The display shows the current operating conditions (See the LCD indicators illustrated on page 14 & 15).

⑥ Microphone

The internal microphone is located here.

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

⑦ Keypad

▲ (UP) Key

Press this key to change the operating channel, the audio volume level, or the squelch threshold level.

Pressing the key momentarily, will increase the channel (or level) one step. Holding the key, will increase the channel (or level) continuously.

▼ (DOWN) Key

Press this key to change the operating channel, the audio volume level, or the squelch threshold level.

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

◀ & ▶ Keys

When the soft keys are displayed on the channel display screen, press these keys to select the soft key functions.

**Note:**

The soft keys can be customized using the Setup Menu mode described in section “7.12 Soft Keys”. When one of the soft keys is pressed briefly, the functions will appear at the bottom on the display.

Press these keys to toggle the on-screen menus right or left.

**ENT/MENU** Key

Pressing while the soft keys are displayed will enter the selected soft key. Press to access MENU.

**Secondary use:**

Press and hold to access SETUP Mode.

**CLR/Off** Key

Press this key to cancel a function or menu selection.

**Secondary use:**

Press and hold this key to lock or unlock the keypad.

### **SQL/VOL Key**

Press this key to enable the audio volume adjustment.

Then press this key again to enable the squelch threshold level adjustment.

#### **Secondary use:**

Press and hold this key to open the squelch, allowing you to monitor the operating channel. Press the key again to resume normal (squelch controlled) monitoring.

### **16/S Key**

Pressing this key immediately recalls channel 16 from any channel selection. Press and hold 16/S Key to recall the sub channel.






- ⑧ **Speaker**  
The internal speaker is located here.

## **6.2 LCD INDICATORS**

---

- ① **"TX"** Indicator  
This indicator appears during transmission.
- ② **"BUSY"** Indicator  
This indicator appears when a signal is being received or the radio is un-squelched.
- ③ **"USA"/"INTL"/"CAN"** Indicator  
These indicators show the "band" of operation.  
"USA" indicates the USA band; "INTL" indicates the International band; and "CAN" indicates the Canadian band.
- ④ **"DW"** Indicator  
**DW:** Dual Watch is activated.  
**TW:** Tri-Watch is activated.
- ⑤ **TRANSMIT POWER** Indicator  
**"HI":** 6 W  
**"MD":** 2.5 W  
**"LO":** 1 W
- ⑥ **"MEM"** Indicator  
This indicator shows the channel is registered in the transceiver "Scan Memory".
- ⑦ **"P-SET"** Indicator  
Shown when the channel is programmed into the Preset Channel memory.



- ⑧ **Battery Indicator**
  - “”: Full battery
  - “”: Lower battery
  - “”: Battery is low
  - “”: Battery is empty
  - “ (Blinking)”: Prepare to charge the battery
- ⑨ **“P” Indicator**

Shown when the channel is set as the Priority Channel.

**“D” Indicator**

Shown when the Dual Watch function is enabled in FM radio mode.

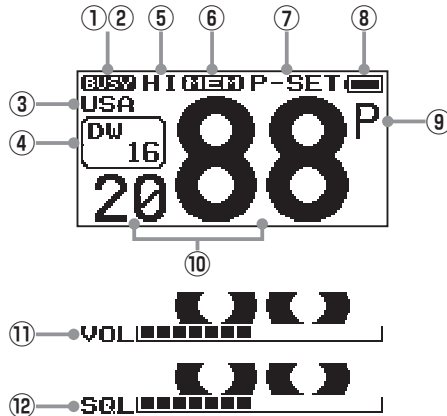
**“T” Indicator**

Shown when the Triple Watch function is enabled in FM radio mode.
- ⑩ **Channel Display**

The operating channel is shown on the LCD in both the transmit and the receive modes.
- ⑪ **VOL Indicator**

This indicator shows the receive audio volume level.
- ⑫ **SQL Indicator**

This indicator shows the squelch setting level.



## 7. BASIC OPERATION

### 7.1 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).

### 7.2 INITIAL SETUP

1. To 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.

### 7.3 RECEPTION

1. Press and hold the **POWER** switch to turn the radio **ON**.
2. Press the [**SQL/VOL**] key, when the VOL indicator appears on the display, press and hold the [**SQL/VOL**] key until the “**BUSY**” indicator appears on the display. This is the “squelch OFF” state.
3. Press the [**▲**] or [**▼**] key until noise or audio from the speaker is heard at a comfortable level.
4. Press the [**SQL/VOL**] key to resume normal (squelch controlled) monitoring.
5. When the VOL indicator disappears, press the [**▲**] or [**▼**] key to select the desired channel. Refer to the channel chart on page 39 for available channels.
6. When a signal is received, adjust the volume to the desired listening level. The “**BUSY**” indicator on the LCD is displayed indicating that the channel is being used or the radio is not squelched.



### 7.4 TRANSMISSION

1. Setup the transceiver as described in the “7.3 RECEPTION” discussion above.
2. Before transmitting, monitor the channel and make sure it is clear.

**THIS IS AN FCC REQUIREMENT!**

3. Press the **PTT** (Push-To-Talk) switch to transmit. During transmission, the “**TX**” indicator will appear on the display.



4. Position the microphone about 1/2 to 1 inch (1.2 ~ 2.5 cm) away from

- your mouth. Speak slowly and clearly into the microphone.
- When the transmission is finished, release the **PTT** switch.

#### **7.4.1 TRANSMIT POWER**

The TX output power of the **HX40** is set to high level (6 W\*) in factory default, and the “**HI**” indicator is displayed on the top part of the screen.

To change the TX output power:

- Press the [**◀**] or [**▶**] key to display the soft keys.
- Press the [**◀**] or [**▶**] key repeatedly, until [**HI**], [**MD**], or [**LO**] is selected above a soft key at the bottom of the LCD.
- Press the [**ENT/MENU**] key repeatedly to switch between HI (6 W), MD (2.5 W), or LO (1 W) output power.



#### **7.4.2 TRANSMIT TIME - OUT TIMER (TOT)**

While the **PTT** switch is held down, transmission time is limited to 5 minutes. This prevents prolonged (unintentional) transmissions. About 10 seconds before automatic transmitter shutdown, a warning beep will sound from the speaker. The transceiver automatically switches to receive mode, even if the **PTT** switch continues to be held down. The **PTT** switch must first be released, then wait 10 seconds before transmission may be started again. This Time-Out-Timer (TOT) prevents a continuous transmission that would result from an accidentally stuck **PTT** switch.

#### **7.5 USA, CANADIAN, AND INTERNATIONAL CHANNELS**

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

- Press and hold the [**ENT/MENU**] key.
- Press the [**▲**] or [**▼**] key to select “**CHANNEL SETUP**”.
- Press the [**◀**] or [**▶**] key to select the [**SELECT**] soft key, then press the [**ENT/MENU**] key.
- Press the [**▲**] or [**▼**] key to select “**CHANNEL GROUP**”.
- Press the [**ENT/MENU**] key.
- Press the [**▲**] or [**▼**] key to select the desired channel group “USA”, “INTERNATIONAL”, or “CANADA”.
- Press the [**ENT/MENU**] soft key to store the selected setting.
- Press the [**CLR/Off**] key to return to radio operation.



## 7.6 KEYPAD LOCKING

In order to prevent accidental channel change, the **HX40's** keypad may be locked.

Press and hold the [**CLR/On**] key to lock the keypad (except the **PTT**, [**SQL/VOL**] and [**CLR/On**] keys) so that they are not accidentally changed. “**KEY LOCK**” will appear on the entire screen, to indicate that the functions are locked.

To unlock the keys, press and hold the [**CLR/On**] key until “**UNLOCK**” appears.

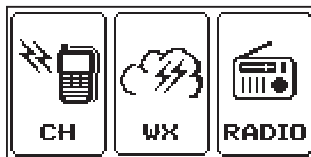
## 7.7 NOAA WEATHER CHANNELS

1. Press the [**ENT/MENU**] key to display the MENU screen.

2. Press the [**◀**] or [**▶**] key to select the [**WX**], then press the [**ENT/MENU**] key.

The transceiver changes to the weather channel mode and the radio will be set to the last used NOAA weather channel.

3. Press the [**▲**] or [**▼**] key to select a different NOAA weather channel.



4. To exit from the NOAA weather channels, press the [**ENT/MENU**] key to display MENU screen. Press the [**◀**] or [**▶**] key to select the [**CH**], then press the [**ENT/MENU**] key. The transceiver will revert to the channel in use prior to switching to the weather channel mode.



### 7.7.1 NOAA WEATHER ALERT

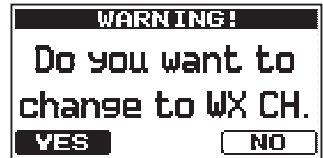
In the event of extreme weather disturbances, such as storms and hurricanes, the NOAA (National Oceanic and Atmospheric Administration) sends a weather alert accompanied by a 1050 Hz tone and a subsequent weather report on one of the NOAA weather channels.

The **HX40** can respond to weather alerts; when monitoring a weather channel; when stopping on the last selected weather channel during scanning modes; while operating on another working channel; or while listening in the FM Radio mode.

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 any key to display a confirmation screen. The confirmation screen will ask whether to move to the weather channel, or return to the marine channel. Press **[ENT/MENU]** to switch to the weather channel, or press the **[▶]** key to select the **[NO]** soft key, then press **[ENT/MENU]** to return to the marine channel.



### **7.7.2 NOAA WEATHER ALERT TESTING**

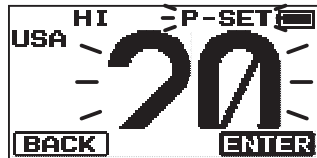
In order to test this system, NOAA broadcasts the 1050 Hz tone every Wednesday sometime between 11 AM and 1 PM local time. You may use this opportunity to test your transceiver periodically to confirm that the Weather Alert feature is working, or for training crew members on how to configure the transceiver to receive the NOAA Weather Alerts.

## 7.8 PRESET CHANNELS: INSTANT ACCESS

10 preset channels can be programmed for instant access. Press the [◀] or [▶] key to display the soft keys. Press the [◀] or [▶] key repeatedly to select the [P-SET] soft key. Pressing the [ENT/MENU] key activates the user assigned channel bank. If the [ENT/MENU] key is pressed and no preset channels have been assigned, an alert beep will be emitted from the speaker.

### 7.8.1 PROGRAMMING PRESET CHANNEL BANKS

1. Select the desired channel to be assigned into the Preset Channel Bank using the [▲] or [▼] key.
2. Press the [◀] or [▶] key to display the soft keys.
3. Press the [◀] or [▶] key repeatedly, until the [P-SET] soft key is selected at the bottom of the LCD.
4. Press and hold the [ENT/MENU] key until the "P-SET" icon and channel number are blinking.
5. Press the [ENT/MENU] key to program the channel into the preset channel memory. The "P-SET" icon will appear.
6. Repeat steps 1 through 5 to program the additional channels into the preset channels. Up to 10 channels can be registered. If you attempt to register an 11th channel, the error beep will sound.



### 7.8.2 OPERATION on a Preset Channel

1. Press the [◀] or [▶] key to display the soft keys.
2. Press the [◀] or [▶] key repeatedly, until the [P-SET] soft key is selected at the bottom of the LCD.
3. Press the [ENT/MENU] key, then press the [▲] or [▼] key to select the desired preset channel.



4. To return to the previous operation channel, press the [◀] or [▶] key to displays the channel. Press the [◀] or [▶] key repeatedly, until the [P-SET] soft key is selected at the bottom of the LCD. Press the [ENT/MENU] key. The “P-SET” icon will disappear from the display.

### **7.8.3 Deleting a Preset Channel**

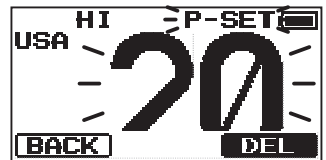
1. Press the [◀] or [▶] key to display the soft keys.
2. Then press the [◀] or [▶] key repeatedly, until the [P-SET] soft key is selected.



3. Press the [ENT/MENU] key, then press the [▲] or [▼] key to select the preset channel to be deleted.



4. Press the [◀] or [▶] key to display the soft keys, then press the [◀] or [▶] key repeatedly, until the [P-SET] soft key is selected at the bottom of the LCD.
5. Press and hold the [ENT/MENU] key until the “P-SET” icon and channel number are blinking.
6. Press the [◀] or [▶] key repeatedly, until the [DEL] soft key is selected at the bottom of the LCD. Press the [ENT/MENU] key to delete the channel from the preset channel memory.
7. To exit from the preset channels delete operation, press the [◀] or [▶] key repeatedly, until the [BACK] soft key is selected at the bottom of the LCD, then press the [ENT/MENU] key.



## 7.9 SCANNING

The **HX40** provides two types of scanning, “Memory Scan” or “Priority Scan”. “Memory Scan” scans the channels that were programmed into Scan Memory and also channels stored in the Preset Channel memory. “Priority Scan” is similar to the “Memory Scan” scan, however it scans the priority channel (channel 16) and dual watches to channels programmed in memory scan and preset channel memory. 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.

### 7.9.1 PROGRAMMING SCAN MEMORY

1. Press and hold the [ENT/MENU] key.
2. Press the [▲] or [▼] key to select “CHANNEL SETUP”.
3. Press the [◀] or [▶] key to select the [SELECT] soft key, then press the [ENT/MENU] key.
4. Press the [▲] or [▼] key to select “SCAN MEMORY”.
5. Press the [ENT/MENU] key.
6. Press the [▲] or [▼] key to select a desired channel to be scanned.
7. Press the [◀] or [▶] key to select the [MEM] soft key, then press the [ENT/MENU] key. The “ON” icon will appear at the right side of the selected channel.
8. Repeat step 7 for all the desired channels to be scanned.
9. To REMOVE a channel from the list, select the channel. Press the [◀] or [▶] key to select the [MEM] soft key, then press the [ENT/MENU] key. The “ON” icon of the selected channel will disappear.
10. When the selections are complete, press the [CLR/On] key to return to radio operation.



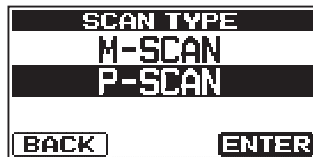
To check channels to be scanned, press the [▲] or [▼] key repeatedly, to display each channel. The “MEM” icon will appear when a designated memory channel is displayed.

### 7.9.2 SELECTING SCAN TYPE

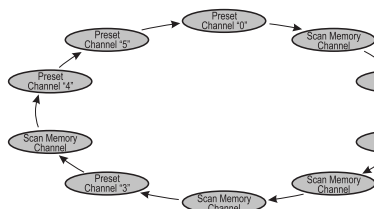
1. Press and hold the [ENT/MENU] key.
2. Press the [▲] or [▼] key to select “CHANNEL SETUP”.
3. Press the [◀] or [▶] key to select the [SELECT] soft key, then press the [ENT/MENU] key.
4. Press the [▲] or [▼] key to select “SCAN TYPE”.
5. Press the [ENT/MENU] key.



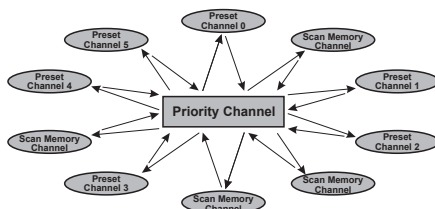
- Press the [▲] or [▼] key to select “M-SCAN” or “P-SCAN”.



- Press the [ENT/MENU] key to store the selected setting.
- Press the [CLR/Off] key to return to radio operation.



Memory Scan (M-SCAN)



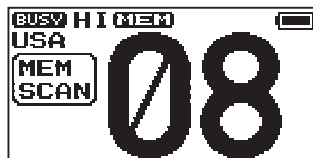
Priority Scan (P-SCAN)

### 7.9.3 SCANNING OPERATION

#### 7.9.3.1 Memory Scanning (M-SCAN)

- Set the scan type to “M-SCAN” in the SETUP menu (refer to “7.9.2 SELECTING SCAN TYPE”).
- Press the [SQL/VOL] key twice, then press the [▲] or [▼] key until the squelch background noise disappears.
- Press the [◀] or [▶] key repeatedly, until the [SCAN] soft key is selected at the bottom of the LCD.
- Press the [ENT/MENU] key.

“MEM SCAN” will appear on the display. Scanning will proceed from the lowest to the highest programmed channel number and preset channel (described in the next section). Scanning will stop on a channel when a transmission is received.



The channel number will blink during reception.

- To stop scanning, press the [16/S] or [CLR/Off] key.

#### 7.9.3.2 Priority Scanning (P-SCAN)

- Set the scan type to “P-SCAN” in the SETUP menu (refer to “7.9.2 SELECTING SCAN TYPE”).
- Press the [SQL/VOL] key twice, then press the [▲] or [▼] key until the squelch background noise disappears.
- Press the [◀] or [▶] key repeatedly, until the [SCAN] soft key is selected at the bottom of the LCD.

4. Press the [ENT/MENU] key.  
“**PRI SCAN**” appears on the display. Scanning will proceed between the memory channels, the preset channels, and the priority channel.  
The priority channel will be scanned after each programmed channel.
5. To stop scanning, press the [16/S] or [CLR/On] key.

## 7.10 MULTI WATCH (TO PRIORITY CHANNEL)

Multi watch is used to scan two or three channels for communications.

- In Dual Watch, a normal VHF channel and the priority channel are scanned alternately.
- In Triple Watch, a normal VHF channel, the priority channel, and the sub channel are scanned alternately.

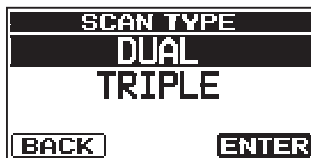
When a signal is received on the normal channel the radio briefly switches between the normal channel and the priority channel to look for a transmission. If the radio receives communications on the priority channel the radio stops and listens to the priority channel until communication ends and then starts dual or triple watch scan again.

### NOTE

The priority channel and sub channel may be changed from CH16 (default) and CH9 (default) to another channel. Refer to section “**PRIORITY CH**” or “**SUB SUB CH**” (see page 30 for details).

#### 7.10.1 Setting up the Multi Watch Operation

1. Press and hold the [ENT/MENU] key.
2. Press the [▲] or [▼] key to select “**CHANNEL SETUP**”.
3. Press the [◀] or [▶] key to select the [SELECT] soft key, then press the [ENT/MENU] key.
4. Press the [▲] or [▼] key to select “**MULTI WATCH**”.
5. Press the [ENT/MENU] key.
6. Press the [▲] or [▼] key to select “**DUAL**” or “**TRIPLE**”.



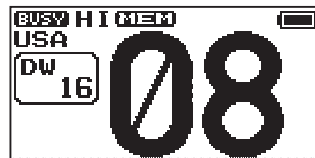
**DUAL** (Dual Watch): The HX40 watches the activity of the current channel and the priority channel.

**TRIPLE** (Triple Watch): The HX40 watches the activity of the priority channel, the sub channel, and the current channel.

7. Press the [ENT/MENU] key to store the selected setting.
8. Press the [CLR/On] key to return to radio operation.

### 7.10.2 Starting the Dual Watch

1. Press the [SQL/VOL] key twice, then press the [▲] or [▼] key until the background squelch noise disappears.
2. Press the [▲] or [▼] key to select a channel you wish to dual watch.
3. Press the [◀] or [▶] key to display the soft keys.
4. Press the [◀] or [▶] key repeatedly, until the [DW] soft key at the bottom of the LCD is selected.
5. Press the [ENT/MENU] key.  
The radio will monitor the priority channel and the working channel that were selected in step 2.



6. While a signal is received on the channel selected in step 2, the **HX40** will dual watch to the priority channel periodically.
7. To stop dual watch, press the [CLR/On] key.

### 7.10.3 Starting the Triple Watch

You may change the Dual Watch feature to Triple Watch via the Menu ("Set") Mode. Triple Watch scans the priority channel, the sub channel, and one working channel.

1. Press the [▲] or [▼] key to select the working channel to scan along with the sub channel and the priority channel.
2. Press the [◀] or [▶] key to display the soft keys.
3. Press the [◀] or [▶] key repeatedly, until the [TW] soft key at the bottom of the LCD is selected.
4. Press the [ENT/MENU] key to activate the Triple Watch feature.

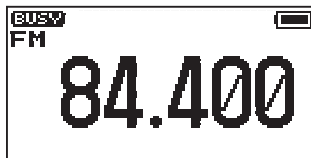


5. When a transmission is received on the priority channel, the **HX40** will remain on the priority channel until the incoming signal disappears.
6. When a transmission is received on the sub channel, the **HX40** will Dual watch the priority channel and the sub channel.
7. When the **HX40** receives a transmission on the working channel, the **HX40** will Triple Watch between the working channel, the priority channel, and sub channel.
8. To stop Triple watch, press the [CLR/On] key.

## 7.11 Listening to the FM Radio

The **HX40** includes provision for FM broadcast reception.

1. Press the [**◀**] or [**▶**] key to select the [**RA-DIO**], then press the [**ENT/MENU**] key.  
The FM broadcast coverage is 65.000 to 108.000 MHz (100 kHz step) and utilizes Wide-FM mode.
2. Press the [**▲**] or [**▼**] key to select the de-sired frequency.



3. To exit from the FM Broadcast Reception mode, press the [**ENT/MENU**] key to display the MENU screen. Press the [**◀**] or [**▶**] key to select [**CH**], then press the [**ENT/MENU**] key. The transceiver will revert to the channel in use prior to switching to the FM Broadcast band.

### FM broadcast Frequency sweep operation

1. Recall the FM Broadcast Reception mode (see above).
2. Press the [**◀**] or [**▶**] key to select the [**SWEEP**] soft key, then press the [**ENT/MENU**] key to start sweep operation.  
Sweeping will proceed from the lowest to the highest frequencies (step 100 kHz).  
If the radio receives an FM station, the sweep will stop on the received frequency.
3. To cancel sweep operation, press the [**CLR/On**] key, the [**▲**] or [**▼**] key.

### Store the FM frequency

1. While listening in the FM Broadcast receive mode, select the desired FM frequency.
2. Press the [**◀**] or [**▶**] key to select the [**MEM**] soft key, then press the [**ENT/MENU**] key to display the "ADD" screen.
3. Press the [**ENT/MENU**] key.



4. Press the [▲] or [▼] key to scroll through the letters and choose the first letter of the name for the FM frequency.



5. Press the [ENT/MENU] key to store the first letter of the name and step to the next letter to the right.
6. Repeat steps 4 and 5 until the name is complete. The name can consist of up to twelve characters, and if you do not use all twelve characters, press the [ENT/MENU] key to move to the next spaces. This method can also be used to enter a blank space within the name.  
If a mistake was made entering in the name, press the [◀] or [▶] key to select the [DEL] soft key, then press the [ENT/MENU] key to delete the wrong character.
7. When the twelve letters or spaces have been entered, select "FINISH". Press the [ENT/MENU] key to store the FM frequency. To return to the input, press the [◀] or [▶] key to select the [◀] soft key, then press the [ENT/MENU] key.



### **Memory Frequency Recall**

1. Press the [◀] or [▶] key to select the [NEXT] soft key, then press the [ENT/MENU] key to recall the Last displayed FM broadcast memory.
2. Then press the [ENT/MENU] key repeatedly to step sequentially through the FM broadcast memories.

## **7.12 Soft Keys**

The soft key functions may be reconfigured, and the duration time of the soft key icon display, after a key is pressed, can be changed.

### **Key Assignment**

1. Press and hold the [ENT/MENU] key.
2. Press the [▲] or [▼] key to select "CONFIG".
3. Press the [◀] or [▶] key to select the [SELECT] soft key, then press the [ENT/MENU] key.
4. Press the [▲] or [▼] key to select "KEY SETUP", then press the [ENT/MENU] key.

5. Press the [◀] or [▶] key to select “**ASSIGNMENT**”, then press the [ENT/MENU] key.
6. Press the [▲] or [▼] key to select the key number to be programmed, and then press the [ENT/MENU] key.
7. Press the [▲] or [▼] key to select a new function to be assigned to the soft key, and press the [ENT/MENU] soft key. Available functions are listed below.



8. Press the [CLR/On] key to return to radio operation.

Display	Function
<b>PRESET</b>	Programs or deletes the preset memory channel.
<b>HI/MD/LO</b>	Selects transmit power.
<b>DW/TW</b>	Turns dual or triple watch scan ON/OFF.
<b>MEMORY</b>	Add or remove channels from memory channel scan.
<b>SCAN</b>	Turns the scanning function ON/OFF.
<b>NONE</b>	No function.

### Key Timer

1. Press and hold the [ENT/MENU] key.
2. Press the [▲] or [▼] key to select “**CONFIG**”.
3. Press the [◀] or [▶] key to select the [SELECT] soft key, then press the [ENT/MENU] key.
3. Select “**KEY SETUP**” with the [▲] or [▼] key, then press the [ENT/MENU] soft key.
4. Select “**KEY TIMER**” with the [▲] or [▼] key, then press the [ENT/MENU] soft key.
5. Press the [▲] or [▼] key to select the desired time, and press the [ENT/MENU] soft key.



6. Press the [CLR/On] key to return to radio operation.

## 8. MENU (“SETUP”)

The HX40’s Menu Mode allows enables a number of the HX40 operating parameters to be custom-configured.

Use the following procedure to activate and set The Menu Mode parameters:

1. Press and hold the [ENT/MENU] key.
2. Press the [▲] or [▼] key to select the desired menu item.
3. Press the [▲] or [▼] key to select the key number to be programmed, and then press the [ENT/MENU] key.
4. Press the [▲] or [▼] key to select the desired menu item, then press the [ENT/MENU] key.
5. Press the [▲] or [▼] key to select the desired setting.
6. Press the [ENT/MENU] key to store the new setting.
7. Press the [CLR/Off] key to return to radio operation.

### CHANNEL SETUP

#### CHANNEL GROUP

This menu item enables changing the channel group from USA channels, to Canada channels, or International channels.

Refer to the section “7.5 USA, CANADIAN, AND INTERNATIONAL CHANNELS” for details.

#### WEATHER ALERT

Enables/disables the NOAA Weather Alert function. The default setting is “OFF”.

1. Press and hold [ENT/MENU] ►► “CHANNEL SETUP” ►► “WEATHER ALERT”

2. Press the [▲] or [▼] key to select “ON” or “OFF”.
3. Press the [ENT/MENU] key to store the new setting.



4. Press the [CLR/Off] key to return to radio operation.

#### SCAN MEMORY

Before scanning can begin, the desired scan channels must be programmed. This selection allows channels to be stored to the scan memory.

Refer to section “7.9.1 PROGRAMMING SCAN MEMORY” for details.

#### SCAN TYPE

This selection is used to change the scan mode between “M-SCAN” (Memory Scan) and “P-SCAN” (Priority Scan). The default setting is “P-SCAN”.

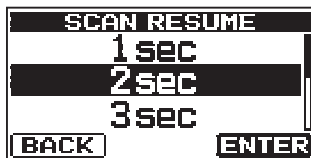
Refer to section “7.9.2 SELECTING SCAN TYPE” for details.

## SCAN RESUME

This selection is used to select the time the HX40 waits after a transmission ends before the radio starts to scan channels again. The default setting is 2 seconds.

1. Press and hold [ENT/MENU] ➡ “CHANNEL SETUP” ➡ “SCAN RESUME”

2. Press the [▲] or [▼] key to select the desired time. The resume time can be set to “1 sec” through “5 sec”.



3. Press the [ENT/MENU] key to store the new setting.

4. Press the [CLR/On] key to return to radio operation.

## MULTI WATCH

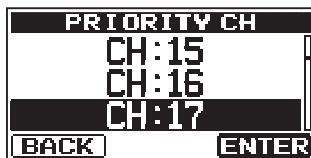
This selection is used to choose between “Dual Watch” and “Triple Watch”. Refer to section “7.10.1 Setting up the Multi Watch Operation” for details.

## PRIORITY CH

This procedure may be used to designate a different priority channel when priority scanning. By default, the radio priority channel is set to Channel 16.

1. Press and hold [ENT/MENU] ➡ “CHANNEL SETUP” ➡ “PRIORITY CH”

2. Press the [▲] or [▼] key to select the desired channel to be a priority.



3. Press the [ENT/MENU] key to store the new setting.

4. Press the [CLR/On] key to return to radio operation.

## SUB CH

By default, the sub channel is set to Channel 9. This procedure allows the radio to assign a different sub channel for instant access.

1. Press and hold the [ENT/MENU] key.

2. Press the [▲] or [▼] key to select “CHANNEL SETUP”, then press the [ENT/MENU] key.

3. Select “SUB CH” with the [▲] or [▼] key, then press the [ENT/MENU] key.

4. Press the [▲] or [▼] key to select the desired channel to be the sub channel.



5. Press the [ENT/MENU] key to store the new setting.

6. Press the [CLR/On] key to return to radio operation.



## FM SETUP

### ADD

1. Press and hold [ENT/MENU]  $\Rightarrow$  "FM SETUP"  $\Rightarrow$  "ADD"
2. Press the [▲] or [▼] key to select "FREQ", then press the [ENT/MENU] key.
3. Press the [▲] or [▼] key to scroll through the first position numbers of the frequency.
4. Press the [ENT/MENU] key to store the first number in the frequency and step to the next position to the right.
5. Repeat steps 3 and 4 until the frequency is complete.  
If a mistake was made entering in the frequency, press the [◀] or [▶] soft key to select the [DEL] soft key, then press the [ENT/MENU] key to delete the wrong number.
6. After the four numbers have been entered, "FINISH" is selected. Press the [ENT/MENU] key to save and exit to the "ADD" screen.
7. Press the [▼] key, then press the [ENT/MENU] key.
8. Press the [▲] or [▼] key to scroll through the first letter of the name of the frequency.
9. Press the [ENT/MENU] key to store the first letter in the name and step to the next position to the right.
10. Repeat steps 8 and 9 until the name is complete. The name can consist of up to twelve characters, and if you do not use all twelve characters, press the [ENT/MENU] key to move to the next spaces. This method can also be used to enter a blank space in the name.  
If a mistake was made entering in the name, press the [◀] or [▶] key to select the [DEL] soft key, then press the [ENT/MENU] key to delete the wrong character.
11. After the twelve letters or spaces have been entered, press the [ENT/MENU] key, "FINISH" is selected. Press the [ENT/MENU] key to stored the FM frequency.



To return to the input, press the [◀] or [▶] key to select the [◀] soft key, then press the [ENT/MENU] key.

## EDIT

This selection is used to edit the FM Broadcast frequency and name.

1. Press and hold [ENT/MENU] ➡ “FM SETUP” ➡ “EDIT”

2. Press the [▲] or [▼] key to select the memory to be edited, then press the [ENT/MENU] key.



3. Use the same procedure as described in steps 3 to 11 of “ADD” in the previous section.

## DELETE

This selection can delete the frequency data stored on an FM Broadcast memory.

1. Press and hold [ENT/MENU] ➡ “FM SETUP” ➡ “DELETE”

2. Press the [▲] or [▼] key to select the memory to be deleted, then press the [ENT/MENU] key.

The delete confirmation screen will appear.



3. Press the [▲] or [▼] key to select “OK?” (delete) or “CANCEL” (cancel), then press the [ENT/MENU] key.

## CONFIG

### KEY BEEP

This selection is used to select the beep tone volume level when a key is pressed.

1. Press and hold [ENT/MENU] ➡ “CONFIG” ➡ “KEY BEEP”

2. Press the [▲] or [▼] key to select the desired level. The beep level can be set from “1” to “5”, or “OFF”.

3. Press the [ENT/MENU] key to store the selected level.



4. Press the [CLR/On] key to return to radio operation.

## **BATTERY SAVE**

This function allows you to change the battery save mode setting.

1. Press and hold [ENT/MENU] ➡ “CONFIG” ➡ “BATTERY SAVE”
2. Press the [▲] or [▼] key to select the desired setting. You can select one from “OFF”, “50%”, “70%”, “80%”, or “90%”.
3. Press the [ENT/MENU] key to store the new setting.
4. Press the [CLR/On] key to return to radio operation.



## **KEY SETUP**

The function assigned to the function screen Soft Keys can be changed (see page 27 “7.12 Soft Keys”).

## **BACKLIT LEVEL**

The backlight brightness may be adjusted in 5 levels.

1. Press and hold [ENT/MENU] ➡ “CONFIG” ➡ “BACKLIT LEVEL”
2. Press the [▲] or [▼] key to select the desired setting, from “1” to “5”, or “OFF”.
3. Press the [ENT/MENU] key to store the selected level.
4. Press the [CLR/On] key to return to radio operation.



## **BACKLIT TIMER**

This menu selection is used to setup the illumination time of the display and keypad.

1. Press and hold [ENT/MENU] ➡ “CONFIG” ➡ “BACKLIT TIMER”
2. Press the [▲] or [▼] key to select the desired time.

**OFF:** Disables the display/keypad lamp illumination.

**3/5/10/30 Sec:** Illuminates the display/keypad for the selected time when any key (except the PTT switch) is pressed.

**CONTINUOUS:** Illuminates the display/keypad continuously.



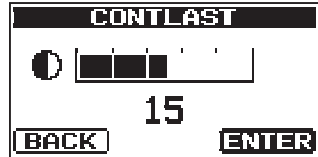
3. Press the [ENT/MENU] key to store the new setting.
4. Press the [CLR/On] key to return to radio operation.

### **CONTRAST**

The contrast may be adjusted in 30 levels.

1. Press and hold [ENT/MENU] ➡ “CONFIG” ➡ “CONTRAST”

2. Press the [▲] or [▼] key to select the desired level. The contrast level can be set from “0” to “30” (“15” is default).
3. Press the [ENT/MENU] key to store the selected level.
4. Press the [CLR/On] key to return to radio operation.



### **RESET**

The memories and settings of each setup category may be initialized independently, or the transceiver may be reset to the original factory settings.

1. Press and hold [ENT/MENU] ➡ “CONFIG” ➡ “RESET”

2. Press the [▲] or [▼] key to select the desired category from: “CHANNEL”, “CONFIG”, or “ALL” (all settings except the MMSI will be initialized).
3. Press the [ENT/MENU] key.
4. Press the [▲] or [▼] key to select “OK?”, then press the [ENT/MENU] key.



### **ABOUT...**

Displays the version of the software currently operating on the transceiver.

## 9. MAINTENANCE

### 9.1 GENERAL

The inherent quality of the solid-state components in STANDARD HORIZON radios will provide many years of continuous use. Take the following precautions to prevent damage to the radio.

- Never key the microphone unless an antenna or suitable dummy load is connected to the transceiver.
- Use only STANDARD HORIZON-approved accessories and replacement parts.

### 9.2 FACTORY SERVICE

In the unlikely event that the radio fails to perform or needs servicing, please contact the following:

#### Standard Horizon

#### Attention Marine Repair Department

6125 Phyllis Drive, Cypress, California 90630, U.S.A.

Telephone (800) 366-4566

#### For repairs in Canada

#### Westcom Marine

488 East 62nd Avenue Vancouver BC V5X2G1

Phone (604)327-6280

An "RA" Return Authorization number is not necessary to send a product in for service. Include a brief note describing the problem along with your name, return address, phone number, and proof of purchase.

### 9.3 TROUBLESHOOTING CHART

SYMPTOM	PROBABLE CAUSE	REMEDY
The USA/INTL/CAN modes do not function.	Proper operation not followed.	Specify the item number from "SETUP MENU" – "CHANNEL SETUP" – "CHANNEL GROUP".
Cannot output sound by pressing and holding the [SQL/VOL] key.	Low battery.	Charge battery. Refer to section 5.2 of this manual.
	Audio volume level is too low.	Press the [▲] key until background noise outputs.
Charge indicator does not appear on the display when charging a battery.	Defective built-in battery.	Contact Standard Horizon dealer.
	The transceiver is not set onto the <b>SBH-27</b> Charger Cradle properly.	Set the transceiver onto the <b>SBH-27</b> Charger Cradle properly.
	Power is not supplied to the <b>SBH-27</b> Charger Cradle.	Connect <b>SAD-23B</b> or <b>E-DC-19A</b> to the <b>SBH-27</b> Charger Cradle for AC/DC power supplies.
Cannot turn the transceiver <b>OFF</b> . The transceiver is unresponsive to keypad operation.	The Micro Computer has frozen.	Press and hold the <b>POWER</b> switch for over 15 seconds to restart the transceiver.

## 10. VHF MARINE CHANNEL ASSIGNMENTS

Tables on the following pages list the VHF Marine Channel assignments for USA. and International use. Below are listed some data about the charts.

1. VTS. Where indicated, these channels are part of the U.S. Coast Guard's Vessel Traffic System.
2. Alpha channel numbers, that is, channel numbers followed by the letter A (such as Channel 07**A**) are **simplex** channels on the USA. or Canadian channel assignments whose counterparts in the International assignments are **duplex** channels. International channels do not use "alpha" numbers. If you call the Coast Guard on Channel 16, they will sometimes ask you to "**go to channel 22 Alpha.**" This is a channel assigned to USA, and Canadian Coast Guards for handling distress and other calls. If your radio is set for **International** operation you will go to Channel 22 instead of 22**A**, and will not be able to communicate with the Coast Guard. To use Channel 22**A**, your radio must be set for **USA** or **Canada** operation, usually by a U/I/C (USA/International/Canada) control or combination of controls. Channel 22 (without an "A") is an **International** duplex channel for port operations. Some radios indicate an "A" adjacent to the alpha channels on the display; on others "alpha" is not indicated but the proper channel is selected based on the U/I/C setting.
3. Bridge-to-Bridge channels (for example, Channel 13) are for use by bridge operators on inter-coastal waterways and rivers. It is also used by marine vessels in the vicinity of these bridges for navigation and for communicating with the bridge operators. Note that a limit of 1 Watt is specified for these channels.
4. The **S/D** column on the chart indicates either S (simplex) or D (duplex). **Simplex** means transmitting and receiving on the same frequency. Only one party at a time can talk, unlike a telephone. Be sure to say "**over**" and release your microphone push-to-talk switch at the end of each transmission. **Duplex** operation involves the use of one frequency for transmitting and a separate frequency for receiving. On channels specified as duplex on the charts, correct mode of operation is established automatically by your radio when you select a channel; you cannot change the mode. And you still must release the push-to-talk switch after each transmission in order to listen to the radio.
5. Channels normally used by recreational boaters are those that include the term "non-commercial" in the **Channel Use** column of the chart. Some of these are shared with other users and some are used only in certain geographic regions.

6. Marine vessels equipped with VHF radios are required to monitor Channel 16.
7. 156.050 MHz and 156.175 MHz are available for port operations and commercial communications purposes when used only within the U.S. Coast Guard designated Vessel Traffic Services (VTS) area of New Orleans, on the lower Mississippi River from the various pass entrances in the Gulf of Mexico to Devil's Swamp Light at River Mile 242.4 above head of passes near Baton Rouge.
8. 156.250 MHz is available for port operations communications use only within the U.S. Coast Guard designated VTS radio protection areas of New Orleans and Houston described in Sec. 80.383. 156.250 MHz is available for intership port operations communications used only within the area of Los Angeles and Long Beach harbors, within a 25- nautical mile radius of Point Fermin, California.
9. 156.550 MHz, 156.600 MHz and 156.700 MHz are available in the U.S. Coast Guard designated port areas only for VTS communications and in the Great Lakes available primarily for communications relating to the movement of ships in sectors designated by the St. Lawrence Seaway Development Corporation or the U.S. Coast Guard. The use of these frequencies outside VTS and ship movement sector protected areas is permitted provided they cause no interference to VTS and ship movement communications in their respective designated sectors.
10. Use of 156.875 MHz is limited to communications with pilots regarding the movement and docking of ships. Normal output power must not exceed 1 watt. 5: 156.375 MHz and 156.650 MHz are available primarily for intership navigational communications. These frequencies are available between coast and ship on a secondary basis when used on or in the vicinity of locks or drawbridges. Normal output power must not exceed 1 watt. Maximum output power must not exceed 10 watts for coast stations or 25 watts for ship stations.
11. On the Great Lakes, in addition to bridge-to-bridge communications, 156.650 MHz is available for vessel control purposes in established vessel traffic systems. 156.650 MHz is not available for use in the Mississippi River from South Pass Lighted Whistle Buoy "2" and Southwest Pass entrance Mid-channel Lighted Whistle Buoy to mile 242.4 above Head of Passes near Baton Rouge. Additionally it is not available for use in the Mississippi River-Gulf Outlet, the Mississippi River-Gulf Outlet Canal, and the Inner Harbor Navigational Canal, except to aid the transition from these areas.

12. Use of 156.375 MHz is available for navigational communications only in the Mississippi River from South Pass Lighted Whistle Buoy "2" and Southwest Pass entrance Mid channel Lighted Whistle Buoy to mile 242.4 above head of Passes near Baton Rouge, and in addition over the full length of the Mississippi River-Gulf Outlet Canal from entrance to its junction with the Inner Harbor Navigation Canal, and over the full length of the Inner Harbor Navigation Canal from its junction with the Mississippi River to its entry to Lake Pontchartrain at the New Seabrook vehicular bridge.
13. Within 120 km (75 miles) of the United States/Canada border, in the area of the Puget Sound and the Strait of Juan de Fuca and its approaches, 157.425 MHz is half of the duplex pair designated as Channel 88. In this area, Channel 88 is available to ship stations for communications with public coast stations only. More than 120 km (75 miles) from the United States/Canada border in the area of the Puget Sound and the Strait of Juan de Fuca, its approaches, the Great Lakes, and the St. Lawrence Seaway, 157.425 MHz is available for intership and commercial communications. Outside Puget Sound area and its approaches and the Great Lakes, 157.425 MHz is also available for communications between commercial fishing vessels and associated aircraft while engaged in commercial fishing activities.
14. When the frequency 156.850 MHz is authorized, it may be used additionally for search and rescue training exercises conducted by state or local governments.
15. The frequency 156.850 MHz is additionally available to coast stations on the Great Lakes for transmission of scheduled Coded Marine Weather Forecasts (MAFOR), Great Lakes Weather Broadcast (LAWEB) and scheduled Notices to Mariners or Bulletins. F3C and J3C emissions are permitted. Coast Stations on the Great Lakes must cease weather broadcasts which cause interference to stations operating on 156.800 MHz until the interference problem is resolved.
16. The frequency 157.100 MHz is authorized for search and rescue training exercises by state or local government in conjunction with U.S. Coast Guard stations. Prior U.S. Coast Guard approval is required. Use must cease immediately on U.S. Coast Guard request.
17. The duplex pair for channel 20 (157.000/161.600 MHz) may be used for ship to coast station communications.
18. Available for assignment to coast stations, the use of which is in accord with an agreed program, for the broadcast of information to ship stations concerning the environment.



VHF MARINE CHANNEL CHART							
CH	U	C	I	S/D	TX	RX	CHANNEL USE
01		X	X	D	156.050	160.650	Public Correspondence (Marine Operator)
1001	X			S	156.050		Port Operation and Commercial. VTS in selected areas
02		X	X	D	156.100	160.700	Public Correspondence (Marine Operator)
03		X	X	D	156.150	160.750	Public Correspondence (Marine Operator)
1003	<b>X</b>			<b>S</b>	<b>156.150</b>		<b>U.S. Government Only, Coast Guard</b>
04			X	D	156.200	160.800	Public Correspondence (Marine Operator), Port operation, ship movement
04A		X		S	156.200		Pacific coast: Coast Guard, East Coast: Commercial fishing
05			X	D	156.250	160.850	Public Correspondence (Marine Operator), Port operation, ship movement
05A		X		S	156.250		Port operation. VTS in Seattle
1005	X			S	156.250		Port operation. VTS in Seattle
06	X	X	X	S	156.300		Inter-ship Safety
07			X	D	156.350	160.950	Public Correspondence (Marine Operator), Port operation, ship movement
07A		X		S	156.350		Commercial
1007	X			S	156.350		Commercial
08	X	X	X	S	156.400		Commercial (Inter-ship only)
09	X	X	X	S	156.450		Boater Calling channel, Commercial & Non-commercial (Recreational)
10	X	X	X	S	156.500		Commercial
11	X	X	X	S	156.550		Commercial. VTS in selected areas.
12	X	X	X	S	156.600		Port operation. VTS in selected areas.
13	X	X	X	S	156.650		Inter-ship Navigation Safety (Bridge-to-bridge)
14	X	X	X	S	156.700		Port operation. VTS in selected areas.
15	X			S	---	156.750	Environmental (Receive only)
15		X	X	S	156.750		Commercial, non-commercial, ship movement (1 W)
16	X	X	X	S	156.800		International Distress, Safety and Calling
17	X	X	X	S	156.850		State Controlled (1 W)
18			X	D	156.900	161.500	Port operation, ship movement
18A		X		S	156.900		Commercial
1018	X			S	156.900		Commercial
19			X	D	156.950	161.550	Port operation, ship movement
19A		X		S	156.950		Coast Guard
1019	X			S	156.950		Commercial
1019			X	S	156.950		
2019			X	S	161.550		
20	X	X	X	D	157.000	161.600	Canadian Coast Guard Only, International: port operations and shipment
1020			X	S	157.000		
1020	X			S	157.000		Port operation
2020			X	S	161.600		
21			X	D	157.050	161.650	Port operation, ship movement
21A		<b>X</b>		<b>S</b>	<b>157.050</b>		<b>Canadian Coast Guard</b>
21B		X			---	161.650	CMB Service
1021	<b>X</b>			<b>S</b>	<b>157.050</b>		<b>U.S. Government Only</b>
22			X	D	157.100	161.700	Port operation, ship movement
22A		X		S	157.100		Canadian Coast Guard Liaison and Maritime Safety Information Broadcasts announced on channel 16

VHF MARINE CHANNEL CHART									
CH	U	C	I	S/D	TX		RX		CHANNEL USE
1022	X			S	157.100				US Coast Guard Liaison and Maritime Safety Information Broadcasts announced on channel 16
23		X	X	D	157.150	161.750			Public Correspondence (Marine Operator)
23B		X			---	161.750			CMB Service
<b>1023</b>	<b>X</b>			<b>S</b>	<b>157.150</b>				<b>U.S. Government Only</b>
24	X	X	X	D	157.200	161.800			Public Correspondence (Marine Operator)
25	X	X	X	D	157.250	161.850			Public Correspondence (Marine Operator)
25B		X			---	161.850			CMB Service
26	X	X	X	D	157.300	161.900			Public Correspondence (Marine Operator)
27	X	X	X	D	157.350	161.950			Public Correspondence (Marine Operator)
28	X	X	X	D	157.400	162.000			Public Correspondence (Marine Operator)
28B		X			---	162.000			CMB Service
60		X	X	D	156.025	160.625			Public Correspondence (Marine Operator)
61			X	D	156.075	160.675			Public Correspondence (Marine Operator), Port operation, ship movement
<b>61A</b>		<b>X</b>		<b>S</b>	<b>156.075</b>				<b>Public Coast: Coast Guard; East Coast: commercial fishing only</b>
<b>1061</b>	<b>X</b>			<b>S</b>	<b>156.075</b>				<b>Public Coast: Coast Guard; East Coast: commercial fishing only</b>
62			X	D	156.125	160.725			Public Correspondence (Marine Operator), Port operation, ship movement
62A		X		S	156.125				Public Coast: Coast Guard; East Coast: commercial fishing only
63			X	D	156.175	160.775			Public Correspondence (Marine Operator), Port operation, ship movement
63A		X		S	156.175				Port Operation and Commercial. VTS in selected areas.
1063	X			S	156.175				Port Operation and Commercial. VTS in selected areas.
64		X	X	D	156.225	160.825			Public Correspondence (Marine Operator), Port operation, ship movement
<b>64A</b>		<b>X</b>		<b>S</b>	<b>156.225</b>				<b>Public Correspondence (Marine Operator), Port operation, ship movement</b>
<b>1064</b>	<b>X</b>			<b>S</b>	<b>156.225</b>				<b>Public Correspondence (Marine Operator), Port operation, ship movement</b>
65			X	D	156.275	160.875			Public Correspondence (Marine Operator), Port operation, ship movement
65A		X		S	156.275				Port Operations
1065	X			S	156.275				Port Operations
66			X	D	156.325	160.925			Public Correspondence (Marine Operator), Port operation, ship movement
66A		X		S	156.325				Port Operations
1066	X			S	156.325				Port Operations
67	X	X	X	S	156.375				US: Commercial. Used for Bridge-to-bridge communications in lower Mississippi River. Inter-ship only. Canada: Commercial fishing, S&R
68	X	X	X	S	156.425				Non-commercial (Recreational)
69	X	X	X	S	156.475				US: Non-commercial (Recreational), Canada: Commercial fishing only, International: Inter-ship, Port operations and Ship movement
70	X	X	X	S	---	156.525			Digital selective calling (voice communications not allowed)

VHF MARINE CHANNEL CHART							
CH	U	C	I	S/D	TX	RX	CHANNEL USE
71	X	X	X	S	156.575		US, Canada: Non-commercial (Recreational), International: Port operations and Ship movement
72	X	X	X	S	156.625		Non-commercial (Inter-ship only)
73	X	X	X	S	156.675		US: Port Operations, Canada: Commercial fishing only, International: Inter-ship, Port operations and Ship movement
74	X	X	X	S	156.725		US: Port Operations, Canada: Commercial fishing only, International: Inter-ship, Port operations and Ship movement
75	X	X	X	S	156.775		Port Operations (Inter-ship only) (1 W)
76	X	X	X	S	156.825		Port Operations (Inter-ship only) (1 W)
77	X	X		S	156.875		Port Operations (Inter-ship only) (1 W)
77			X	S	156.875		Port Operations (Inter-ship only)
78			X	D	156.925	161.525	Public Correspondence (Marine Operator), Port operation, ship-movement
78A		X		S	156.925		Non-commercial (Recreational)
1078	X			S	156.925		Non-commercial (Recreational)
1078			X	S	156.925		
2078			X	S	161.525		
79			X	D	156.975	161.575	Port operation and Ship movement
1079	X			S	156.975		Commercial
1079			X	S	156.975		
2079			X	S	161.575		
80			X	D	157.025	161.625	Port operation, ship movement
80A		X		S	157.025		Commercial
1080	X			S	157.025		Commercial
81			X	D	157.075	161.675	Port operation, ship movement
<b>1081</b>	<b>X</b>			<b>S</b>	<b>157.075</b>		<b>U.S. Government Only - Environmental protection operations.</b>
81A		X		S	157.075		Canadian Coast Guard Only
82			X	D	157.125	161.725	Public Correspondence (Marine Operator), Port operation, ship movement
<b>82A</b>		<b>X</b>		<b>S</b>	<b>157.125</b>		<b>Canadian Coast Guard Only</b>
<b>1082</b>	<b>X</b>			<b>S</b>	<b>157.125</b>		<b>U.S. Government Only</b>
83			X	D	157.175	161.775	Public Correspondence (Marine Operator)
<b>83A</b>		<b>X</b>		<b>S</b>	<b>157.175</b>		<b>Canadian Coast Guard Only</b>
83B		X			---	161.775	CMB Service
<b>1083</b>	<b>X</b>			<b>S</b>	<b>157.175</b>		<b>U.S. Government Only</b>
84	X	X	X	D	157.225	161.825	Public Correspondence (Marine Operator)
85	X	X	X	D	157.275	161.875	Public Correspondence (Marine Operator)
86	X	X	X	D	157.325	161.925	Public Correspondence (Marine Operator)
87	X	X	X	S	157.375		Port operation, ship movement
88	X	X	X	S	157.425		Port operation, ship movement Commercial, Inter-ship Only

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

## 11. WARRANTY

### Marine Products Limited Warranty

#### PLEASE NOTE

The following "Limited Warranty" is valid for products that have been purchased in the United States and Canada. For limited Warranty details outside the United States, contact the dealer in your country.

STANDARD HORIZON (a division of YAESU USA.) warrants, to the original purchaser only, each new Marine Communications Product ("Product") manufactured and/or supplied by STANDARD HORIZON against defects in materials and workmanship under normal use and service for a period of time from the date of purchase as follows:

#### Fixed Mount and Portable Transceivers

**1 year - if purchased before 01/01/91**

**3 years - if purchased between 01/01/91 and 01/01/94**

**3 years Waterproof - if purchased after 01/01/94**

#### Loud hailers

**1 year - if purchased before 01/01/91**

**3 years - if purchased after 01/01/91**

#### Associated Chargers

**1 year - if purchased before 01/01/91**

**3 years - if purchased after 01/01/91**

**Associated Batteries** - 1 year. Note: Batteries will be deemed defective only if storage capacity drops below 80% of rated capacity or if leakage develops.

**Associated Accessories** - 1 year. Includes: Microphones/Handsets, External Speakers, Antennas, Carrying Accessories, Power Supplies, and Signaling Boards.

To receive warranty service, the purchaser must deliver the Product, transportation and insurance prepaid, to STANDARD HORIZON (a division of YAESU USA.). Include proof of purchase indicating model, serial number, and date of purchase. STANDARD HORIZON will return the Product to the purchaser freight prepaid. Products purchased prior to January 1, 1991 will bear the STANDARD HORIZON warranty terms in effect prior to that date.

In the event of a defect, malfunction or failure of the Product during the warranty period, STANDARD HORIZON's liability for any breach of contract or any breach of express or implied warranties in connection with the sale of Products shall be limited solely to repair or replacement, at its option, of the Product or part(s) therein which, upon examination by STANDARD HORI-

ZON, appear to be defective or not up to factory specifications. STANDARD HORIZON may, at its option, repair or replace parts or subassemblies with new or reconditioned parts and subassemblies. Parts thus repaired or replaced are warranted for the balance of the original applicable warranty.

STANDARD HORIZON will not warrant installation, maintenance or service of the Products. In all instances, STANDARD HORIZON's liability for damages shall not exceed the purchase price of the defective Product.

This warranty only extends to Products sold within the 50 States of the United States of America and the District of Columbia.

STANDARD HORIZON will pay all labor to repair the product and replacement parts charges incurred in providing the warranty service except where purchaser abuse or other qualifying exceptions exist. The purchaser must pay any transportation expenses incurred in returning the Product to STANDARD HORIZON for service.

This limited warranty does not extend to any Product which has been subjected to misuse, neglect, accident, incorrect wiring by anyone other than STANDARD HORIZON, improper installation, or subjected to use in violation of instructions furnished by STANDARD HORIZON, nor does this warranty extend to Products on which the serial number has been removed, defaced, or changed. STANDARD HORIZON cannot be responsible in any way for ancillary equipment not furnished by STANDARD HORIZON which is attached to or used in connection with STANDARD HORIZON's Products, or for the operation of the Product with any ancillary equipment, and all such equipment is expressly excluded from this warranty. STANDARD HORIZON disclaims liability for range, coverage, or operation of the Product and ancillary equipment as a whole under this warranty. STANDARD HORIZON reserves the right to make changes or improvements in Products, during subsequent production, without incurring the obligation to install such changes or improvements on previously manufactured Products.

The implied warranties which the law imposes on the sale of this Product are expressly LIMITED, in duration, to the time period specified above. STANDARD HORIZON shall not be liable under any circumstances for consequential damages resulting from the use and operation of this Product, or from the breach of this LIMITED WARRANTY, any implied warranties, or any contract with STANDARD HORIZON. IN CONNECTION WITH THE SALE OF ITS PRODUCTS, STANDARD HORIZON MAKES NO WARRANTIES, EXPRESS OR IMPLIED AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, EXCEPT AS EXPRESSLY SET FORTH HEREIN.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitation on how long an implied warranty lasts, so the above limitations or exclusions may not apply. This warranty gives specific legal rights, and there may be other rights which may vary from state to state.

ONLY PRODUCTS SOLD ON OR AFTER JANUARY 1, 1991 ARE COVERED UNDER THE TERMS OF THIS LIMITED WARRANTY.

### **ON-LINE WARRANTY REGISTRATION**

THANK YOU for buying STANDARD HORIZON (a division of YAESU USA.) products! We are confident your new radio will serve your needs for many years!

Please visit [www.standardhorizon.com](http://www.standardhorizon.com) to register the **HX40** Marine VHF. It should be noted that visiting the Web site from time to time may be beneficial to you, as new products are released they will appear on the STANDARD HORIZON Web site.

#### **Product Support Inquiries**

If you have any questions or comments regarding the use of the **HX40**, you can visit the STANDARD HORIZON Web site to send an E-mail or contact the Product Support team at (800) 767-2450 ext 6300 M-F 8:00-5:00PST.

In addition to the warranty, STANDARD HORIZON includes a lifetime "flat rate" program to provide service after the warranty period has expired. If you wish to obtain the flat rate price for out-of-warranty repair, you must include the information on the Owner's Record with the unit when you return it to your Dealer or to STANDARD HORIZON.

**Lifetime Flat Rate Service Program:** For the original Owner only, for the lifetime of the unit, STANDARD HORIZON will repair the unit to original specifications.

**Note:** The flat rate amount is payable by the Owner only if STANDARD HORIZON or the STANDARD HORIZON Dealer determines that a repair is needed. After the repair, a 90-day warranty will be in effect from the date of return of the unit to the Owner.

This service program is not available for equipment which has failed as a result of neglect, accident, breakage, misuse, improper installation or modification, or water damage (depending on the product).

## 12. SPECIFICATIONS

Performance specifications are nominal, unless otherwise indicated, and are subject to change without notice.

### 12.1 GENERAL

<b>Frequency Ranges:</b>	TX: 156.025 MHz - 161.600 MHz RX: 156.050 MHz - 163.275 MHz (Including WX ch)
<b>Channel Spacing:</b>	25 kHz
<b>Frequency Stability:</b>	±3 ppm (-4 °F to +140 °F [-20 °C to +60 °C])
<b>Emission Type:</b>	16K0G3E
<b>Antenna Impedance:</b>	50 Ω
<b>Operating Voltage:</b>	7.4 V DC, Negative Ground (Battery Terminal)
<b>Current Consumption:</b>	330 mA (Receive, Typical at AF MAX.) 100 mA (Standby) 1.6 A / 1.0 A / 0.7 A (TX: 6 W / 2.5 W / 1 W)
<b>Operating Temperature:</b>	-4 °F to +140 °F (-20 °C to +60 °C)
<b>Case Size (W x H x D):</b>	2.05" x 3.74" x 1.3" (52 x 95 x 33 mm) (w/o knob & antenna)
<b>Weight (Approx.):</b>	8.1 oz (230 g) (with hand strap, belt clip & antenna)

### 12.2 TRANSMITTER

<b>RF Power Output:</b>	6 W / 2.5 W / 1 W (@7.4 V)
<b>Maximum Deviation:</b>	±5 kHz
<b>Spurious Emission:</b>	Less than 0.25 μV
<b>Microphone Impedance:</b>	2 kΩ

### 12.3 RECEIVER

<b>Circuit Type:</b>	Double Conversion Superheterodyne
<b>Intermediate Frequencies:</b>	1st: 38.85 MHz, 2nd: 450 kHz
<b>Adjacent Channel Selectivity:</b>	70 dB typical
<b>Intermodulation:</b>	70 dB typical
<b>Hum &amp; Noise Ratio:</b>	40 dB typical
<b>Sensitivity:</b>	0.25 μV for 12 dB SINAD
<b>Selectivity:</b>	12 kHz / 25 kHz (-6 dB / -60 dB)
<b>AF Output (Internal SP):</b>	600 mW @16 Ω for 10 % THD (@7.4 V)

### 12.4 FM BROADCAST RECEIVER

<b>Frequency Range:</b>	65 MHz - 108 MHz
<b>Frequency Step:</b>	100 kHz
<b>Sensitivity:</b>	1.0 μV for 12 dB SINAD

## 13. FCC AND CANADA RADIO LICENSE INFORMATION

Standard Horizon radios comply with the Federal Communication Commission (FCC) and the Innovation, Science and Economic Development Canada (ISED) requirements that regulate the Maritime Radio Service.

### MARITIME STATION LICENSE

An FCC ship station license is no longer required for any vessel traveling in U.S. waters which uses a VHF marine radio, RADAR or EPIRB, and which is not required to carry radio equipment. However, any vessel required to carry a marine radio on an international voyage, carrying a HF single side band radiotelephone or marine satellite terminal. FCC license forms, including applications for ship (605) and land station licenses can be downloaded via the Internet at <https://www.fcc.gov/fcc-form-605>. To obtain a form from the FCC, call (888) 225-5322.

### MARINE RADIO CALL SIGN

Currently the FCC does not require recreational boaters to have a Ship Radio Station License. The USCG recommends the boats registration number and the state to be used.

### CANADIAN SHIP STATION LICENSING

Please click on the following link for licensing information:  
[http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/h\\_sf01775.html](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/h_sf01775.html)

The following link lists several Branches/Offices regarding licensing. Licensing depends on the region of operations.

<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01742.html>

### FCC / ISED INFORMATION

The following data pertaining to the transceiver is necessary to fill out the license application.

FCC Type Accepted:..... Part 80  
Output Power with built-in Battery:..... 1.0/2.5/6.0 W (Low/Mid/High)  
Emission:..... 16K0G3E  
Frequency Range:..... 156.025 to 162.025MHz  
FCC Type Number:..... K6630623X30  
ISED Type Approval: ..... 511B-30623X30



## 14. RF EXPOSURE SAFETY STATEMENT

### SAFETY INFORMATION

Your wireless handheld portable transceiver contains a low power transmitter. When the Push-to-Talk (PTT) button is pushed, the transceiver sends out radio frequency (RF) signals. In August 1996, the Federal Communications Commission adopted RF exposure guidelines with safety levels for hand-held wireless devices.

This device is authorized to operate at a duty factor not to exceed 50% (this corresponds to 50% transmission time and 50% reception time).

**WARNING:** To maintain compliance with the FCC's RF exposure guidelines, this transmitter and its antenna must maintain a separation distance of at least 1 inch (2.5 centimeters) from your face. Speak in a normal voice, with the antenna pointed up and away from the face at the required separation distance.

Use only the supplied antenna. Unauthorized antennas, modifications, or attachments could damage the transmitter, and may violate FCC regulations.

### CONSIGNES DE SECURITE

Votre émetteur-récepteur portatif sans fil contient un émetteur à faible puissance. Lorsque vous appuyez sur le bouton Push-to-Talk (PTT), l'émetteur-récepteur émet des signaux de radiofréquence (RF). En août 1996, la FCC (Commission Fédérale des Communications) a adopté des directives relatives à l'exposition aux RF avec des niveaux de sécurité pour les appareils sans fil portatifs. Le fonctionnement de cet appareil est autorisé à un facteur d'utilisation ne dépassant pas 50 % (correspondant à 50% de la durée de transmission et 50% de la durée de réception).

**AVERTISSEMENT:** Pour assurer la conformité avec les directives d'exposition RF de la FCC, cet émetteur-récepteur et son antenne doivent être maintenus à une distance minimum d'un pouce (2,5 centimètre) de votre visage. Parlez avec une voix normale, avec l'antenne dirigée vers le haut et éloignée du visage, à la distance requise. Si vous utilisez un casque pour cette radio, et que vous portez la radio sur vous, utilisez exclusivement le clip de ceinture Yaesu pour cet émetteur-récepteur, et assurez-vous que l'antenne se trouve à une distance minimum d'un pouce (2,5 centimètres) de votre corps pendant l'émission. Utilisez exclusivement l'antenne fournie. Les antennes, les modifications ou les accessoires non autorisés peuvent endommager l'émetteur-récepteur et enfreindre les réglementations FCC.

## 15. FCC NOTICE

### NOTICE

Unauthorized changes or modifications to this equipment may void compliance with FCC Rules. Any change or modification must be approved in writing by STANDARD HORIZON, a division of YAESU USA.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

NOTE: THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industry Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The applicant is responsible for providing proper instructions to the user of the radio device, and any usage restrictions, including limits of exposure durations. The user manual shall provide installation and operation instructions, as well as any special usage conditions, to ensure compliance with SAR and/or RF field strength limits. For instance, compliance distance shall be clearly stated in the user manual.

The user manual of devices intended for controlled use shall also include information relating to the operating characteristics of the device; the operating instructions to ensure compliance with SAR and/or RF field strength limits; information on the installation and operation of accessories to ensure compliance with SAR and/or RF field strength limits; and contact information where the user can obtain Canadian information on RF exposure and compliance. Other related information may also be included.



# ***STANDARD HORIZON***

*Nothing takes to water like Standard Horizon*

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