

Nothing takes to water like Standard Horizon

HX400IS

VHF FM Marine Transceiver

Owner's Manual

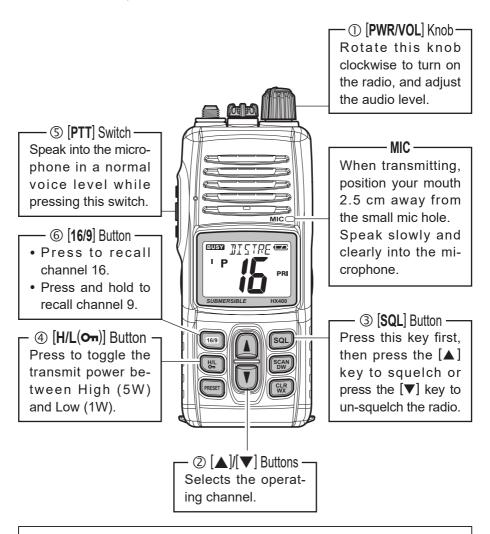


TABLE OF CONTENTS

Quick Reference Guide	1
1. GENERAL INFORMATION	
1.1 INTRODUCTION	2
1.2 RF EXPOSURE SAFETY STATEMENT	2
2. ACCESSORIES	3
2.1 PACKING LIST	3
2.2 OPTIONS	
3. ABOUT THIS RADIO	4
3.1 INTRINSIC SAFETY (IS) INFORMATION	4
3.2 ABOUT THE VHF MARINE BAND	
3.3 ABOUT THE LMR CHANNELS	
3.4 ABOUT WATER RESISTANCE	4
3.5 EMERGENCY (CHANNEL 16 USE)	4
3.6 CALLING ANOTHER VESSEL (CHANNEL 16 OR 9)	5
3.7 OPERATING ON CHANNEL 13	
3.8 OPERATING ON CHANNEL 67	6
3.9 SIMPLEX/DUPLEX CHANNEL USE	6
3.10 BATTERY TERMINAL INFORMATION	
4. GETTING STARTED	
4.1 RADIO CARE	
4.2 BELT CLIP INSTALLATION AND REMOVAL	
4.3 BATTERIES AND CHARGERS	
4.3.1 BATTERY SAFETY	
4.3.2 BATTERY INSTALLATION AND REMOVAL	10
4.3.3 BATTERY CHARGING	
5. CONTROLS AND INDICATORS	
5.1 CONTROLS AND SWITCHES	
5.2 LCD INDICATORS	
6. BASIC OPERATION	
6.1 INITIAL SETUP.	
6.2 RECEPTION	
6.3 TRANSMISSION	
6.3.1 TRANSMIT TIME - OUT TIMER (TOT)	
6.4 USA, CANADIAN, AND INTERNATIONAL CHANNELS	17
6.5 NOAA WEATHER CHANNELS	
6.5.1 NOAA WEATHER CHANNELS	
6.5.2 NOAA WEATHER ALERT TESTING	10
6.6 KEYPAD LOCKING	
6.7 PRESET CHANNELS (0 ~ 9): INSTANT ACCESS	18
6.7.1 PROGRAMMING	19
6.8 MEMORY SCAN	
6.8.1 PROGRAMMING SCAN MEMORY	
6.8.2 OPERATION	
6.9 PRIORITY SCAN	
6.10 DUAL WATCH	
6.11 TRI-WATCH	
6.12 VOICE SCRAMBLER	23
7. MENU ("SET") MODE	24
8. MAINTENANCE	
8.1 GENERAL	
8.2 REPLACEMENT PARTS	
8.3 TROUBLESHOOTING CHART	27
9. VHF MARINE CHANNEL ASSIGNMENTS	
10 SPECIFICATIONS	30

Quick Reference Guide

This transceiver is equipped with the E2O (Easy-To-Operate) system. You can do the basic operation in numerical order of the illustration below.



NOTE

For additional details, refer to next page or section "5. CONTROLS AND INDICATORS".

1. GENERAL INFORMATION

1.1 INTRODUCTION

Congratulations on your purchase of the **HX400IS**! 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 should you require technical advice or assistance.

The **HX400IS** is a JIS-8 / IPX8 (1.5 m for 30 minutes) Submersible 5-Watt portable two way marine transceiver with the capability to be programmed with 40 LMR (Land Mobile Radio) channels with CTCSS or DCS signalling by a dealer. The transceiver has all allocated USA, Canadian, or International channels. It has emergency channel 16 which can be immediately selected from any channel by pressing the wey.

The **HX400IS** includes the following features: 10 programmable Preset Channels, Memory, Priority, Dual Watch and TRI-Watch scanning, Battery Saver, easy-to-read large LCD display, EEPROM memory back-up, Battery Life displayed on the LCD, and a transmit Time-Out Timer (TOT), Noise Canceling Microphone and Voice Scrambler.

The **HX400IS** transmitter provides a full 5 Watt of transmit power and also is selectable to 1 Watt to assist the user in ensuring maximum battery life.

We appreciate your purchase of the **HX400IS**, and encourage you to read this manual thoroughly, so as to learn and fully understand the capabilities of the **HX400IS**.

1.2 RF EXPOSURE SAFETY STATEMENT

Your wireless handheld portable transceiver contains a low power transmitter. When the Push-To-Talk (**PTT**: (3)) button is pushed, the transceiver sends out radio frequency (RF) signals.

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

This transmitter and its antenna must maintain a separation distance of at least 2.5 cm 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.

2. ACCESSORIES

2.1 PACKING LIST

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

- HX400IS Transceiver
- CAT460 Antenna
- SBR-29LIIS or SBR-45LIIS Li-Ion Battery Pack
- CD-50 or SBH-36 Charger Cradle for HX400IS
- PA-45C (for CD-50) or SAD-25C (for SBH-36) AC Adapter
- CLIP-22 Belt Clip
- Hand Strap
- · Owner's Manual
- · Warranty Card

2.2 OPTIONS

(1) **SSM-14A** Submersible Speaker Microphone

② CMP460 Noise-canceling Waterproof Speaker Microphone

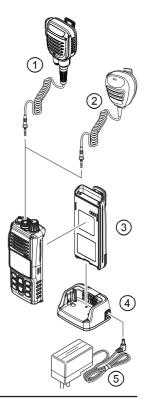
3 SBR-29LIIS Li-lon Battery Pack SBR-45LIIS Li-lon Battery Pack

4 SBH-36 Charger Cradle

5 SAD-25B/C/U* AC Adapter for the SBH-36

*: "B" suffix is for use Type-A plug, "C" suffix is for use Type-C plug, and "U" suffix is for use Type-BF plug.

Note: Before operating the **HX400IS** for the first time, it is recommended that the battery be charged. Please see section "**4.3.3 BATTERY CHARGING**" for details.



3. ABOUT THIS RADIO

3.1 INTRINSIC SAFETY (IS) INFORMATION

The **HX400IS**, equipped with any of the following optional units, meets the requirements of ANSI/UL 913 5 th Edition for Class I, II, III Division 1, Groups C, D, E, F, G, T3 for hazardous locations.

Battery Pack: SBR-29LIIS or SBR-45LIIS (Li-lon battery pack)

Speaker Microphones: SSM-14A and CMP460

O Substitution of components may impair intrinsic safety.

3.2 ABOUT THE VHF MARINE BAND

The radio frequencies used in the VHF marine band lie between 156 and 162 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 page 28 section 9.

3.3 ABOUT THE LMR CHANNELS

The **HX400IS** is capable of being programmed with 40 LMR (Land Mobile Radio) channels by a dealer. The frequency range is 134 to 174MHz which may be setup for 25 kHz (wide) or 12.5 kHz (narrow) channel stepping with CTCSS and DCS signaling. Contact your dealer for further details.

3.4 ABOUT WATER RESISTANCE

Water resistance of the transceiver is ensured only when the battery pack is attached to the transceiver and **MIC/SP** cap is installed in the **MIC/SP** jack.

3.5 EMERGENCY (CHANNEL 16 USE)

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: ③) 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 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 ((3)) switch and listen.
- 10. If there is no answer, repeat the above procedure. If there is still no response, try another channel.

3.6 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. Also hailing on channel 9, the 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: (3)) 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.

3.7 OPERATING ON CHANNEL 13

Channel 13 is used at docks, bridges and for maneuvering in port. Messages on this channel must concern navigation only, such as meeting and passing in restricted waters. In emergencies and when approaching blind river bends, High power is allowed. Pressing the key will change the power output from Low Power (1 Watt) to High (5 Watts). When you change from this channel then return to it, low power will be automatically selected.

3.8 OPERATING ON CHANNEL 67

When channel 67 is used for navigational bridge-to-bridge traffic between ships, High power may be used temporarily (in the USA band) by pressing the key. When release the **PTT** switch, the transceiver will revert to low power.

3.9 SIMPLEX/DUPLEX CHANNEL USE

Refer to the VHF MARINE CHANNEL CHART (page 28) for instructions on use of simplex and duplex channels.

NOTE

All channels are factory-programmed in accordance with FCC, Industry 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, Canadian or International operating band is selected.

3.10 BATTERY TERMINAL INFORMATION

Maximum Input Voltage: 8.4 V DC
Maximum Input Current: 2 A
Maximum Input Power: 16.8 W
Maximum Internal Capacitance: 27.75 μF
Maximum Internal Inductance: 0.68 μH



MEMO

4. GETTING STARTED

4.1 RADIO CARE

CAUTION

Before following the instructions below, insure the battery pack is in place and firmly connected. 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.

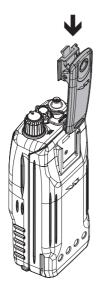
The design of the **HX400IS** allows water to enter between the radio and the battery pack, however waterproof performance is not compromised.

After using the **HX400IS** in salt water environment is recommended to clean the radio with fresh water by rinsing the battery and radio (separately) under a sink facet or by dunking in a fresh water. After washing, use a soft cloth to thoroughly dry all parts of the radio and battery.

This will keep the radio parts and the battery clean and in top operating condition.

4.2 BELT CLIP INSTALLATION AND REMOVAL

- ☐ 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."
- ☐ 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.





4.3 BATTERIES AND CHARGERS

If the radio has never been used, or its charge is depleted, it may be charged by connecting the CD-50 or SBH-36 Charger Cradle with the PA-45C or SAD-25C AC Adapter. The PA-45C or SAD-25C AC Adapter will charge a completely discharged SBR-29LIIS or SBR-45LIIS battery pack in approximately 4 - 5 hours.

The **SBR-29LIIS** or **SBR-45LIIS** is a high performance Li-lon battery providing high capacity in a compact package.

CAUTION

To avoid risk of explosion and injury, **SBR-29LIIS** or **SBR-45LIIS** battery pack should only be removed, charged or recharged in non-hazardous environments.

4.3.1 BATTERY SAFETY

Battery packs for your transceiver contain Li-lon 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 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 and dry.

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.

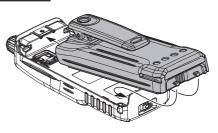
The incineration, land filling or mixing of Li-lon batteries with the municipal solid waste stream is PROHIBITED BY LAW in most areas.

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

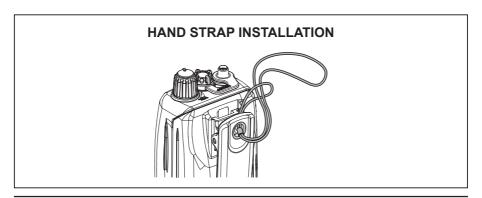
Contact your local waste management officials for other information regarding the environmentally sound collection, recycling and disposal of Li-Ion batteries.

4.3.2 BATTERY INSTALLATION AND REMOVAL

☐ To install the battery pack, hold the transceiver with your left hand, so your palm is over the speaker. Insert the battery pack into the battery compartment on the back of the radio, then push the bottom side of the battery pack until the battery pack locks with the Battery Pack Latch.

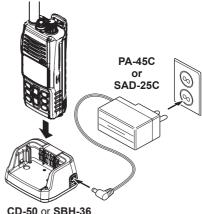


☐ To remove the battery, turn the radio off. Slide the Battery Pack Latch on the bottom of the radio, then lift up on the bottom of the battery and remove it from the radio.



4.3.3 BATTERY CHARGING

- Turn the transceiver off.
- 2. Insert the DC plug from the PA-45C or SAD-25C into the DC jack on the CD-50 or SBH-36 side panel, then plug the PA-45C or SAD-25C into the AC line outlet.
- 3. Insert the HX400IS (with the battery pack) into the CD-50 or SBH-36; the antenna should be at the left side when viewing the charger from the front.
- 4. If the **HX400IS** is inserted correctly, the Red "CHARGING" indicator will glow. A fully-discharged pack will be charged completely in approximately 4 - 5 hours.



CD-50 or SBH-36

5. When charging is completed, the red LED indicator will change to green. Remove the HX400IS from the CD-50 or SBH-36, and unplug the PA-45C or SAD-25C from the AC line outlet.

Note: The green LED indicator may blink after charging is complete, but this is not a malfunction.

If the charger is abnormal operation, the LED indicator in red and green alternately.

!\ WARNING /!\

- O Do not reverse-connect the battery terminals.
- O Do not parallel-connect the battery terminals.
- O Do not change batteries in hazardous locations.
- O To reduce the risk of explosion, recharge the batteries outside of hazardous locations.
- O If the LED blinks red, please insert the HX400IS again. If LED continues blinking red, the CD-50 Desktop Charger or the battery may be defective. Disconnect the HX400IS from the CD-50, then please contact Standard Horizon/Yaesu authorized dealers.

CAUTION

The CD-50 or SBH-36 cradle is NOT designed to be waterproof. Do not attempt to charge in water hazardous locations.

NOTE

The CD-50 or SBH-36 cradle is only designed for the charging of the HX400IS's battery, and is not suitable for other purposes. The CD-50 or SBH-36 may contribute noise to TV and radio reception in the immediate vicinity, so we do not recommend its use adjacent to such device.

5. CONTROLS AND INDICATORS

5.1 CONTROLS AND SWITCHES

NOTE

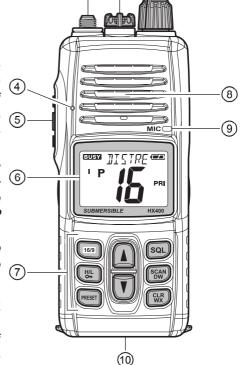
This section defines each control of the transceiver. For detailed operating instructions, refer to section "6. BASIC OPERATION". Refer to illustrations for the location of the following controls, switches, and connections.

- ① ANT Jack (Top Panel) The supplied CAT460 flexible antenna is attached here.
- ② MIC/SP Jack (Top Panel) The jack accepts the optional SSM-14A Submersible Speaker Microphone or CMP460 Noise-canceling Waterproof Speaker Microphone. When this jack is used, the internal speaker and microphone are disabled.

1) Do not allow the HX-400IS to become sub-6 merged in water while the plastic cover over the MIC/SP jack is removed.

- 2) Do not remove/install the optional Speaker Microphone in a hazardous location.
- ③ POWER Switch / VOLUME Control (VOL)

Turns the transceiver on and off as well as adjusts the audio volume level.



Turn this knob clockwise to turn the radio on and increase the speakers audio volume.

Turn fully counter-clockwise to turn the radio off.

4 Noise Canceling Microphone

The noise canceling microphone is located here.

Note: To cancel background noise when transmitting, care should be taken not to cover this mic hole with your hand.

- (5) **PTT** (PUSH-TO-TALK) Switch When pushed activates the transmitter.
- ⑥ LCD Display This display shows current operating conditions. Refer to page 15 for details.
- 7 Keypad
 Mey Key

Pressing this key immediately recalls channel 16 from any channel location. Holding down this key recalls channel 9. Pressing this key again reverts to the previous selected working channel.

Secondary use:

When the wey is held and the key is pressed, the radio will change the marine band between the International, Canadian, and USA channels.

Advanced use:

When the wey is held and the key is pressed, the radio will change the priority channel between the Channel 16, Channel 9, and the Preset Channel.

Press this key to toggle the transmitter output power between "High" (5 Watts) and "Low" (1 Watt) power. When the "Low" power is selected, the "Low" icon will appear to the right of the channel indication on the display. This key does not function on the "Transmission Inhibited" and "Low power only" channels.

Secondary use:

Hold down this key to lock the keypad (except the and PTT () keys) so that they are not accidentally changed. The "on" icon will appear at the right of the channel indication on the display, to indicate that the functions are locked. Hold down this key until the "on" icon disappears to unlock the radio.

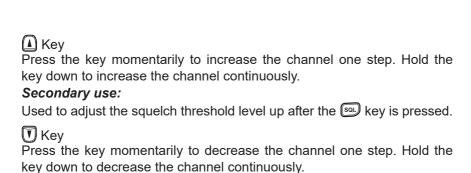
Advanced use:

When the key is held and the key is pressed, the radio will change the priority channel between the Channel 16, Channel 9, and the Preset Channel.

RESET Key

Press this key to recall the user preset memory channels (shown as memory channel number "0" - "9" on the display). Press the or key to select the desired preset channel.

Press and hold this key for two seconds to memorize the selected channel into the preset memory.



Secondary use:

Used to adjust the squelch threshold level down after the (squeeze) key is pressed.

SQL Key

Press this key to activate the squelch adjusting mode. Press the or key to adjust the squelch threshold level.

Secondary use:

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

Key

Starts scanning and priority scanning of programmed channels.

Secondary use:

Press and hold the we key for two seconds to activate the Dual Watch feature.

Press to stop the Scan, Priority Scan, or Dual Watch feature.

Secondary use:

Press and hold this key to immediately recall the last-used NOAA Weather Channel from any channel location. Recalls the previously- selected working channel when the we key is pressed again.

Advanced use:

When the key is held and the key is pressed, the radio will change the marine band between the USA, International, and Canadian channels.

8 Speaker

The internal speaker is located here.

Microphone

The internal microphone is located here.

When transmitting, position your mouth 2.5 cm away from the small mic hole. Speak slowly and clearly into the microphone.

Battery Pack Lock (Bottom side)
 Slide the Battery Pack Lock to the "◀" position for battery removal.

5.2 LCD INDICATORS

1 "BUSY" Indicator

This indicator appears when a signal is being received or when the radio is unsquelched.

② "L" Indicators

This indicator shows when the TX output power is selected to "Low" (1 Watt) power.



- ③ Alpha/numeric "Tag" display Indicates the current channel name or operating mode.
- 4) "Fai" Battery Indicator

"E": Full battery

"Lower battery

"C": Battery is very low

" (Blinking)": Prepare to charge the battery

⑤ "TX" Indicator

This indicator appears during transmission.

6 "U/I/C" Indicator

These indicators show the "band" of operation for the particular channel. "U" indicates the USA band; "I" indicates the International band; and "C" indicates the Canadian band.

7 "P" Indicator

This indicator shows the channel is in the "PRESET" channel memory.

® Channel Display

The operating channel is shown on the LCD in both the transmission and reception modes.

9 "Oπ" Indicator

When the "On" icon is shown on the LCD, all keys are disabled except for the PTT ((3)), (so), and keys.

10 "Q" Indicators

This indicator shows the Voice Scrambler function is assigned to a channel.

(1) "PRI" Indicator

This indicator is shown when the Priority channel is selected.

6. BASIC OPERATION

6.1 INITIAL SETUP

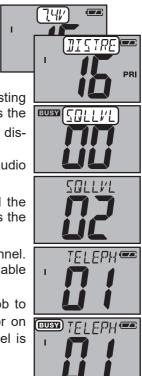
- Install the battery pack on the transceiver (see section "4.3.2 BATTERY INSTALLATION AND REMOVAL").
- 2. Install the antenna onto the transceiver; hold the bottom end of the antenna, then screw it onto the mating connector on the transceiver until it is snug. Do not over-tighten.

6.2 RECEPTION

 Turn the VOL knob clockwise to turn the transceiver on.

The battery voltage will appear briefly at the upper left corner on the display, then the channel name will appear.

- 2. Press the saw key to activate the squelch adjusting mode (The "SQL LVL" notation will appear). Press the key until the "BUSY" indicator appears on the display, then press the key again.
- 3. Turn the **VOL** knob clockwise until the noise or audio from the speaker is at a comfortable level.
- 4. Press the key, then press the key until the random noise disappears. This state is known as the "Squelch Threshold".
- 5. Press the or key to select the desired channel. Refer to the channel chart on page 28 for available channels.
- 6. When a signal is received, adjust the **VOL** knob to the desired listening level. The "**BUSY**" indicator on the LCD is displayed indicating that the channel is being used.



6.3 TRANSMISSION

- 1. Perform "6.2 RECEPTION" discussion above.
- 2. Before transmitting, monitor the channel and make sure it is clear.

THIS IS AN FCC REQUIREMENT!

3. For communications over short distances, press the key to select Low power (1 watt: "L" icon appears).

Note: Transmitting on Low power prolongs battery life. Low power should be selected whenever possible.



- 4. If using Low power is not effective, select High power (5 watts: "L" icon disappears) by pressing the key.
- 5. When receiving a signal, wait until the incoming signal stops before transmitting. The transceiver cannot transmit and receive simultaneously.
- 6. Press and hold the **PTT** (Push-To-Talk: (3)) switch to transmit. During transmission, the "**TX**" indicator will appear on the display.



- 7. Position your mouth 2.5 cm away from the mic hole. Speak slowly and clearly into the microphone.
- 8. When the transmission is finished, release the **PTT** (③) switch.

6.3.1 TRANSMIT TIME - OUT TIMER (TOT)

While the **PTT** (③) 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 the receiving mode, even if the **PTT** (③) switch is held down. Before transmitting again, the **PTT** (③) switch must first be released. This Time-Out-Timer (TOT) prevents a continuous transmission that would result from an accidentally stuck **PTT** (③) switch.

NOTE

The **PTT** (③) switch is disabled for 10 seconds after the transceiver automatically switches to the receiving mode by the TOT feature.

6.4 USA, CANADIAN, AND INTERNATIONAL CHANNELS

- 1. To change from International to US or Canadian Marine Channels, hold down the key and press the key. The band will change from International to USA, and to Canadian with each press.
- 2. "U" appears on the LCD for the USA band, "C" appears for the Canadian band, and "I" appears for the International band.
- 3. Refer to the marine channel charts in section "9. VHF MARINE CHANNEL ASSIGNMENTS" for allocated channels.







6.5 NOAA WEATHER CHANNELS

In the event of a major storm or other appreciable weather condition requiring vessels at sea (or other bodies of water) to be notified, the NOAA (National Oceanographic and Atmospheric Administration) broadcasts a 1050 Hz tone which the **HX400IS** can detect and alert you of pending storm warnings. The 1050 Hz tone, when detected, will produce a loud beep in the speaker of the **HX400IS**, to signal that a Weather Alert Broadcast is being received.

1. To receive a NOAA (National Oceanic and Atmospheric Administration) weather broadcast, press and hold the we key. The transceiver changes to the weather channel mode and recalls the last used NOAA weather channel. This mode consists of a preset memory bank containing the NOAA weather channels.



- 2. Press the or key to change to other weather channels.
- 3. To exit from the weather channel mode, press and hold the weather channel mode, press and hold the transceiver will revert to the channel you were using prior to switching to the weather channel mode.

6.5.1 NOAA WEATHER ALERT

In the event of extreme weather disturbances such as storms and hurricanes, NOAA sends a "weather alert" consisting of a 1050 Hz tone, followed by weather reports on the weather channels.

When a "weather alert" is received on a weather channel, the transceiver emits a beep tone. Press the we key to stop the beep tone and listen to the weather reports.



6.5.2 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 **HX400IS** periodically to confirm that the Weather Alert feature is working, or for training crew members on how to configure the **HX400IS** to receive the NOAA Weather Alerts.

6.6 KEYPAD LOCKING

In order to prevent accidental channel change, the **HX400IS**'s keypad may be locked.

1. Hold down the key key to lock the keypad (except the PTT (3)), and keys) so that they are not accidentally changed. The "On" icon will appear next to the channel number on the display, indicating that the functions are locked.



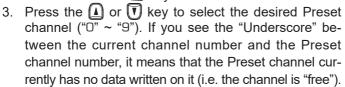
2. Hold down the until the "on" icon disappears to unlock the radio.

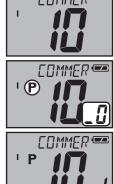
6.7 PRESET CHANNELS (0 ~ 9): INSTANT ACCESS

Ten user assigned channels can be programmed for instant access. Pressing the key activates the user assigned channel bank.

6.7.1 PROGRAMMING

- 1. Select the desired channel to be saved into the Preset channel bank using the or key.
- 2. Press and hold the key until the channel number blinks. The "**P**" icon and Preset channel number blink, then release the key.





- 4. Press the key to program the current channel into the Preset channel bank.
- 5. Repeat steps 3 and 4 to program the other channel into the Preset Channels, if desired.
- 6. To delete a Preset Channel, select the Preset Channel Number to be deleted using the or key, then press and hold the key until the Preset Channel Number is removed from the display.

6.7.2 OPERATION

- 1. Press the key to change the transceiver to the Preset channel mode. The "P" icon and Preset channel number will appear on the display.
- 2. Press the or key to select the desired Preset Channels ("0" through "9").
- 3. To exit from the Preset channel mode, press the key. The transceiver will revert to the channel you were on prior to switching to the Preset channel mode.



6.8 MEMORY SCAN

The **HX400IS** will automatically scan channels programmed into Preset Channel Memory and also channels store into Scan 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. The radio will automatically start scanning again after the transmission stops.

6.8.1 PROGRAMMING SCAN MEMORY

- 1. Turn the transceiver off by rotating the **VOL** knob fully counter-clockwise.
- 2. Hold down the sal key, and then turn on the transceiver while still holding down the sal key.
- 3. Press the or key to select "MEM CH" and press the key.
- 4. Press the A or V key to select desired channel to be scanned, then press the key. The "M" icon appears on the display, which indicates the channel has been selected to the scan channel.
- 5. Repeat step 4 for all the desired channels to be programmed into scan memory.
- 6. To DELETE a channel from the list, select the channel then press the ^{sal} key. The "∭" icon disappears from the display.
- 7. When you have completed programming the scan memory, press the key to save your changes, and then press the key to exit to normal operation.







6.8.2 OPERATION

- 1. Press the we key to activate the squelch adjusting mode, then press the \(\bigvee / \bigvee \) key until the background noise disappears.
- 2. Press the wey to start scanning channels programmed into memory and preset channels. "MSCAN" will be shown in the upper left corner of the display.
- 3. When the **HX400IS** receives a transmission, it will stop on the channel until the incoming signal disappears, then start scanning again.
- 4. To stop scanning, press the key.



6.9 PRIORITY SCAN

The Priority Scan is similar to the Memory Scan. However, the Priority Scan monitors the Preset Channels, Scan Memory Channels and the Priority Channel. The following channels can be set as the Priority channel: CH16. CH9, or one of the Preset channel (default setting is CH16).

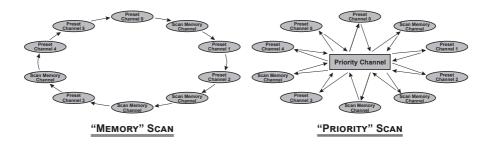
 To set the priority channel, hold down the make we and press the key. The channel will change from 16 to 09 to Preset channels 0 through 9 with each press of the key. When the key is released the displayed channel will be set as the priority channel (the "PRI" icon will appear above of the channel number).



- 2. Press the wey to start Scanning.
- 3. Press and hold the we key to start Priority Scan, "PSCAN" will be shown on the display.
- 4. When the **HX400IS** receives a transmission on a working channel, it will stop on the working channel and dual watch to the priority channel until the incoming signal disappears, then start scanning again.



- 5. When the **HX400IS** receives a signal on the Priority channel it will stay on this channel until the incoming signal disappears, then start Priority scanning again. U
- 6. To stop Priority Scanning, press the key.



6.10 DUAL WATCH

The Dual Watch feature allows the radio to scan between the Priority Channel and one other channel.

- 1. To set the Priority channel, hold down the way and press the key, when the channel you want is shown, release the key.
- 2. Select the desired channel you want to Dual watch to the priority channel using the or key.
- 3. Press and hold the we key for two seconds to activate the Dual Watch feature. A "DW" notation will appear on the upper left corner of the display when the Dual Watch feature is activated.



- 4. When a transmission is received on the "Priority" channel, the radio will stay on the "Priority Channel" until the incoming signal disappears.
- 5. When the radio receives a transmission on the working channel, the radio will Dual Watch between the working channel and Priority channel.
- 6. The radio will resume Dual Watch when the incoming signal disappears at the end of the transmission.
- 7. To stop the Dual Watch feature and return to normal operation, press the key briefly.

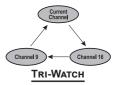
6.11 TRI-WATCH

You may change the Dual Watch feature to Tri-watch via the Menu ("Set") Mode. Refer to Menu Mode Item "**DUAL WATCH MODE**" on page 25 for details.

Tri-Watch scans Channel 16, 9, and one other channel. When enabled the **HX400IS** will show "TW 16/9" in the upper left corner of the display.

- Press and hold the key for two seconds to activate the TRI-Watch feature. "TW 16/9" will appear on the upper left corner of the display when the Tri-Watch feature is activated.
 - TW 15/9
- 2. When a transmission is received on the channel 16, radio will stay on the channel 16 until the incoming signal disappears.
 - Current Channel 16

 DUAL WATCH
- 3. When a transmission is received on the channel 9, the radio will Dual watch between the channel 16 and channel 9.



- 4. When the radio receives a transmission on the working channel, the radio will Tri-watch between the working channel, channel 16 and channel 9.
- 5. To stop the Tri-watch feature and return to normal operation, press the wey.

6.12 VOICE SCRAMBLER

The built-in scrambler is 4 code voice inversion type which is compatible with the optional scramblers fitted into other Standard Horizon Hand Helds (**FVP-31**) and Fixed Mounted VHF radios (**CVS2500**). When the **HX400IS** voice scrambler is enabled your voice will be scrambled to all persons listening on a specific channel and may only be decoded by another Standard Horizon VHF with scrambler capability.

To activate the Voice Scrambler:

- 1. Select the channel you wish to activate the Voice Scrambler.
- 2. Turn the transceiver off by rotating the **VOL** knob fully counter-clockwise.
- 3. Hold down the sal key, then turn on the transceiver while still holding down the sal key.
- 4. Press the or key to select the Menu item "SCRAMBLER" and press the key.
- 5. Press the or key to select the desired scramble code (SC0, SC1, SC2, or SC3).
- 6. After selecting the scrambler code, press the wkey to save the setting to memory, then press the key exit Setup mode. "\overline{\ove

To disable the Voice Scrambler, select "oFF" in step 4 above.

If you want to activate the Voice Scrambler to other channel, repeat procedures above. You may select a different scramble code for each channel.



7. MENU ("SET") MODE

The Setup Menu allows a number of the **HX400IS** operating parameters to be custom-configured for your operating requirements.

The Menu Mode is easy to activate and set, using the following procedure:

- 1. Turn the transceiver off by rotating the **VOL** knob fully counter-clockwise.
- 2. Hold down the sal key, then turn on the transceiver while still holding down the sal key.
- 3. The Menu item will scroll on the upper left corner of the display and its current status or value will appear on the large display.
- 4. Press the (1) or (1) key to select the Menu item to be adjusted.
- 5. Press the sale key to enable adjustment of the selected Menu item. The current status or value will blink.
- 6. Press the (1) or (1) key to select the desired status or value of the Menu item.
- 7. After completing your adjustment, press the key to save the new setting.
- 8. If you wish to change another Menu item, repeat steps 4 to 7 above.
- 9. Press the key to exit to normal operation.

BEEP LEVEL

Function: Enables/Disables the Keypad beep.

Available Values: HI / Lo / oFF

Default: HI

BEEP L

LAMP MODE

Function: Selects the Lamp illumination method for the LCD/Keypad.

Available Values: KEY / Cnt (Continuous) / oFF

Default: KEY

KEY: Illuminates the LCD/Keypad for 5 sec-

onds when any key is pressed.

<u>Cnt</u> (Continuous): Illuminates the LCD/Keypad continuously. <u>oFF</u>: Turns off the backlight for the LCD and keys.

SCAN LAMP

Function: Enables/Disables the Lamp while scanner is

paused.

Available Values: on / oFF

Default: on



DUAL WATCH MODE

Function: Selects dual or tri-watch as desired. **Available Values**: t- (Tri Watch) / d- (Dual Watch)

Default: d- (Dual Watch)

<u>t- (Tri Watch)</u>: The radio watches the activity of CH16,

CH9, and the current channel.

<u>d- (Dual Watch)</u>: The radio watches the the activity of the current channel

and the Priority channel.

DIMMER MODE

Function: Selects the display brightness level.

Available Values: 0 / 1 / 2 / 3

Default: 3



TILIAL W

WX ALERT MODE

Function: Enables/Disables the NOAA Weather Alert

function.

Available Values: on / oFF

Default: on



DUAL WATCH DISPLAY

Function: Selects the display mode while Dual Watch

scanning.

Available Values: nor (Normal) / SPC (Special)

Default: nor (Normal)



When this menu is set to "Normal", the channel numbers during dual watch will be shown scrolling on the display. When "Special" is selected the channel numbers on the display do not change unless a call was received. The channel shown is the last channel that was received. This is a handy feature if you cannot look at the radio the moment a transmission was received.

SCAN DISPLAY

Function: Selects display mode while scanning. **Available Values**: nor (Normal) / SPC (Special)

Default: nor (Normal)

When this menu is set to "Normal", the channel numbers during dual watch will be shown scrolling on the dis-



play. When "Special" is selected the channel numbers on the display do not change unless a call was received. The channel shown is the last channel that was received. This is a handy feature if you cannot look at the radio the moment a transmission was received.

CH NAME

Function: Changes the channel name shown on the display.

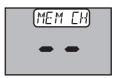
EH NAM)

To change the channel name:

- 1. Select the channel you wish to change the name *be-fore* following the steps below.
- 2. Turn off the **HX400IS** by rotating the **VOL** knob counter clockwise.
- 3. Hold down the key, then turn on the transceiver while still holding down the key.
- 4. Press the (A) or (T) key to select "CH NAME".
- 5. Press the (sa) key. The current channel name will appear on the upper left corner of the display.
- 6. Press the or key to select the first character (letter, number, or symbol) in the name, then press the key to move to the next character.
- 7. Repeat step 6 as many times as necessary to complete the name tag (up to 12 characters).
- 8. After completing your adjustment, press the key to save the new setting.
- 9. Press the wey to exit to normal operation.

MEM CH

Function: Programming Scan Memory. See page 20 for details of the programming.



SCRAMBLER

Function: Enables/Disables the Voice Scrambler and selects its scramble code.

Available Values: oFF / SC0 / SC1 / SC2 / SC3

Default: oFF



NOISE CANCEL

Function: Enables/Disables the Noise Canceling Micro-

phone.

Available Values: on / oFF

Default: on



8. MAINTENANCE

8.1 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.

- To prevent corrosion of electrical contacts and keep the water resistance, keep the microphone or the jack connected at all times.
- Never press the **PTT** switch unless an antenna or suitable dummy load is connected to the antenna receptacle.
- Ensure that the input voltage does not exceed the value specified in your Owner's Manual.
- Use only STANDARD HORIZON-approved accessories and replacement parts.

8.2 REPLACEMENT PARTS

Occasionally an owner needs a replacement part. Items can be ordered from our Parts Department by Standard Horizon/Yaesu authorized dealers. Commonly requested parts, and their part numbers are listed below.

CAT460 Antenna: AY139X001
 MIC/SP Rubber Cap: RA1194200
 MIC/SP Plastic Cap (Blue): RA118390B
 VOL Knob: RA1193900
 CLIP-22 Belt Clip: CP9672002
 Hand Strap: S6000418

8.3 TROUBLESHOOTING CHART

SYMPTOM	PROBABLE CAUSE	REMEDY
The key does not start the scan.	No channels memorized.	Use the key to enter desired channels into the Preset memory.
	Squelch is not adjusted.	Adjust the squelch to threshold or to the point where noise just disappears. Further adjustment of the squelch control may eliminate incoming signals.
Cannot select between USA, INTL, or Canadian bands.	Proper operation not followed.	HOLD down the key and press the key.
Speaker audio is not heard when the sal key is pressed	Low battery.	Charge battery. Refer to section 4.3.3 of this manual.
and held.	Audio volume level is too low.	Turn the VOL knob clockwise.
Some keys do not operate.	Key Lock is on.	Turn the Key Lock off. Refer to section 6.6 of this manual.
Charging indicator on CD- 50 or SBH-36 does not illumininate.	Defective battery SBR-29LIIS or SBR-45LIIS Battery contacts not making contact with the charger cradle.	Please contact your dealer.

9. VHF MARINE CHANNEL ASSIGNMENTS

	RX		SIMPLEX/DU-		CHANNEL USE		
СН	TX (MHz)	(MHz)	PLEX	LOW PWR	All countries (Except Germany)	Germany	
01	156.050	160.650	DUPLEX	-	TELEPHONE	NAUTIK	
02	156.100	160.700	DUPLEX	DUPLEX – TELEP		NAUTIK	
03	156.150	160.750	DUPLEX	-	TELEPHONE	NAUTIK	
04	156.200	160.800	DUPLEX	-	INTL	NAUTIK	
05	156.250	160.850	DUPLEX	-	INTL	NAUTIK	
06	156.	300	SIMPLEX	LOW*4	SAFETY	SHIP-SHIP	
07	156.350	160.950	DUPLEX	-	INTL	NAUTIK	
08	156.	400	SIMPLEX	LOW*4	COMMERCIAL	SHIP-SHIP	
09	156.	450	SIMPLEX	-	CALLING	NAUTIK	
10	156.	500	SIMPLEX	LOW*4	COMMERCIAL	SHIP-SHIP	
11	156.	550	SIMPLEX	LOW*4	VTS	SHIP-PORT	
12	156.	600	SIMPLEX	LOW*4	VTS	SHIP-PORT	
13	156.	650	SIMPLEX	LOW*4	BRG/BRG	SHIP-SHIP	
14	156.	700	SIMPLEX	LOW*4	VTS	SHIP-PORT	
15	156.	750	SIMPLEX	LOW	COMMERCIAL	ON-BOARD	
16	156.800		SIMPLEX	-	DISTE	RESS	
17	156.	850	SIMPLEX	LOW	SAR	ON-BOARD	
18	156.900	161.500	DUPLEX	-	INTL	NAUTIK	
19	156.950	161.550	DUPLEX	-	INTL	NAUTIK	
1019	156.950		SIMPLEX	-	-	-	
2019	161.	550	SIMPLEX	-	-	-	
20	157.000	161.600	DUPLEX	LOW*6	PORT OPR	NAUTIK	
1020	157.	.000	SIMPLEX	-	ı	-	
2020	161.600		SIMPLEX	-	ı	-	
21	157.050	161.650	DUPLEX	-	INTL	NAUTIK	
22	157.100	161.700	DUPLEX	-	INTL	NAUTIK	
23	157.150	161.750	DUPLEX	_	INTL		
24	157.200	161.800	DUPLEX	-	TELEPHONE		
25	157.250	161.850	DUPLEX	-	TELEPHONE		
26	157.300	161.900	DUPLEX	-	TELEPHONE		
27	157.350	161.950	DUPLEX	-	TELEPHONE		
28	157.400	162.000	DUPLEX	_	TELEP	HONE	
31* ¹	157.550	162.150	DUPLEX	LOW	NED JACHTHAV	_	
37* ²	157.	850	SIMPLEX	LOW	YACHTING UK	_	
60	156.025	160.625	DUPLEX	-	TELEPHONE	NAUTIK	
61	156.075	160.675	DUPLEX	_	INTL	NAUTIK	
62	156.125	160.725	DUPLEX	_	INTL	NAUTIK	
63	156.175	160.775	DUPLEX	-	INTL	NAUTIK	
64	156.225	160.825	DUPLEX	_	TELEPHONE	NAUTIK	
65	156.275	160.875	DUPLEX	-	INTL	NAUTIK	
66	156.325	160.925	DUPLEX	_	INTL	NAUTIK	

	DV.		CIMPLEY/DII		CHANNEL USE		
СН	TX (MHz)	RX (MHz)	SIMPLEX/DU- PLEX	LOW PWR	All countries (Except Germany)	Germany	
67	156.375		SIMPLEX	_	BRG/BRG	NAUTIK	
68	156.	.425	SIMPLEX	-	SHIP-	SHIP	
69	156.	.475	SIMPLEX	_	PLEAS	SURE	
70	-	156.525	SIMPLEX	-	DS	SC SC	
71	156	.575	SIMPLEX	LOW*4	PLEASURE	SHIP-PORT	
72	156	.625	SIMPLEX	LOW*4	SHIP-	SHIP	
73	156.	.675	SIMPLEX	-	PORT OPR	NAUTIK	
74	156.	.725	SIMPLEX	LOW*4	PORT OPR	SHIP-PORT	
75	156	.775	SIMPLEX	LOW	-	SHIP-PORT	
76	156.	.825	SIMPLEX	LOW	-	NAUTIK	
77	156	.875	SIMPLEX	LOW*4	PORT OPR	SHIP-SHIP	
78	156.925	161.525	DUPLEX	-	INTL	NAUTIK	
1078	156	.925	SIMPLEX	-	_	-	
2078	161.	.525	SIMPLEX	-	-	-	
79	156.975	161.575	DUPLEX	-	INTL	NAUTIK	
1079	156.975		SIMPLEX	-	-	-	
2079	161.	.575	SIMPLEX	-	_	-	
80	157.025	161.625	DUPLEX	_	INTL	NAUTIK	
81	157.075	161.675	DUPLEX	-	INTL	NAUTIK	
82	157.125	161.725	DUPLEX	-	INTL	TELEPHONE	
83	157.175	161.775	DUPLEX	-	INTL	TELEPHONE	
84	157.225	161.825	DUPLEX	-	TELEPHONE		
85	157.275	161.875	DUPLEX	-	TELEPHONE		
86	157.325	161.925	DUPLEX	-	TELEPHONE		
87	157.	.375	SIMPLEX	-	PORT OPR		
88	157.	425	SIMPLEX	-	PORT OPR		
M*3	157.850		SIMPLEX	_	YACHTING UK	-	
M2*3	161.425		SIMPLEX	-	YACHTING UK	-	
L1*5	155.500		SIMPLEX	_	PLEASURE	-	
L2*5	155.525		SIMPLEX	_	PLEASURE	-	
L3*5	155.650		SIMPLEX	_	PLEASURE	-	
F1*5	155.625		SIMPLEX	_	FISHING	-	
F2*5	155.775		SIMPLEX	_	FISHING	-	
F3*5	155.825		SIMPLEX	-	FISHING	-	

NOTE: Country Channel assignment are different depending on the region.

*1: Channel 31 is assigned to only BELGIUM and NETHERLAND.

^{*2:} Channel 37 is assigned to only NETHERLAND.

^{*3:} Channel M and M2 are assigned to only UNITED KINGDOM.

^{*4:} LOW Power setting for BELGIUM, NETHERLAND and GERMANY.

^{*5:} Channel L1, L2, L3, F1, F2 and F3 are assigned to only SWEDEN.

^{*6:} LOW Power setting for GERMANY.

10. SPECIFICATIONS

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

10.1 GENERAL

Frequency Ranges: 156.025 MHz - 163.275 MHz

(Marine Band + WX Band)

134.000 MHz - 174.000 MHz (LMR Band)

Channel Spacing: 25 kHz / 12.5 kHz

Frequency Stability: ±2.5 ppm (-30 °C to +60 °C)
Emission Type: 16K0G3E (Marine Band)
16K0F3E (LMR Band: Wide)

11K0F3E (LMR Band: Narrow)

Antenna Impedance: 50Ω

Supply Voltage: 7.4V DC, Negative Ground

(Battery Terminal)

Current Consumption: 320 mA (Receive, Typical at AF MAX.)

50 mA (Standby)

1.6 A / 0.8 A (TX: 5 W / 1W)

Operating Temperature: -30 °C to +60 °C

Battery Type and capacity: SBR-29LIIS Lithium-lon, 2550 mAh (Rated)

2600 mAh (Typ)

SBR-45LIIS Lithium-Ion, 3200 mAh (Rated)

3350 mAh (Typ)

Waterproof Rating: JIS-8 / IPX8 (1.5 m for 30 minutes)

Case Size (W x H x D): 57 x 133 x 40 mm (w/o knob & antenna)
Weight (Approx.): 350 g (w/SBR-29LIIS or SBR-45LIIS, Belt

Clip, & Antenna)

10.2 TRANSMITTER

RF Power Output: 5 W / 1 W (@7.4 V) **Modulation Type**: Variable Reactance

Maximum Deviation: ±5.0 kHz (Wide) / ±2.5 kHz (Narrow)
Spurious Emission: ±5.0 kHz (Wide) / ±2.5 kHz (Narrow)

-36 dBm (<1 GHz), -30 dBm (>1 GHz)

Microphone Impedance: $2 k\Omega$

10.3 RECEIVER

Circuit Type: Double-Conversion Superheterodyne

Intermediate Frequencies: 1st: 67.65 MHz, 2nd: 450 kHz

Adjacent Channel Selectivity: 70 dB typical (Wide),

60 dB typical (Narrow)

Intermodulation: 68 dB typical

Sensitivity: $-6 \text{ dB}\mu\text{V} (0.25 \mu\text{V}) \text{ for } 12 \text{ dB SINAD}$ Selectivity (Wide): 12 kHz / 25 kHz (-6 dB / -60 dB)Selectivity (Narrow): 6 kHz / 18 kHz (-6 dB / -60 dB)

AF Output (Internal SP): 700 mW @16 Ω for 10 % THD (@7.4 V) **AF Output** (External SP): 350 mW @8 Ω for 10 % THD (@7.4 V)

Measured in accordance with TIA/EIA-603.

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

Changes or modifications to this device not expressly approved by YAESU U.S.A. could void the User's authorization to operate this device.

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'Industrie 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.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée quivalente (p.i.r.e.) ne dépassepas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur. l'établissement d'une communication satisfaisante.

STANDARD HORIZON

Nothing takes to water like Standard Horizon

Copyright 2022 YAESU MUSEN CO., LTD. All rights reserved.

No portion of this manual may be reproduced without the permission of YAESU MUSEN CO., LTD.

YAESU MUSEN CO., LTD.

Tennozu Parkside Building 2-5-8 Higashi-Shinagawa, Shinagawa-ku, Tokyo 140-0002 Japan

YAESU USA

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

YAESU UK

Unit 12, Sun Valley Business Park, Winnall Close Winchester, Hampshire, SO23 0LB, U.K.

2207R-KS Printed in Japan

