

STANDARD HORIZON

Nothing takes to water like Standard Horizon

EXPLORER NMEA2000 GPS	GX1850GPS
EXPLORER NMEA2000	GX1850
EXPLORER GPS	GX1800GPS
EXPLORER	GX1800

25 Watt VHF/FM Marine Transceiver

Owner's Manual

- Integrated 66 Channel Internal GPS receiver (GX1850GPS, GX1850GPS/E and GX1800GPS only)
- NMEA2000 Compatible (GX1850GPS, GX1850GPS/E and GX1850 only)
- NMEA Input and Output of GPS information to other NMEA compatible devices
- Compass page with Navigation to a DSC Distress Call location*
- DSC test call and Auto DSC channel change selection
- Automatic DSC polling of up to 6 ships GPS positions*
- Enter, Save, and Navigate to a waypoint using the Compass page*
- Navigation (LAT/LON, SOG, and COG) information shown on display*
- Preset key stores up to 10 favorite channels, with scan function
- Programmable soft keys
- Programmable Scan, Priority Scan, and Dual Watch
- Oversized dot matrix display with customizable channel names and GPS Compass display
- Submersible IPX8 (5 feet or 1.5 m for 30 minutes)
- Noise cancelling microphone with channel change selection, 16/S and H/L keys
- Capable of connecting to a Second Station SSM-70H Remote-Access Microphone RAM4
- Intercom between radio and Second Station SSM-70H Remote-Access Microphone RAM4
- Ultra-thin and compact rear case design
- ATIS Mode for European Inland Waterways (GX1850GPS/E and GX1800GPS/E only)

*:Only available when GX1850 and GX1800 is receiving GPS data input from an external GPS device.



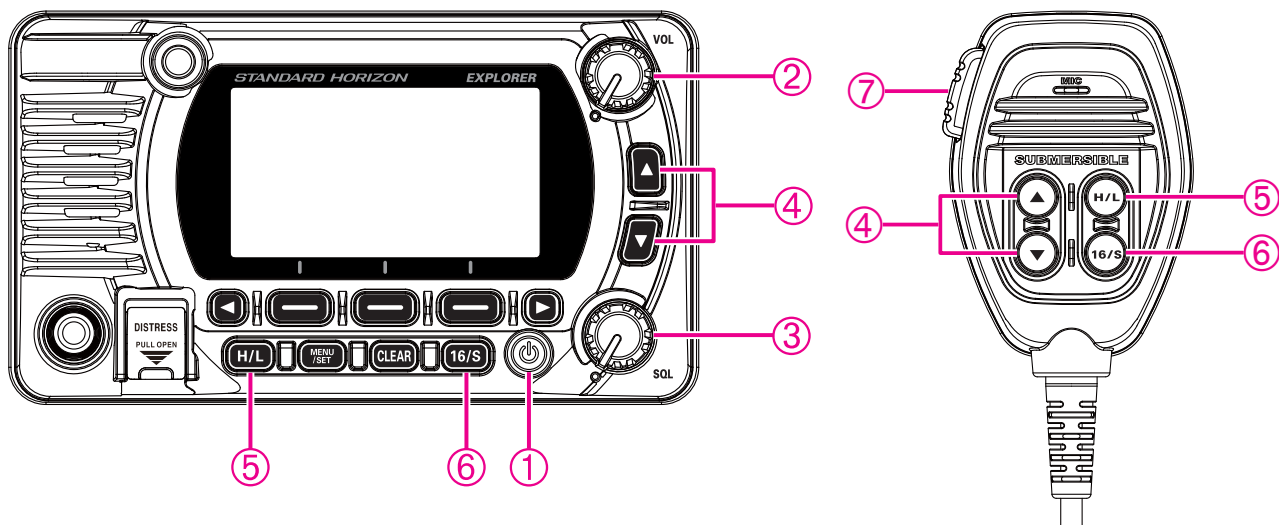
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QUICK REFERENCE



- ① Press and hold the ⏻ key to turn the radio ON or OFF.
- ② Rotate the **VOL** knob to adjust the speaker audio volume.
- ③ Rotate the **SQL** knob clockwise to squelch or counterclockwise to un-squelch the radio.
- ④ Press the $\blacktriangle/\blacktriangledown$ keys (or press the microphone $\blacktriangle/\blacktriangledown$ keys) to select the operating channel.
- ⑤ Press the **H/L** key to toggle the transmit power between High (25W) and Low (1W).
- ⑥ Press the **16/S** key on the radio or the microphone to select channel 16. Press and hold the **16/S** key on the radio or the microphone to select sub channel. Press the **16/S** key again to revert to the previously selected channel.
- ⑦ To transmit: place the microphone about 2 cm away from your mouth and speak in a normal voice level while pressing the **PTT** switch.

1 GENERAL INFORMATION

The STANDARD HORIZON **GX1850/GX1800** Marine VHF/FM Marine transceiver is designed to be used in International, USA, Canadian and other Region Marine channels. The **GX1850/GX1800** series can be operated from 11 to 16 VDC and has a switchable RF output power of 1 watt or 25 watts.

The **GX1850/GX1800** series is capable of DSC (Digital Selective Calling) ITU-R M.493 Class D operation with a 66-channel internal GPS (GX1850GPS, GX1850GPS/E, GX1800GPS and GX1800GPS/E only). Class D operation allows continuous reception of Digital Selective Calling functions on channel 70 even while receiving calls on the voice channels. The **GX1850/GX1800** series operates on all currently-allocated marine channels and is switchable for use with International, USA, or Canadian regulations. Emergency channel 16 can be immediately selected from any other channel by pressing the [16/S] key.

Other features of the **GX1850/GX1800** series include: NMEA 2000 compatibility (GX1850GPS, GX1850GPS/E and GX1850 only) and high expandability. It is capable of being connected to the optional wired **SSM-70H (RAM4)** microphone, which provides full remote control of all VHF and DSC functions. It also includes an intercom feature providing communication between the radio and the RAM4 microphone, scanning functions, priority scanning, a submersible microphone, high and low voltage warning, and repeatability of received GPS location information.

2 PACKING LIST

Open the package and verify it contains the following items:

- Transceiver
- DC Power Cord
- Mounting Bracket and Hardware
- Owner's Manual
- DSC Warning Sticker (GX1850GPS, GX1850, GX1800GPS and GX1800 Only)

3 OPTIONAL ACCESSORIES

Dust Cover (white)	HC1600
Flush-Mount Bracket	MMB-97
Remote-Access Microphone (RAM4 Microphone)	SSM-70H
External GPS Antenna with 16 ft (5 m) of Cable (for GX1850GPS, GX1850GPS/E, GX1800GPS and GX1800GPS/E only)...	SCU-38
23 ft (7 m) Extension Cable for SSM-70H (RAM4 Microphone)	CT-100
External Loud Speaker	MLS-300

4 ONLINE WARRANTY REGISTRATION

Please visit www.standardhorizon.com - Owner's Corner to register the **GX1850/GX1800** Marine VHF Transceiver.




NOTE: Visiting the STANDARD HORIZON website from time to time may be beneficial. When new products are released, information will appear on the website.

5 Safety Precautions (Be Sure to Read)





Be sure to read these important 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


 DANGER	This mark indicates an imminently hazardous situation, which, if not avoided, could result in death or serious injury.
 WARNING	This mark indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
 CAUTION	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 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 while carrying or using a medical appliance such as a cardiac pacemaker. When transmitting, use an external antenna and keep as far as possible away from the external antenna.**
The radio wave emitted by the transmitter can cause the medical device to malfunction and result in injury or death.



If thunder and lightning develop nearby when an external antenna is used, immediately turn this transceiver OFF, and disconnect the external antenna from it.
A fire, electrical shock, or damage may result.



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.



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 power plug and connector etc. with wet hands. Also do not plug and unplug the power plug with wet hands.
This may result in injury, liquid leak, electric shock and equipment failure.



Disconnect the power cord and connection cables before incorporating items sold separately or replacing the fuse.
This may result in fire, electric shock and equipment failure.



When smoke or strange odors are emitted from the radio, turn off the power and disconnect the power cord from the socket.
This may result in fire, liquid leak, overheating, damage, ignition and equipment failure. Please contact our company customer support or the retail store where you purchased the device.



Keep the power plug pins and the surrounding areas clean at all time.
This may result in fire, liquid leak, overheating, breakage, ignition etc.



Never cut the fuse holder off of the DC power cord.
This may cause a short circuit and result in ignition and fire.



Use only the specified type fuses.
Use of an incorrect fuse may result in fire and equipment failure.



When connecting a DC power cord, be certain the positive and negative polarities are correct.
Reverse connection will result in equipment damage.



Do not use DC power cords other than the one enclosed or specified.
This may result in fire, electric shock and equipment malfunctions.



Do not bend, twist, pull, heat and modify the power cord and connection cables in an unreasonable manner.
This may cut or damage the cables and result in fire, electric shock and equipment failure.



Do not pull the cable when plugging and unplugging the power cord and connection cables.
Always hold the plug or connector when unplugging; if not, a fire, electric shock and equipment failure may result.



Do not use the device when the power cord and connection cables are damaged, or when the DC power connector cannot be plugged in tightly.
Contact Yaesu Amateur Customer Support or the retail store where this transceiver was purchased for assistance, as this may result in fire, electric shock and equipment failure.



Follow the instructions provided when installing items sold separately and replacing the fuse.
This may result in fire, electric shock and equipment failure.



Use only the provided or specified screws.
Using screws of a different size, may result in fire, electric shock and component damage.



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 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 put heavy objects on top of the power cord and connection cables.
This may damage the power cord and connection cables, resulting in fire and electric shock.



Do not use any products other than the specified options and accessories.
Failure or miss operation may result.



For safety reasons, switch off the power and pull out the DC power cord connected to the DC power connector when the device is not going to be used for a long period of time.
If not, this may result in fire and overheating.



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 stand on top of the product, and do not place heavy objects on top or insert objects inside it.
If not, this may result in equipment failure.

6 GETTING STARTED

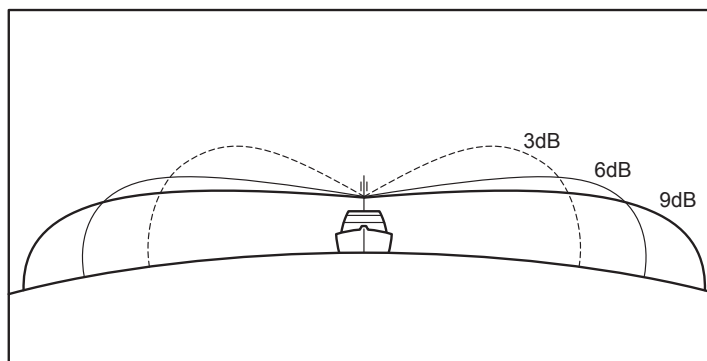
6.1 ABOUT VHF RADIO

The radio frequencies used in the VHF marine band lie between 156 and 158 MHz with some shore stations available between 161 and 163 MHz. The marine VHF band provides communications over distances that are essentially “line of sight” (VHF signals do not travel well through objects such as buildings, hills or trees). Actual transmission range depends much more on antenna type, gain and height than on the power output of the transmitter. On a fixed mount 25 W radio transmission expected distances can be greater than 25 km, for a portable 5 W radio transmission the expected distance can be greater than 8 km in “line of sight”.

6.2 SELECTING AN ANTENNA

Marine antennas are made to radiate signals equally in all horizontal directions, but not straight up. The objective of a marine antenna is to enhance the signal toward the horizon. The degree to which this is accomplished is called the antenna gain. It is measured in decibels (dB) and is one of the major factors in choosing an antenna. In terms of effective radiated power (ERP), antennas are rated on the basis of how much gain they have over a theoretical antenna with zero gain. A 1 m, 3 dB gain antenna represents twice as much gain over the imaginary antenna.

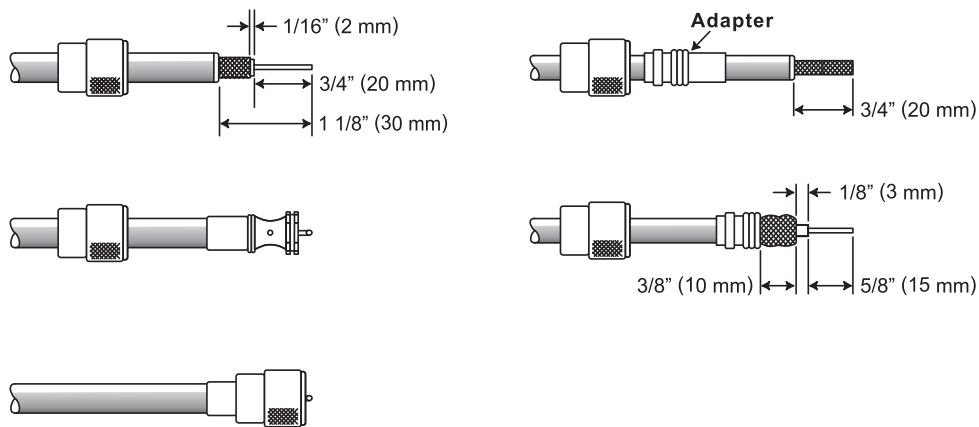
Typically, a 1 m 3 dB gain stainless steel whip is used on a sailboat mast. The longer 2.5 m 6 dB fiberglass whip is primarily used on power boats that require the additional gain.



6.3 COAXIAL CABLE

VHF antennas are connected to the transceiver by means of a coaxial cable – a shielded transmission line. Coaxial cable is specified by its diameter and construction.

For runs less than 20 feet (6 m), RG-58/U (about 0.25" (6 mm) in diameter), is a good choice. For runs over 20 feet (6 m) but less than 50 feet (15 m), the larger RG-8X or RG-213/U should be used. For cable runs over 50 feet (15 m) RG-8X should be used. For installation of the connector onto the coaxial cable refer to the figure below.



To get the coax cable through a fitting and into the boat's interior, you may have to cut the end plug off and reattach it later. Follow the directions that come with the connector to attach it. Be sure to make good soldered connections.

6.4 DISTRESS AND HAILING (CHANNEL 16)

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

1. Press the microphone 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 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 microphone switch and listen.
10. If there is no answer, repeat the above procedure. If there is still no response, try another channel.

NOTE

The transceiver has the DSC Distress calling, that can transmit a distress call digitally to all ships with compatible DSC radios. Refer to section "**11 DIGITAL SELECTIVE CALLING (DSC)**".

6.5 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 contacting 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 the desired channel in advance to make sure you will not be interrupting other traffic, and then go back to either channel 16 or 9 to make initial contact.

When the hailing channel (16 or 9) is clear, press the **PTT** switch on the mic and state the name of the other vessel you wish to call and then “this is” followed by the name of your vessel and your Station License (Call Sign) then release the **PTT** switch on the mic. When the other vessel returns your call, immediately request another channel by pressing the **PTT** switch on the mic and saying “**go to,**” the number of the other channel, say “**over**” and release the **PTT** switch on the mic. 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 microphone’s push-to-talk (**PTT**) 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.

6.6 Accuracy of COG

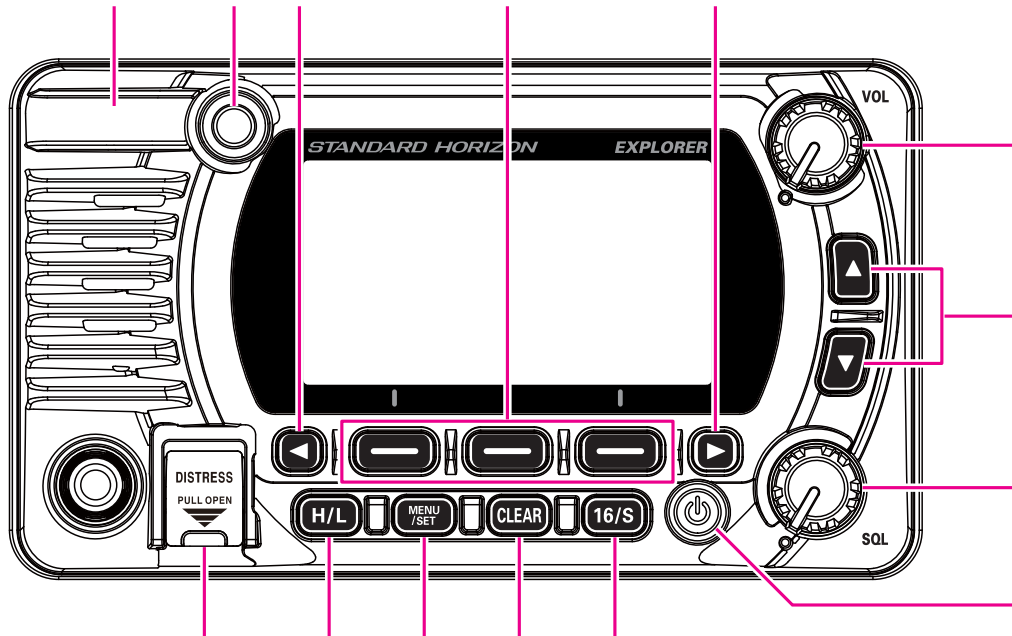
The error in the COG (the path of the antenna position over ground) due to the actual ship’s speed over ground shall not exceed the following values:

Speed range (knots)	Accuracy of COG output to user
0 to ≤1 knot	Unreliable or not available
>1 to ≤17 knots	±3°
>17 knots	±1°

7 CONTROLS AND INDICATORS

This section defines each control of the transceiver. See illustration below for location of controls. For detailed operating instructions refer to chapter 9 of this manual.

7.1 FRONT PANEL



① **⏻ (Power) key**

Press and hold to toggle the radio **ON** or **OFF**. When the power is turned **ON**, the transceiver is set to the last selected channel.

② **SQL knob** (Squelch control)

Adjusting this control clockwise, sets the point at which random noise on the channel does not activate the audio circuits but a received signal will be heard. This point is called the squelch threshold. Further adjustment of the squelch control will degrade reception of wanted transmissions.

③ **▲&▼ key**

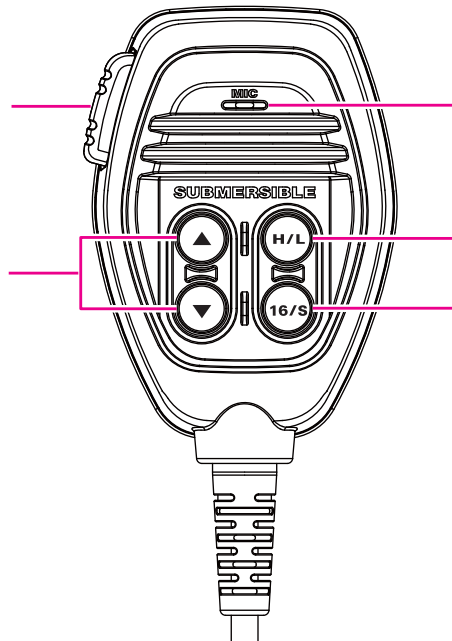
These keys are used to change the operating channel. The Up/Down keys on the microphone can also be used to change the operating channel. Press the key momentarily to increase or decrease the channel one step. Holding the key increases or decreases the channels continuously.

SECONDARY USE

- While the MENU screen is displayed, press the key to slide the on-screen menu upward/downward.

- ④ **VOL knob** (Volume control)
Adjusts the audio volume level.
Clockwise rotation of this knob increases the internal and speaker microphone volume.
- ⑤ / ⑦ ◀ & ▶ **key**
When the soft keys are displayed, press these keys to switch the function of soft keys.
SECONDARY USE
While the MENU screen is displayed, press the key to slide the on-screen menu to the right/left side.
- ⑥ **Soft keys**
Press these keys to display the soft keys.
The 3 programmable soft keys can be customized by the Setup Menu described in section “**15.5 SOFT KEYS**”.
- ⑧ **BUSY Indicator LED**
This indicator glows green when the squelch opens.
- ⑨ **GPS Antenna** (GX1850GPS, GX1850GPS/E, GX1800GPS and GX1800GPS/E only)
Built in GPS antenna is located here.
- ⑩ **DISTRESS key**
Used to send a DSC Distress Call. To send the distress call, refer to section “**11.2.1 Transmitting a Distress Alert**”.
- ⑪ **H/L key**
Press this key to toggle between 25 W (High) and 1 W (Low) power. When the TX output power is set to “Low” while the transceiver is on channel 13 or 67 (USA Channel group only), the output power will temporarily switch from “Low” to “High” power until the **PTT** switch of the microphone is released. This key is not available on transmit inhibited and low power only channels.
- ⑫ **MENU/SET key**
Press to access MENU.
Press and hold to access SETUP MENU. For details, refer to section “**9.4 BASIC OPERATION OF THE SETUP MENU**”.
- ⑬ **CLEAR key**
Press this key to cancel a menu selection.
- ⑭ **16/S key**
Pressing this key immediately recalls channel 16 from any channel location. Holding down this key selects the SUB channel (The default SUB channel setting is channel 9). Pressing this key again reverts to the previous selected working channel.
-

7.2 MICROPHONE



① **PTT** (Push-To-Talk) switch

When in radio mode and the **PTT** switch is pressed, the transmitter is enabled for voice communications to another vessel.

When an optional **SSM-70H** Microphone RAM4 is connected and intercom mode is selected, pressing the **PTT** switch enables voice communications from the transceiver to the **SSM-70H** second station microphone **RAM4**.

② **▲ & ▼ key**

These keys on the microphone are used to select channels and to choose menu items.

③ **Microphone**

The internal microphone transmits your voice and reduces background noise using Clear Voice Noise Reduction Technology.

When transmitting, position the microphone about 2 cm away from your mouth. Speak slowly and clearly into the microphone.

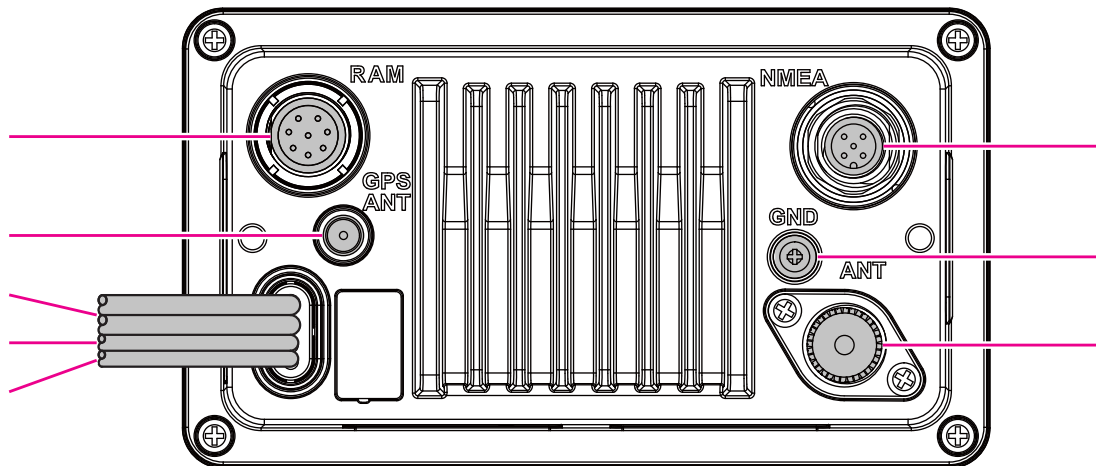
④ **H/L key**

Press this key to toggle between 25 W (High) and 1 W (Low) power. When the TX output power is set to “Low” and the transceiver is on channel 13 or 67 (USA Channel group only), the output power will temporarily switch from “Low” to “High” power until the **PTT** switch of the microphone is released. High power TX is not available on transmit inhibited and low power only channels.

⑤ **16/S key**

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

REAR PANEL



- ① **RAM Remote Access Microphone Connector**
Connects the **SSM-70H (RAM4)** Remote Station Microphone. Refer to section “**20 SSM-70H (RAM4) REMOTE MIC OPERATION**” for details.
NOTE: It is not allowed to connect the **SCU-30** Wireless Access Point to this connector.
- ② **GPS ANT Connector** (GX1850GPS, GX1850GPS/E, GX1800GPS and GX1800GPS/E only)
Connects the optional **SCU-38** External GPS Antenna.
- ③ **DC Input Cable**
Connects the radio to a DC power supply capable of delivering 11 to 16 VDC.
- ④ **Accessory Connection Cable** (Yellow, Green, Gray and Brown)
Connects the transceiver to a GPS chart plotter. Refer to section “**8.5.2 Accessory Cables**”.
- ⑤ **EXTERNAL Speaker Connection Cable** (White & Shield)
Connects the transceiver to an optional external speaker. Refer to section “**3 OPTIONAL ACCESSORIES**” for the available optional STANDARD HORIZON accessories.
Speaker connections:
White: External Speaker (+)
Shield: External Speaker (-)
- ⑥ **NMEA 2K Connector** (GX1850GPS, GX1850GPS/E and GX1850 only)
Connects to the NMEA 2000 network.
- ⑦ **GND Terminal** (Ground Terminal)
Connects the transceiver to ships ground, for safe and optimum performance. Use the screw supplied with the transceiver only.
- ⑧ **VHF ANT jack** (VHF antenna jack)
Connects an antenna to the transceiver. Use a marine VHF antenna with an impedance of 50 ohms.

8 INSTALLATION

8.1 SAFETY / WARNING INFORMATION

Operation of this radio is restricted to occupational use, work related operations only where the radio operator must have the knowledge to control the exposure conditions of passengers and bystanders by maintaining the minimum separation distance of 3 feet (1 m). Failure to observe these restrictions will result in exceeding the FCC RF exposure limits.

Antenna Installation:

The antenna must be located at least 3 feet (1 m) away from passengers in order to comply with the FCC RF exposure requirements.

8.2 LOCATION

The radio can be mounted at any angle. Choose a mounting location that:

- complies with the compass safe distances shown in the table below to prevent interference to a magnetic compass

Transceiver Unit	1.0 m
Handset	0.5 m

- provides accessibility to the front panel controls
- allows connection to a power source and antennas
- has nearby space for installation of a microphone hanger
- is at least 3 feet (1 m) away from the radio's antenna
- the signals from the GPS satellites can be adequately received

NOTE: To insure the radio does not affect the compass or radio's performance is not affected by the antenna location, temporarily connect the radio in the desired location and:

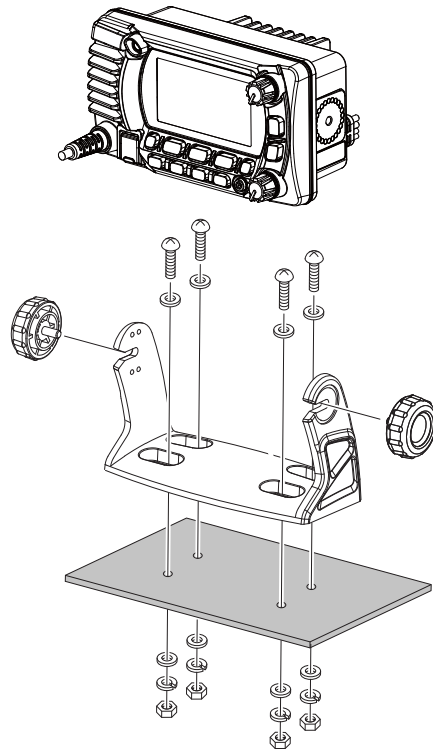
- a. Examine the compass to see if the radio causes any deviation
- b. Connect the antenna and key the radio. Check to ensure the radio is operating correctly by requesting a radio check.

8.3 MOUNTING THE RADIO

8.3.1 Supplied Mounting Bracket

The supplied mounting bracket allows desktop mounting.

Use a 13/64" (5.2 mm) bit to drill the holes to a surface which is more 0.4 inch (10 mm) thick and can support more than 3.3 lbs (1.5 kg) and secure the bracket with the supplied screws, spring washers, flat washers, and nuts.

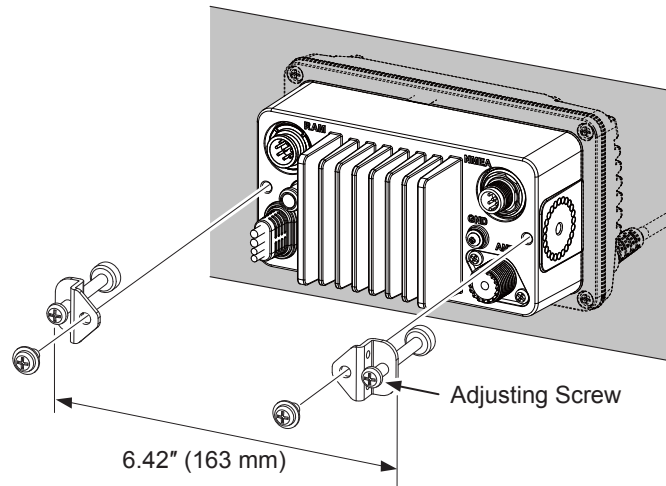


Desktop Mounting

8.3.2 Optional MMB-97 Flush Mount Bracket

A GPS receiver and antenna are located in the front panel of the **GX1850GPS**, **GX1850GPS/E**, **GX1800GPS** and **GX1800GPS/E**. In many cases the radio may be flush mounted, however before cutting holes to flush mount the radio it is recommended to temporarily connect the radio to power and turn it ON in the location where it will be flush mounted to confirm on the display that it is able to receive a GPS location. If the radio is not able to receive a location, a connection to a GPS Chart plotter with NMEA 0183 output, or the optional **SCU-38** External GPS Antenna may be needed to receive GPS satellite signals.

1. Use the template (page 121) to mark the location where the rectangular hole is to be cut. Confirm the space behind the dash or panel is deep enough to accommodate the transceiver (at least 3.54 inches (90 mm) deep). There should be at least 1/2 inch (1.3 cm) between the transceiver's heat-sink and any wiring, cables or structures.
2. Cut out the rectangular hole and insert the transceiver.
3. Fasten the brackets to the rear panel of the transceiver (see illustration).
4. Turn the adjusting screw to adjust the tension so that the transceiver is tight against the mounting surface.



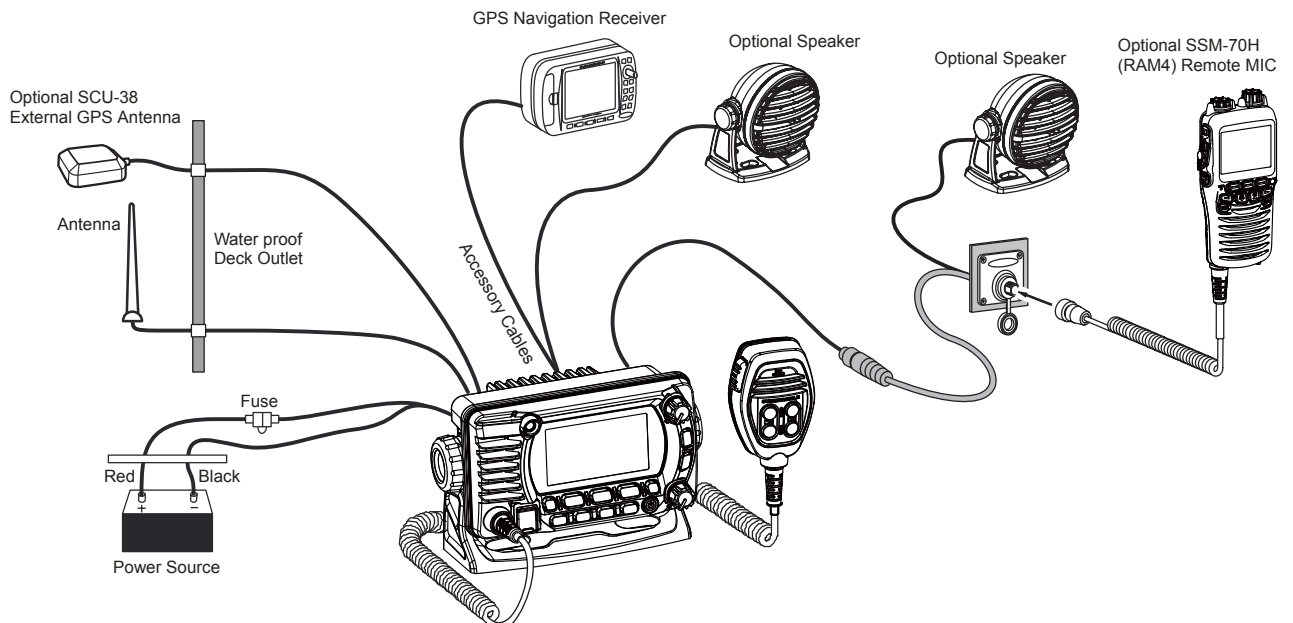
8.4 ELECTRICAL CONNECTIONS

CAUTION

Reverse polarity battery connections will damage the radio!

Connect the power cord and antenna to the radio. Antenna and Power Supply connections are as follows:

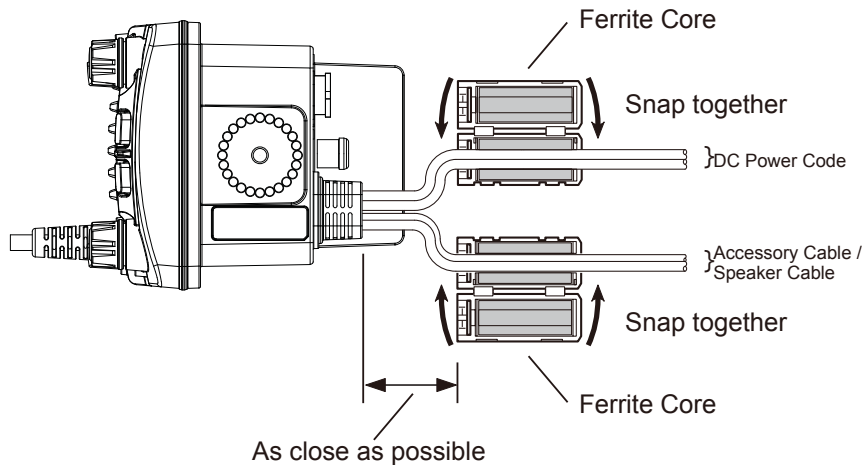
1. Mount the antenna at least 3.28 feet (1 m) away from the radio. At the rear of the radio, connect the antenna cable. The antenna cable must have a PL259 connector attached. RG-8/U coaxial cable must be used if the antenna is 25 feet (7.6 m) or more from the radio. RG58 cable can be used for distances less than 25 feet (7.6 m).
2. Connect the red power wire to a 13.8 VDC $\pm 20\%$ power source. Connect the black power wire to a negative ground.
3. If an optional external speaker is to be used, refer to section 8.5 for connections.
4. It is advisable to have a Certified Marine Technician check the power output and the standing wave ratio of the antenna after installation.



Ferrite Cores

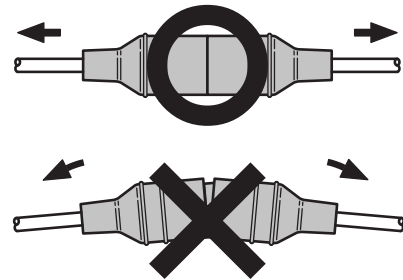
To suppress RF interference that can cause abnormal operation of the transceiver, attach the supplied two ferrite cores as shown below: one to the accessory cable and the DC Power code together, and other to the NMEA Cable and the Speaker Cable together. Then snap the two halves of each ferrite core together. Attach each ferrite core as close as possible to the transceiver body.

Finally, wind some plastic tape around each ferrite core, to prevent vibration from causing the two halves to split apart.



Fuse Replacement

To remove the fuse from the fuse holder, hold both ends of the fuse holder and pull the fuse holder apart without bending the fuse holder. When replacing the fuse, confirm that the fuse is tightly fixed into the metal contact located inside the fuse holder. If the metal contact holding the fuse is loose, the fuse holder may heat up.



8.5 CONNECTION OF EXTERNAL DEVICES TO THE RADIO

8.5.1 Connecting the NMEA 0183/NMEA 0183-HS to the Radio

External GPS Device Connections (NMEA 0183 4800 baud or NMEA 0183-HS 38400 baud)

The **GX1850/GX1800** series can select the NMEA baud rate between “4800 bps” and “38400 bps”. Refer to section “**18.9 NMEA 0183 IN/OUT**” for selection.

NMEA Input (GPS Information)

- The transceiver can read NMEA 0183 version 2.0 or higher, and NMEA 0183-HS version 1.01 or higher.
- The NMEA 0183 input sentences are GLL, GGA, RMC, GNS, GSA, and GSV (RMC sentence is recommended).

- If 4800 baud (default) is selected:
The Yellow and Green input wires are at 4800 baud.
- If 38400 baud is selected:
The Yellow and Green input wires are at 38400 baud.

NMEA Output (DSC and GPS information)

- The NMEA 0183 output sentences are DSC and DSE.
- If 4800 baud (default) is selected:
The Gray and Brown wires output DSC and DSE sentences.
- If 38400 baud is selected:
The Yellow and Brown output wires are at 38400 baud and include DSC (DSC, DSE) sentences.
- GSA, GSV, GLL, GGA, and RMC sentences can be output from the transceiver using settings in the GPS setup menu (refer to section “**18.9 NMEA 0183 IN/OUT**”).

For further information on interfacing and setting up GPS operation, contact the manufacturer of the externally connected GPS receiver.

If you have further questions, please contact your Dealer.

8.5.2 Accessory Cables

The image and table below show the wires of the transceiver and the connections to optional devices such as an external GPS antenna and a GPS chart plotter.

CAUTION

Care must be taken not to touch any of the NMEA wires to positive 12 VDC or the radio may be damaged.

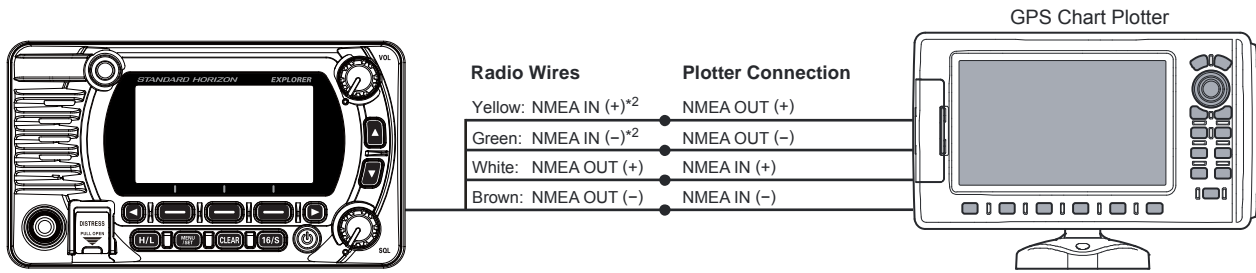
When connecting the Chart Plotter, External GPS receiver, or External Speaker strip off about 1" (2.5 cm) of the specified wire’s insulation, then splice the ends together.

The transceiver uses NMEA 0183/-HS protocol to share coordinates and DSC information to and from a GPS chart plotter.

Wire Color/Description	Connection Examples
Yellow: NMEA GPS Input (+)	NMEA (+) output of GPS
Green: NMEA GPS Input (-)* ¹	NMEA (-) output or common ground of GPS
White: NMEA DSC Output (+)	NMEA (+) input of GPS
Brown: NMEA DSC Output (-)* ¹	NMEA (-) input or common ground of GPS

NOTE: *¹Some GPS chart plotters have a single wire for NMEA signal ground. In this case, connect the NMEA input (-) to the GPS chart plotter’s single NMEA signal ground wire, and leave the NMEA output (-) open. In case the assignment of power supply and ground of a GPS chart plotter to be used is different from that of the radio, connect the signal ground wire of the GPS chart plotter to the ground terminal (GND) on the rear panel of the radio.

8.5.3 Connection to External GPS or Chart Plotter

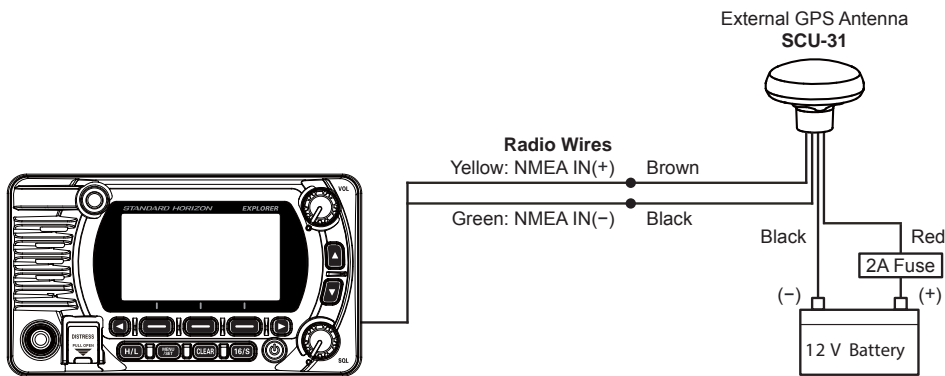


NOTE: *2To input the GPS coordinates from an external GPS device to the transceiver, the NMEA GPS input (+) (yellow) and the NMEA GPS input (-) (green) wires may be connected to the NMEA output of the external GPS antenna or GPS chart plotter.

To connect with an external device at 38400 baud

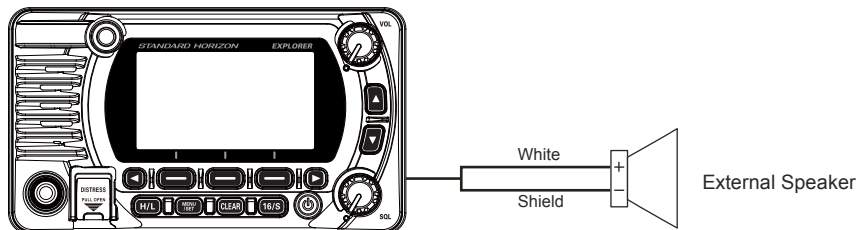
To connect with an external device at 38400 baud, the transceiver may be setup to receive GPS coordinates and send DSC signals at 38400 baud. Refer to section “18.9 NMEA 0183 IN/OUT” for details.

8.5.4 GPS Input - optional SCU-31 External GPS Antenna



The **SCU-31** External GPS Antenna (with receiver) is supplied with 30 feet of cable and a connector. To connect the **SCU-31** to the transceiver, cut off the 6 pin antenna connector, strip the white insulation to expose the Red, Black and Brown wires and connect as shown in the diagram. All other wires are not used and may be cut off. The 2 amp fuse is not included.

8.5.5 Connection to External Speaker

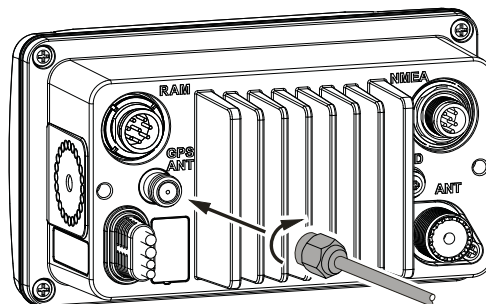


Wire Color/Description	Connection Examples
White: External Speaker (+)	Positive wire of external 4 Ohm External speaker
Shield: External Speaker (-)	Negative wire of external 4 Ohm External speaker

8.5.6 Connecting the SCU-38 External GPS Antenna to the Radio (GX1850GPS, GX1850GPS/E, GX1800GPS and GX1800GPS/E only)

Connect the **SCU-38** cable to the coaxial GPS ANT connector on the rear panel, then tighten the cable nut (see illustration at the right).

NOTE: The **SCU-38** External GPS Antenna is always more preferred than the internal GPS antenna.



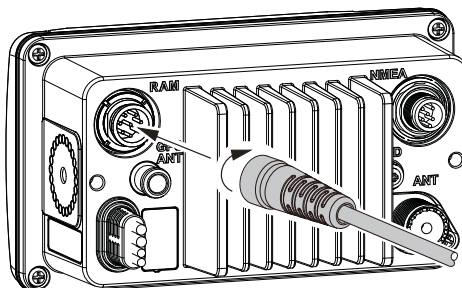
8.5.7 Optional SSM-70H (RAM4) Microphone

The transceiver is capable of using an **SSM-70H (RAM4)** Remote Station Microphone to control all the Radio functions. In addition, the transceiver can operate as a full function intercom system between the **SSM-70H** microphone and the transceiver.

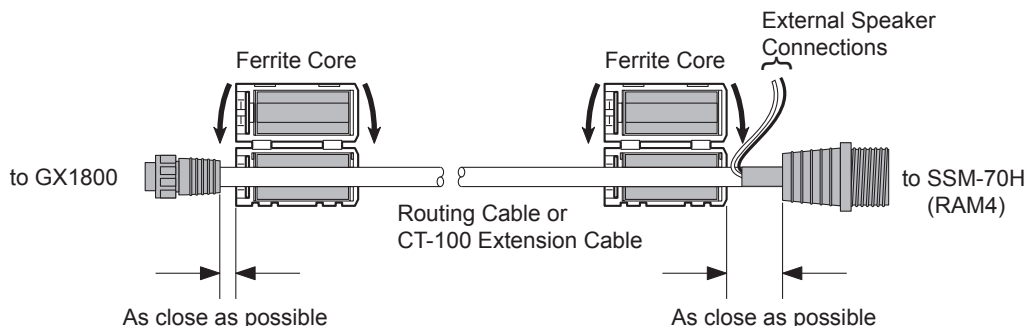
WARNING

Do not connect or remove the SSM-70H (RAM4) microphone while the radio is powered ON. This may result in equipment failure.

1. Connect the Routing Cable (supplied with the **SSM-70H**) to the RAM connector (eight pins) on the rear panel, then tighten the cable nut (see the below illustration).



2. Install the two ferrite cores (supplied with the **SSM-70H** Remote Station Microphone) to the routing cable or the **CT-100** extension cable, then snap the halves together. These cores should be installed near the connectors of the transceiver and the microphone ends of the cable.
3. Attach the ferrite cores as close as possible to the plugs, as shown below.



NOTE

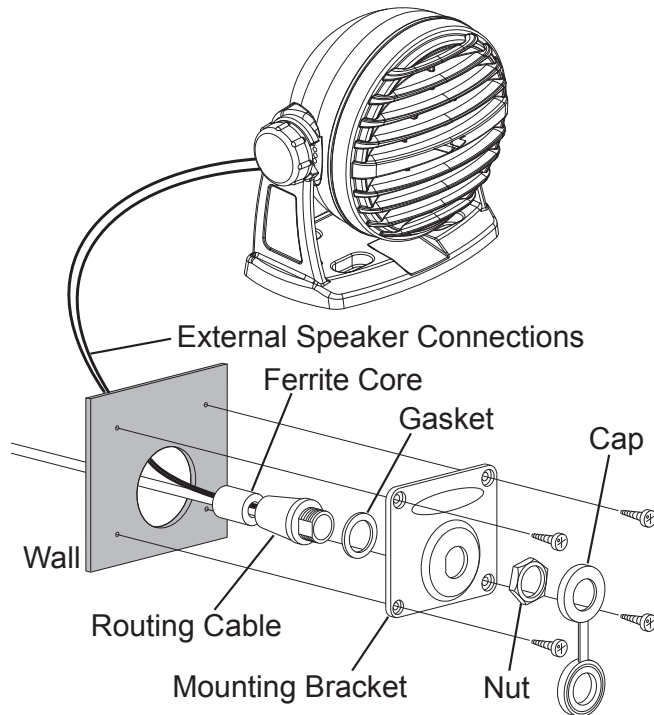
Caution!: Before cutting the cable, it must be disconnected from the rear panel of the transceiver.

The routing cable can be cut and spliced, however care needs to be taken when reconnecting the wires to ensure water integrity.

After cutting you will notice there are the following wires:

Yellow, Green, White, Brown and Red/Shield

4. Finally, wind some plastic tape around each ferrite core, to prevent vibration from causing the two halves to split apart.
5. Referring to the illustration at the right, make a 30 mm hole in the wall, then insert the extension cable into this hole. Connect the gasket and mount base to the extension cable connector using the nut.
6. Drill the four screw holes (approx. 2 mm) into the wall, then install the mounting base to the wall using four screws.
7. Put the rubber cap onto the nut. The installation is now complete.



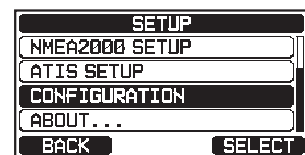
WARNING

It is not recommended to plug or unplug the **SSM-70H (RAM4)** Remote Station Microphone into the routing cable while the radio is powered **ON**.

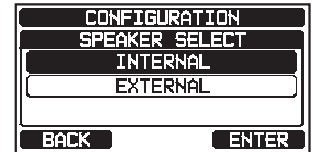
Connecting an External Speaker to the RAM4 Mic Cable

In noisy locations and the **MLS-300** optional external speaker may be connected to the white speaker wires on the **RAM4** routing cable. The **RAM4** can drive either the internal speaker or the external speaker one at a time. When connecting an external speaker, follow the procedure below to turn the **RAM4** audio OFF and enable the external speaker connected to the **RAM4** routing cable wires.

1. On the **RAM4** microphone, press and hold the **[MENU]** key.
2. Rotate the **DIAL/ENT** knob to select “**CONFIGURATION**”, then press the **[SELECT]** soft key.
3. Rotate the **DIAL/ENT** knob to select “**SPEAKER SELECT**”, then press the **[SELECT]**.



4. Rotate the **DIAL/ENT** knob to select “**INTERNAL**” or “**EXTERNAL**”, then press the [**SELECT**] soft key.



5. Press the [**CLEAR**] key to return to radio operation.

8.6 INITIAL SETUP REQUIRED WHEN TURNING ON THE POWER FOR THE FIRST TIME

8.6.1 Maritime Mobile Service Identity (MMSI)

What is an MMSI?

An MMSI is a nine-digit number used on marine transceivers capable of using Digital Selective Calling (DSC) signal transmission. This number is used like a telephone number to selectively call other vessels.

THIS NUMBER MUST BE PROGRAMMED INTO THE RADIO TO OPERATE DSC FUNCTIONS.

How can I obtain an MMSI assignment?

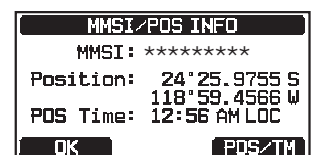
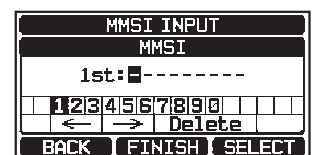
Contact the Radio Licensing Authority for your country for information on how to obtain an MMSI number.

WARNING

The MMSI can be input only once, be careful not to input the incorrect MMSI number. If the MMSI number needs to be reset, contact Standard Horizon to obtain the required reset code. Refer to section “**15.6.1 Reset the USER MMSI and ATIS CODE**”.

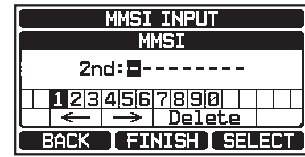
Programming the MMSI

1. Press the [**MENU/SET**] key to display “**MENU**”.
2. Press the [**▲**] or [**▼**] key to select “**MMSI/POS INFO**”, then press the [**SELECT**] soft key. (To cancel, press the [**BACK**] soft key.)
3. The “**MMSI INPUT**” screen is displayed if the MMSI has not yet been input.
When the transceiver entry has been completed, it is only possible to check the MMSI on this screen.



4. Press the [**▲**]/[**▼**]/[**◀**]/[**▶**] keys to select the first number of your MMSI, then press the [**SELECT**] soft key to step to the next number.

5. Repeat step 4 to set your MMSI number (9 digits).
If a mistake is made entering in the MMSI number, press the [▲]/[▼]/[◀]/[▶] keys to select “←” or “→”, press the [SELECT] soft key until the incorrect character is selected, then perform step 4.
6. When finished programming the MMSI number, press the [FINISH] soft key. The radio will ask you to input the MMSI number again. Perform steps 4 through 6 above.
7. After the second number has been input, press the [FINISH] soft key to store the MMSI.
8. Press the [OK] soft key to return to radio operation.



NOTE

To check the MMSI after programming to ensure it is correct, perform steps 1 to 2. The current MMSI number is shown on the display.

8.7 CONFIRMING GPS SIGNAL (GPS STATUS DISPLAY)

When the **GX1850/GX1800** series receives the GPS signal from the internal GPS receiver or the NMEA 2000 or NEMA 0183, an icon will appear on the display as shown below.

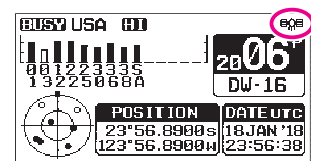
Receive GPS signal from	GX1850GPS, GX1850GPS/E	GX1850	GX1800GPS, GX1850GPS/E	GX1800
Internal GPS Receiver		—		-
NMEA 0183	I/O	I/O	I/O	
NMEA 2000	2K	2K	-	-

If there is a problem with the NMEA connection between the radio and the GPS, the GPS icon will blink continuously until the connection is corrected.

NOTE

Using the GPS position information from an external source (NMEA 0183 or NMEA 2000) is preferred, rather than relying on the internal GPS receiver. To check the status of the Internal GPS receiver, do not input signals from the external device.

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

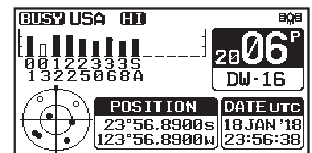
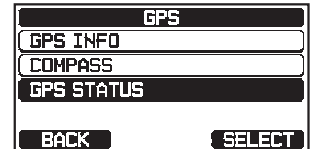
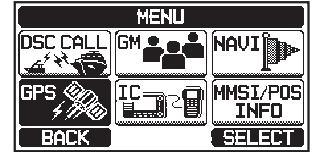


(GPS Status Display mode)

NOTE

When the GPS reception is limited, such as the flush mounting of the **GX1850GPS**, **GX1850GPS/E**, **GX1800GPS** and **GX1800GPS/E**, it is recommended to connect the optional External GPS Antenna **SCU-38** to the GPS ANT connector on the rear panel.

1. Press the [**MENU/SET**]key to display “**MENU**”.
2. Press the [**▲**] or [**▼**] key to select “**GPS**”, then press the [**SELECT**] soft key.
3. Press the [**▲**] or [**▼**] key to select “**GPS STATUS**”, then press the [**ENTER**] soft key to display the GPS status currently being received.
4. Press the [**CLEAR**] key to return to radio operation.



NOTE

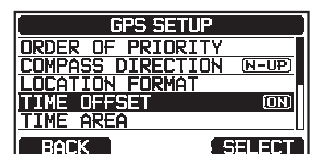
For the transceiver to properly show the GPS status page when an external GPS receiver or a chart plotter is connected, the external device must be setup to output GSA and GSV NMEA 0183 sentences. When using the equipment of NMEA 2000, it must be able to output PGN No.129540 (GNSS Sats in View).

8.8 GPS CONFIGURATION

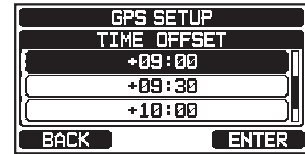
8.8.1 Setting the GPS Time

The transceiver shows GPS satellite time or UTC (Universal Time Coordinated) time in factory default. A time offset is needed to show the local time in your area. The time offset must be changed in order for the radio to display the current time in your area.

1. Press and hold the [**MENU/SET**]key.
2. Press the [**▲**] or [**▼**] key to select “**GPS SETUP**”, then press the [**SELECT**] soft key.
3. Press the [**▲**] or [**▼**] key to select “**TIME OFFSET**”, then press the [**SELECT**] soft key.



- Press the [▲] or [▼] key to select time offset of your location. If “00: 00” is assigned, the time is the same as UTC or GPS satellite time.

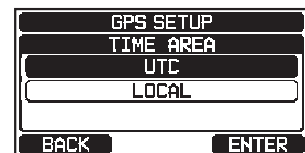
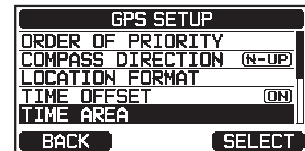
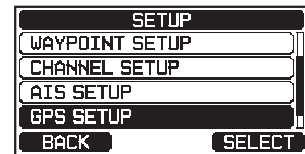


- Press the [ENTER] soft key to store the time offset.
- Press the [CLEAR] key to return to radio operation.

8.8.2 Setting the Time Area

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

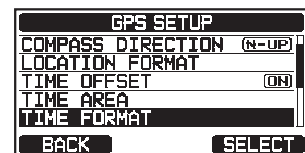
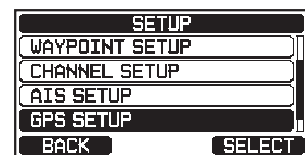
- Press and hold the [MENU/SET] key.
- Press the [▲] or [▼] key to select “GPS SETUP”, then press the [SELECT] soft key.
- Press the [▲] or [▼] key to select “TIME AREA”, then press the [SELECT] soft key.
- Press the [▲] or [▼] key to select “UTC” or “LOCAL”.
- Press the [ENTER] soft key to store the selected setting.
- Press the [CLEAR] key to return to radio operation.



8.8.3 Setting the Time Format

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

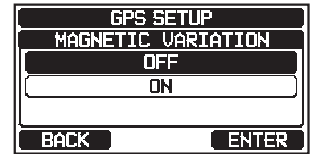
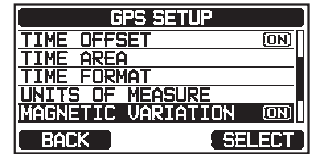
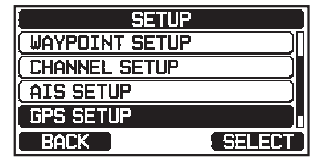
- Press and hold the [MENU/SET] key.
- Press the [▲] or [▼] key to select “GPS SETUP”, then press the [SELECT] soft key.
- Press the [▲] or [▼] key to select “TIME FORMAT”, then press the [SELECT] soft key.
- Press the [▲] or [▼] key to select “24hour” or “12hour”.
- Press the [ENTER] soft key to store the selected setting.
- Press the [CLEAR] key to return to radio operation.



8.8.4 Setting COG to True or Magnetic

The GPS COG (Course Over Ground) and the BRG from a Waypoint Target magnetic variation may be selected to show in ON or OFF. Factory default is “OFF” however by following the steps below the COG can be changed to “ON”.

1. Press and hold the [MENU/SET] key.
2. Press the [▲] or [▼] key to select “GPS SETUP”, then press the [SELECT] soft key.
3. Press the [▲] or [▼] key to select “MAGNETIC VARIATION”, then press the [SELECT] soft key.
4. Press the [▲] or [▼] key to select “OFF” or “ON”.
5. Press the [ENTER] soft key to store the selected setting.
6. Press the [CLEAR] key to return to radio operation.





NOTE



The “ON” setting is effective only when the RMC sentences with magnetic data are input from external devices such as a GPS Chart Plotter.

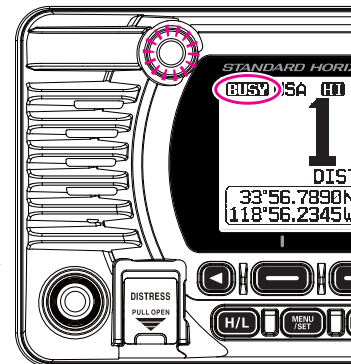
9 BASIC OPERATION

9.1 TURNING ON AND OFF THE TRANSCEIVER

1. After the transceiver has been installed, ensure that the power supply and antenna are properly connected.
2. Press and hold the  key to turn the radio ON.
3. Press and hold the  key again to turn the radio OFF.

9.2 RECEPTION

1. Rotate the **SQL** knob fully counterclockwise. This state is known as “squelch off”.
2. Turn up the **VOL** knob until noise or audio from the speaker is at a comfortable level.
3. Rotate the **SQL** knob, clockwise until the random noise disappears. This state is known as the “squelch threshold”.
4. Press the [] or [] key to select the desired channel. Refer to the channel chart on page 109 for available channels.
5. When a signal is received, adjust the volume to the desired listening level. The **BUSY** Indicator Lamp glows green, and the “**BUSY**” indicator on the display indicates that communications are being received.

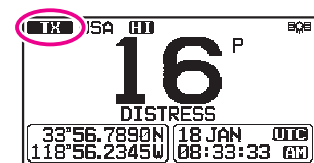


9.3 TRANSMISSION

1. Perform steps 1 through 4 of RECEPTION.
2. Before transmitting, monitor the channel to ensure it is clear.

THIS IS AN FCC REQUIREMENT!

3. Press the microphone's **PTT** (push-to-talk) switch. The “**TX**” indicator on the LCD is displayed.
4. Speak slowly and clearly into the microphone.
5. When the transmission is finished, release the microphone **PTT** switch.



NOTE

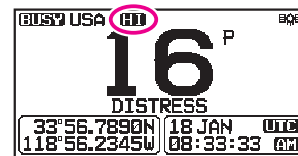
Position your mouth about 2 cm away from the microphone and speak in a normal voice.

9.3.1 Transmit Power

The TX output power of the transceiver is set to high (25 W) in factory default, and the “HI” indicator is displayed on the top part of the screen.

To switch the TX output power:

1. Press the [H/L] key on the front panel or the microphone to switch between HI (25 W) or LO (1 W) output power.



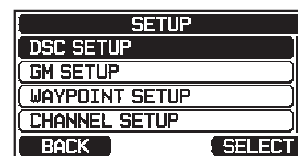
NOTE: When the TX output power is set to “Low” while the transceiver is on channel 13 or 67 (USA Channel group only), the output power will temporarily switch from “Low” to “High” power until the PTT switch of the microphone is released. This soft key is not function on transmit inhibited and low power only channels.



9.4 BASIC OPERATION OF THE SETUP MENU

Using the setup menu, the various functions of the transceiver can be customized to match the user’s needs and preferences. Items to be adjusted may be selected from the respective lists and the appropriate settings made for the various intended operations.

1. Press and hold the [MENU/SET] key on the operation mode screen.
2. Press the [▲] or [▼] key to select the function item, then press the [SELECT] soft key.
3. Press the [▲] or [▼] key to select the setting item, then press the [SELECT] soft key.
4. Press the [▲] or [▼] key to select the desired setting.
5. Press the [ENTER] soft key to store the selected setting.
6. Press the [CLEAR] key to return to radio operation. (The display can also be returned to the previous screen by pressing the [BACK] soft key.)



The above process is used when making the Setup Menu adjustments that follow in this Operating Manual.

Press & hold [MENU/SET] → “DSC SETUP” → “INDIVIDUAL DIRECTORY”

9.5 TRANSMIT TIME-OUT TIMER (TOT)

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

NOTE

Once the transmitter is shut down by the TOT, transmission on the channel is only allowed 10 seconds after the shutdown.

9.6 SIMPLEX/DUPLEX CHANNEL USE

Refer to the **VHF MARINE CHANNEL CHART** (Page 109) for instructions on use of simplex and duplex channels.

NOTE

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

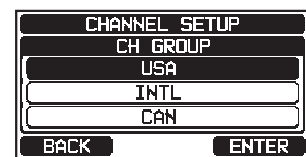
9.7 CHANNEL GROUP

Set the Channel Group according to the region:

1. Press & hold  ⇒ **“CHANNEL SETUP”** ⇒ **“CHANNEL GROUP”**

2. Press the [**▲**] or [**▼**] key to select the desired channel group **“USA”**, **“INTL”**, or **“CAN”***¹.

*¹In the European version, when setting the region, the selected European Channel Group will be displayed instead of “CAN” group. For details, refer to the “Note on the Setting the Region” on the separate yellow insert sheet.



3. Press the [**ENTER**] soft key to store the selected setting.

4. Press the [**CLEAR**] key to return to radio operation.

Refer to the **“22 CHANNEL ASSIGNMENTS”** (page 109) for allocated channels in each mode.

9.8 NOAA WEATHER CHANNELS (in USA and Canada only)

1. To receive a NOAA weather channel, press one of the soft keys, then press the [◀] or [▶] key repeatedly until the [WX] soft key is displayed at the bottom of the screen.

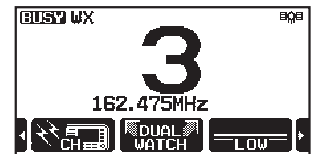


2. Press the [WX] soft key.

The “WX” indicator appears on the top part of the screen.

Note: To receive a NOAA weather channel, assign the “WX” command into one of the soft keys, refer to section “15.5 SOFT KEYS”.

3. Press the [▲] or [▼] key to select a different NOAA weather channel.
4. To exit from the NOAA weather channels, press one of the soft keys, then press the [CH] soft key. The transceiver returns to the channel it was on prior to a weather channel and the “WX” indicator disappears from the display.



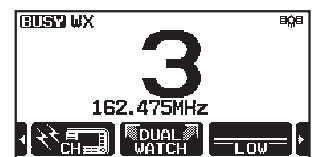
9.8.1 NOAA Weather Alert (USA version only)

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 transmits a subsequent weather report on one of the NOAA weather channels.

The transceiver can receive weather alerts when monitoring a weather channel and on the last selected weather channel during scanning modes or while monitoring a working channel.

To enable the weather alert function, refer to section “16.2 WEATHER ALERT (USA version only)”.

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



NOTE

If no key is pressed the alert will sound for 5 minutes and then the weather report will be received.

9.8.2 NOAA Weather Alert Testing

NOAA tests the alert system every Wednesday between 11AM and 1PM. To test the transceiver NOAA weather feature, setup the transceiver as in section “9.8.1 NOAA Weather Alert (USA version only)” and confirm the alert is heard on Wednesdays between 11AM and 1PM local time.

9.9 MULTI WATCH (TO PRIORITY CHANNEL)

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

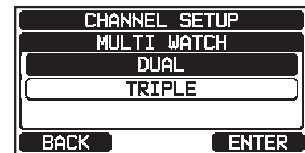
- In Dual Watch, a normal VHF channel and the priority channel are scanned alternately.
- In Triple Watch, a normal VHF channel, the priority channel, and the sub channel are scanned alternately.

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 priority channel until communication ends and then starts dual or triple watch scan again.

9.9.1 Setup the Multi Watch Operation

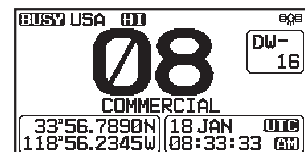
1. Press & hold [MENU/SET] → “CHANNEL SETUP” → “MULTI WATCH”

2. Press the [▲] or [▼] key to select “DUAL” or “TRIPLE”.
3. Press the [ENTER] soft key to store the selected setting.
4. Press the [CLEAR] key to return to radio operation.



9.9.2 Starting Dual Watch

1. Adjust the **SQL** knob until the background noise disappears.
2. Press the [▲] or [▼] key to select a channel you wish to watch.
3. Press one of the soft keys.
4. Press [◀] or [▶] key repeatedly until the [DUAL WATCH] soft key is displayed at the bottom of the screen, press the [DUAL WATCH] soft key.



The radio will monitor the priority channel and the channel that was selected in step 2. If a signal is received on the channel selected in step 2, the transceiver will dual watch to priority channel.

5. To stop dual watch, press the [DUAL WATCH] soft key again.

When selecting “TRIPLE” in the SETUP menu, [TRIPLE WATCH] will be displayed as the soft key instead of [DUAL WATCH].

NOTE

The priority channel or the sub channel may be changed from CH16 (default) or CH9 (default) to another channel. Refer to section “**16.7 PRIORITY CHANNEL**” or “**16.8 SUB CHANNEL**”.

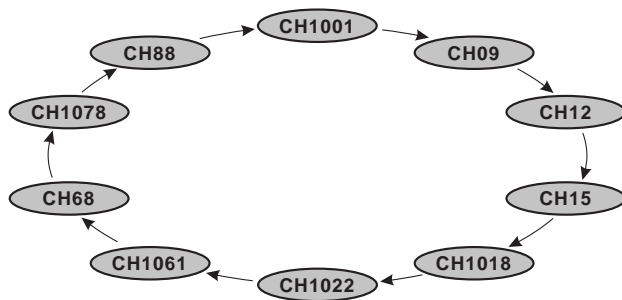
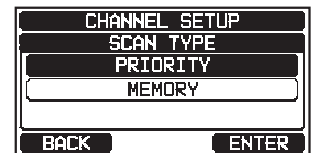
9.10 SCANNING

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

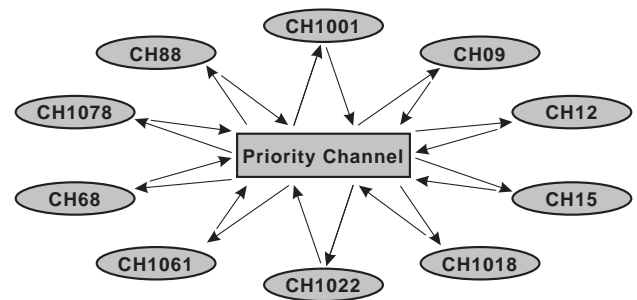
When an incoming signal is detected on one of the channels during scan, the radio will pause on that channel, allowing you to listen to the incoming transmission. The radio will automatically start scanning again after the transmission stops.

9.10.1 Selecting Scan Type

1. Press & hold [MENU/SET] ⇒ “CHANNEL SETUP” ⇒ “SCAN TYPE”
2. Press the [▲] or [▼] key to select “PRIORITY” or “MEMORY”.
3. Press the [ENTER] soft key to store the selected setting.
4. Press the [CLEAR] key to return to radio operation.



Memory Scan (M-SCAN)



Priority Scan (P-SCAN)

9.10.2 Programming Scan Memory

1. Press & hold [MENU/SET] ⇒ “CHANNEL SETUP” ⇒ “SCAN MEMORY”
2. Press the [▲] or [▼] key to select a desired channel to be scanned, then press the [MEM] soft key. The “ON” icon will appear at the right side of the selected channel.
3. Repeat step 2 for all the desired channels to be scanned.



- To REMOVE a channel from the list, select the channel then press the [MEM] soft key. The “ON” icon of the selected channel will disappear.
- When you have completed your selection, press the [CLEAR] key to return to radio operation.

To check the channels to be scanned, Press the [▲] or [▼] key. The “MEM” icon will appear when the memory channel is displayed.



NOTE: When “SCAN MEMORY” is assigned to the soft key, the memory function switches between ON and OFF each time the [MEM] soft key is pressed.

9.10.3 Memory Scanning (M-SCAN)

- Set the scan type to “MEMORY” in the SETUP menu (refer to “9.10.1 Selecting Scan Type”).

2. Adjust the **SQL** knob until the background noise disappears.

3. Press one of the soft keys.

- Press the [◀] or [▶] key repeatedly, then press the [SCAN] soft key. The “MEM SCAN” icon appears on the display. Scanning will proceed from the lowest to the highest programmed channel number and the 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 [SCAN] soft key, [16/S] or [CLEAR] key.

9.10.4 Priority Scanning (P-SCAN)

- Set the scan type to “PRIORITY” in the SETUP menu (refer to “9.10.1 Selecting Scan Type”).

2. Adjust the **SQL** knob until the background noise disappears.

3. Press one of the soft keys.

- Press the [◀] or [▶] key repeatedly, then press the [SCAN] soft key. The “PRI SCAN” icon appears on the display. Scanning will proceed between the memorized channels, the preset channel (described in next section) and the priority channel.



The priority channel will be scanned after each programmed channel.

- To stop scanning, press the [SCAN] soft key, [16/S] or [CLEAR] key.

NOTE

In the default setting, Channel 16 is set as the priority channel. You may change the priority channel from Channel 16 to another desired channel using the SETUP menu. Refer to section “16.7 PRIORITY CHANNEL”.

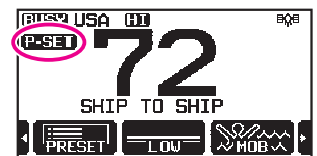
9.11 PRESET CHANNELS: INSTANT ACCESS

10 preset channels can be programmed for instant access. Pressing the [PRESET] soft key activates the user assigned channel bank. If the [PRESET] soft key is pressed and no channels have been assigned, an error beep will sound.

Before beginning the Instant Access operation, assign the “PRESET” command into one of the programmable keys, refer to section “15.5 SOFT KEYS”.

9.11.1 Programming

1. Press the [▲] or [▼] key to select the channel to be programmed.
2. Press one of the soft keys.
3. Press the [◀] or [▶] key repeatedly, until the [PRESET] soft key is displayed, then press and hold the [PRESET] soft key until the “P-SET” icon and channel number are blinking.
4. Press the [ADD] soft key to program the channel into the preset channel memory. The “P-SET” icon will appear.
5. Repeat steps 1 through 3 to program the desired channels into the preset channels. Up to 10 channels can be registered. If you attempt to register the 11th channel, an error beep will sound.



9.11.2 Operation

1. Press one of the soft keys.
2. Press the [◀] or [▶] key repeatedly, then press the [PRESET] soft key to recall the preset channel. The “P-SET” icon will appear on the display.
3. Press the [▲] or [▼] key to select the desired preset channel.
4. Press the [PRESET] soft key to return to the last selected channel. The “P-SET” icon will disappear from the display.



9.11.3 Deletion

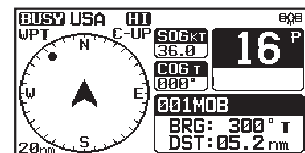
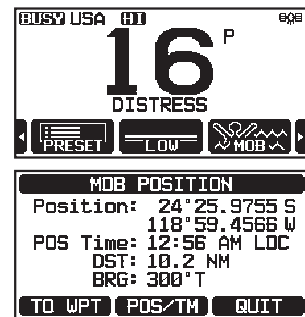
1. Press one of the soft keys.
2. Press the [◀] or [▶] key repeatedly, then press the [P-SET] soft key to recall the preset channel
3. Press the [▲] or [▼] key to select the preset channel to be deleted.
4. Press one of the soft keys, then press and hold the [PRESET] soft key until the “P-SET” icon and channel number are blinking.
5. Press the [DELETE] soft key to delete the channel from the preset channel memory.
6. Repeat steps 3 through 5 to delete the undesired channels from preset channels.
7. To exit from deleting the preset channels, press the [QUIT] soft key.



9.12 MOB OPERATION

The **GX1850/GX1800** series provides a feature to memorize the position information instantly in case of MOB (Man Over-Board).

1. Press one of the soft keys.
2. Press the [◀] or [▶] key repeatedly, then press the [MOB] soft key.
3. Press the [TO WPT] soft key to start the navigation to the displayed position. For details about the navigation, see section “12 NAVIGATION”.
To change the displayed position information, press the [POS/TM] soft key. For details about modification of the position, see “Editing a Waypoint” on page 70.
4. To transmit a DSC distress message, lift the red spring loaded DISTRESS cover on the right side of the transceiver, then press and hold the **DISTRESS** key (see section “11.2.1 Transmitting a Distress Alert” for details).



9.13 INTERCOM OPERATION

The optional **SSM-70H (RAM4)** remote station microphone must be connected to perform intercom functions between the transceiver and the **SSM-70H (RAM4)**.

NOTE

When using the intercom function, connect **SSM-70H (RAM4)** Remote Station Microphone to the transceiver.

9.13.1 Communication

1.  → "IC"

2. When the intercom mode is enabled, "INTERCOM" is displayed on the radio and **SSM-70H (RAM4)**.



3. Press the transceiver microphone PTT switch, "Talk" will be shown on the display.

NOTE: A warning beep will be heard when the transceiver **PTT** and **RAM4 PTT** switches are pushed at the same time.

4. Speak slowly and clearly into the microphone, hold the microphone about 1.5 cm away from your mouth.
5. When finished, release the **PTT** switch.
6. Press the [**CLEAR**] key to return to radio operation.

9.13.2 Calling

When in intercom mode, pressing the [**BELL**] soft key on either the radio or **RAM4** microphone will produce a calling beep to the other station.

9.14 DEMO MODE

This mode is used by Standard Horizon sales persons and dealers to demonstrate the transceiver's DSC functions. Demo mode allows latitude, longitude and time to be entered to manually to simulate the displays. When the demo mode is enabled, the transceiver will automatically switch from the **NORMAL**, **COMPASS**, **WAYPOINT** and **GM** displays.

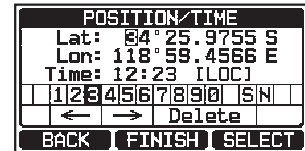
NOTE

When demo mode is enabled, if the transceiver is turned OFF and back ON it will still be in the demo mode.

1. Press & hold  → "ABOUT.." → "DEMO OPERATION"

2. Press the [**▲**] or [**▼**] key to select "DEMO POSITION INPUT", then press the [**SELECT**] soft key.

3. Enter the latitude and longitude of your vessel and your local UTC time in the 24-hour notation using the [▲] and [▼] keys. Press the [▲]/[▼]/[◀]/[▶] keys to select the number and press the [SELECT] soft key to move the cursor to the next character.



4. If a mistake is made while entering the latitude, longitude or local UTC time of your vessel, you can use the [▲]/[▼]/[◀]/[▶] keys to select “←” or “→”, press the [SELECT] soft key until the incorrect character is selected, then perform step 2 to make the correction.

5. To store the data entered, press the [FINISH] soft key.

6. Press the [▲] or [▼] key to select “**DEMO START**”, then press the [SELECT] soft key.



7. Press the [▲] or [▼] key to select “**START**”, then press the [ENTER] soft key.



NOTE


To exit the demo mode, select “**STOP**” in step 7 above.

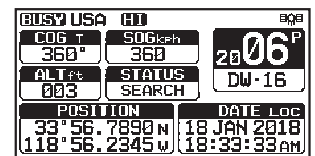
10 GPS OPERATION

The **GX1850GPS**, **GX1850GPS/E**, **GX1800GPS** and **GX1800GPS/E** has an internal GPS receiver to acquire and display the satellite position information*. When the radio is connected to an external GPS device by the NMEA-0183 or NMEA2000, you may select the order of priority of the connection devices to be used when obtaining location information via the SETUP menu (Refer to section “**18.1 ORDER OF PRIORITY (GX1850 series only)**”). Your position information as well as received positions can be memorized and utilized later for navigation. *(The **GX1850** and **GX1800** requires input of GPS coordinates from an external GPS device.)


10.1 DISPLAYING POSITION INFORMATION

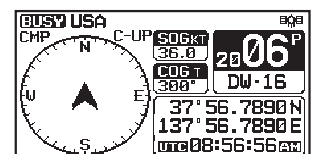
10.1.1 GPS Information Numerical Display

1.  ⇒ “GPS” ⇒ “GPS INFO”
2. The numerical data is displayed.
3. Press the [CLEAR] key to return to radio operation.




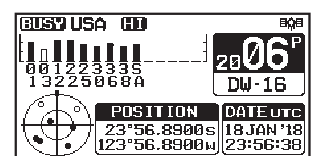
10.1.2 GPS Information Compass Display

1.  ⇒ “GPS” ⇒ “COMPASS”
2. The compass data is displayed.
3. Press the [CLEAR] key to return to radio operation.
NOTE: Depending on the assignment of the soft keys you may switch the screen immediately from the basic display to the compass display by pressing the [COMP] soft key.



10.2 CHECKING GPS STATUS

1.  ⇒ “GPS” ⇒ “GPS STATUS”
2. Display the GPS status currently being received.
3. Press the [CLEAR] key to return to radio operation.



11 DIGITAL SELECTIVE CALLING (DSC)

11.1 GENERAL

WARNING

This **GX1850/GX1800** series is designed to generate a digital maritime distress and safety call to facilitate search and rescue. To be effective as a safety device, this equipment must be used only within communication range of a shore-based VHF marine channel 70 distress and safety watch system. The range of signal may vary but under normal conditions should be approximately 20 nautical miles.

Digital Selective Calling (DSC) is a semi-automated method of establishing a radio call, it has been designated by the International Maritime Organization (IMO) as an international standard for establishing VHF, MF and HF radio calls. It has also been designated as part of the Global Maritime Distress and Safety System (GMDSS). It is planned that DSC will eventually replace aural watches on distress frequencies and will be used to announce routine and urgent maritime safety information broadcasts.

This system allows mariners to instantly send a distress call with its own position, to the Coast Guard and other vessels within range of the transmission. DSC will also allow mariners to initiate or receive Distress, Urgency, Safety, Routine, Position Request, and Position Report, Automatic Position Polling, and Group calls to or from another vessel equipped with a DSC transceiver.

11.2 DISTRESS ALERT

The **GX1850/GX1800** series is capable of transmitting and receiving DSC distress messages. Distress alerts transmitted from the transceiver include the latitude and longitude of the vessel when valid GPS position data is being received.

11.2.1 Transmitting a Distress Alert

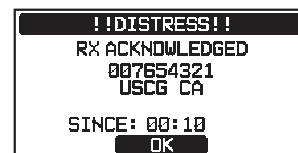
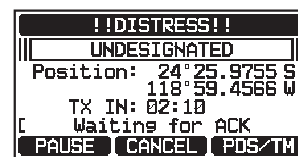
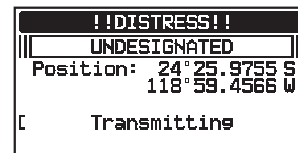
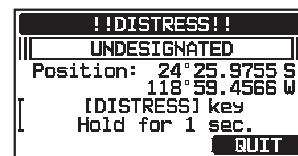
NOTE

To be able to transmit a DSC distress alert, the MMSI number must be programmed, refer to section “**8.6.1 Maritime Mobile Service Identity (MMSI)**”.

In order for the ship's location to be transmitted, the **GX1850/GX1800** series must receive valid position data from the internal GPS receiver or another GPS device connected with a NMEA 0183 or NEMA 2000 network. Refer to section “**8.5.2 Accessory Cables**”.

Basic Operation

1. Lift the red spring loaded **[DISTRESS]** cover, press once and then press and hold the **[DISTRESS]** key for 3 seconds. The radio display will count down (3-2-1) and then transmit the distress alert. The backlight of the display and keypad flashes while the radio's display is counting down.
2. When the distress signal is sent, the transceiver watches for a transmission on CH70 until an acknowledgment signal (distress acknowledgement) is received.
3. If no acknowledgment is received, the distress alert is repeated in 4-minute intervals until an acknowledgment is received.
4. When a distress acknowledgment is received, a distress alarm sounds and Channel 16 is automatically selected. The display shows the MMSI of the ship responding to your distress.
5. Press the microphone **PTT** switch and state your name, vessel name, number of persons on board and the distress situation, then say “**over**” and wait for a reply from the acknowledging ship.
6. To turn the distress alarm OFF before the radio retransmits the distress alert, press the **[16/S]** key or the **[QUIT]** soft key.



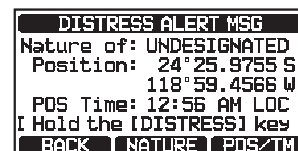
Transmitting a Distress Alert with Nature of Distress

The transceiver is capable of transmitting a distress alert with the following “Nature of Distress” categories:

Undesignated, Fire/Explosion, Flooding, Collision, Grounding, Capsizing, Sinking, Adrift, Abandoning, Piracy, MOB.

1.  → “DSC CALL” → “DIST ALERT MSG”

2. Press the **[NATURE]** soft key. The “**NATURE OF**” menu will appear on the display.



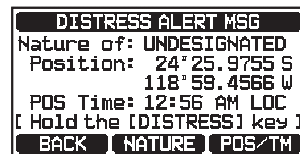
3. Press the **[▲]** or **[▼]** key to select the desired nature of distress category, then press the **[SELECT]** soft key.
4. Press and hold the **DISTRESS** key until a distress alert is transmitted.

Transmitting a Distress Alert by Manually Inputting Location and Time

In case the transceiver fails to get a GPS position fix, you may manually input the latitude, longitude and time before transmitting the distress alert.

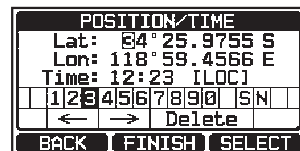
1.  → “DSC CALL” → “DIST ALERT MSG”

2. Press the [POS/TM] soft key.



```
DISTRESS ALERT MSG
Nature of: UNDESIGNATED
Position: 24°25.9755 S
          118°59.4566 W
POS Time: 12:56 AM LOC
[ Hold the [DISTRESS] key ]
BACK  NATURE  POS/TM
```

3. Press the [▲]/[▼]/[◀]/[▶] keys to select the first number of the latitude, then press the [SELECT] soft key to step to the next number.



```
POSITION/TIME
Lat: 04°25.9755 S
Lon: 118°59.4566 E
Time: 12:23 ILOC
| 1 2 3 4 5 6 7 8 9 0 | SIN |
| ← → Delete |
BACK  FINISH  SELECT
```

4. Repeat step 3 to set the position and time.

If a mistake is made, press the [▲]/[▼]/[◀]/[▶] keys to select “←” or “→”, press the [SELECT] soft key until the incorrect character is selected, then perform step 3.

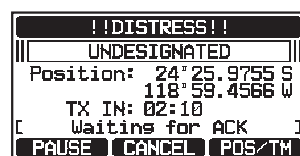
5. When finished programming the position and time, press the [FINISH] soft key. The display will return to the previous screen.
6. Press and hold the [DISTRESS] key until a distress alert is transmitted.

Pausing a Distress Alert

After a distress alert is transmitted, the distress alert is repeated every 4 minutes until the call is canceled by the user or until the radio is turned OFF and ON again. The transceiver has the capability to suspend (pause) the retransmitting of the distress alert by the procedure below.

1. After the distress alert is transmitted, the radio will show the display as on the right.

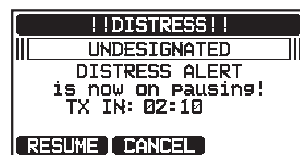
Looking at this display you will notice “TX IN: 02:10”, this is the time when the radio will re-transmit the distress alert.



```
!!DISTRESS!!
UNDESIGNATED
Position: 24°25.9755 S
          118°59.4566 W
TX IN: 02:10
Waiting for ACK
PAUSE  CANCEL  POS/TM
```

2. To suspend re-transmitting the distress alert call, press the [PAUSE] soft key.

3. To resume counting down to transmit the distress alert, press the [RESUME] soft key.



```
!!DISTRESS!!
UNDESIGNATED
DISTRESS ALERT
is now on pausing!
TX IN: 02:10
RESUME  CANCEL
```

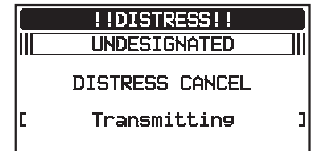
Canceling a Distress Alert

If a distress alert was sent by error, the transceiver allows you to send a message to other vessels to cancel the distress alert that was made.

1. Press the [**CANCEL**] soft key, then press the [**YES**] soft key.



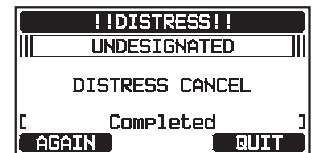
2. After the message for cancelling has been transmitted, press the [**OK**] soft key.



3. Press the [**FINISH**] soft key.

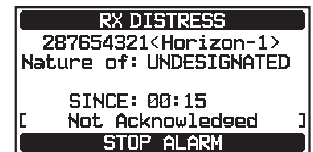


4. Press the [**QUIT**] soft key to return to radio operation.



11.2.2 Receiving a Distress Alert

1. When a distress alert is received, an emergency alarm sounds.
2. Press any key to stop the alarm.



3. Press the [**▲**] or [**▼**] key to show information on the vessel in distress.

On the display you will notice 3 soft key selections.

These selections are described below:

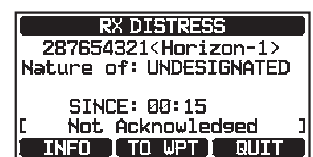
[**ACCEPT**]: Press this key to accept the distress alert and switch to Channel 16.

NOTE: If a key is not pressed within 30* seconds the radio will automatically switch to Channel 16. *(“**AUTO CHANNEL CHANGE**” timer settings can be changed in “DSC SETUP” menu. The default setting is 30 sec.)

[**PAUSE**]: Press this key to temporarily pause automatic switching to Channel 16.

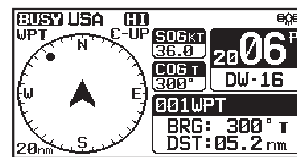
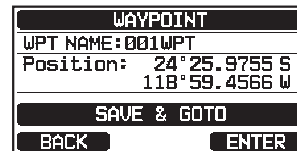
[**QUIT**]: Press this key to end quit the automatic Channel 16 switching and revert to the last selected working channel.

4. After accepting the call, press the [**TO WPT**] soft key to set the location of the vessel in distress as a destination for navigation.



NOTE: You may change the waypoint name.

- Press the [▲] or [▼] key to select “**SAVE & GOTO**”, then press the [SELECT] soft key to change the display to the waypoint navigation screen. The display indicates the distance and direction of the vessel in distress, and the compass displays the distressed vessel with a dot (●).
- To stop navigating to a waypoint, press one of the soft keys, then press the [STOP] soft key. The radio is switched to the normal mode.



NOTE

- You must continue monitoring Channel 16 as a coast station may require assistance in the rescue attempt.
- When there is an unread distress alert, an “✉” icon will appear on the display. You may review the unread distress alert from the DSC log, refer to section “**11.10.2 Reviewing a Logged DSC RX Distress Alert and acknowledgement**”.

11.3 ALL SHIPS CALL

The all ships call function allows contact to be established with DSC equipped vessels without having their MMSI in the individual calling directory. Also, priority for the call can be designated as “Safety” or “Urgency”.

SAFETY Call: This type of DSC call is used to transmit boating safety information to other vessels. This message usually contains information about an overdue boat, debris in the water, loss of a navigation aid or an important meteorological message. This call is the same as transmitting “Securite, Securite, Securite” by voice.

URGENCY Call: This type of call is used when a vessel may not truly be in distress, but have a potential problem that may lead to a distress situation. This call is the same as transmitting “PAN PAN, PAN PAN, PAN PAN” on Channel 16.

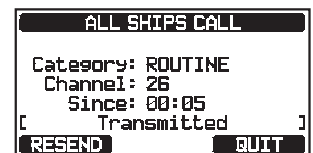
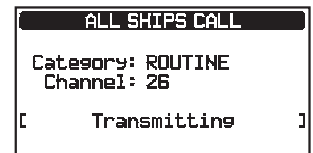
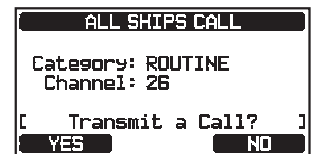
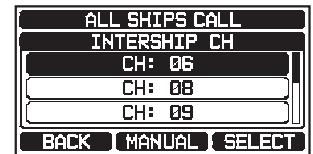
11.3.1 Transmitting an All Ships Call

- [MENU/SET] → “DSC CALL” → “ALL SHIPS”

- Press the [▲] or [▼] key to select the nature of the call (“**SAFETY**” or “**URGENCY**”), then press the [SELECT] soft key.



- In the INTERSHIP CH list, press the [▲] or [▼] key to select the operating channel on which you want to communicate, then press the [SELECT] soft key. To select operating channels from all voice channels, press the [MANUAL] soft key.
- Press the [YES] soft key to transmit the selected type of all ships call.
- After the all ships call is transmitted, the transceiver will switch to the selected channel.
- Listen to the channel to make sure it is not busy, then key the microphone and say “PAN PAN, PAN PAN, PAN PAN” or “Securite, Securite, Securite” depending on the priority of the call.
- Press the [QUIT] soft key to exit the all ships call menu.

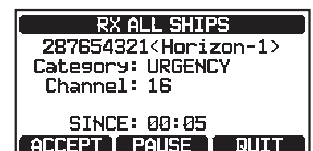


11.3.2 Receiving an All Ships Call

- When an all ships call is received, an emergency alarm will sound.
The display shows the MMSI of the vessel transmitting the all ships call and the radio will change to the requested channel after 30 seconds (the default setting of “AUTO CHANNEL CHANGE”).
- Press any key to stop the alarm.
- Monitor the requested channel until the all ships voice communication is completed.



On the display you will notice 3 soft key selections. These selections are described below:



[ACCEPT]: Press this key to accept the DSC all ships call and to switch to requested channel.

NOTE: If a key is not pressed for 30* seconds or longer the radio will automatically change to the requested channel *(the default setting of “AUTO CHANNEL CHANGE”).

[PAUSE]: Press this key to temporarily pause automatic switching to the requested channel.

NOTE: In some cases, automatically switching to the requested channel might disrupt important ongoing communications. Commercial users may suspend channel switching and remain on the working channel in use before the all ships call was received.

[QUIT]: Press this key to quit the automatic channel switching and revert to the last selected working channel.

4. Press the [QUIT] key to return to the channel display.



NOTE

When there is an unread all ships call, an “✉” icon will appear on the display. You may review the unread all ships call from the DSC log, refer to section “11.10.2 Reviewing a Logged DSC RX Distress Alert and acknowledgement”.

11.4 INDIVIDUAL CALL

This feature allows the **GX1850/GX1800** series to contact another vessel with a DSC VHF radio and automatically switch the receiving radio to the desired communications channel. This feature is similar to calling a vessel on CH16 and requesting to go to another channel (switching to the channel is private between the two vessels). Up to 100 individual contacts may be programmed.

11.4.1 Setting up the Individual / Position Call Directory

The transceiver has a DSC individual directory that allows storing vessels or persons names and the associated MMSI numbers you may wish to contact via individual calls, auto polling, position request, position report, and polling transmissions. To transmit an individual call, you must program this directory with information of the persons you wish to call, similar to a cellular phone contact list.

1. Press & hold [MENU/SET] → “DSC SETUP” → “INDIVIDUAL DIRECTORY”

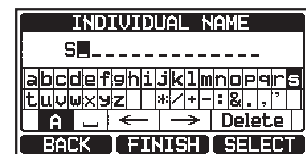
2. Press the [▲] or [▼] key to select “ADD”, then press the [SELECT] soft key.



3. Press the [▲] or [▼] key to select “NAME:”, then press the [SELECT] soft key.



4. Press the [▲]/[▼]/[◀]/[▶] keys to select the letters of the name of the vessel or person you want to reference in the directory.



5. Press the [SELECT] soft key to store the first letter in 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 fifteen characters, and if you do not use all fifteen characters, select “→” to move to the next space. The “→” can also be used to enter a blank space in the name.
If a mistake is made entering in the name, press the [▲]/[▼]/[◀]/[▶] keys to select “←” or “→”, press the [SELECT] soft key until the incorrect character is selected, then perform steps 4 and 5.
7. When finished entering the name (using fifteen characters or less), press the [FINISH] soft key to advance to the MMSI number entry.
8. Press the [▲] or [▼] key to select “MMSI:”, then press the [SELECT] soft key.
9. Press the [▲]/[▼]/[◀]/[▶] keys to select numbers, 0 - 9. To enter the desired number and move one space to the right by pressing the [SELECT] soft key. Repeat this procedure until all nine space of the MMSI number are entered. If a mistake is made entering in the MMSI number, press the [▲]/[▼]/[◀]/[▶] keys to select “←” or “→”, press the [SELECT] soft key until the incorrect character is selected, then perform step 9.
10. When finished entering the MMSI number, press the [FINISH] soft key.
11. To store the entered data, press the [▲] or [▼] key to select “SAVE”, then press the [ENTER] soft key.
12. To enter another individual address, repeat steps 2 through 11.
13. Press the [CLEAR] key to return to radio operation.



11.4.2 Setting up the Individual Call Reply

This menu item sets up the radio to manually (default setting) or automatically respond to a DSC individual call requesting you to switch to a working channel for voice communications. When “MANUAL” is selected the MMSI of the calling vessel is shown allowing you to see who is calling. This function is similar to caller ID on a cellular phone.

1. Press & hold [MENU/SET] → “DSC SETUP” → “INDIVIDUAL REPLY”

2. Press the [▲] or [▼] key to select “AUTO” or “MANUAL”.
3. Press the [ENTER] soft key to store the selected setting.
4. Press the [CLEAR] key to return to radio operation.

