

 **West Marine®**

VHF460

Floating Marine Radio with GPS and DSC
Radio maritime flottante avec GPS et ASN



Owner's Manual ***Guide d'utilisation***

Model / Modèle 14078554

MAKING A DISTRESS CALL

Lift the red cover. Press and hold the *DISTRESS* button for three seconds. Your radio transmits your boat's location every few minutes until you receive a response.



- ⓘ **NOTE:** If the radio displays *Enter User MMSI*, cancel the automatic distress call and make a normal voice distress call.

Making a Voice Distress Call

Speak slowly - clearly - calmly.

For future reference, write your boat's name & call sign here:

1. Make sure your radio is on.
2. Press the **16/9-TRI** button to switch to Channel 16 (156.8 MHz). (If the corner of the display does not show 16, press the **16/9-TRI** button again until it does.)
3. Press the **PUSH TO TALK** button and say: "**MAYDAY -- MAYDAY -- MAYDAY.**"
4. Say "**THIS IS** {name of your boat (three times) and call sign/boat registration number (once)."
5. Repeat "**MAYDAY** {name of your boat}" once.
6. Tell where you are: (what navigational aids or landmarks are near, or read the latitude and longitude from your GPS).
7. State the nature of your distress (e.g. are you sinking, medical emergency, man overboard, on fire, adrift, etc.).
8. State the type of assistance you need (medical, towing, pumps, etc.).
9. Give number of persons aboard and conditions of any injured persons.
10. Estimate present seaworthiness of your ship (e.g. how immediate is the danger due to flooding or fire or proximity to shore).
11. Briefly describe your ship, giving ship name (e.g. "Blue Duck is 32 foot cabin cruiser, white hull, blue deck house").
12. Say: "**I WILL BE LISTENING ON CHANNEL 16.**"
13. End message by saying "**THIS IS** {name or call sign of your boat}, **OVER.**"
14. Release the **PUSH TO TALK** button and listen.

If you do not get an answer after 30 seconds, repeat your call, beginning at step 3, above.

FAIRE UN APPEL DE DÉTRESSE

Soulevez le couvercle noir. Maintenez **Distress** enfoncé pendant trois secondes. Votre radio transmettra l'emplacement de votre bateau toutes les quelques minutes jusqu'à ce que vous receviez une réponse.



Soulevez le couvercle noir et appuyez sur le bouton rouge **Distress** en dessous.

- ⓘ **Remarque : Si la radio affiche *Enter User MMSI*, annulez l'appel de détresse automatique et effectuez un appel de détresse vocal normal.**

Faire un appel de détresse

Parlez lentement – clairement – calmement.

Pour toute référence ultérieure, écrivez ci-dessous le nom et l'indicatif d'appel de votre bateau:

1. Vérifiez si votre radio est en marche.
2. Appuyez sur la touche **16/9-TRI** afin de commuter au canal 16 (156,8 MHz). (Si le canal 16 n'apparaît pas à l'affichage, appuyez de nouveau sur la touche **16/9-TRI** jusqu'à ce qu'il soit affiché.)
3. Appuyez sur le bouton **Push-to-Talk** et dites: "**MAYDAY -- MAYDAY -- MAYDAY**".
4. Donnez l'identité de votre navire en disant : "**ICI** {nom de votre bateau (trois fois) ou indicatif d'appel et le numéro d'identification de votre bateau (une fois)}".
5. Dites "**MAYDAY** {nom ou indicatif d'appel de votre bateau} une fois".
6. Donnez votre position : (quels sont les points de repère ou aides à la navigation près de vous ou lisez les coordonnées de longitude et de latitude apparaissant sur votre dispositif GPS).
7. Révélez la nature de votre détresse (par exemple, nous sommes en train de couler, urgence médicale, un homme à la mer, un incendie, nous sommes à la dérive, etc.
8. Révélez la nature de l'aide désirée (médicale, remorquage, essence, etc.)
9. Donnez le nombre de personnes à bord et les conditions des blessés, s'il y en a.
10. Donnez la condition de navigabilité actuelle de votre navire, tel que le degré de l'urgence par rapport une inondation, et une incendie.
11. Donnez une brève description de votre navire en donnant le nom du bateau (par exemple, "Blue Duck est un yacht de croisière de 32 pieds, avec une coque blanche et un rouffle bleu.).
12. Dites : "**JE VAIS ÉCOUTER SUR LE CANAL 16**".
13. Terminez le message en disant "**ICI** {nom ou indicatif d'appel de votre bateau}, **À VOUS**".
14. Relâchez le bouton **Push-to-Talk** du microphone et écoutez.

Si vous n'obtenez pas de réponse après 30 secondes, répétez l'appel en commençant à l'étape 3 ci-dessus.

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INTRODUCTION

FEATURES

Your radio provides the following key features:

- **Submersible design.** Complies with floating JIS8/IPX8 water-resistant standards, which means the radio can be submerged in 1.5 meters of water for 1 hour without damage.

 **Notes:**

The radio will only meet this rating if fully assembled and all rubber seals and bungs are well maintained and correctly fitted. This means that the speaker microphone bung is inserted, and the battery pack (or case) and antenna are attached and securely fastened.

After your radio is submerged in water, the sound might be distorted. This is because there is still water remaining in and around the speaker and microphone. Just shake the radio to clear excess water, and the sound should return to normal.

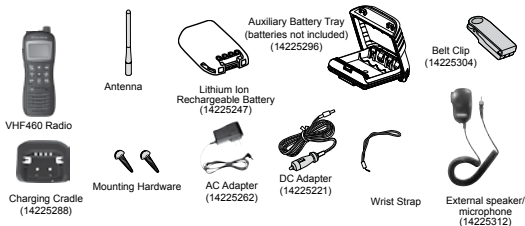
If your radio is exposed to salt water, clean it thoroughly with fresh water and dry it before turning it on.

The charger is not waterproof.

- **Memory Scan mode.** Lets you save channels to memory and monitor them in quick succession.
- **Transmitter power level select.** Lets you boost the transmitter power from 1W to 2.5 or 6W for added transmission distance.
- **Battery level display and low battery alert.**
- **Dual and Triple Watch operation.** These different watch modes let you monitor up to two Coast Guard Distress/Hailing channels and one weather channel along with one regular marine channel.
- All marine VHF channels for the U.S., Canada, and international waters
- **Emergency 16/09 Channel monitoring.** Set unit to scan one or both of these emergency channels regularly within normal scanning cycles.
- **Class D second receiver** is dedicated to monitoring the DSC watch channel 70 to ensure that no incoming messages are missed.
- **National Oceanic and Atmospheric Administration (NOAA) Weather Channel watch.** Sounds a warning tone when a hazard alert is issued.
- **SOS Strobe/Flashlight.** A high intensity strobe LED can be set to blink an SOS pattern or to be steady on.
- **Key Lock.** Locks keys to prevent accidentally changing channels or entering data.
- **Selectable Backlight Timer.** Lets you select the length of time the backlight will be on.
- **Reversible LCD.** You can change the display from light characters on dark background to dark characters on light background.
- **DSC.** Lets you call other stations or groups using their unique identification code. This radio complies with International Class D DSC standards for Handheld GPS/VHF marine transceivers.
- **GPS (Favorite Position mode).** Lets you to save your current position as well as manually enter other positions. You can save positions into a directory to return to them as desired.
- **NMEA input/output.** Lets you connect to a chartplotter and send current GPS position and incoming DSC position information (Distress calls, other boat's position, etc) to the chart plotter screen.
- **9 weather channels** available for monitoring.
- **Boost.** Allows you to instantly transmit at a full 6 Watts.
- **MOB (Man Overboard).** Lets you lock onto the current position when a Man Overboard situation occurs.

GETTING STARTED

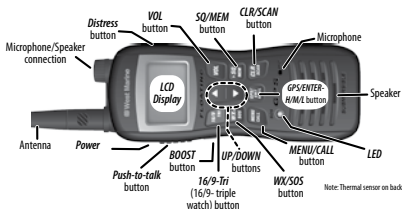
WHAT'S INCLUDED



If any pieces are missing or damaged, contact West Marine (see back cover for contact information).

PARTS OF THE VHF460

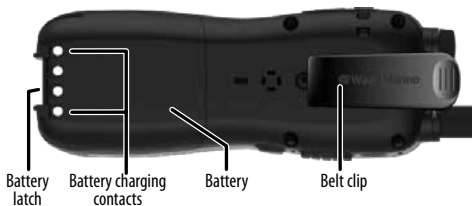
Front view



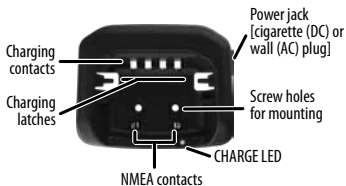
Button	Press to...	Press and hold to...
Push-to-Talk	N/A	Transmit on a current TX power.
Boost	N/A	Boost TX to 1.5W (NiMH rechargeable batteries) or 6W (TX power).
16/9-Tri	1st press: Go to CH 16. 2nd press: Go to CH 9. 3rd press: Go back to the starting channel.	Turn Triple or Dual Watch mode on and off.
▲ / ▼	Scroll up or down through one channel or data at a time when in Marine or Menu mode.	Quickly scroll up or down through channels or data when in Marine or Menu mode.
WX/SOS ◀	- Turn Weather mode on and off. - Return to last marine channel. - Move cursor to the left while in Menu mode.	Turn on the strobe SOS signal. Press and hold again to change to the flashlight. Press and hold again to turn off the LED.

Button	Press to...	Press and hold to...
MENU/CALL	<ul style="list-style-type: none"> - Access the Normal menu. - Return to the previous menu. 	Access DSC call menu.
GPS/ENT H/M/L	<ul style="list-style-type: none"> - Enter or exit GPS menu. - Select menu items. - Return to normal Marine mode when Marine channel list is displayed. 	Change the TX power between LO (1W), MID (2.5W), and HI (6W).
CLR/SCAN	Exit menu screens.	Enter or exit Scan mode.
SQ/MEM ▶	<ul style="list-style-type: none"> - Enter or exit the Squelch setting mode. - Move cursor to the right while in Menu mode. 	Store or delete the current channel into memory.
VOL	Enter or exit Volume Setting mode.	
Power		Turn VHF460 on and off.
Distress		Sends out emergency signal.

Back view

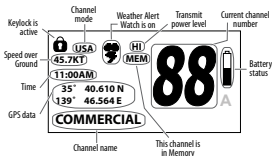


CHARGER






READING THE DISPLAY

The LCD display shows different information depending on what you are doing. Not all icons display on every screen. This dummy screen displays many of the possible icons. Not all icons are displayed at the same time. The table below shows possible icons and what they mean.



Display icons and what they mean

Icon	What it means
	The keys are locked.
	Weather Alert Watch is turned on.
	The battery is fully charged, mostly charged, half charged, mostly empty, or completely empty.
BRG	Bearing from boat's position to destination from Favorite's list.
COG	Current course (Course over Ground). COG displays when Favorite mode or Compass mode is active, or when a DSC distress call is received.
DIST	Distance from boat's position to destination.
LOW / MID / HI	The transmitter power is set to LOW (1W), MID (2.5W), or HI (6W).
USA / CAN / INT	Indicates Channel mode: US, CANadian, or INTernational channels.
MEM	The current channel is saved in memory.

HOW IT WORKS

MENUS

Various menus let you establish guidelines and parameters for sending and receiving calls. Menus also let you set your radio's characteristics such as brightness, Code selection, and contrast.

The **MENU/CALL** button accesses menus that let you set the way your radio operates. The **GPS/ENT/H/M/L** button lets you set up your GPS features and save GPS locations to a favorites list to use again later.

MENU/CALL MENU

You can set up the radio's physical displays and operation modes (*Normal* menu) and how you want to receive and send various types of calls (*Call* menu), The *Call* menu provides access to the *DSC Setup* submenu.

Normal Menu

Press **MENU/CALL** to display the following *Normal* menu options:

Menu Option	What it does
WX Alert	Enables the WX Alert function.
Dual/TriWatch	Sets the radio for Dual Watch or Triple Watch.
USA/CAN/INT	Selects which channels and frequencies your radio will communicate with (USA, Canadian, or International)
Lamp Adjust	Set the backlight Always Off, Timer, or Always On. Selecting Always On or Timer allows you to select Green or Orange backlight for the LCD and Keys.
Contrast/RVS.	You can adjust the brightness of the screen contrast higher or lower through 10 levels. Once you get to the bottom limit of the contrast, selecting it again reverses the contrasts.
Key Beep	Set unit to sound a beep tone with each key press (ON/OFF).
Key Lock	Locks the keypad so the selected channel is not accidentally changed.

Call Menu

Press and hold **MENU/CALL** to set the technical requirements for DSC function operations through the *Call* menus. The menu options are:

Menu Option	What it does
Individual	Sends an individual call to an individual station.
Group	Sends a call to a group.
All Ships	Sends <i>URGENCY</i> or <i>SAFETY</i> message to all ships.
POS Request	Requests the position of an individual vessel.
Position Send	Transmits your position to an individual vessel.
Test	Sends a test call.
Standby	Places the radio in an unattended mode.
Receive Log	Displays a list of all received calls to the radio. The VHF460 stores log data for 10 distress calls and 50 other calls.
DSC Setup	Allows the user to set up Digital Selective Calling (DSC) service.

DSC Setup Menu

This menu sets up DSC parameters.. The menu options are:

Menu Option	What it does
Directory	Displays a list of up to 20 vessel IDs. Provides a means of entering a new vessel ID.

Menu Option	What it does
Auto CH SW	Select ON or OFF to enable/disable Automatic Channel Switch. Auto CH SW lets you automatically change channels if an Urgent or Safety DSC call comes in.
POS Reply	Lets you elect to respond automatically or manually.
Test Reply	Lets you elect to respond to a test request automatically or manually.
Group MMSI	Allows you to program the 9-digit Group MMSI setting.
User MMSI	Allows you to program the 9-digit User MMSI setting.

GPS Menus

Press **GPS/ENT H/M/L** to configure the GPS module through the GPS menu. See page E-27 for details.

Menu Option	What it does
MOB (Man Overboard)	Instantly saves your current position to the top of the Favorites list.
Favorite	Allows you to select a GOTO location and add new GOTO coordinates and name them.
GPS Setup	Sets up how the GPS will operate.

GPS Setup Menu

This menu sets up GPS module parameters.. The menu options are:

Menu Option	What it does
Power save	Allows you to turn the GPS module on or off to conserve battery liife.
Time Adjust	Allows you to adjust to local time.
Daylight Save	Allows you to turn Daylight Davings Time on or off.
DIST Unit	Allows you to select distance unit of measure (NM - Nautical Miles; MI - Miles; Km - Kilometer).

OPERATION MODES

Your radio has three main operation modes: Normal, Scan, and Weather.

Mode	What it does	Use it when you want to...	To turn it on/off
Normal	Monitors a single marine channel and lets you talk on that channel.	Monitor a channel or talk to another radio.	(default mode)
Scan	Monitors all the channels you save into memory.	Check a small group of regularly-used channels for traffic.	Press and hold CLR/SCAN for 2 sec.
Weather	Monitors the selected NOAA weather channel.	Hear the current or forecasted weather.	Press WX/SOS

In addition to the three operation modes, your radio provides three different watch modes which you can activate during any operation mode. In the watch modes, the radio briefly checks for activity on a specific channel, then returns to its previous operation.

Watch mode	What it does	To turn it on/off
Weather Alert Watch	Checks the last-used weather channel for hazard alerts every few seconds.	Select <i>on or off</i> from the <i>Normal/WX Alert</i> menu.
Dual Watch	Checks emergency channel 16 for activity every few seconds.	Select dual watch from the <i>Normal/Dual/TriWatch</i> menu and press and hold 16/9-Tri for 2 seconds.
Triple Watch	Checks emergency channels 16 and 9 for activity every few seconds.	Select triple watch from the <i>Normal/Dual/TriWatch</i> menu and press and hold 16/9-Tri for 2 seconds.

✎ **Note: Private boats must monitor channel 16 whenever they are underway. Water-going vessels should have either Triple Watch or Dual Watch on at all times.**

Normal

- To transmit, remove the radio from the charger, then press and hold **Push to Talk**. Release the button when you are finished talking.
- For the best sound quality, hold the microphone about two inches from your mouth while you're talking.
- Press **Channel Up** to move up one channel at a time. Press and hold the button to scroll quickly up through the channels.
- Press **Channel Down** to move down one channel at a time. Press and hold the button to scroll quickly down through the channels.
- To change the transmit power, press and hold **GPS/ENT H/M/L**. The transmit power cycles through LOW (1W), MID (2.5W), and HI (6W), then back to LOW again. Press **BOOST** on the left side of the radio to boost the transmit power to 6W (Lithium Ion battery) or to 1.5W (NiMH batteries).

✎ **If you are using NiMH batteries, 6W is not available.**

Normal Mode with Weather Alert Watch

If you activate Weather Alert Watch while operating in Normal mode, the radio checks the most recently used weather channel every seven seconds. If it detects a weather or other hazard alert, it will switch to that weather channel. (If you are actively transmitting, the radio waits until you finish your transmission before checking the weather channel.)

Monitoring Channel 25

Every 7 seconds, the radio checks the last-used weather channel.

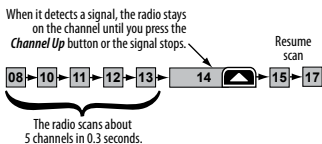
WX Alert Watch on

Normal Mode with Triple Watch or Dual Watch

If you activate Triple Watch while operating in Normal mode, the radio checks channels 16 and 9 every few seconds; with Dual Watch turned on, the radio only checks channel 16. The radio will not check channels 16 or 9 while you are actively transmitting; it waits until your transmission is finished and then checks the channels.

Scan

You can save any channel (except Weather channels) into memory and then use Scan mode to monitor those channels from lowest to highest. If the radio detects a signal on a channel, it stays on that channel as long as the signal is received; when the signal stops, the radio continues scanning.

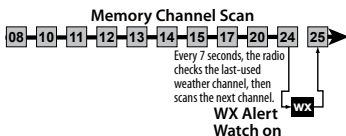


Using the Radio in Scan Mode

- To activate Scan mode, press and hold **CLR/SCAN**. The radio scans channels in memory.
- You must have at least two channels in memory to start a scan.
- You cannot transmit while in Scan mode.
- To save a channel into memory, select the channel, then press and hold the **SQ/MEM** button. The **MEM** icon displays whenever you tune to that channel.
- To remove a channel from memory, set the radio to that channel, then press and hold the **SQ/MEM** button. The **MEM** icon no longer displays.
- When the radio stays on a channel, press **Channel Up** to leave that channel and resume scanning.
- To end the scan, press and hold the **CLR/SCAN** button again; the radio remains on the last scanned channel. You can also press **WX/SOS** to change to Weather mode.

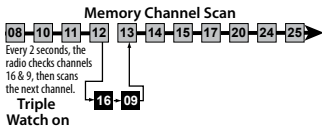
Scan Mode with Weather Alert Watch

When you activate Weather Alert Watch through the Normal menu while in Scan mode, the radio checks the most recently-used weather channel every seven seconds, then continues scanning the next channel in memory:



Scan Mode with Triple Watch or Dual Watch

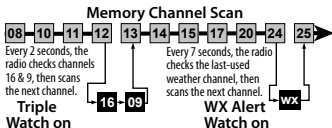
If you activate Triple Watch (press and hold **16/9 TRI**) while operating in Scan mode, the radio checks channels 16 and 9 every two seconds, then goes on to scan the next channel in memory. With Dual Watch turned on, the radio only checks channel 16:



Press and hold **16/9 TRI** again to cancel Triple Watch mode.

Both Weather Alert and Triple/Dual Watch in Scan mode

You can activate Weather Alert Watch and Triple/Dual Watch at the same time. Press and hold **16/9 TRI** to turn on Triple Watch; turn on WX Alert through the Normal menu. The radio performs both checks at their scheduled time:



Weather

The NOAA weather channels now cooperate with the FCC to alert you of other hazards besides weather (child abduction alerts, nuclear, biological, etc.). In Weather mode, the radio monitors one of the 9 NOAA weather channels. If a weather alert signal is received in Weather Alert mode, the radio sounds an alert tone and the display blinks.

Using the Radio in Weather Mode

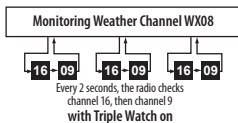
- You cannot transmit while in Weather mode.
- To enter Weather mode, press **WX/SOS**.
- To turn off the radio's alert tone, press any button.
- To cancel Weather mode and return to the previous marine channel, press **WX/SOS** again.

Weather Mode with Weather Alert Watch

If you activate Weather Alert Watch through the Normal menu while operating in Weather mode, it operates as a type of "sleep mode:" the radio stays on the weather channel and mutes the speaker. If an alert is detected, the radio sounds an alert tone and turns the speaker back on. This mode is very useful when you are anchoring for the night but want to keep informed of hazards.

Weather Mode with Triple Watch or Dual Watch

If you activate Triple Watch (press and hold **16/9 TRI**) while operating in Weather mode, the radio checks channels 16 and 9 every few seconds; with Dual Watch turned on, the radio only checks channel 16.



SETTING UP THE HARDWARE

ATTACHING THE ANTENNA

The antenna detaches from the radio for easy shipping or storage. To attach the antenna to your radio, screw it tightly onto the anchor post at the top of the radio.

INSTALLING THE BATTERY

Your radio comes with a rechargeable Lithium Ion battery; for shipping safety, the battery is not installed at the factory. An empty auxiliary battery tray is installed as a placeholder.

1. Insert the hook on the battery into the notch at the top of the battery compartment.
- ⓘ **Note:** Each time you remove the battery, check the rubber seal around the battery compartment. Make sure the seal is seated in the groove and there is no dirt or debris on it. If the seal looks worn or damaged, contact customer service to order a replacement (see back cover page for contact information).
2. Lower the battery until it rests flat in the compartment.
3. Bring the battery latch up and snap it into place.

USING RECHARGEABLE BATTERIES

The radio also comes with an auxiliary battery tray that holds four AAA-type NiMH rechargeable batteries (not included). You can use rechargeable batteries as a backup when the Li-Ion battery gets low and needs to be charged.

- ⓘ **NOTE:** When using rechargeable batteries, transmit power is limited to a maximum of 1.5W.

Follow these steps to use the accessory battery tray:

1. Hold the lower part of the tray in one hand with the three battery contacts facing down. Use your thumb to hold the notch on the lower part of the tray.
2. With your other hand, grip the upper part of the tray and lift the cover open.
3. Align the batteries' positive and negative terminals with the drawing on the case and snap each battery into place.
4. Insert the two hooks on the lower part of the tray into the notches on the cover; close the cover. (The cover fits snugly but you should not have to force it closed.)
5. Install the auxiliary battery tray in your radio just as you do the Li-Ion battery (see page E-11).

WARNING! The accessory battery tray is designed to prevent the accidental charging of non-rechargeable batteries. Never use rechargeable batteries in the radio without the accessory battery tray.

MOUNTING THE CHARGER

You can mount the charger on any flat surface.

1. Use the two holes at the base of the charger as a template to mark the drill holes.
 2. Using a 1/8-inch (or 3 mm) drill bit, drill two holes 1/2 inch (13mm) deep.
 3. Use the provided screws to attach the charger to the surface.
- ⓘ **The charger must be mounted at least 2 feet (24 inches) from the compass to prevent**

magnetic interference with either device.

CHARGING THE BATTERY

Your radio includes a charger and a rechargeable battery pack. Place your radio in the charger with the display facing forward. Make sure that the CHARGE LED on the charger turns orange. The battery is fully charged when the LED turns green.



Cautions:

- Use only the battery and charger supplied with this radio. Using a different charger or battery can damage the radio and create a risk of fire or shock.
- The charger is not waterproof. If the charger falls into the water, unplug it before attempting to remove it from the water. After you remove the charger from the water, please contact Customer Service (see the back cover page for contact information).
- Wipe off dirt or shake water from your radio before placing in the charger if your radio gets dirty or wet.

Important notes on charging the battery

- Charge the battery fully before using the radio.
- Don't use the charger when the ambient temperature is below 0° C (32° F) or above 45° C (113° F).
- If the radio is powered down, the battery can charge in about seven hours. (If the radio is powered on, the battery takes longer to charge.)

INSTALLING THE EXTERNAL SPEAKER/MIC

The VHF460 comes with an external speaker/mic. If you wish to use it, follow these procedures:

1. Unscrew the cap on the watertight jack, which is held by the rubber cap-keeper to prevent loss.
2. Insert the special gasketed plug and screw down the shell, which prevents water from entering the jack.
3. Hold the mic 2 inches from your mouth to transmit.

SETTING UP YOUR RADIO

TURNING IT ON

Press the **POWER** button for at least two seconds to turn the radio on. Press and hold it to turn the unit off.

ENTERING THE USER MMSI

When you power up your radio for the first time, it displays *MMSI Not Entered* and then displays a Marine mode screen. User MMSI numbers are unique and cannot be entered more than once. See page E-16 for general information about MMSI numbers and how to get your specific User MMSI number and enter it.

✎ **If you must change your user MMSI, contact West Marine (see back cover for contact**

information).

SETTING IT UP

Even though you can change your radio's settings at any time, you will probably want to establish initial settings when you have turned it on for the first time. You will adjust some of these settings on an as-needed basis, but some settings might only be set once and not need adjustment at all.

Acquiring GPS Location

The VHF460 automatically acquires your current GPS location when it is turned on. Turn on the radio and point the antenna towards the sky. It will triangulate your location and save it.

ⓘ **Do not let anything obstruct the antenna, such as a metal cabin ceiling.**

Changing the Volume

To change the speaker volume, press **VOL** to enter Volume Setting mode. The **VOL** adjustment bar displays on the LCD. Press **Channel Up** or **Channel Down** to increase or decrease the volume levels (0 - 15).

Setting the Squelch Level

The VHF460 recognizes signals as transmissions if they exceed a signal strength threshold. Adjusting the squelch sets this threshold level. Increasing squelch requires a signal to be stronger to be seen as a transmission. If you set the squelch too high, you will risk not receiving transmissions that are lower than that threshold. Reducing the squelch allows weaker signals to be accepted. However, if you lower the squelch too much, you will hear white noise all the time.

While listening to a channel, press **SQ/MEM** to enter Squelch Setting mode. The **SQ** adjustment bar displays on the LCD. Press **Channel Up** or **Channel Down** to increase or decrease the squelch levels (0 - 15).


ⓘ **Note: Setting the squelch level too high may prevent you from hearing weaker transmissions. If you are having difficulty hearing a transmission, try setting the squelch level lower.**

Setting the UIC Channel Mode (USA/CAN/INT)

You can select marine channels for the USA, Canada, or International waters.

1. Press **MENU/CALL**. The *Normal* menu displays.
2. Select **USA/CAN/INT** and press **GPS/ENT H/M/L**. The **USA/CAN/INT** screen displays.
3. Select the mode you want and press **GPS/ENT H/M/L**.

Setting Key Lock

You can lock the keypad through the *Normal* menu. The  icon displays when Keylock is on. Unlock it by pressing and holding **MENU/CALL** for 2 seconds.

Setting WX Alert Mode

From the *Normal* menu, select **WX Alert** mode to turn this mode ON for the radio to monitor weather channels and alert you to any broadcast weather alerts or notifications. Turn **WX Alert** OFF through the *Normal* menu as well.

Adjusting the Lamp

The backlight LCD function can be set to automatically dim after a set time.

1. Press **MENU/CALL** and select *Lamp Adjust*.
2. Lamp Adjust options are *Always Off*, *Timer*, or *Always On*.
3. If you select *Always On*, the next screen lets you choose between *Green* and *Orange*. If you select *Timer*, the options are:
 - 10 sec
 - 30 sec
 - 1 min
 - 3 min
 - 5 min

Adjust the LCD Contrast

This feature lets you adjust the LCD's contrast level. It also permits you to reverse the contrast completely. You can choose to have dark characters on a light background or light characters on a dark background.

1. Press **MENU/CALL** and select *Contrast/RVS*; press **Channel Up** or **Channel Down** to adjust the contrast.
2. Pressing **Channel Down** to turn the contrast all the way off will reverse the background/letters.

Turning the Key Beep On and Off

Key beep is the tone that sounds when you press a key or a button. Press **MENU/CALL** to bring up the *Normal* menu. Select *Key Beep*. Press **Channel Up** or **Channel Down** to turn the key beep on or off.

OPERATING THE RADIO

Making a Transmission

Select the channel you want to transmit on, then press and hold the **Push to Talk** button. Release the **Push to Talk** button when you're finished talking to let the other party respond.

- To prevent stuck microphone problems or situations where the **Push to Talk** button is pushed accidentally, the radio limits your talk time to 5 minutes in a single transmission.
- For the best sound quality, hold the microphone about two inches away from your mouth.
- See page E-23 for a list of receive-only channels.

Changing the transmission level

In most situations, 1W transmission power is all you need. If you find yourself far away from other stations and have trouble getting a response, you may need to increase the transmission power. If your radio is powered by a Li-Ion battery, you can press and hold the **BOOST** button to transmit at 6W; however, NiMH battery power boost is limited to 1.5W.

To increase the transmission power in increments:

1. Select the channel you want to transmit on.
2. Press and hold **GPS/ENT H/M/L** to switch to the next transmission power level (for

example, from 1W to 2.5W, from 2.5W to 6W, or from 6W back to 1W).

Current power level (W)	Press and hold <i>GPS/ENT</i> <i>H/M/L</i> to change to... (W)	Displays
1	2.5	MID
2.5	6	HI
6	1	LOW

3. The display shows the new transmission power as *HI*, *MID*, or *LOW*. The transmit power remains at the new setting until you change it again.

⚠ **Note: Don't forget to change the transmission setting back to 1W when you move close to other stations.**

Some channels (for example, channels 13 and 67) limit the transmission power to 1W. When you tune to a limited-power channel, the radio automatically switches to 1W. See page E-31 for a list of power-restricted channels.

Changing the Channel

Press the **Channel Up** and **Channel Down** buttons briefly to scroll through the channels one channel at a time. Press and hold the **Channel Up** or **Channel Down** buttons to quickly scroll through the channels.

Saving the Channel into Memory

Press and hold **SQ/MEM**. *MEM* displays on the screen to indicate that that channel is now stored in memory. Press and hold **SQ/MEM** again to remove the channel from memory.

Using the Strobe/Flashlight

You can use this radio in an emergency. If you press and hold **WX/SOS**, the radio turns on the high-intensity LED strobe on your radio. The LED flashes "S O S" in international Morse Code.

⚠ **NOTE: Your radio operates normally when the SOS strobe is activated. However, the SOS key is disabled during Key Lock and MENU operation.**

1. Press and hold **WX/SOS**. The LED lights in the SOS Morse Code pattern.
2. Press and hold **WX/SOS** again. The LED stays on.
3. Press and hold **WX/SOS** again. The LED goes off.

DIGITAL SELECTIVE CALLING FEATURES

WHAT IS DSC?

Digital Selective Calling (DSC) is a standard that allows you to call other stations using their unique identification code (the Maritime Mobile Service Identity or MMSI number), just like you would call a phone number. To call another station, just enter that station's MMSI number and choose the voice channel you want to talk on. The radio uses channel 70 to

transmit your MMSI number to the other station along with the voice channel you requested. If the other station accepts your call, both radios automatically switch to the requested voice channel so you can talk to the other station.

DSC provides a system for automated distress calls. At the touch of a button, the radio can transmit your MMSI number, the nature of your distress, and your current position based on data from your GPS receiver. The radio repeats the distress call every few minutes until it receives an acknowledgement.

The DSC standard dedicates a VHF channel—channel 70—to digital transmissions only. Since digital transmissions require less bandwidth voice transmissions, channel 70 avoids the problems of busy voice channels.

ADVANCED DSC FEATURES

Your radio supports the following DSC features:

Feature	Menu Item	Function
Individual Call	Individual	Contact another vessel from your directory.
Group Call	Group	Contact all vessels that share your group MMSI code.
All Ships Call	All Ships	Broadcast to all vessels within range (used for Safety or Urgency messages).
Position Request	POS Request	Request the current location of another vessel.
Position Send	Position Send	Transmit your current location to another vessel.
Test Call	Test	Make sure your radio is working and configured correctly.
Standby Mode	Standby	Automatically respond to all DSC calls with "Unavailable" status.
Receive Log	Receive Log	Displays last 10 distress calls and last 50 general calls the radio received.
DSC Setup	DSC Setup	Accesses DSC menus. <ul style="list-style-type: none">- Directory- Auto CH SW- POS Reply- Test Reply- Group MMSI- User MMSI

MMSI NUMBERS

In order to use DSC features, you must be assigned a User MMSI number and program that number into your radio. There are two kinds of MMSI numbers: individual numbers for use by single boats and group numbers for use by fleets, boating organizations, event coordinators, etc.

You can get more information on MMSI numbers at these resources:

- The dealer where you purchased the radio
- Recreational boaters can obtain an MMSI number from the Boat Owner's Association

of the U.S. (<http://www.boatus.com/mmsi/> or call 800-536-1536) or Sea Tow Services International (http://seatow.com/boating_safety/mmsi.asp)

- Commercial boaters need a ship station license to get an MMSI number. For more information, visit the Federal Communications Commission (FCC) website at <http://wireless.fcc.gov/marine/fctsht14.html>.

Entering MMSI numbers

Use the **Channel Up** and **Channel Down** keys to scroll through numbers (and letters when entering names). When you see the number/letter you want, press the right arrow (**SQ/MEM**) to move the cursor to the next space. Press the left arrow (**WX/SOS**) to back up.

When using the **Channel Up** and **Channel Down** keys to enter a name, the alphabetic and numeric characters display in the following order:

- Capital letters (A through Z)
- Lower-case letters (a through z)
- Punctuation (/ ' + -)
- Numbers (0 through 9)
- One blank space

Entering Your User MMSI Number

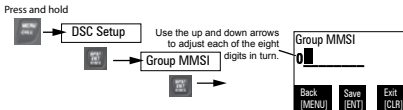
- ⓘ **NOTE: Be sure you have the correct User MMSI number before entering it in the radio. The radio only allows you to enter the User MMSI once. If you need to re-enter the User MMSI number, contact customer service (see back page for contact information).**

When you power up your radio for the first time, it displays *MMSI Not Entered* and then displays a Marine mode screen.

1. Press and hold **MENU/CALL**; the *Enter User MMSI* screen displays.
2. Press **GPS/ENT H/M/L**. The *User MMSI* screen displays.
3. Enter the MMSI number as described previously to scroll through the numbers. When the ninth digit is entered, the radio asks if you want to save the number and confirm it. Press **GPS/ENT H/M/L** to save it.
4. Before saving the number, the radio displays the message *Confirm number! User MMSI data is Permanent!* At this point you can edit the number (press **MENU/CALL**), save the number (press **GPS/ENT H/M/L**), or return to the Marine mode screen (press **CLR/SCAN**),

Entering a group MMSI number

You can change the group MMSI number as often as you want. The first digit of a group MMSI is fixed at "0." Follow the steps below to enter a group MMSI number into the radio:

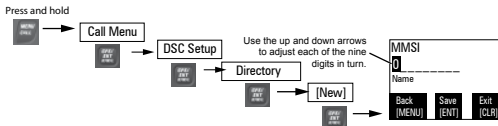


1. Press and hold **MENU/CALL** to display the *Call* Menu.
2. Select *DSC Setup/Group MMSI* and press **GPS/ENT H/M/L**. The *Group MMSI* screen displays.

- Group MMSI numbers always start with a 0, so that digit is already entered for you. Enter the MMSI number as described previously. When the ninth digit is correct, press **GPS/ENT H/M/L**. The radio asks you to confirm.
- To save this MMSI number, press **GPS/ENT H/M/L**. To cancel this MMSI number, press **CLR/SCAN**.

Entering an individual MMSI number

Follow the steps below to enter individual MMSIs and names of other vessels into the directory:

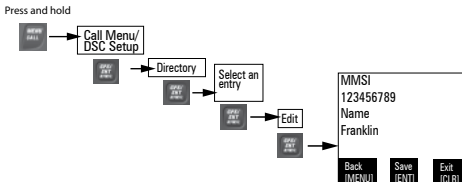


- Press and hold **MENU/CALL** to display the *Call Menu*.
- Scroll to *DSC Setup* and press **GPS/ENT H/M/L**. The *DSC Setup* menu displays.
- Scroll to *Directory* and press **GPS/ENT H/M/L**. The *Directory* menu displays.
- Select *[New]* and press **GPS/ENT H/M/L**.
- Enter the MMSI number as described previously. When the ninth digit is correct, press **GPS/ENT H/M/L** and the cursor moves to the *Name* field.
- Enter the name as described previously. When you have entered the name, press **GPS/ENT H/M/L**.
- The radio displays the new MMSI number and name and asks you to confirm. To save this MMSI number and name, press **GPS/ENT H/M/L**. To cancel this MMSI number, press **CLR/SCAN**.

USING THE DIRECTORY

The directory lets you store up to 20 MMSI numbers of other stations so you can call them quickly. From the directory, you can edit or delete MMSI numbers.

Follow these steps to edit the MMSI numbers in your directory:



- Press and hold **MENU/CALL** to display the *Call menu*.
- Scroll to *DSC Setup* and press **GPS/ENT H/M/L**. The *DSC Setup* menu displays.
- Scroll to *Directory* and press **GPS/ENT H/M/L**. The *Directory* screen displays. This

screen lets you add a new MMSI or edit/delete an existing MMSI.

4. To enter a new MMSI, select [NEW] and follow the procedures for entering an individual MMSI number.
5. To edit an existing MMSI number/name, select the entry and press **GPS/ENT H/M/L**.
6. Select *Edit* and press **GPS/ENT H/M/L**. The MMSI number and name display. Edit accordingly and press **GPS/ENT H/M/L** when complete. A confirmation screen displays.
7. Press **GPS/ENT H/M/L** to accept the edits or **CLR/SCAN** to cancel. The radio returns to the *DSC Directory Edit* screen.
8. To delete the directory entry, select *Delete*.
When you are satisfied with the directory list, press **CLR/SCAN** to close the menu screen.

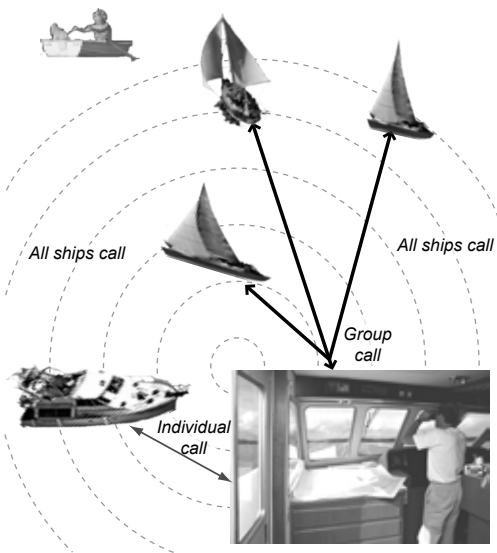
MAKING DSC CALLS

There are essentially four different types of DSC voice calls:

Call type	What it does	When to use it
Distress	Alerts all stations that you need assistance and sends them your current position.	In an emergency only.
Individual	Calls a single station using the User MMSI.	When you want to talk to another station.
Group	Calls all the stations that have the same Group MMSI as yours.	Any time you want to talk with the whole group you are traveling with at the same time.
All Ships	Calls all stations within range of your radio.	Safety warnings (e.g., debris in the water) or any urgent situation.

Suppose you are coordinating safety for a sailboat race. Before the race starts, you instruct all the racers to enter your group MMSI number into their radios. During the race:

- Throughout the race, you use group calling to update the racers on the time, race status, and any course corrections.
- A power boat full of spectators comes too close to the race path. You use individual calling to contact the power boat and advise them to stay clear of the race.
- You see a rowboat entering the area, but since it doesn't have a radio, you can't communicate with the rowboat. You use all ships calling to alert all the other boats in the area of the possible danger.



Calling a single station (Individual Call)

To call a single station with DSC, follow these steps:

1. Press and hold **MENU/CALL** to display the *Call* menu.
2. Select *Individual*.

The radio displays the names listed in your directory; use **Channel Up** and **Channel Down** to choose the directory entry you want to call and press **GPS/ENT H/M/L**.

If you want to call a station that is not in your directory, select *Manual*. The radio prompts you to enter the MMSI number you want to call. Enter the MMSI number the same way you enter directory entries (see page 22) Enter all nine digits and press **GPS/ENT H/M/L**.

3. The radio prompts you to select a response channel. Use **Channel Up** and **Channel Down** to scroll through the available channels. When you reach the channel you want to use for a response, press the **GPS/ENT H/M/L** button.
4. The radio displays the MMSI number you are about to call and asks you to confirm. If you want to call the displayed MMSI number, select *Send* (press **GPS/ENT H/M/L**). To cancel the call, select *Exit* (press **CLR/SCAN**).
5. The radio automatically switches to channel 70 to transmit the call request.
 - When the other station accepts the call, both radios switch to the selected

response channel for voice transmission.

- If the other station cannot respond on the channel you selected, the radio displays *Not support CH*.

Calling a particular group of stations (Group Call)

Group calling calls all the stations that share your group MMSI. You must have a group MMSI programmed into the radio to make a group call, and the stations (boats) you are calling must have this same group MMSI programmed into their radios.

1. Press and hold **MENU/CALL** to display the *Call* menu.
2. Select *Group*.
3. The radio prompts you to select a response channel. Use **Channel Up** and **Channel Down** to scroll through the available channels. When you reach the channel you want to use for a response, press **GPS/ENT H/M/L**.
4. The radio asks you to confirm the call. Select *Send* (press **GPS/ENT H/M/L**) to continue with the call or select *Exit* (press **CLR/SCAN**) to cancel the call.
5. The radio switches to channel 70 to transmit the call request then automatically switches to the designated response channel.

Calling all stations (All-Ships Call)

All ships calling contacts all DSC radios within range of your boat. You should only use all ships calling in the event of a Safety warning (such as debris in the water) or to request assistance in an Urgency (any situation where your vessel has a serious problem but is not yet in distress).

1. Open the *Call* menu.
2. Select *All Ships*, and then choose whether this is an Urgency call or a Safety call.
3. The radio asks you to confirm the call. Select *Send* (press **GPS/ENT H/M/L**) to continue with the call or select *Exit* (press **CLR/SCAN**) to cancel the call.
4. The radio automatically switches to channel 70 to transmit the call request then automatically switches to channel 16, the designated response channel for all-ships calling.

MAKING AN AUTOMATIC DISTRESS CALL

If you have programmed your MMSI number, your radio can transmit an automated distress call with your current location and nature of the distress. The radio then monitors channel 16 for a response and repeats the distress call every few minutes until it receives an acknowledgement.

To send an automatic distress call, press and hold DISTRESS for three seconds. If no MMSI number has been programmed, the radio prompts you to enter your MMSI number.

If you want to include the nature of your distress in the distress call, use the following distress procedure:

1. Press **DISTRESS**.
2. The radio displays the list of distress conditions; use **Channel Up** and **Channel Down** to choose the nature of your distress, then press and hold **DISTRESS** for three seconds.

Undesignated	Sinking	Fire	Overboard
Adrift	Flooding	Abandoning	Capsizing
Collision	Piracy, Armed	Grounding	

Canceling an automatic distress call

While the radio is waiting for a response, it gives you the option of canceling the call. To cancel the distress call, choose *Exit* and press **CLR/SCAN**.

RECEIVING A DSC CALL

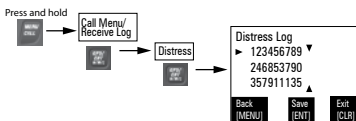
If your radio receives an individual DSC call from another station, it sounds an incoming call tone and displays the name/MMSI number of the station calling you. To respond to the call, select *Send: Able-Comply*; the radio sends an acknowledgement and automatically switches to the designated response channel. To reject the call, select *Send: Unable-Comply*; the radio advises the other station that you are unable to respond to the call.

If the DSC request contains a response channel that you are not allowed to use, the radio displays *Not Support CH*; your only response option is *Send: Unable-Comply*.

If the radio receives a group or all ships call, it sounds an incoming call tone and automatically switches to the designated response channel.

Receive log

Just like your telephone's caller ID list, your radio keeps track of the calls you receive. The receive log is useful if you have been off your boat or away from your radio and want to see who has tried to contact you. The radio displays the last 10 distress calls and the last 50 non-distress calls that it received. If you have unread incoming DSC calls, the radio displays a Message icon. When you display all Distress and Other receiving logs, the message icon disappears. Press and hold **MENU/CALL** to display the *Call* menu.



3. Select *Receive Log*.
4. Select *Distress* to see the last 10 distress calls received by the radio. Select *Other* to see the last 50 normal calls received by the radio, then choose from *Individual*, *All Ships*, *Test Acknowledge*, *Test*, *Position Reply*, *Position Send*, and *Group* calls.
5. Calls are listed in the order they were received, with the newest call shown first. The display blinks if there are new calls you have not reviewed. The Message icon also displays.
6. Select the call you want to see the details of. Use **Channel Up** and **Channel Down** to see all of the information. The log displays different information depending on type of call received. See the table below for the information stored for each type of call:

DSC Call Type	Receive Log Information
Distress	MMSI (or name), position, time, nature code.
Distress Acknowledge	MMSI (or name), distress MMSI, position, time, nature code.
All Ships	MMSI (or name), category code, communication channel number.
Group	MMSI (or name), category code, communication channel number.
Individual	MMSI (or name), category code, communication channel number.
Individual Acknowledge	MMSI (or name), Completed/Unattended, category code, communication channel number.
Test	MMSI (or name), category code.
Test Acknowledge	MMSI (or name), category code.
Pos Reply	MMSI (or name), position, time, category code.
Pos Request	MMSI (or name), category code.
Pos Send	MMSI (or name), position, time, category code.

- From the log menu, select *Exit* to close the receive log and return to the mode you were in.

Returning a call from the Receive Log

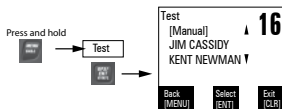
You can return individual calls directly from the Receive Log. From the call detail screen, press **Channel Down** until *Call Back* appears at the bottom of the display. Press **GPS/ENT H/M/L** to return that station's call.

TEST CALLS

Making Test Calls (Test)

- You can use the test call feature to make sure your radio is working and configured correctly. To avoid overloading coastal receiving stations, you should limit test calls to these stations to once a week.

NOTE: Many coastal stations have specific frequencies and MMSI numbers you should use for making test calls. Before making a test call to a coastal station, be sure to check the Local Notice to Mariners (LNM), issued every week by the US Coast Guard. The LNMs for each region are available online at <http://www.navcen.uscg.gov/?pageName=InmMain>.



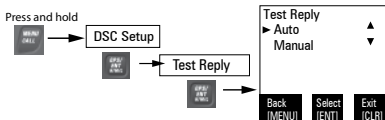
- Press and hold **MENU/CALL** to display the *Call* menu.
- Select *Test*.
- The radio displays the names listed in your directory; use **Channel Up** and **Channel**

Down to choose the directory entry you want to send a test call to and press **GPS/ENT H/M/L**.

- If you want to send a test call to a station that is not in your directory, select *Manual*. The radio prompts you to enter the MMSI number you want to call. Enter the MMSI number the same way you enter directory entries (see page 22). Enter all nine digits and press **GPS/ENT H/M/L**.
- The radio displays the MMSI number you are about to call and asks you to confirm. If you want to call the displayed number, select *Send*. To cancel the call, select *Exit*.
- The radio automatically switches to channel 70 to transmit the test call request, then switches back to the last-used channel.
- When the other station acknowledges the test call, the radio displays an acknowledgement screen.

Receiving Test Call Setup

When another station sends you a test call, you can select options to answer the test call manually or have the radio answer automatically.



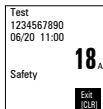
Press and hold **MENU/CALL** to display the *Call* menu.

- Select *DSC Setup* and then *Test Reply*.
- Choose *Auto* and press **GPS/ENT H/M/L**. The radio will automatically send an acknowledgement when it receives a test call.
- To disable automatic test call reply, repeat the steps above and select *Manual*.

Acknowledging Test Call Receipt

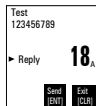
Different screens display depending on whether you set the *Test Reply* to *Auto* or *Manual*.

If *Test Reply* is set to *Auto*:



No action is necessary.

If *Test Reply* is set to *Manual*:



Select *Send* to send a reply.

POSITION REQUEST AND REPLY

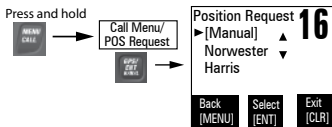
Enabling Automatic Position Reply

If you want the radio to automatically transmit your current position whenever it receives a position request, you can enable automatic position reply. Most boaters activate automatic position reply for safety reasons or because they subscribe to a marine towing service. Sometimes—for example, in some competitive situations—you may not want other stations to get your position without your manual confirmation

1. Press and hold **MENU/CALL** to display the *Call* menu.
2. Select *DSC Setup* and then *Position Reply*.
3. Choose *Auto* and press **GPS/ENT H/M/L**. The radio will automatically transmit your position when it receives a position request.
4. To disable automatic position reply, repeat the steps above and select *Manual*.

POS Request

Any time you need to know where another boat currently is—to find your boating partners, to respond to a request for assistance, etc.—you can send a position request to their radio:

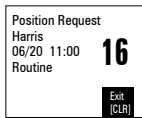


1. Press and hold **MENU/CALL** to display the *Call* menu.
2. Select *POS Request* and press **GPS/ENT H/M/L**.
3. The radio displays the names listed in your directory; use **Channel Up** and **Channel Down** to choose the directory entry you want to contact and press **GPS/ENT H/M/L**. If you want to contact a station that is not in your directory, select *Manual*. The radio prompts you to enter the MMSI number you want to call. Enter the MMSI number the same way you enter directory entries (see page 22). Enter all nine digits and press **GPS/ENT H/M/L**.
4. The radio displays the MMSI number you are about to contact and asks you to confirm. If you want to request the position of the displayed MMSI number, select *Send*. To cancel the request, select *Exit*.
5. When the other station responds, the radio displays the MMSI number, the longitude, and the latitude of the other station. If your radio is connected to a chartplotter through the NMEA OUT connection (see page 34), the position information will also be displayed on the plotter screen.
6. If the other station does not have valid GPS data, the radio displays *No Position*.

Position Reply

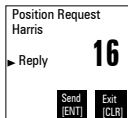
When another station requests your current position, different screens display depending on whether you set *Position Reply* to *Auto* or *Manual*.

If *Position Reply* is set to *Auto*:



No action is necessary.

If *Position Reply* is set to *Manual*:



Select *Send* to send a reply or *Exit* to reject the request.

Position Send

If you are requesting assistance or using an all ships call to give a safety warning, you can send your current position so other stations know where you are:

1. Press and hold **MENU/CALL** to display the *Call* menu.
2. Select *Position Send*.
3. The radio displays the names listed in your directory; use **Channel Up** and **Channel Down** to choose the directory entry you want to contact and press **GPS/ENT H/M/L**. If you want to contact a station that is not in your directory, select *Manual*. The radio prompts you to enter the MMSI number you want to call. Enter the MMSI number the same way you enter directory entries (see page 22). Enter all nine digits and press **GPS/ENT H/M/L**.
4. The radio displays the MMSI number you are about to contact and asks you to confirm. If you want to transmit your position to the displayed MMSI number, select *Send*. To cancel the transmission, select *Exit*.
5. The radio transmits your MMSI number, your longitude, and your latitude to the other station.

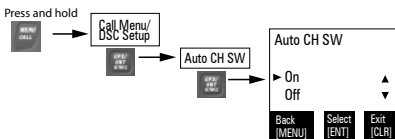
PUTTING THE RADIO INTO STANDBY

If you are leaving your radio or do not wish to answer any DSC calls, you can put your radio in standby mode. If your radio receives an individual call, it will automatically respond with a message that indicates your radio is currently unattended. Follow the steps below to put your radio in standby:

1. Press and hold **MENU/CALL** to display the *Call* menu.
2. Select *Standby* to place your radio in standby mode.
3. To cancel standby and return to the mode your radio was in, press any button.

DISABLING AUTOMATIC CHANNEL SWITCHING

If you are involved in a bridge-to-bridge call, you may not want the radio to automatically switch channels when it receives a DSC call. In cases like this, you can disable automatic channel switching. If you receive an individual call, the radio will respond with an unattended code, just as if the radio were in Standby.



1. Press and hold **MENU/CALL** to display the *Call* menu.
2. Select *DSC Setup*, then *Auto CH SW*.
3. Select *Off* and press **GPS/ENT H/M/L**. The radio will not automatically switch channels until you reactivate this feature.

ⓘ **NOTE: Use this feature with caution. Deactivating automatic switching and then forgetting it can make it hard for you to receive DSC calls.**

If you have unread incoming DSC calls, the radio displays a message icon. You will be able to review who has called. The radio displays the last 10 distress calls and the last 50 non-distress calls it received (see page E-22).

GPS FEATURES

GPS OPERATION OVERVIEW

Your GPS system provides more than just your specific location. The *MOB* (Man Overboard) menu lets you immediately save your current position so rescuers can converge on the exact man overboard location. The *Favorites* menus let you create a directory of favorite places and their coordinates so you can easily return there. Using the *GPS Setup* menus, you can determine power-saving options, measurement increments, and time settings.

The radio is factory-preset to search for your geographic location when it is turned on for the first time.

MOB MENU

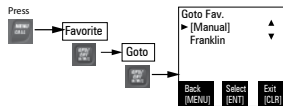
The *MOB* menu lets you quickly save your current selection so you can easily navigate back to it. It will be saved in the first position of the *Favorites* list.

FAVORITE MENU

The *Favorite* menu is comprised of the *Goto* menu and the *Add* menu. The *Goto* menu adds (saves) the current GPS position as well as recalls that position and others you have saved to sail back to it.

Goto Menu

The *Goto* menu allows you to select from a list of saved coordinates or to input coordinates manually.



To input coordinates

1. From the *Goto Fav.* screen, select *[Manual]*.
2. Manually input coordinates. When the last digit is entered, the screen displays *Go* and *Save*.
3. Select *Go* to display the coordinates, compass bearing and distance to the destination.
4. Select *Save* to save the location into a Favorites directory. When you select *Save*, the screen prompts you to name these coordinates.
5. When you have entered a name for the saved coordinates, they will appear on the *Goto* screen as a selection.

To select a Goto entry

1. From the *Goto Fav.* screen, select from the directory entries listed.
2. The screen displays three options: *Go*, *Delete*, and *Edit*.
3. Select *Go* to display the coordinates, compass bearing and distance to the destination.
Select *Delete* to delete the entry.
Select *Edit* to change the entry.

NMEA FEATURES

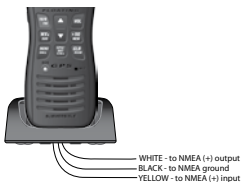
Your radio supports NMEA0183, a standard for data communication between marine instruments. If you are connected to a chartplotter and the radio receives another boat's position data (sentences) in a DSC call, the radio sends the position data to the chartplotter so you can see the location.

NMEA sentences contain different sets of data. The VHF460 supports the following sentences:

DATA	RMC	GLL	GNS	GGA	ZDA
UTC Time	0	0	0	0	0
Status (Valid/Invalid)	0	0	0	0	X
Latitude/Longitude	0	0	0	0	X
Speed	0	X	X	X	X
Course	0	X	X	X	X
Date	0	X	X	X	0

The radio outputs DSC and DSE NMEA sentences:

To connect to a chartplotter:



1. Connect the WHITE wire to the NMEA positive (+) output.
2. Connect the BLACK wire to the NMEA ground.
3. Connect the YELLOW wire to the NMEA positive (+) input.

✎ **NOTE:** Use waterproof tape to seal electrical connections.

ADDITIONAL FEATURES

RENAMING CHANNELS

If you discover that a marine radio channel has a different common name in your local area, you can change the name of that channel to make it easier for you to use (see the channel lists beginning on page E-31 for the default channel names). To rename a channel, follow the steps below:

1. Press **MENU/CALL** and select *Channel Name* from the *Normal* menu. The screen displays the list of channels.
2. Use **Channel Up** and **Channel Down** to choose the channel you want to change and press **DSP/ENT H/M/L**.
3. Select *Rename* to enter a new name for this channel. The radio prompts you to enter a new name for this channel. Each name can be up to 12 characters. Use **Channel Up** and **Channel Down** to change the name.
4. When you finish entering the name, the radio displays the new channel name and asks you to confirm. To save this new channel name, select *Save*; to cancel the change, select *Exit*. The radio returns to the channel list.
5. To restore a channel back to its original name, select the channel and choose *Default*.
6. When you are satisfied with the channel list, select *Exit*.

MAINTENANCE AND TROUBLESHOOTING

Due to its rugged design, your radio requires very little maintenance. However, it is a precision electronic instrument, so you should follow a few precautions:

- If the antenna has been damaged, do not transmit except in an emergency situation. Doing so may cause further radio damage.
- You are responsible for continued FCC technical compliance of your radio.
- Arrange for periodic performance checks with your West Marine dealer.

COMMON QUESTIONS

Problem	Things to Try
The radio won't turn on.	Charge the radio.
The power LED on the charger doesn't turn on.	<ul style="list-style-type: none">- Don't use the charger when the ambient temperature is below 0° C (32° F) or above 45° C (113° F).- Make sure the charging contacts on the radio and charger are clean.- Replace the battery.
The radio won't transmit.	<ul style="list-style-type: none">- Make sure you are not in Weather or Scan mode.- Make sure you are not trying to transmit on a receive-only channel or transmit at the wrong power level for this channel (see the channel lists starting on page E-31).- Check the battery power level; if it's low, charge the battery before trying to transmit.- Make sure the duration of each transmission is less than 5 minutes.
I can't hear anything from the speaker.	Adjust the squelch level; it is probably too high.
Noise comes out of the speaker all the time	Adjust the squelch level; it is probably too low.
I can transmit, but no one can hear me.	Check your UIC channel settings: does the area you are in use different channel assignments?
I'm not getting hazard alerts.	Make sure Weather Alert Watch is turned on.
The display flashes, and I don't know why.	The channel number on the display will flash if the radio is in a Watch mode or in Scan mode. Try turning off scanning, Weather Alert Watch, Triple Watch, or Dual Watch beginning on page E-9.
Where can I find my radio's serial number?	The serial number is on a plate inside the battery compartment.

SPECIFICATIONS

General	
Channels	All US/International/Canada marine channels
	9 Weather channels
Freq. Control	PLL
Freq. Tol.	Transmit: 1.5 PPM (at 77°F/25°C)
	Receive: 1.5 PPM (at 77°F/25°C)
Oper. Temp.	-4°F (-20°C) to +122°F(+50°C)
Antenna	Flexible Whip
Microphone	Built-in Electret type
Display	Liquid Crystal Display

Speaker	8Ω 1.0 W
Power Source	Rechargeable Lithium Ion Battery 7.4V 1160 mAh
Size (without antenna)	6.29 (H) x 2.40 (W) x 1.61 (D) inch 160 (H) x 61 (W) x 41 (D) mm
Weight	10.9 oz (309g) (w/battery and antenna)
Transmitter	
Frequency Range	156~158 MHz
Frequency Stability	±2.5 PPM max
Power Output	1W, 2.5W, and 6W
Spurious Emissions	-30 dBm @ HI; -30 dBm @ LO (nominal)
Current Drain	1.5 A (6W)
Receiver	
Type	Double Conversion Super Heterodyne Phase Locked Loop system for Local Oscillator
Frequency Range	156~164 MHz
Sensitivity	0.24 μV for 12dB SINAD
Squelch Sensitivity	Threshold 0.2μV
Audio Frequency Response	+5.5 dB @ 500 Hz; -6 dB @ 2000Hz
Adjacent Channel Selectivity	73 dB @ ±25 kHz
Audio Output Power	1.0 W @MAX VOLUME
Current Drain	Squelched: 36mA; Max. Audio: 250mA

CHANNELS AND FREQUENCIES (MHZ)

US channel frequencies and names

US Marine Channels				
Ch	RX Freq	TX Freq	Status	Name
1A	156.050	156.050	Simplex	Vessel traffic system/commercial
5A	156.250	156.250	Simplex	Vessel traffic system/commercial
6	156.300	156.300	Simplex	Inter-ship safety
7A	156.350	156.350	Simplex	Commercial
8	156.400	156.400	Simplex	Commercial
9	156.450	156.450	Simplex	Non commercial
10	156.500	156.500	Simplex	Commercial
11	156.550	156.550	Simplex	Vessel traffic system
12	156.600	156.600	Simplex	Vessel traffic system
13	156.650	156.650	Simplex, 1W	Bridge to bridge
14	156.700	156.700	Simplex	Vessel traffic system

US Marine Channels				
Ch	RX Freq	TX Freq	Status	Name
15	156.750	Inhibit	Receive only	Environmental
16	156.800	156.800	Simplex	Distress, safety, and calling
17	156.850	156.850	Simplex, 1W	Govt maritime control
18A	156.900	156.900	Simplex	Commercial
19A	156.950	156.950	Simplex	Commercial
20	161.600	157.000	Duplex	Port operation
20A	157.000	157.000	Simplex	Port operation
21A	157.050	157.050	Simplex	Coast guard only
22A	157.100	157.100	Simplex	Coast guard
23A	157.150	157.150	Simplex	Coast guard only
24	161.800	157.200	Duplex	Marine operator
25	161.850	157.250	Duplex	Marine operator
26	161.900	157.300	Duplex	Marine operator
27	161.950	157.350	Duplex	Marine operator
28	162.000	157.400	Duplex	Marine operator
63A	156.175	156.175	Simplex	Vessel traffic system
65A	156.275	156.275	Simplex	Port operation
66A	156.325	156.325	Simplex	Port operation
67	156.375	156.375	Simplex, 1W	Bridge To Bridge
68	156.425	156.425	Simplex	Non Commercial
69	156.475	156.475	Simplex	Non Commercial
70	(156.5250)	(156.5250)	DSC Only	DSC
71	156.575	156.575	Simplex	Non Commercial
72	156.625	156.625	Simplex	Non Commercial (Ship-Ship)
73	156.675	156.675	Simplex	Port Operation
74	156.725	156.725	Simplex	Port Operation
75	156.775	156.775	Simplex, 1W	Port Operation
76	156.825	156.825	Simplex, 1W	Port Operation
77	156.875	156.875	Simplex, 1W	Port Operation (Ship-Ship)
78A	156.925	156.925	Simplex	Non Commercial
79A	156.975	156.975	Simplex	Commercial
80A	157.025	157.025	Simplex	Commercial
81A	157.075	157.075	Simplex	Government
82A	157.125	157.125	Simplex	Government
83A	157.175	157.175	Simplex	Coast Guard
84	161.825	157.225	Duplex	Marine Operator
85	161.875	157.275	Duplex	Marine Operator
86	161.925	157.325	Duplex	Marine Operator
87	157.375	157.375	Simplex	Marine Operator

US Marine Channels				
Ch	RX Freq	TX Freq	Status	Name
88	157.425	157.425	Simplex	Commercial (Ship-Ship)

Canadian channel frequencies and names

Canadian Marine Channels				
Ch	RX Freq	TX Freq	Status	Name
1	160.650	156.050	Duplex	Marine Operator
2	160.700	156.100	Duplex	Marine Operator
3	160.750	156.150	Duplex	Marine Operator
4A	156.200	156.200	Simplex	Canadian Coast Guard
5A	156.250	156.250	Simplex	Vessel Traffic System
6	156.300	156.300	Simplex	Inter-Ship Safety
7A	156.350	156.350	Simplex	Commercial
8	156.400	156.400	Simplex	Commercial
9	156.450	156.450	Simplex	Boater Calling Channel
10	156.500	156.500	Simplex	Commercial
11	156.550	156.550	Simplex	Vessel Traffic System
12	156.600	156.600	Simplex	Vessel Traffic System
13	156.650	156.650	Simplex, 1W	Bridge To Bridge
14	156.700	156.700	Simplex	Vessel Traffic System
15	156.750	156.750	Simplex, 1W	Environmental
16	156.800	156.800	Simplex	Distress, safety, calling
17	156.850	156.850	Simplex, 1W	State Control
18A	156.900	156.900	Simplex	Commercial
19A	156.950	156.950	Simplex	Canadian Coast Guard
20	161.600	157.000	Duplex, 1W	Port Operation
21A	157.050	157.050	Simplex	Canadian Coast Guard
22A	157.100	157.100	Simplex	Canadian Coast Guard
23	161.750	157.150	Duplex	Marine Operator
24	161.800	157.200	Duplex	Marine Operator
25	161.850	157.250	Duplex	Marine Operator
26	161.900	157.300	Duplex	Marine Operator
27	161.950	157.350	Duplex	Marine Operator
28	162.000	157.400	Duplex	Marine Operator
60	160.625	156.025	Duplex	Marine Operator
61A	156.075	156.075	Simplex	Canadian Coast Guard
62A	156.125	156.125	Simplex	Canadian Coast Guard
63A	156.175	156.175	Simplex	Port Operation
64	160.825	156.225	Duplex	Marine Operator
64A	156.225	156.225	Simplex	Port Operation

Canadian Marine Channels				
Ch	RX Freq	TX Freq	Status	Name
65A	156.275	156.275	Simplex	Port Operation
66A	156.325	156.325	Simplex, 1W	Port Operation
67	156.375	156.375	Simplex	Bridge To Bridge
68	156.425	156.425	Simplex	Non Commercial
69	156.475	156.475	Simplex	Non Commercial
70	(156.5250)	(156.5250)	DSC Only	DSC
71	156.575	156.575	Simplex	Non Commercial
72	156.625	156.625	Simplex	Non Commercial
73	156.675	156.675	Simplex	Port Operation
74	156.725	156.725	Simplex	Port Operation
75	156.775	156.775	Simplex, 1W	Port Operation
76	156.825	156.825	Simplex, 1W	Port Operation
77	156.875	156.875	Simplex, 1W	Port Operation
78A	156.925	156.925	Simplex	Inter Ship
79A	156.975	156.975	Simplex	Inter Ship
80A	157.025	157.025	Simplex	Inter Ship
81A	157.075	157.075	Simplex	Canadian Coast Guard
82A	157.125	157.125	Simplex	Canadian Coast Guard
83	161.775	157.175	Duplex	Canadian Coast Guard
83A	157.175	157.175	Simplex	Canadian Coast Guard
84	161.825	157.225	Duplex	Marine Operator
85	161.875	157.275	Duplex	Marine Operator
86	161.925	157.325	Duplex	Marine Operator
87	157.375	157.375	Simplex	Port Operation
88	157.425	157.425	Simplex	Port Operation

International channel frequencies and names

Ch	RX Freq	TX Freq	Status	Name on display
1	160.6500	156.0500	Duplex	Marine operator
2	160.7000	156.1000	Duplex	Marine operator
3	160.7500	156.1500	Duplex	Marine operator
4	160.8000	156.2000	Duplex	Marine operator
5	160.8500	156.2500	Duplex	Marine operator
6	156.3000	156.3000	Simplex	Inter-ship safety
7	160.9500	156.3500	Duplex	Marine operator
8	156.4000	156.4000	Simplex	Commercial (ship-ship)

Ch	RX Freq	TX Freq	Status	Name on display
9	156.4500	156.4500	Simplex	Boater calling channel
10	156.5000	156.5000	Simplex	Commercial
11	156.5500	156.5500	Simplex	Vessel traffic system
12	156.6000	156.6000	Simplex	Vessel traffic system
13	156.6500	156.6500	Simplex	Bridge to bridge
14	156.7000	156.7000	Simplex	Vessel traffic system
15	156.7500	156.7500	Simplex, 1W	Environmental
16	156.8000	156.8000	Simplex	Distress, Safety, Calling
17	156.8500	156.8500	Simplex, 1W	Govt maritime control
18	161.5000	156.9000	Duplex	Port operation
19	161.5500	156.9500	Duplex	Commercial
20	161.6000	157.0000	Duplex	Port operation
21	161.6500	157.0500	Duplex	Port operation
22	161.7000	157.1000	Duplex	Port operation
23	161.7500	157.1500	Duplex	Marine operator
24	161.8000	157.2000	Duplex	Marine operator
25	161.8500	157.2500	Duplex	Marine operator
26	161.9000	157.3000	Duplex	Marine operator
27	161.9500	157.3500	Duplex	Marine operator
28	162.0000	157.4000	Duplex	Marine operator
60	160.6250	156.0250	Duplex	Marine operator
61	160.6750	156.0750	Duplex	Marine operator
62	160.7250	156.1250	Duplex	Marine operator
63	160.7750	156.1750	Duplex	Marine operator
64	160.8250	156.2250	Duplex	Marine operator
65	160.8750	156.2750	Duplex	Marine operator
66	160.9250	156.3250	Duplex	Marine operator
67	156.3750	156.3750	Simplex	Bridge to bridge
68	156.4250	156.4250	Simplex	Non commercial
69	156.4750	156.4750	Simplex	Non commercial
70	(156.5250)	(156.5250)	DSC Only	DSC
71	156.5750	156.5750	Simplex	Non commercial

Ch	RX Freq	TX Freq	Status	Name on display
72	156.6250	156.6250	Simplex	Non commercial
73	156.6750	156.6750	Simplex	Port operation
74	156.7250	156.7250	Simplex	Port operation
75	156.7750	156.7750	Simplex, 1W	Port operation
76	156.8250	156.8250	Simplex,	Port operation
77	156.8750	156.8750	Simplex	Port operation (ship-ship)
78	161.5250	156.9250	Duplex	Port operation
79	161.5750	156.9750	Duplex	Port operation
80	161.6250	157.0250	Duplex	Port operation
81	161.6750	157.0750	Duplex	Port operation
82	161.7250	157.1250	Duplex	Port operation
83	161.7750	157.1750	Duplex	Port operation
84	161.8250	157.2250	Duplex	Marine operator
85	161.8750	157.2750	Duplex	Marine operator
86	161.9250	157.3250	Duplex	Marine operator
87*	157.3750	157.3750	Simplex	Marine operator
88*	157.4250	157.4250	Simplex	Marine operator

Weather channel frequencies and names

Channel	RX	Channel	RX
WX01	162.5500	WX06	162.5000
WX02	162.4000	WX07	162.5250
WX03	162.4750	WX08	161.6500
WX04	162.4250	WX09	161.7750
WX05	162.4500		

REGULATIONS AND SAFETY WARNINGS

WARNING! Read this information before using the radio.

MARITIME RADIO SERVICES OPERATION

Warning! This transmitter will operate on channels/frequencies that have restricted use in the United States. The channel assignments include frequencies assigned for exclusive use of the U.S. Coast Guard, use in Canada, and use in international waters. Operation on these frequencies without proper authorization is strictly forbidden. See page E-31 for tables of the available channels and their uses. If you are still not certain which channels to use, see the FCC maritime radio page at the

FCC website (http://wireless.fcc.gov/services/index.htm?job=service_home&id=maritime) or contact the FCC Call Center at 1-888-CALL-FCC. For individuals requiring a license, such as commercial users, you should obtain a license application from your nearest FCC field office (for US users) or Industry Canada (for Canadian users).

BASIC RADIO GUIDELINES

You should familiarize yourself with the rules on marine radios and be aware of which rules apply to your boat. Complete guidelines for all ship and marine radio types can be found at the US Coast Guard website under the topic Radio Info for Boaters (the direct link is <http://www.navcen.uscg.gov/?pageName=mtBoater>). Here are a few guidelines that affect nearly all boaters.

- If you have a VHF radio on your boat, you must maintain a watch on channel 16 (156.800 MHz) whenever the radio is not being used to communicate. Starting in 2004, if a radio is carried, it must be on and set to channel 16. Whenever your boat is underway.
- If you hear a distress call, wait a few minutes to let a shore station or Coast Guard vessel respond. If no other station has responded after 5 minutes, you must respond to the distress call.
- Do not make false mayday or distress calls as a prank or to test your radio. (This is essentially like making a false 9-1-1 call; you may be subject to fines.)

FCC/Industry Canada Information

Certification: FCC Part 80 or RSS-182

Output Power: 6W

Emission: 16K0F3E

Transmitter Frequency Range: 156.025-157.425 MHz

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

Unauthorized changes or modifications to this equipment may void compliance with the FCC Rules. Any change or modification must be approved in writing by West Marine. Changes or modifications not approved by West Marine could void the user's authority to operate the equipment.

FCC RF Exposure Information

In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of the radio complies with the FCC guidelines and these international standards.

Never allow children to operate the radio without adult supervision and the knowledge of the following guidelines.

WARNING! It is up to the user to properly operate this radio transmitter to insure safe operation. Please adhere to the following:

Use only the supplied or an approved antenna. Unauthorized antennas, modifications, or attachments could impair call quality, damage the radio, or violate FCC regulations.

Do not use the radio with a damaged antenna. If a damaged antenna comes into contact with the skin, a minor burn may result. Please contact your local dealer for a replacement antenna.

Body-Worn Operation

This device was tested for typical body-worn operations using the supplied belt-clip. To maintain compliance with FCC RF exposure requirements, body-worn operations are restricted to the supplied belt-clip. For hand-held operation, the radio should be held 1 inch from the user's face. The

use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements and should be avoided. For more information about RF exposure, please visit the FCC website at www.fcc.gov.

Lithium Ion Battery Warning

This equipment contains a rechargeable Lithium Ion battery. The rechargeable Lithium Ion battery contained in this equipment may explode if disposed of in a fire.

Do not short-circuit the battery.

Do not charge the rechargeable battery used in this equipment in any charger other than the one specified in the owner's manual. Using another charger may damage the battery or cause the battery to explode.

NOTE: Li-Ion batteries must be recycled or disposed of properly.

Avoid exposing the battery (whether attached to the radio or not) to direct sunlight, heated cars, or temperatures below -4°F (-20°C) or above +140°F (+60°C). Exposing the chemical contained within the battery pack to temperatures above +140°F (+60°C) may cause the battery to rupture, fail, or reduce performance.

In case of exposure to the cell contents, wash the affected area thoroughly, and seek medical attention.

RBRC INFORMATION

As part of our commitment to protect the environment and conserve natural resources, West Marine voluntarily participates in an RBRC® industry program to collect and recycle used Li-Ion batteries within the US.

Please call 1-800-8-BATTERY for information on Li-Ion battery recycling in your area.

(RBRC® is a registered trademark of the Rechargeable Battery Recycling Corporation.)



WEST MARINE LIMITED WARRANTY

What Does This Limited Warranty Cover?

West Marine warrants to the original retail purchaser of the West Marine product, where the purchase is made in the United States, that the product will be free from defects in materials and craftsmanship with only the limitations or exclusions set out below.

How Long Does This Limited Warranty Last?

This limited warranty is valid for 36 months from the date of the original retail purchase from West Marine within the United States (the "Limited Warranty Term").

The warranty period is not extended if we repair or replace a warranted product or any parts. West Marine reserves the right to change the availability of limited warranties, at its discretion, but any changes will not be retroactive and will only apply to subsequent purchases.

What Does This Limited Warranty Not Cover?

This limited warranty does not cover:

- Software.
- Commercial or industrial use or operation.
- Normal maintenance items or normal wear and tear.
- If the product was damaged, modified or altered by you.

- If the product was used as part of any conversion kits, subassemblies, or any configurations not appropriate or contemplated for this product or its use.
- If damage or loss occurring during return shipment of the product to West Marine or its authorized service representative.
- If the product was subject to improper service, repair, installation, storage, maintenance, alteration or application.
- Problems that result from accident, neglect, abuse, misuse or issues with electrical power.
- Problems caused by accessories, parts or components added to the product that are not appropriate for this product or its use.

THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE (OR JURISDICTION TO JURISDICTION). WEST MARINE'S RESPONSIBILITY FOR MALFUNCTIONS AND DEFECTS IN HARDWARE IS LIMITED TO REPAIR OR REPLACEMENT AS SET FORTH IN THIS WARRANTY STATEMENT. ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN TIME TO THE LIMITED WARRANTY TERM (AS SPECIFIED ABOVE). NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THE LIMITED WARRANTY TERM HAS EXPIRED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

WE DO NOT ACCEPT LIABILITY BEYOND THE REMEDIES PROVIDED FOR IN THIS LIMITED WARRANTY OR FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES INCLUDING, WITHOUT LIMITATION, ANY LIABILITY FOR THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES, FOR PRODUCTS NOT BEING AVAILABLE FOR USE, FOR PERSONAL INJURY AND/OR FOR LOST PROPERTY, DATA OR SOFTWARE. OUR LIABILITY AND THE MAXIMUM AMOUNT FOR WHICH WE ARE RESPONSIBLE WILL BE NO MORE THAN THE AMOUNT YOU PAID FOR THE PRODUCT THAT IS THE SUBJECT OF A CLAIM. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

What Must I Do To Keep the Warranty in Effect?

- You must keep your receipt or other appropriate documentation as proof of the date of sale and purchase.
- You must keep your serial number or order number for the product. This is found on the product itself or on your receipt.
- You must not do any of the things that will make the warranty invalid as provided for in this warranty statement.
- You must use, install, maintain and operate the product in accordance with published specifications and the user's manual.

What Do I Do If I Need Warranty Service?

- Before the warranty expires, please call us at 1-800-BOATING. Please also have your West Marine serial number or order number available.
- When you contact us, we will issue a Return Material Authorization Number for you to include with your return. We will also provide you the address of where to ship the product.
- You must return the product to us in its original or equivalent packaging, prepay shipping charges, and insure the shipment or accept the risk if the product is lost or damaged in shipment.

What Will West Marine Do?

During the Limited Warranty Term, if the product you return to us proves to be defective in materials or workmanship and not for the reasons which would otherwise disqualify it (as explained above), we will:

- Repair the product or, if we are unable to repair it, replace it with a comparable product that is new or refurbished;
- Or, as an alternative, at West Marine's option, we will refund you the original purchase price;
- If we repair or replace the product, we will return the repaired or replacement product to you; and
- Pay to ship the repaired or replacement product to you if you use an address in the United States (excluding Puerto Rico and U.S. possessions and territories). Otherwise, we will ship the product to you freight collect.

If we determine that the problem is not covered under this warranty, we will notify you of this when we return your product to you to the address you provide us in the United States (excluding Puerto Rico and U.S. possessions and territories).

We use new and refurbished parts made by various manufacturers in performing warranty repairs and in building replacement parts and systems. Refurbished parts and systems are parts or systems that have been returned to West Marine, some of which were never used by a customer. Replacement parts and systems are covered for the remaining time left in the Limited Warranty Term for the product you bought. West Marine owns all parts removed from repaired products.

Maintenance is the Owner's Responsibility

Cleaning, polishing, lubricating, replacing filters, tuning, replacing worn parts, using your purchased product according to the user's manual, and regularly maintaining your purchased product is your responsibility.

What if I purchased a Plus Protection Plan?

Service will be provided to you under the terms of the Plus Protection Plan contract. Please refer to that contract for details on how to obtain service.

How State Law Relates to the Warranty.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



 **West Marine®**

www.westmarine.com
1-800-BOATING

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