
ECLIPSE + GX1250SA

25 watt VHF/FM

Marine Transceiver

Owner's Manual

- Simple Operation
- Submersible Microphone
- Programmable Scan & Priority Ch16 Scan
- NOAA Weather Alert
- Backlit LCD & Keys

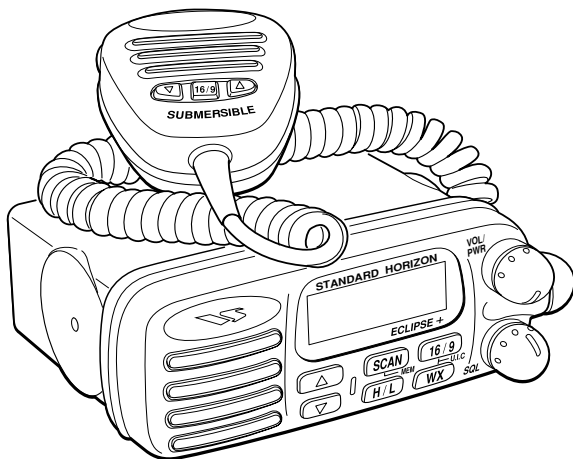


TABLE OF CONTENTS

FCC NOTICE	1
1 GENERAL INFORMATION	3
1.1 INTRODUCTION	3
1.2 FCC/ INDUSTRY CANADA INFORMATION	4
2 ACCESSORIES	5
2.1 PACKING LIST	5
2.2 OPTIONS	5
3 CONTROLS AND INDICATORS	6
3.1 CONTROLS AND CONNECTIONS	6
3.2 INDICATORS	10
4 INSTALLATION	12
4.1 FREQUENCY AND DEVIATION TESTS	12
4.2 LOCATION	12
4.3 INSTALLATION USING REGULAR MOUNTING BRACKET	13
4.4 CMB16 FLUSH MOUNT INSTALLATION	14
5 OPERATION	15
5.1 RECEPTION	15
5.2 TRANSMISSION	15
5.3 TRANSMIT TIME - OUT TIMER (TOT)	16
5.4 SIMPLEX/DUPLEX CHANNEL USE	16
5.5 USA, CANADA, AND INTERNATIONAL MODE	16
5.6 NOAA WEATHER CHANNELS	17
5.7 NOAA WEATHER ALERT	17
5.8 MEMORY SCANNING	18
5.9 PRIORITY SCANNING (PRI-SCAN)	18
6 MAINTENANCE	19
6.1 REPLACEMENT PARTS	19
6.2 TROUBLESHOOTING CHART	20
7 SPECIFICATIONS	21
7.1 GENERAL	21
7.2 TRANSMITTER	21
7.3 RECEIVER	21

FCC NOTICE

IMPORTANT NOTICE

The following device operating configurations must be satisfied:

- This radio is restricted to occupational use, work related operations only where the radio operator must have the knowledge to control its RF exposure conditions.
- The radio must be used with a maximum operating duty cycle not exceeding 50%, in typical Push-to-Talk configurations.
- When transmitting, hold the radio in a vertical position with its microphone 1 to 2 inches (2.5 to 5 cm) away from your mouth and keep the antenna at least 1 inch (2.5 cm) away from your head and body.

SAFETY / WARNING INFORMATION

WARNING - DO NOT operate the ECLIPSE+ radio when someone (bystanders) outside the vehicle is within (to calculate) 3 feet (1 meter) of the antenna.

ANTENNA INSTALLATION:

For rear deck trunk installation, the antenna must be located at least 3 feet (1 m) away from rear seat passengers in order to comply with the FCC RF exposure requirements.

For roof top installation, the antenna must be placed in the center of the roof.

NOTICE

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

NOTICE

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

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

1.1 INTRODUCTION

Congratulations on your purchase of the ECLIPSE+! Whether this is your first marine VHF transceiver, or if you have other STANDARD HORIZON equipment, The STANDARD HORIZON organization is committed to ensuring your enjoyment of this high-performance transceiver, which should provide you with many years of satisfying communications even in the harshest of environments. STANDARD HORIZON technical support personnel stand behind every product we sell, and we invite you to contact us should you require technical advice or assistance.

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

The STANDARD HORIZON (a division of VERTEX STANDARD) ECLIPSE+ is a VHF/FM transceiver designed for use in the frequency range of 156.025 to 163.275 MHz. The ECLIPSE+ requires $13.8V \pm 20\%$ for operation and has a switchable RF output power of 1 watt or 25 watts.

The transceiver operates on all currently-allocated marine channels which are switchable for use with either USA, International, or Canadian regulations. It has an emergency channel 16 which can be immediately selected from any channel by pressing the red **16/9** key. NOAA Weather channels can also be accessed immediately by pressing the **WX** key with channel selection.

Other features of the transceiver include: scanning, priority scanning, NOAA Weather Alert and submersible microphone.

1.2 FCC/ INDUSTRY CANADA INFORMATION

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

Type Acceptance FCC Part 80
Output Power 1 Watt (low) and 25 Watts (high)
Emission 16K0F3E
Frequency Range 156.025 to 163.275 MHz
FCC Type Number APV0493
Industry Canada Type Approval 363822161LVCA

Additional FCC and Industry Canada data, including licensing requirements, are contained in the companion document titled OWNER'S MANUAL SUPPLEMENT. The document also contains charts for VHF channel assignments, transceiver procedures, maintenance, factory service information, and warranty data.

2.1 PACKING LIST

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

- GX1250SA ECLIPSE+ Transceiver (White/Black)
- CMP349WR/CMP349BR (White/Black Microphone attached to the transceiver) and hanger kit
- Mounting Bracket and attaching hardware
- Owner's Manual
- Owner's Manual Supplement
- Power Cord

2.2 OPTIONS

CMB16	Flush-Mount Bracket
101S	Mini Extension Speaker
201S	Extension Speaker
201SZ	Flush Mount Extension Speaker

NOTE

This section defines each control of the transceiver. See Figure 1 for location of controls. For detailed operating instructions refer to chapter 4 of this manual.

3.1 CONTROLS AND CONNECTIONS

① POWER SWITCH/VOLUME CONTROL

Turns the transceiver on and off as well as adjusts the audio volume. When the power is turned on, the transceiver is set to the last selected channel.

Secondary Use

When the transceiver is turned on while the **SCAN** and **WX** keys are held down, the internal microprocessor is reset. This clears the memory and all user-programmed settings, such as scan memory assignments. This condition is known as the default condition, the same as when shipped from the factory. For a list of these defaults, see the section on Resetting the Transceiver's Microprocessor.

② SQUELCH CONTROL (SQL)

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

③ KEY PAD

16/9 Key

Immediately recalls channel 16 from any channel location. Holding down this key recalls channel 9.

Secondary use

Please see secondary use for the **WX** key.

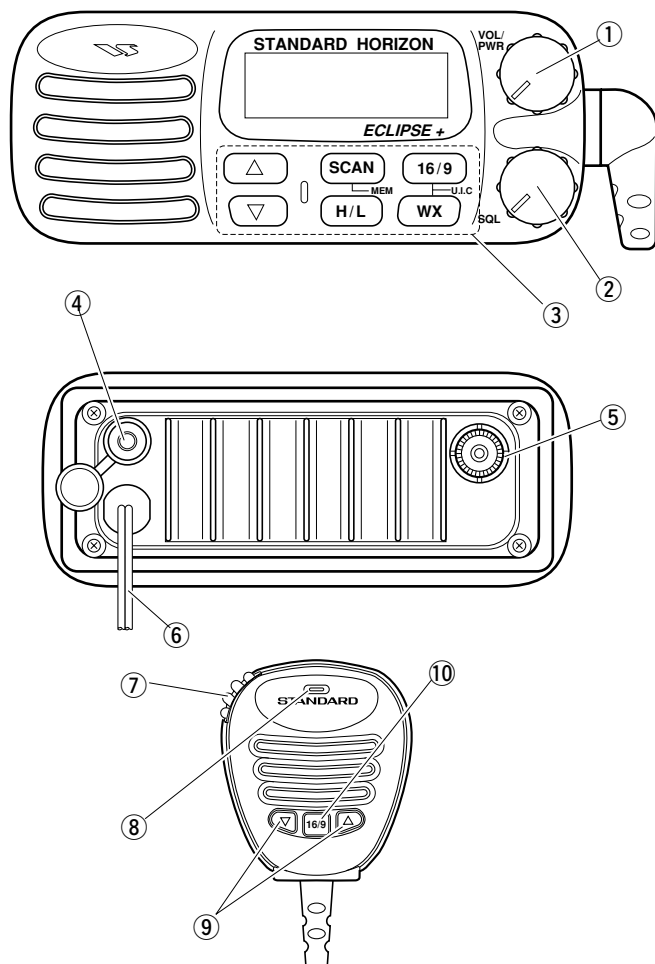


Figure 1. Controls and Connectors

WX Key

Immediately recalls the previously selected NOAA weather channel from any channel location.

Secondary use

1. Holding down the **16/9** key while pressing the **WX** key changes the mode from USA to International or Canadian.
2. Holding down the **WX** and **SCAN** key while turning the power on resets the microprocessor and erases scan channels from memory. This clears the memory and establishes the factory-set defaults. For a list of these defaults, see the section on Resetting the Transceiver's Microprocessor.

SCAN Key

1. Starts and stops scanning of programmed channels.
2. Memorizes the selected channel into the transceivers scan memory for scanning. When pressed and held down again it, DELETES the channel from the scan memory.

Secondary use

1. If held while the **UP** or **DOWN** key is pressed, the transceiver will show the channels in scan memory. This function will not work if the unit is scanning.

H/L Key

Toggles between high and low power. When the **H/L** key is pressed while the transceiver is on channel 13 or 67, the power will temporarily switch from LO to HI power until the PTT is pressed. The **H/L** key does not function on transmit inhibited and low power only channels.

UP ▲ and DOWN ▼ Keys

The **UP ▲** and **DOWN ▼** keys are used to select channels.

④ EXTERNAL SPEAKER JACK

Connects an optional external speaker to the transceiver. Use a speaker with an impedance of 4 or 8 ohms, with an RCA phono plug.

⑤ ANTENNA JACK

Connects an antenna to the transceiver. Use a marine VHF antenna with an impedance of 50 ohms.

⑥ DC INPUT CABLE

Connects the transceiver to a DC power supply of $13.8V \pm 20\%$.

⑦ PTT (Push-To-Talk) SWITCH

Keys the transmitter when the transceiver is in radio mode. If the transceiver is in the intercom operation mode, it activates the microphone for the intercom.

⑧ Submersible MIC

This microphone's water-resistant is equivalent to JIS Class 7th.

⑨ UP ▲ and DOWN ▼ KEYS

The **UP ▲** and **DOWN ▼** on the mic function the same as the The **UP ▲** and **DOWN ▼** keys on the front panel of the transceiver.

⑩ 16/9 Key

Pressing the **16/9** key Immediately recalls channel 16 from any location. Press and hold the **16/9** key to recall channel 9.

3.2 INDICATORS

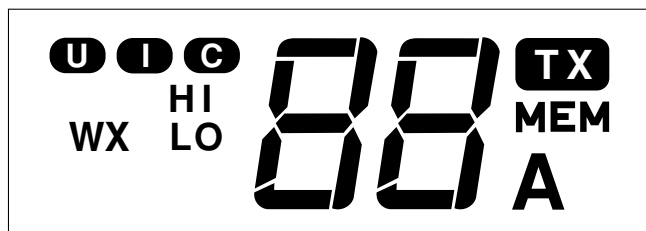


Figure 2. Indicators

The LCD on the transceiver has several symbols and indicators that should be understood by the user before operating the unit. Figure 2 shows all of these symbols and indicators, although it is not possible to see them at the same time.

U/I/C Indicator

Indicates the mode of operation (USA, International or Canadian) for a particular channel.

WX Indicator

Indicates a weather channel.

TX Indicator

Transmission indicator. The TX indicator appears when the PTT switch is pressed and it is O.K. to transmit.

MEM Indicator

Indicates the channel is memorized in the transceiver's memory.

A Indicator

Indicates a simplex channel in USA or Canadian mode whose counterpart in the International mode is a duplex channel.

7-SEGMENT Display

Displays the channel number in use.

HI/LO Indicator

Indicates the power setting. “HI” 25 watts and “LO” 1 watt. This display is blank if a transmission-inhibited channel is selected.

4.1 FREQUENCY AND DEVIATION TESTS

FCC regulations require that the transceiver's deviation and frequency be tested before initial installation or operation. This test should be performed by a Certified Marine Technician.

4.2 LOCATION

1. The transceiver can be mounted at any angle. Choose a mounting location that:
 - is far enough from any compass to avoid erroneous compass reading due to the speaker magnet
 - provides protection from sea spray and rain
 - provides accessibility to the front panel controls
 - allows connection to a power source and an antenna
 - has nearby space for installation of a microphone hanger
2. Install the unit in accordance with paragraph 4.3 or 4.4.

In each appears an instruction to connect the power supply and antenna. Where that appears, the following three steps should be performed:

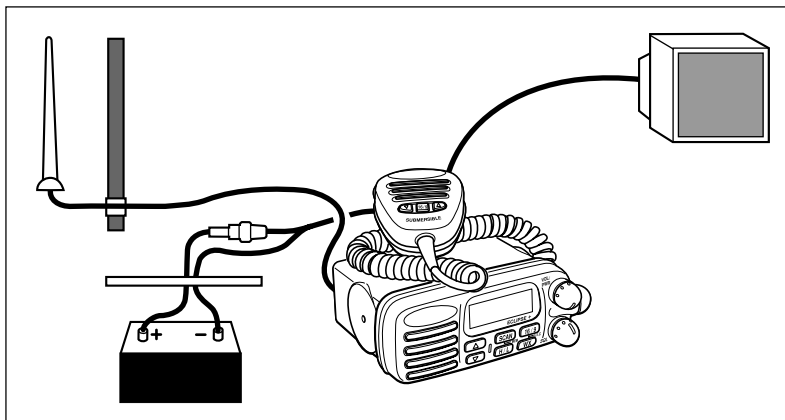


Figure 3. General Installation

- a. At the rear of the transceiver, connect the antenna cable to the antenna jack. The antenna must have a PL259 connector. RG8 or RG213 coaxial cable must be used if the antenna is 25 feet or more from the transceiver. RG58 cable can be used for distances less than 25 feet.
- b. Connect the red power cord to a 13.8 VDC $\pm$ 20 % power source. Connect the black power cord to negative ground. See Figure 3 for this step .
- c. It is advisable to have a Certified Marine Technician check the power output and the standing wave ratio of the antenna after installation.

4.3 INSTALLATION USING REGULAR MOUNTING BRACKET

1. Mount the bracket using the washers, nuts, and long hex head bolts.
2. Thread the mylar washers onto the mounting bracket knobs.
3. Position the transceiver within the bracket arms, matching the transceiver notches to obtain the desired positioning.
4. Secure the transceiver to the brackets with the mounting knobs (see Figure 4).
5. Connect the antenna and power cables (and optional speaker) to the transceiver.

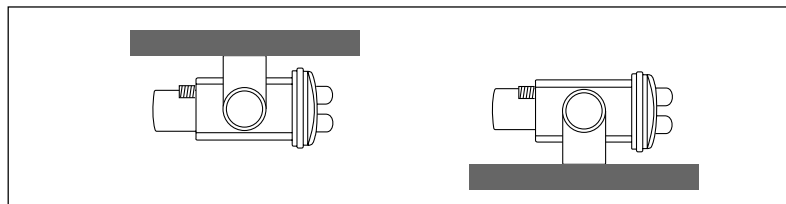


Figure 4. Regular Mounting Bracket

4.4 CMB16 FLUSH MOUNT INSTALLATION

1. Make a rectangular template for the flush mount measuring 2 inches (50 mm) H x 5 3/8" inches (135 mm) W.
2. Use the template 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 6 inches deep). There should be at least 1/2 inch between the transceiver's heatsink and any wiring, cables or structures.
3. Cut out the rectangular hole and insert the transceiver.
4. Fasten the brackets to the sides of the transceiver with the lock washer nut combination, so that the mounting screw base faces the mounting surface (see Figure 5).
5. Turn the adjusting screw to adjust the tension so that the transceiver is tight against the mounting surface.

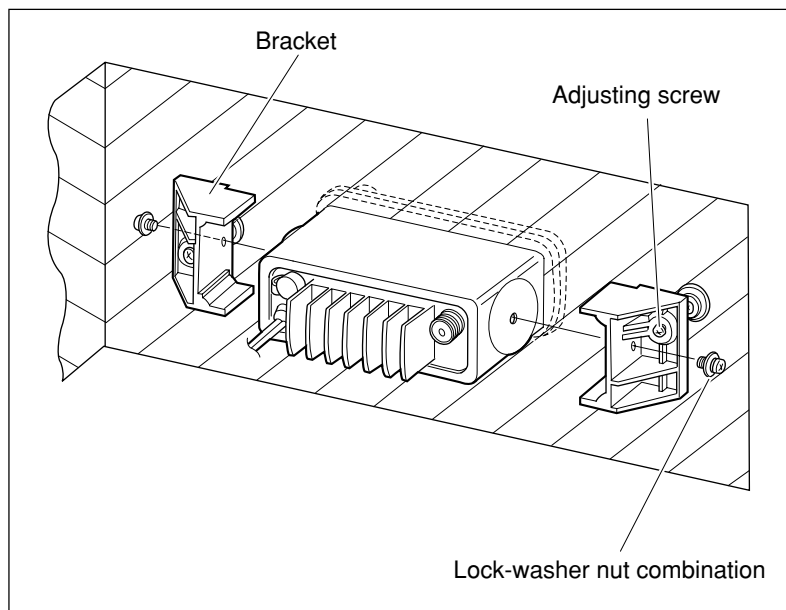


Figure 5. CMB16 Flush Mount Installation

5.1 RECEPTION

1. After the transceiver has been installed, ensure that the power supply and antenna are properly connected.
2. Turn the **VOL/PWR** knob until the transceiver turns on.
3. Turn the **SQL** knob fully counterclockwise. This state is known as “squelch off”.
4. Turn up the volume until noise or audio from the speaker is at a comfortable level.
5. Turn the **SQL** knob clockwise until the random noise disappears. This state is known as the “squelch threshold.”
6. Press the **UP ▲** or **DOWN ▼** key to select the desired channel. Refer to the channel chart in the OWNER'S MANUAL SUPPLEMENT for available channels.
7. When a message is received, adjust the volume to the desired listening level.

5.2 TRANSMISSION

1. Perform steps 1 through 6 of RECEPTION.
2. Before transmitting, monitor the channel to ensure it is clear. **THIS IS AN FCC REQUIREMENT!**
3. Press the **PTT** (push-to-talk) 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 **PTT** switch.
6. Refer to the OWNER'S MANUAL SUPPLEMENT for standard transceiver operating procedures.

NOTE

This microphone should be positioned within 1 inch (2 cm) from the mouth for optimum performance.

5.3 TRANSMIT TIME - OUT TIMER (TOT)

When the **PTT** switch on the microphone is held down, transmit time is limited to 5 minutes. This prevents unintentional transmissions. 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.

5.4 SIMPLEX/DUPLEX CHANNEL USE

Refer to the OWNER'S MANUAL SUPPLEMENT for instructions on use of simplex and duplex channels.

NOTE

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

5.5 USA, CANADA, AND INTERNATIONAL MODE

1. To change the modes, hold the **16/9** key and press the **WX** key. The mode changes from USA to International to Canadian with each press of the **WX** key.
2. USA will be displayed on the LCD for USA mode, INTL will be displayed for International mode, and CAN will be displayed for Canadian mode.
3. Refer to the OWNERS MANUAL SUPPLEMENT for allocated channels in each mode.

5.6 NOAA WEATHER CHANNELS

1. To receive a NOAA weather channel, press the **WX** key from any channel. The transceiver will go to the last selected weather channel.
2. Press the **UP ▲** or **DOWN ▼** key to select a different NOAA weather channel.
3. To exit from the NOAA weather channels, press the **WX** key. The transceiver returns to the channel it was on prior to a weather channel.

5.7 NOAA WEATHER ALERT

In the event of extreme weather disturbances, such as storms and hurricanes, the NOAA (National Oceanic and Atmospheric Administration) sends a weather alert accompanied by a 1050 Hz tone and subsequent weather report on one of the NOAA weather channels. The transceiver is capable of receiving this alert if the following is performed:

1. Program NOAA weather channels into the transceiver's memory for scanning. Follow the same procedure as for regular channels under Section 5.8.
2. Press the **SCAN** key once to start memory scanning or hold down the **SCAN** key during memory scanning to start priority scanning.
3. The programmed NOAA weather channels will be scanned along with the regular-programmed channels. However, scanning will not stop on a normal weather broadcast unless a NOAA alert is received.
4. 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.
5. Press the **WX** key to stop the alert tone and receive the weather report.

NOTE

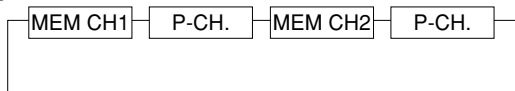
If the **WX** key is not pressed the alert tone will be emitted for 5 minutes and then the weather report will be received.

5.8 MEMORY SCANNING

1. Adjust the **SQL** knob until background noise disappears.
2. Select a desired channel to be scanned using the **UP ▲** or **DOWN ▼** key. Press and hold down the **SCAN** key until MEM appears on the LCD which programs the channel into the transceivers memory.
3. Repeat step 2 for all the desired channels to be scanned.
4. To DELETE a channel from the transceiver's memory, select a channel to be erased with the **UP ▲** or **DOWN ▼** key. Press and hold down the **SCAN** key until MEM disappears on the LCD.
5. To start scanning, press the **SCAN** key. Scanning will proceed from the lowest to the highest programmed channel number and will stop on a channel when a transmission is received.
6. The received channel number will blink during busy stop.
7. To stop scanning, press the **SCAN**, **16/9**, **WX**, or **PTT** key.

5.9 PRIORITY SCANNING (PRI-SCAN)

1. To select priority scanning, hold down the **SCAN** key and turn the transceiver on.
2. Press **SCAN** key again. Scanning will proceed between the memorized channels (MEM CH) and the priority channel (P-CH). The priority channel will be scanned after each programmed channel.



(The priority channel (P-CH) is channel 16.)

3. To stop scanning, press the **SCAN**, **16/9**, **WX**, or **PTT** key.

The inherent quality of the solid-state components used in this transceiver will provide many years of continuous use. Taking the following precautions will prevent damage to the transceiver.

- * Never key the microphone unless an antenna or suitable dummy load is connected to the transceiver.
- * Ensure that the supply voltage to the transceiver does not exceed 16 VDC or fall below 11 VDC.

In the unlikely event of serious problems, please contact your STANDARD HORIZON Dealer or our repair facility. Address and phone numbers for this facility, as well as warranty information, are contained in your Owner's Manual Supplement.

6.1 REPLACEMENT PARTS

Occasionally an owner needs a replacement mounting bracket or knob. These can be ordered from our Parts Department by writing or calling:

STANDARD HORIZON, a division of VERTEX STANDARD.
17210 Edwards Rd., Cerritos, CA 90703, U.S.A.
(562)404-2700

Commonly requested parts, and their part numbers are listed below.

Microphone, White (CMP349WR)	MP51000460
Microphone, Black (CMP349BR)	MP51000470
Mounting Bracket, White	457X160010
Mounting Bracket, Black	457X160110
Mounting Bracket Knob, White	444X154030
Mounting Bracket Knob, Black	444X154130
Volume Control Knob	444X154500
Squelch Control Knob	444X154500
Power Cord	ZC01300010
Mic Hanger, White	277X155020
Mic Hanger, Black	277X155120

6.2 TROUBLESHOOTING CHART

TROUBLESHOOTING CHART		
SYMPTOM	PROBABLE CAUSE	REMEDY
Transceiver fails to power up.	No DC voltage to the transceiver, or blown fuse.	Check the power cable for DC voltage, or replace the fuse (6A 250V).
Transceiver blows fuse when connected to power supply.	Reversed power wires.	Make sure the red wire is connected to the positive battery post and the black wire is connected to the negative. If the fuse still blows, contact your STANDARD HORIZON Dealer.
Popping or whining noise from the speaker while engine runs.	Engine noise	Reroute the DC power cables away from the engine. Add noise suppressor on power cable. Change to resistive spark plug wires and/or add an alternator whine filter.
External speaker plug does not fit into jack.	Incorrect plug on speaker cable.	The external speaker jack accepts only RCA phono plugs.
Internal speaker turns off when external speaker is plugged in.	No problem.	Normal transceiver operation causes internal speaker cut-off when external speaker is plugged in.
Transceiver transmits but does not receive.	Channel mode.	The transceiver may be tuned to a duplex channel meant for ship-to-shore radiotelephone communications.
Transceiver transmits on low power only.	Antenna	Have antenna checked or test the transceiver with another antenna. If problem persists, contact your STANDARD HORIZON Dealer.

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

7.1 GENERAL

Channels	All USA, International and Canadian
Input Voltage	13.8 VDC $\pm$ 20%
Current Drain	
Standby	0.5A
Receive	1.5A
Transmit	6A (Hi); 1.7A (Lo)
Dimensions	2-1/2" H x 6" W x 6" D (65 H x 150 W x 150 D mm)
Flush-Mount Dimensions	2" H x 5-3/8" W x 5-1/4" D (50 H x 135 W x 133 D mm)
Weight	1.9 Lb. (0.86 kg)

7.2 TRANSMITTER

Frequency Range	156.025 to 157.425 MHz
RF Output	25 W (Hi); 1 W (Lo)
Conducted Spurious Emissions	65 dB (Hi); 50 dB (Lo)
Audio Response	within + 2/-8 of a 6 dB/octave pre-emphasis characteristic at 300 to 3000 Hz
Audio Distortion	5 %
Modulation	16K0F3E
Frequency Stability (-20° to +50°C)	$\pm$ 0.0005%
FM Hum and Noise	40 dB min.

7.3 RECEIVER

Frequency Range	156.050 to 163.275 MHz
Sensitivity:	
20 dB Quieting	0.4 μ V
12 dB SINAD	0.35 μ V
Squelch Sensitivity (Threshold)	0.2 μ V
Modulation Acceptance Bandwidth	$\pm$ 4.5 kHz
Selectivity:	
Spurious and Image Rejection	70 dB
Intermodulation and Rejection at 12 dB SINAD	65 dB
Audio Output	4 W
Audio Response	within + 2/-8 of a 6 dB/octave de-emphasis characteristic at 300 to 3000 Hz
Frequency Stability (-20° to +50°C)	$\pm$ 0.001 %
Channel Spacing	25 kHz



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Printed in China
05/2001

457X851010