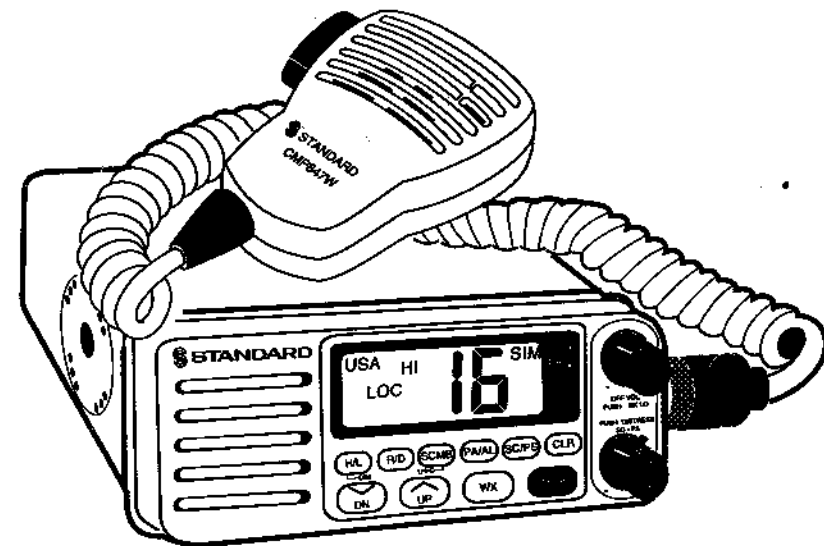


GX2341S OMNI

25 Watt VHF/FM
Marine Transceiver

Owner's Manual



Standard Communications Corp.
P.O. Box 92151
Los Angeles, CA 90009-2151
Telephone 310/532-5300

© Standard Communications Corp. 1994
All Rights Reserved

Printed in Japan
July 1994

496C851040



TABLE OF CONTENTS

GENERAL INFORMATION	1
INTRODUCTION	1
FCC/DOC INFORMATION	1
ACCESSORIES	2
OPTIONS	2
REPLACEMENT PARTS	2
INSTALLATION	3
FREQUENCY AND DEVIATION TESTS	3
LOCATION	3
INSTALLATION USING REGULAR MOUNTING BRACKET	5
OPTIONAL MOUNTING KITS	6
ELECTRICAL CONNECTIONS	7
CONTROLS AND INDICATORS	8
CONTROLS AND CONNECTORS	8
INDICATORS	14
OPERATION	16
RECEPTION	16
TRANSMISSION	17
TRANSMIT TIME-OUT TIMER (TOT)	17
SIMPLEX/DUPLEX CHANNEL USE	17
USA, CANADA, and INTERNATIONAL MODE	18
WEATHER CHANNELS	18
SCANNING	19
PRIORITY SCANNING	19
WEATHER ALERT	20
EMERGENCY CHANNEL 16	21
CHANNEL 9	21
PA MODE	21
MAKING TELEPHONE CALLS	22
OPERATING ON CHANNEL 13	22
OPERATING ON CHANNEL 67	23
VOICE SCRAMBLER	23
PROGRAMMING	23
OPERATION WITH SCRAMBLER	24
DIGITAL SELECTIVE CALLING	26
GENERAL	26
CONNECTIONS	27

DISTRESS CALLING	31
Programming MMSID Number and Navigational Device	31
Operation	32
CONDITION ALERTING	33
Programming	33
Operation	34
MAINTENANCE	36
SPECIFICATIONS	39
GENERAL	39
TRANSMITTER	39
RECEIVER	40

FIGURES

1. Viewing Angles	4
2. Placement of Moisture-Sealing Gasket	5
3. Regular Mounting Bracket	6
4. Optional CMB14 and CMB15 Mounting Brackets	6
5. General Installation	7
6. Controls and Connectors	9
7. Indicators	14
8. DSC Connections	27
9. JU02 Location	28
10. Listener Input Circuit	29
11. Sensor Connection	30
12. Strobe Light and 12 V Siren Connections	30

1 GENERAL INFORMATION

1.1 INTRODUCTION

The Standard Communications Corp. (SCC) GX2341S Omni is a VHF/FM transceiver designed for use in the frequency range of 156.050 to 163.275 MHz. It requires 13.8 VDC for operation and has a switchable RF output power of 1 watt or 25 watts.

The radio is capable of Class-C Digital Select Calling (DSC) with the use of an optional CDS2300 plug-in board.

The radio 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)** key. Weather channels can also be accessed immediately by pressing the **(WX)** key.

The radio comes with a speaker/microphone. Other features of the radio include: scanning, priority scanning, and public address (PA) mode with Listen-Back feature. An optional CVS240 voice scrambler can also be installed for privacy of communications.

1.2 FCC/DOC INFORMATION

The following data pertaining to the radio are necessary to fill out your license application.

Type Acceptance	FCC Part 80
Output Power	1 watt (low) and 25 watts (high)
Emission	16K0F3E and 10K2F1B
Frequency Range	156.050 to 163.275 MHz
FCC Type Number	APV0392
DOC Type Accepted	Pending

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

2

ACCESSORIES

2.1 OPTIONS

CAW2340	4-Meter Microphone Extension Cord
CDS2300	DSC (Digital Selective Calling) Board
CMB14	Straight Flush-Mount Bracket
CMB15	Angled Flush-Mount Bracket
CVS240	Voice Scrambler
DC23	Dust Cover
101S	Small Extension Speaker
201S	Remote Extension Speaker with RCA Phono Plug
220SW	4-ohm, 10-watt Hailer Horn
230SW	4-ohm, 30-watt Hailer Horn

2.2 REPLACEMENT PARTS

Microphone Assembly (Black)	MP51000300
Microphone Assembly (White)	MP51000290
Mounting Bracket (Black)	420C160100
Mounting Bracket (White)	420C160010
Mounting Bracket Knob (Black)	496C154080
Mounting Bracket Knob (White)	496C154070
Volume Knob	496C154040
Squelch Knob	496C154052
PA Knob	496C154060

3

INSTALLATION

3.1 FREQUENCY AND DEVIATION TESTS

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

3.2 LOCATION

- The radio 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
 - antenna can be mounted at least 3 feet from radio
- After the location is determined, choose the viewing angle of the front panel. If the transceiver is mounted overhead, it is probably preferable to tilt the face down for better viewing. If it is mounted below eye level on a flat surface, it is probably preferable to tilt the face upward. The face can be tilted up or down as illustrated in Figure 1.

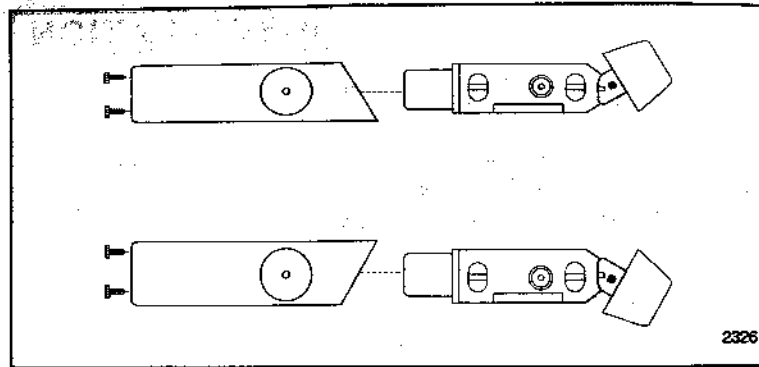


Figure 1. Viewing Angles

To change the viewing angle:

- a. Remove the four screws on the rear sleeve case of the transceiver.
- b. Push the transceiver from the rear towards the front of the sleeve case and remove it.

NOTE

Try to keep the rectangular gasket that is between the sleeve case and the transceiver attached to the sleeve case. If it is removed during this procedure, or adheres to the transceiver case instead of to the sleeve case, it must be repositioned with care. Improper positioning will cause a defective moisture seal between the transceiver and the sleeve case. Water can then enter and damage the transceiver.

- c. If the rectangular gasket between the sleeve case and the transceiver is removed or becomes detached from the sleeve case, refer to Figure 2 for correct installation. The key to successful orienta-

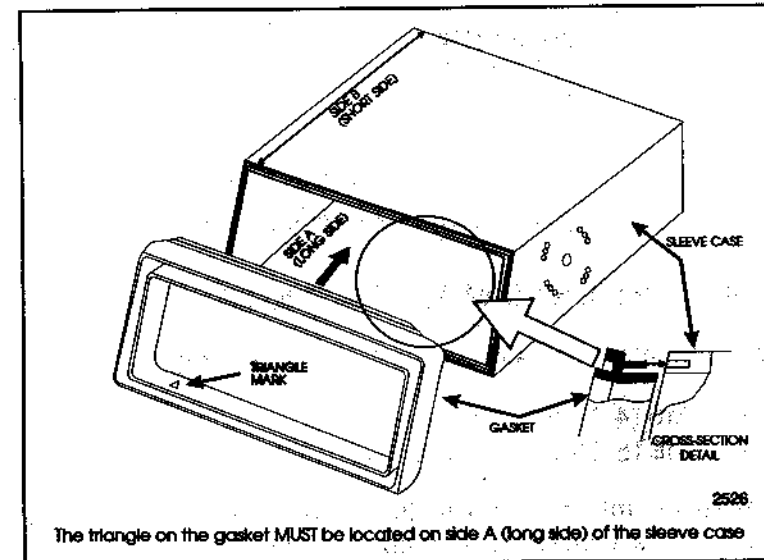


Figure 2. Placement of Moisture-Sealing Gasket

tion is the triangle mark on the gasket. It should be on the long side of the sleeve case.

3. Install the radio following the procedure in the next section.

3.3 INSTALLATION USING REGULAR MOUNTING BRACKET

1. Mount the bracket using the washers, nuts, and long hex head bolts.
2. Position the radio within the bracket arms, matching the radio notches to effect the desired positioning.
3. Secure the radio to the brackets with the mounting knobs as shown in Figure 3.

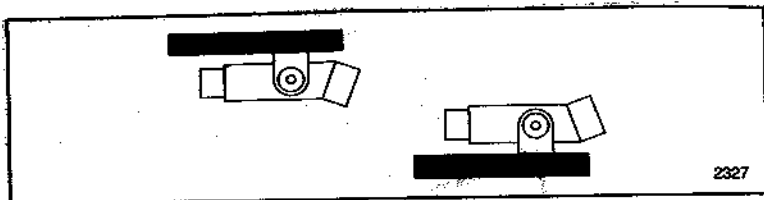


Figure 3. Regular Mounting Bracket

3.4 OPTIONAL MOUNTING KITS

Optional mounting kits for the transceiver are:

- CMB14 Angled Mount
- CMB15 Straight Mount

These mounts are shown in Figure 4. Instructions and hardware are included in each mounting kit.

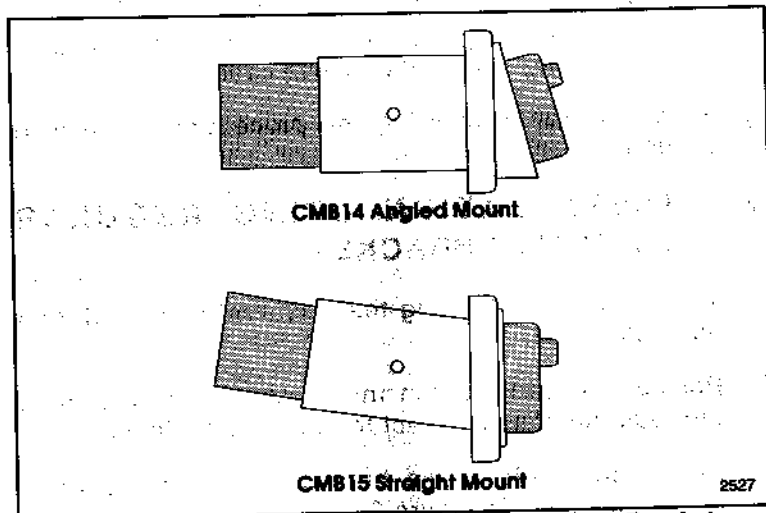


Figure 4. Optional CMB14 and CMB15 Mounting Brackets

3.5 ELECTRICAL CONNECTIONS

Connect the power and antenna to the radio. Antenna and Power Supply connections are as follows (see Figure 5):

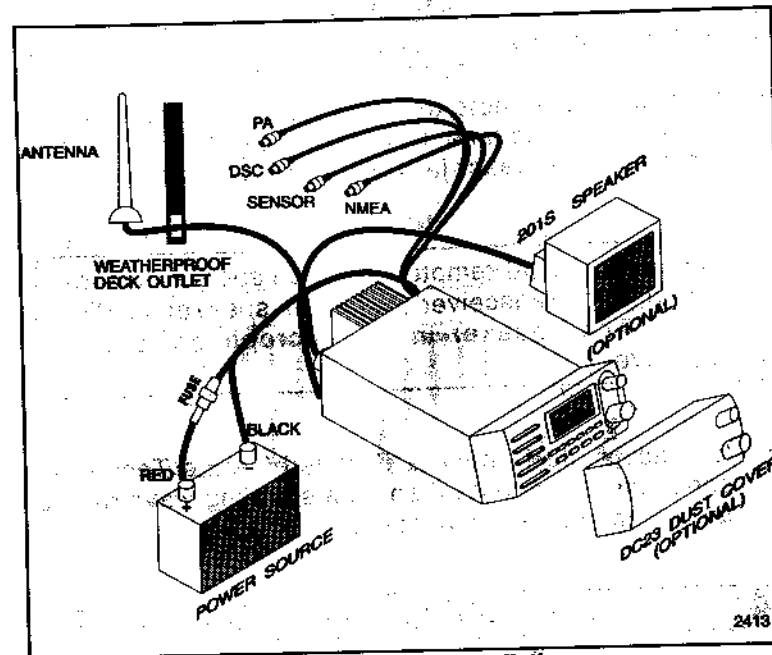


Figure 5. General Installation

1. Mount the antenna at least 3 feet away from the radio. At the rear of the radio, 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 radio. RG58 cable can be used for distances less than 25 feet.

2. Connect the red power cord to a 13.8 VDC \pm 20% power source. Connect the black power cord to negative ground.

CAUTION

Improper polarity connections will damage the radio!

3. If an optional remote extension speaker is to be used, connect it at this time. Connect the RCA phono plug to the external speaker jack of the transceiver.

NOTE

When an optional remote extension speaker is connected, the transceiver's internal speaker is disabled. The speaker in the microphone is still operative.

4. It is advisable to have a Certified Marine Technician check the power output and the standing wave ratio of the antenna after installation.

4 CONTROLS AND INDICATORS

This section defines each control of the radio. See Figure 6 for location of controls. For detailed operation instructions refer to chapter 5 of this manual.

4.1 CONTROLS AND CONNECTORS

① POWER SWITCH/ VOLUME CONTROL/ SENSITIVITY CONTROL

Turns the radio on and off and controls the volume. When pressed in the receive mode, receiver sensitivity

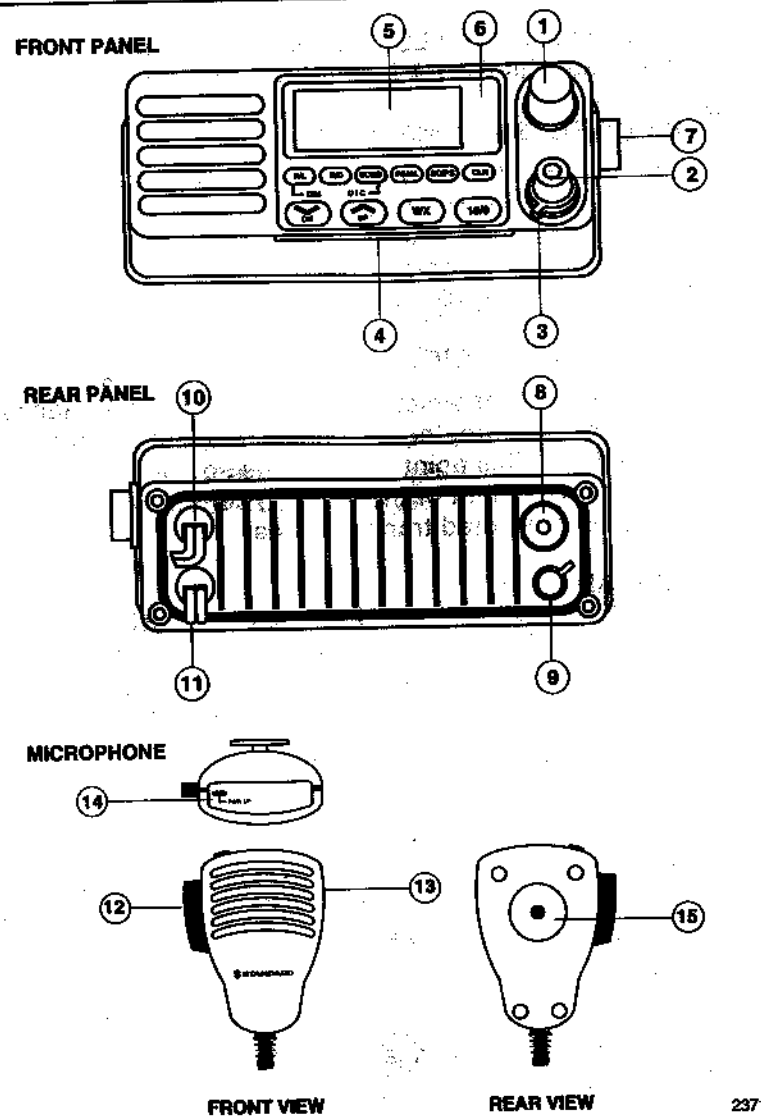


Figure 6. Controls and Connectors

will switch between LOCAL and DX (distant). In the PA mode, adjusts the PA Listen Back volume.

② PA/DISTRESS CONTROL

Controls the Public Address (PA) Speaker volume. When the optional CDS2300 DSC board is installed, pressing the control twice will enable a distress call on channel 70. For details, refer to Section 7, Digital Selective Calling (DSC).

③ SQUELCH CONTROL

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.

④ KEYPAD

 KEY

Selects the desired channel. Each press selects the next higher channel. When held pressed, channel numbers will increase continuously.

 KEY

Selects the desired channel. Each press selects the next lower channel. When held pressed, channel numbers will decrease continuously.

 KEY


Immediately recalls a weather channel from any channel.

 KEY

Immediately recalls channel 16 from any channel. Pressing and holding this key recalls channel 9.

 KEY

Toggles between high and low power. Does not operate on "low power only" and transmission-inhibit channels. When pressed and held while the radio is on channel 13 or 67, the power will temporarily go high. This key has the same function as the PWR UP key on the microphone.


Pressing and holding this key while pressing the  key, changes the brightness (3 levels) of the backlight for LCD and keys.

 KEY

READS the selected channel into the radio's scan memory for scanning. When pressed again, DELETES the channel from the scan memory.

 KEY

Turns the scrambler on and off (only if the CVS240 scrambler is installed).

Pressing this key while the  key is held pressed, changes the mode from USA to International or Canada.

 KEY

Toggles the radio between radio and PA mode. When the optional CDS2300 DSC board is installed, pressing this key continuously in PA mode will enter the radio in condition alert (AL) mode. For details, refer to Section 7.

SCPS KEY

Starts scanning programmed channels. When pressed twice, starts priority scanning between programmed channels. When weather channels are scanned, the radio goes into weather alert mode.

CLR KEY

Reverts the radio to the previous channel when pressed after the **SCPS** or **WX** key is pressed. Stops scanning during scan mode. Resets the microprocessor when radio power is turned off and then this key is pressed and held while turning the power on again.

5 LIQUID-CRYSTAL DISPLAY (LCD)

See Section 4.2 for indicators.

6 TX/BUSY LED

Lights red during transmission. THIS IS A TRUE INDICATION THAT THE RADIO IS ACTUALLY SUPPLYING POWER TO THE ANTENNA. Lights green during reception.

7 MICROPHONE JACK

Connects a microphone to the radio.

8 ANTENNA JACK

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

9 EXTERNAL SPEAKER JACK

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

10 DC INPUT CABLE

Connects the radio to a DC power supply of 13.8 V.

11 PA SPEAKER/DSC CABLE

Connects a public address speaker with an RCA phono plug. Uses a 4 or 8 ohm speaker. For details on DSC connections, refer to Section 7.

12 PTT SWITCH

Keys the transmitter.

13 SPEAKER/MICROPHONE

Transmits the voice message and also functions as a speaker.

14 PWR/UP KEY

Momentarily selects high power on USA and Canadian channel 16 and USA channel 67 only.

15 MICROPHONE HANGER

When the microphone is placed on a battery-grounded hanger, the radio automatically switches to channel 16. This feature may be disabled by either hanging the microphone in a non-grounded hanger or by performing the following procedure:

- a. Remove the 3 screws on the rear of the microphone and remove the rear case.
- b. Cut or remove the black wire attached to the microphone hanger on the rear case.
- c. Reinstall the rear case.

4.2 INDICATORS

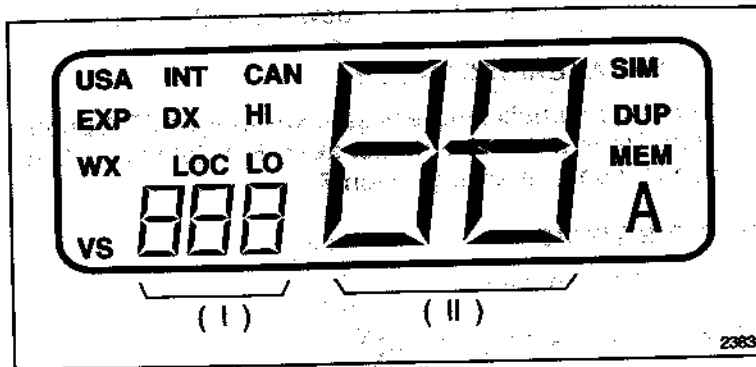


Figure 7. Indicators

USA/INT/CAN Indicator	Indicates the mode of operation for the particular channel.
WX Indicator	Indicates a weather channel.
DX/LOC Indicator	Indicates the reception sensitivity setting.
HI/LO Indicator	Indicates the power setting. "HI" indicates 25 watts and "LO" indicates 1 watt.
SIM/DUP Indicator	Indicates simplex (SIM) or duplex (DUP) mode. See Section 5.4.
MEM Indicator	Indicates that the channel is memorized in the radio's memory for scanning.
A Indicator	Indicates a simplex channel in USA or Canadian mode whose counterpart in the International mode is a duplex channel.

VS Indicator

Indicates that the voice scrambler (if installed) is in use.

EXP Indicator

Indicates an expansion channel. Expansion channels are presently not allowed by FCC. Use of this feature prior to FCC allocation may result in a fine.






7-SEGMENT (I) Display

Indicates the voice scrambler code (only when a CVS240 scrambler is installed and activated). In the PA mode, indicates the radio channel. In the condition alert mode, indicates "con". In the distress mode, indicates "dsc".

7-SEGMENT (II) Display

Indicates the channel number in use. In the PA mode, indicates "PA".

5.1 RECEPTION

1. After the radio has been installed, make sure that the power supply and antenna are properly connected.
2. Turn on the POWER SWITCH.
3. Turn the VOLUME CONTROL to the desired listening level.
4. Turn the SQUELCH CONTROL counterclockwise until background noise is heard. Next, turn the control slightly clockwise just until noise disappears. This is the proper squelch setting and the control should not be rotated beyond this point or receiver sensitivity will be degraded.
5. In major metro areas where vessels are operated in proximity to the shore, the radio should be operated in the LOCAL mode. This will reduce the possibility of interference from unwanted signals. Press the POWER SWITCH to toggle between LOCAL and DISTANT mode. "LOC" will show on the display for LOCAL mode and "DX" for DISTANT mode.
6. To turn on the backlight for the display and keypad, press and hold the  key then press the  key. Each press of the  key changes the intensity (bright, dim and off).
7. Press the  or  key to select the desired channel. Refer to the channel chart in the OWNER'S MANUAL SUPPLEMENT for available channels.

8. When a message is received, adjust the volume to the desired listening level. The TX/BUSY LED will light green to indicate that the channel is busy.

5.2 TRANSMISSION

1. Before transmitting, monitor the channel and make sure it is clear. THIS IS AN FCC REQUIREMENT!
2. Press the PTT (push-to-talk) key and speak into the microphone at a distance of 1/2 to 1 inch. The TX/BUSY LED will light red during transmission.
3. Refer to the OWNER'S MANUAL SUPPLEMENT for standard radio operating procedures.

5.3 TRANSMIT TIME-OUT TIMER (TOT)

With the PTT switch on the microphone 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 then 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. Also note that the PTT switch is ineffective while the microphone is in its grounded hanger.

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), DOC (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, press and hold the **SCMS** key then press the **↺** key. The mode will change from USA, to International, to Canada with each press of the **↺** key.
2. "USA" will be displayed on the LCD for the USA mode, "INT" will be displayed for International mode, and "CAN" will be displayed for Canadian mode.
3. Refer to the OWNER'S MANUAL SUPPLEMENT for allocated channels in each mode.

5.6 WEATHER CHANNELS

1. To receive a weather channel, press the **WX** key from any channel. The radio will go to the first weather channel.
2. Press the **↺** or **↻** key to go to another weather channel.
3. To exit from the weather channels, press the **CLR** key. The radio will revert to the channel it was on prior to a weather channel.

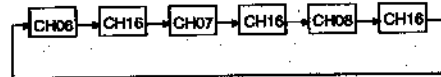
5.7 SCANNING

1. Adjust the SQUELCH CONTROL just until background noise disappears.
2. Select a desired channel to be scanned using the **↺** or **↻** key. Press the **MEM** key to program the channel into the radio's memory. "MEM" will appear on the LCD.
3. Repeat step 2 for all the desired channels to be scanned.
4. To DELETE a channel from the radio's memory, press the **MEM** key again while the memorized channel is displayed on the LCD. "MEM" will be deleted from the LCD.
5. All channels programmed will remain in the radio's memory even if the power is turned off. **NOTE:** If channels are deleted from memory when power is turned off, the radio's back-up battery may need to be replaced by the factory.
6. To start scanning, press the **SCPS** key. Scanning will proceed from the lowest to the highest programmed channel number and will stop on the channel when a transmission is received.
7. To stop scanning, press the **CLR**, **16#**, **WX**, or PTT key.

5.8 PRIORITY SCANNING

1. For priority scanning, press the **SCPS** key twice. Scanning will proceed between the memorized channels and channel 16. Channel 16 is the priority channel and will be scanned after each programmed channel.

2. For example, channels 06, 07, 08 are memorized in the radio's memory. Priority scanning will proceed in the following sequence:



3. Even when the radio stops and listens to the signal of a programmed channel, the radio will dual watch between this channel and channel 16.

5.9 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 weather channels. The radio is capable of receiving this alert if the following is performed:

1. Program weather channels into the radio's memory for scanning. Follow the same procedure as for regular channels under Section 5.7.
2. Press the **[SCPS]** key once to start scanning or twice to start priority scanning.
3. The programmed weather channels will be scanned along with the regular programmed channels. However, scanning will not stop on a normal weather broadcast.
4. When an alert is received on a weather channel, scanning will stop and the radio will enter WEATHER ALERT MODE.
5. When the radio is in WEATHER ALERT MODE, a loud tone will be heard.

6. Press the **[CLR]** key to stop the alert tone and receive the voice information on the weather channel.

5.10 EMERGENCY CHANNEL 16

1. To select the emergency channel, press the **[16/9]** key from any channel.
2. Transmit your emergency signal in the same manner as on regular channels. If you cannot contact anyone on channel 16, switch to another channel.
3. To revert to previous channel from channel 16, press the **[CLR]** key.
4. See the OWNER'S MANUAL SUPPLEMENT for additional emergency operating practices.

5.11 CHANNEL 9

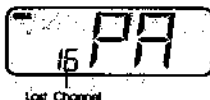
1. Channel 9 is used as a secondary channel to contact other vessels. Press and hold the **[16/9]** key to select channel 9.

5.12 PA MODE

The radio has Public Address (PA) with Listen-Back capabilities. An external PA speaker with an RCA phono plug (4 or 8 ohms) must be connected to the radio for this mode. The SCC Model 201S, 220SW, or 230SW speaker can be used for this purpose. See Figure 5 in Section 3 for connection. To operate the PA:

1. Adjust the SQUELCH CONTROL to a point at which random noise is eliminated. Before PA mode is selected the radio must be squelched or a beep will be heard from the speaker. This beep alerts the user when a radio transmission is received while in PA mode.

2. Press the **(PAAL)** key. Radio operation is disabled and the radio goes to PA mode. The display will show:



3. Press the PTT key and speak into the microphone. Your voice will be heard on the external PA speaker. Adjust the volume by turning the PA/DISTRESS CONTROL.
4. To use the Listen-Back feature, adjust the VOLUME control. Audio will be heard on the internal speaker.
5. To return to normal radio operation, press the **(PAAL)** key.

5.13 MAKING TELEPHONE CALLS

See your OWNER'S MANUAL SUPPLEMENT for instructions on making telephone calls with your radio.

5.14 OPERATING ON CHANNEL 13

Channel 13 is used at docks and bridges and for maneuvering in port. Messages on this channel must concern navigation only, such as meeting and passing in restricted waters. Messages must be short and use low power.

In emergencies and when approaching blind river bends, high power is allowed. Press and hold the PWR/UP key on the microphone or the **(HL)** key to temporarily switch to high power.

5.15 OPERATING ON CHANNEL 67

When channel 67 is used for navigational bridge-to-bridge traffic between ships, high power may be temporarily used by pressing and holding the PWR/UP key on the microphone or the **(HL)** key.

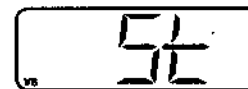
6 VOICE SCRAMBLER

If privacy of communications is desired, a CVS240 voice scrambler (VS) can be installed in the radio. Contact your Dealer or the SCC factory to have a CVS240 installed.

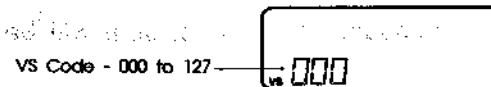
6.1 PROGRAMMING

Once a CVS240 is installed in the radio, channels to be scrambled can be programmed as follows:

1. Press and hold the **(SCMB)** key and turn on the radio.
2. Press the **(UP)** key until the VS setting display is shown on the LCD:



3. Press the **(RD)** key to show the VS code setting display.



4. Press the **(UP)** or **(DN)** key to set the VS code (000 to 127).

5. Press the **RD** key to show the VS channel setting display.



6. Press the **UP** or **DN** key to select the channel to be scrambled.
7. Press the **RD** key. The scrambler code is displayed to indicate channel is programmed.
8. Repeat steps 6 and 7 to program other channels to be scrambled. Only one scrambler code can be chosen for all channels programmed. All channels programmed will have the scrambler code set in step 4.
9. Turn off the radio after programming is completed.

6.2 OPERATION WITH SCRAMBLER

1. Turn on the radio.
2. Select a channel that was programmed for scrambler mode.
3. Press the **SCMB** key to turn the scrambler on. "VS" and the VS code will be displayed to indicate that the scrambler is activated.
4. Monitor the channel before transmitting.
5. Transmit the voice message. The signal sent will be scrambled.

NOTE

The transmitted message cannot be reproduced at the receiving end if the receiving radio does not

have a Standard Communications Corp. voice scrambler installed and programmed. The transmitting and receiving ends must also have matching VS codes.

6. Press the **SCMB** key to turn the scrambler off.

7 DIGITAL SELECTIVE CALLING

7.1 GENERAL

Digital Selective Calling (DSC) is a technique to call another vessel selectively and automatically. Digital Selective Calling sends selective calling information, specifically emergency signals digitally. DSC helps alleviate the congestion to the voice distress and calling channel 16.

For DSC operation, a CDS2300 DSC Board must be installed. Contact the SCC factory for installation.

To use DSC, a 9-digit Maritime Mobile Service ID (MMSID) number is needed. It is issued in the United States by the Federal Communications Commission. To receive an MMSID, complete FCC Form 506 and check box 20 in the affirmative. The FCC will return an amended license with the 9-digit MMSID included.

The radio has two types of DSC:

- Distress Calling (Class C)

Sends an emergency signal with the ship's MMSID on channel 70 at 25 watts power to all radios equipped with DSC listening capability. If connected to most navigational devices with NMEA0183 (such as GPS or LORAN) the ship's position (latitude and longitude) will also be sent.

- Condition Alerting

Monitors the vessel's condition to detect fire, sinking, burglary, etc., depending on the type of sensors connected to the radio. When an alarm condition is detected, the radio transmits on chan-

nel 70, at 1 watt power, the ship's MMSID to a station programmed to receive it. At the same time a loud signal can be heard from the radio's speaker. External alarms can also be connected such as a 12V siren and strobe lights which are activated during alarm conditions.

7.2 CONNECTIONS

There are three labeled connectors for DSC at the rear of the radio (See Figure 8.)

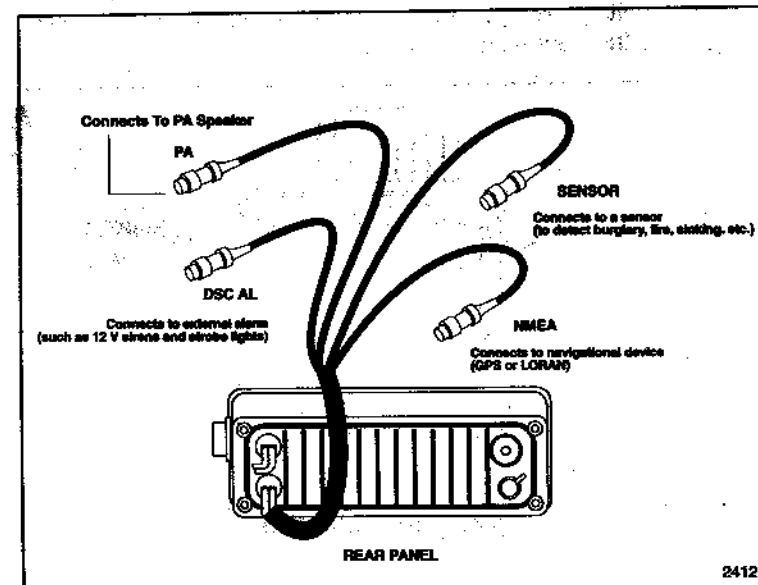


Figure 8. DSC Connections

1. NMEA Connector

CAUTION

Opening the radio and measuring voltage should be done by a Certified Electronics Technician.

Connects to a navigational device (such as GPS or LORAN) capable of outputting NMEA0183 information. After connection is made, turn on the radio and measure the voltage at JU02 (see Figure 9 for location) with a voltmeter. Confirm that the voltage at JU02 is 5 volts (high) when no data is present. If the voltage is low, the NMEA input polarity is reversed; reverse the connections and retest.

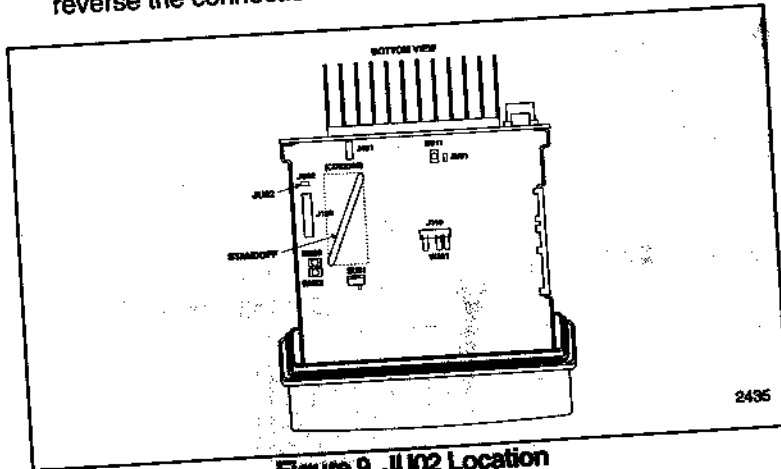


Figure 9. JU02 Location

a. Supported Sentences

The following sentence formats are what the transceiver will accept from a GPS or LORAN.


• GPS

SENTENCE FORMATTERS	DESCRIPTION
GPGLL	Location and Time
GPRMC, A	Location and Time
GPRMB, A	Refer to GPRMC, A

• LORAN

SENTENCE FORMATTERS	DESCRIPTION
LCGLL	Location and Time
LCRMA, A	Location Only
LCRMB, A	Refer to LCRMA, A

b. Electrical Description

CONNECTOR TYPE	Standard RCA phono plug
SIGNAL LINES	A = Shield 
	B = Center
RX INPUT IMPEDANCE	600 Ω
RX INPUT SENSITIVITY	± 2.0 V

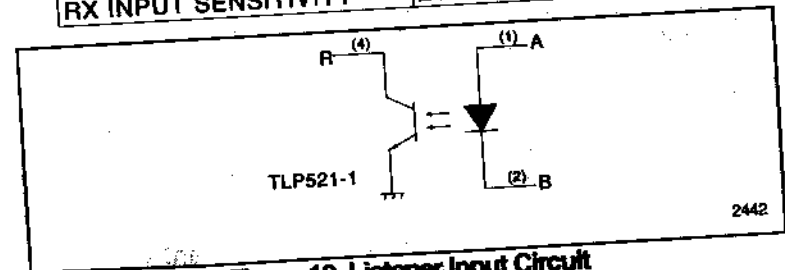


Figure 10. Listener Input Circuit

2. SENSOR Connector

Connects to sensors to detect various conditions for Condition Alerting. Sensors used must be a "normally open" (N.O.) type that closes when tripped.

a. Examples of Sensors:

- Magnetic Contact Switch
- Bilge Switch
- Heat Sensor

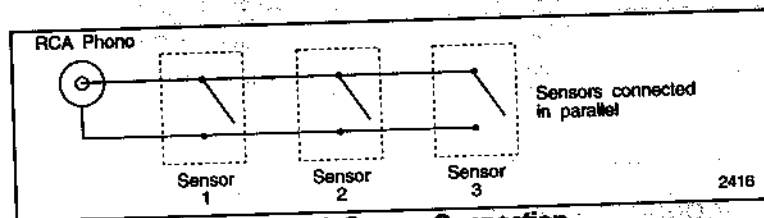


Figure 11. Sensor Connection

3. DSC AL Connector

Connects to a 12 V siren or strobe light, which are triggered when a condition alarm sensor is enabled or when a DSC distress call is made.

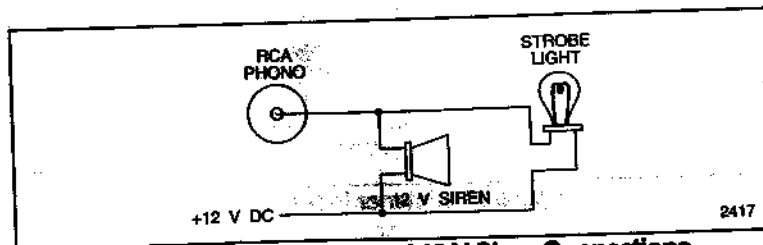
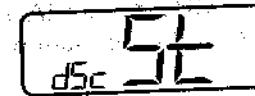


Figure 12. Strobe Light and 12 V Siren Connections

7.3 DISTRESS CALLING

7.3.1 Programming MMSID Number and Navigational Device

1. Press and hold the **[COMM]** key and turn on the radio.
2. Press the **[DSC]** key until the DSC menu is displayed:



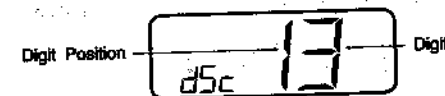
3. Press the **[R/D]** key to enter the MMSID Number programming menu. The display will show the first digit position.



4. Press the **[<]** or **[>]** key to select the first digit of the MMSID number. For example the ship's MMSID number is "366321405", digit positions are as follows:

MMSID Digit	3	6	6	3	2	1	4	0	5
Digit Position	1	2	3	4	5	6	7	8	9

The first digit to be programmed is "3":



5. Press the **[R/D]** key to move to the next digit position.
6. Press the **[<]** or **[>]** key to set the second digit.
7. Repeat steps 5 and 6 until all 9 digits of the MMSID Number are set.

8. Press the **[RD]** key to enter the Navigational Device menu:



9. If GPS or LORAN is connected to the rear NMEA connector, press the **[ON]** key to activate. The display will show "ON". If GPS or LORAN is not connected, press the **[ON]** key until the display shows "OF".

10. Press the **[RD]** key to revert to the display in step 4.

11. To exit programming mode, turn off the radio .

7.3.2 Operation

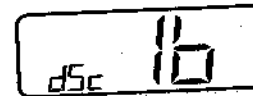
To send a DSC distress call (only in case of emergency), do the following.

1. Turn on the radio.
2. Press the PA/DISTRESS Control twice within one-half second.
3. The radio will start sending a digital distress signal on channel 70, and the ship's position and UTC time (if connected to navigational device) intermittently to all DSC-equipped radios. The display will show:



4. A loud signal will also be heard from the speaker regardless of the volume level set.

5. After signal is sent, the radio automatically monitors channel 16 to listen to any reply from other ships. The display will show:



6. If a reply is received, press the PTT to respond or **[CLR]** key to listen to response.

7.4 CONDITION ALERTING

7.4.1 Programming

NOTE

The ship's MMSID Number must be programmed before proceeding with the following steps.

1. Press and hold the **[GMR]** key and turn on the radio.
2. Press the **[ON]** key until the CON menu is displayed:



3. Press the **[RD]** key to enter the CON MMSID programming menu.



4. Press the **[UP]** or **[DOWN]** key to select the first digit of the CON MMSID Number (this is the MMSID number of the station which will exclusively receive the condition alert signal from your ship). For example the other

station's MMSID number is "366416202", the digit positions are as follows:

CON MMSID Digit	3	6	6	4	1	6	2	0	2
Digit Position	1	2	3	4	5	6	7	8	9

The first digit to be programmed is "3".

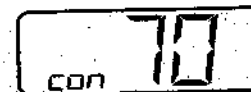


5. Press the **[RD]** key to go to the next digit.
6. Press the **[↑]** or **[↓]** key to select second digit of the CON MMSID.
7. Repeat steps 5 and 6 until all 9 digits of the CON MMSID are set.
8. Press the **[RD]** key to revert to the display in step 4.
9. To exit programming mode, turn off the radio.

7.4.2 Operation

1. Make sure the sensors are connected to the sensor connector at the rear of the radio. The sensor should be normally open and close on abnormal conditions when the boat is in harbor.
2. Turn on the radio.
3. Adjust the squelch control to a point at which random noise is not heard.
4. Press and hold the **[PAAL]** key for more than 3 seconds.

5. Radio operation will stop and the LCD will display the following:



6. When a sensor detects abnormal conditions (fire, theft, sinking, etc.) continuously for more than 30 seconds, the radio transmits an alert signal intermittently to the station whose MMSID is programmed in your radio and a loud signal will be heard from the speaker regardless of what level the volume is set. If external alarms (such as 12 V siren, strobe light) are connected, they are also activated.

Press the PTT or **[CLR]** key to clear the DSC condition alert.

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

1. Never key the transmitter unless an antenna or suitable dummy load is connected to the antenna receptacle.
2. Ensure that the input voltage does not exceed 16 VDC or fall below 11 VDC.

In the unlikely event of problems, consult the TROUBLESHOOTING CHART on the next page. If your radio still fails to operate normally, please contact our repair facility at:

Factory Repair Facility
 SCC-Standard Communications Corp.
 4876 W. North Temple
 Salt Lake City, Utah 84116
 Telephone Number: 1-800-366-4566
 FAX Number: 1-801-359-4122

TROUBLESHOOTING CHART

SYMPTOM	PROBABLE CAUSE	REMEDY
Radio fails to power up.	No DC voltage to the radio or blown fuse.	Check power cable for DC voltage or replace fuse with 6A 250 V fuse.
Radio blows fuse upon connection to power supply.	Reversed power connections.	Make sure the RED wire is connected to the POSITIVE battery terminal and the BLACK wire is connected to NEGATIVE. If radio still blows fuse, contact an SCC Dealer.
Popping or whining noise from the speaker while the 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 or speaker.	The external speaker jack will accept only RCA phono plugs.
Radio transmits but does not receive.	Channel mode.	The radio may be tuned to a duplex channel meant for ship-to-shore radio telephone communications. "DUP" is displayed for duplex channels.
Radio transmits on low power only.	Antenna.	Have antenna checked or test the radio on another antenna. If problem persists, contact an SCC Dealer.

TROUBLESHOOTING CHART

SYMPTOM	PROBABLE CAUSE	REMEDY
Scan channels and DSC ID Numbers are not held in memory when power is turned off.	Defective Internal Battery.	Contact an SCC Dealer.
Pressing the PA/Distress Control does not enable a distress call.	No CDS2300 installed. Defective internal battery.	Press the PA/Distress Control twice within 0.5 second. Install a CDS2300 to use this function and program DSC ID (see SCC Dealer). Contact an SCC Dealer to replace internal battery.
PA/AL key does not access the condition alarm mode.	No CDS2300 installed. Defective internal battery.	Press and hold the PA/AL key while channel information is displayed until the radio switches to condition alarm mode. Install a CDS2300 to use this function and program condition alert ID (see an SCC Dealer). Contact an SCC Dealer to replace internal battery.
A beep is heard from the speaker when the PA mode is selected.	Squelch adjustment. Radio is receiving a transmission.	Adjust squelch to the threshold point (see section 5.11)
Radio does not transmit on high or low power.	Defective antenna. Defective Radio.	Transmitter circuit has a true power indication. If the TX/BUSY LED lights red, the radio is transmitting; if not, contact an SCC Dealer.

9 SPECIFICATIONS

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

9.1 GENERAL

Frequency Range	156.050 to 163.275 MHz
Channels	65 total: 55 marine + 10 weather
Input Voltage	13.8 VDC \pm 20 %
Current Drain:	
Standby	0.5 A
Receive	1.5 A
Transmit	6 A (Hi); 1.7 A (Lo)
Public Address (with Listen Back) Power	6 watts
@ 4 ohms	
Dimensions(in.)	2 2/5-H x 5 3/4-W x 7 1/2-D (60 mm x 145 mm x 190 mm)
Weight	1.94 lb. (0.88 kg)
FCC Parts	80
FCC Type Acceptance Number	APV0392
DOC Type Approval Number	Pending

9.2 TRANSMITTER

RF Output	25 W (Hi); 1 W (Lo)
Conducted Spurious Emissions	65 dB (Hi); 50 dB (Lo)
Audio Response	within \pm 2/-8 of a 6 dB/octave pre-emphasis characteristic at 300 to 3000 Hz
Audio Distortion	5%
Modulation	16K0F3E and 10K2F1B
Frequency Stability (-30° to +60° C)	\pm 0.0005 %

9.3 RECEIVER

Sensitivity:
 20 dB Quieting 0.25 μ V
 12 dB SINAD 0.20 μ V
 Squelch Sensitivity (Threshold) 0.13 μ V
 Modulation Acceptance Bandwidth \pm 7.5 kHz
 Selectivity:
 Spurious and Image Rejection - 70 dB
 Intermodulation and Rejection
 (at 12 dB SINAD Sensitivity) - 70 dB
 Audio Output at 5 % Distortion 4 W
 Audio Response within +2/-8 of a 6 dB/octave
 de-emphasis characteristic at 300 to 3000 Hz
 Frequency Stability (-30° to +60° C) \pm 0.001 %
 Channel Spacing 25 kHz

Small Extension Speaker 2
 Remote Extension Speaker 2
 Mailer Horn 2
 Mailer Horn 2

A
 A indicator 15
 Antenna jack 12
 Antenna, Connection 7

B
 Backlight 16
 Bracket, Mounting 5

C
 CAW2340 Extension Cord 2
 CDS2300 DSC Board 2, 26
 Channel 9 21
 Channel 13 22
 Channel 16 21
 Channel 67 23
 Channel 70 26, 32
 Channels, Number of 39
 CLR key 12
 CMB14 Straight Flush-Mount Bracket 2, 6
 CMB15 Angled Flush-Mount Bracket 2, 6
 CON MSSID 33
 Condition Alerting 26
 Condition Alerting, Operation 34
 Condition Alerting, Programming 33
 Controls, connectors 8
 Current Drain 39
 CVS240 Voice Scrambler 2, 23

D
 DC Input cable 13
 DC23 Dust Cover 2
 Digital Selective Calling (DSC) 26
 Dimensions 39
 Distant mode 16
 Distress Calling 26
 DN key 10
 DOC Type Accepted 1, 39

DSC AL connection 29
 DSC Cable 13
 DSC Connections 27
 DSC, operation 32
 DX/LOC indicator 14

E
 Electrical Connections 7
 Emergency Channel 21
 Emission 1
 EXP indicator 15
 External speaker jack 12

F
 FCC Parts 39
 FCC Regulations 3
 FCC Type Number 1
 Frequency Range 1, 39

G
 Gasket installation 4
 GPS connection 28
 GPS Sentences 29

H
 H/L key 11
 HI/LO indicator 14

I
 Indicators 14
 Input Voltage 39
 Installation, transceiver 5
 International mode 18

L
 Local mode 16
 Location, mounting 3
 LORAN connection 28
 LORAN sentences 29

M		SIM/DUP Indicator	14
Maintenance	36	Simplex/Duplex Channel Use Specifications	17
Maritime Mobile Service ID (MMSID)	26	Squelch Control	10, 18, 19
MEM Indicator	14	Squelch Sensitivity	40
Microphone	1	T	
Microphone Hanger	13	Telephone Calls, making	22
Microphone Jack	12	Transmission	17
MSSID, Programming	31	Transmit Time-out Timer (TOT)	17
Mounting, Location	3	Troubleshooting Chart	37
Mounting, Optional Brackets	6	TX/BUSY LED	12, 17
N		Type Acceptance	1
NMEA Connector	29	U	
O		UP key	10
Options	2	USA mode	18
P		USA/INT/CAN Indicator	14
PA Mode	21	V	
PA/AL Key	11	Viewing Angles, changing	4
PA/Distress Control	10	Voice Scrambler, Operation	24
Power, connection	7	Voice Scrambler, Programming	23
Power, Output	1	Volume Control	8, 16
Power Switch	8	VS indicator	15
PTT Switch	13	W	
PWR UP key	13	Weather Alert	20
R		Weather channel, exit	18
R/D key	11	Weather channel, receive	18
Reception	16	Weather channel, select	18
Repair facility	36	Weight	39
Replacement Parts	2	WX indicator	14
S		WX key	10
SC/PS key	12		
Scan, delete	19		
Scan, memory	19		
Scanning	19		
Scanning, priority	19		
Scanning, start	19		
Scanning, stop	19		
Scanning, weather channels	20		
SCMB key	11		
Sensitivity	40		
Sensitivity Control	8		
Sensor, Connector	30		
Sensors	30		