

SEA 157S DSC/VHF Radiotelephone



Operator's Manual

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INTRODUCTION

Congratulations on your purchase of the SEA 157S DSC/VHF marine radio. Careful attention to design and manufacturing have gone into making your SEA 157S one of the best marine DSC/VHF radios available today.

This operator's handbook is designed to show you how to get the best performance from your radio.

Reading this handbook will give you an understanding of all the features the SEA 157S has to offer, as well as instructions on installation, maintenance and service.

SYSTEM CONSISTS OF:

<u>Part Number:</u>	Description:
157SA/R	SEA 157S VHF Radiotelephone
OPR 157S	Operations manual
TEM-0157-01	Flush-mount template
FAB-0157-10	Self-adhesive-flush-mount gasket
FAB-0157-04	Trunnion bracket
KIT-0157-99	Hardware Kit: Flush-mount hardware Flush-mount brackets (2) Mounting knobs (2) Splice connector – insulated Screw (2) – 10-32 x 5/16 Washer – neoprene (2) Washer – nylon (2) Plug – microphone Fuse holder Fuse (7.5A) Microphone hanger

OPTIONS & ACCESSORIES:

<u>Part Number:</u>	
MIC-0157-M9	Microphone
MIC-0002-031	Handset
SPE-0500-25	External Speaker
KIT-0157-30	Flush-mount bracket/trim ring

TECHNICAL FEATURES AND SPECIFICATIONS

Dimensions: 3.6" H x 9.6" W x 2.8" D
Weight: 3 lbs (1.4 kg)

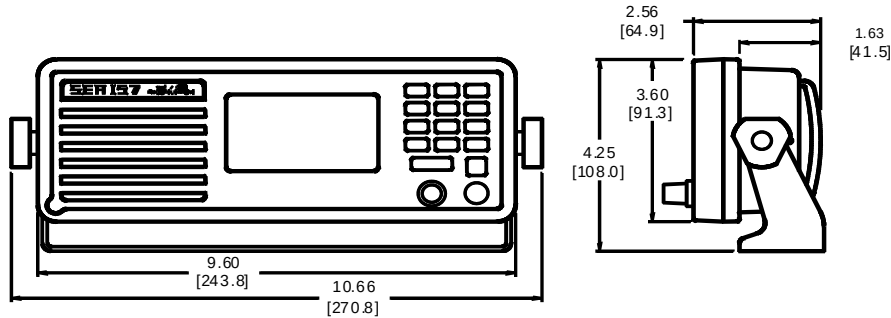


Figure 1.1

ELECTRICAL SPECIFICATIONS

12 Vdc +30% -10% <1.0 – Amp Receive
 <7.0 – Amp Transmit

WIRING DIAGRAMS Main Cable

	Color Code		Signal
1 -	RED	-	12 Vdc (+)
2 -	BLACK	-	12 Vdc (-)
3 -	BLUE*	-	Audio Out
4 -	ORANGE*	-	Internal Speaker (IN)
5 -	YELLOW	-	(VDR) 600 Ohm Balanced
6 -	GREEN	-	(VDR) 600 Ohm Balanced
7 -	VIOLET	-	(VDR) Ground
8 -	GRAY	-	AUX remote distress key
9 -	BROWN	-	PTT
10 -	WHITE/RED	-	Mute
11 -	WHITE	-	Microphone Input
12 -	SHIELD	-	Microphone Input GND

***NOTE: Audio Out – (BLUE) and Internal Speaker (IN) - (ORANGE) wires must be connected in order for internal speaker operation.**

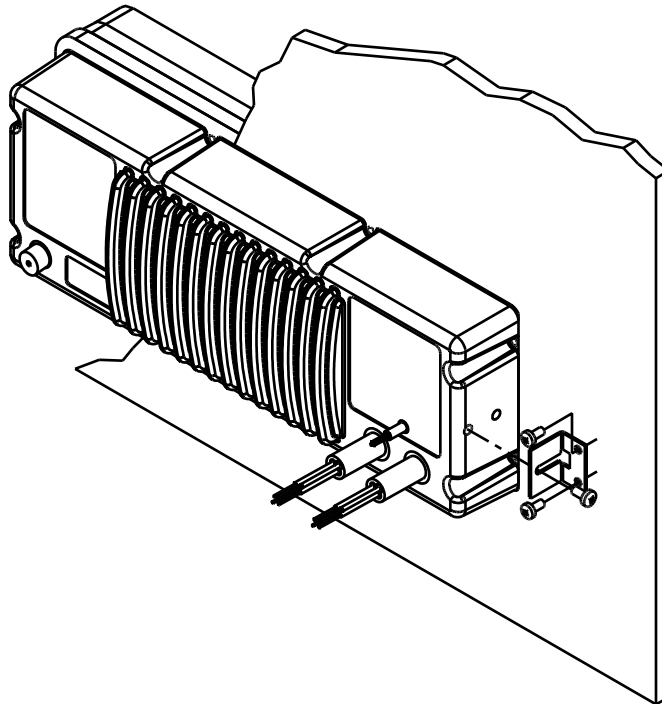
WIRING DIAGRAM Remote (SEABUSS) Cable

	Color Code	Signal
1 -	BLACK	- GND
2 -	RED	- 13.6V Switched
3 -	VIOLET	- Remote PTT
4 -	GREEN	- SEABUSS Data (+)
5 -	BLUE	- SEABUSS Data (-)
6 -	YELLOW	- SEABUSS Audio (+)
7 -	BROWN	- SEABUSS Audio (-)
8 -	WHITE	- ON-OFF Control
9 -	SHIELD	- GND

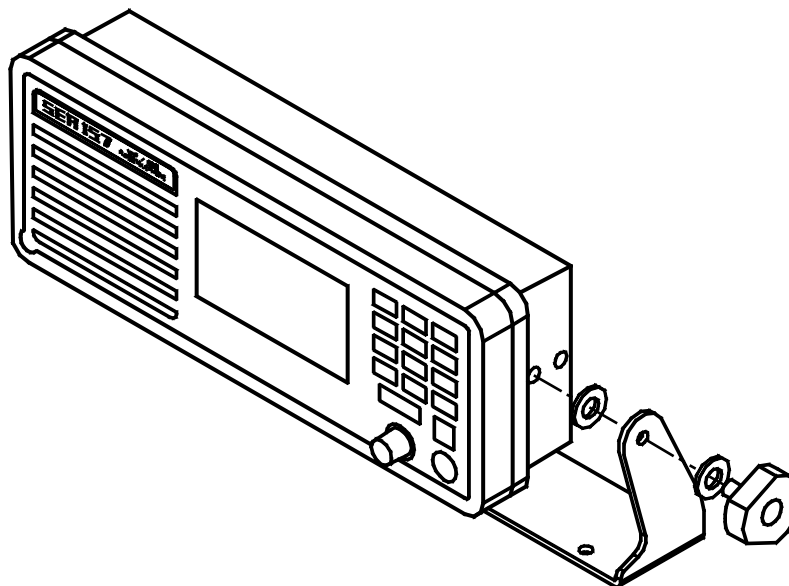
WIRING DIAGRAM Data Cable

	Color Code	Signal
1 -	WHITE/BROWN	- RS232 TxD Line
2 -	BROWN/WHITE	- RS232 RxD Line
3 -	WHITE/ORANGE	- RS232 GND
4 -	WHITE/BLUE	- NMEA Input (+)
5 -	BLUE/WHITE	- NMEA Input (-)
6 -	WHITE/GREEN	- NMEA Output (+)
7 -	GREEN/WHITE	- NMEA Output (-)
8	ORANGE/WHITE	- No Connect
9 -	SHIELD	- GND

INSTALLATION



Flush Mount
Figure 1.2



Mounting Bracket
Figure 1.3

Physical Mounting:

Select a mounting location where the unit is easily accessed. Mount the unit in the desired position using the provided Trunnion mount or flush mounting kit. See Figures 1.2 and 1.3.

Power supply wiring:

CAUTION: Make sure that the provided fuse holder is installed on the power cord between the radio and the power source, and that the proper sized fuse (7.5A) is installed.

Use a 12 volt +30%/-10% (10.8 to 15.6VDC) DC power source for proper operation. Do not exceed 16.0 volts. Direct connection to the battery is recommended. Connect the heavy red wire, **with in-line fuse installed**, to the positive (+) terminal and the heavy black wire to the negative (-) terminal. Negative ground is required for the USA/Canada version of the SEA 157S.

CAUTION: If the polarity of the power wires is reversed (Black to positive, Red to negative), and power is accidentally applied to the radio, the in-line fuse will blow. It is possible that damage could also occur to some internal components. Application of voltages greater than 16.0 volts will produce the same result. (Refer service to a qualified technician.)

Antenna wiring:

Use only the best available 50 ohm coaxial antenna cable and connectors. The antenna must be vertically polarized. Check the antenna system for less than 1.5:1 VSWR with an in-line wattmeter before final installation. The antenna cable PL-259 connector should be tightly fastened to the antenna connector on the back of the unit. All antenna connections should be carefully protected from the weather.

1.0 Power On/Off

Momentarily press the PWR key to turn on the unit. The radio first performs a diagnostic self-test, displaying any errors, then reverts to the last channel selected.

To turn off the unit, hold the PWR key in until the display reads 'POWER DOWN " (greater than 2 seconds), then release.

NOTE: The last volume, dim, squelch levels, and channel number are saved when the unit is powered down using the PWR key.

2.0 KEYPAD FUNCTION AND DISPLAY LAYOUT

2.1 Keypad Layout

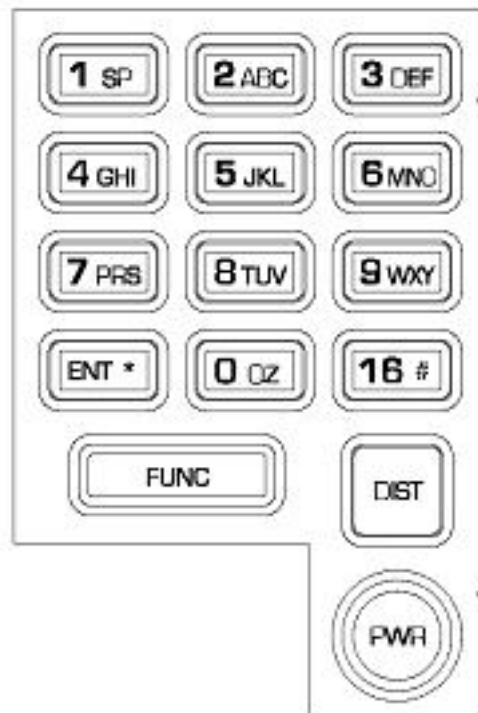


Figure 1.4
Keypad

2.2 Keypad Functions

1/SP	Alpha/Numeric Entry – Space Character
2/ABC	Alpha/Numeric Entry
3/DEF	Alpha/Numeric Entry
4/GHI	Alpha/Numeric Entry
5/JKL	Alpha/Numeric Entry
6/MNO	Alpha/Numeric Entry
7/PRS	Alpha/Numeric Entry
8/TUV	Alpha/Numeric Entry
9/WXY	Alpha/Numeric Entry
0/QZ	Alpha/Numeric Entry.
ENT/*	Opens and Closes Edit fields. General acknowledgement of Prompts that require user action. On the Primary Radio Display, this key can be used to select the radio controls: Volume, Channel, Squelch and the Back Light level.
DIST	DSC Distress Call. Press for 5 seconds to initiate a Distress call sequence.
16/#	Go to CH 16 immediately. If pressed again, switches to CH 9. Active in all radio modes.
PWR	Power on/off
FUNC	Generally used to access the Soft Key Menu. Also used to navigate through Menu Levels.

NOTE: During transmit, the keypad (1-0,FUNC, ENT*, 16 #) can be used to send DTMF tones.

2.3 Soft Key Functions

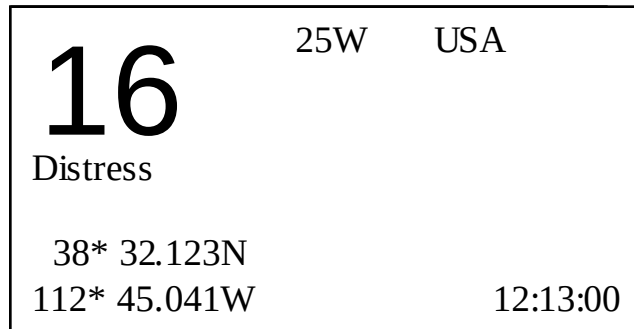
Pressing the FUNC key will bring up the Soft Key Menu, which will be displayed for five seconds. Pressing one of the number keys while the Soft Key Menu is displayed will initiate the secondary function associated with the key, as described below.

1-DW	2-SCAN	3-SEEK
4-PRI	5-LIST	6-CH GRP
7-1W	8-DSC	9-SQL
	0-MENU	

- | | |
|------------|---|
| 1 – DW | Starts the Dual Watch. Starts the Triple Watch if held. |
| 2 – SCAN | Starts the MEM Channel Scan. |
| 3 – SEEK | Starts the All Channel Seek. |
| 4 – PRI | Switches to the Priority Channel. |
| 5 – LIST | Displays the channels in the Memory Scan List |
| 6 – CH GRP | Toggle between USA/INT/WX channels. Last channel in each list is remembered |
| 7 – 1W | Toggle between 1W and 25W |
| 8 – DSC | Transmit a DSC call. User will be prompted for type of call to transmit |
| 9 – SQL | Squelch On/Off toggle |
| 0 – MENU | Opens the primary configuration menu |

2.4 Display Layout

The Primary Radio Display will appear as shown below:



The display may contain any of the following elements:

USA	Channel list indicator
INT	International list indicator
WX	Weather channel list indicator
PRI	Priority channel
TX	Transmitting
MEM	Memorized channel
1W or 25W	Power indicator
SCB	Scrambler On
DSC	DSC mode active
SQL	Squelch state on/off
A	Simplex USA channel
SCN	Scan is active
DW	Dual Watch is active

3.0 BASIC OPERATION

3.1 Key Usage

Most of the radio functions are selected using the FUNC key. The phrase “press FUNC-6” means to press and release the FUNC key, then press and release the 6 key. Some functions are selected by holding a number key for longer than 1 second. The phrase “press FUNC-6 for longer than 1 second” or “hold key” means to press and release the FUNC key, then press and hold the 6 key for longer than 1 second, then release the key. The radio will beep, if beep is enabled, when the key is pressed. On long key holds a double beep will be sounded when the key has been held down long enough to enable the secondary function.

While in the Primary Radio Display, the ENT key may be used to scroll through and select the major radio controls: Volume, Channel, Squelch and the display Backlight level.

3.2 Rotary Control

The rotary control of the SEA 157S is used for a number of radio functions, such as adjusting the channel, volume, squelch and backlighting from the Primary Radio display. The rotary control is also used to navigate through menu selection or to move the cursor position during edit operations.

When modifying radio controls on the Primary Radio Display the rotary control will return to the volume setting state 5 seconds* after the last adjustment is made. During Squelch adjustment, this time is extended by 5 seconds to allow for squelch on/off time. * Rotary control timeout time is adjustable. See Paragraph 18.3.3.

4.0 SELECTING A CHANNEL

4.1 Selecting Channel Lists USA/INT'L/WX

Pressing FUNC-6 will toggle the radio between the USA, INT'L and Weather Channel Lists. The radio will go to the last used channel in the selected list.

4.2 Selecting a Channel Using the Keypad

When the radio is in the Primary Radio Display, the numerical keys may be used to select a channel directly. To immediately switch to a channel, enter the two-digit channel number, including the leading zero for a single digit channel. If a single digit is pressed, the radio will switch to that channel following a 5 second pause.

For example, to go to channel 23 press 2,3 to switch to the channel immediately. Press 0,5 to go to channel 5 immediately. Press 6 and pause for 5 seconds and the radio will switch to channel 6.

4.3 Selecting a Channel Using the Rotary Control Knob

While on the Primary Radio Display, press the ENT key until "Change Channel" is displayed, then use the rotary control to scroll through the current channel list until the desired channel is displayed. Scrolling will wrap around at either end of the list; for example, the display will wrap from channel 88A to channel 1 when moving up through the list.

4.4 Selecting a Weather Channel

While in the WX channel list, press the ENT key until "Change Channel" is displayed, then use the rotary control to scroll through the current channel list until the desired channel is displayed. The channel number can also be entered directly by entering it with the keypad.

4.5 Modify Channel Operation

While on the Primary Radio Display, press and hold the ENT key until "Channel Operation" page is displayed. On this page there are several controls available for the channel which include changing the name of the

channel, adding CTCSS tone option (See Paragraph x.x), make the channel the Priority Channel and add/remove the channel from the Scan List.

5.0 VOLUME ADJUSTMENT

The default rotary control mode is volume setting. In the Primary Radio Display, simply turn the rotary control to adjust the volume from 0 to 15.

6.0 SQUELCH ADJUSTMENT

In the Primary Radio Display, pressing FUNC-9 will toggle the squelch on and off, as indicated by the SQL flag in the display.

To adjust the squelch level, press ENT key until “Change SQL” is displayed in the upper right corner of the display, then use the rotary control to adjust the level as desired.

The radio returns to its normal operating state 5 seconds* after the last squelch adjustment, or you may press FUNC to exit immediately.

* This time is influenced by the rotary control timeout time setting. See Paragraph 18.3.3.

7.0 DIMMER LEVEL

In the Primary Radio Display, press the ENT key until “Change DIM” is displayed in the upper right corner of the display. Use the rotary control to adjust the display backlight to desired level, from 0 (off) to 15 (brightest).

8.0 CHANNEL 16/9

Pressing the CH16 key during most states of radio operation will return the radio to CH16. Pressing CH 16 repeatedly will toggle the unit between CH16 and CH9, except while transmitting.

9.0 TRANSMITTING

After selecting the desired channel, pressing the PTT switch on the microphone will initiate transmission on that channel if it is allowed. The TX display enunciator will light while transmitting. At the onset of PTT, a five minute transmit timer* is started, and, if the transmission continues longer than this period, the radio will emit four short beeps and return to receive mode.

When transmitting on a 1W only channel, the power level may be temporarily set to 25W if the ENT key is held while transmitting.

Pressing PTT while the radio is in other than normal receive mode, such as volume level setting, Configuration Menu, or entering a channel number, will cause the unit to exit the mode, return to the last selected channel and begin transmitting immediately.

* Current FCC rules prohibit transmissions longer than five minutes in duration.

10.0 DUAL/TRIPLE WATCH

10.1 Dual Watch

The SEA 157S has two watch modes available. Dual watch is initiated by pressing FUNC-1 briefly while on the primary monitoring channel; the Dual Watch channel will then be checked every 1.0 second for activity. If there is activity on Dual Watch channel, the radio will hold on that channel until there is no activity or 5** seconds. The Dual Watch channel can be set to either CH16 or the Priority Channel in the Dual Watch setup menu option (See Paragraph 18.1.1). The channel number display will indicate which channel the unit is operating on. Pressing any key or PTT will exit dual watch and switch to the current channel. The DW Flag will be displayed when function is active.

10.2 Triple Watch

The Triple Watch function monitors three channels - CH16, the Priority Channel and a third selected channel. To initiate the Triple Watch feature, select a Priority Channel (Paragraph 13.0), select the third channel (Paragraph 4.3), then press FUNC-1 for more than one second. To exit the mode press any key or PTT.

11.0 SCAN/SEEK

The SEA 157S contains both Scan and Seek functions. Seek mode scans all channels in the selected Channel List (USA, INT, or WX), whereas Scan monitors channels that are members of a user-programmed Scan List.

11.1 Scan

The Scan function is initiated by pressing FUNC-2. The radio will scan the user-programmed list of scan channels, stopping on any active channel, and remaining on that channel for 5** seconds after the channel becomes inactive. The SCN Flag will be displayed when the function is active. Pressing the “ENT” key will force the radio to temporarily skip an active channel and continue scanning.

** 5 seconds is factory default. This time may be adjusted in the Radio Controls menu (Paragraph 18.3.2).

11.2 Scan List – Add/Delete Channels

Press and hold the ENT key until the “Channel Operations” page is displayed. If the channel is not in the scan list the bottom selection will be “Add to Scan List”, if the current channel is in the scan list then the bottom selection will be “Del from Scan List”.

11.3 Scan List – View

To view which channels are in the scan list press FUNC-5. Each channel in the scan list will be display for 1 second until the end of the list.

11.4 Seek (All Scan)

Seek is started by pressing FUNC-3. The radio will scan all the channels in the current Channel List. The SCN Flag will be displayed while the function is active. (Paragraph 4.0)

12.0 TRANSMIT POWER

Pressing FUNC-7 toggles the transmitter power level on channels that allow 25w transmission. On channels that only allow 1W this function has no effect. When transmitting on a 1W only channel the “FUNC” key may be held down while transmitting to temporarily switch to 25W. The 1W/25W display flag will indicate the current transmit power level.

13.0 PRIORITY CHANNEL

Pressing FUNC-4 switches the radio to the programmed Priority Channel. To select the current channel as the Priority Channel, press and hold the ENT key until the “Channel Operation” page is displayed. Use the rotary control to move the cursor to the “Make PRI Channel” and then press the ENT key. The Priority Channel is also used by the Triple Watch mode and the Priority Scan and Seek modes.

14.0 TRANSMITTING A DISTRESS CALL

A distress DSC call may be initiated using the following procedure:

- 1) Press either the local DIST key or the remote DIST key. An alert tone will sound while the key is held.
- 2) Select from the list of available distress conditions shown in “TYPE:” line..

If the radio is not supplied with positioning information from a GPS or other device, you will be prompted to enter the Lat/Long position. You may skip this step in an emergency and go back later to enter the position. To manually enter the position, use the keypad to input the digits and the rotary control to move the cursor.

After selecting the distress condition and manually entering the position, press and hold the distress key for 5 seconds to send the distress call.

The radio will wait for an acknowledgment from the coast station and automatically resend the DSC message approximately every 4 minutes if a coast station does not respond. During this time the display will show the time until next transmission and the “WAITING FOR ACK” status. At any time you may press the ENT key to resend the distress call immediately.

NOTE: All DSC functions are disabled unless a valid DSC ID (MMSI number) is programmed in the unit. See “Set DSC ID” (Paragraph 21.8).

15.0 TRANSMITTING A DSC CALL

To access the DSC Calling functions, press FUNC-8. This will bring up the primary DSC menu. The menu selections are used for reviewing received calls, programming station IDs and transmitting the various DSC message formats.

Most calls will conform to one of the five predefined formats which have a simplified calling procedure: Routine Individual calls, Alternate Channel proposal, Distress Relay calls and All Ship calls for the purpose

of warning. For all other calls that do not fit one of these predefined categories, the operator may compose a call using the Build Class A operation. Class A formats allow all call types to be generated, including geographic area calls, group calls, non-voice (fax and data) calls, position request and polls.

The **16 #** key may be used to abort the DSC call at any point in the process and return to the Primary Radio Display.

When a DSC call is made that does not require the receiving station to send an acknowledgment, such as an “ALL SHIP” call, the radio switches to the selected voice communications channel immediately after the call is sent. When an Individual call is sent the unit will wait for an acknowledgement to be received before switching to the selected channel.

While waiting for an acknowledgement to a DSC call the radio will alternately display “DSC CALLING” and “WAITING FOR ACK”. The call may be resent immediately by pressing the ENT key.

Once an acknowledgement is received the radio will switch to the selected voice channel and the display will show “ABLE” or “UNABLE”, depending on the response received, until the user takes action such as keying the radio or changing channels.

15.1 INDIVIDUAL DSC CALL

A routine Individual DSC Call is used to address another station and propose a working voice channel. This type of call requires the receiving station to send a response.

Start by selecting the desired working channel you want to use. Press FUNC-8 to access the DSC Menu. Using the rotary control to move the cursor, select individual DSC Call menu item, then press ENT. The user-programmable Individual DSC Calling list will be displayed with the last station called selected. Use the rotary control to select the desired station. Press ENT to initiate the DSC call.

15.2 GROUP DSC CALL

A routine Group Call is used to address a group of stations and propose a working voice channel. This type of call requires no response from the receiving stations.

Start by selecting the desired working channel you want to use. Press FUNC-8 to access the DSC Menu. Using the rotary control to move the cursor, select Group Call menu item, then press ENT. The user-programmable Group Calling list will be displayed with the last station called selected. Use the rotary control to select the desired station. Press ENT to initiate the DSC call.

15.3 PLACING A TELEPHONE CALL WITH DSC

The DSC call system may be used to set up a telephone call through an appropriately equipped coast station.

To initiate a phone call, press FNC-8 to access the DSC Menu. Using the rotary control to move the cursor, select the DSC Phone Call menu item, then press ENT. The most recently contacted coast station's DSC ID and phone number will be displayed. If this information is correct, press ENT to initiate the call.

To change the coast station's DSC ID, use the rotary control to move the cursor to the DSC ID field and then press ENT. Select either "Direct Entry" or select the DSC ID from the predefined Coast Station DSC ID list. Enter a new DSC ID if required. Press ENT to complete the entry.

To change the telephone calling number, use the rotary control to move the cursor to the phone number field, then press ENT. Select either "Direct Entry" or select a phone number from the predefined phone number list. Enter the new phone number if required. Press ENT to complete the entry.

Press the ENT key to transmit the request to the coast station. If the coast station is able to accept the request, the radio will change to the working channel assigned by the coast station.

16.0 RECEIVING A DSC CALL

The SEA 157S constantly monitors CH70 using a dedicated watch receiver. When a DSC call is received, the radio will beep quickly 2 times every 5 seconds. This alert tone will continue for 2 minutes or until the user presses a keypad key or the PTT switch, at which time the alert tone will cease. The display will indicate the type of call received, the source of the call (either the name or DSC ID) and any other information that is relevant to the type of call.

When a Distress Call is received the radio will sound an alternating 2-tone distress alarm. The alert tone will continue for 2 minutes or until the user presses a keypad key or the PTT switch, at which time the alert tone will cease. The display will indicate that a distress call has been received.

When an All Ships or Geographic Call is received the radio will beep once and switch to the voice channel specified by the calling station. The display will show “ALL SHIP” or “GEO CALL” while on the selected channel. The display will revert to its normal operating mode when the channel selector is changed or a key is pressed.

When an Individual Call is received additional action may be taken automatically, depending on the setting of the DSC ACK mode setup menu.

If an automatic reply has been selected, then the acknowledgment will be sent and the radio will switch to the voice channel selected by the calling station.

If the manual reply mode is selected then the radio will display “ABLE” and beep once per second. Use the “ABLE” setting, or select “UNABLE” using the rotary control, then press the ENT key to transmit the acknowledgment. The radio will switch to the channel selected by the calling station if “ABLE” was sent, or remain on the current working channel if “UNABLE” was sent.

If the Manual + Timeout Reply mode is selected then the radio will display “UNABLE” and beep until “ABLE” is selected using the rotary control and the ENT key is pressed. If 4.5 minutes pass without the user

selecting “ABLE”, the radio will transmit the Unable to Comply message and remain on current working channel.

While on the selected voice channel the display will alternate between “INDIVID” and the name or DSC ID of the caller. The name is displayed if the caller’s DSC ID is in the address book.

17.0 REVIEWING THE DSC CALL LOGS

17.1 ROUTINE DSC CALLS

The radio retains the last 50 received DSC calls in the DSC Log. To view the log, press FNC-8 to access the DSC Menu. Use the rotary control to select Review DSC Log, then press ENT. All information about the received call, including the received time and date, will be displayed. Use the rotary control to scroll through the log. Pressing the ENT key on a log display will prompt you to either delete the entry or initiate a DSC Call to the source DSC ID.

Information displayed for GEOAREA, INDIVIDUAL, GROUP, ALL SHIPS and UNKNOWN message:

Line 1 Message number and Category

Line 2 Received from DSC ID or name

Line 3 UTC Time / Date for when the call was received

Line 4 Channel / Frequency / Position (dependent on type of call)

Line 5 ACK Status

Line 6 Telecommand 1

Line 7 Telecommand 2

Information displayed for PHONE CALL message:

Line 1 - Message number and phone number

Line 2 - Received from DSC ID or name

Line 3 - UTC Time / Date for when the call was received

Line 4 - Call Duration / Channel / Frequency / Position

Line 5 - ACK Status

Line 6 - Telecommand 1

Line 7 - Telecommand 2

Information displayed for DISTRESS CALL / RELAY or ACK message:

Line 1 - Message number and Distress Call / ACK / Relay

Line 2 - Received from DSC ID or name
Line 3 - UTC Time / Date for when the call was received
Line 4 - Position / Time of position fix
Line 5 - Nature of distress
Line 6 - Relay DSC ID if available
Line 7

17.2 DISTRESS CALL LOG

The radio retains the last 20 DSC Distress calls in the Distress Log. To view the log, press FNC-8 to access the DSC Menu. Use the rotary control to select Review Distress Log, then press ENT. All information about the received call, including the received time and date, will be displayed. The rotary control may be used to scroll through the log entries.

The Distress Log is organized by events, that is, all the Distress Calls sent by or to an individual DSC ID within a 2 hour period represents a Distress Event with the current status represented by the last call received.

If a Distress Event is active, that is, it has not been acknowledged, and the event is more than 5 minutes from the original distress call, then the operator may initiate a Distress Relay* or a Distress Acknowledgement**. While viewing the Distress Event, press the ENT key. A prompt will allow selection of a Broadcast Relay, Addressed Relay or Acknowledgement. Select the type of call, then press the ENT key. If an Address Call is selected, a destination DSC ID may be entered at the subsequent prompt. All other information required for the DSC call will be automatically inserted.

* Care should be taken when sending relay calls for another ship in distress. A distress relay should only be sent if it has been confirmed that the coast station did not receive the original call.

** Distress Acknowledgement should be transmitted to terminate the call only after consulting with a Rescue Coordination Center or a Coast Station, and being directed to do so.

The information displayed in the Distress Log contains the following information:

Line 1 - Time / Date of original distress call
Line 2 - The DSC ID or name for the vessel in distress

Line 3 - Nature of the Distress
Line 4 - Position / Time of Position Fix
Line 5 - Current status (Distress, Relay, ACK)
Line 6 - The source DSC ID for the Relay or Acknowledgement
Line 7 - Time / Date of last DSC call for this event

17.3 MISSED CALLS

If a received DSC call is not acknowledged by pressing the PTT switch or a keypad key within 5 minutes, the call is placed in the Missed Call List.

To view the Missed Call List, press FNC-8 to access the DSC Menu. Use the rotary control to select Review Missed Calls, then press ENT. All information about the received call, including the received time and date, will be displayed. Use the rotary control to scroll through the log.

Pressing the ENT key will allow you to delete the entry, add to the DSC List if not already part of that list or respond to the call. If responding, then a DSC call will be transmitted to the received DSC ID.

Information displayed for Missed Call List:

Line 1 Message number and Category
Line 2 Received from DSC ID or name
Line 3 UTC Time / Date for when the call was received
Line 4 Channel / Frequency / Position (dependent on type of call)
Line 5 Telecommand 1
Line 6 Telecommand 2

18.0 CONFIGURATION MENU

The Configuration Menu contains general option selections and radio functions. The Menu is entered by pressing FUNC-0. While in the Configuration Menu, if there is no activity for 30 seconds, or if the CH16 or DIST keys are pressed, the Menu will be exited with no changes being saved, and the radio will return to the Primary Radio Display.

The rotary control is used to scroll through the list of menu options. If a particular configuration needs to be changed, press the ENT key to open the edit page. Some edit pages contain more than one configurable option

with the cursor pointing to edit field. Use the rotary control to select the item that needs to change and press the ENT key to begin editing. While the option is being adjusted it will blink. Some edits use the rotary control to select from a predefined list of configurations while others use the keyboard to enter the data. Modify the configuration accordingly, then press the ENT key to accept the change. While in the Configuration Menu, pressing the FUNC key will abort an open edit. If no edit is open the radio will back up one menu level.

18.1 Watch Mode Options

This Configuration page has the options for Channel Watch operations:

18.1.1 Dual Watch Options

Chan 16 Channel 16 has priority and is checked every 2 seconds regardless of activity on other channels.

PRI Chan The Priority Channel has priority and is checked every 2 seconds regardless of activity on CH16 or the Primary Channel.

18.1.2 Triple Watch Options

Chan 16 Channel 16 has priority and is checked every 2 seconds regardless of activity on the Primary or the Priority Channel.

PRI Chan The Priority Channel has priority and is checked every 2 seconds regardless of activity on CH16 or the Primary Channel.

18.2 DSC Options

This Configuration page contains options for DSC operation.

DSC ACK This option controls the radio's response to an individual DSC call. The options include:

Auto Unable Automatic Reply, Unable to Comply The radio will automatically send an Unable to Comply response and stay on the current working channel.

Auto Able Automatic Reply, Able to Comply. The radio will send an Able to Comply message and will switch to the channel selected by the calling station.

Manual Time Manual + Timeout, Unable to Comply. The radio will wait 4.5 minutes for the user to manually send an Able to Comply message; otherwise it will send an Unable to Comply message and stay on the current working channel.

Manual Only Manual Reply only. The radio stays on the current working channel and waits for user to select the reply to send.

18.3 Radio Controls

This Configuration page contains a number of general radio operation options.

18.3.1 Beep Level

Use the rotary control to select the beep volume level, 00-09.

18.3.2 Scan Hang Time

Use the rotary control to select the amount of time the radio in Scan remains on a channel after the squelch closes, in 0.5 second increments from 00 to 09 on the display (0 to 10 seconds).

18.3.3 Rotary Control Timeout

Use the rotary control to select the amount of time, in 0.5 second increments, to pause after the rotary control has been used for an alternative function before returning to the default mode selected above. Allows selection of 0-09 (0-30 seconds).

18.4 Scramble Options

Use the rotary control to select the scrambler code, from 0 to 9, to use in Scrambler mode. Selecting 0 turns off the Scrambler.

18.5 Channel Name

When this function is selected the first digit of the channel name will begin to flash. Use the keyboard keys to enter a new character, or the rotary control to move through the channel name. Pressing the **16 #** key will abort the editing and return to Channel 16 or Channel 9.

18.6 DSC Call Lists

Selecting this option allows selection of one of the four DSC ID lists supported by the radio: DSC ID, Group, Phone Number and Coast Stations. Use the rotary control to select a list to modify, then press ENT to open the List Display.

If a list contains entries, the names will be displayed in order entered. The rotary control may be used to scroll through the list. Press ENT to view the complete entry. The List View page contains the following three selections:

18.6.1 Add New

Selecting Add New will open a blank entry page where a Name and Number may be added. The Name may be up to 15 characters long. The DSC ID field is 9 digits. The Phone Number may be up to 18 digits.

18.6.2 Edit

Selecting Edit will allow the current entry to be modified. Use the rotary control to move the cursor and the keyboard to enter new information. When the edit is complete, press ENT to save the entry into the list and return to the List Display.

18.6.3 Delete

An entry may be removed from the list with this option.

18.7 Factory Reset

The Factory Reset option is used to return all configuration parameters to their factory default condition. A confirmation is required to perform the reset. Selecting NO will abort the action and return to the Configuration Menu.

18.8 Set DSC ID

Selecting this menu item will display the radio's current DSC ID. Press ENT key to open the edit mode, then use the keypad keys to modify the ID. Press ENT to save the changes. Press the FUNC key to return to the Configuration Menu. Pressing CH16 or DIST will exit immediately without saving any changes.

19.0 CHANNEL LISTS

US CHANNEL LIST			
CHAN	SIMP		
<u>NUMB</u>	<u>/DUP</u>	<u>TRANS</u>	<u>CHANNEL</u>
01	D	156.050	
01A	S	156.050	Port Operations,
02	-	156.100	RX Only
03A	S	156.150	
04A	-	156.200	RX Only
05A	S	156.250	(VTS), U.S. Only, Port
06	S	156.300	Intership Safety
07A	S	156.350	Commercial
08	S	156.400	Commercial, Non-
09	S	156.450	Commercial, Non-
10	S	156.500	Commercial
11	S	156.550	(VTS) Commercial
12	S	156.600	(VTS) Port Ops
13	S	156.650	Bridge-to- Bridge, (Manual Override to 25
14	S	156.700	(VTS) Port Ops
15	S	156.750	RX Only (Coast to Ship Environmental)
16	S	156.800	DISTRESS CALLING
17	S	156.850	Maritime Control
18A	S	156.900	Commercial
19A	S	156.950	Commercial
20	D	157.000	Port Ops
20A	S	157.000	Port Ops, Intership
21A*	S	157.050	U.S. Govt ONLY
22A	S	157.100	U.S. Coast Guard
23	D	157.150	Public Correspondence
23A*	S	157.150	U.S. Govt ONLY
24	D	157.200	Public Correspondence
25	D	157.250	Public Correspondence
26	D	157.300	Public Correspondence

US CHANNEL LIST

CHAN	SIMP		
<u>NUMB</u>	<u>/DUP</u>	<u>TRANS</u>	<u>CHANNEL</u>
27	D	157.350	Public Correspondence
28	D	157.400	Public Correspondence
60	-	156.025	RX Only
61A*	S	156.075	Public Correspondence
62A	-	156.125	RX Only
63A	S	156.175	Port Ops, Commercial
64A	S	156.225	Public Correspondence
65A	S	156.275	Port Ops
66A	S	156.325	U.S. ONLY, Port Ops
67	S	156.375	Commercial "Bridge-to- (Manual Override to 25
68	S	156.425	Non-Commercial
69	S	156.475	Non-Commercial
70	S	156.525	Digital Selective Calling
71	S	156.575	Non-Commercial
72	S	156.625	Non-Commercial
73	S	156.675	Port Ops
74	S	156.725	Port Ops
77	S	156.875	Port Ops, Intership Only (Manual Override to 25
78A	S	156.925	Non-Commercial
79A	S	156.975	Commercial
80A	S	157.025	Commercial
81A*	S	157.075	U.S. Govt ONLY
82A*	S	157.125	U.S. Govt ONLY
83A*	S	157.175	U.S. Govt ONLY
84	D	157.225	Public Correspondence
85	D	157.275	Public Correspondence
86	D	157.325	Public Correspondence
87	D	157.375	Public Correspondence
88	D	157.425	Public Correspondence
88A	S	157.425	Commercial Intership

NOTE: * Transmission subject to FCC rules.

Duplex receive frequency = ship transmit frequency +4.6 MHz

INT'L CHANNEL LIST

CHAN	SIMP			
<u>NUMB</u>	<u>/DUP</u>	<u>TRANS</u>	<u>CHANNEL</u>	
01	D	156.050	Canada	Public
02	D	156.100	Canada	Public
03	D	156.150		
04	D	156.200		
05	D	156.250		
06	S	156.300	Intership	
07	D	156.350		
08	S	156.400	Intership	
09	S	156.450		
10	S	156.500		
11	S	156.550		
12	S	156.600		
13	S	156.650		
14	S	156.700		
15	S	156.750		
16	S	156.800	Distress and Calling	
17	S	156.850		
18	D	156.900		
19	D	156.950		
20	D	157.000		
21	D	157.050		
22	D	157.100		
23	D	157.150	Public Correspondence	
24	D	157.200	Public Correspondence	
25	D	157.250	Public Correspondence	
26	D	157.300	Public Correspondence	
27	D	157.350	Public Correspondence	
28	D	157.400	Public Correspondence	
60	D	156.025	Canada	Public
61	D	156.075		
62	D	156.125		
63	D	156.175		
64	D	156.225		

INT'L CHANNEL LIST

CHAN	SIMP		
<u>NUMB</u>	<u>/DUP</u>	<u>TRANS</u>	<u>CHANNEL</u>
65	D	156.275	
66	D	156.325	
67	S	156.375	
68	S	156.425	
69	S	156.475	
70	S	156.525	Digital Selective Calling
71	S	156.575	
72	S	156.625	Intership
73	S	156.675	
74	S	156.725	
77	S	156.875	Intership
78	D	156.925	
79	D	156.975	
80	D	157.025	
81	D	157.075	
82	D	157.125	
83	D	157.175	Public Correspondence
84	D	157.225	Public Correspondence
85	D	157.275	Public Correspondence
86	D	156.325	Public Correspondence
87	D	156.375	Public Correspondence
88	D	156.425	Public Correspondence

NOTE: * Transmission subject to FCC rules.

Duplex receive frequency = ship transmit frequency +4.6 MHz

WEATHER CHANNEL LIST:

<u>CHAN</u>	<u>NUMB</u>	<u>RECEIV</u>	<u>CHANNEL</u>
	WX01	162.550 -	US Primary 1
	WX02	162.400 -	US Primary 2
	WX03	162.475 -	US Primary 3
	WX04	163.275 -	
	WX05	161.650 -	Canada (Channel 21B)
	WX06	161.775 -	Canada (Channel 83B)
	WX07	162.425 -	US Secondary 4
	WX08	162.450 -	US Secondary 5
	WX09	162.500 -	US Secondary 6
	WX10	162.525 -	US Secondary 7

NOTE: * Transmission subject to FCC rules.

Duplex receive frequency = ship transmit frequency +4.6 MHz

20.0 TROUBLESHOOTING

20.1 Unlock Warning

If the radio's main receiver Phase-Locked Loop circuitry becomes unlocked, the unit will display "UNLOCK". The channel may be changed in an attempt to find a channel that is locked. Transmission is disabled while the radio is unlocked, but all other functions operate normally.

The radio may continue to receive DSC calls and Distress calls via the Watch Receiver, but will be unable to respond until PLL lock is achieved.

If the condition persists, service by an authorized Service Center is required to correct the problem.

20.2 No Audio

Make sure that the Audio Out (blue) and Audio In (orange) wire of the cable are connected together.

21.0 APPENDIX A

NMEA Sentences

The following is a list of IEC 61162 / NMEA sentences supported by the SEA 157S Radio. These sentences support GPS position sensors and DSC calling functions.

Input Sentences include, but are not limited to:

GGA	Global positioning system fix data
RMC	Recommended minimum specific GNSS data
VTG	Course over ground and ground speed
GLL	Geographic position – latitude/longitude
ZDA	Time and data (UTC)
RMB	Recommended minimum navigation information
DSC	Digital Selective Calling information
DSE	Expanded Digital Selective Calling information
DSI	DSC Transponder Initialize

Output Sentences include, but are not limited to:

DSC	Digital Selective Calling information
DSE	Expanded Digital Selective calling information
DSR	DSC Transponder Response
TLL	Target Latitude and Longitude coordinates

22.0 APPENDIX B

ITU 493 Information fields

Format Types The Format Type defines the receiving party or addressee of the call. The available formats are:

Geographical Area Addressed to ships in a specified area.

Distress Addressed to all ships

Group Addressed to ships having a common interest

All Ships Addressed to all ships

Individual Addressed only to the specified DSC ID

Geographical Area The area for the call must be defined when selecting Geographical Area as the Format Type. The area may be defined using Lat/Long coordinates or as a center point and range from the center of the area. The default center point will be the ship's current position, if available, but can be set to any Lat/Lon position. The range is defined as the number of nautical miles from the center point in all directions.

Priority Category The Priority Category is a designator that defines the priority of the DSC call. The categories include:

Distress In grave and imminent danger of life and property with immediate assistance required.

Urgency Relates to safety of life or property.

Safety Important navigational or meteorological warning.

Routine Normal and routine priority.

Nature of Distress The Nature of Distress must be included in the composition of a Distress Call. The choices include:

Fire, Explosion

Flooding

Collision

Grounding

Listing in danger of capsizing

Sinking

Disabled and adrift

Undesignated Distress

Abandoning ship

Piracy/Armed robbery attack
Man Overboard
EPIRB emissions

Telecommand 1 Defines the communication response format of the receiving station following reception of a call. The choices include:

F3E SPX	FM Voice communications using simplex
F3E DPX	FM Voice communications using duplex
FIB FEC	FSK digital communications using automatic reception of FEC telegraphy
FIB ARQ	FSK digital communications using automatic reception of ARQ telegraphy
UNABLE	Unable to comply with request
FIB TTY	FSK digital communications using automatic reception of TTY telegraphy
IB TTYR	FSK digital communications using automatic reception of TTY telegraphy – receive only
FAX	Facsimile
NO INFO	No additional information

Telecommand 2

NO RESN	No reason given
CONGEST	The channel is congested
BUSY	Coast Station or Phone number is busy
QUEUE	Call is places in queue
BARRED	Restricted from use
NO OP	No operator present
OP UNAVL	Operator is unavailable
DISABLE	Equipment is disabled
RADCHAN	The requested channel is

23.0 APPENDIX C

SEABUSS II Junction Box

The SEABUSS II Junction Box is an optional device that resides on the SEABUSS, thereby offering additional I/O support and features not available on the SEA 157S chassis alone. Some of the additional ports and features include:

- balanced audio line in
- balanced audio line out
- key line mute
- remote PTT input
- auxiliary output
- RS-232 serial port
- external microphone/speaker interface
- remote control radio operation
- four SEABUSS II ports
- ethernet interface

When used with an external microphone and speaker, the Junction Box may be used as a remote radio control device, performing all non-DSC functions of an SEA 157S Remote Head.



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