



SEA 222 OPERATOR'S MANUAL
150W HF/SSB Radiotelephone



The "brain" of the SEA 222 is divided into two parts:

1. 258 factory programmed frequency pairs selectable by channel number from EPROM memory.
2. 100 channels of "scratchpad" memory for front panel programming and recall (note: 10 of these channels are "EMERGENCY" channels).

When operating your SEA 222 please note:

1. Any two-digit keystroke followed by "ENT" will recall user-programmed channels 10-99.
2. Any 3 or 4-digit keystroke followed by "ENT" recalls factory programmed channels.

FRONT PANEL CONTROLS:

DISPLAY:	The eight-digit alphanumeric display provides the operator with frequency and channel data.
4 x 4 KEYPAD:	16 keys allow the operator to communicate with the computer which controls radio functions. For simple operation, an "operator friendly" software package is used in conjunction with the display. All of the keys are listed below.
ENT	Enters previously keyed data into the computer.
NUMBER KEYS	Keys numbered 0 through 9 enter required numerical data into the computer.
▲/▼ (ARROWS)	These keys permit receiver tuning up or down in 100 Hz steps.
CH/FR	Allows the operator to display either channel number or the frequency of operation. Example: pressing this key when the display reads "CHAN 801" causes the display to indicate the operating receive frequency assigned to channel number 801 (8719 KHz).
SQL	Activates or deactivates the voice operated squelch system. When the squelch is activated, the most significant digit in the display will contain the letter "Q".
EMER	Allows instant recall of programmed emergency channels.

TUNING RANGE:

SEA 222 transmit tuning range is from 1700 KHz to 22999.9 KHz.
The receiver tuning range is from 500 KHz to 24999.9 KHz.

PUTTING YOUR SEA 222 IN THE OPERATING MODE:

Turn the volume ON/OFF knob on. The radio will go through a self-test procedure, where the display will show "TEST 1", "TEST 2", followed by "2182.0".

To comply with FCC standards, after three minutes the radio is ready to operate on 2182.0 KHz.

TO DIM THE DISPLAY:

Press any single digit followed by "ENT" ("0" being off and "9" being bright).

Example: "9", "ENT" (brightest display); "0", "ENT" (extinguishes display).

Restore display to maximum brightness by touching any key when the display is extinguished.

TURNING THE AUDIO FEEDBACK OFF/ON:

To turn off the beep, enter any even digit and the "ENT" key.

Example: Press "6", "ENT".

To turn the beep back on, enter any odd digit and the "ENT" key.

Example: Press "7", "ENT".

TO SELECT CHANNELS OR FREQUENCIES STORED IN THE FACTORY PROGRAMMED MEMORY OF THE SEA 222, FOLLOW THESE STEPS:

The factory programmed frequencies are listed on page 7 of this booklet. Access to these frequencies is explained on pages 2 through 5.

To select a channel by number, press the desired three or four digit channel number, then "ENT".

Example: Press "4", "0", "3", "ENT". The display will read "CHAN 403" and the radio will be set to operate on channel 403.

TO DISPLAY THE FREQUENCY ASSIGNED TO A CHANNEL NUMBER:

Press the "CH/FR" key while your desired channel number is displayed.

Example: Press "CH/FR" key while the display reads "CHAN 403". The display will indicate the receive frequency of 4363. Pressing "CH/FR" again will revert the display back to "CHAN 403".

TO PROGRAM THE SEA 222 SCRATCHPAD MEMORY:

Press 8888888 (seven 8's). The display will read "PROGRAM", then "BIN#?". The SEA 222 is now in the program mode.

Press the desired two-digit bin number, followed by "ENT".

Example: Press "1", "0", "ENT". The display will read "TX FREQ".

Enter the desired transmit frequency (press "ENT" if receive only operation is desired).

Example: Press "124292", "ENT". The display will read "A3A?". Press "ENT" for normal A3J operation or "1", "ENT" for A3A operation. Display will read "RX FREQ".

Press "ENT" for simplex operation or your desired receive frequency for duplex or receive only operation.

Example: For duplex operation, enter "123456", "ENT". This will enter the frequency 12345.6 KHz into the receiver's frequency memory. Display will read "STORED". The radio will indicate when it is ready for programming the next bin location by showing "BIN#?" on the display.

NOTE: To program emergency channels, follow the previous steps, using a single digit number (0-9) instead of a two-digit number when prompted for "BIN#?".

TO REPROGRAM A CHANNEL:

To overwrite already programmed information, enter the program mode by pressing "8888888" (seven 8's).

Enter the desired two-digit bin number, followed by "ENT".

Example: Press "10", "ENT". The display will read "BINFULL".

Press any numeric key.

Example: Press "1". The display will read "TX FREQ?".

Continue to program as explained in the section "TO PROGRAM THE SEA 222 SCRATCHPAD MEMORY".

TO ERASE CHANNEL FREQUENCIES:

Enter the program mode and select the channel to be erased. The display will prompt "BINFULL". Press any numeric key. When the display prompts "TX FREQ?", press "ENT". When the display prompts "RX FREQ?", press "ENT". The frequency information stored in that bin has been erased and the display will prompt "BIN#?".

TO ENTER SCAN MODE:

Channels 10-19 are reserved for scanning and you can program up to 10 channels using the program mode. To activate, turn the radio off, then on to set the antenna tuner in the neutral tuning mode (it may be necessary to reprogram the squelch for satisfactory operation). To start scanning, press "CH/FR", then "▲". Scanning stops on active channels and resumes when the channel becomes inactive. To step over an unwanted active channel, press "▲". To stop scanning, press "EMER" (stops on present channel).

TO RECALL A FREQUENCY OR CHANNEL FROM SCRATCHPAD MEMORY:

Enter the desired two-digit bin number, followed by "ENT".

Example: Press "10", "ENT". The display will show the programmed receive frequency or "EMPTY".

Pressing the "CH/FR" key will switch the display to showing channel number.

Note: Radio is delivered from the factory with an unprogrammed scratchpad.

TO ADJUST THE SQUELCH THRESHOLD:

Enter the program mode by pressing "8888888" (seven 8's). The display will show "PROGRAM", then "BIN#?".

Press the "SQL" key. The display will read "SQ 0-9?" (4 is the factory set threshold).

Enter the desired squelch setting ("0" is off, "9" is maximum).

TO EXIT THE PROGRAM MODE:

The program mode can be exited by pressing "EMER" or, if no entry is made for 10 seconds, the system will automatically exit the program mode. The display will read the last frequency programmed or "2182.0" if no frequency was previously programmed. Pressing CH/FR will prompt the display to show the channel number.

TO ENTER A RECEIVE ONLY FREQUENCY:

Enter the desired five or six digit frequency between 500.0 and 24000.0, followed by "ENT".

Example: Press "100000", "ENT". The operating system will interpret this as a receive only frequency of 10,000.0 KHz. The transmitter will be inhibited in this mode.

SIMPLEX FREQUENCY DIRECT ENTRY:

Enter the desired frequency within the radio's tuning range. While pressing and holding the microphone key, press the "ENT" key. Your radio will be set to operate on the entered frequency on a simplex basis. The ▲/▼ keys will work on a +/- 200 KHz basis only.

TO SELECT AN EMERGENCY CHANNEL:

Press any single digit, then "EMER".

Example: Press "0", "EMER". The display will read "2182.0".

Up to 10 emergency frequencies may be stored using channels 0-9. Channel 0 is factory programmed as 2182.0 KHz.

OPERATING OPTIONAL FEATURES:

OPERATING NECODE SCAN-STOP

To configure the SEA 222NC for Necode scan, enter the program mode by pressing 8888888 (seven 8's) and enter up to four desired scan frequencies in scratchpad channels 91-94. Exit the program mode.

To enter the Necode scan routine, press "9" "9" "ENT". The display will read "NECODE" for approximately two seconds before the radio begins scanning.

The frequencies loaded into the Necode scan channels will continue to be scanned until:

- a. The Necode equipment decodes a response. This will cause the scan cycle to be stopped, the receiver audio to be unsquelched, and the transmitter to respond with the acknowledge signal.
- b. The operator presses any key to exit the Necode scan mode.
- c. The SEA 222 receives a PTT input and enters the transmit mode.

OPERATING IN C.W. MODE

When the C.W. option is installed in the SEA 222 (involving the installation of a Morse key), operation involves entry of a C.W. frequency. The radio automatically enters the C.W. mode, allowing C.W. keying.

SEA 222 FREQUENCY LISTING (EFFECTIVE JULY 1, 1991)

2 MHz BAND

CHAN.	SHIP TX	SHIP RX	USE
201	2003	2003	SHIP-TO-SHIP, GREAT LAKES
203	2006	2006	ALASKA
209	2031.5	2490	WOM
211	2054	2054	BRITISH COLUMBIA WX
212	2065	2065	SHIP-TO-SHIP
213	2079	2079	SHIP-TO-SHIP
214	2082.5	2082.5	SHIP-TO-SHIP ONLY
215	2086	2086	SHIP-TO-SHIP, MISS. RIVER LTD. COAST
217	2093	2093	SHIP-TO-SHIP ONLY - COMM. FISH
218	2096.5	2096.5	SHIP-TO-SHIP, SHIP-TO-LTD. COAST STATION
219	2115	2115	ALASKA
220	2118	2118	ALASKA
221	2118	2514	WOM
223	2131	2309	KODIAK
224	2134	2312	COLD BAY, CORDOVA, SITKA, KPQ, GALVESTON
228	2142	2142	CA INTERSHIP
230	2158	2550	WFA, TAMPA; WLC, ROGERS CITY; WBL, BUFFALO; PJC, CARACAO
236	2203	2203	SHIP-TO-SHIP GULF OF MEXICO
238	2206	2582	WLC, ROGERS CITY; HALIFAX
239	2237	2397	ALASKA KETCHIKAN
240	2240	2400	ALASKA JUNEAU, NOME
242	2366	2450	
245	2390	2566	WOM
248	2406	2506	KMI
249	2419	2419	ALASKA
250	2422	2422	ALASKA
251	2427	2427	ALASKA
252	2430	2572	WLO
254	2430	2430	ALASKA

CHAN.	SHIP TX	SHIP RX	USE
255	2447	2447	ALASKA
256	2450	2450	ALASKA
257	2458	2506	KGN, DELCAMBRE
258	2479	2479	ALASKA
259	2482	2482	ALASKA
261	2506	2506	ALASKA
262	2509	2509	ALASKA
263	2512	2512	ALASKA
266	2535	2535	ALASKA
267	2538	2538	ALASKA
268	2563	2563	ALASKA
269	2566	2566	ALASKA
273	2616	2616	ALASKA
275	2638	2638	SHIP-TO-SHIP
277	2670	2670	USCG WORKING
280	2738	2738	SHIP-TO-SHIP, ALL EXCEPT GREAT LAKES/ GULF
282	2830	2830	SHIP-TO-SHIP, GULF ONLY
301	3023	3023	AERONAUTICAL ENROUTE
303	3201	3201	ALASKA POINT-TO-POINT
304	3258	3258	ALASKA
305	3261	3261	ALASKA
306	3449	3449	ALASKA AERO

4 MHz BAND

CHAN.	SHIP TX	SHIP RX	USE
401	4065	4357	KMI
402	4068	4360	
403	4071	4363	WOM
404	4074	4366	
405	4077	4369	WLO
406	4080	4372	
407	4083	4375	
408	4086	4378	
409	4089	4381	
410	4092	4384	WOO
411	4095	4387	WOO
412	4098	4390	WOM
413	4101	4393	
414	4104	4396	WLO
415	4107	4399	

CHAN.	SHIP TX	SHIP RX	USE
416	4110	4402	
417	4113	4405	
418	4116	4408	
419	4119	4411	WLO
420	4122	4414	
421	4125	4417	
422	4128	4420	WOO
423	4131	4423	WOM
424	4134	4426	
425	4137	4429	
426	4140	4432	
427	4143	4435	
450	4125	4125	
451	4146	4146	
452	4149	4149	4B PRIVATE. COAST/INTERSHIP
453	4417	4417	4C PRIVATE COAST INTERSHIP

6 MHz BAND

CHAN.	SHIP TX	SHIP RX	USE
601	6200	6501	USCG
602	6203	6504	
603	6206	6507	
604	6209	6510	
605	6212	6513	
606	6215	6516	
650	6215	6215	DISTRESS AND SAFETY
651	6224	6224	6A PRIVATE. COAST/INTERSHIP
652	6227	6227	6B PRIVATE COAST/INTERSHIP
653	6230	6230	6C PRIVATE COAST/INTERSHIP
654	6516	6516	

8 MHz BAND

CHAN.	SHIP TX	SHIP RX	USE
801	8195	8719	
802	8198	8722	WOM
803	8201	8725	
804	8204	8728	KMI
805	8207	8731	WOM
806	8210	8734	

CHAN.	SHIP TX	SHIP RX	USE
807	8213	8737	
808	8216	8740	WOO
809	8219	8743	KMI
810	8222	8746	WOM
811	8225	8749	WOO
812	8228	8752	
813	8231	8755	
814	8234	8758	WOM
815	8237	8761	WOO
816	8240	8764	USCG
817	8243	8767	
818	8246	8770	
819	8249	8773	
820	8252	8776	
821	8255	8779	
822	8258	8782	
823	8261	8785	
824	8264	8788	WLO
825	8267	8791	WOM
826	8270	8794	WOO
827	8273	8797	
828	8276	8800	WLO
829	8279	8803	WLO
830	8282	8806	WLO
831	8285	8809	WOM
832	8288	8812	
850	8291	8291	DISTRESS AND SAFETY
851	8294	8294	8A PRIVATE COAST/INTERSHIP
852	8297	8297	8B PRIVATE COAST/INTERSHIP

12 MHz BAND

CHAN.	SHIP TX	SHIP RX	USE
1201	12230	13077	KMI
1202	12233	13080	KMI
1203	12236	13083	KMI
1204	12239	13086	
1205	12242	13089	USCG
1206	12245	13092	WOM
1207	12248	13095	
1208	12251	13098	WOM
1209	12254	13101	WOM
1210	12257	13104	WOO
1211	12260	13107	WOO

CHAN.	SHIP TX	SHIP RX	USE
1212	12263	13110	
1213	12266	13113	
1214	12269	13116	
1215	12272	13119	WOM
1216	12275	13122	
1217	12278	13125	
1218	12281	13128	
1219	12284	13131	
1220	12287	13134	
1221	12290	13137	
1222	12293	13140	WOM
1223	12296	13143	
1224	12299	13146	
1225	12302	13149	
1226	12305	13152	WLO
1227	12308	13155	
1228	12311	13158	WOO
1229	12314	13161	KMI
1230	12317	13164	
1231	12320	13167	
1232	12323	13170	
1250	12290	12290	DISTRESS AND SAFETY
1251	12353	12353	12A PRIVATE COAST/INTERSHIP
1252	12356	12356	12B PRIVATE COAST/INTERSHIP
1253	12359	12359	12C PRIVATE COAST/INTERSHIP

16 MHz BAND

CHAN.	SHIP TX	SHIP RX	USE
1601	16360	17242	WOM
1602	16363	17245	KMI
1603	16366	17248	KMI
1604	16369	17251	
1605	16372	17254	WOO
1606	16375	17257	
1607	16378	17260	
1608	16381	17263	
1609	16384	17266	WOM
1610	16387	17269	WOM
1611	16390	17272	
1612	16393	17275	
1613	16396	17278	
1614	16399	17281	
1615	16402	17284	

CHAN.	SHIP TX	SHIP RX	USE
1616	16405	17287	WOM
1617	16408	17290	
1618	16411	17293	
1619	16414	17296	
1620	16417	17299	WOO
1621	16420	17302	
1622	16423	17305	
1623	16426	17308	
1624	16429	17311	KMI
1625	16432	17314	USCG
1626	16435	17317	WOO
1627	16438	17320	
1628	16441	17323	
1629	16444	17326	
1630	16447	17329	
1631	16450	17332	WOO
1632	16453	17335	
1633	16456	17338	
1634	16459	17341	
1635	16462	17344	
1636	16465	17347	
1637	16468	17350	
1638	16471	17353	
1639	16474	17356	
1640	16477	17359	
1641	16480	17362	WLO
1650	16420	16420	DISTRESS AND SAFETY
1651	16528	16528	16A PRIVATE COAST/INTERSHIP
1652	16531	16531	16B PRIVATE COAST/INTERSHIP
1653	16534	16534	16C PRIVATE COAST/INTERSHIP

18 MHz BAND

CHAN.	SHIP TX	SHIP RX	USE
1851	18840	18840	SHIP-TO-SHIP
1852	18843	18843	SHIP-TO-SHIP

22 MHz BAND

CHAN.	SHIP TX	SHIP RX	USE
2201	22000	22696	WOO

CHAN.	SHIP TX	SHIP RX	USE
2202	22003	22699	
2203	22006	22702	
2204	22009	22705	
2205	22012	22708	WOO
2206	22015	22711	
2207	22018	22714	
2208	22021	22717	
2209	22024	22720	
2210	22027	22723	WOO
2211	22030	22726	
2212	22033	22729	
2213	22036	22732	
2214	22039	22735	
2215	22042	22738	
2216	22045	22741	
2217	22048	22744	
2218	22051	22747	
2219	22054	22750	
2220	22057	22753	
2221	22060	22756	
2222	22063	22759	WOM
2223	22066	22762	KMI
2224	22069	22765	
2225	22072	22768	
2226	22075	22771	
2227	22078	22774	
2228	22081	22777	KMI
2229	22084	22780	
2230	22087	22783	
2231	22090	22786	
2232	22093	22789	
2233	22096	22792	
2234	22099	22795	
2235	22102	22798	
2236	22105	22801	KMI
2237	22108	22804	WLO
2238	22111	22807	
2239	22114	22810	
2240	22117	22813	
2251	22159	22159	22A PRIVATE COAST/INTERSHIP
2252	22162	22162	22B PRIVATE COAST/INTERSHIP
2253	22165	22165	22C PRIVATE COAST/INTERSHIP
2254	22168	22168	22D PRIVATE COAST/INTERSHIP
2255	22171	22171	22E PRIVATE COAST INTERSHIP

MISCELLANEOUS FREQUENCIES

(The following non-factory programmed frequencies may be programmed into scratchpad memory)

CHAN.	SHIP TX	SHIP RX	USE
	2782	2782	MISS. RIVER
	4366	4366	ALASKA
	4369	4369	ALASKA
	4396	4396	ALASKA
	4402	4402	ALASKA
	4420	4420	ALASKA
	4423	4423	ALASKA
	5472	5472	ALASKA AERO
	5490	5490	ALASKA AERO
	4065	4065	MISS. RIVER
	4089	4089	MISS. RIVER
	4116	4116	MISS. RIVER
	4408	4408	MISS. RIVER
	5164.5	5164.5	ALASKA PUBLIC FIXED
	5167.5	5167.5	ALASKA EMERGENCY/CALLING
	5680	5680	AERO SEARCH/RESCUE
	6209	6209	MISS. RIVER
	6212	6212	MISS. RIVER
	6510	6510	MISS. RIVER
	6513	6513	MISS. RIVER
	8201	8201	MISS. RIVER
	8213	8213	MISS. RIVER
	8725	8725	MISS. RIVER
	8737	8737	MISS. RIVER
	12362	12362	MISS. RIVER
	12365	12365	MISS. RIVER
	16543	16543	MISS. RIVER
	16546	16546	MISS. RIVER

HIGH SEAS STATIONS

KMI	POINT REYES, CA
WLO	MOBILE, AL
WOM	FORT LAUDERDALE, FL
WOO	MANAHAWKIN, NJ

SCRATCHPAD MEMORY CHANNEL/FREQUENCY LOG

Use this handy log to keep a record of the frequencies you store in scratchpad memory:

Location	Ship TX	Ship RX	Use
E0	2182.0	2182.0	Emergency Channel
E1	_____	_____	_____
E2	_____	_____	_____
E3	_____	_____	_____
E4	_____	_____	_____
E5	_____	_____	_____
E6	_____	_____	_____
E7	_____	_____	_____
E8	_____	_____	_____
E9	_____	_____	_____
10	_____	_____	_____
11	_____	_____	_____
12	_____	_____	_____
13	_____	_____	_____
14	_____	_____	_____
15	_____	_____	_____
16	_____	_____	_____
17	_____	_____	_____
18	_____	_____	_____

SCRATCHPAD MEMORY CHANNEL/FREQUENCY LOG

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SCRATCHPAD MEMORY CHANNEL/FREQUENCY LOG

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SCRATCHPAD MEMORY CHANNEL/FREQUENCY LOG

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SCRATCHPAD MEMORY CHANNEL/FREQUENCY LOG

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SSB PROPAGATION TABLES

Typical frequency propagation: Spring and Summer

BAND	4 MHz		8 MHz		12 MHz		16 MHz		22 MHz	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Propagation (Miles)										
Hours after sunset										
1	50	250	200	1000	500	3500	750	6000	1500	7000
2	100	800	250	1500	500	3500	750	6000		
3	100	600	250	2000	500	3500				
4	100	800	250	2500						
5	100	1000	250	2500						
6	100	1500	400	3000						
7	100	1500	500	3500						
8	250	2000	750	4000						
9	250	2500	750	4000						
10	250	2500	750	4000						
11	100	1000	500	2500						
Hours after sunrise										
1	100	500	400	2000						
2	0	100	400	2000						
3	0	100	250	1500						
4	0	100	250	1500	500	1000				
5	0	100	250	1500	500	1500				
6	0	100	250	1500	500	2500	750	4000		
7	0	100	250	2500	500	3500	750	4000	1500	7000
8	0	100	250	1500	500	3500	750	4000	1500	7000
9	0	100	250	1500	500	3500	750	4000	1500	7000
10	0	100	250	1500	500	3500	750	4000	1500	7000
11	0	100	150	500	500	3500	750	6000	1500	7000
12	0	200	150	500	500	3500	750	6000	1500	7000
13	50	250	150	750	500	3500	750	6000	1500	7000

SSB PROPAGATION TABLES

Typical frequency propagation: Fall and Winter

BAND	4 MHz		8 MHz		12 MHz		16 MHz		22 MHz	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Hours after sunset										
1	100	600	400	2000	500	3500	750	6000	1500	7000
2	100	800	400	2000	500	4000	750	6000		
3	100	1000	400	2000	500	4000				
4	100	1000	400	2500	500	4000				
5	100	1000	400	3000	500	4000				
6	100	1500	400	3500						
7	250	2000	400	4000						
8	250	2500	500	4000						
9	500	3000	500	4000						
10	500	4000	500	4000						
11	500	3000	750	5000						
12	250	2500	750	5000						
13	250	1500	500	2500						
Hours after sunrise										
1	100	1000	400	2000						
2	100	500	400	2000						
3	0	100	400	2000	500	3500	750	4000		
4	0	100	400	2000	500	3500	750	4000	1500	3000
5	0	100	250	1500	500	3500	750	4000	1500	4000
6	0	100	250	1500	500	3500	750	4000	1500	5000
7	0	100	250	1500	500	4000	750	5000	1500	6000
8	0	100	250	1500	500	4000	750	5000	1500	7000
9	0	100	250	1500	500	4000	750	6000	1500	7000
10	0	100	250	1000	500	3500	750	6000	1500	7000
11	0	250	250	1500	500	3500	750	6000	1500	7000

MARINERS GUIDE TO SINGLE SIDEBAND



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