

**HAND HELD  
MARINE VHF/FM  
RADIOTELEPHONE  
MICRO 90**

**OPERATION MANUAL**

**SITEX<sup>®</sup>**

# 1

## INTRODUCTION

This instruction manual provides information necessary for proper operation of your VHF/FM radiotelephone.

To avoid problems and obtain the best results, please read this instruction manual carefully before operating the unit.

You should become familiar with the FCC rules and regulations regarding the proper operating procedures, channels assigned for your type of operation, and restrictions that apply to the use of United States channels.

## WARRANTY INFORMATION

The warranty certificate provided with this unit outlines the limited warranty provisions. Water damage is specifically EXCLUDED from the limited warranty. It is therefore important to protect the equipment from water spray and rain.

## IMPORTANT NOTICE

This space is provided to record a description of your VHF/FM radiotelephone equipment. Enter the information for a permanent record.

Manufacturer : \_\_\_\_\_  
Description : VHF/FM Radiotelephone  
Model Number : \_\_\_\_\_  
Serial Number : \_\_\_\_\_  
Date of Purchase : \_\_\_\_\_  
Station License Number : \_\_\_\_\_  
Call Sign : \_\_\_\_\_

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### FCC LICENSE AND REGULATION INFORMATION

The FCC requires a ship station license for any vessel on which a radiotelephone is installed. The following procedures should be followed to obtain the ship station license.

1. It is necessary for you to fill out FCC Form 506 an application for ship station license, sign it and mail to **FEDERAL COMMUNICATIONS COMMISSION, GETTYSBURG, PENNSYLVANIA 17325.**
2. You may operate your VHF/FM marine radio under a temporary license Form 506A. You should read FCC Form 506A carefully to determine whether you meet all the requirements for holding a temporary permit. After reading Form 506A, you should sign the form and indicate the date of mailing of Form 506. **DO NOT MAIL THE TEMPORARY PERMIT.** Keep it in your possession until notification is received from the FCC that the regular license application has been approved. This temporary form is valid for 60 days.
3. Determine a temporary call sign to be used with the temporary permit, and enter this call sign in the appropriate place on Form 506A.

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## SPECIFICATIONS

### TRANSMITTER

Number of channels	: 54
Frequency range	: 156.050 to 157.425 MHz.
Frequency stability	: 0.001%
Channel spacing	: 25 KHz.
Temperature range	: -20°C to +50°C
Transmit power	: High : 5 W / Low 1 W
Modulation	: 16F3
Hum and Noise	: Better than 40 dB
Spurious and harmonic emission	: -60 dB
Microphone and sensitivity	: Electret type, 7mV
Power requirements	: 9.6V DC (Rechargeable battery or external power 9.6V DC)
Current drain	: High power 1.2 Amps at 9.6V DC
Battery life	: 2.6 hours duty cycle 5 min. receiver 1 min. transmit
Weight	: 0.9 lbs.
Dimensions	: 5.75"H x 2.26"W x 1.34"D

### RECEIVER

Number of channels	: 84 (10 weather)
Frequency range	: 156.050 to 163.275 MHz.
Frequency stability	: 0.001%
Sensitivity	: Better than 0.25uV at 12 dB SINAD
Squelch sensitivity	: Threshold : 0.35 uV Tight : 1.0 uV
Hum and Noise	: Better than 40 dB
Spurious rejection	: Less than -60 dB
Intermodulation rejection	: 60 dB

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Audio output : 0.4W into 8 ohms at  
10% distortion  
Current drain : 0.2 Amps at 9.6V DC  
60 mA for stand-by

**THIS MARINE VHF/FM RADIOTELEPHONE IS FCC  
TYPE ACCEPTED FOR MARINE/MOBILE USE UNDER  
PART 80, FOR VOLUNTARILY FITTED VESSELS.**

## GENERAL DESCRIPTION

This unit is an all solid state VHF/FM marine radiotelephone. It contains 54 transmit channels and 84 receive channels which includes 8 U.S. weather channels and 2 Canadian weather channels. These channels are designated for marine VHF/FM operations in United States territorial waters.

This unit is completely factory calibrated and does not require the services of a licensed technician for installation.

Front panel indicators display each mode of operation in the highly visible liquid crystal display (LCD).

The unit is rugged and reliable. with normal care and protection it will provide many years of dependable operation.

## POWER REQUIREMENTS

### Power required for operation

Your radiotelephone is designed to operate from a built-in power pack of NiCad rechargeable batteries. An external battery supply or an external power supply of 9.6 volts 1.2 amp. can also be used.

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### **Battery operation**

The NiCad batteries and the battery charger are supplied as standard equipment. these batteries have been fully charged at the factory. However, they should be recharged for several hours before using the unit for the first time.

### **Battery charging**

Batteries should be recharged for several hours after use and for a short period before you plan to use the radiotelephone again. This will ensure longer, more reliable operation. It is not necessary to remove the battery pack for recharging.

To charge the battery pack (Use wall charger) :

- 1) Connect the AC charger to the external CHG jack on the side of the unit.
- 2) Be sure the Power-Volume control is **OFF**.
- 3) Connect the battery charger to 115 volt 60 Hz. power. the battery pack will be charged automatically. Full charge requires approximately 6 hours.

**NOTE** : This unit does not have an indicator to show when the battery pack is fully charged. To determine the charged condition, disconnect the charger from the radio, and briefly press the transmit switch. If **BATT** sign appears in the LCD display, the battery pack should be charged immediately.

## **CONTROLS AND CONNECTORS**

### **1. ON-OFF/VOLUME CONTROL**

Applies power to the unit and adjusts desired level of sound.

### **2. SQUELCH CONTROL**

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When properly set, silences background noise in absence of a received signal.

### **3. PROGRAM KEYS**

Use to select desired channel and mode selections.

### **4. ANTENNA CONNECTOR**

Connect VHF/FM marine antenna (Rubber antenna).

### **5. SPEAKER : Front panel speaker.**

### **6. MICROPHONE : Inside Electret Microphone.**

### **7. LCD CHANNEL/FUNCTION DISPLAY**

Shows channel number and function mode.

### **8. PTT-MIC-SP. JACK**

For use external speaker-microphone with PTT switch.

### **9. EXTERNAL POWER JACK**

Use for adaptor operation. The power supply from battery pack is disconnected when the DC ADAPTOR is used. (DC ADAPTOR is an optional)

### **10. PUSH-TO-TALK SWITCH**

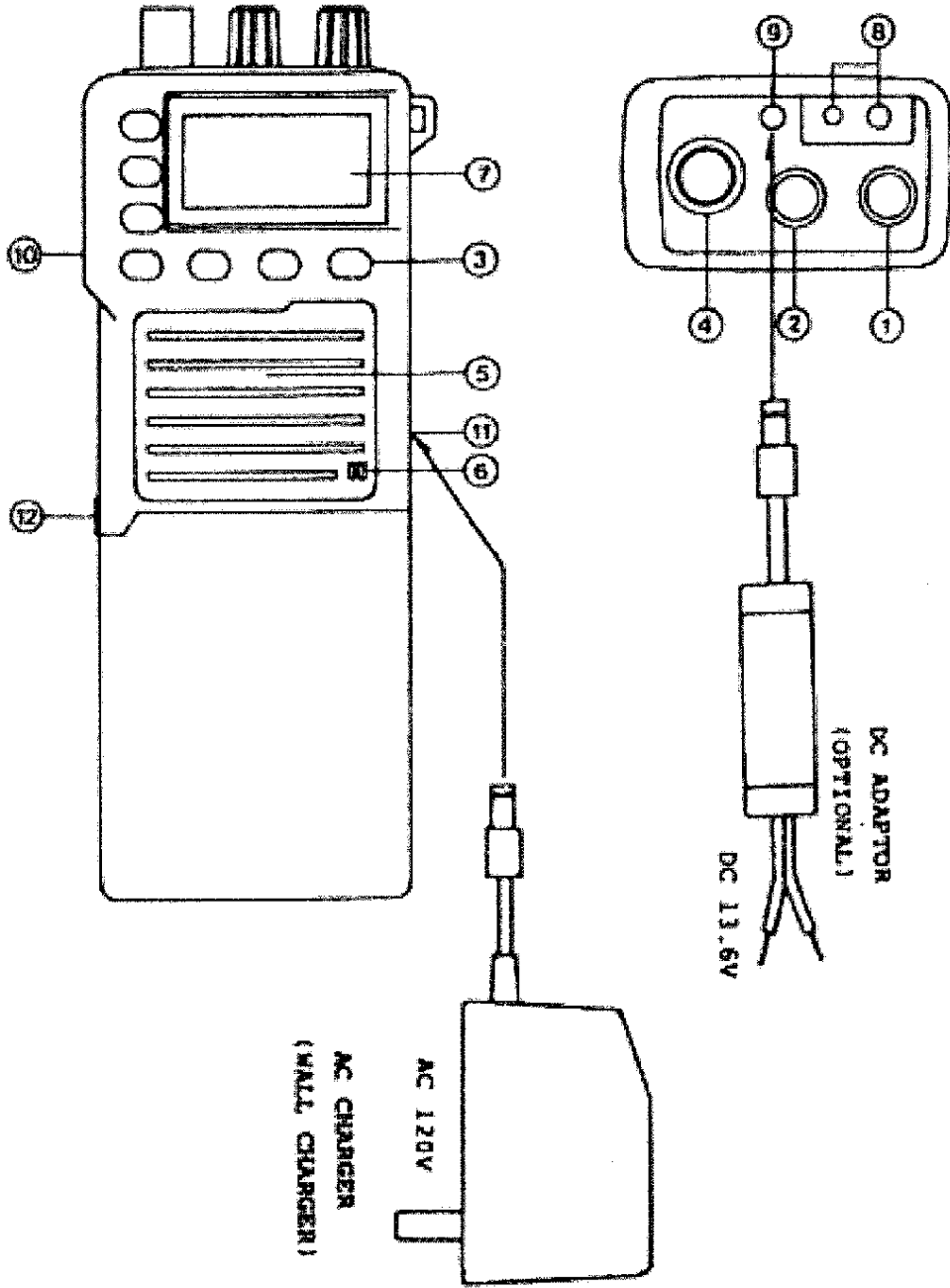
Push to transmit, release to receive.

### **11. EXTERNAL AC CHARGER(WALL CHARGER) JACK**

Use to charge the battery pack with AC CHARGER

### **12. BATTERY UNIT RELEASE LEVER**

Use to remove the battery pack. Push the release lever upward and slide the battery pack toward the right side to remove it.





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## OPERATION

### RECEIVING

1. Rotate the VOLUME control clockwise. When you hear a click, the power is on. Adjust the control to the desired listening level of sound. If you do not hear any sound, proceed to next step.
2. Turn the SQUELCH completely counter-clockwise. When sound comes from the speaker, adjust the VOLUME control to the desired listening level. Set the channel to an unused channel, then adjust the SQUELCH control clockwise until the background noise is just eliminated. This is called threshold adjustment. Further rotation of the squelch control can block out weaker signals.
3. Select the channel desired with up or down key of keypad. If channel 16 is to be used, select with CH 16 key.

### TRANSMITTING

**Caution : NEVER TRANSMIT UNLESS THE ANTENNA IS CONNECTED TO THE UNIT. SEVERE INTERNAL DAMAGE WILL OCCUR.**

Transmission is controlled by the "Push to Talk" switch on the unit. When the switch is pressed, the transmitter is turned on and the receiver is turned OFF. When the switch is released, the receiver is turned ON again and the transmitter is turned off. TX will appear in the LCD display when the PTT switch is pressed.

1. Before transmitting, choose the desired channel for operation. Be sure that the channel is clear and not occupied by another party.

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2. If your transmission is to be short range or in a harbor area, set to LOW power. When the communication range is longer, set to HI power. HI or LOW power is indicated in the LCD display. Low power is 1 watt, high power is 5 watts.

**NOTE :** USA channels 13, 67 and INT'L channels 15, 17 are automatically set to 1W low power when they are selected. 5W high power for these two USA channels is available by pressing the HI/LO key. The transmitter will not operate on CH15,60-64 USA channels and on weather channels.

3. Do not use obscene language in your communications. It is a violation of the rules and regulations and your license can be revoked.
4. The transmitter will automatically be turned off after five(5) minutes (except Public channels) and the receiver is put in action. At the same time, beep sound is heard from speaker.

### **USING THE KEYPAD**

#### **16 KEY**

Press to automatically switch from any other mode to CH 16. Pressing again makes the unit return to the last channel set before the key was pressed.

#### **UP KEY**

Pressing the "UP" key increases the channel numbers.

#### **DOWN KEY**

Pressing the "DOWN" key decreases the channel numbers.

#### **HI/LO POWER KEY**

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The transmit power is switched from "LO" to "HI" or "HI" to "LO" each time the key is pressed. The word "HI" or "LO" appears on the LCD display. "HI" power is 5 watts. "LO" power is 1 watt.

### SCAN KEY

Pressing the key starts the all channel scanning operation. "SCAN" is displayed in the LCD display. The scanning speed is 3 channels per second and stops at any active channel. To start scanning again while the unit is stopped on an active channel, keep pressing the "SCAN" key for 0.5 seconds or more. When the active channel goes OFF, the scanning starts again. To stop the scanning operation, operate the keys as follows :

- A) Re-press the "UP" or "DOWN" key. The scanning operation stops at the last channel displayed.
- B) Pressing the "16" key stops the scanning operation, and select the channel 16.

### MEMORY KEY

Use to add or delete channels from the scan memory. While performing the scan function this switch will toggle between all channel scan and programmed memory scan.

### WX KEY

Pressing the key during reception in any other channel selects the channel WX01. "WX" is displayed in the LCD display. Repeat pressing advances the channel to WX02, WX03 - WX10, WX01 in this sequence. When selecting other channels, operate the key as follows :

- A) Pressing the "UP" or "DOWN" key returns the unit to the last channel selected before the "WX" channel was selected.
- B) Pressing the "16" key automatically selects channel 16.

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## INT'L KEY

The INT'L and USA modes are alternatively switched each time key is pressed. INT'L is displayed in the LCD display.

## LIGHT KEY

Press the key. The LCD display is lighted for about 5 seconds.

## MEMORY PROGRAMMING

Select the channel number you want to enter into the scan memory. Press "MEM" key. this selected channel is now in memory. If you want to add additional channels to the memory scan, repeat the above operation.

The scan memory is available for all U.S. and International channels with the exception of the weather channels. Also, it is not possible to scan U.S. and International channels at the same time.

To activate the scan memory function on the unit, press the scan key after you have programmed the channels you wish to monitor. Use the "MEM" key to toggle between all channel and program memory scan.

## MEMORY CHANNEL DELETION

To remove a channel from memory, select the channel to be deleted and press the "MEM" key. After reactivating the scan memory function, you will notice the channel deleted will not be part of the programmed scan.

In the event no channels are programmed into memory, the LCD display will show "CL" to indicated a clear program.

## INSTALLED MARINE CHANNELS AND THEIR USAGE

**CAUTION:** While it is possible to select channel such as channels WX1 ~ WX10 and 15 (USA position) the transmitter is disabled since no communication is authorized on these channels.

INSTALLED CHANNELS	TX (MHz)		RX (MHz)		TYPE TRAFFIC	FUNCTION	
	INT'L	USA	INT'L	USA		SHIP TO SHIP	SHIP TO SHORES
01	159.050	159.050	160.850	159.050	Port Op	Yes	Yes
02	159.100	159.100	160.700	159.100	Port Op	Yes	Yes
03	159.150	159.150	160.550	159.150	Port Op	Yes	Yes
04	159.200	159.200	160.400	159.200	Port Op	Yes	Yes
05	159.250	159.250	160.250	159.250	Port Op	Yes	Yes
06	159.300	159.300	160.100	159.300	Safety C	Yes	No
07	159.350	159.350	160.000	159.350	Com 1	Yes	No
08	159.400	159.400	160.000	159.400	Com 2	Yes	No
09	159.450	159.450	160.000	159.450	Com 1 & Non Com 1	Yes	Yes
10	159.500	159.500	160.000	159.500	Com 1	Yes	Yes
11	159.550	159.550	160.000	159.550	Com 1	Yes	Yes
12	159.600	159.600	160.000	159.600	Port Op	Yes	Yes
13	159.650	159.650	160.000	159.650	Nav	Yes	Yes
14	159.700	159.700	160.000	159.700	Port Op	Yes	Yes
15	159.750	-	160.750	159.750	Distress, Safety C	Receive Only	Receive Only
16	159.800	159.800	160.800	159.800	Safety C	Yes	Yes
17	159.850	159.850	160.850	159.850	State Con	Yes	Yes
18	159.900	159.900	161.000	159.900	Com 1	Yes	Yes
19	159.950	159.950	161.000	159.950	Com 1	Yes	Yes
20	160.000	160.000	161.000	160.000	Port Op	Yes	Yes
21	160.050	160.050	161.000	160.050	Coast Gard	Yes	Yes
22	160.100	160.100	161.000	160.100	Coast Gard	Yes	Yes
23	160.150	160.150	161.000	160.150	Coast Gard	Yes	Yes
24	160.200	160.200	161.000	160.200	Public C	No	Yes
25	160.250	160.250	161.000	160.250	Public C	No	Yes
26	160.300	160.300	161.000	160.300	Public C	No	Yes
27	160.350	160.350	161.000	160.350	Public C	No	Yes
28	160.400	160.400	162.000	160.400	Public C	No	Yes
29	160.450	-	162.000	-	-	-	-
30	160.500	-	162.000	-	-	-	-
31	160.550	-	162.000	-	-	-	-
32	160.600	-	162.000	-	-	-	-
33	160.650	-	162.000	-	-	-	-
34	160.700	-	162.000	-	-	-	-
35	160.750	160.750	160.875	160.750	Port Op	Yes	Yes
36	160.800	160.800	160.925	160.800	Port Op	Yes	Yes
37	160.850	160.850	160.975	160.850	Com 1	Yes	No
38	160.900	160.900	161.025	160.900	Non Com 1	Yes	Yes
39	160.950	160.950	161.075	160.950	Non Com 1	Yes	Yes
40	161.000	161.000	161.125	161.000	Non Com 1	Yes	Yes
41	161.050	161.050	161.175	161.050	Port Op	Yes	Yes
42	161.100	161.100	161.225	161.100	Port Op	Yes	Yes
43	161.150	161.150	161.275	161.150	Port Op	Yes	Yes
44	161.200	161.200	161.325	161.200	Port Op	Yes	Yes
45	161.250	161.250	161.375	161.250	Port Op	Yes	Yes
46	161.300	161.300	161.425	161.300	Port Op	Yes	Yes
47	161.350	161.350	161.475	161.350	Port Op	Yes	Yes
48	161.400	161.400	161.525	161.400	Port Op	Yes	Yes
49	161.450	161.450	161.575	161.450	Port Op	Yes	Yes
50	161.500	161.500	161.625	161.500	Port Op	Yes	Yes
51	161.550	161.550	161.675	161.550	Port Op	Yes	Yes
52	161.600	161.600	161.725	161.600	Port Op	Yes	Yes
53	161.650	161.650	161.775	161.650	Port Op	Yes	Yes
54	161.700	161.700	161.825	161.700	Port Op	Yes	Yes
55	161.750	161.750	161.875	161.750	Port Op	Yes	Yes
56	161.800	161.800	161.925	161.800	Port Op	Yes	Yes
57	161.850	161.850	161.975	161.850	Port Op	Yes	Yes
58	161.900	161.900	162.025	161.900	Port Op	Yes	Yes
WX1	-	-	-	162.550	NOAA Weath	Receive Only	Receive Only
WX2	-	-	-	162.600	NOAA Weath	Receive Only	Receive Only
WX3	-	-	-	162.650	NOAA Weath	Receive Only	Receive Only
WX4	-	-	-	162.700	NOAA Weath	Receive Only	Receive Only
WX5	-	-	-	162.750	NOAA Weath	Receive Only	Receive Only
WX6	-	-	-	162.800	NOAA Weath	Receive Only	Receive Only
WX7	-	-	-	162.850	NOAA Weath	Receive Only	Receive Only
WX8	-	-	-	162.900	NOAA Weath	Receive Only	Receive Only
WX9	-	-	-	162.950	NOAA Weath	Receive Only	Receive Only
WX10	-	-	-	163.000	NOAA Weath	Receive Only	Receive Only

**CAUTION:** OPERATION OF CHANNELS NOT DESIGNATED FOR USES BY YOUR CLASSIFICATION OF CRAFT OR ON INTERNATIONAL CHANNELS WHEN WITHIN UNITED STATES TERRITORIAL WATERS IS A VIOLATION OF FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS AND MAY RESULT IN SEVERE PENALTIES.

## CERTIFICATE OF LIMITED WARRANTY

Providing you present a valid proof of purchase, SI-TEX Marine Electronics Inc. warrants all parts of each new product against defect in material and workmanship under normal use and will repair or exchange any parts proven to be defective at no charge for a period of two years for parts and one year for labor from the date of purchase, except as provided below under Limited Warranty Exceptions.

Defects will be corrected during normal working hours by an authorized SI-TEX Marine Electronics Inc. dealer, service center, or at the SI-TEX office in St. Petersburg, Florida. There will be no charge for labor for a period of one year from the date of purchase, except as provided below under Limited Warranty Exceptions.

This Warranty and Proof of Purchase must be made available to the authorized SI-TEX Marine Electronics Inc. service location or dealer at the time of service.

### LIMITED WARRANTY EXCEPTIONS

SI-TEX Marine Electronics Inc. will not be responsible for equipment which has been subjected to water or lightning damage, accident, abuse, or misuse nor any equipment on which the serial number label has been removed, altered or mutilated.

SI-TEX Marine Electronics Inc. assumes no responsibility for damage incurred during installation.

This Limited Warranty is effective only with respect to the original purchaser.

Any cost associated with transducer replacement, other than the cost of the transducer itself, is specifically excluded from this Limited Warranty. Travel cost incurred will not be accepted for SI-TEX Marine Electronics Inc. products.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF.

### SPECIFIC EXCLUSIONS

Charges for overtime, stand-by, holiday, and per diem are specifically excluded from the Limited Warranty.

Chart paper, stylus, stylus belt, lamps, and fuses are consumable items and are not covered by this Limited Warranty.

Installation workmanship or materials except as provided directly by SI-TEX Marine Electronics Inc. are not covered by this Limited Warranty.

SI-TEX Marine Electronics Inc. equipment or parts thereof which have been repaired or altered except by an authorized SI-TEX Marine Electronics Inc. dealer or service center are not warranted in any respect.

Transducer, software update, battery, microphone, magnetron, and microwave components and water damage on water resistant VHF radio are items excluded from the two-year warranty and are covered by warranty for a period of one year for both parts and labor.

SI-TEX Marine Electronics Inc. will not, at any time, assume any costs or labor charges for checkout or external line fuse replacement or problems not found to be at fault in equipment itself.

THERE ARE NO WARRANTIES OR GUARANTEES EXPRESSED OR IMPLIED WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY. SI-TEX MARINE ELECTRONICS INC. HAS NO OTHER LIABILITY TO PURCHASE FOR DIRECT OR CONSEQUENTIAL DAMAGE OR ANY THEORY INCLUDING ABSOLUTE LIABILITY, TORT, OR CONTRACT. THIS LIMITED WARRANTY CANNOT BE ALTERED OR MODIFIED IN ANY WAY AND SHALL BE INTERPRETED IN ACCORDANCE WITH THE LAWS OF THE STATE OF FLORIDA. THIS WARRANTY IS LIMITED TO THE CONTINENTAL U.S.A., ALASKA, HAWAII, AND CANADA.

### HOW TO OBTAIN SERVICE UNDER THIS WARRANTY

To provide better flexibility, SI-TEX Marine Electronics Inc. gives you the option of obtaining service under this warranty by either:

a) Contacting an authorized SI-TEX Marine Electronics Inc. service station (The closest service station may be found by contacting your dealer of purchase )

or

b) Shipping your equipment prepaid via UPS or truck with insurance prepaid to SI-TEX Marine Electronics Inc. at the address provided below.

SI-TEX Marine Electronics Inc. will, whenever possible, make all repairs covered by Limited Warranty within two weeks of receiving the equipment in Florida and return same to you, freight prepaid.

c) You must present a copy of your Purchase Sales Slip at the time you request warranty service.

#### Shipping/Mailing Address:

SI-TEX Marine Electronics Inc.  
11001 Roosevelt Blvd., Suite 800  
St. Petersburg, FL 33716  
727-576-5734

SI-TEX Marine Electronics Inc. offers a complete line of quality marine electronics including fishfinders, electronic charting systems, radars, autopilots, GPS/WAAS/Loran receivers, SSB receivers, direction finders, VHF radios, VHF marine & TV antennas, and integrated systems.

For more information, contact your SI-TEX dealer or the main office, located in St. Petersburg, Florida.