

**HE-705  
COLOR  
FISH FINDER**

**INSTALLATION-OPERATION  
MANUAL**

**1985**

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SECTION ONE  
GENERAL INFORMATION

Principle of Operation

The SI-TEX Model HE 705 is a compact, color video fish finder. By transmitting ultrasonic sound pulses into the water, the HE 705 can visually represent the topography of the bottom in great detail as well as locate and display fish. These fish can be on or near the bottom or in schools anywhere between the surface and the bottom.

The transmitted ultrasonic pulse travels thru the water at approximately 4800 feet per second. These pulses are reflected back by the bottom, bottom structures and fish. The returning signals are received by the transducer and converted to electronic signals and fed into the receiver section of the video fish finder. The receiver section then conditions these signals for display in color on the fish finder's screen.

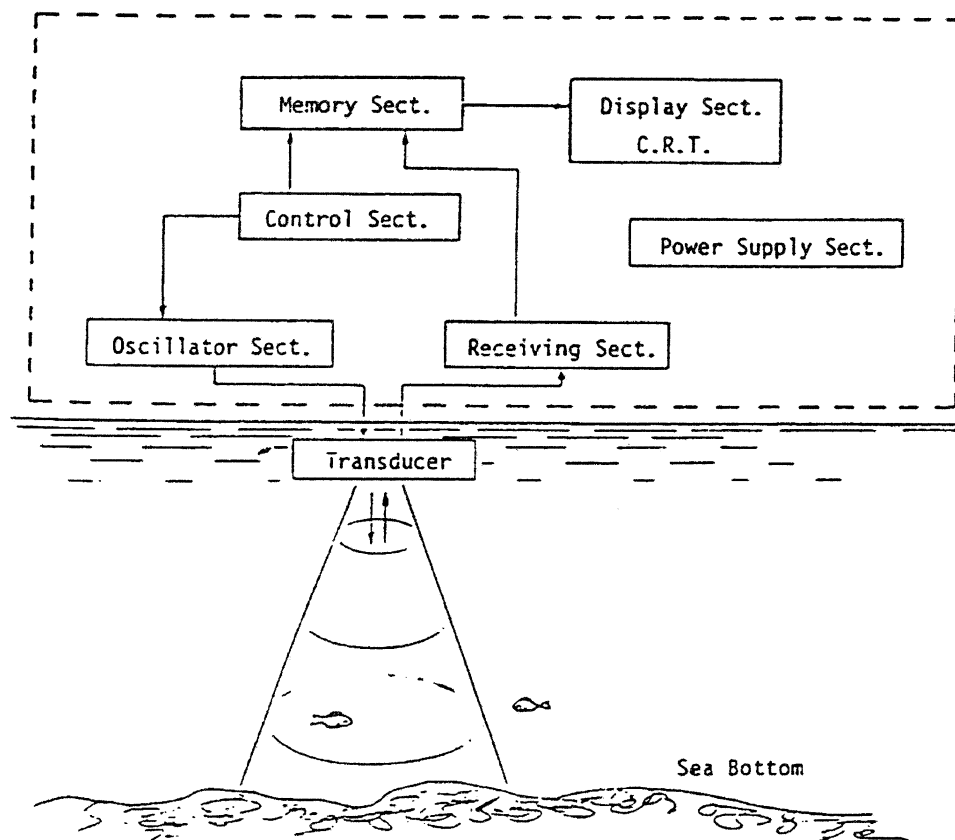


Fig.1 Basic Composition

# SPECIFICATIONS

FREQUENCY	A Model - 200 KHz		B Model - 50 KHz			
DEPTH RANGES	FATHOMS		FEET	METER	B/L (FEET)	
					A	B
	1.	0 - 5	0 - 30	0 - 6	15/15	15/15
	2.	0 - 10	0 - 60	0 - 15	15/30	15/30
	3.	0 - 20	0 - 120	0 - 30	15/30	15/30
	4.	0 - 40	0 - 250	0 - 60	15/30	15/30
	5.	0 - 80	0 - 500	0 - 100	30/50	30/50
	6.	0 - 160	0 - 1000	0 - 200	50/100	50/100
	7.	0 - 340	0 - 2000	0 - 400	100/200	100/200
	*8.	0 - 680	0 - 4000	0 - 800		200/400
	*8. = 50 KHz Only					
SHIFT RANGE	A Model 2400 ft. max.		B Model 3200 ft. max.			
DIGITAL DEPTH READOUT	(A) 0 - 2000 ft.		(B) 0 - 4000 ft.			
POWER OUTPUT	3 Settings - User Selectable (A) 20 Watts (B) 200 Watts (C) 500 Watts					
CRT	10" Color					
DISPLAY	5 Modes(Operator Selected)					
PULSE LENGTH	.1 - 3.2 msec. (Auto selected by RANGE & pulse rate setting.)					
SWEEP SPEED	4 steps (Operator Selected) 40 sec/screen fastest, 100 minutes/screen slowest					
SOUNDINGS	3 steps (Operator Selected)					
STC	AUTOMATIC					
BRIGHTNESS	Operator Controlled					
FUNCTION	NORMAL / N. & B/L / SHIFT / S. & B/L / N. & EXP. S. & EXP.					
VOLTAGE/CURRENT	11 - 40 VDC; @12.6 VDC/3.5a; @32 VDC/1.25a. Max. power consumption is 45 watts.					
WEIGHT	Approx. 17.6 lbs.					

## NOTICE

Specifications are subject to change without notice.

## NOTICE

Actual target detection range is the product of many factors. Maximum scale range does not imply detection of targets under all conditions.

## SECTION TWO

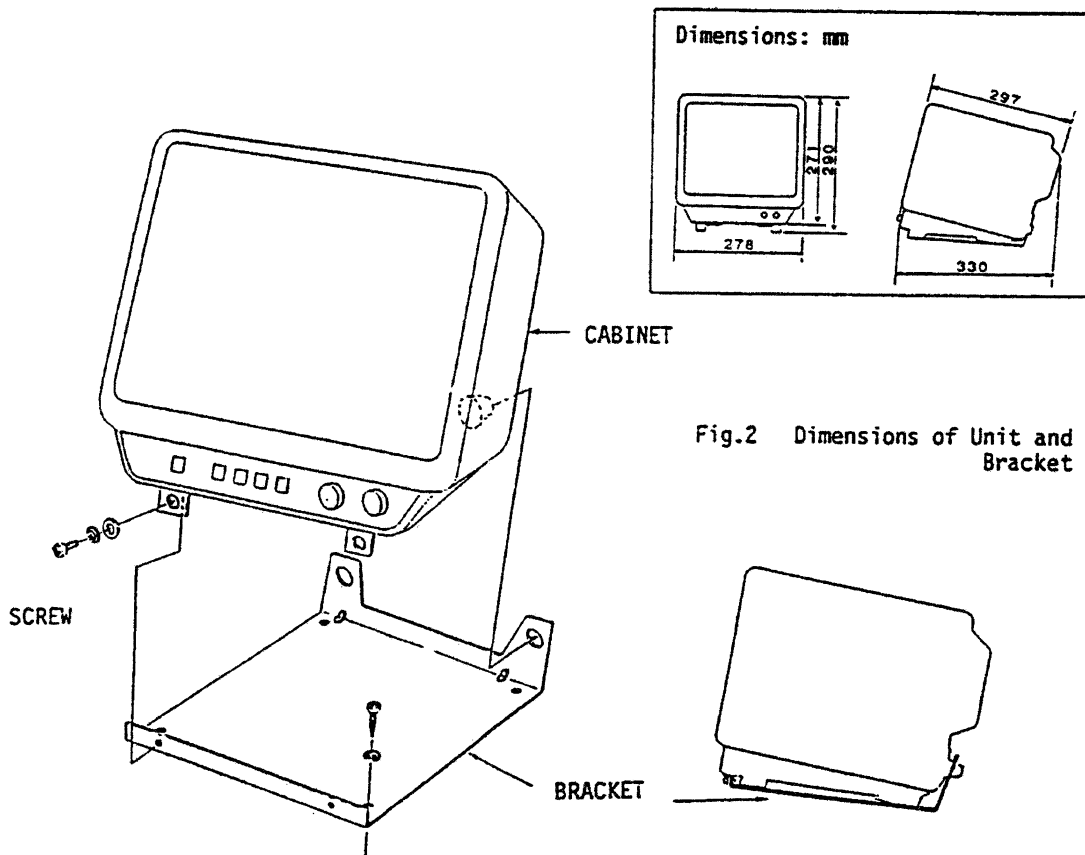
### INSTALLATION

#### Control Unit

The control unit is housed in a compact, high impact plastic case employing state of the art, solid state microprocessor electronics. This simplifies the installation and operation of the HE 705.

The HE 705 fish finder is designed for a table top type mounting. In selecting a location, it is recommended that the unit be placed out of direct sun light and salt spray. It is important to remember that water damage is excluded from the provisions of the warranty.

To install the unit, refer to figure 2. The mounting bracket can be used as a template for marking of the holes to be drilled for the mounting screws. Before drilling, check and make sure there is enough room behind the unit for the power and transducer connectors. After the mounting bracket is in place, the unit is attached to the mounting bracket.



## Transducer

Although the transducer can be mounted in a number of ways, careful consideration should be given to insure that the transducer surface will not be in an area of turbulence. The air bubbles found in turbulence interferes with the transmission and reception of the ultrasonic pulses or signals; thereby reducing the transducer efficiency and sensitivity.

Transducers mounted thru the hull normally will require a leveling block to point the transducer face straight down. To reduce turbulence, a fairing block is used to smooth the flow of water past the transducer face. This type of installation is the preferred mounting.

In some cases, an internal mounting can be used, but the transducer performance is inhibited. To mount the transducer internally, the boat must be of steel or fiberglass construction.

The transducer should be in a small water filled tank. This assumes the hull is not a double walled hull. A permanent mounting would involve epoxying the transducer face to the hull. If there are any air bubbles in the fiberglass or in the epoxy bonding, the performance of the transducer will be affected.

## Transducer Connector

The transducer cable for the HE 705 transducer is a two conductor shielded cable. To prepare the cable end, refer to figure 3 and use a stripping tool to strip the ends of the two conductors.

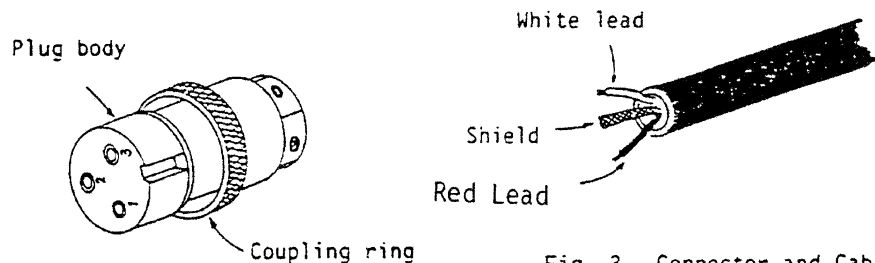


Fig. 3 Connector and Cable

Next, loosen the screw on the connector cable clamp. Then remove the screws, holding the connector body and shell together. Slide the shell off the connector body. Push the cable thru the cable clamp part of the connector shell. Then solder the white cable conductor to pin #3, the red conductor to pin #1 and the shielded to pin #2. The pin numbers are displayed on the front of the connector body. Also, refer to figure 4. Once the cable is soldered to the connector, re-assemble the connector body and shell and tighten the cable clamp screws.

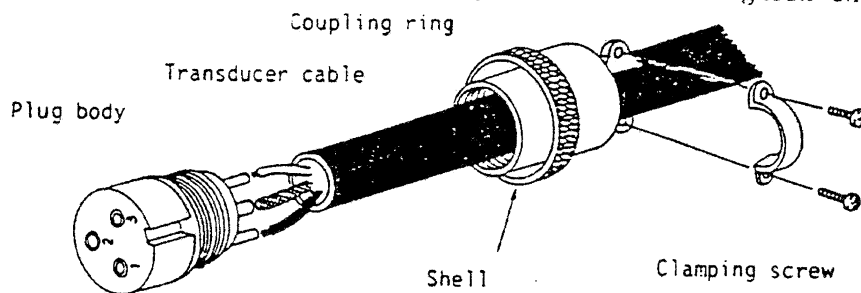


Fig. 4 Transducer Connector Assembly

### External Connections

Refer to figure 5 and connect the power supply cable and the transducer cables to the unit.

1. Connect the power cable to the socket on the right rear side of the control unit.
2. Connect the power cable ends to the ship's power buss. Connect the white wire to the positive (+) power buss and the black wire to the negative (-) buss or terminal.
3. Connect the transducer plug to the left rear socket.

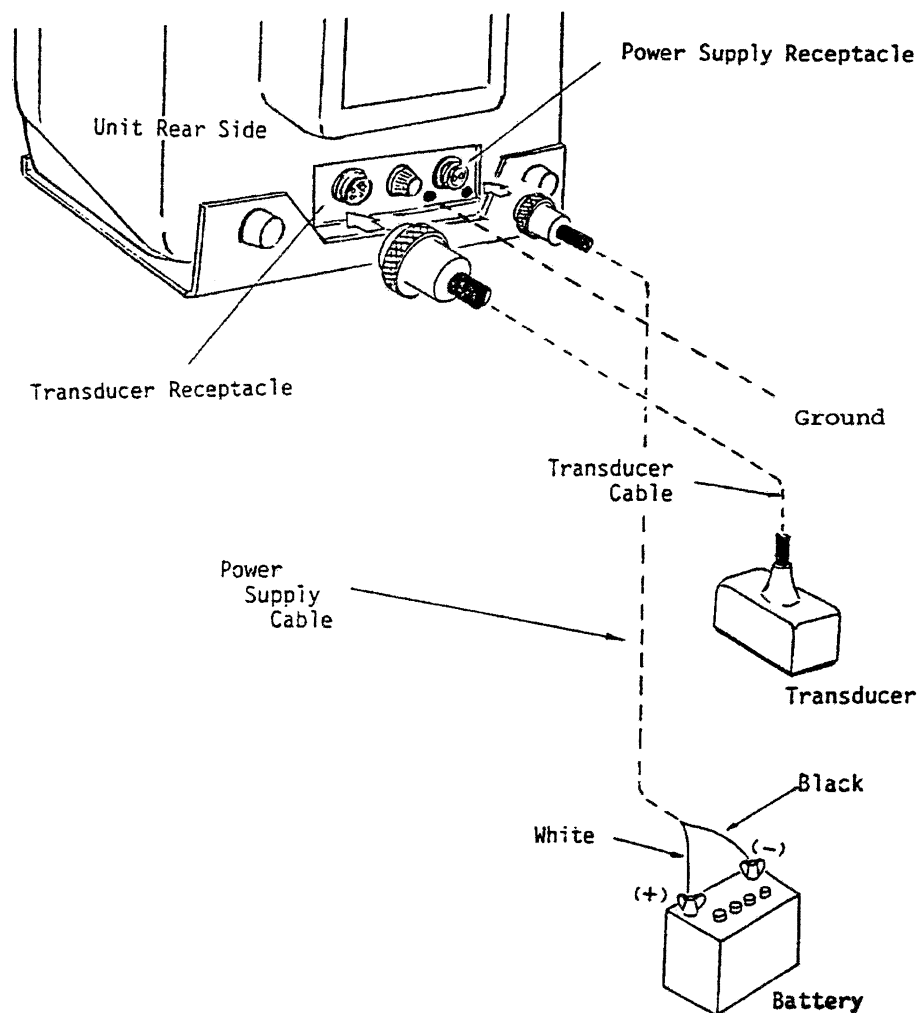


Fig. 5 Normal Connection

### Ground

In order to minimize electrical interference, the power supply cable should be connected directly to the battery terminals, and should not be routed in parallel with the transducer cable.

Connect a ground wire to the terminal located at the rear of the control unit and the other end to the most suitable ground such as the engine block or ground plate.

### NOTE

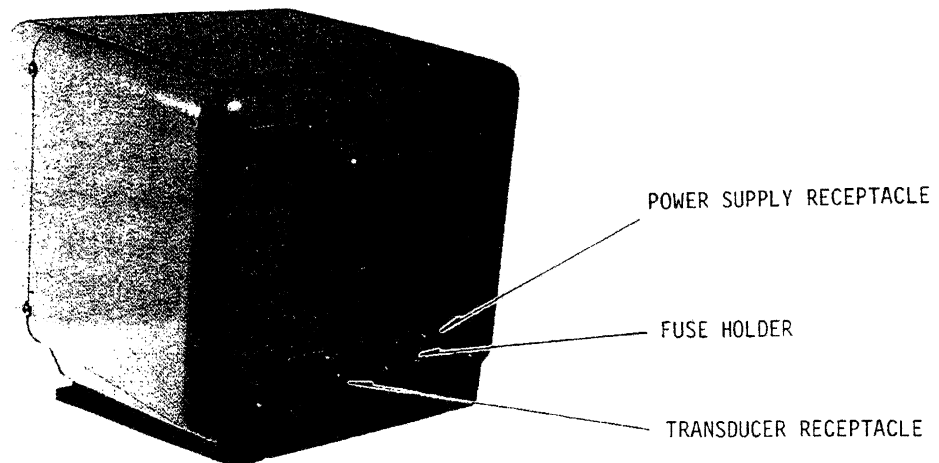
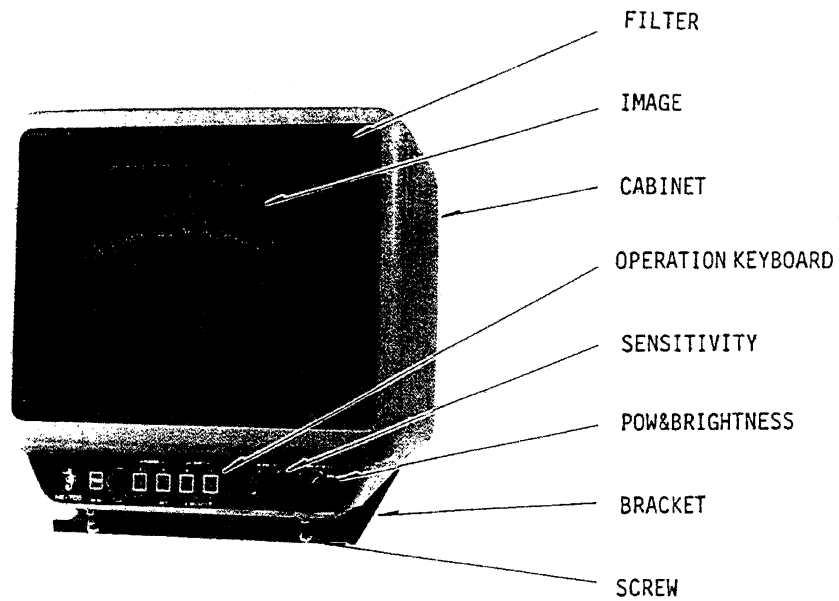
Improper grounding may cause excessive noise on the screen. In wooden-hull or fiberglass boats, it is recommended a ground plate be installed on the hull far below the water line to provide the best grounding. In most instances, grounding to the engine block is sufficient.



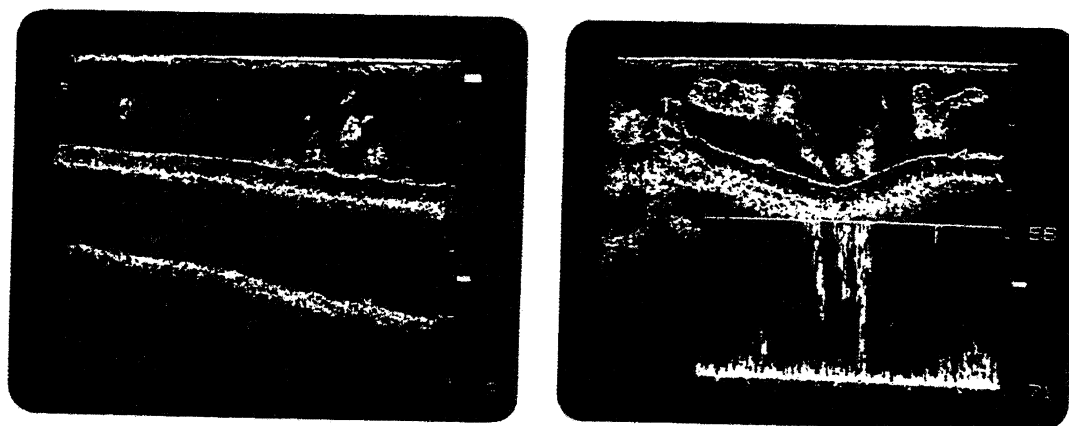
### SECTION THREE

#### OPERATION

##### External Operation Controls and Functions



# Description of Image Picture



NORMAL IMAGE

NORMAL + BOTTOM LOCK IMAGE

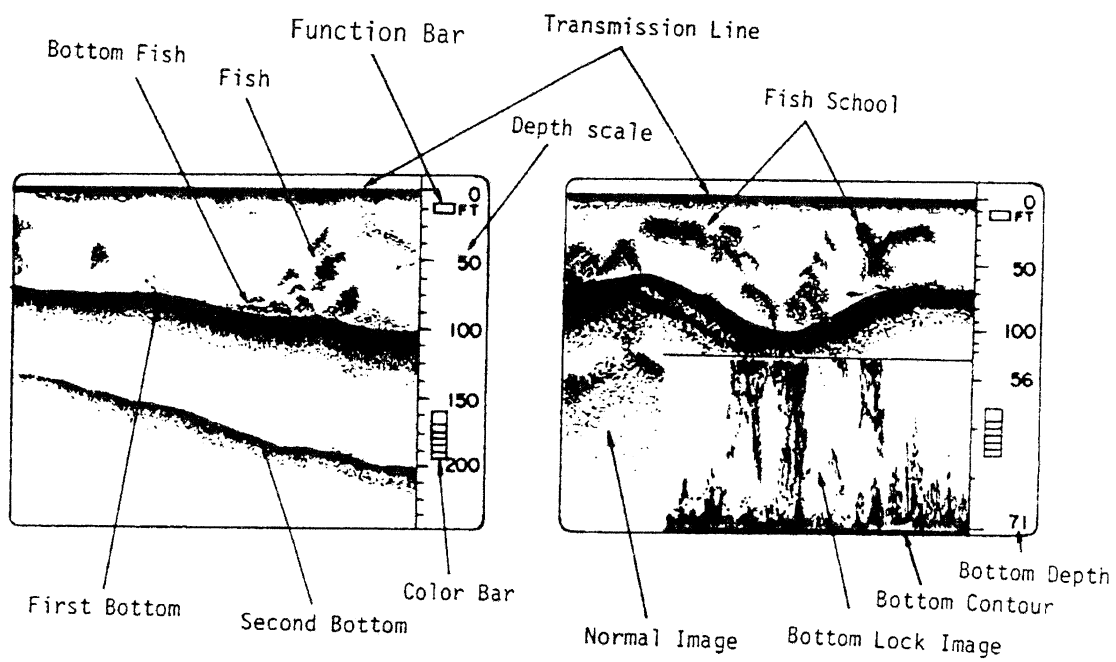
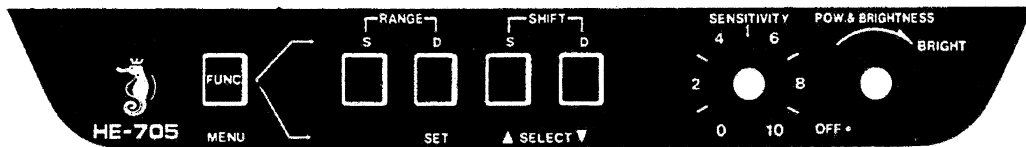


Fig. 6 Discription of Image Picture

## Operation

When first powered up, the unit should be set up for your type of fishing and display preference. The HE 705 has a memory system that will remember how you set the HE 705 for as long as 3 years.



Control Panel

## Initial Power Up

1. Turn the power switch on and when the display appears, adjust the display brightness. Press the function key once to display the blue function bar in the upper right side of the screen. Press the "NOR-EXP-B/L" key to enter the normal mode (normal mode is identified by all range numbers being green).
2. Push the Function key and hold until the audible alarm sounds twice. The MENU will then be displayed on the right side of the video display area with current settings marked by a red asterisk.
3. To make changes in the menu setting, use the key above the  $\nabla$  to move the green cursor down and  $\triangle$  to move the cursor up. Place the cursor next to the item in the menu to be activated or changed.
4. Press the SET key to enter the selected item. A red asterisk will appear to indicate the selected item which has been activated.

The following is an example of the menu settings as they come from the factory:

*M.S	(Manual Shift)
A.S	(Automatic Shift)
*C.E	(Clean Echo ON)
OFF	(Clean Echo OFF)
SPEED	(Sweep Speeds)
1	Fast
*2	Med. Fast
3	Med. Slow
4	Slow
P.R	(Pulse Rates)
1	Fast
*2	Medium
3	Slow
COLOR	(Color Combinations)
1	(Red-Yellow-Green-White-Purple-Light Blue-Blue)
*2	(Red-Red-Yellow-Green-Purple-Light Blue-Blue)
3	(Red-Red-Yellow-Green-Light Blue-Blue-Blue)
4	(Red-Red-Yellow-Green-Purple-Light Blue-Black)
5	(Red-Red-Yellow-Green-Light Blue-Blue-Black)
S.L	(Scale Line ON)
*OFF	(Scale Line OFF)
E.L	(Expansion Line ON)
*OFF	(Expansion Line OFF)
POWER	(Power Reducer)
A	Low
B	Medium
*C	High
UNIT	
M	(Meter Scale)
FA	(Fathom Scale)
*FT	(Feet Scale)

\* Selected Function

## Description of MENU

M.S (Manual Shift)	The range may be shifted as required by pressing the SHIFT key (S or D) on the control panel.  S = Shallower      D = Deeper
A.S (Auto Shift)	Shifts automatically so the bottom will be displayed in the lower quarter of the screen.
CE (Clean Echo)	Eliminates noise and interference from other sounders to produce a clear display.
OFF	Turns the clean echo feature off when not needed.
SPEED (Sweep Speed)	Used to select 4 display sweep speeds. This corresponds to paper speed control on a chart recorder. Slower speeds allow more history to be displayed at one time.
P.R (Pulse Rate) 1. Fast 2. Medium 3. Slow	Used to select pulse rates. The pulse rate is changed to adjust pulse width. Slower pulse rates are used for deeper water.
COLOR	The five color configurations available:  1. Red, Yellow, Green, White, Purple, Light Blue, Blue 2. Red, Red, Yellow, Green, Purple, Light Blue, Blue 3. Red, Red, Yellow, Green, Light Blue, Blue, Blue 4. Red, Red, Yellow, Green, Purple, Light Blue, Black 5. Red, Red, Yellow, Green, Light Blue, Blue, Black
S.L (Scale Line)	Turns the scale lines on.
OFF	Turns the scale lines off.
E.L (Expansion Line)	Display lines which show the area that is expanded in the lower half of the screen.
OFF	Turns the expansion lines off.
POWER (Power Reducer)	Used to select the average power output. Should be selected based on depth and bottom definition requirements. Settings A (20 Watts), B (200 Watts) and C (500 Watts).
UNIT (Scale)	Selects unit of depth measurement.  M      Meters FA      Fathoms FT      Feet

## Control Panel

After the MENU has been set up, press the function key to return to a normal display screen.

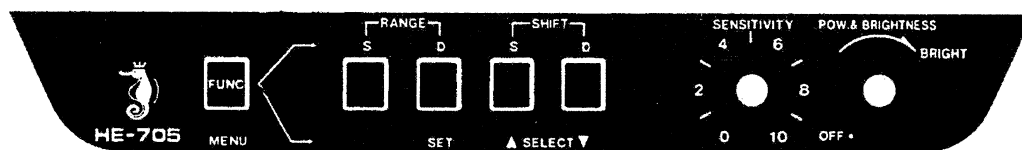
The following is a description of each control on the control panel.

### Sensitivity

This controls the amount of gain of the receiver section of the HE 705. Turning this control clockwise increases the amount of gain or amplification of the signal (echo) being received. The returning echoes are displayed on the screen in colors depending on the strength of the returning signal. Echoes displayed in red are the strongest returns. The blue background indicates no received echo. The colors in order of priority are: red, yellow, green, white, purple, light blue and blue.

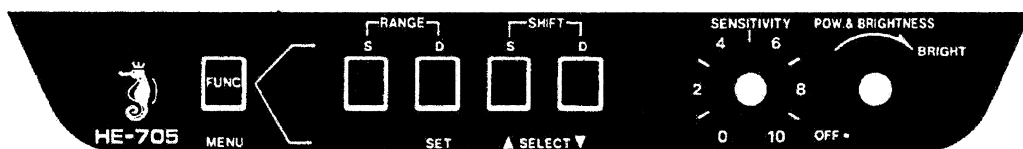
High gain settings are used to pick up echoes from small fish, plankton and small debris. Too high of a gain setting will produce a display with too much red, reducing the operator's ability to discriminate between different types of returns.

Generally, to obtain best results when searching for fish, the gain should be turned up just enough to obtain a second bottom echo as illustrated in figure 6.



### Selection of Range and Shift Functions

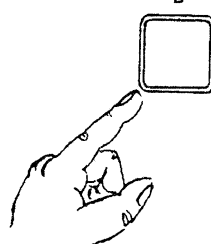
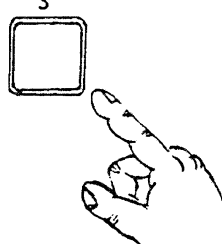
The function bar ☐ is displayed in the top portion of the depth scale on the right side of the screen. It will be either blue or white. By pressing the function key, the operator can change the ☐ function bar from one color to the other. When the bar is white, the four center keys are used to select the range and shift operations. When the ☐ bar is blue, the expansion and bottom lock operations of the four center keys are active.



### Range Selection

To select the range, press the function key to change the function ☐ bar color to white.

Next, under range, press either the S or D key to select the desired range of depth for the display area. Pressing "D" gives a deeper depth range while pressing "S" changes the range to shallower depths.

	FATHOMS	FEET	METER	
"D"				"S"
	1. 0 - 5	0 - 30	0 - 6	
	2. 0 - 10	0 - 60	0 - 15	
	3. 0 - 20	0 - 120	0 - 30	
	4. 0 - 40	0 - 240	0 - 60	
	5. 0 - 80	0 - 480	0 - 100	
	6. 0 - 160	0 - 960	0 - 200	
	7. 0 - 320	0 - 1920	0 - 400	
	*8. 0 - 640	0 - 3840	0 - 800	
	*8. = 50KHz only			

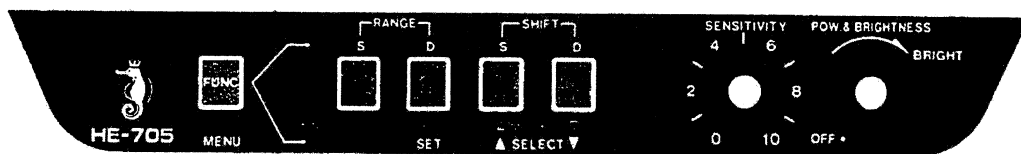
### Shift Selection

The shift keys are active when the function ☐ bar is white. The Shift function allows the operator of the fish finder to have the same display resolution when in deep water as is available in shallow water ranges. The depth scale can be shifted deeper or shallower without changing the depth range. The display is shifted deeper by pressing the "D" key under SHIFT. The display is shifted shallower by pressing the "S" key under SHIFT.

### NOTE

If the A.S. (Auto Shift) mode is selected on the MENU, the manual key shift mode will not function. To use the Shift mode, select M.S. (Manual Shift) on the menu.

To take the display out of the shift mode and return to normal depth scale readings, press the SHIFT "S" and "D" keys at the same time.



### To Select Expansion/Bottom Lock

Press the function key to change the color of the function  bar to blue. Then press "NOR-EXP-B/L" key once for "EXP" mode, again for the "B/L" mode. Pressing a third time returns the operation back to the "NOR" mode. Repeated pressing of the "NOR-EXP-B/L" key will repeat the sequence.

### The Expansion Mode

1. Using the FUNC key, set the function bar to white.
2. Press the RANGE D key to position the bottom return in the upper half of the display.
3. Press the FUNC key to set the function bar to blue.
4. Press the "NOR-EXP-B/L" key, stepping through the modes until the range numbers in the lower half of the display are yellow (Exp. Mode).

### NOTE

Two yellow arrows should appear in the upper display. If not, press and hold the ▽ marker key until they appear.


5. Using the △ marker ▽ keys, set the arrows to the desired area to be expanded.
6. Expansion ranges 1 or 2 can be selected by alternately pressing the EXP R. key.
7. Adjust the position of the lower display using the △ marker ▽ keys.

### B/L (Bottom Lock) Mode

1. Using the FUNC key, set the function bar to white.
2. Press RANGE D key to position the bottom return in the upper half of the display.
3. Press the FUNC key to set the function bar to blue.
4. Press the S "NOR-EXP-B/L" key to step through the modes until the range numbers in the lower half of the display are white (B/L Mode).



5. B/L ranges 1 or 2 can be selected by alternately pressing the "EXP-R " key.

The depth range or shift of the upper 1/2 of the display can be changed while in the expansion or bottom lock mode by pressing the function switch to change the function  bar color to white and then using the range and shift switch.

To return to normal range and shift operation, press the "NOR-EXP-B/L" switch while the function bar is blue.

## **NOTES PAGE**

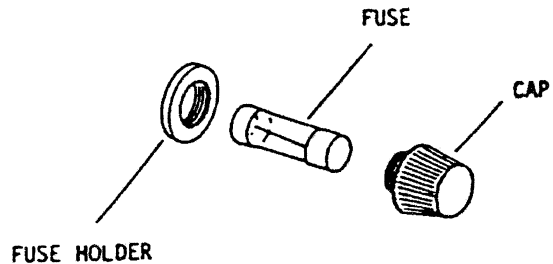
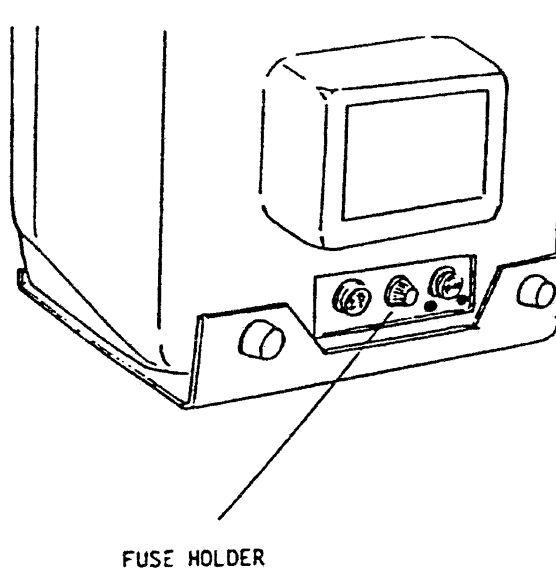
## SECTION FOUR

### MAINTENANCE

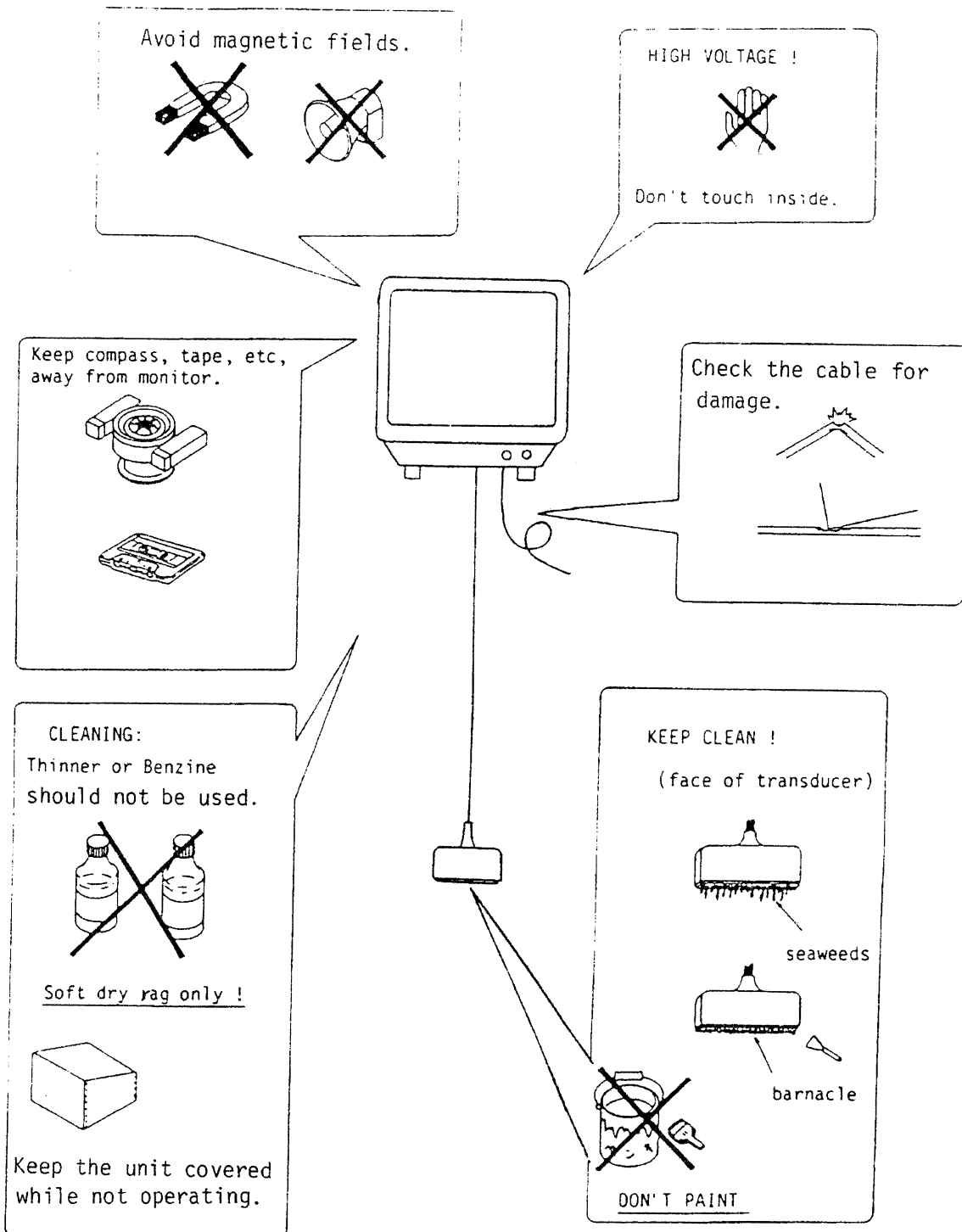
#### Fuse Replacement

The fuse holder is located on the rear of the HE 705. To change the fuse, follow these steps:

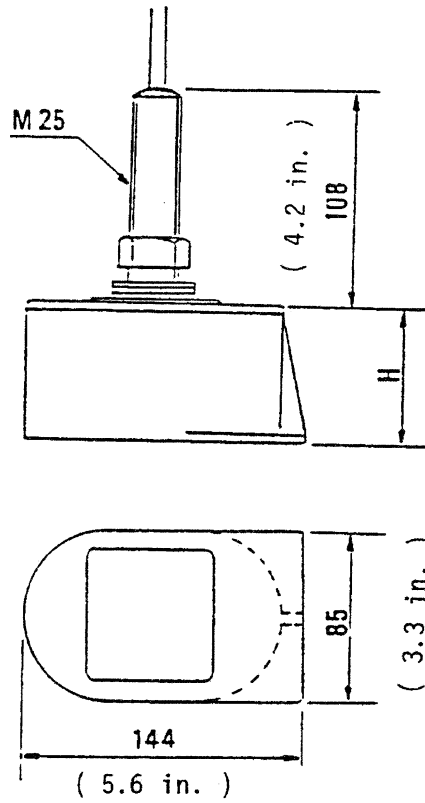
1. Turn the power switch off.
2. Unscrew and remove the fuse cap.
3. Replace the defective fuse with a correct rated fuse(5 Amp @ 12V, 3 Amp 24/32V).
4. If the Fuse blows, determine cause and correct.



Caution!!



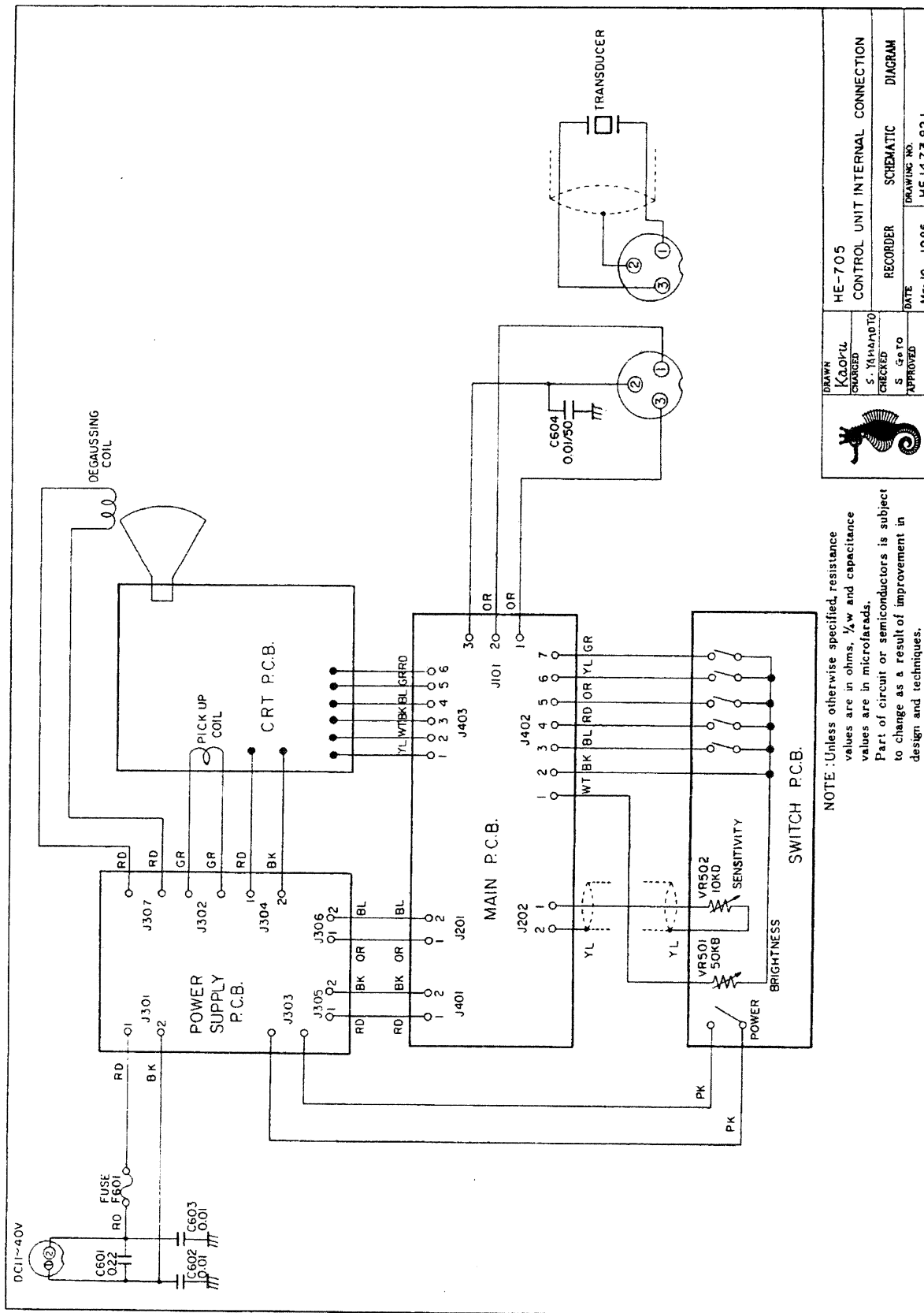
Transducer



50KHZ 200KHZ  
H 2.7in. 1.5in.

NOTICE

Specifications are subject to change without notice.



DRAWN K.O.P.T.L. CHARGED S. YAMAMOTO	HE-705 CONTROL UNIT INTERNAL CONNECTION	
	RECORDED	SCHEMATIC DIAGRAM
CHECKED S. Goto	DATE Mar. 18, 1985	DRAWING NO. HF 1473 821
APPROVED		

## 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.

**SI-TEX MARINE ELECTRONICS INC.**

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