

**COLOR VIDEO SOUNDER
CVS-108 & 108DF
OPERATION MANUAL**

SITEX[®]

DOC NO. CVS-108 & CVS-108DF 03-91

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1. IMPORTANT NOTICE

Congratulations on your purchase of the SI-TEX CVS-108 Color Video Sounder. It is recommended that you read through the operation manual prior to installing and operating the unit.

The CVS-108 contains a built-in simulator, that may help you understand the operations better. To activate the simulator mode, press the "ON" key and then press and hold the "MENU" key until the beeper sound stops.

After reading the operation manual, if you still do not understand about the operations and installations of your unit, we recommend you contact your dealer or SI-TEX Marine Electronics Customer Service Department.



WARNINGS:

- A. Exposing the CVS-108 to excessive heat will result in damage of the unit.
- B. Do not install the CVS-108 near magnetic material as it will cause color distortions.
- C. Do not operate the CVS-108 without the transducer connected.
The transducer must be in the water before the power is turned on.
- D. Transducers supplied by other than SI-TEX may cause degradation of performance.
- E. The CVS-108 is not waterproof. When installing the unit, take it into your consideration.
- F. Make sure to connect the power cable to the battery to match polarity. The black with white line lead is for positive and the solid black lead is for negative.
- G. It is recommended to install the CVS-108 as far any radio antennas (Loran, VHF, etc) as possible to prevent noise interference.

2. INTRODUCTION

The CVS-108 is available in two types: the dual frequency unit or the single frequency unit. The dual frequency is a combination of 200kHz and 50kHz, and the single frequency is either 200kHz or 50kHz.

For the dual frequency unit, you can select the frequency mode among 200/50kHz, 200kHz and 50kHz with the "FREQ" key. When in the dual frequency mode (200/50kHz), the unit will simultaneously display the dual frequency images. However, when in the single frequency mode (200kHz or 50kHz), it will display the single frequency images.

The CVS-108 has manual modes at the factory. You may need to adjust them so as to meet the actual conditions of your spot.

In addition to the normal display, the CVS-108 has the zoom and bottom zoom displays. You can enlarge a specific area within the range with them, and get the more detailed profile of echoes and bottom in the water.

3. TRANSDUCER INSTALLATION

SI-TEX provides various transducers as the standard ones for both the single and dual frequency versions. (Refer to section 5.1 for its information.) However, since they are basically either transom type or thru-hull type, the mounting procedures will be explained with transom and thru-hull mounting transducers in sections 3.1 and 3.2 as examples.



CAUTION:

Mounting your transducer requires drilling holes into boat structure which can affect its water integrity and, therefore, should be attempted only by competent persons. If you are not sure where and how to attempt this installation, we recommend you take your boat to a marine dealer or a marina that has people qualified and experienced in transducer installations.

Saltwater Maintenance

Antifouling paint - If the vessel is kept in saltwater, sea growth can accumulate rapidly on the transducer face and seriously reduce the performance in a matter of weeks. It is recommended that at least the acoustic face of the transducer be coated with a special transducer antifouling paint. All copper base paints are unsatisfactory. If fouling does occur, use a stiff brush or putty knife to remove growth. Wet sanding of fouled surface is permissible with #220 or finer grade wet or dry paper.

3.1 TRANSOM MOUNT

The Figure 1 shows the transom mounting dual frequency transducer with temperature and speed sensors (#239-50-200ST).

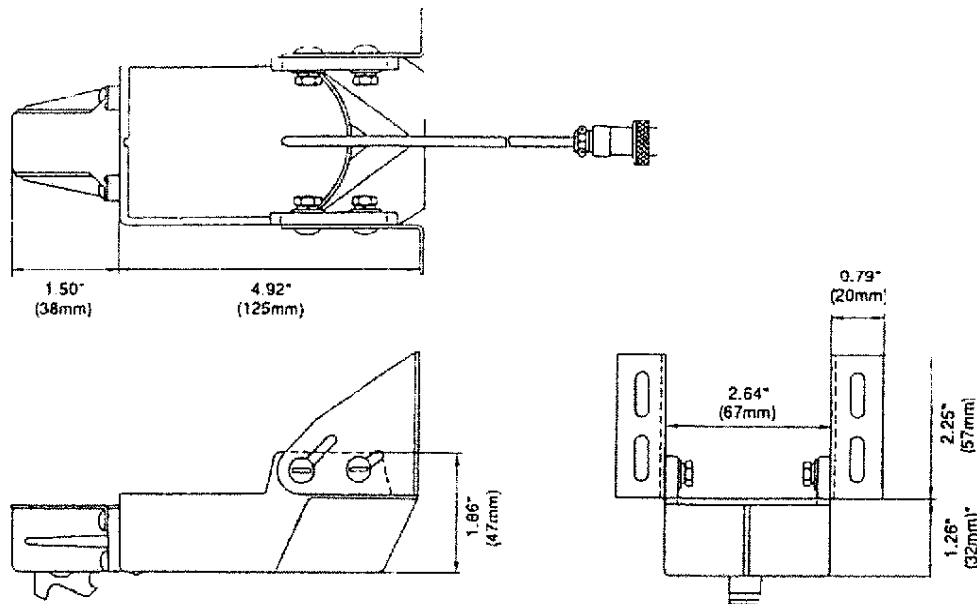


Figure 1 Transom Mount Transducer
(Example of 239-50-200ST)

Since your echo sounder's performance depends on how well the transducer has been installed, please carefully read through the following mounting procedures:

- 1) For proper performance, the transducer's mounting location must be chosen carefully. The transducer should be mounted in a location that is free from turbulence and air bubbles created by movement of the boat as it travels through water. Air bubbles greatly reduce the efficiency of the transducer. It is also strongly recommended that transducer be mounted on the port side and not in front of the propeller.
To determine the best mounting location, operate the boat at several different speeds and observe the water as it passes under the transom. Study the turbulence created by the hull structure, the keel and the lifting strakes.
Keep the transducer and its cables as far as possible from the boat's power cable, tachometer and other electrical cables.
- 2) This transducer has been designed to give you excellent readings by being installed on the transom of almost all boat types, however, the transom transducer should not be mounted on boats with in-board engines or trim tabs. In these instances, the thru-hull transducer should be used.

- 3) Determine the transducer mounting place by referring to the above mentioned procedures 1 and 2. For best results, the face of the wedge housing should be parallel to the water's surface. Also the wedge should be mounted from 1/8" to 1/4" below the surface of the hull. The trailing edge of the housing should be about 1/8" below the leading edge.

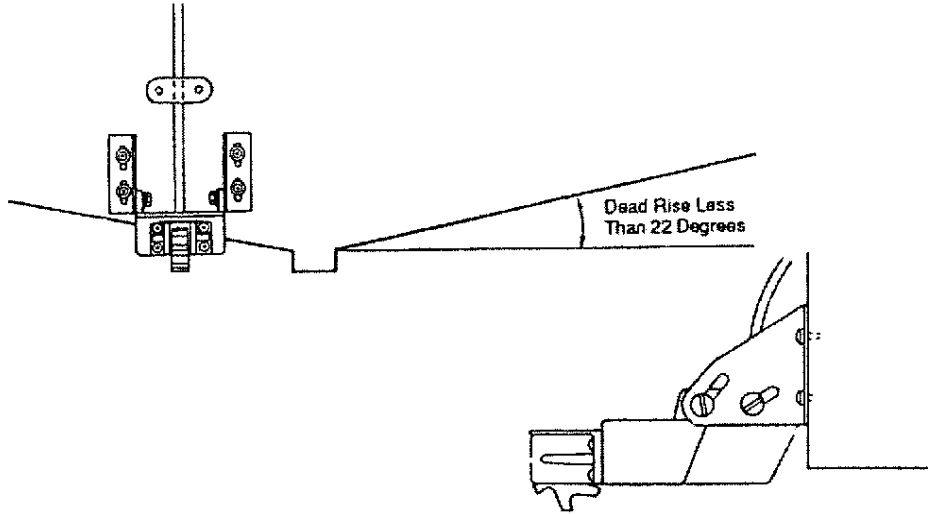


Figure 2 Transom Mounting

- 4) To actually mount the transducer, first fix the two bracket plates to the transducer tentatively using 4 sets of screws, nuts and washers. Then mark the screw holes to fix the bracket plates to the hull making fine adjustments of the transducer position. Fix the bracket plates to the hull with the provided tapping screws and tighten the nuts between the bracket plates and the transducer.

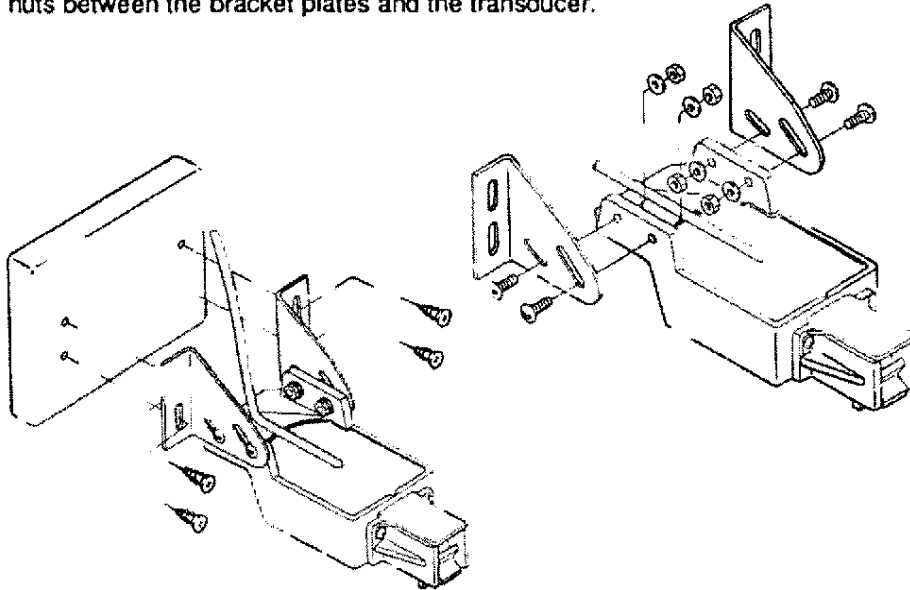


Figure 3 Transom Bracket

3.2 THRU-HULL MOUNT

Basically this instruction can be applied to the installation of any kind of thru-hull transducer.

The Figure 4 shows the thru -hull mounting dual frequency transducer with temperature and speed sensors (#403-50-200ST).

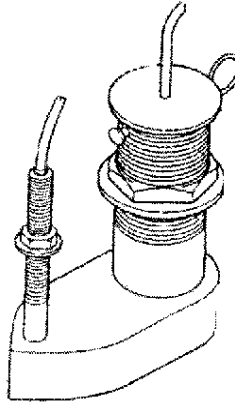
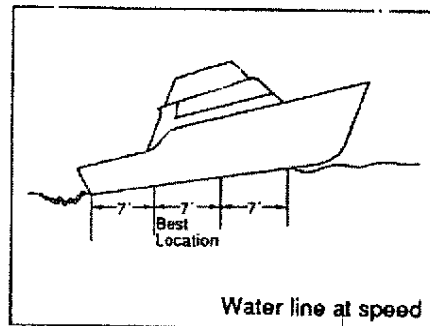
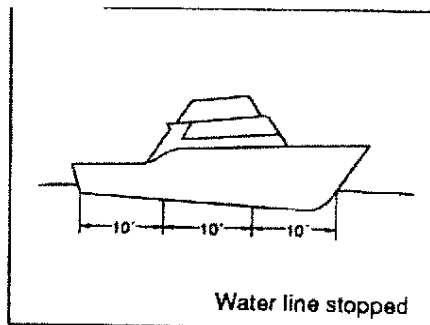


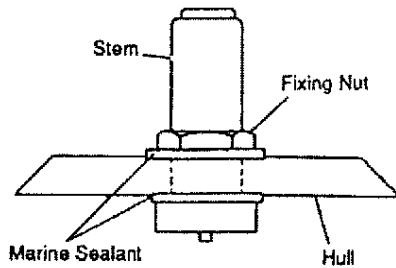
Figure 4 Thru-Hull Mount Transducer

- 1) The transducer should be installed at a place where no bubbles and no water spiral are generated around it.
- 2) The transducer should be installed as far from the engine as possible, but not too close to the bow. Normally it should be installed in the middle 1/3 of the hull at speed as shown below.



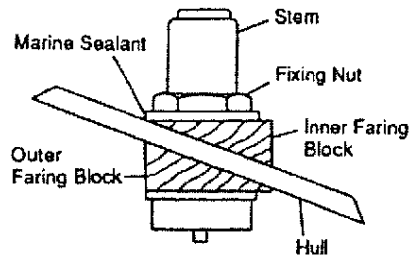
- 3) The transducer should be installed so as to maintain the acoustic face in parallel to the water surface. Therefore some boat hulls may require fairing blocks for this alignment.

DEAD RISE ANGLE LESS THAN 5°



In this case, no fairing blocks are necessary. To prevent water intrusion, any gaps between the stem threads and the holes should be filled with marine sealant.

DEAD RISE ANGLE MORE THAN 5°



Apply fairing blocks inside and outside of the hull, and install the transducer with its face to be parallel to the water surface.

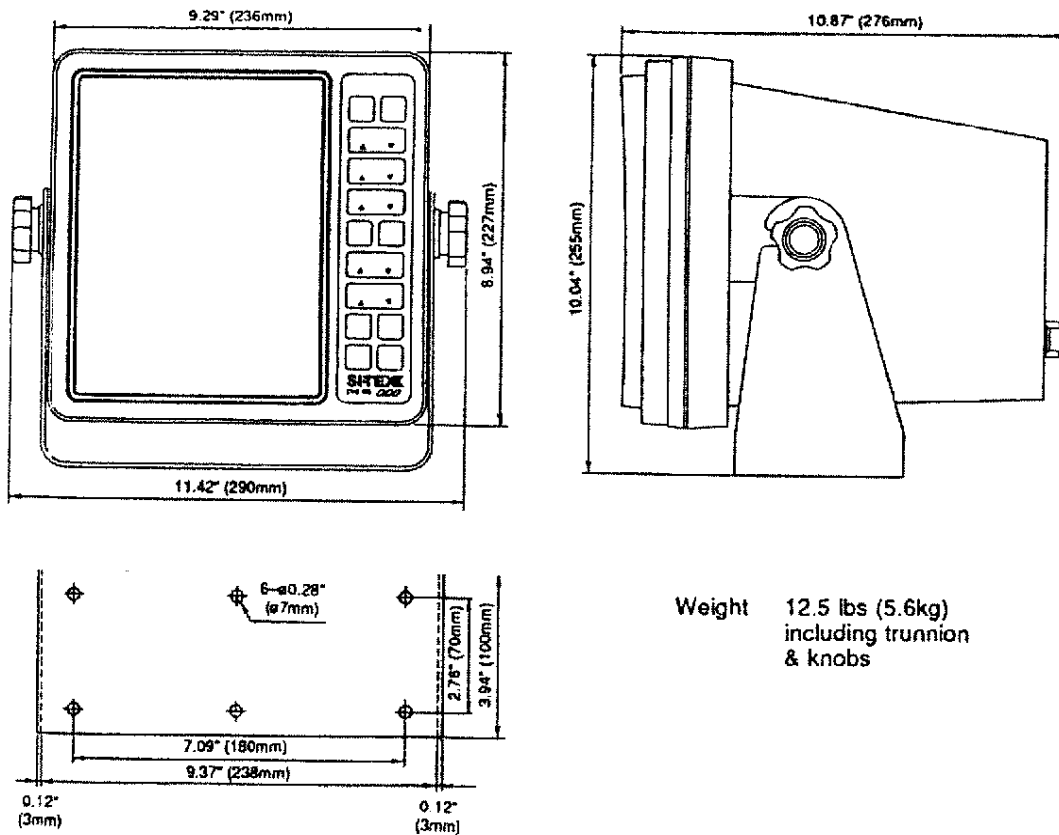
To prevent water intrusion, any gaps between the stem threads and the block should be filled with marine sealant.

4. INSTALLATION OF THE UNIT

The CVS-108 should be mounted on a flat, solid surface for maximum stability. Either table top or overhead mounting is available. The interference among the marine electronics machines on board is a serious problem recently. Consider this matter when selecting a location. Also, some other points are mentioned below.

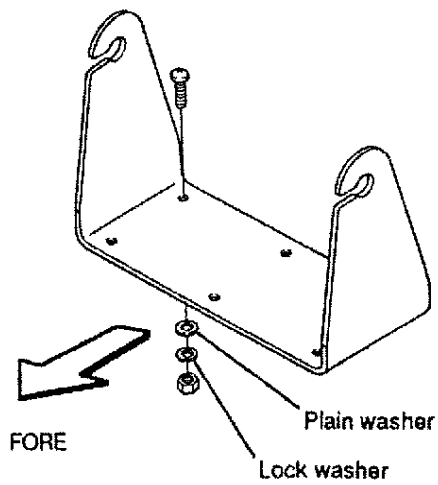
Convenience of operation
Protection from high heat

Protection from direct rain and spray
Room for access to remove the mounting knobs and the rear connectors, and to change fuse.



Weight 12.5 lbs (5.6kg)
including trunnion
& knobs

Figure 5 Dimensions/Weight



Trunnion should be mounted with its grooves to face forward. Because of the possible stresses encountered on the sea, 1/4" stainless steel bolts are suggested with plain washers and lock washers.

Figure 6 Trunnion Bracket

The unit is mounted with knobs as shown in the following figure

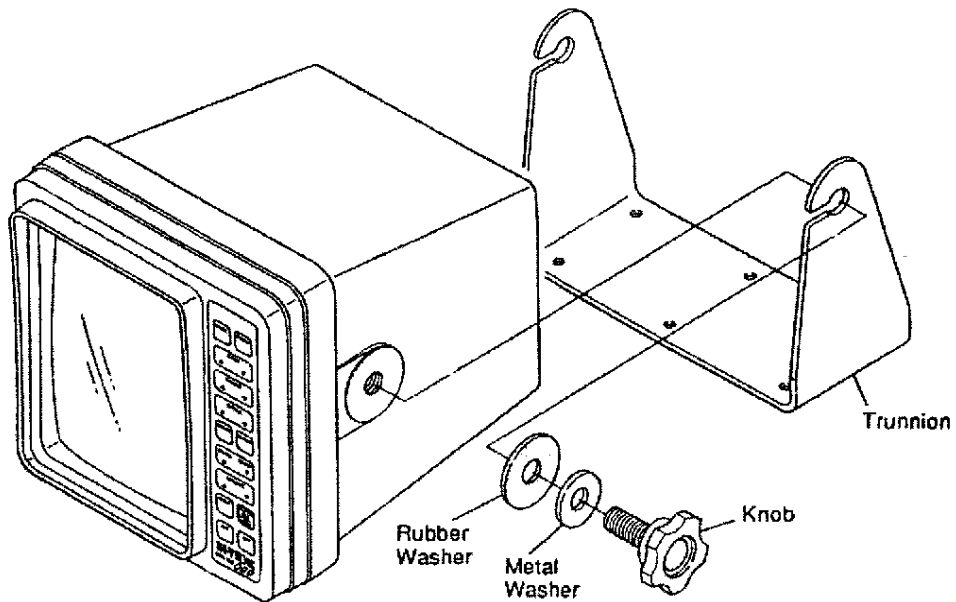


Figure 7 Mounting CVS-108

5. CABLE CONNECTIONS

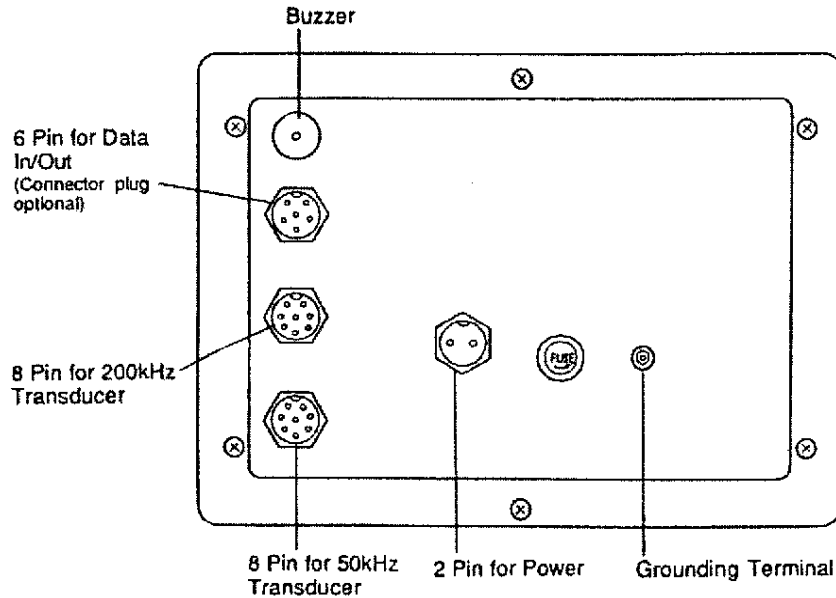


Figure 8 Rear View

5.1 TRANSDUCER

As shown in Figure 8, the two 8 pin plug receptacles are used for the transducers. The 200kHz is upper side and the 50kHz is the lower side. In case of the single frequency version, the unused receptacle hole is sealed with a rubber gasket.

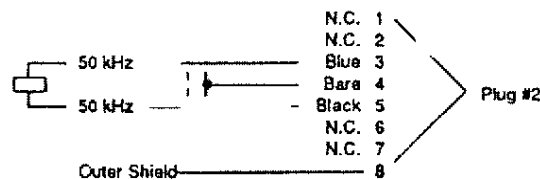
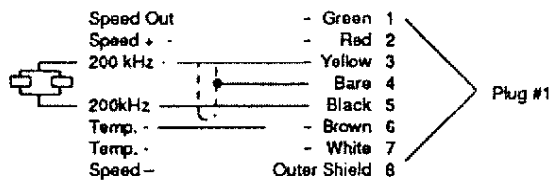
As the table shows, various transducers are available for the CVS-108 so that you can make a proper selection to your need. The following diagram shows the internal wiring of the transducer plug receptacles. You may use a transducer without speed or with speed and temperature. However, regardless of the transducer type you use, when you disconnect the connector plug out of the transducer cable, please make sure to reconnect the cable wires to the correct function pins by referring to the diagram.

1 Speed	5 Transducer
2 Speed + 5V	6 Temperature
3 Transducer	7 Temperature
4 Shield	8 Ground

Select the transducer depending on your application

APPLICATION	FREQUENCY		
	50kHz	200kHz	Dual Frequency
Deep Water	1900-50T (w/o speed.thru hull)	705-200T (w/o speed thru hull)	1900-50T + 705-200T (w/o speed. thru hull)
	552-50T (w/o speed.thru hull)	30-087 (w/o speed.thru hull)	1900-50-200T (w/o speed. thru hull)
Shallow Water	236-50ST (transom)	236-200ST (transom)	239-50-200ST (transom)
	402-50ST (thru hull)	402-200ST (thru hull)	236-50ST + 236-200ST (transom)
			403-50-200ST (thru hull)
			402-50ST + 402-200ST (thru hull)

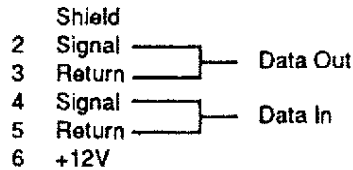
As indicated in the above table, the dual frequency version can use two single frequency transducers for 200kHz and 50kHz respectively, or a dual frequency single transducer with the speed and temperature sensors. The cable of the dual frequency single transducer is divided into two at its end, and each has an 8 pin connector respectively. One is for the 200kHz and the other is for the 50kHz. The temperature and speed sensor wires are connected to the 200kHz connector plug. You are advised to set for 200kHz temperature and speed sensors in the MENU.



Applied to 239-50-200ST
 403-50-200ST
 1900-50-200T
 (NC: Pin 1, 2, 8 on Plug # 1)

5.2 DATA INPUT/OUTPUT

As mentioned in the drawing, the data interfacing connector plug is optionally available. It should be connected to the cable with the following wiring.



5.3 POWER

The power cable supplied in the unit uses a 2 pin connector plug with the wiring as below

1	(+)	(Black with White Line Cord)
2	(-)	(Solid Black Cord)

6. DISPLAYS

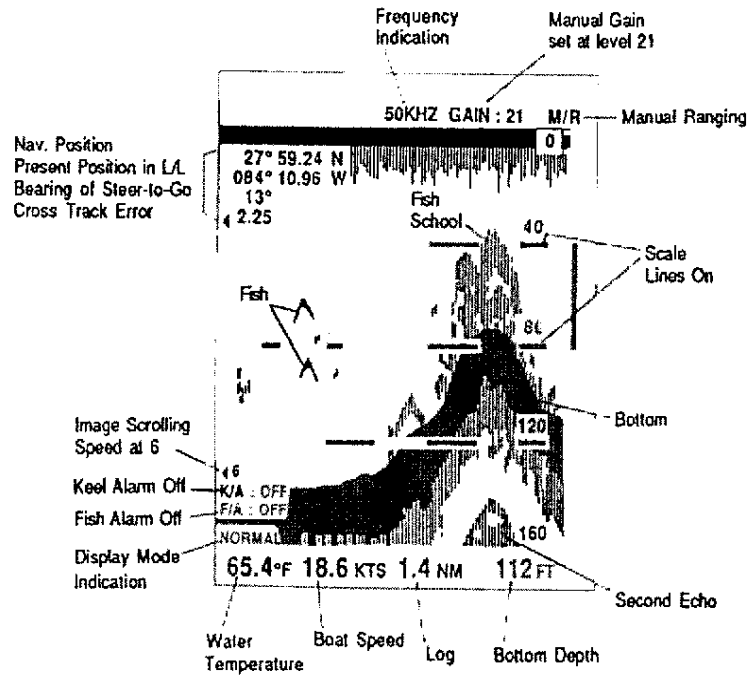
The following four displays show the images in the single frequency mode. As explained below, the selection of Bottom Zoom or Bottom Lock is performed in the menu page, and the "MODE" key selects three display modes in turn.

The dual frequency unit has those displays when in single frequency mode. When in dual frequency mode, it has simultaneous dual frequency displays as explained later on. Pressing the "FREQ" key will select the frequency mode among the dual frequency, the single 200kHz and the single 50kHz.

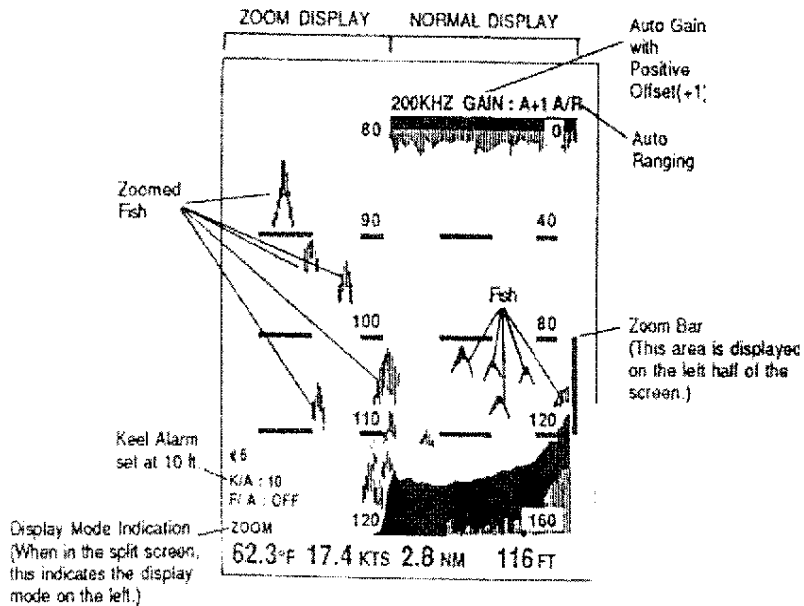
These four are the only displays that are available in the single frequency unit

6.1 SINGLE FREQUENCY IMAGES

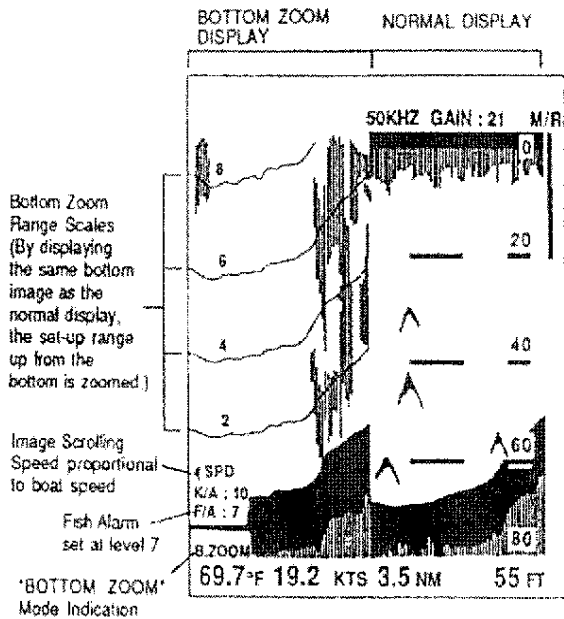
NORMAL



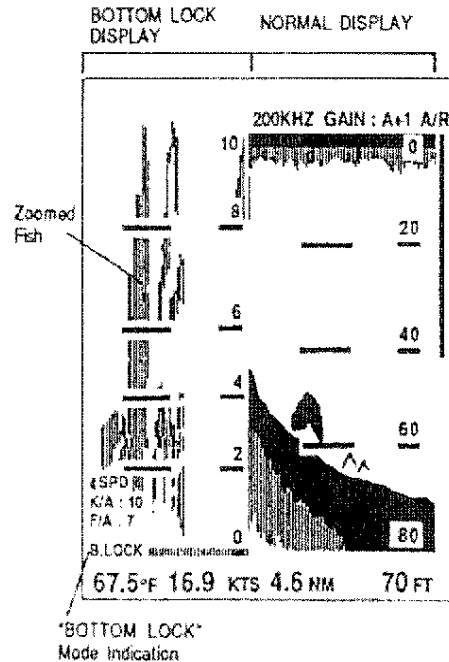
NORMAL + ZOOM



NORMAL + BOTTOM ZOOM



***NORMAL + BOTTOM LOCK**



(*) The Bottom Zoom is used to show the images close to the bottom. The CVS-108 also has the other way to do that called the Bottom Lock. They are selected in the menu page. Refer to it for the more detailed information about them.

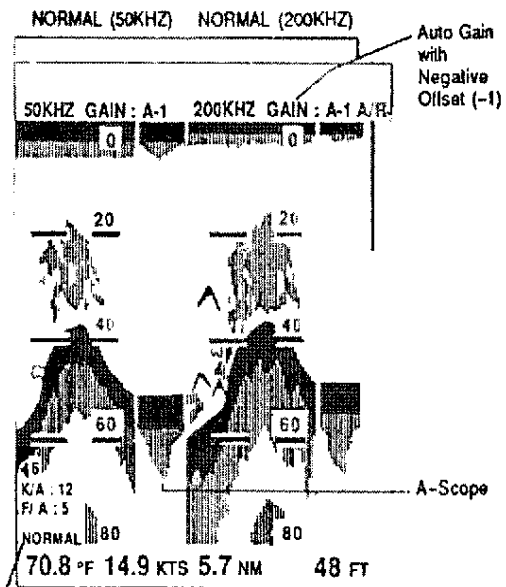
6.2 DUAL FREQUENCY IMAGES

In the dual frequency, the screen is split half and half vertically to show the same mode displays simultaneously like 200kHz Normal (right) + 50 kHz Normal (left) as the example shows. Other displays are Zoom + Zoom and Bottom Zoom + Bottom Zoom (or Bottom Lock + Bottom Lock). Press the "MODE" key to see the other displays.



NOTE:
During the dual frequency display mode, the CVS-108 basically uses the depth data by 200kHz for the digital depth. When it is not available due to the bottom change to deeper depth, the CVS-108 will switch to 50kHz data. This is also applied to Big Number in this mode.

DUAL FREQ. NORMAL + NORMAL



Display Mode Indication (Dual display in Normal Mode)

7. OPERATION

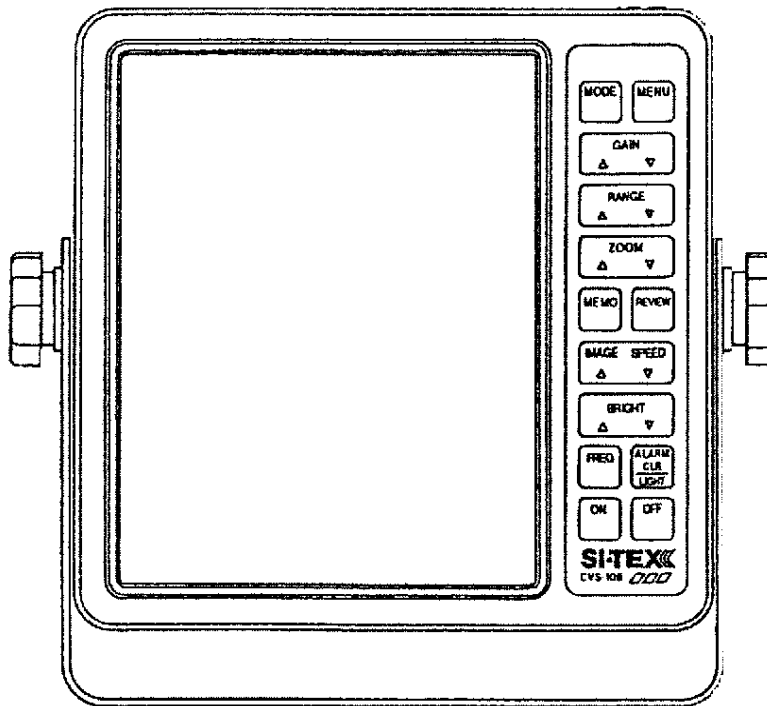


Figure 9 Front View

7.1 SIMULATOR DISPLAY

- 1) The CVS-108 has an internal simulator. This simulator is useful in learning the operation of the unit. Only a DC power source is necessary.
- 2) To turn the simulator on, touch the "ON" key first. The beeper will sound. During the beeper is sounding, press and hold the "MENU" key. Release it when the beeper sound stops.
- 3) To get out of the simulator mode, you need to turn the power off by pressing the "OFF" key.

7.2 INITIAL SETTINGS

- 1) The CVS-108 will preserve the used settings when the power is turned off, and it will operate with previously used settings at the next turn-on.
- 2) If you want to return to the initial factory settings, first touch the "ON" key. As the beeper will sound, press and hold the "MEMO" key until the beeper sound stops. The CVS-108 will start operating with the pre-determined settings.

RANGE : MANUAL	GAIN : MANUAL	KEEL ALARM : OFF
FISH ALARM : OFF	POWER : HIGH	PULSE : L
IMAGE SPEED : 6	SCALE LINES : OFF	BACKGROUND : BLUE
COLOR : SEVEN	ANTI CLUTTER : OFF	S.T.C. : OFF
CLEAN ECHO : OFF	TEMP. GRAPH : OFF	SPEED ADJ. : 100%
A-SCOPE : OFF	FISH SYMBOL : OFF	ZOOM RANGE : 1/4
BOTTOM ZOOM RANGE : 10FT		

7.3 PANEL KEYS

As the Figure 9 shows, the CVS-108 has 13 keys for 14 functions on the panel including ON/OFF keys.

7.3.1 POWER ON/OFF

The power is turned on/off with these keys. To turn it off, press down the key until the screen blanks.

7.3.2 MODE

As the display examples show, the CVS-108 has three display modes. Pressing the "MODE" key rotates through those displays.

Dual Frequency: Normal + Normal, Zoom + Zoom, Bottom Zoom + Bottom Zoom (or Bottom Lock + Bottom Lock)
• The right side is the 200kHz image and the left side is the 50kHz image.

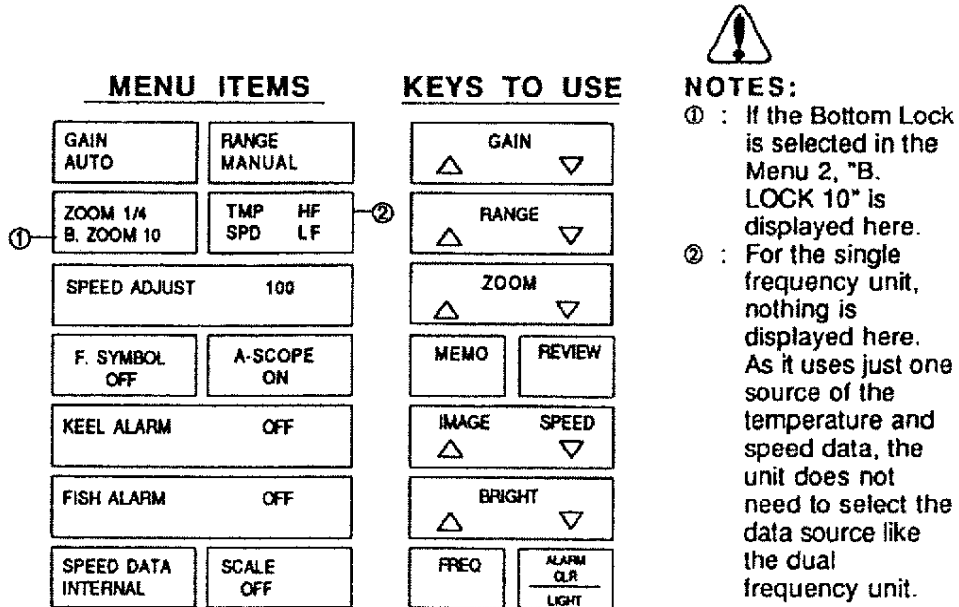
Single Frequency: Normal, Normal + Zoom, Normal + Bottom Zoom (or Bottom Lock)

The selected display mode is indicated at the lower left of the screen. Refer to the display examples.

7.3.3 MENU

- 1) The CVS-108 has two menu pages and a big number page. They are scrolled through by pressing the "MENU" key.
- 2) To return to the display mode you were using, press the "MODE" key.
- 3) The menu settings can be changed by pressing the keys corresponding to the menu items.

7.3.3-1 MENU 1



1) GAIN & RANGE / AUTO or MANUAL

By pressing the UP arrow of the "GAIN" key, the gain of the CVS-108 is automatically set (AUTO) or you have manual control of the gain (MANUAL). The DOWN arrow of the "GAIN" key is used for the same purpose to change from Auto or Manual ranging.

(2) ZOOM & BOTTOM ZOOM / RANGE SETTING

The Zoom function expands a certain area of the normal depth range. The Bottom Zoom (or the Bottom Lock) expands a certain area up from the bottom. By pressing the UP arrow of the "RANGE" key, the ranges of the Zoom and Bottom Zoom are selected among the following combinations.

Zoom	-	1/4	2/4	3/4	of the range
Bottom Zoom	-	10	20	30	Feet

- The above bottom zoom ranges are in feet. If you have selected meters or fathoms, the bottom zoom ranges are 5, 10 and 15.
- If the Bottom Lock was selected in the Menu 2 instead of the Bottom Zoom, this line is indicated as "BOTTOM LOCK". The available ranges are the same.
- As in the display examples, the bottom zoom shows the same bottom contour as in the normal screen, but the area up from the bottom shows the expanded range. You can see the fish images within the range more closely without losing the bottom image. This is effective when the bottom depth is deep.
- The bottom lock shows the selected range up from the bottom by making the bottom as a straight line regardless of the bottom contour.

(3) TEMP & SPEED / DATA SOURCE SELECTION

As explained in the above note, this function is provided just for the dual frequency version. Regardless of the type of transducers you use, you have to select the frequency from which the CVS-108 will obtain the temperature and speed data.

- (a) When you are using two separate transducers, both of them may have the speed and temperature sensors. In that case, the CVS-108 receives two separate data of speed/temperature through two connector plugs. The CVS-108 has to decide which data to use.
- (b) In case of the dual frequency single transducer (#239 or 403-50-200ST), it has two connector plugs at the cable end, and the speed and temperature sensors are wired to the 200kHz connector plug with its depth sensor. The 50kHz connector plug just has the depth sensor. You have to tell it to the CVS-108.

There are four choices:

TEMP - HF HF LF LF
SPD - HF LF HF LF

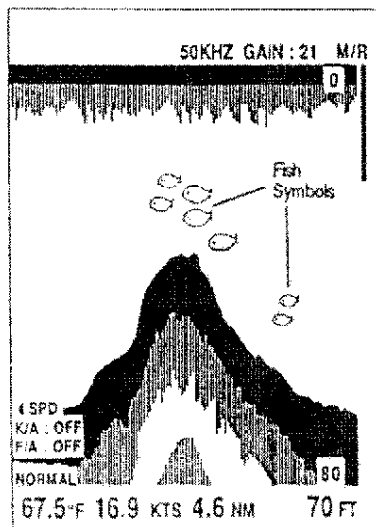
HF=High Frequency - 200kHz
LF=Low Frequency - 50kHz

By pressing the DOWN arrow of the "RANGE" key, the above combinations are scrolled through.

(4) SPEED ADJUSTMENT

If you run a known distance with your vessel and the log does not reflect that distance correctly, the speed adjustment can be used to calibrate your unit. If the log distance is less than your known distance, the UP arrow of the "ZOOM" key will increase the percentage up to 150 percent. The DOWN arrow of the "ZOOM" key will decrease the percentage to 50 percent.

(5) FISH SYMBOL / ON or OFF

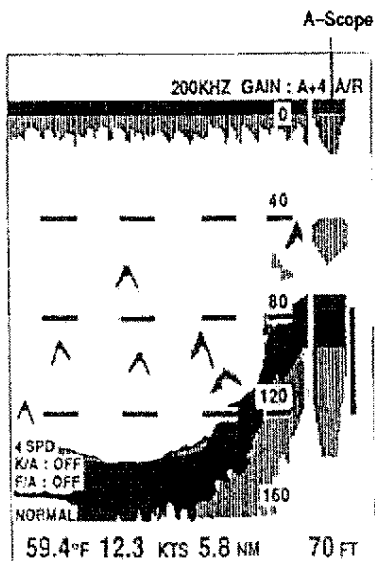


By pressing the "MEMO" key, the Fish Symbol will be turned on or off. The Fish Symbol is displayed with four (4) sizes and colors of the actual fish image. The size and color will be determined by the strength of the returned echo. They do not necessarily indicate the actual fish size. School of small fish are displayed by a large, red fish image if the echo is strong enough.



NOTES:
Fish symbols are displayed only in the Normal Display Screen.

A-SCOPE / ON or OFF



By pressing the "REVIEW" key, the A-Scope will be turned on or off. It indicates the strength of returned echo directly under your vessel of that instant with the width and color of the bar. So, the wider the bar, the stronger the echo or the larger the fish, and the widest bar is shown in red.

KEEL ALARM / DEPTH SETTING

By pressing the DOWN arrow of the "IMAGE SPEED" key, the depth alarm is turned on and the depth setting is increased. Depth can be set up to 300 feet. If you hold the UP or DOWN arrow, the depth will change in increments of 5. As the display example shows, the selected depth is displayed at the lower left side of the screen like "K/A:30". If you had set the depth at 10 and you went less than 10, a beeping alarm would sound. The "ALARM CLR" prohibits the alarm.

(8) FISH ALARM / LEVEL SELECTION

By pressing the UP arrow of the "BRIGHT" key, the Fish Alarm is turned on. Each press of the UP arrow will set an alarm from 1 to 7. The numbers show the size of the returned echo from the fish. The number "1" is the smallest fish and the number "7" is the largest. By pressing the DOWN arrow of the "BRIGHT" key, you can lower the fish alarm or turn it off. As the display example shows, the selected level is displayed at the lower left side of the screen like "F/A:4".

SPEED DATA / DATA SOURCE SELECTION

The CVS-108 displays the boat speed information on the screen. You can determine its data source between the paddlewheel speed sensor and the equipment like Ioran, GPS if it is connected. By pressing the "FREQ" key, the indication changes between "INTERNAL" and "EXTERNAL".

"INTERNAL" means that the speed sensor was selected as the data source, and "EXTERNAL" means that the connected equipment was selected.

10) SCALE LINES / ON or OFF

Pressing the "ALARM CLR/LIGHT" key turns the scale lines on or off. These are lines on the screen at major depth points.

7.3.3-2 MENU 2

MENU ITEMS		KEYS TO USE	
A. CLUTTER [][][][][][][]	BOTTOM ZOOM	GAIN △ ▽	
C. ECHO OFF	T. GRAPH ON	RANGE △ ▽	
POWER HIGH	NAV PSTN ON	ZOOM △ ▽	
PULSE M	B. GROUND BLUE	MEMO	REVIEW
S. T. C. 200KHZ 0		IMAGE	SPEED △ ▽
S. T. C. 50KHZ 0		BRIGHT △ ▽	
COLOR [7][6][5][4][3][2][1] 1		FREQ	ALARM CLR LIGHT



NOTES:

① : For the single frequency unit, only the S. T. C for the used frequency is displayed. The other line is blank.

ANTI CLUTTER / LEVEL SETTING

The data will be displayed with seven colors indicated in the color bar in this menu. Anti clutter is the function to change the weakest color into the background color. Normally the anti clutter is not needed and is left in the OFF position where all seven colors are displayed. However, debris in the water or heavy concentration of plankton can cause the upper portion of screen to be cluttered with false images. They are displayed in weak level colors. The anti clutter is then turned on and set to the lowest level that will make the screen useable. By pressing the UP arrow of the "GAIN" key, the weakest color is turned to the background color until the fourth weakest color is changed.

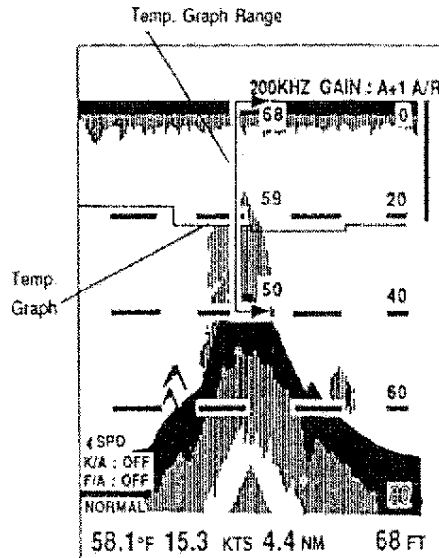
BOTTOM / ZOOM or LOCK

Pressing the DOWN arrow of the "GAIN" key selects the bottom expansion mode between "ZOOM" and "LOCK". The range setting for the selected bottom expansion mode can be done in the menu 1 as explained earlier.

CLEAN ECHO / ON or OFF

Pressing the UP arrow of the "RANGE" key turns the clean echo on or off. Normally the clean echo is left in the OFF position. However, if your vessel is close to another vessel which has a sounder of the same frequency as the CVS-108, the two sounders will listen to each other which will cause noise to appear on each other's screen. If you turn the clean echo on, your CVS-108 will no longer listen to the other sounder.

(4) TEMP. GRAPH / ON or OFF



Pressing the DOWN arrow of the "RANGE" key turns the temperature graph on or off. The temperature range is automatically selected by the CVS-108 based on your present temperature. The temperature graph will reflect the past history of changes in temperature on the screen.



NOTE:
It is displayed only on the normal image area.

(5) POWER / HIGH-MID-LOW

The output power can be reduced to prevent the interference from the same frequency on the nearby boat. Pressing the Up arrow of the "ZOOM" key rotates through the three levels - High, Medium and Low. "HIGH" indicates the normal power of 600 watts.

(6) NAV POSITION

The CVS-108 is capable to interface with a navigational instrument. By pressing the DOWN arrow of the "ZOOM" key, it will display the present position information sent out by that instrument. (Refer to 6. DISPLAYS in the page 12). The indication of this menu line will change as below according to the type of the navigational instruments.

- (a) When a Ioran or GPS is connected, pressing the DOWN arrow changes the indication among "L/L", "TD" and "OFF". ("TD" is not available for GPS.)
If "L/L" was selected, the CVS-108 will display the present position in L/L, the bearing of STG(Steer-to-Go) and the distance of XTE (Cross Track Error).
If "TD" was selected, only present position will be displayed in TD.
- (b) When a compass is connected, pressing the DOWN arrow changes the indication between "ON" and "OFF". "ON" displays STG, HDG and XTE.

PULSE / L-M-S

Pressing the "MEMO" key rotates through three indications of L (long), M (medium) and S(short). Generally the short pulses are better for the shallow water detection and the long pulses are better for the deep water detection

BACKGROUND / BLUE or BLACK

You can change the background color to black or blue by touching the "REVIEW" key.

(9) S.T.C. / LEVEL SETTING

The next two lines are given for setting the STC levels for both the high frequency and the low frequency. Pressing the UP arrows of the "IMAGE SPEED" and "BRIGHT" keys will increase the level number until it reaches 50, and pressing the DOWN arrows of them will decrease the level number. In case of the single frequency, only the line for the used frequency is displayed. The STC lowers the sensitivity near the surface to prevent the clutter of the screen by the echoes from debris and planktons.

(10) COLOR / PRIORITY CHANGE

The echo levels are divided into seven and each level is displayed in a different color as the color bar shows. The strongest level is indicated in red and numbered 7, and the weakest level is indicated in Lt. Blue and numbered 1. However, you can change their priorities or reduce the colors to display. For instance, to change the color of No.4 (green) to the color of No. 3 (cyan):

- (a) Press the "FREQ" key and display the number "4" at the right side (the example shows "1"). It is the number to change its color to other color.
- (b) Then, press the "ALARM CLR/LIGHT" key until cyan is displayed at the place of number 4. The data will be displayed with 6 colors without green.
- (c) According to the above procedures, you can change the color arrangement to your preference. However, in order to use this function effectively, it is suggested to get familiar with the color video sounder.

7.3.3-3 BIG NUMBER

The diagram shows a rectangular display area on the left and a set of control buttons on the right. The display area contains the following text from top to bottom: "257 FT", "58.4 °F", "15.2 KTS", and "1.0 NM". Below this text, it says "ARROW KEYS TO CHANGE UNITS" and "MEMO KEY TO RESET LOG". To the right of the display are four buttons. The first three are labeled "GAIN", "RANGE", and "ZOOM", each with an upward-pointing triangle on the left and a downward-pointing triangle on the right. The fourth button is labeled "MEMO". To the right of these buttons are their respective unit options: "FT, MT or FA" for GAIN, "F or C" for RANGE, "KTS, MPH or KPH" for ZOOM, and "NM, SM or KM" for MEMO.

As the display example shows, this display indicates depth, water temperature, boat speed and log in numbers. You can also change their calibration units listed at the right side of the above figure in this big number display.

1) DEPTH UNIT

The depth unit can be selected among Feet, Meters and Fathoms. As the help line at the bottom of the screen states, pressing the UP arrow of the "GAIN" key rotates through all three units.

(2) TEMPERATURE UNIT

The water temperature can be displayed either in Fahrenheit or in Centigrade. According to the help line, press the UP arrow of the "RANGE" key. The indication changes between "F" and "C".

BOAT SPEED UNIT

Three units are available for the boat speed. Knots, Miles per Hour, and Kilometers per Hour. Pressing the UP arrow of the "ZOOM" key rotates through all three units. However, please note that the log unit changes at the same time, as those two functions share the same calibration.

There are three choices:

SPEED	-	KTS	MPH	KPH
LOG	-	NM	SM	KM

LOG RESET

The log units are selected by the "ZOOM" key as mentioned in (3). The "MEMO" key is used for the log reset.

7.3.4 GAIN

1) MANUAL GAIN

The gain is set to manual mode at the factory. When you first power on, choose the proper gain level to your present depth by pressing the UP and DOWN arrows of the "GAIN" key. The manual gain is adjustable in 50 steps. As the general tip, the properly adjusted gain would show the second echo. The manual gain is indicated at the upper side of the screen like "GAIN:38" (refer to the display examples of 6. DISPLAYS).

2) AUTO GAIN

Switching to automatic mode is performed in the menu. The auto gain is displayed at the same place as the manual gain like "GAIN:A+1". The number after "A" indicates the offset value you can add to the computer selected gain curve. You can change it between -5 and +5 by pressing the arrow keys.

3) GAIN CONTROL In DUAL FREQUENCY

The gain of the dual frequency unit is adjusted as below:

(1) At Single Frequency Display

When in the auto mode, the gains of both high and low frequencies are automatically controlled together. When in the manual mode, the gain of the currently displayed frequency is just controlled.

(2) At Dual Frequency Display

When in the auto mode, the gains of both high and low frequencies are automatically controlled together.

When in the manual mode, the gains of both frequencies are adjusted with the same rate applied. To adjust the gain of just one frequency, you have to return to that single frequency image.

If the gain of one frequency reaches the maximum or minimum level, the manual control will keep the adjustments of the other frequency until it also reaches the maximum or minimum level.

7.3.5 RANGE

1) MANUAL RANGE

The range is set to manual mode at the factory. When you first power on, choose the proper range to your present depth by pressing the UP and DOWN arrows of the "RANGE" key. When in this mode, the unit shows "M/R" at the top right corner of the screen.

2) AUTO RANGE

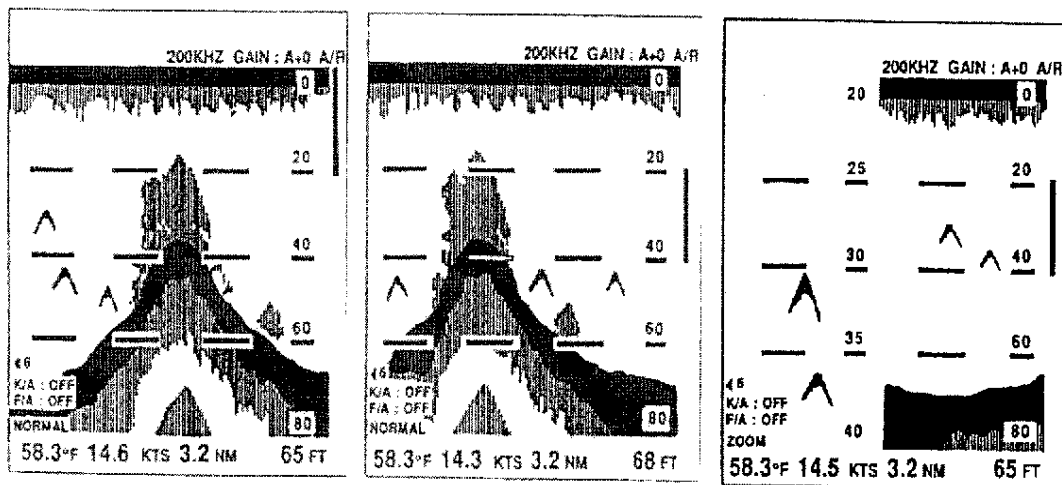
Switching to automatic mode is performed in the menu. If the auto range mode was selected, "A/R" is displayed at the top right corner of the screen. The range will automatically change by the change of the bottom depth.

7.3.6 ZOOM

- The range to zoom is decided in the menu. It is 1/4, 2/4 or 3/4 of the normal range. The selected zoom range is indicated with a bar at the right side of the screen. By pressing the "ZOOM" key, the zoom range bar will shift in 1/8 the normal range. Then, pressing the "MODE" key will show the zoom image of the selected zoom range and position on the left half of the screen (for the single frequency display).

For Example:

Normal Range - 80 feet	Selected Zoom Range - 1/4
------------------------	---------------------------



- The zoom bar is displayed between 0 and 20 feet (1/4 the normal range) as selected in the menu.
 - Pressing the DOWN arrow of the "ZOOM" key twice moves the bar down to 20 - 40 feet.
 - Pressing the "MODE" key displays the zoom mode of the selected area on the left half of the screen.
- 2) The zoom range is not applicable when on the first range scales. For the second range scales, the usable zoom range is 2/4.

7.3.7 MEMO

- 1) Pressing the "MEMO" key stores the image of one screen of that instant.
- 2) The screen image is split vertically.
The right half of the screen shows sounding image as you have operated, while left half of the screen displays half of the stored image. Pressing "REVIEW" key shifts the image to show the other half of the stored image. The stored image will be repeatedly displayed as long as "REVIEW" key is pressed.
- 3) "MODE" key press resumes the normal sounding display without memory.
This will erase the stored image.
- 4) Since it is not a permanent, but a temporary storage, it will be lost when the unit is turned off and replaced with new screen image every time "MEMO" key is pressed.

7.3.8 REVIEW

- 1) You can review two past screen pages. Keep pressing the "REVIEW" key to scroll the screen image. Scrolling ends when the screen page prior to the current screen image is displayed. When the press of "REVIEW" key stops, scroll of the screen stops.
- 2) To return to the normal operation, press the "MODE" key.

7.3.9 IMAGE SPEED

- 1) The image speed can be changed in 7 steps from the slowest (1) to the fastest (6) plus the speed proportional to the boat speed (SPD). If freezed, it is indicated with (STOP).
- 2) Pressing the UP arrow of the "IMAGE SPEED" key will select the faster speed, and the DOWN arrow will select the slower speed.
- 3) The selected speed is displayed at the left side of the screen as the display examples in 6.DISPLAYS show.
- 4) If you are traveling slow, use a lower image speed. If you speed up, use a higher image speed. This allows you to observe the same resolution of the bottom. Or, use "SPD" with which the CVS-108 automatically controls the image speed so as to be proportional to the boat speed.

7.3.10 BRIGHT

The screen brightness can be controlled in 8 steps. Pressing the UP arrow of the "BRIGHT" key increases the brightness, and pressing the DOWN arrow decreases it

7.3.11 FREQ(Frequency)

- 1) The dual frequency unit can display the images of both frequencies on the same screen or just the images of single frequency. This key is provided to make that selection of frequency mode.
The key does not work for the single frequency unit since it does not need such a selection. (However, it works for the menu settings as explained in 7.3.3 MENU.)
- 2) By pressing the key, the CVS-108 will select the frequency mode among 200/50kHz, 200kHz and 50kHz. The used frequency is indicated at the top of the screen.

7.3.12 ALARM CLEAR

When a pre-selected alarm, either Fish Alarm or Keel Alarm would sound, the alarm is deactivated by momentarily pressing the "ALARM CLR" key.

7.3.13 LIGHT

Pressing the key turns the backlight of key panel on or off

8. SPECIFICATIONS

CRT DATA	8"Color 7 Colors (Red, Orange, Yellow, Green, Cyan, White, Lt.Blue) Blue or Black
BACKGROUND BRIGHTNESS FREQUENCY	Adjustable in 8 levels Dual-200kHz/50kHz Single-200kHz or 50kHz
OUTPUT POWER	H - 600 Watts RMS M - 150 Watts RMS L - 25 Watts RMS
PULSE LENGTH	L - 0.06 ~ 2.5 msec M - 0.04 ~ 2.5 msec S - 0.02 ~ 1.1 msec
DEPTH RANGES	0-10, 20, 40, 80, 120, 160, 240, 320, 480, 640, 960, 1280, 1920, 2560Ft. 0-5, 10, 20, 40, 60, 80, 120, 160, 240, 320, 480Fa. 0-5, 10, 20, 40, 60, 80, 120, 160, 240, 320, 480, 640, 800Mt.
BOTTOM ZOOM (or LOCK) RANGES	10, 20, 30Ft. 5, 10, 15Fa. 5, 10, 15Mt.
ZOOM RANGES	1/4, 2/4 or 3/4 of depth ranges
ALARM	Keel Alarm - 300Ft. , 50Fa. or 100Mt. in one unit increments Fish Alarm - 7 Levels
DISPLAY MODE	Dual Frequency Mode - Normal + Normal, Zoom+Zoom, Bottom Zoom+Bottom Zoom (Bottom Lock+ Bottom Lock) Single Frequency Mode - Normal, Normal+Zoom, Normal+Bottom Zoom (Bottom Lock) A-Scope can be displayed at the same time.
IMAGE SPEED	7 plus Freeze - Including speed proportional to boat speed
DISPLAY REVIEW	Recall of 2 past images
FISH SYMBOL	Provided in 4 sizes
TEMP. DISPLAY	32.0°F - 99.9°F (Selectable to C)
VESSEL SPEED/ LOG DISPLAY	Provided
OTHER FUNCTIONS	Clean Echo, Anticlutter, Power Reducer, S. T. C.
VOLTAGE	11 - 40V DC
POWER CONSUMPTION	36 Watts

9. STANDARD EQUIPMENT

CVS-108 Control/Display Unit	1	12.5lbs
Trunnion	1	
Knobs	2	
Metal and Rubber Washers	2	
Transducer	1	
Transducer Plug	1	8 pin (2 plugs for the dual frequency)
Power Cable	1	10 feet
Fuse	1	5 Amp.
Sun Hood	1	
Operation Manual	1	

Specifications subject to change without notice.

10. TROUBLESHOOTING

When the CVS-108 does not operate properly, please read this section carefully. If you are unable to correct the problem by performing these procedures, contact your SI-TEX authorized dealer.

PROBLEMS	COUNTERMEASURES
No power.	Verify that the power connector is securely inserted, and check the fuse. If the polarity is reversed by mistake, the fuse will be blown. In this case, try to reverse the polarity and replace 5A fuse.
Power is on, but the sea bottom is not displayed.	Verify that the transducer connector is securely inserted or that the transducer cable is not broken. Enable auto gain and auto range.
Screen display is weak, loss of sensitivity.	Check the connection of the transducer. Make sure the transducer is properly mounted and pointed correctly. Verify that no marine creatures stick on the transducer face. They are susceptible to accumulate on it. Take care not to damage the transducer face when you scrape them off. Disable anticlutter or clean echo.
Excessive noise is present on display.	Check for interference from other boats. Also, check if the other equipment is operating properly. Verify that the unit is not affected by the engine noise, and make sure that it is not picking up noise due to its proximity to noise source.

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.