CHROMASCOPE

CVS-832

OPERATION MANUAL

SI-TEX®

DOC NO. CVS832 3-01
93132654 00

Table of contents

Important Notice

Manual handling	Keep this manual in a safe place where you can access quickly. This manual must be passed to the new owner of the CHROMASCOPE when it is transferred.

This is a fish finder/depth finder not a navigator. During navigation, use the correct charts, positioning instrument (such as a GPS receiver) and a depth finder to determine the position, depth, other ship's data, and so on.

Pictorials

This manual uses the following pictorials for easy understanding of safety instructions. Always follow these instructions carefully.

 **WARNING**	Always follow this instruction to prevent injury or loss of life.
 **CAUTION**	Follow this safety instruction to avoid personal injury or damage to your property.
	Symbol △ is a CAUTION or WARNING label indicating a safety instruction. (This symbol is an Electrical Shock warning label.)
	Symbol ⃠ is an instruction that you must not violate. (This symbol instructs NOT to disassemble the system components.)
	Symbol ● is an operation instruction that you must follow. (This symbol shows the main power OFF instruction.)

WARNING <For System Operators>

Always follow this instruction to prevent personal injury or loss of life.

Turn power OFF during abnormality.	If smoke or a burning smell occurs, a fire or an electrical short circuit may result. Turn the power switch OFF and shut down the power supply immediately. Never try to repair the system yourself. Call for service.
Do not open the cabinet.	High voltage may exist in the instrument. Contact with it may cause personal injury or loss of life
Do not touch back of the equipment.	Harmful line voltage may be present on the back side of the equipment. Never touch the back side while power is on.
Avoid excessive shocks to the display unit.	Breaking the display (LCD) can cause personal injury due to flying glass. Care must be taken handling the display to prevent breakage.
Do not use in poor ventilation.	Make sure the unit has adequate room for ventilation. This space keeps operating temperatures at a safe level.

Installation Precautions <For Service Personnel>

Follow the installation instructions to avoid personal injury and system malfunction.

Install in rigid position	Mount your system on a rigid frame or ceiling to prevent damage from loosening.
Use correct installation materials.	Use the installation materials in the standard accessory pack only. If a bolt or screw strength is insufficient, your system may fall and be damaged.
Keep away from direct sunlight.	Keep your system away from direct sunlight to prevent damage from overheating.
Keep away from water.	Keep your system dry. Water could damage this unit and also cause electrical shock.
Keep away from heat source.	Keep your system away from a heat source or it may malfunction, become damaged, or burn.
Use correct power source.	Operate your system with the specified power voltage. An incorrect power supply may cause a malfunction, fire or personal injury.

Maintenance Cautions <For Maintenance Personnel>

Use the following safety precautions during internal inspection.

Discharge capacitors.	A high voltage may remain in the capacitors of the high-tension circuit several minutes after you have turned the power switch off. Wait at least five minutes or discharge them to ground before starting your inspection.
Check that power is OFF.	To prevent an electrical injury due to erroneous power switching, make sure that the main power supply and the system power switch are both off. Also attach a safety label showing that service is in progress.
Avoid static electricity.	Take care not to damage the ESDs (Electrostatic Sensitive Devices) due to static electricity from carpet and cloths
Avoid dust.	Wear a safety mask so as not to breath in dust during inspection or cleaning inside your system instruments.

Operation Notes <For Operators>

Observe the following operation notes, otherwise system failure or deterioration can result. Periodical inspection and maintenance are required for keeping the system in an optimum condition.

Backup important data.	Save or log important data in a backup memory or log sheets. The initial setup data and your storage data may be lost when the internal battery expires or when you service the electrical circuits.
Keep away magnetic substances.	Keep away magnetic substances such as magnets or magnetized tools from the display unit, otherwise dislocation of displayed image can result.
Use correct transducer only.	If you use a non-specified transducer, the transmitter circuit may be damaged due to a matching error. Consult us for system expansion.
Check transducer connection before power ON.	Do not turn the power switch ON when the transducer is disconnected or when it is not inserted into the water. If done, the transducer or transmitter circuit may be damaged.
Always clean the transducer.	Since transducer performance can drop due to the adverse effects of bottom growth, keep the transducer clean. Never paint the transducer surface.
Transducer must be installed by authorized personnel.	Consult us for transducer installation by authorized personnel.

Color sounder (chromascope)- How it works-

The COLOR SOUNDER system is composed of a display unit and a transducer element. All electronics including a transmitter, a receiver, a logic circuit, a flat screen TFT driving circuit and a regulated power supply are contained in a display cabinet. The transducer type may vary according to the frequency and other optional features like a speed/temperature sensor.

In the display unit, a transmitting pulse is generated in the transmitter section to drive the transducer. The transducer converts the electric energy into the ultrasonic energy and transmits the energy towards the sea bottom. Once the energy hits the obstacles under water, it bounces back to the transducer. The received energy is now converted to electric energy again and amplified at the receiver and then converted to a digital signal in the logic section. The digital signal is further processed at the logic section and allocated to a designated pixel on the TFT flat screen to establish the sounder image. Various marks, scales, etc shown on the screen are also generated in the logic section.

As shown in Figure 1, the ultrasonic beam forms a conical shape. This feature causes the echo detected at a deeper depth to be shown enlarged, while the echo detected at a shallower depth to be shown smaller in size. The sounder also detects the hardness of the bottom, i.e. it shows a hard bottom composed of rocks in a stronger color like red, orange, etc. Meanwhile, a soft bottom such as sand may be shown in a weaker color like yellow, green, etc.

The picture update starts from the right end of the screen in normal mode. In the case of split mode, there are variances in position to start the picture update, i.e. from the right end or the center of the screen, etc.

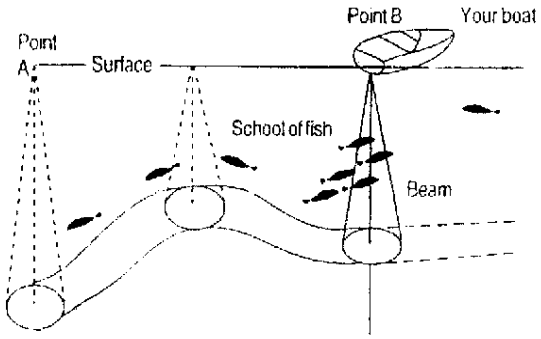


Figure 1

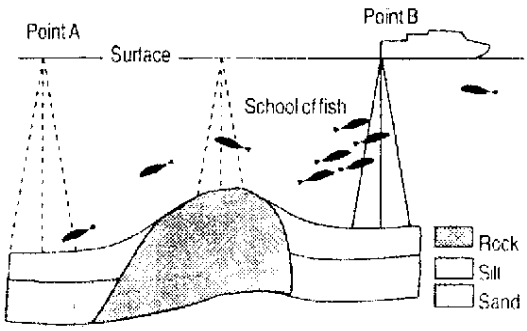


Figure 2 Bottom contour

An example of the image display is shown below.

The following figure shows a typical example of the image shown on the screen. In practice, the screen presentation may vary, according to the settings the user is using.

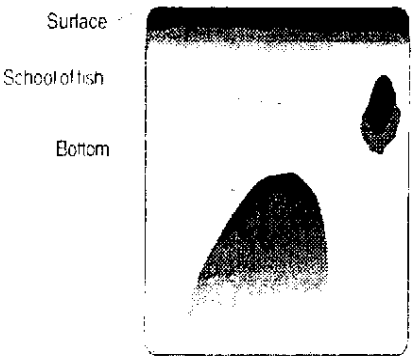
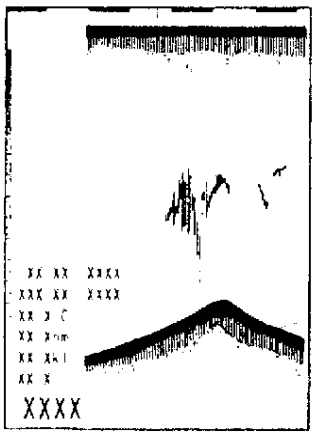


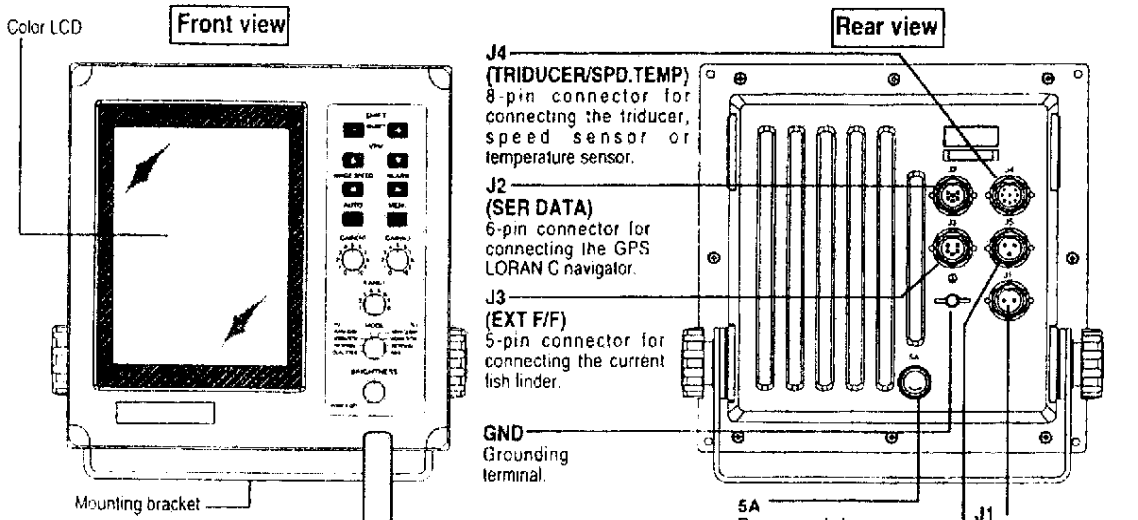
Figure 3

Image

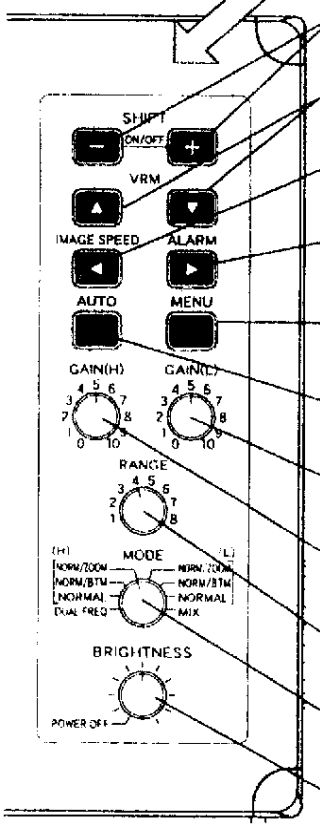
This example shows all data that may be displayed on the screen. The actual screen depends upon what data you choose to be displayed as selected in the setup mode.



Display unit



Refer to **Plug pin arrangement**, page 26.



SHIFT key
Moves a normal mode image up or down. See "**Shifting the normal image**" (page 6).

VRM key
Sets and displays the marks on the display.

IMAGE SPEED key
Selects image advance speed

ALARM key
Turns the alarm on and off

MENU key
Displays the menu screens

AUTO key
Turns the AUTO RANGE, AUTO SHIFT and AUTO GAIN on and off.

Gain control (Low frequency)
Controls the receiver gain at low frequency

Gain control (High frequency)
Controls the receiver gain at high frequency.

RANGE (Arrow) keys
Selects a depth range.

MODE (Image mode) switch
Selects the image mode.See "**Displaying multiple image** (page 7)

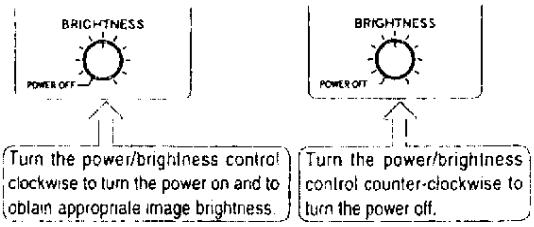
PWR/BRT (Power/Bright) switch
Turns the power on or off and controls the screen brightness.

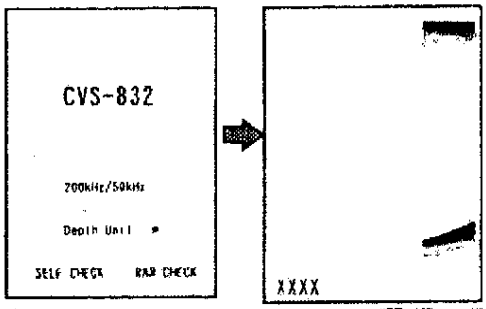
Getting started

Displaying the normal image

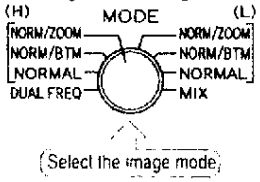
The normal image consists of two types, the fixed range and auto range. If you select the fixed range, the image is displayed on the screen within the area between the water surface and the predetermined range (depth). In the auto range the sea bottom is constantly kept on the screen and if the water depth changes, the range automatically changes accordingly

1 Turning power on and adjusting the brightness



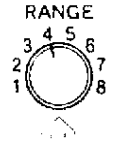


2 Selecting the image mode.



Set up CVS-832 as follows before selecting the image mode.
Picture mode ..... 3. IMAGE MODE (Initial Menu)
Bottom expansion ... BOTTOM EXPAND (Menu 7)

3 Selecting the range (depth range).



NOTE: Before using the **RANGE** select control, register the depth ranges you are using to each range number, 1 through to 8, using the sub menu "**2 DEPTH RANGE PRESET**" in the initial menu.

Select an appropriate range to show echoes between water surface and sea bottom.

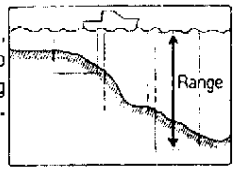
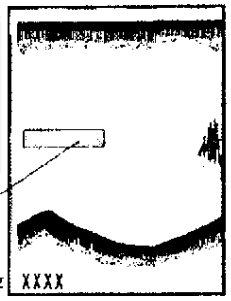


Image within the selected range is displayed.



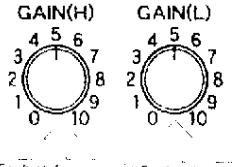
Selecting the AUTO RANGE mode

AUTO

To always display the whole depth, use the AUTO RANGE function by the following procedures

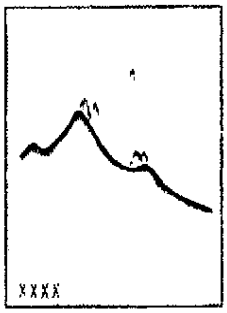
1. Set the sign "**Rng**" to yellow in "**Auto Sel**" in **MENU 6**.
2. Press the **AUTO** key. The sign **AUTO** appears to acknowledge the entry

4 Adjusting the receiver gain

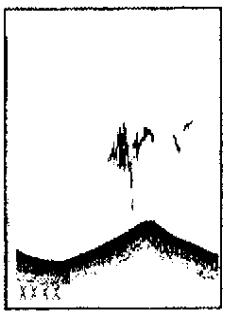


Adjust the gain so that the surface of the bottom is displayed in red

A sample image for a reduced gain



A sample image for an appropriate gain



Selecting the AUTO GAIN

AUTO

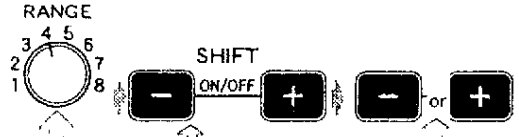
Press the **AUTO** key to allow the sign **AUTO** to appear. The receiver gain will change automatically according to the depth

Shifting the normal image

The normal image consists of two types, the fixed shift and auto shift. If you select the fixed shift, the image is displayed on the screen within the area between the predetermined depth and also the predetermined range. In auto shift the sea bottom is constantly displayed on the lower part of the screen and if water depth changes, the image is automatically shifted to the direction of depth change

5 Selecting the range (depth range) and shift position.

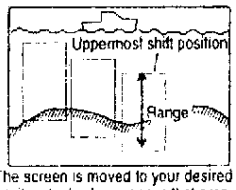
Select the desired range (depth range) to be used in the **2 DEPTH RANGE PRESET** in the **INITIAL MENU**.



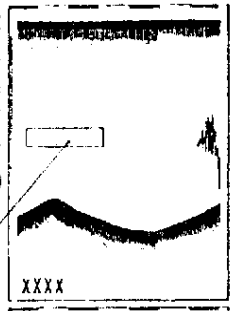
Press both keys simultaneously to display the shifting position setting.

Press the + (plus) or - (minus) key to set the upper end position of the shifts.

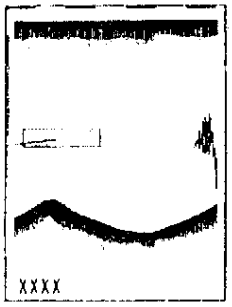
Selects the most clearly displayed range from the surface to the sea bottom.



The screen is moved to your desired position to display image in that area



Selected range

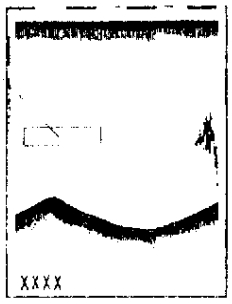


Selected Uppermost shift position

Selecting the AUTO SHIFT mode

1. Select "**Sht**" in the **Auto Sel** submenu in **MENU 6**. (The "Sht" will be highlighted yellow)
2. In the AUTO SHIFT mode, the picture shifts to allow the sea bottom to always be shown within the screen
3. Press both the "-" and "+" keys at the same time to display the AUTO SHIFT image. The letters "**AUTO SHIFT**" will appear in the center left corner of the screen

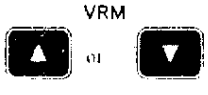
AUTO SHIFT sign



NOTE The picture does not switch to the **AUTO SHIFT** mode when the AUTO RANGE function has been activated. Press the AUTO key again to turn off the AUTO RANGE function and then repeat the above procedure.

Measuring depth by VRM (green)

By moving the VRM (green) up and down to a target such as a school of fish on the screen, the depth of the target can be obtained.

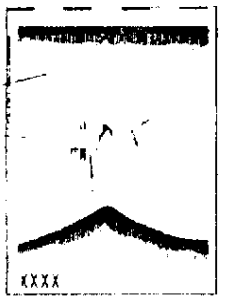


Display the VRM pressing the key

Change depth of the marker by pressing the arrow key (▲or▼) of the pointing device (PD). A depth at the VRM (green) position will be shown

VRM (green)

The depth of the VRM appears.



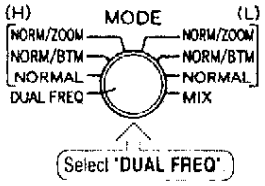
When a zoomed image is displayed

When the VRM (green) appears on the normal mode screen, the depth of the VRM becomes the indication starting depth of the partly zoomed image

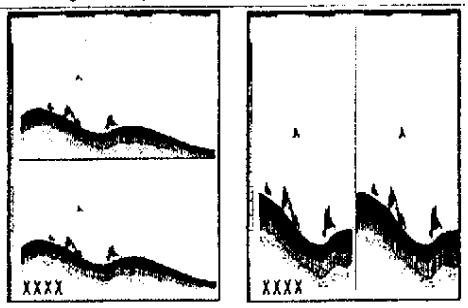
Displaying multiple image

Select this display from the "**3 IMAGE MODE SETTING**" in the "**INITIAL MENU**".
For the procedure, refer to the "**Selecting the image mode using the MODE switch**" (page 11)

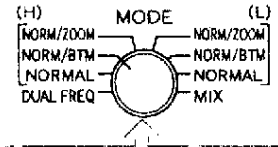
Displaying dual frequency images together



When displaying vertically split high frequency and low frequency images, select forward feed or center feed on "**4 IMAGE MODE KEY PRESET**" in the **INITIAL MENU**.



Displaying bottom zoom image



Set to the **NORM/BTM** position either in High Frequency (H) or Low Frequency (L) mode.

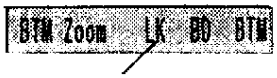
Presetting

1. Enter **MENU 1** to set the zoom range. Use the RIGHT or LEFT arrow key to select the zoom range.
2. Select an image mode in **MENU 7 Bottom Zoom**. The available image modes are Bottom Lock (**BTM**), Bottom Discrimination (**B.D.**) and Bottom Zoom (**B.Z.**).

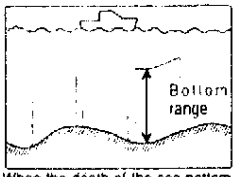
Displaying bottom lock (BTM) image

The range of the bottom lock display is indicated by an orange bar.

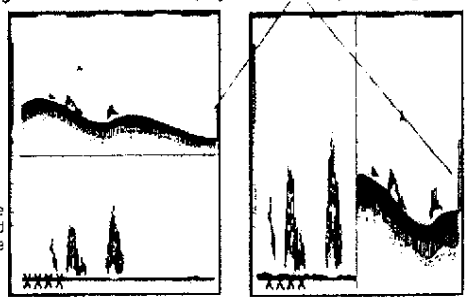
Select the bottom range from the "**BTM Zoom**" of the "**MENU 7**".



Letters **LK** are displayed in yellow.



When the depth of the sea bottom changes, the zoomed image above the sea bottom is displayed on the bottom screen. Details of fish targets above the sea bottom can be observed.

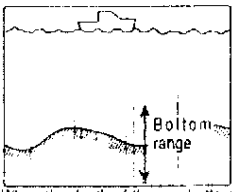


Displaying bottom discrimination (B.D.) image

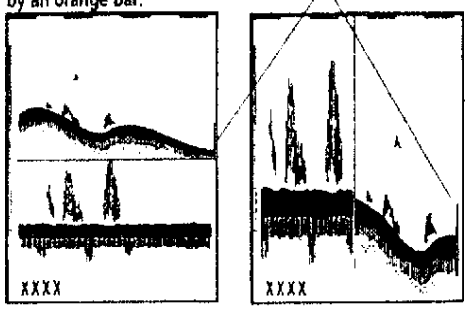
The range of the bottom discrimination display is indicated by an orange bar.

Select the bottom range from the "**BTM Zoom**" of the "**MENU 7**".

Letters **BD** are displayed in yellow.

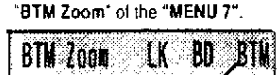


When the depth of the sea bottom changes, the zoomed image above the sea bottom is displayed on the bottom screen. Details of fish around the sea bottom and the bottom contour and sediment can be observed.

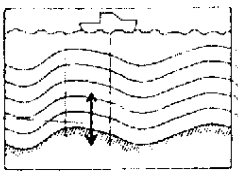


Displaying bottom zoom image

Select the bottom range from the "**BTM Zoom**" of the "**MENU 7**".

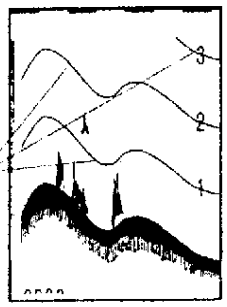


Letters **BTM** are displayed in yellow.

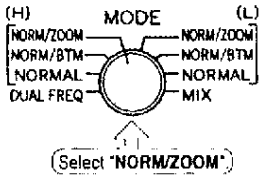


Using the bottom line as reference, this function zooms up the areas above the bottom.
This function indicates height from the bottom in solid scale lines while the bottom depth is indicated by the original depth scale, so you can closely observe schools of fish near the bottom.

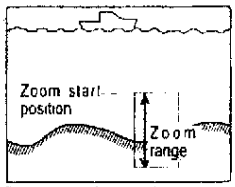
Bottom scale



Displaying zoom image

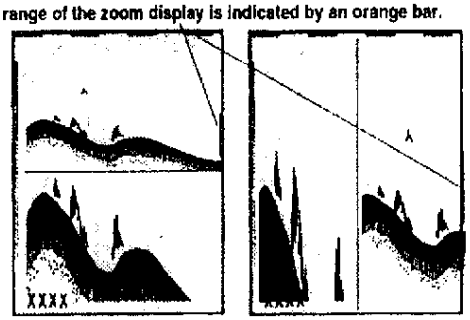


Select the bottom range from the **"Zoom Range"** of the **"MENU 1"**.
Set the zoom start position from the **"Zoom Start"** of the **"MENU 1"**

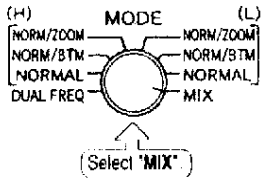


Regardless of depth change, the screen always displays the zoomed images based on the specified zoom start position.

The range of the zoom display is indicated by an orange bar.

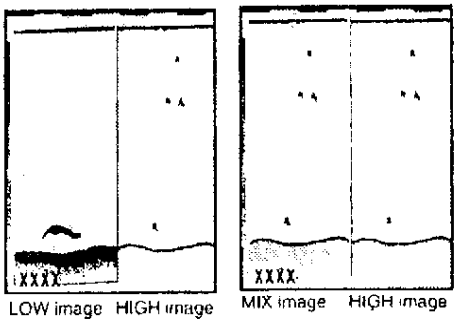


Displaying combined (MIX) images



Small fish can be more easily located using high frequencies than by low frequencies. This unique characteristic of ultrasonic waves enables small fish like young sardines to be shown.

Select the combining methods from the **"Mix Type"** in **MENU 4**.



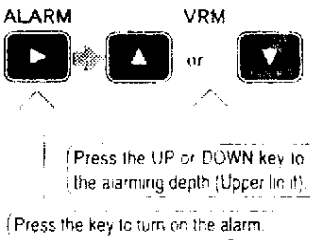
LOW image HIGH image MIX image HIGH image

Changing the image feed speed

The feed speed is closely related to the number of transmissions of the transducer. If you select "2/1", for example, the image is moved two times for each transmission.

Setting the alarm depth

Before setting the alarm depth, set up the alarm functions in **MENU 2** shown on page 17.



Menus

Type of menus

The menu screen consists of two types, the Initial Menu and Menu.

Calling a menu

INITIAL MENU Turn the power switch ON while holding down the MENU key.

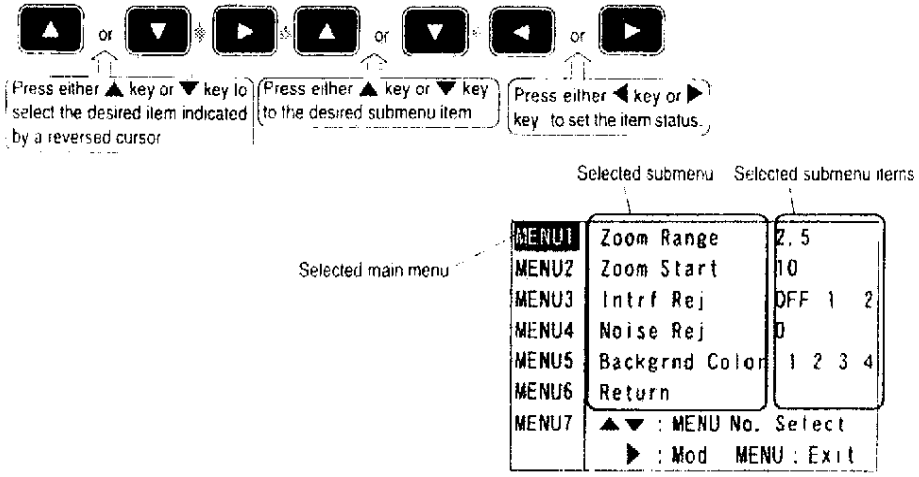
Note: If the power is already on, it must be turned off before starting this operation

MENU Press the MENU key to display this menu.

How to use menu

INITIAL MENU The initial menu has different operation procedures depending on your selection.

MENU



Returning to display mode

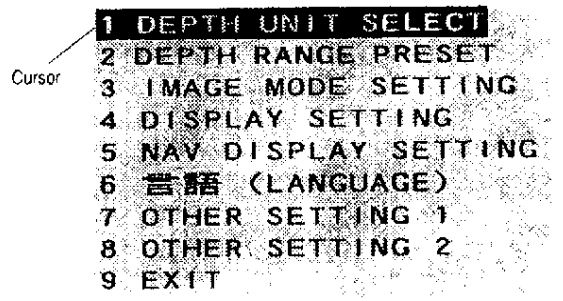
INITIAL MENU Select "**9 Exit**".
Refer to the "Exiting from the Initial Menu" on page 15.

MENU Press the MENU key until the menu modes are released.

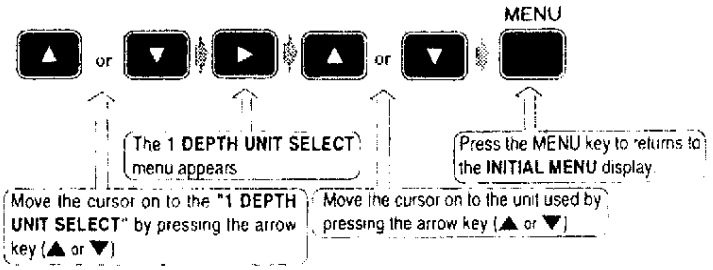
Initial menu

Resetting this information will be necessary after an internal battery replacement. For this operation, refer to the "Exiting with initialize" on page 15.

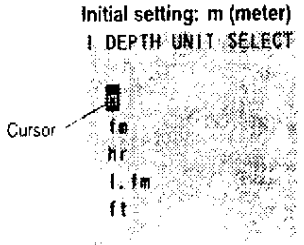
Initial menu functions can:
1. Select a range (depth range) unit used
2. Select a range (depth range) used
3. Selecting the image mode using the MODE switch
4. DISPLAY SETTING (Setting up the screen display)
5. NAV DISPLAY SETTING (Setting up the bottom depth display and navigation data display)
6. Select a language used on the display
7. OTHER SETTING 1
8. OTHER SETTING 2
9. Exit from the Initial Menu.



Selection of the range (depth range) unit used



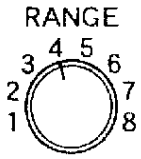
Initial setting: m (meter)

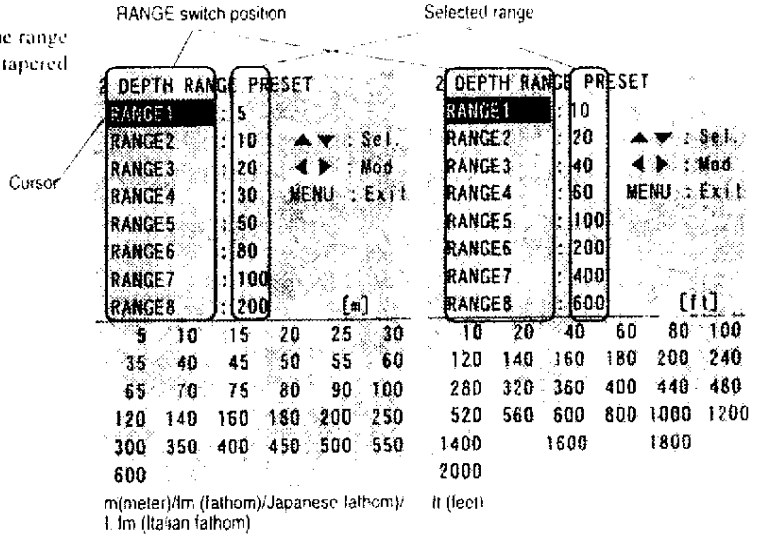


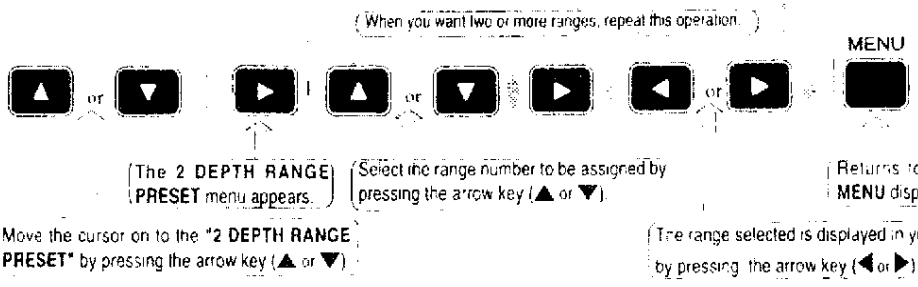
Selection of the range (depth range) used

Initial setting: Values shown in the following figure.
Setting range: Values shown in the following figure.

When the equipment is first turned on, the range scales will be defaulted as shown in the tapered squares.





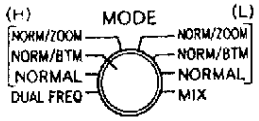


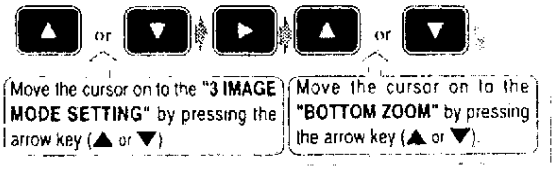
Selecting the image mode using the MODE switch

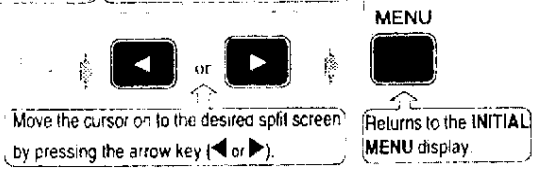
The following procedures set up various split displays available in the NORM/BTM, DUAL FREQ or MIX mode, selected by the MODE switch.

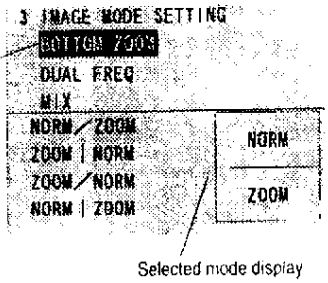
Selecting the split screen type in the NORM/BTM mode

In the NORM/BTM mode, you can select a best-suited split screen type among the selections in the sub menu. The same selections are available for HIGH and LOW frequencies.



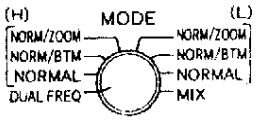


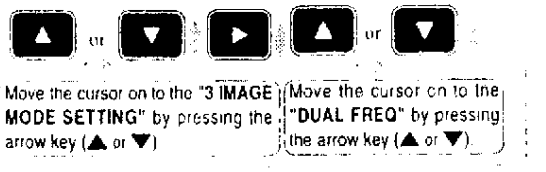


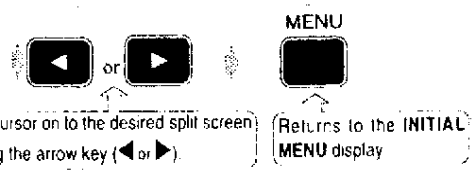


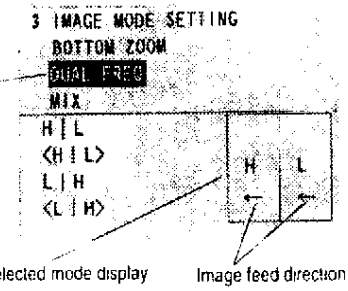
Selecting the split screen type in the DUAL FREQ mode

In the DUAL FREQ mode, you can select a best suited split screen (High/Low Frequencies) type and screen feed direction among the selections in the sub menu.



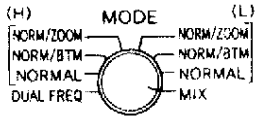


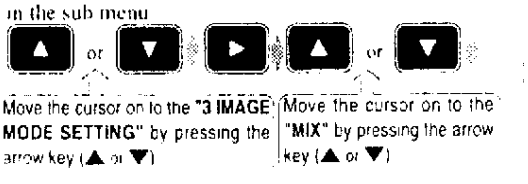


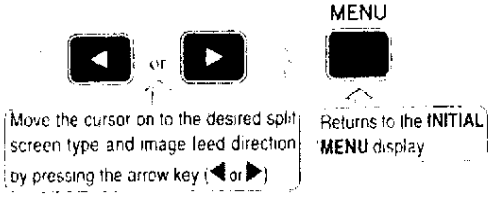


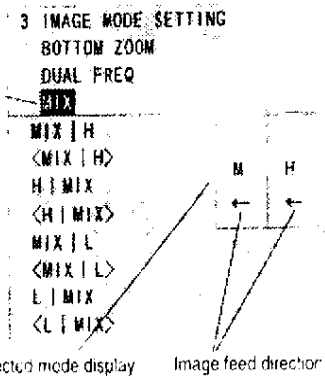
Selecting the split screen type in the MIX mode

In the MIX mode, you can select a mix mode split screen type with various combinations of the transmission frequencies, as well as the screen feed direction among the selections in the sub menu.



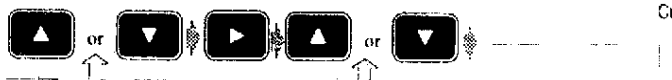






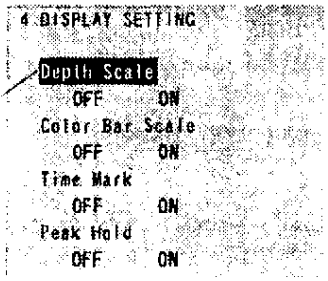
DISPLAY SETTING (Setting up the screen display)

In this mode, you can set up various marks and video peak hold (See **NOTE**) shown on the screen.



Move the cursor on to the "**4 DISPLAY SETTING**" by pressing the arrow key (▲ or ▼).

Move the cursor on to the item to be selected by pressing the arrow key (▲ or ▼).

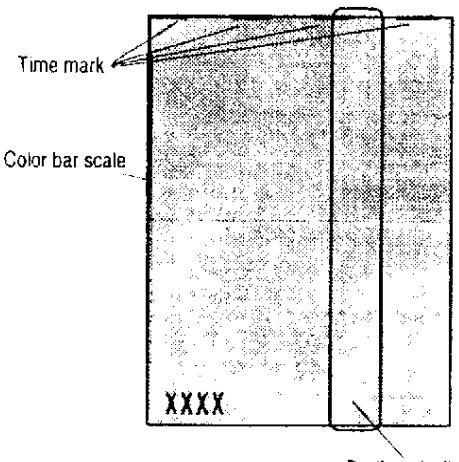


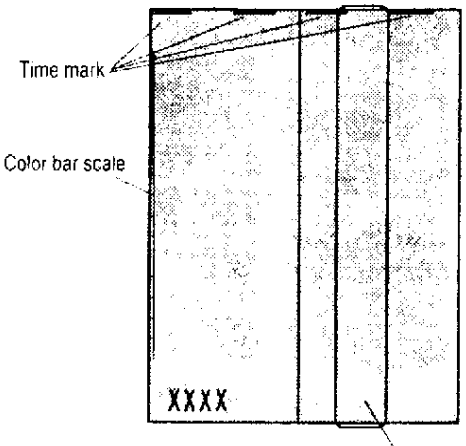
Select ON or OFF by pressing the arrow key (▲ or ▼).

Returns to the **INITIAL MENU** display.

NOTE:

Peak Hold: A video processing method which compares the echoes generated from two consecutive transmissions and outputs the largest echo signal.

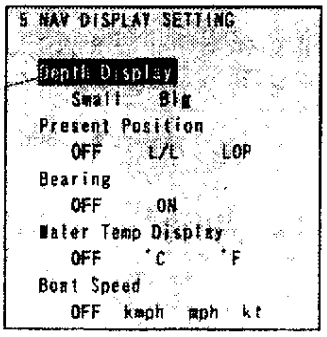


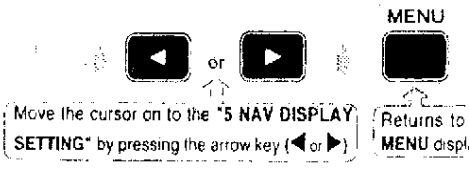


NAV DISPLAY SETTING (Setting up the bottom depth display and navigation data display)

Move the cursor on to the "**5 NAV DISPLAY SETTING**" by pressing the arrow key (▲ or ▼).

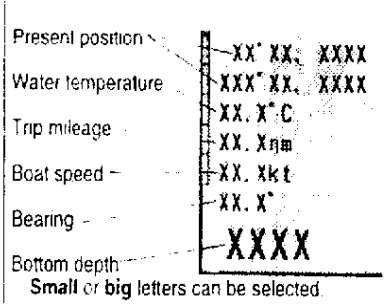
Move the cursor on to the item to be select by pressing the arrow key (▲ or ▼).



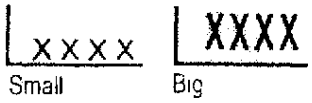


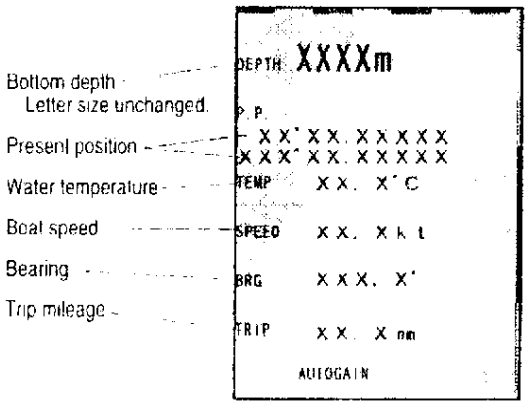
Move the cursor on to the "**5 NAV DISPLAY SETTING**" by pressing the arrow key (◀ or ▶).

Returns to the **INITIAL MENU** display.



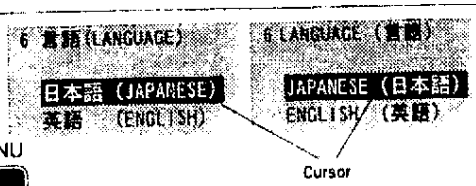
Small or **big** letters can be selected.

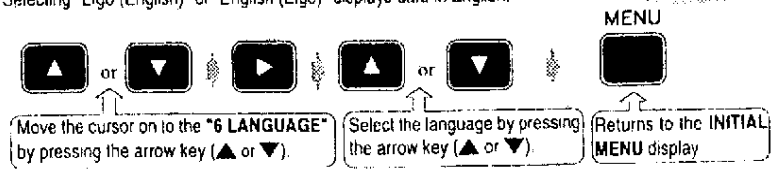




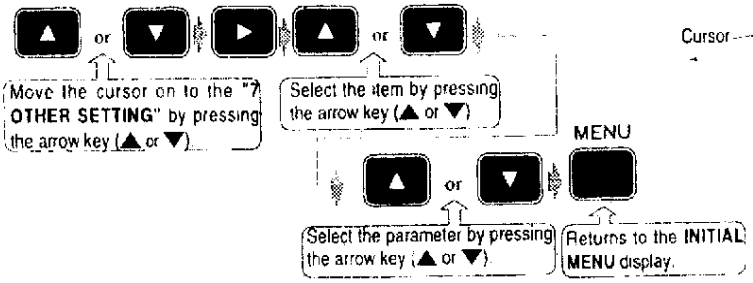
Selecting the language used on the screen

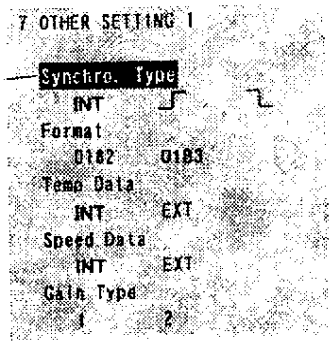
You can select either Japanese or English for the display language.
Selecting "Nihongo (Japanese)" or "Japanese (Nihongo)" displays data in Japanese.
Selecting "Eigo (English)" or "English (Eigo)" displays data in English.





OTHER SETTING 1





Initial setting: INT

Synchro. Type (Selecting INTERNAL or EXTERNAL synchronization)

When two fish finders are operated at the same time, an acoustic interference may be observed on each display. To eliminate the interference, you need to synchronize the transmission timing of both sounders by using the same trigger pulse. To do so, connect a sync trigger from an external sounder to the J3 **(EXT F/F)** connector on the rear panel of the CHROMASCOPE.

INT (Internal) Normal operation without external synchronization
Selecting a positive sync trigger.
Selecting a negative sync trigger

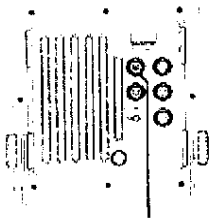
Initial setting: 0183

Format (Selecting an input data format)

To select proper NMEA data format to receive the navigational information from an external navigator equipment. The NMEA data is put into the connector labeled **J2 (SER DATA)** on the rear panel.

0183 ..... Specified to NMEA 0183 Ver. 2.0
0182 ..... Designed for NMEA 0182 (this format is mainly used for the auto pilot).

For data (sentence) to be acquired in the NMEA 0183 format, refer to the **"NMEA 0183 input data format"**.
If the sentence is absent on the data received or the equipment failed to receive the data, the sign "XXX.X" will appear in the data display space. If a navigator is not connected, you cannot view the data even if a proper format is selected.



J2 (SER DATA) connector

Initial setting: INT (internal)

Temp Data (Selecting water temperature data source)

J4 (TRIDUCER/SPD.TEMP) connector and **J2 (SER DATA)** connector are provided on the rear side of the incoming signal indicator unit. Both of them accept water temperature data. When acquiring the data from **J2 (SER DATA)** connector, you must select a proper input data format referencing the **"Selecting an input data format"**.

INT (Internal) ..... This mode is used for collecting the water temperature data from the water temperature/speed sensor **ST-80/90/100** connected to **J4 (TRIDUCER/SPD.TEMP)** connector. If the water temperature data is absent, **"0.0"** appears in the data display space.
EXT (External) ..... This mode is used for collecting water temperature data from the water temperature sensor connected to **J2 (SER DATA)** connector. If the water temperature data is absent, **"XXX.X"** appears in the data display space.

initial setting: EXT (External)

Selecting a boat speed data source

J4 (TRIDUCER/SPD.TEMP) and **J2 (SER DATA)** connectors are provided on the rear side of the incoming signal indicator unit. Both connectors accept the boat speed data. When collecting the data from **J2 (SER DATA)** connector, you need to select a proper input data format referencing the **"Selecting an Input Data Format"**.

INT (Internal) ..... This mode is used for collecting boat speed data from the water temperature/speed sensor **ST-80/90/100** connected to **J4 (TRIDUCER/SPD.TEMP)** connector. If the boat speed data is absent, **"0.0"** appears in the data display space.
EXT (External) ..... This mode is used for collecting boat speed data from the speed sensor connected to **J2 (SER DATA)** connector. If the boat speed data is absent, **"XXX."** appears in the data display space.

initial setting: 1

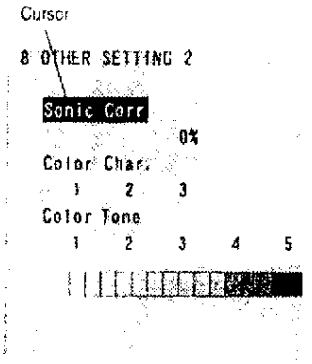
Selecting gain type

Select the Gain type according to the bottom terrain. If the bottom is bumpy or rocky causing continuous depth changes, select Type 2. If the bottom is flat and shallow, select Type 1.

1 ..... Gain changes in linear law.
2 ..... Gain changes in logarithmic law.

OTHER SETTING 2

This setting includes the following set up items.



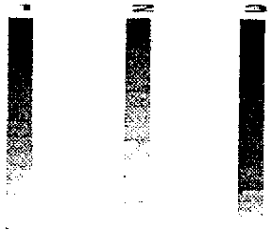
(1) "Sonic Corr" correcting a depth indicator value to a known true value. A depth indication may deviate from a true value because of the water temperature difference or salt concentration in the water. This setting compensates such deviation.

Initial setting: 0%
Setting range: – 7 to +2%

(2) "Color Char", selecting the characteristics of the display color gradation. The following three sets of color gradation are available.

1 ..... An entire color gradation is evenly divided
2 ..... Color gradation for stronger echo group is finely divided
3 ..... Color gradation for weaker echo group is finely divided

Initial setting: 1

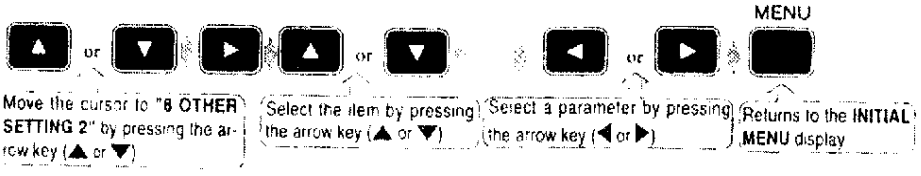


(3) "Color Tone", selecting the number of image colors and the background color on the screen. The following five sets of color tones are available.

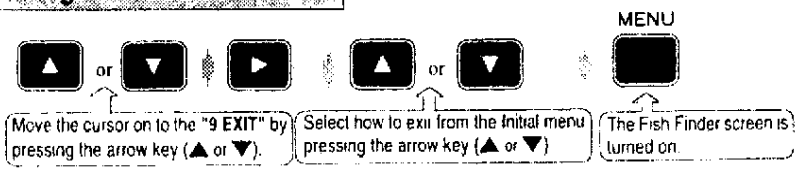
1 ..... 16-color display with blue background
2 ..... 16-color display with dark blue background
3 ..... 16-color display with green background
4 ..... 8-color display with blue background
5 ..... Monochrome display with 16 shades of grey with blue background

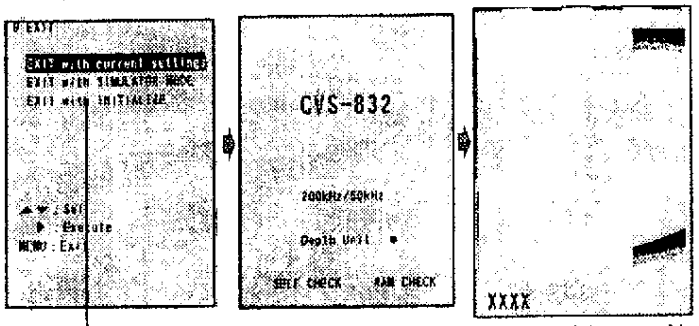
Initial setting: 1

Use the following procedures to set up.

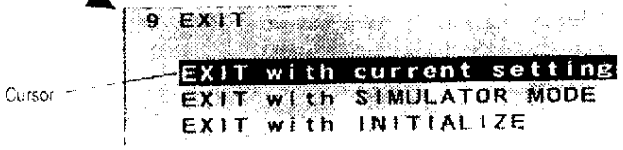


Exiting from the Initial menu





Initial setting: You can exit from the Initial menu with the current setting being maintained.

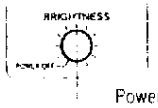


EXIT with current setting

If you select this item, you can exit from INITIAL MENU without affecting the current settings in the menu.

EXIT with SIMULATOR MODE

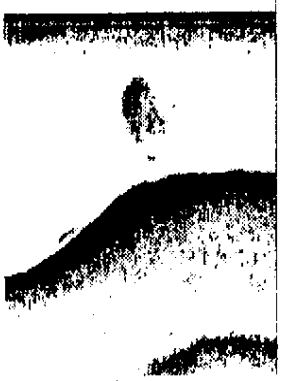
If you select this item, you can display the simulated picture on the screen. To exit from this menu, simply turn off and then turn on the unit. The initial sounder screen will appear.



Power switch

Turning off the power allows you to exit from the simulated picture mode.

The simulator does not work for all functions, including the STC adjustment and the draft adjustment.



Simulation image

EXIT with INITIALIZE

If you select this item, the CHROMASCOPE will be defaulted to it's initial settings. To exit the menu, press the MENU key.

MENU 1

MENU 1 is used for the following operation.

1. Selecting a zoom range for the bottom lock image, bottom discrimination image and zoom image
2. Selecting a zooming start position for the zoom image
3. Deleting interferences from other boats
4. Eliminating low level noises (such as trip noise)
5. Changing the background color

MENU1	Zoom Range	2.5
MENU2	Zoom Start	10
MENU3	Intrf Rej	OFF 1 2
MENU4	Noise Rej	0
MENU5	Backgrnd Color	1 2 3 4
MENU6	Return	
MENU7	▲▼ : MENU No. Select	
	▶ : Mod MENU : Exit	

Selecting a zoom range for the bottom lock image, bottom discrimination image and zoom image

Initial setting: 2.5 m
Setting range: 2.5, 5, 10, 20, 40, 80 m/fm/hiro/l.fm
10, 20, 40, 80, 160, 320 ft

You can specify a desired zooming range. For the range available, refer to the "**Displaying multiple images**" in page 7.

Selecting a zooming start position for the zoom image

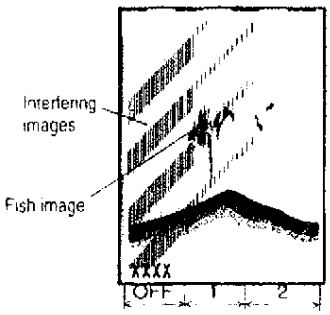
Initial setting: 0 m
Setting range:0 to 600 m/fm/hiro/l.fm, 0 to 2,000 ft

This function allows you to specify a zooming start position (upper depth limit) for the partial zoom images.
For details, refer to the "**Displaying zoom image**" in page 8.

Deleting interferences from other boats

Initial setting: OFF.
Setting range:OFF, 1, 2

If nearby boats use a fish finder of the same frequency and emission rate, interfering images may appear on the screen as shown in the figure below. This function allows you to delete such images.



Eliminating low level noises (such as engine noise)

Initial setting: 0.
Setting range:0 to 9.

Increasing the number in descending order (from 0 to 9) eliminates noises starting with the one at the lowest level.

An image before and after the noise suppression has been turned on:
The portion **A** indicates the image with the noise suppression **0** (OFF).
The point P indicates the timing when the noise suppression has been turned on.
The portion **B** indicates the image after the noise suppression has been turned on.

Changing the background color

Initial setting: Brightest
Setting range: 10 steps

Use this function to switch between daylight and night time operation.

MENU 2

MENU 2 is used for the following operation.

1. Setting the alarm range for fish alarm or bottom alarm
2. Selecting the image signal colors that activates the alarm
3. Selecting a fish image length that activates the alarm.
4. Selecting the upper limit of the water temperature alarm
5. Selecting the lower limit of the water temperature alarm.

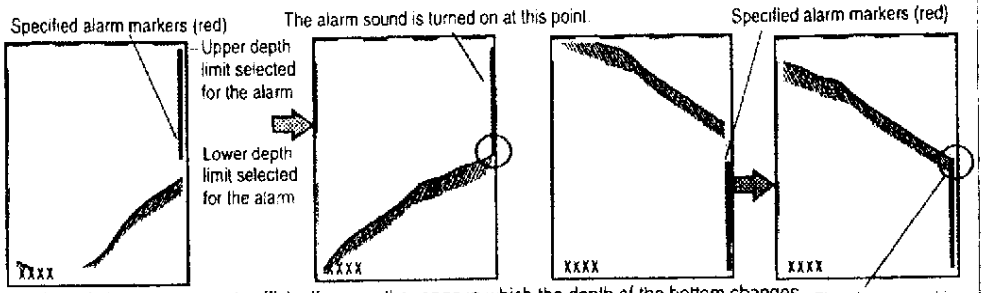
MENU1	Alarm Range 0
MENU2	Alarm Level
MENU3	Alarm Length S M L
MENU4	U Temp Alarm 16.0°C
MENU5	L Temp Alarm 15.0°C
MENU6	Return
MENU7	▲▼ : MENU No. Select
	▶ : Mod MENU : Exit

The fish alarm and bottom alarm

Note: The alarm may not be turned on by a target that generates echoes of reduced level.

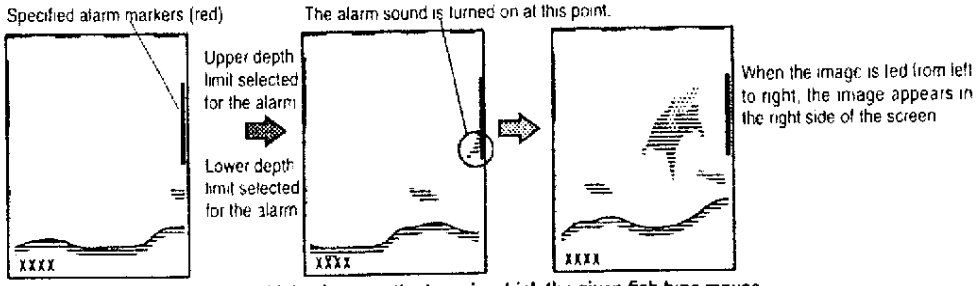
Before selecting the bottom or fish alarm, you must specify the alarm range.
BTM ..... The alarm is activated if the bottom moves out of the depth enclosed by the upper alarm and lower alarm
FISH ..... The alarm is activated if the fish image with the previously specified color and length appears within the upper alarm and lower alarm depth.

When the bottom alarm is used



A selected alarm range must sufficiently cover the range in which the depth of the bottom changes. The alarm sound is turned on at this point.

When the fish alarm is used



A selected alarm range must sufficiently cover the layer in which the given fish type moves.

Selecting the bottom alarm

Alarm range	The range must cover 3% minimum of the depth range specified for the detection

Setting the fish alarm

Alarm range	A selected alarm range must sufficiently cover the layer in which the given fish type moves
Upper/lower alarm color	The color that activates the alarm must reflect the colors used for representing the fish type in concerned
Image length for activating the alarm	Length of a target (in vertical direction) must be specified in consideration of the fish image length (in the vertical direction)

Precautions on the Use:

- If overlapping between the alarm mark and the fish or bottom image is lost, the alarm is automatically stopped.
- If the alarm mark disappears from the screen, the alarm function is stopped
- If the alarm mark disappears from the screen in the Short Image mode, the alarm function is stopped
- If an identical value is selected for the upper and lower alarms, the alarm function is stopped

Water temperature alarm

The water temperature alarm will be activated when the water temperature sent from the temperature sensor type ST-80/90/100 or other external temperature sensor lies within the preset water alarm temperature range

MENU 3

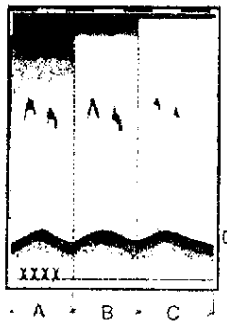
MENU 3 is used for the following operation.

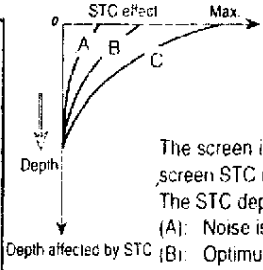
1. Adjusting the STC depth of high frequency images
2. Adjusting the STC amplitude of high frequency images
3. Adjusting the STC depth of low frequency images
4. Adjusting the STC amplitude of low frequency images

MENU1	STC Depth(H)	0
MENU2	STC Amp(H)	0
MENU3	STC Depth(L)	0
MENU4	STC Amp(L)	0
MENU5		
MENU6	Return	
MENU7	▲▼ : MENU No. Select	
	▶ : Mod MENU : Exit	

Drifting trash, plankton and such near the surface may appear on the screen in red or yellow, and you can miss schools of fish moving in or around them. In such a case, adjusting the STC allows you to identify fish from other suspended objects more easily. Both the **AMPTD** (amplitude) and DEPTH of the STC can be separately adjusted

Adjusting STC amplitude

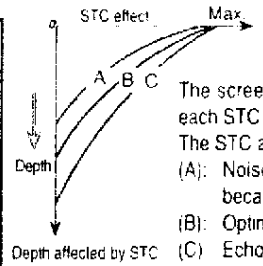




As the control is turned clockwise slowly, while looking at the image, the image changes from left to right. The STC amplitude effect increases as the control is turned clockwise

The screen image left indicates the image change corresponding to each screen STC curve.
The STC depth is constant
(A): Noise is displayed because of low STC amplitude setting
(B): Optimum STC amplitude setting
(C) Echo from the school of fish is weak because of excessive STC

Adjusting STC depth



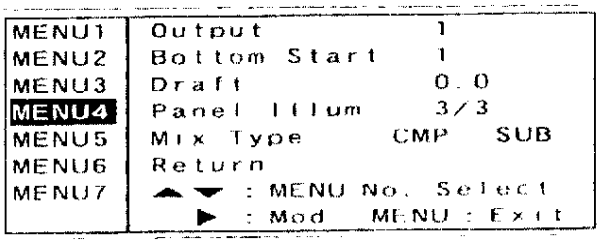
As the control is turned clockwise slowly, while looking at the image, the image changes from left to right. The STC depth effect increases as the control is turned clockwise

The screen image left indicates the image changes corresponding to each STC curve.
The STC amplitude is constant
(A): Noise due to floating object just below surface is only eliminated because of weak STCs depth setting.
(B): Optimum STC depth setting
(C) Echo from the school of fish is weak because of excessive STC

MENU 4

MENU 4 is used for the following operation.

1. Adjusting the output power
2. Specifying a depth for the bottom detection
3. Matching to the boat draft
4. Adjusting the operation panel illumination
5. Changing the composite image displaying method

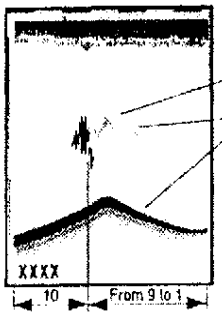


Adjusting the output power

When the following cases apply, use this function to solve your problem.

- To decrease noise and interferrence with the other boat's echo sounders. Reducing the power is effective in minimizing the interference.
- To better display schools of fish near the bottom, reduce the power. This allows signal return from the bottom to be reduced, thereby the fish echoes can be better discriminated.

This function is effective for both high and low frequencies.



Initial setting: 10
Setting range: 1 (weak) to 10 (strong)

Specifying a depth for the bottom detection

The function avoids mistaken bottom from schools of fish by setting the inhibit depth for bottom detection.

Initial setting: 1 m/fm/hiro/f.fm
Setting range: 1 to 100 m/fm/hiro/f.fm
1 to 400 ft

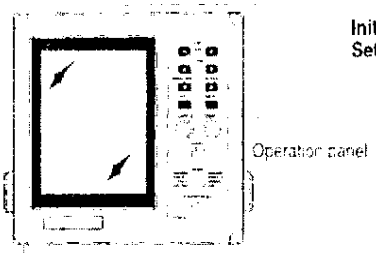
Matching to the boat draft

This function is used for matching the depth of the emission line to the draft of your boat.

Initial setting: 0.0 m/fm/hiro/f.fm
Setting range: 0.0 to 10.0 m/fm/hiro/f.fm
0.0 to 25.5 ft

Adjusting the operation panel illumination

This function allows you to adjust illumination of the operation panel when required.



Initial setting: 1/3
Setting range: 3 steps

Changing the composite image displaying method

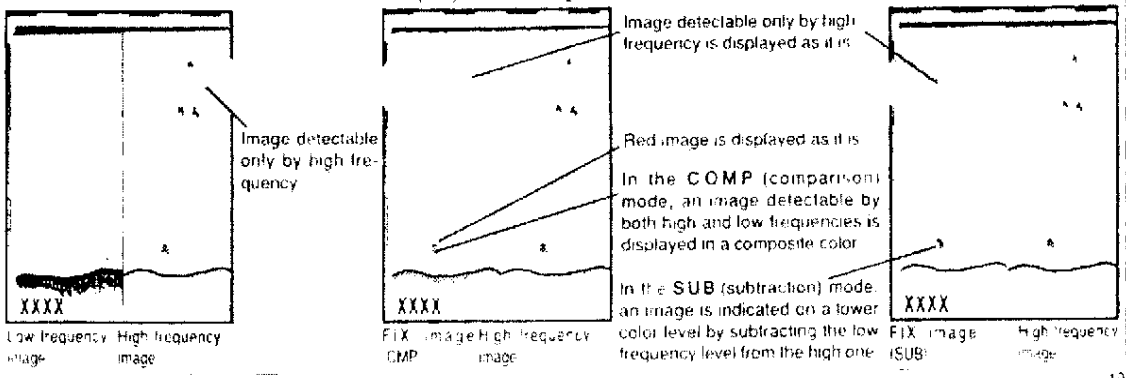
Initial setting: Comparison
Setting range: Comparison/subtraction

The "MIX image" refers to an image displayed by assuming a signal which is detectable with a high frequency image but is difficult to detect in a low frequency image to be extremely small fish (young sardines). This is enabled by utilizing the ultrasonic frequency characteristics.

Mix mode: The mix mode is unique to the CVS-832. It's purpose is to better define small fish such as young sardines by comparing or subtracting the images from both the HIGH and LOW frequencies. When echoes are detected by the HIGH frequency only, the sounder displays these echoes in a preselected color to indicate small fish targets. The MIX feature has two modes COMPARISON and SUBTRACTION.

COMPARISON mode: This mode displays the result of the comparison between HIGH and LOW frequency echoes, using the HIGH frequency echoes as a reference. If these echoes are overlapped at the same depth, the resultant colors are painted in mixed colors. However, if the HIGH frequency echo is painted red (strongest color), the mixed color will also be red to show the echoes are from small fish. If the mixed fish school is partly painted with mixed colors among red color, it suggests the possibility of larger fish school among the small fish school.

SUBTRACTION mode: This mode displays the resultant echoes by subtracting the HIGH frequency echoes from those of LOW frequency. Using this method, you can discern the fish school by size. For instance, if resultant echoes are painted in similar colors as the HIGH frequency echoes, this result suggests the majority of the fish species is sensitive to the HIGH frequency transmission, in other words, the detected fish school could be small fish like young sardine. If the resultant echoes are painted in different colors from the HIGH frequency transmission, it indicates the fish school is sensitive to the LOW frequency, which size is larger than those of the HIGH frequency echoes.



MENU 5

MENU 5 is used for the following operation.

1. **Correcting a displayed boat speed**
2. **Correcting a displayed water temperature**
3. **Turning on or off display of the water temperature graph**
4. **Deleting the images synchronized with another fish finder**
5. **Resetting the trip mileage**

MENU1	Speed Corr	0%
MENU2	Temp Corr	0.0°C
MENU3	Temp Graph	OFF ON
MENU4	PRR	10
MENU5	Trip Reset	NO YES
MENU6	Return	
MENU7	▲▼ : MENU No. Select	
	▶ : Mod MENU : Exit	

Correcting a displayed boat speed

Initial setting: 0 %
Setting range: - 50 to +50 %

When the water temperature/speed sensor T-80/90/100 is connected, you can correct currently displayed boat speed data

Correcting a displayed water temperature

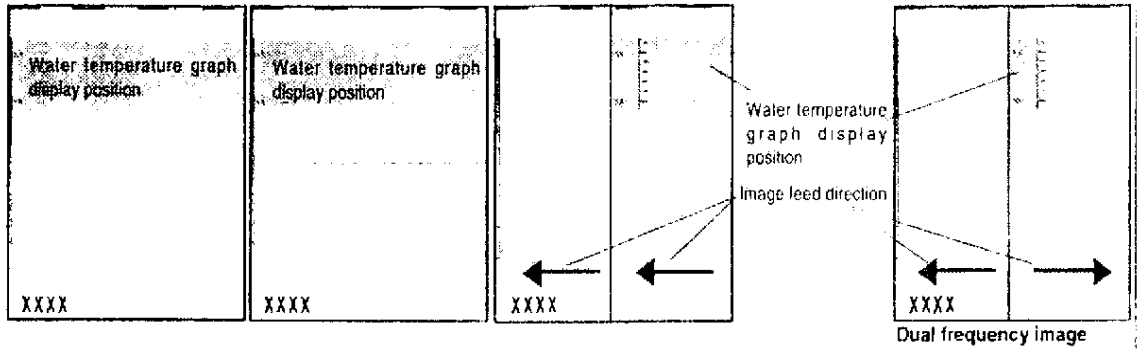
Initial setting: 0.0 °C
Setting range: - 9.9 to +9.9 °C

When the water temperature/speed sensor T-80/90/100 is connected, you can correct currently displayed water temperature data

Turning on or off display of the water temperature graph

Initial setting: OFF
Setting range: OFF, ON

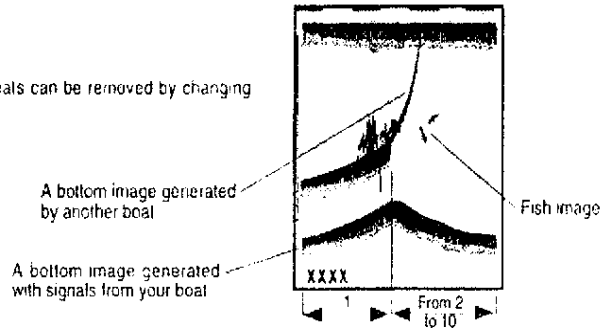
When the water temperature/speed sensor T-80/90/100 is connected water temperature graph are available on the screen



Deleting the images synchronized with another fish finder

Initial setting: 1
Setting range:1 (fast) to 10 (slow)

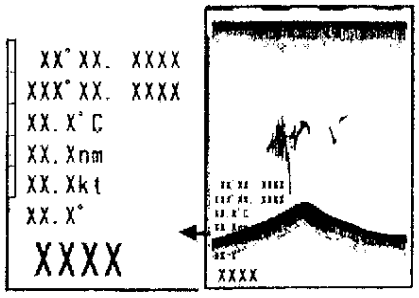
Synchronized images from other boats can be removed by changing emission rate



Resetting the trip mileage

Initial setting: OFF
Setting range:OFF, ON

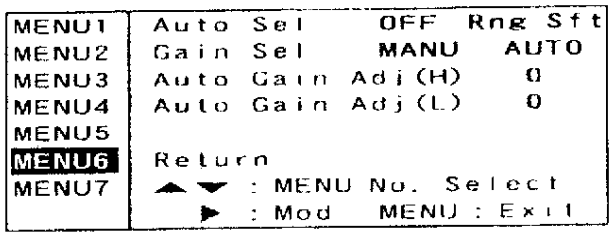
When the speed sensor is connected, you can measure an aproximate trip mileage of the boat. The trip mileage can start the measurement by selecting "YES". Selected characters will be displayed in yellow. Current trip mileage is then reset to zero and "NO" will be highlighted in yellow. Then the mileage counting is started.



MENU 6

MENU 6 is used for the following operation.

1. Switching Auto Range (Rng) or Auto Shift (Sft)
2. Turning on or off auto gain function
3. Adjusting the effect of auto gain (high frequency)
4. Adjusting the effect of auto gain (low frequency)



Switching Auto Range (Rng) and Auto Shift (Sft)

Initial setting: Rng
Setting range:OFF, Rng, Sft

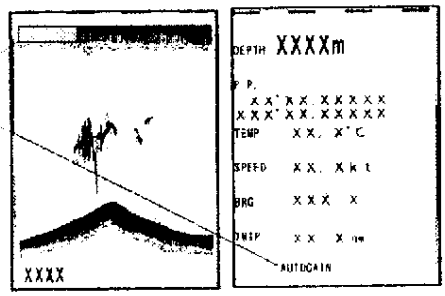
Refer to "Selecting the AUTO RANGE mode" (Page 5) and "Selecting the AUTO SHIFT mode" (Page 6) for details

Turning on or off auto gain function

Initial setting: AUTO
Setting range:AUTO, MANUAL

By turning on this function, the gain is automatically changed according to the water depth

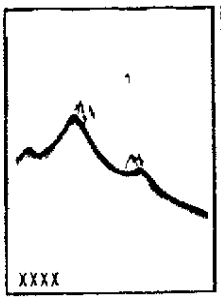
Selecting the auto gain displays the message **AUTO GAIN** on the screen.



Adjusting the effect of auto gain

Initial setting: 0.
Setting range:-10 to +10

Effect of the auto gain can vary depending on the bottom quality (rocks, sands or seaweed) because it affects intensity of the signals. When the bottom surface does not appear in red, use this function to ensure an optimum auto gain function.



An example of display under reduced gain level

An example of display under normal gain level

Adjust the receiver gain so that the bottom surface may appear in red

MENU 7

MENU 7 is used for the following operations.

1. Selecting the bottom zoom image
2. Turning the display of the A-Scope display or NAV data screen on or off
3. Changing the image display color
4. Displaying the white line on the bottom surface
5. Changing the output pulse width

MENU1	BTM Zoom LK BD BTM
MENU2	A-S/B.N OFF A.S B.N
MENU3	Color Rej 14/14
MENU4	White Line OFF ON
MENU5	Pulse Width S M L
MENU6	Return
MENU7	▲▼ : MENU No. Select
	▶ : Mod MENU : Exit

Selecting the bottom zoom image

Initial setting: OFF

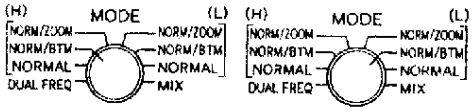
The following image modes are available in Bottom Zoom mode

LK (Bottom Lock) : The bottom image is always locked on in the lower part of the screen even though the depth changes.

BD (Bottom Discrimination): Variation of the hardness of the bottom can be shown in different colors.

BTM (Bottom zoom) : Bottom image can be zoomed.

For details of the Bottom Zoom image, refer to "Displaying the bottom Zoom image"



Showing A-Scope (A.S.) or Nav Data (B.N.)

Initial setting: OFF
Setting range:OFF, A.S, B.N

A-Scope (A.S) :

The A-Scope feature allows you to observe the wave shape of the fish echo just returned that may assist in discerning the differences of the school of fish, whether they are larger or smaller, stronger or weaker, etc.

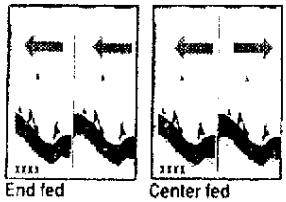
The A-Scope is not available when the mid image speed is selected.

Refer to "**Selecting the image mode using the MODE switch**" (page 11) for setting the image feed direction

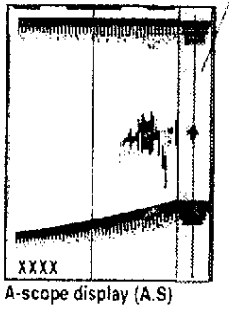
Nav Data (B.N.) :

By selecting the B.N., you can display the Nav Data sent from the navigator unit as shown in the illustration.

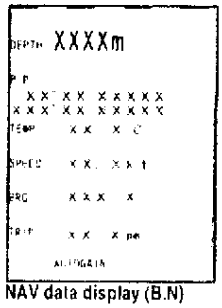
NOTE: A GPS or Loran C receiver must be connected to use this feature



Display in A-scope



A-scope display (A.S)



NAV data display (B.N)

Changing the image display color

Initial setting: 14/14

Acoustic noise caused by the bubbles or other oceanic factors may be displayed on the screen in a weaker color like white, pale green, etc. Certain types of fish school such as squid, baby anchovy may also be displayed in similar colors. In such a case, reduce the number of colors on the color palette to better discern the school of fish and the noise

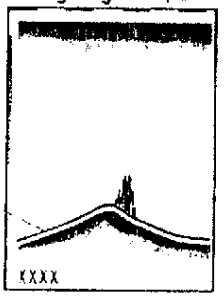
An alarm beeps when attempting to erase the last remaining color

Displaying the white line on the bottom surface

Initial setting: OFF
Setting range:OFF, ON

The white line feature allows the user to discern between the bottom and a school of fish. i.e. the bottom profile is drawn in white line and the school of fish in a variety of colors

White line



Changing the output pulse length

Initial setting: M
Setting range: S, M, L

The following pulse lengths can be selected according to the fish detection requirements

S (Short) ..... To increase the definition of the sounder image, however, the fish school detection capability will be lessened

M (Medium) ..... To increase the fish school detection, yet maintain the fish school detection capability

L (Long) ..... To increase the fish finding capability, however, the definition of the picture will be lessened

Troubleshooting guide

Nothing appears on the screen when power has been turned on

* Check for blown fuse.
* Make sure to remove the fuse after turning the power off.
* Make sure that appropriate supply voltage (10.8 to 31.2 VDC) is maintained.
* Make sure that the power cable is properly connected to the battery.
* Make sure that the power cable is properly connected to the display unit .

Image does not appear on the screen

* Make sure that the transducer is properly connected to the display unit.
* Check the transducer cable for damage.

Depth is displayed with "XXXX"

* Make sure that the bottom image is displayed on the screen.
  You must select a range that places the bottom on the screen.
* If the bottom is on the screen, make sure that it is displayed in red.
  If the bottom is not shown in red, adjust the gain so that it appears in red.

Water temperature data does not appear on the screen

* Make sure that "°C" or "°F" is selected for the "**Water Tem Display**" in the initial menu "**5 NAV DISPLAY SETTING**".
* Check that water temperature sensor is connected to the **J4 (TEMP)** connector on the back of the transmitter display.

Current position data does not appear on the screen

* Make sure that "**L/L**" or "**LOP**" is selected for the "**Present Position**" in the initial menu "**5 NAV DISPLAY SETTING**".
* Check that NMEA-0183 format data (sentence: GGA, GLL or GNS) is being sent to the **J2 (SER DATA)** connector on the back of the transmitter display by the navigator.

Boat speed data does not appear on the screen

* Make sure that any one of "**kmh**" or "**kt**" is selected for the "**Boat Speed**" in the initial menu "**5 NAV DISPLAY SETTING**".
* Check that NMEA-0183 format data (sentence: VTG) is being sent to the **J2 (SER DATA)** connector on the back of the transmitter display by the navigator.

Your vessels bearing does not appear on the screen

* Make sure that "**ON**" is selected for the "**Bearing**" in the initial menu "**5 NAV DISPLAY SETTING**".
* Check that NMEA-0183 format data (sentence: VTG) is being sent to the **J2 (SER DATA)** connector on the back of the transmitter display by the navigator.

Specifications

Major specifications

Specifications subject to change without notice.

Output	600 W
Display	6.5-inch color TFT LCD (320 x 234 pixels)
Presentation colors	8 colors (red, orange, yellow, green, light green, white, light blue, blue) or 16 colors (8 colors and half tone)
Choice of frequency	Dual frequency 50/200 kHz
Depth range	5 to 80 (5 step interval), 80 to 100 (10 step interval), 100 to 200 (20 step interval), 200 to 600 (50 step interval) (Meters, Hiro, Fathoms, Italian Fathoms), 8 range selectable 10 to 20 (10 step interval), 20 to 200 (20 step interval), 200 to 600 (40 step interval), 600 to 2,000 (200 step interval) (feet), 8 ranges selectable
Bottom range	2.5, 5, 10, 20, 40, 80 (Meters, Hiro, Fathoms, Italian Fathoms); 1 range selectable
Zoom range	10, 20, 40, 80 160, 320 (Feet); 1 range selectable
Max. depth with shift	Automatic or manual. Max. 600 (1 step interval) (Meters, Hiro, Fathoms, Italian Fathoms), Max. 2,000 (5 step interval) (Feet)
Presentation mode **H: High frequency** **L: Low frequency** **M: Mix**	 A total of 25 types of image modes are available, including bottom zoom display and combined display with sea bottom-fixed zoom or with sea bottom sediment zoom, as well as vertically- or horizontally-divided screen. Vertical or horizontal split screen display is available on the above modes. MENU, A-scope or navigational data display is available in all the above modes except the **INITIAL MENU** mode. The **INITIAL MENU** mode is provided for setting initial and other functional parameters.
Image display area	Vertically divided (top/bottom ratio: 1:1), horizontally divided (left/right ratio 1:1) and A-scope (right part: 13%)
Audible alarm	Fish alarm, sea bottom alarm and temperature alarm (upper/lower)
Image speed	Fixed 7 speeds (2/1, 1/1, 1/2, 1/4, 1/8, 1/16 and 1/32) and STOP
Interference rejection	3 levels (OFF/1/2)
Color rejection	14 levels
Power reduction	10 levels
Marker	Depth marker (VRM), scale, expanded range marker, division marker, time marker, color pattern
Controls	Gain, Depth range, Image mode, LCD brightness
Auto function	Gain, range or shift
Other functions	Panel illumination, draft adjustment, switching of internal/external synchronous signal, mark, water temperature compensation, PRR, image advance direction, external echo sounder connection
Navigational data	Boat position (latitude/longitude in 0.001 minute increments: Loran C LOP), water temperature (°C/°F/Graphic display), boat speed (kmph/mph/kt), trip mileage (km/sm/nm), boat bearing
Input data format	NMEA-0183 Ver. 2.0/1.5 (GGA, GLL, GNS, GTD, VTG) or NMEA-0182
Output data format	NMEA-0183 (DBS, DBT, DPT, MTW, VHW)
Power supply	10.8 to 31.2 VDC
Power consumption	25 W or less (at 24 VDC)
Operation temperature	-15 to +55 °C (5 to 131 °F)

Standard equipment

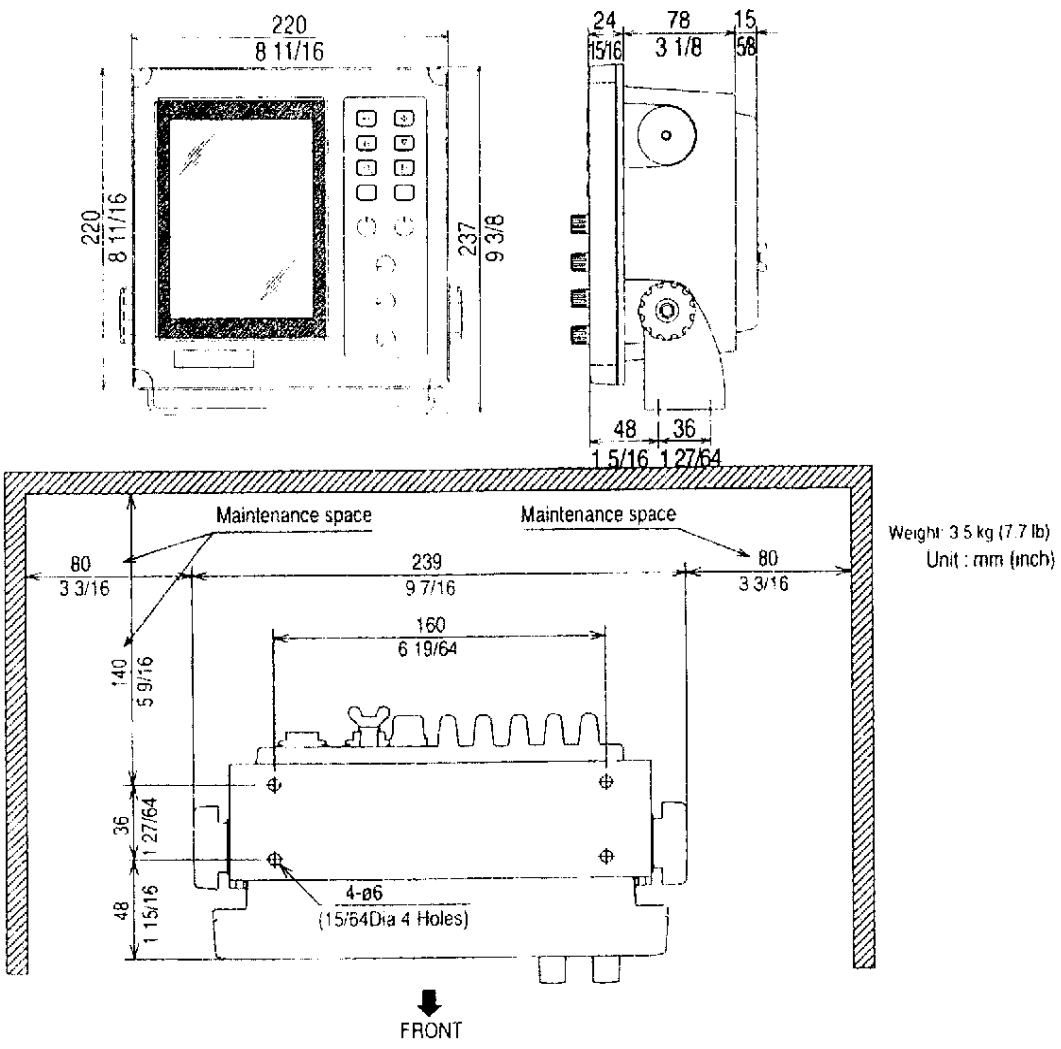
No.	Article	Rate	Remarks	Weight/length	Quantity
1	Display unit		With mounting bracket, knobs and cover	3.5 kg (7.7 lb)	1
2	Transducer		With tranducer cable, one end connector		1 set
3	DC power cable	CW-205-1	With 2-pin connector	2 m (6 9/16 ft)	1
4	Fuse	F-7161	5 A		2
5	Truss tapping screw	TPT5 x 20U			4
6	Operation manual				1

Options

No.	Article	Rate	Remarks	Weight/length
1	SPEED/TEMP sensor	ST-80	Installing the transom, plastic type (with cable)	0.3 kg (0.67 lb)
		ST-90	Installing the thru-hull, plastic type (with cable)	0.5 kg (1.2 lb)
		ST-100	Installing the thru-hull, bronze type (with cable)	1 kg (2.3 lb)
2	Connecting cable	CW-60	With BNC connector and lugs	10 m (32 13/16 ft)
		CW-153A	With 6 pin connectors	5 m (16 3/8 ft)
		CW-154A	With 6 pin connector and one end plain	5 m (16 3/8 ft)
		CW-155	With BNC connector/6 pin connector	5 m (16 3/8 ft)
		CW-351/327	With 6 pin connectors	5 m (16 3/8 ft)
		CW-352/328	With BNC connector and lugs	5 m (16 3/8 ft)
		CW-506	With 5 pin connector and one end plain	5 m (16 3/8 ft)
3	Inner hull kit	MFB-04	Resin, for 1 kW transducer	1.3 kg (2.9 lb)
4	Junction box	JB-12	1-IN/3-OUT, 3-IN/1-OUT, For navigator connecting	0.42 kg (0.93 lb)
5	Power rectifier	PS-003A	With two fuses (5A)	2.8 kg (6.2 lb)
6	AC power cable	VV-2DE	Both end plains	3 m (9 13/16 ft)

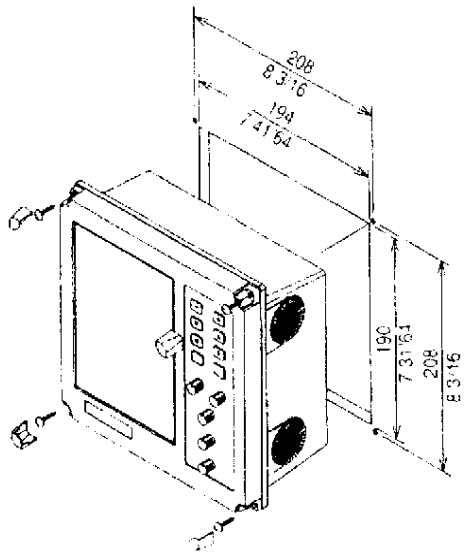
Outline and dimensions

Scale differs among drawings

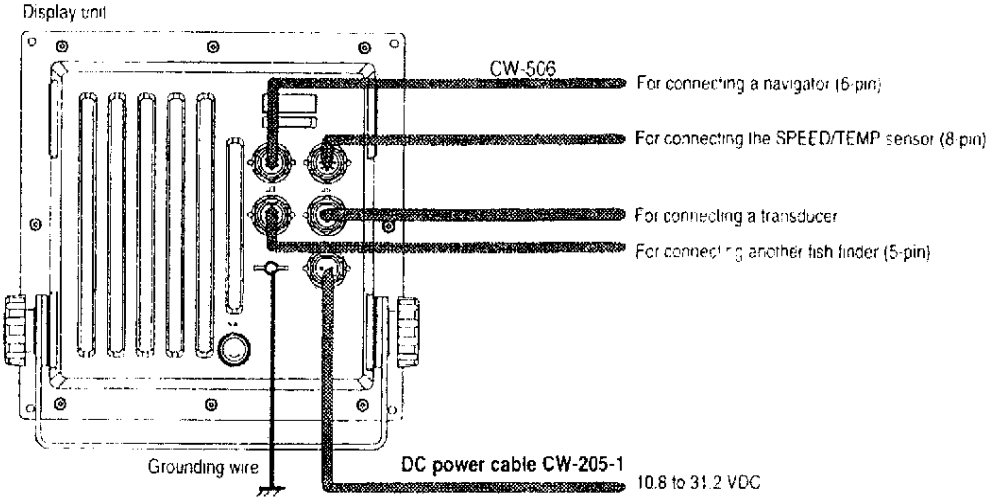


Weight: 3.5 kg (7.7 lb)
Unit : mm (inch)

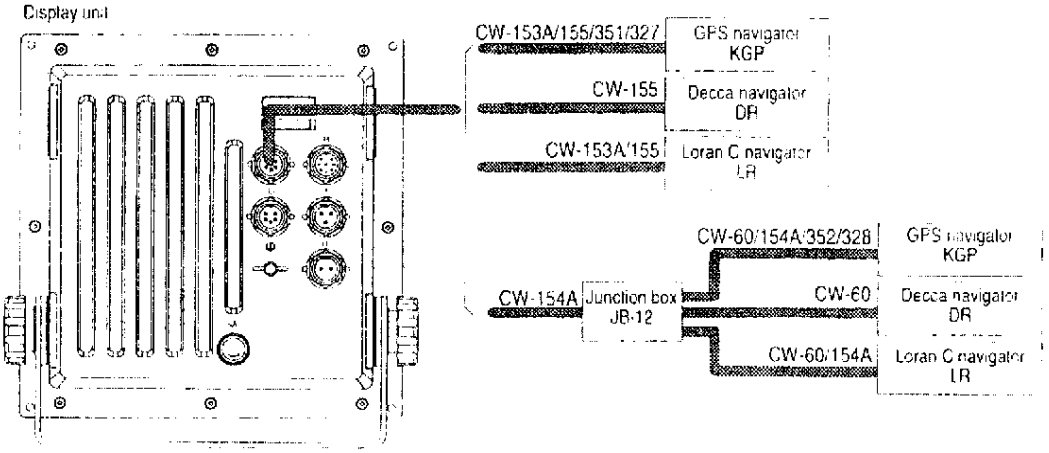
Flush mounting



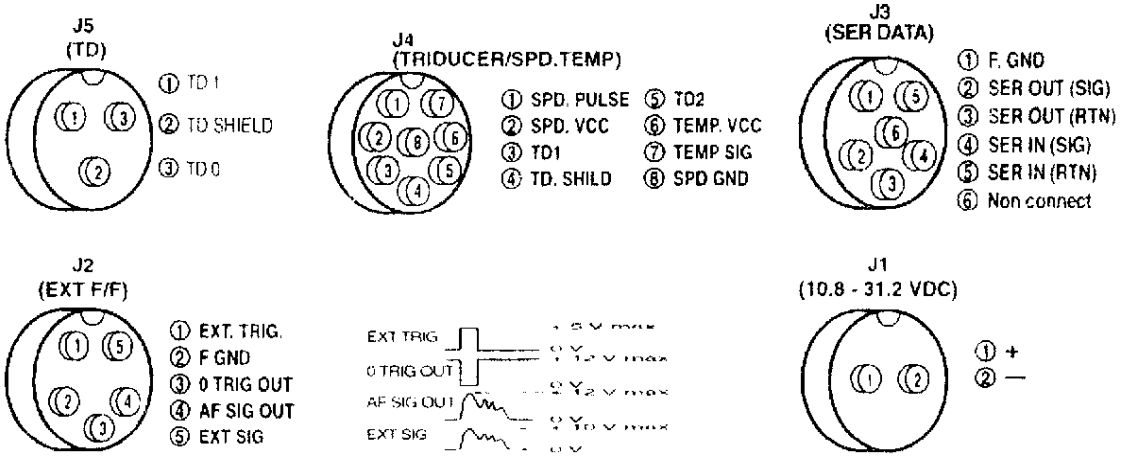
Connections



Connecting of navigator



Plug pin arrangement

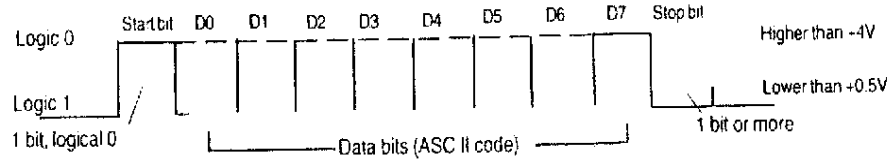


NMEA-0183 output data format Ver. 1.5/2.0

Data configuration

The bit configuration of the byte is as specified below.

Parity bit : none



Data specifications

Baud rate	Output level	Output current	Sentence	Update rate
4800 baud	TTL	Maximum 5 mA	DBS + DBT + DPT + MTW + VHW	1 second

Sentence description

Check sum: The summed data after performing the EX-OR (Exclusive OR) operation applied to all data characters allocated in between the $ and asterisk(*) signs in each sentence

DBS (Ver. 1.5)

Depth below surface

$ SD DBS, xxxx.x, f, xxxx.x, M, xxx.x, F *hh <CR> <LF>

- $: Start of sentence
- SD : Talker device
- DBS : Sentence format
- xxxx.x : Water depth (feet)
- f : fixed
- xxxx.x : Water depth (meters)
- M : fixed
- xxx.x : Water depth (fathoms)
- F : fixed
- *hh : Check sum
- <CR> <LF>

DBT (Ver. 1.5)

Depth below transducer

$ SD DBT, xxxx.x, f, xxxx.x, M, xxx.x, F *hh <CR> <LF>

- $: Start of sentence
- SD : Talker device
- DBT : Sentence format
- xxxx.x : Water depth (feet)
- f : fixed
- xxxx.x : Water depth (meters)
- M : fixed
- xxx.x : Water depth (fathoms)
- F : fixed
- *hh : Check sum
- <CR> <LF>

DPT (Ver. 2.0)

Depth and Offset from transducer

$ SD DPT, xxxx.x, xxxx.x, *hh <CR> <LF>

- $: Start of sentence
- SD : Talker device
- DPT : Sentence format
- xxxx.x : Water depth (meters)
- xxxx.x : Offset from transducer (meters)
- *hh : Check sum
- <CR> <LF>

MTW (Ver. 1.5)

Water temperature

$ SD MTW, xx, C *hh <CR> <LF>

- $: Start of sentence
- SD : Talker device
- MTW : Sentence format
- xx : Temperature, degree C
- C : fixed
- *hh : Check sum
- <CR> <LF>

VHW (Ver. 1.5)

Water speed and heading

$ SD VHW, xxx.x, T, xxx.x, M, xxx.x, N, xxx.x, K *hh <CR> <LF>

- $: Start of sentence
- SD : Talker device
- VHW : Sentence format
- xxx.x : Heading (degree) (true bearing)
- T : fixed
- xxx.x : Heading (degree) (magnetic bearing)
- M : fixed
- xxx.x : Speed (knots)
- N : fixed
- xxx.x : Speed (km/h)
- K : fixed
- *hh : Check sum
- <CR> <LF>

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.