SI-TEX® GENESIS

# OPERATOR'S HANDBOOK

# Important Notice

| Manual Handling | Keep this manual in a safe place where you can access it quickly.<br>This manual must be passed to a new owner of the GENESIS when it is transferred. |
|---|---|

The Global Positioning System (GPS) consists of a total of 24 GPS satellites that orbit the earth, enabling you to determine your position anywhere in the world, 24 hours a day, if you can receive satellite signals. During actual navigation, carefully compare the position data with all available navigation sources such as Loran C, Decca, other navigators, charts, visual navigation, depth, water temperature and others. It is your responsibility to make navigation judgments.

## DGPS Operation Note:

Your position can be improved by DGPS correction. However, when you are communicating with other ships, you may use a DGPS corrected position but they may not. Make your position source known during communication.

## The Electronic Chart:

Only official authorized charts and notices to mariners contain all the information needed for the safety of navigation and, as always remember, the user is responsible for their prudent use.

## Fishfinder Operation Note:

This is a fish finder and not a suitable digital depth finder. During navigation, use the correct charts and positioning instruments (such as a GPS) to determine the position, depth, other ship's data, land and others. It is your responsibility to make navigation judgments.

## Pictorials

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

| | |
|---|---|
| **WARNING** | Always follow this safety instruction to prevent death or injury. |
| **CAUTION** | Follow this safety instruction to avoid possible injury or damage to your property.<br>Symbol "△" is a CAUTION or WARNING label indicating the safety instruction. |
| **WARNING** | This symbol is an Electrical Shock WARNING label. |
| | Symbol "⃠" is an instruction that you must not violate.<br>(This symbol instructs NOT to disassemble the system components.) |
| | Symbol "●" is an operation instruction that you must follow.<br>(This symbol shows the main power OFF instruction.) |

### WARNING <For System Operators>

Always follow this instruction to prevent death or personal injury.

| | | |
|---|---|---|
| | **Turn power OFF during abnormality.** | If smoke or a smell of burning 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 cabinet.** | High voltage exists in the instrument. Contact with voltage may cause possible injury or death. |
| | **Do not touch back side of the equipment.** | Harmful line voltage is present on back side of the equipment. Never try to touch back side while power is turned on. |
| | **Avoid excessive shock to display unit.** | The LCD display module contains a liquid. Do not apply any mechanical shock to the display. If the display is broken, liquid may leak and injure your skin and eyes. |
| | **Do not use with poor ventilation.** | If you cover this unit or use in an enclosed place, it may malfunction or become damaged as a result of overheating. Use only where there is sufficent ventilation. |

## Installation Cautions <For Service Personnel>

Follow installation instructions to avoid personal injury and system malfunction.

| | |
|---|---|
| **Installation in rigid location.** | Mount your Genesis on a rigid frame or base to prevent your unit from working loose. |
| **Use correct installation materials.** | Use the installation materials provided in the standard accessory pack only. If you use hardware of insufficent strength, your system may loosen causing damage. |
| **Keep away from direct sunlight.** | Keep your system out of direct sunlight as it may become damaged by overheating. |
| **Keep away from water.** | Take care not to get water on or in your unit as it may be damaged and/or cause an electrical shock. |
| **Keep away from heat source.** | Keep your system away from other heat sources as it may malfunction, be damaged, or burn. |
| **Use correct power source.** | Operate your system within 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.** | High voltage may be retained 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 the 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 in the off position. additionally, attach a safety label showing that service is in progress. |
| **Avoid EMI.** | Take care not to damage the ESDs (Electrostatic Sensitive Devices) by 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 the system failure or deterioration can result. And periodical inspection and maintenance are required for keeping the system in an optimum condition.

| | |
|---|---|
| **Backup important data.** | The waypoint and other registered data may become unreadablet by unexpected failure. We recommend recording this data separately. |
| **Use correct transducer only.** | If you use an incorrect transducer, the transmitter circuit may be damaged due to a matching error. Consult us for system information. |
| **Check transducer connection before power ON.** | Do not turn the power switch ON if the transducer is disconnected or if 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 accumulated 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. |

# GENESIS Color LCD Charting System

## *Welcome*

The Genesis Color LCD Charting System opens a new chapter of performance and integration in vessel navigation system display and management. Whether you are a Cruiser or Sportfisherman or both, Genesis gives you the information you need—from radar, navigation, sonar and video sources.

### ⚠ CAUTION

The Genesis Color LCD Charting Systems employs the latest in proven technology to provide accurate navigation information. The Plotter functions of the Genesis are totally dependent upon the capability of the navigation source to provide accurate position information. This device is only an aid to navigation. It should be used in conjunction with all other navigation sources such as charts, manual sounding and visual sighting to cross check navigation accuracy. For safety, always resolve any uncertainty before continuing navigation.

### ⚠ CAUTION

C-MAP electronic charts (ECs) are derived from geographical data - including official government charts - which we believe to be accurate. They are neither verified nor approved by Hydrographic Authorities. C-MAP ECs are designed only to ease and speed navigation calculations and so must not be relied upon as a primary source of navigation information, but rather a backup to the use of official government charts and prudent navigation habits.

There is no direct relationship between the color of water areas and their depth. The navigator shall always query the area for depth information and use the official paper charts.

### ⚠ CAUTION

The performance of LCD displays are degraded by continuous direct exposure to ultraviolet rays. Locate your Genesis Display away from direct sunlight. When not in use, keep the display covered.

### ⚠ DISPLAY BREAKAGE WARNING

The LCD display module contains a liquid. If the display is broken and the liquid contacts your skin, wash it off immediately in running water for 15 minutes. If the liquid contacts your eyes, immediately flush your eyes with running water for 15 minutes. Contact a physician if any abnormal symptom is experienced.

## Introduction

The Genesis Color LCD Charting System is a premium multifunction command and control center. It combines in one unit, display of worldwide cartography, GPS navigation, radar, sonar, audio/video monitor and weather fax. Genesis' remote control and its large bright screen with wide viewing area make placement easy. Although Genesis offers many advanced features, operation is simplified through the use of pop-up menus similar to those found on personal computers. Also, the remote control has specific keys for direct access to the most used functions and settings.

## Equipment Supplied

- GENESIS Display Unit
- Mounting Bracket and Knobs
- Remote Control Unit
- Remote Control Cable
- Remote Control Mounting Cradle
- Vinyl Cover
- Sun Shade
- Power Cable
- Radar On/Off Control Connector (J3) p/n CN020
- GPS Sensor Connector (J6) p/n CN070
- NMEA Serial Connector (J11) p/n CN070
- Line Audio Connector (J9) p/n 1007L
- Manual

## Optional Equipment

- Local Area Map Cartridges (C-MAP *NT*)
- User Data Cartridges (C-MAP *NT*)
- GPS or DGPS Sensor
- RADAR*pc* Radar Sensor
- Magnetic Heading Sensor
- Dual Frequency 50/200 kHz Sonar Fish Finder
- Dual Frequency 50/200 kHz Sonar Transducer with Temperature Sensor
  Use transducers supplied by SI-TEX or warranty is void.
- Video Camera(s)
- Audio/Video Adapter, includes TV/FM Stereo Tuner
- Stereo Amplifier and Speakers
- Communications Receiver for Weather Fax reception

# OPERATION

The Operation section will guide you in becoming acquainted with the displays and remote control functions of your Genesis Color LCD Charting System. Also, procedures for using all of Genesis' capabilities are presented.

Genesis has built-in simulators which present realistic displays of cartography, GPS, sounder and radar. Note: Sounder option is required to use the sounder simulator. Simulators are interactive so the remote control can be used to browse through menus and change settings in the same manner as actual operation. The internal simulators allow Genesis to operate without having transducers or remote sensors connected. However, it is necessary to connect the power cable to a 12 to 24 Vdc power source. Please refer to *Power Connection* in the Installation section.

After Genesis is installed on your vessel, simulators are still useful for practice with operating procedures. Be sure to turn simulators Off before getting under way.

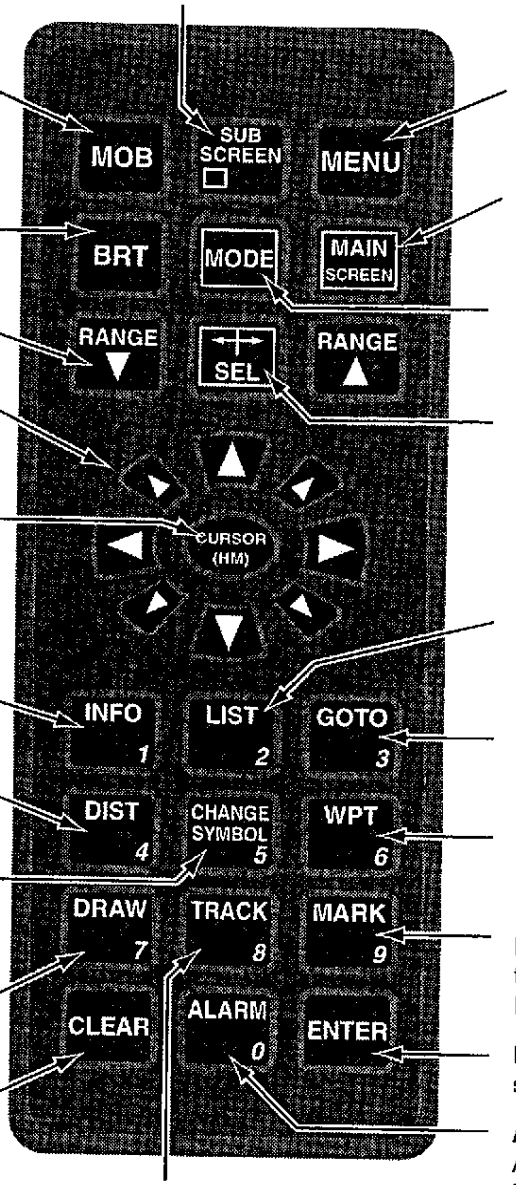
## *Display Unit*

The heart of the Genesis Color LCD Charting System is the display unit. Within the display unit are the powerful central processor and integrated display system, C-MAP cartography, optional dual frequency sonar fishfinder and interfaces to remote sensors which provide GPS navigation, compass, radar, weather fax and audio/video inputs. The bright 10.4 inch active matrix color LCD, is easily viewed over a wide area on the bridge or nav center. Connections for power and remote sensors are located on the rear panel of the unit.

## *Remote Control*

All Genesis functions and operations are controlled from the remote control unit which may be hand-held or placed in the mounting cradle provided. The remote control unit may be connected directly to the display unit with a cable or through a wireless infrared (IR) link. For wireless operation, the IR emitter window (located on the upper end of the remote control) must be aimed at the IR sensor window on the display unit (located next to the On/Off button). The remote control units is powered by an internal lithium battery. To prolong battery life, the keys are not illuminated when the cable is disconnected.

## *Remote Control*




**SUB SCREEN** Selects function to display in Sub Screen area. Video, Temp/Depth, Compass.

**MOB** Man Over Board. Activates Man Over Board function, displays Plotter Main Screen, starts navigation to MOB coordinates.

**BRT** Opens Brightness Control menu for display screen.

**RANGE** Change scale or zoom Main Screen display.

**ARROW Keys** Use to move Cursor, select menu items, scroll Lists, select options, change settings.

**CURSOR** Selects Cursor or Vessel priority for Plotter function. Temporarily removes Heading Mark for Radar function.

**INFO/1** Displays information on selected cartographic objects on Plotter Main Screen. Numeric key 1.

**DIST/4** Opens point to point distance measurement function. Numeric key 4.

**CHANGE SYMBOL/5** Opens menu to select symbol shapes and colors for Waypoints, Marks and Draw objects. Numeric key 5.

**DRAW/7** Opens drawing function on Plotter Main Screen. Numeric key 7.

**CLEAR** Exits from menus. Cancels certain functions. Deletes selected items. Silences alarms.

**MENU** Opens menu to select options and change settings for Main Screen display.

**MAIN SCREEN** Selects function to display on Main Screen. Plotter, Radar, Sounder, Video, Weather Fax.

**MODE** Selects different view or orientation of Main Screen display.

**SEL** Selects function of split Main Screen displays to be active for setting changes.

**LIST/2** Opens List menu to select Waypoint, Route, Mark or Draw list. Numeric key 2.

**GOTO/3** Starts and stops Navigation function. Numeric key 3.

**WPT/6** Places a Waypoint on the Plotter Main Screen. Numeric key 6.

**MARK/9** Places a Mark on the Plotter Main Screen. Numeric key 9.

**ENTER** Completes pending selection or operation.

**ALARM/0** Opens Alarm menu. Arrival, Off Course, Anchor, Bottom, Fish, Temperature. Numeric key 0.

**TRACK/8** Opens menu forTrack functions. On/Off, select track, time/distance interval, points, more. Numeric key 8.

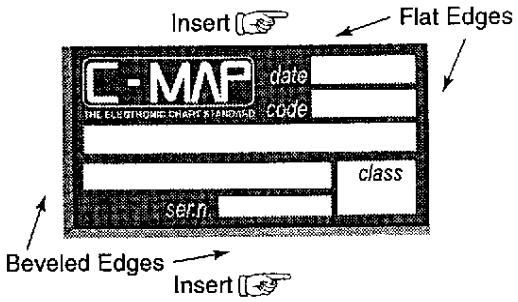
## *Map Cartridges*

Your Genesis has a built-in world map. However, more detailed local maps are necessary for navigation. The Genesis uses C-MAP *NT* local map cartridges which are available from your SI-TEX dealer.

There are slots for two local map cartridges and either one, or both, may be in use at the same time. Cartridges may be inserted or removed while the map is displayed, but do not insert or remove cartridges while a map is drawing. The cartridge slots are accessible through a hinged door on the lower left of the Genesis front panel. The door is hinged at the bottom and may be opened by pulling outward on the tab in the center of its upper edge with finger tips.

DO NOT insert the MAP CARTRIDGE BACKWARDS.

Cartridges have two flat edges and two beveled edges and an identification label on one side. Hold the cartridge by the narrow beveled end with your thumb on the label ( label facing upward ). Insert the cartridge into a slot, narrow flat edge first, as far as it will go. Press inward and downward to latch the cartridge in the slot. To remove a cartridge, press inward and lift upward. A click indicates the cartridge is unlatched and will be partially ejected when pressure is released.




Always close the door immediately after inserting or removing cartridges to maintain the environmental integrity of your Genesis.

Store cartridges in their original container when not in use. Map cartridges are electronic devices and must be protected from exposure to moisture and chemicals. If the gold electrical contacts on the back of the cartridge appear dirty or very dull, gently clean with a very soft pencil eraser.

## *Power On*

The Genesis power button is an alternate action, maintained contact power switch. Press once for power On. Press again for power Off. If ship's power to Genesis is interrupted while it is operating, Genesis will turn off and will power-on again when the ship's main power is restored. However, functions that were active at the time of power interruption may not fully recover and must be reactivated manually.

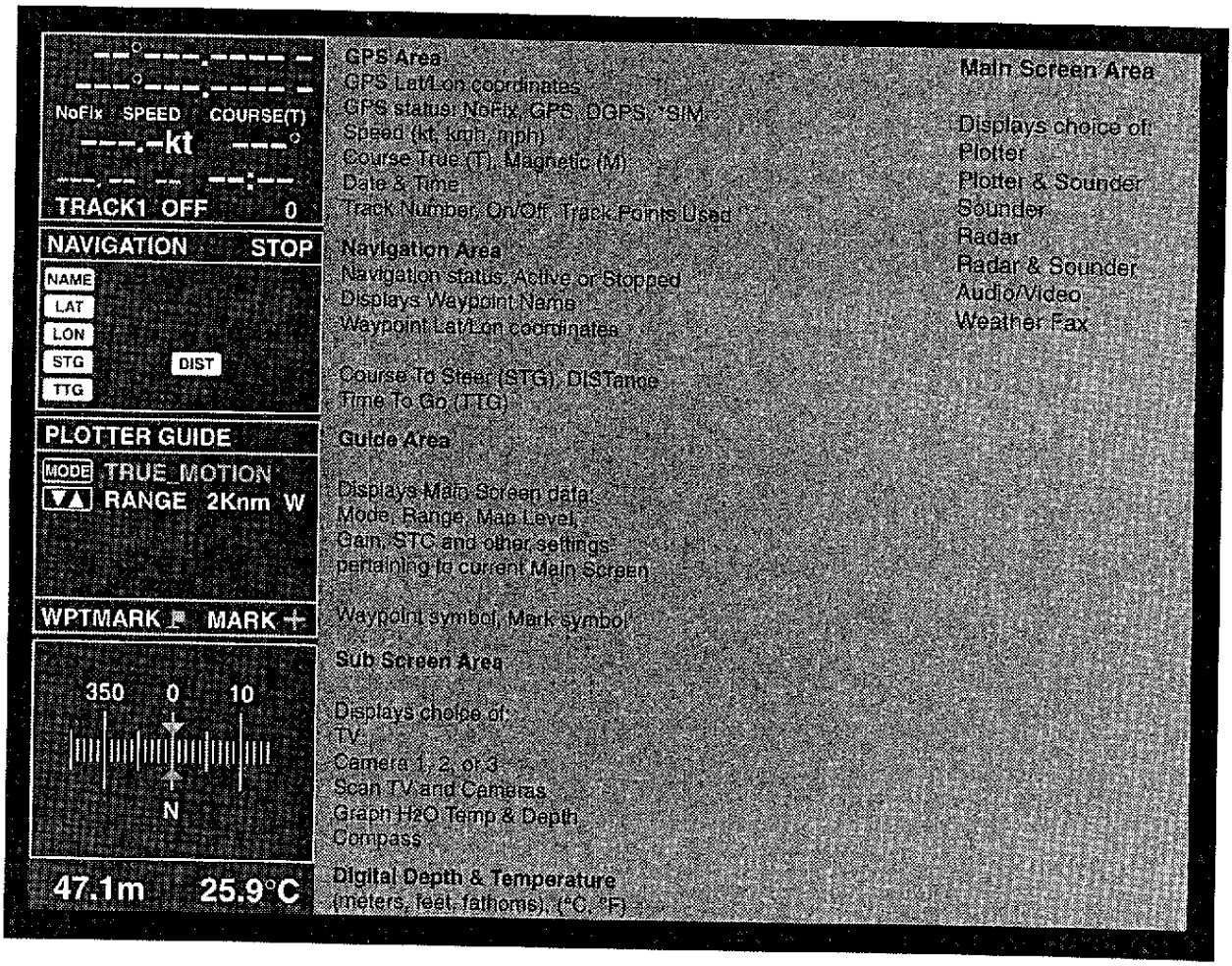
- Press the button near the lower right corner of the Genesis display unit front panel.

An audible message is announced and the power-on welcome screen is displayed momentarily, followed by a caution notice. Read the notice and press the ENTER key. The caution notice is removed and the Plotter Main Screen is displayed. The Plotter Main Screen presents a view of the internal world map centered on a default location unless a different location is left over from a previous operation. Each time your Genesis is turned On, the chart is displayed centered on the last valid GPS position.

## *Display Screen Layout*

The Genesis display is a window into your vessel's navigation and geographic situation. The flexibility of Genesis allows you to display information from its various sensors in the most useful format for current circumstances. The display may be dedicated to just one sensor or it can present information from several sensors simultaneously. The screen configuration is easily changed as needed to suit different conditions.

The initial display upon power-on is the Plotter Main Screen. The Main Screen area includes the full height of the display for the right hand 3/4 of the display. In the remaining left hand 1/4 of the display is the Information Area. The Information Area is made up of several smaller screen areas. From top to bottom they are; GPS area, Navigation area, Guide area, Sub Screen area, digital depth and water temperature. Each of these areas present status and data about current conditions and settings pertaining to the active Main Screen.



The Sub Screen area may be set by the user to monitor Video from TV or camera(s), water temperature and depth graphs, or compass card.

## *Using Menus*

Genesis functions are controlled from menus which appear on the screen when certain keys are pressed on the remote control. Some menus present a list of direct functions that are activated when an item on the list is selected. Other menus display a list of items and corresponding options that may be set to a user's preference. When an option is shown in white, it is On or active. When an option is shown in green, it is Off or inactive. Some menus have more than one page. If so, the current page, and the number of pages, are shown in the menu title box as, 1/1, 1/2, 2/2, etc. Use the MENU key to change pages. At the bottom of each menu are icons showing the keys which are used to select items and set options to the values desired.

There are seven options for the Main Screen area of the display.

1. Plotter
2. Plotter and Sounder split screen
3. Sounder
4. Radar
5. Radar and Sounder split screen
6. Audio/Video
7. Weather Fax

There are two view options for split screen displays; Information Area On, or Off. With Information Area turned On, the Main Screen is subdivided into two areas. The larger central area displays either Plotter or Radar, and the Sounder is displayed in a smaller area on the right hand side. With the Information Area turned Off, the Plotter or Radar screens remain normal size and the Sounder is displayed on the left side of the screen in place of the Information Area.

There are four keys on the remote control which are most used to select and control information presented in the display.

- The MAIN SCREEN key pops up the MAIN SCREEN menu and each key press steps to the next Main Screen selection. The selected screen appears after a brief pause.
- The MODE key pops up a Mode menu which presents options pertaining to the currently active Main Screen. Each key press steps to the next option. The selected option appears after a brief pause.
- The SEL key selects which portion of a split Main Screen is accessible and selects an appropriate Guide which appears in the Information display area. The Guide Area presents information about the selected area of the Main Screen and/or shows control settings. Icons appearing in the Guide Area indicate keys to use to change settings.

Note: The above three keys have a frame around the legend indicating they have a direct affect on the appearance of the Main Screen.

- The MENU key opens a Menu presenting several selections. The first selection pertains to the current Main Screen. Other selections pertain to other functions of Genesis. Each selection on the Menu offers more options and settings to further tailor Genesis to individual preferences.

## *Turning On Simulators*

Genesis' internal simulators for GPS, radar and sounder are used to provide realistic displays to aid in getting acquainted with basic operating procedures.

- Press the MENU key. The PLOTTER MENU appears on the screen. The first item in the menu list is highlighted in reverse video. Use the ▼ key to highlight the **6. Setup** item on the menu.

You can also select items on menus by pressing the appropriate numeric key. When a numeric key is pressed, the next menu will open without pressing the Enter key.

- Press the ENTER key. The SETUP MENU appears on the screen.

The SETUP MENU is divided into two columns. The left hand column contains a list of items that may be set to a user's preference. The right hand column shows the options available for each item. When an option is shown in white, it is On or active. When an option is shown in green, it is Off or inactive.

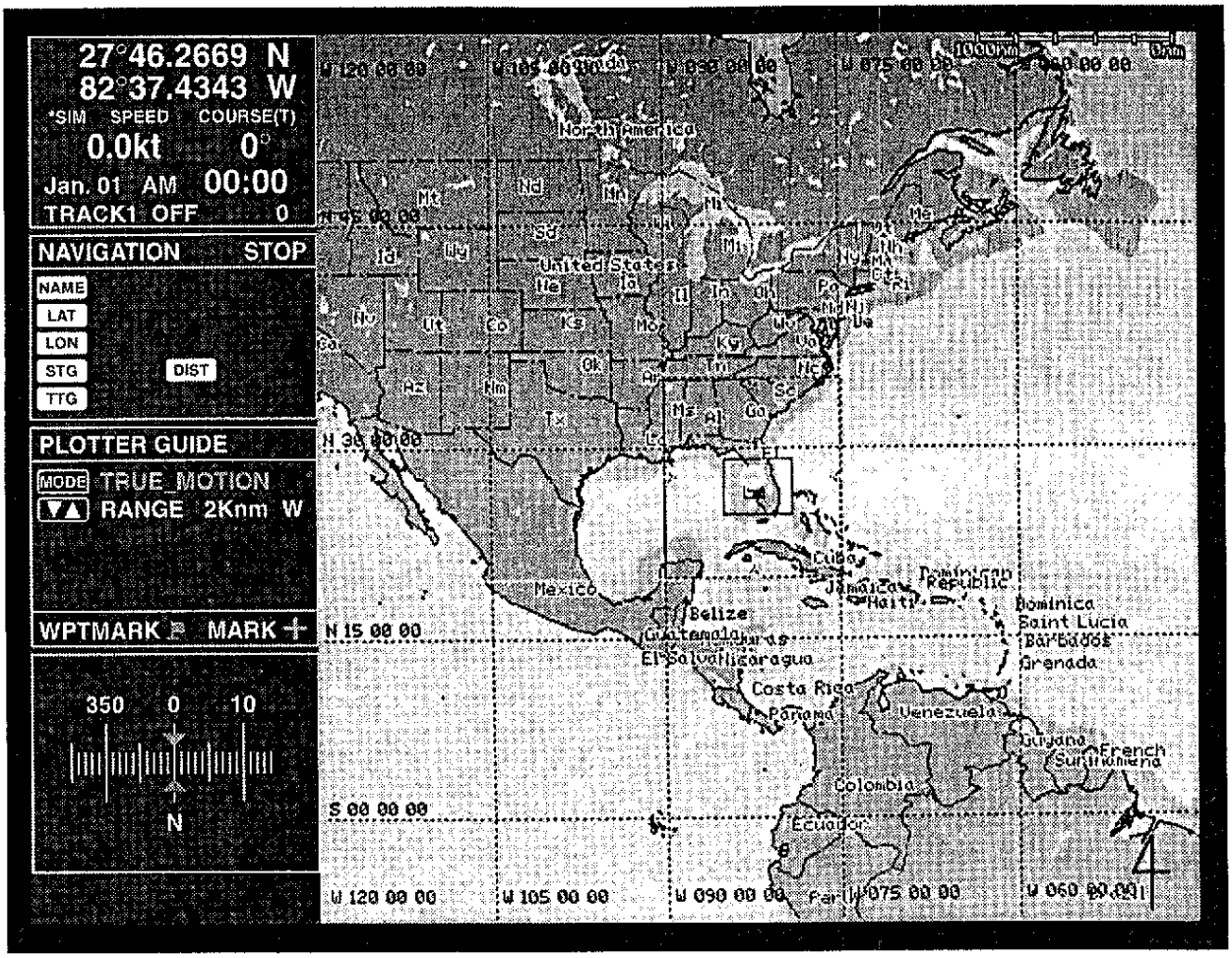
- Use the ▼ key to highlight the ***2. Simulator** item on the menu. Use the ▶ or ◀ key to move the selection box to each of the simulator names. Press the ENTER key to activate each selected simulator. A simulator is active when its name is shown in white or inactive when shown in green. Use the ENTER key to toggle between active or inactive condition.

Note: The sounder option must be installed to use the sounder simulator.
When the simulators are active:

- Press the CLEAR key to close the SETUP MENU.
- Press the CLEAR key to close the PLOTTER MENU.

The simulated values appear on the screen. Vessel position is indicated by the lollypop symbol. The dot is centered on your GPS Lat/Lon coordinates and the stroke points in the direction of travel.

**TURN SIMULATORS OFF WHEN UNDER WAY. If simulators are active when Genesis is turned Off, they will be active when Genesis is turned On again.**




Observe the GPS data area in the upper left corner of the display. The GPS status appears as ***SIM**, indicating that GPS information is simulated and not usable for actual navigation.

The GPS coordinates displayed are a default location in Tampa Bay, Florida unless Genesis has been previously operated while connected to a GPS sensor with a valid position.

## *Plotter Main Screen*

The Plotter Main Screen, with Genesis connected to an operating GPS sensor, shows a geographic view of your place in the world. Locations of waypoints, marks and routes unique to your own travels are displayed as well (with the GPS simulator operating, the geographic view is centered on the simulator's default location unless a previous valid GPS position is available). A worldwide background map is built in Genesis. Also, there is provision for two local map cartridges. Map cartridges contain many more levels of map detail and information about marine and terrestrial features, navigation aids, obstructions, soundings and more.

- Use the RANGE ▲ and RANGE ▼ keys to change the scale of the map (zoom out or zoom in). A ruler showing map scale appears in the upper right hand corner of the Main Screen area.

When zoomed out to maximum, most of the contiguous United States and parts of Canada and South America are visible on screen. If you have already installed a local chart cartridge, the chart boundaries also appear if within the displayed map area. If you have a local chart and have not installed it, refer to a previous topic *Map Cartridges* and install your local chart cartridge now. Without a local chart cartridge installed, you cannot zoom in to levels of detail sufficient for navigation.

### *Main Screen Priority*

The Plotter operates with either of two points of view which determine the priority for display functions. In one point of view, vessel position has priority and in the other point of view, cursor position has priority. The CURSOR (HM) key is used to select between vessel position or cursor position priority.

During vessel position priority, as your vessel approaches any edge of the screen the display is redrawn with the vessel's position in the center of the Plotter Main Screen. The vessel is also re-centered any time the screen is redrawn due to a range change. If the scroll keys are used to reposition the map, the vessel's position will not be allowed to move off the screen.

- Use the  keys to reposition the map on the screen. Observe the behavior as the vessel symbol  nears any edge of the screen.

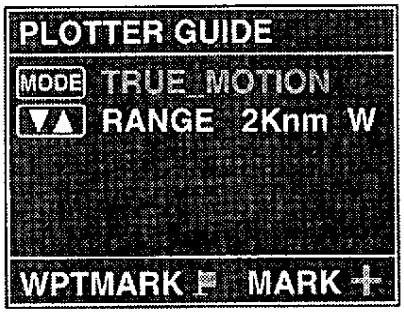
When cursor position has priority, the cursor symbol appears on the screen. As the cursor approaches any edge of the screen the display is redrawn with the cursor placed in the center of the Main Screen. The map is repositioned to the cursor coordinates without regard to the vessel's position. The scroll keys can be used to move the cursor to any location within the worldwide background or local maps.

- Press the CURSOR (HM) key to select cursor priority. The symbol appears near the center of the Main Screen.
- Use the  keys to reposition the map on the screen. Observe the behavior as the symbol nears any edge of the screen.
- Scroll to your own local operating area and observe the map features in your vicinity. Use the RANGE ▼ and RANGE ▲ keys to zoom in and out. If you have installed your local map cartridge, notice that chart boundaries are displayed. Examine the map scale and detail available within the various boundaries. Some areas have more detail than others.
- Press the CURSOR (HM) key. The map is immediately redrawn in vessel priority with the current or last available GPS coordinates in the center of the Plotter Main Screen.

The CURSOR (HM) key toggles between vessel and cursor priority each time it is pressed.

## Guides

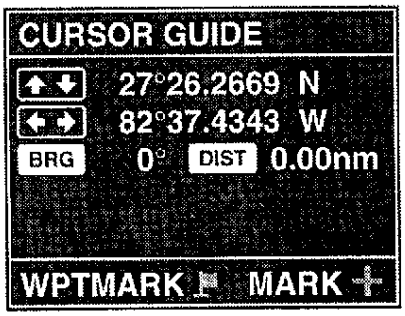
Observe the Guide Area on the left hand side of the display just below center. This display area shows additional information and settings pertaining to the active Main Screen. For the Plotter Main Screen the guide area displays the Plotter Guide or Cursor Guide depending upon the priority setting.




**Plotter Guide**

When PLOTTER GUIDE is active, the plotter mode and range are presented. Mode indicates the azimuth orientation of the Plotter Main Screen. There are four possible orientations; True Motion, North Up/South Up, Course Up, Heading Up. Azimuth orientation is selected with the MODE key. Range indicates the approximate distance from your vessel to any edge of the Main Screen. Range is changed using the RANGE ▼ and RANGE ▲ keys.

The letter appearing after the Range setting designates the level of detail appearing on the chart for that Range setting. The world background map is level W, X, Y or Z. Z appears when the world map is zoomed in and there is no additional detail available from the world map and there is no detail available from a local chart cartridge for the current Range setting. The first level of detail from a chart cartridge is level A and the deepest level of detail is level G. Cartridges do not always have detail on every level. You can still zoom in or out and the Range changes, but the level designation does not change with every Range setting.




**Cursor Guide**

When CURSOR GUIDE is active, cursor coordinates appear along with the bearing and distance from your vessel's position to the cursor's position. These values are updated as the cursor is moved about with the scroll keys. If the cursor is moved to a mark or waypoint or a charted object, the identifier for the object is displayed next to the info INFO1 icon, indicating that more information about the object is available. The INFO 1 key displays the Info Select menu which presents options for additional information.

Along the lower edge of the Guide Area, the current waypoint and mark symbols are shown. There are ten different shapes available for waypoints and ten others for marks. Also, each shape may be assigned one of ten colors. Waypoints and marks are entered and stored in five groups. Any combination of groups may be displayed simultaneously.

Waypoint and mark attributes are selected from the Change Symbol Menu. The CHANGE SYMBOL 5 key displays the menu.

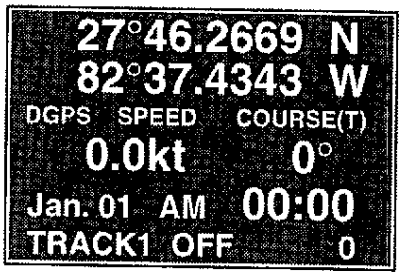
## Navigation

Navigation, in its simplest form, is finding your way from one place to another. One place is where you are; your present position, and the other place is where you want to go; your destination. GPS provides your present position and you select your destination in one of several ways offered by Genesis. Destinations are stored in Genesis as waypoints. Waypoints are the latitude and longitude coordinates for any point to which you wish to navigate, either as a destination or any point(s) along the way. Genesis can store up to 1,000 waypoints arranged in five groups of 200 each. Waypoints appear on the screen with a symbol located at their coordinates and an adjacent number or name. Waypoints can be used to make up routes. Fifty routes can be stored which may include up to 20 waypoints each. Routes may be navigated in either forward or reverse direction.

Once a waypoint is designated and navigation is activated, a course line is drawn from the vessel present position to the waypoint, an arrival alarm circle is placed around the waypoint and an off-course alarm boundary is drawn on each side of the course line. The Information Area on the left side of the display presents GPS, navigation and plotter data, plus compass heading. All this information combined with the Plotter Main Screen view of your vessel proceeding along the course line gives a complete picture of your navigation situation.

## Present Position

When Genesis is powered-on and after the caution notice, cartography appears in the Plotter Main Screen and the Information Area presents the current status of the system. The Plotter Main Screen is set for vessel priority with the symbol indicating the GPS present position of your vessel or the last valid position. Present position coordinates and GPS status appear in the GPS Area of the Information display. In order to navigate, GPS status must indicate either **GPS** or **DGPS**. If the GPS simulator is active, ***SIM** appears instead. **No Fix** indicates an invalid GPS condition and GPS data display is replaced by dashes. **NoGPS** indicates loss of position data from a GPS sensor.




**GPS Data**

## Entering Waypoints

Waypoints may be entered and stored in the waypoint library by any of three different methods. You may use the cursor to select locations from a chart, or store vessel present position as a waypoint, or manually enter coordinates and other attributes directly into the waypoint list.

To store waypoints from the cursor location:

Waypoints are entered from the Plotter Main Screen by moving the cursor to a desired location on a chart and designating the location as a waypoint.

- Press the CURSOR (HM) key to display the cursor symbol.
- Use the keys to move the cursor to a desired location.
- Use the RANGE ▼ and RANGE ▲ keys to zoom to a level of chart detail sufficient to accurately place the cursor tip at the desired location.
- Press the WPT 6 key. A waypoint symbol and number appear on the chart at the tip of the cursor. Waypoint attributes, coordinates, time, date, symbol shape and color, are stored in the WPT Mark List. The waypoint number is assigned according to its sequence in the WPT List. Water depth and temperature are not stored when a waypoint is designated using the cursor.
- Store additional waypoints by moving the cursor to the desired location on the chart and pressing the WPT 6 key.

To store vessel present position as a waypoint:

Present position waypoints are entered from the Plotter Main Screen when vessel priority is active. Navigation can be either active or stopped.

- If the cursor symbol is present on the screen, press the CURSOR (HM) key to remove it. Otherwise, the waypoint will be stored at the cursor location instead of the vessel position.
- Press the WPT 6 key. A waypoint symbol and waypoint number appear on the screen at the vessel present position. Waypoint attributes, coordinates, time, date, symbol shape and color, are stored in the WPT Mark List. The waypoint number is assigned according to its sequence in the WPT List. Water depth and temperature are also stored if the Sounder option is installed.

To manually enter waypoint attributes:

Manual entry of waypoint data is useful if you have a hand written or printed list of waypoints used with previous equipment or coordinates obtained from other sources. The WPT Mark List can be accessed any time the Plotter Main Screen or Plotter + Sounder Main Screen is displayed.

- Press the LIST 2 key to open the LIST MENU and select **1. WPT Mark**.

- Press the ENTER key. The waypoint list is displayed showing all attributes of each waypoint. An area appearing at the bottom of list shows functions available to edit and organize your waypoints.
- Use the ▼ and ▲ keys to highlight the waypoint number where the new waypoint is to be added. The added waypoint will be inserted after the highlighted waypoint. All following waypoints in the list will be shifted down.
- Press the LIST 2 key to select the **2. ADD** function. A new waypoint is inserted with attributes of either the cursor or vessel present position, depending upon Plotter Main Screen priority. The attribute fields are shaded indicating the editing function is open.
- Use the ▼ and ▲ keys to move the underscore between fields.
- Press the ENTER key to open the field. Then use arrow and numeric keys to enter values.

  The ✦ icon represents the cursor CURSOR (H/M) key to enter characters in the NAME field.
- When values are correct, press the ENTER again to close the field and move the underscore to the next field.
- When all fields are correct, press the CLEAR key as necessary to return to the Plotter Main Screen.

Waypoints stored in the library can be used individually for navigation or multiple waypoints can be used to make up a route. A route is a series of waypoints that are navigated from one waypoint to the next in sequence.

## *Editing Waypoints*

Waypoints may be edited as necessary to keep their attributes current. A waypoint is selected for editing either from the WPT Mark List or by pointing to a waypoint symbol on the Plotter Main Screen with the cursor.

To select a waypoint with the cursor:

- Press the CURSOR (H/M) key to display the cursor ↖ symbol.
- Use the ◆ keys to move the cursor to the desired waypoint.
- Observe the CURSOR GUIDE in the Information Area. The INFO1 icon appears with the waypoint number indicating more information is available.
- Press the INFO 7 key. The INFO SELECT menu appears in the screen.

- Select **1. WPT###** (### represents waypoint number) and press the ENTER key. An attributes menu for the selected waypoint appears on the screen. Editing options appear at the bottom of the menu.

Edit option **1. EDIT**:

- Press the INFO 1 key to open the edit function. All fields subject to editing are shaded. A red underscore cursor appears in the first field.
- Use the ▼ and ▲ keys to move the underscore between fields.
- Press the ENTER key to open the field. Then use arrow keys and numeric keys to enter values. The ✛ icon represents the cursor CURSOR (HM) key to enter characters in the NAME field.
- When values are correct, press the ENTER again to close the field and move the underscore to the next field.
- When all fields are correct, press the CLEAR key. The CONFIRM menu pops up.
- Press the ENTER key to **store** the new values, or press the CLEAR key to **cancel** and restore previous settings.
- Press the CLEAR key to return to the Plotter Main Screen.

Edit option **2. MOVE**:

- Press the LIST 2 key. The waypoints attributes menu leaves the screen and the CURSOR GUIDE is replaced by the MOVE GUIDE with key icons for **Place** and **Cancel**.
- Use the ◄ ▲ ► ▼ keys to move the cursor ↖ to a new location for the waypoint.
- Use the RANGE ▼ and RANGE ▲ keys to zoom to a level of chart detail sufficient to accurately place the cursor tip at the desired location.
- Observe the Lat/Lon values in the MOVE GUIDE for geographic coordinates of the cursor.
- Press the ENTER key to place the waypoint in its new location. The waypoint symbol is moved to the cursor location and the waypoint attributes menu reappears.

- Press the CLEAR key to return to the Plotter Main Screen.

Edit option **3. DELete:**

- Press the GOTO 3 key. The CONFIRM menu pops up.
- Press the ENTER key to **delete** the waypoint from the screen and the WPT Mark List, or press the CLEAR key to **cancel** the delete operation.

To review or edit the WPT Mark List:

- Press the LIST 2 key to open the LIST MENU and select **1. WPT Mark.**
- Press the ENTER key. The waypoint list is displayed showing all attributes of each waypoint. Waypoint attributes may be edited as necessary to keep the library current or to change symbols or rearrange groups. An area appearing at the bottom of list shows functions available to edit and organize your waypoints.

## *Navigating to a Waypoint*

There are several ways to select a destination for navigation. The first way is to select a waypoint appearing on the Plotter Main Screen and navigate to it. For a waypoint to appear on the screen, it must already exist in the WPT Mark List. The second way is to place the cursor on an intended destination and navigate to the cursor location which will create a new waypoint in the process. The third way is to select a waypoint from the WPT Mark List and navigate to it. Also, multiple waypoints may be selected from the WPT Mark List to create a route. Creating and navigating routes is covered in the *Route Navigation* topic.

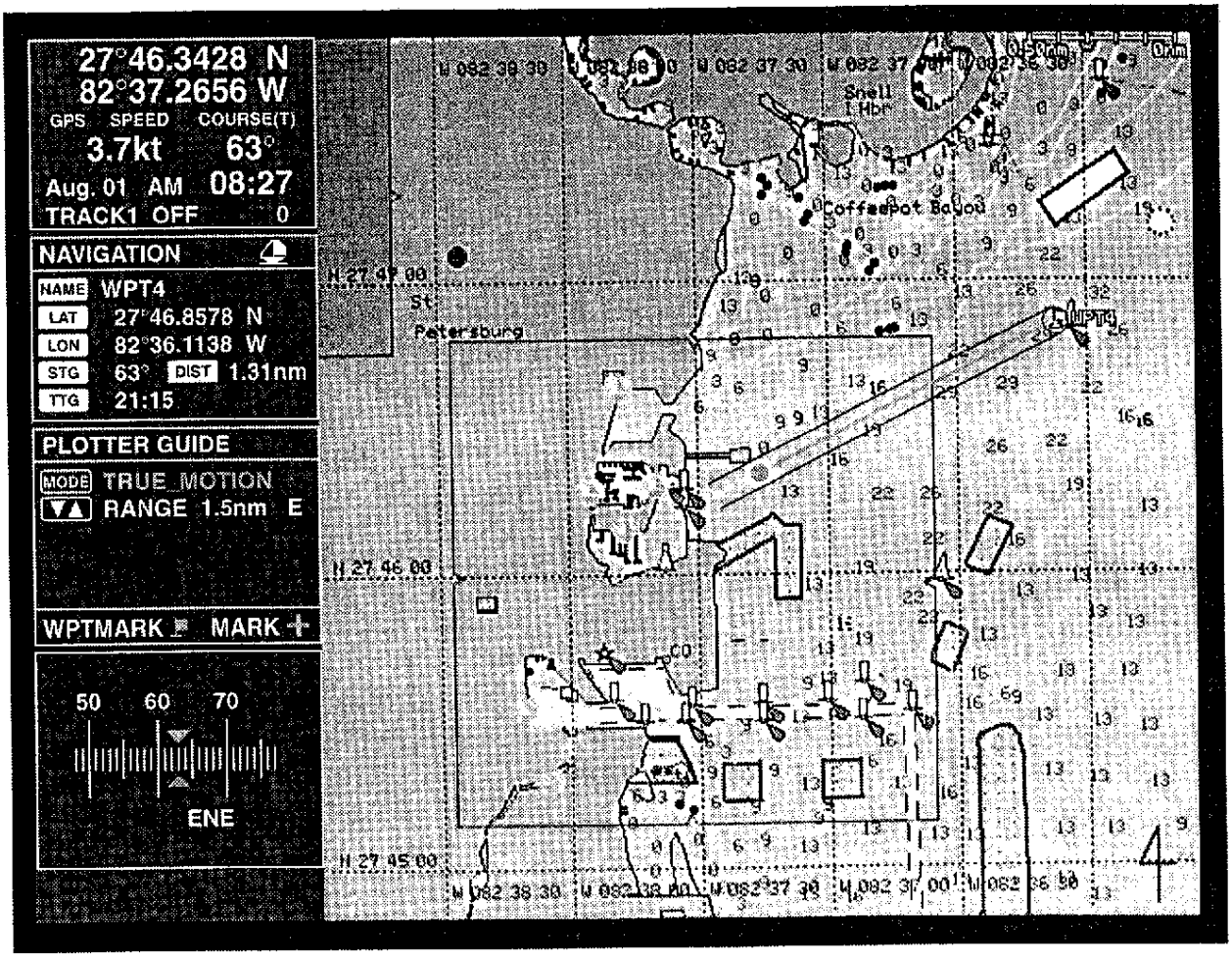
To navigate to an existing waypoint:

- Use the CURSOR (HM) key to display the cursor symbol.
- Move the cursor to a desired waypoint appearing on the Plotter Main Screen.
- Use the RANGE ▼ and RANGE ▲ keys to zoom to a level of chart detail sufficient to accurately place the cursor's tip at the desired waypoint.
- Press the GOTO 3 key. If navigation is active, the NAVIGATION CONTROL menu appears on the screen.
- Select ***1. Stop Navigating** and press the ENTER key. Navigation is stopped and the course line is removed from the screen.

- Press the GOTO 3 key. A course line is drawn from the vessel present position to the cursor, and GOTO MARK LOG replaces the Cursor Guide Information area.
- Press the ENTER key. Navigation is activated, and the Plotter Main Screen reverts to vessel priority.

Also, a waypoint arrival alarm circle is drawn around the destination waypoint and off-course (XTE) alarm boundaries are drawn on each side of the course line. The XTE alarm and arrival alarm may be individually turned On or Off, and the alarm distance settings may be independently adjusted from 0.01 to 9.99 nautical miles (nm). Default setting is 0.05 nm, approximately 304 feet, and both alarms are turned On. Use the ALARM 0 key to access the ALARM SETTING menu.

Note: If you 'zoomed in' to more accurately locate your destination, it is very likely that your vessel's present position does not appear on the same screen as your destination. Therefore, as the Plotter Main Screen reverts to vessel priority (centered on vessel position), you will see only the segment of the course line drawn from your vessel to the edge of the screen.




**Plotter Main Screen Navigation To Waypoint**

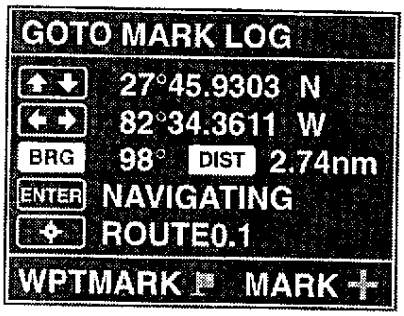
- Use the RANGE ▲ and RANGE ▼ keys to zoom to a broader view of the chart.

Observe the NAVIGATION Information area. Navigation status is indicated next to the title. A sailboat icon indicates navigation is active. The word STOP indicates navigation is inactive. If GPS position information is lost while navigation is active, a red X appears on the sailboat icon. Other information includes, waypoint name, Lat/Lon coordinates, course to steer (STG), distance to go (DIST), and time to go (TTG).

As you proceed toward your destination waypoint, the course line from your vessel position to the waypoint is continually updated to show your progress and any deviation from the original course. The NAVIGATION Information area is updated as well, and provides numeric values which are useful if course correction is required.

To navigate to the cursor:

- Use the CURSOR (HM) key to display the cursor symbol.
- Move the cursor to any desired destination on the chart not already designated as a waypoint or mark.
- Use the RANGE ▼ and RANGE ▲ keys to zoom to a level of chart detail sufficient to accurately place the cursor's tip at the desired location.
- Press the GOTO 3 key. If navigation is active, the NAVIGATION CONTROL menu appears on the screen.
- Select ***1. Stop Navigating** and press the ENTER key. Navigation is stopped and the course line is removed from the screen.
- Press the GOTO 3 key. A waypoint symbol is placed on the screen at the cursor location, a course line is drawn from the vessel present position to the cursor, and GOTO MARK LOG replaces the Cursor Guide Information area.




**GoTo Mark Log**

- Press the ENTER key. The waypoint is assigned a name (WPTx), navigation is activated, and the Plotter Main Screen reverts to vessel priority.

Also, a waypoint arrival alarm circle is drawn around the destination waypoint and off-course (XTE) alarm boundaries are drawn on each side of the course line. The XTE alarm and arrival alarm may be individually turned On or Off, and the alarm distance settings may be independently adjusted from 0.01 to 9.99 nautical miles (nm). Default setting is 0.05 nm, approximately 304 feet, and both alarms are turned On. Use the ALARM 0 key to access the ALARM SETTING menu.

Note: If you 'zoomed in' to more accurately locate your destination, it is very likely that your vessel's present position does not appear on the same screen as your destination. Therefore, as the Plotter Main Screen reverts to vessel priority (centered on vessel position), you will see only the segment of the course line drawn from your vessel to the edge of the screen.

- Use the RANGE ▲ and RANGE ▼ keys to zoom to a broader view of the chart.

Observe the NAVIGATION Information area. Navigation status is indicated next to the title. A sailboat icon indicates navigation is active. The word STOP indicates navigation is inactive. If GPS position information is lost while navigation is active, a red X appears on the sailboat icon. Other information includes, waypoint name, Lat/Lon coordinates, course to steer (STG), distance to go (DIST), and time to go (TTG).

As you proceed toward your destination waypoint, the course line from your vessel position to the waypoint is continually updated to show your progress and any deviation from the original course. The NAVIGATION Information area is updated as well, and provides numeric values which are useful if course correction is required.

To navigate to a waypoint in the WPT Mark List:

- Use the CURSOR (HM) key to select vessel priority and remove the cursor symbol from the screen.
- Press the GOTO 3 key. If navigation is active, the NAVIGATION CONTROL menu appears on the screen. Press the ENTER key to Stop Navigating. Press the GOTO 3 key again. The GOTO MENU appears if navigation is not active.

With the GOTO MENU displayed:

- Select **1. Go to WPT Mark** and press the ENTER key. The WAYPOINT SELECT menu appears.
- Use the ▲ and ▼ keys or the numeric keys to select the desired waypoint number.

Note: The waypoint number in the menu is its numeric position in the WPT Mark List. The waypoint identifier that appears on the Plotter Main Screen is the name or number that follows the waypoint symbol on the upper line of the menu.

- Press the ENTER key. A course line is drawn from your vessel's position to the now active waypoint.

Observe the NAVIGATION Information area. Navigation status is indicated next to the title. A sailboat icon indicates navigation is active. The word STOP indicates navigation is inactive. If GPS position information is lost while navigation is active, a red X appears on the sailboat icon. Other information includes, waypoint name, Lat/Lon coordinates, course to steer (STG), distance to go (DIST), and time to go (TTG).

Also, a waypoint arrival alarm circle is drawn around the destination waypoint and off-course (XTE) alarm boundaries are drawn on each side of the course line. The XTE alarm and arrival alarm may be individually turned On or Off, and the alarm distance settings may be independently adjusted from 0.01 to 9.99 nautical miles (nm). Default setting is 0.05 nm, approximately 304 feet, and both alarms are turned On. Use the ALARM 0 key to access the ALARM SETTING menu.

As you proceed toward your destination waypoint, the course line from your vessel position to the waypoint is continually updated to show your progress and any deviation from the original course. The NAVIGATION Information area is updated as well, and provides numeric values which are useful if course correction is required.

### *To Stop Navigation*

When navigation is active the sailboat icon appears in the NAVIGATION Information area. The word STOP indicates navigation is not in progress.

To stop navigation:

- Press the GOTO 3 key. If navigation is active, the NAVIGATION CONTROL menu appears on the screen.
- Select **1. Stop Navigating** and press the ENTER key. Navigation is stopped and the course line is removed from the screen.

### *Main Screen Modes*

There are four display modes for Main Screens that involve the Plotter or Radar screens. Both Plotter and Radar change modes together regardless of which one is active when a mode change is made.

The display modes are:

1. True Motion
2. North/South Up
3. Course Up
4. Head Up

Each display mode presents the Main Screen with different azimuth orientation.

Use the MODE key to change Plotter or Radar Main Screen display modes. The display mode cannot be changed when the cursor is present on the screen. Use the CURSOR (HM) key if necessary to change the Main Screen to vessel priority. After the mode is changed, either vessel or cursor priority can be used.

Main Screen priority affects the way the screen is updated. If vessel priority is active, the vessel position is always present on screen. If cursor position priority is active, the cursor symbol appears on screen.

If Main Screen priority is changed to cursor priority with the display mode in North/South Up, Course Up or Heading Up mode, the chart freezes and the vessel symbol continues to track vessel present position.

**True Motion display:**

The True Motion display is oriented North up or South up depending upon the North/South setting found on the PLOTTER MENU. The difference between True Motion and North/South Up display is in the way the vessel position is presented. In True Motion mode, the vessel position  symbol moves over the map while the map remains stationary.

**North Up/South Up display:**

The North Up/South Up display is oriented North up or South up depending upon the North/South setting found on the PLOTTER MENU. For this mode setting the vessel present position remains fixed in the center of the Main Screen while the map moves under it.

**Course Up display:**

The Course Up mode screen orientation is determined by whether or not navigation is in progress. During navigation vessel present position is in the center of the Main Screen and the course line to the destination waypoint is straight up. As your present position changes, the map moves under the stationary vessel  symbol. If navigation is stopped, the Main Screen appears as North/South Up.

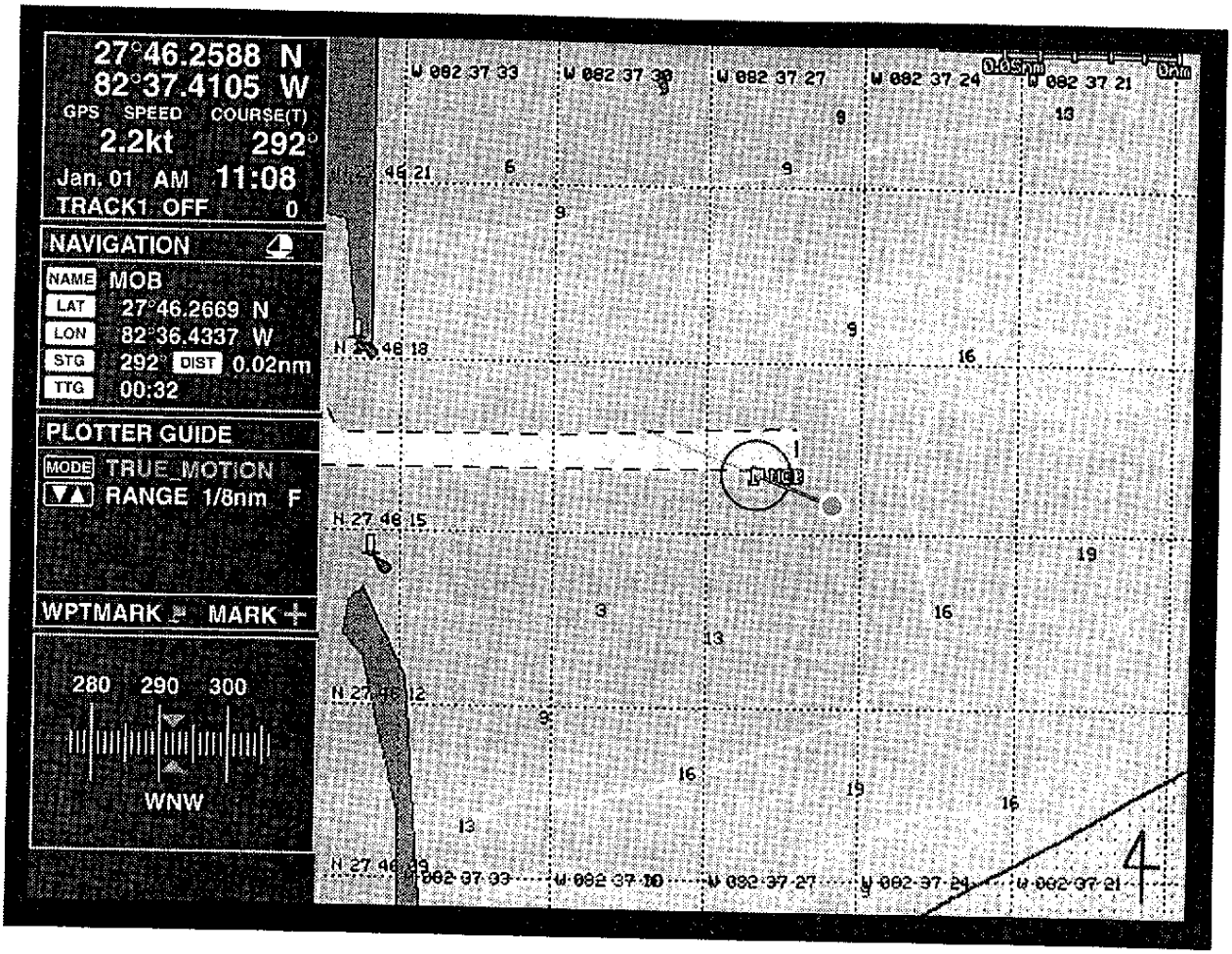
**Head Up display:**

For Head Up mode, vessel present position is fixed in the center of the Main Screen and vessel heading is upward. As your present position changes, the map moves under the vessel  symbol.

## *MOB Man Overboard*

MOB is a special navigation function that immediately stores your present position as a waypoint and activates navigation to the stored coordinates. MOB waypoints are stored at the next available position in the WPT Mark list. MOB waypoints appear in the list and on the Plotter Main Screen in the same manner as normal waypoints.

- To initiate the MOB function, press the MOB key. Navigation is activated to the MOB waypoint and the Plotter Main Screen shows your vessel's position in relation to the MOB waypoint. An arrival alarm is placed around the MOB waypoint and a course line is drawn from your vessel to the MOB.
- Use the RANGE ▼ and RANGE ▲ keys to zoom the Plotter Main Screen for the best view.
- Observe the NAVIGATION area of the Information display. The name MOB, Lat/Lon coordinates, course to steer (STG), and distance (DIST) to go, and time to go (TTG) are displayed.




**MOB Plotter Main Screen**

To stop navigation to the MOB waypoint:

- Press the GOTO 3 key. If navigation is active, the NAVIGATION CONTROL menu appears on the screen.
- Select **1. Stop Navigating** and press the ENTER key. Navigation is stopped and the course line is removed from the screen. The MOB waypoint remains on the screen and in the waypoint library.

## *Route Navigation*

A route is a series of waypoints that are navigated from one waypoint to the next in sequence Genesis supports 50 routes with up to 20 waypoints each. Routes may be created from existing waypoints or by using the cursor to designate route waypoints. Once a route is created and stored in the route list, its waypoints appear on the Main Plotter Screen. Routes may be navigated in either forward or reverse direction and waypoints may be skipped if desired.

To create a route using the cursor to designate route waypoints:

- Press the CURSOR (HM) key to display the cursor symbol.

- Use the  keys to move the cursor to the starting waypoint for the route. Use the RANGE ▼ and RANGE ▲ keys to zoom the chart display to accurately set route waypoint locations.
- Press the GOTO 3 key. If navigation is active, the NAVIGATION CONTROL menu appears on the screen.
- Select ***1. Stop Navigating** and press the ENTER key. Navigation is stopped and the NAVIGATION CONTROL menu is removed from the screen.
- Press the GOTO 3 key. A waypoint symbol appears at the tip of the cursor and GO TO MARK LOG replaces the Cursor Guide in the Information area.
- Observe the lower line of the GO TO MARK LOG Information area. **ROUTE#.1** (# represents the route number) appearing next to the  icon. The number following the decimal point is the sequence in the route.
- Press the CURSOR (HM) key to accept the waypoint.
- Move the cursor to the next desired waypoint location and press the CURSOR (HM) key.
- Continue to select and accept waypoint locations (20 waypoints maximum). Route waypoints are not permanently stored until the route is completed.
- If you make a mistake, press the CLEAR key to clear the entire route, or complete the route and edit any waypoint in the route from the route list.
- After the last route waypoint is accepted with the CURSOR (HM) key, press the ENTER key. The CONFIRM menu pops on the screen offering two options, **GOTO** and **Store only.**

To **Store only**:

- Press the CLEAR key. The route waypoints appear on the Plotter Main Screen and are stored in the Route List. Navigation is not activated.

To **GOTO**:

- Press the ENTER key. Route waypoints appear on the Plotter Main Screen and are stored in the Route List. Navigation is initiated to the first route waypoint. A course line, with off-course boundaries, is drawn from your vessel present position to the first route waypoint. Also, dashed lines are drawn connecting the route waypoints. As you navigate along the route and reach a waypoint, the arrival alarm sounds and the course line and off-course boundaries are advanced to the next route waypoint.

To create a route using waypoints on WPT Mark List:

- Press the LIST 2 key to open the LIST MENU. Select **2. Route**.
- Press the ENTER key. The ROUTE LIST is displayed showing any existing routes. An area at the bottom of the list shows the functions available to edit and organize the route list.
- Use the ▼ and ▲ keys to highlight the route number where the new route is to be added. The added route will be inserted after the highlighted route. All following routes in the list will be shifted down.
- Press the GOTO 3 key to select the **3. ADD** function. A new route is added to the ROUTE LIST.

The name, date, and time attribute fields may be edited now or later if desired. If you prefer to name the route later skip to: To add waypoints to the new route.

To name the new route or edit time and date:

- Press the LIST 2 key to select the **2. EDIT** function.
- Use the ▼ and ▲ keys to move the underscore between fields.
- Press the ENTER key to open the field. Then use the numeric keys and other keys as necessary to enter values. The ✛ icon represents the cursor CURSOR (HM) key.
- When values are correct, press the ENTER again to close the field and move the underscore to the next field.
- When all fields are correct, press the CLEAR key to close the edit function, leaving the ROUTE LIST displayed.

To add waypoints to the new route:

- Press the INFO 1 key to select **1. POINT** function. The ROUTE POINT LIST appears on the screen.
- Press the GOTO 3 key to select the **3. WPTMARK** function. The WAYPOINT SELECT menu appears on the screen.
- Use the ▲ and ▼ keys or numeric keys to select a desired waypoint to assign to the route. Enter three digits, including leading zeros, when using numeric keys.
- Press the ENTER key to complete the selection.
- Repeat the above 3 steps until all desired waypoints are added to the route.
- Press the CLEAR key as necessary to close the menus and return to the Plotter Main Screen.

## *Navigating a Route*

Route waypoints are distinguished from other waypoints appearing on the Plotter Main Screen by a decimal point and a sequence number following the name. Route navigation is initiated by either selecting a route waypoint with the cursor or by selecting a route from the ROUTE menu.

To navigate an existing route with the cursor:

- Use the CURSOR (HM) key to display the cursor symbol.
- Move the cursor to a desired route waypoint appearing on the Plotter Main Screen.
- Use the RANGE ▼ and RANGE ▲ keys to zoom to a level of chart detail sufficient to accurately place the cursor's tip at the desired waypoint.
- Press the GOTO 3 key. If navigation is active, the NAVIGATION CONTROL menu appears on the screen.
- Select ***1. Stop Navigating** and press the ENTER key. Navigation is stopped and the course line is removed from the screen.
- Press the GOTO 3 key. A course line is drawn from the vessel present position to the cursor, and GOTO MARK LOG replaces the Cursor Guide Information area.
- Press the ENTER key. Navigation is activated, and the Plotter Main Screen reverts to vessel priority.

Also, a waypoint arrival alarm circle is drawn around the first waypoint in the route and off-course (XTE) alarm boundaries are drawn on each side of the course line. Also, dashed lines are drawn connecting the route waypoints. As you navigate along the route and reach a waypoint, the arrival alarm sounds and the course line and off-course boundaries are advanced to the next route waypoint. The XTE alarm and arrival alarm may be individually turned On or Off, and the alarm distance settings may be independently adjusted from 0.01 to 9.99 nautical miles (nm). Default setting is 0.05 nm, approximately 304 feet, and both alarms are turned On. Use the ALARM 0 key to access the ALARM SETTING menu.

Note: If you 'zoomed in' to more accurately locate your destination, it is very likely that your vessel's present position does not appear on the same screen as your destination. Therefore, as the Plotter Main Screen reverts to vessel priority (centered on vessel position), you will see only the segment of the course line drawn from your vessel to the edge of the screen.

- Use the RANGE ▲ and RANGE ▼ keys to zoom to a broader view of the chart.

Observe the NAVIGATION Information area. Navigation status is indicated next to the title. A sailboat icon indicates navigation is active. The word STOP indicates navigation is inactive. If GPS position information is lost while navigation is active, a red X appears on the sailboat icon. Other information includes, waypoint name, Lat/Lon coordinates, course to steer (STG), distance to go (DIST), and time to go (TTG).

As you proceed toward your destination waypoint, the course line from your vessel position to the route waypoint is continually updated to show your progress and any deviation from the original course. The NAVIGATION Information area is updated as well, and provides numeric values which are useful if course correction is required.

If you drift off course and want to continue directly to the current waypoint, you can reset the course line to extend from your present position to the waypoint.

To reset the course line:

- Use the CURSOR (HM) key to select vessel priority.
- Press the GOTO 3 key. The NAVIGATION CONTROL menu appears on the screen.
- Select ***2. Reset Course Line** and press the ENTER key. The course line is redrawn and the Navigation Information display is updated.

To skip a route waypoint:

- Use the CURSOR (HM) key to select vessel priority.
- Press the GOTO 3 key. The NAVIGATION CONTROL menu appears on the screen.
- Select ***3. Skip WAYPOINT** and press the ENTER key. The course line and off-course boundaries are redrawn to the next waypoint in the route sequence, and the Navigation Information display is updated.

To reverse the direction of travel:

- Use the CURSOR (HM) key to select vessel priority.
- Press the GOTO 3 key. The NAVIGATION CONTROL menu appears on the screen.
- Select **4. Direction of Progress**.
- Use the ◀ or ▶ keys to select FORWARD or REVERSE. The active direction is shown in white and the inactive direction is shown in green.

  The course line and off-course boundaries are redrawn and the Navigation Information display is updated.

To display distance to the end of a route:

- Use the CURSOR (HM) key to select vessel priority.
- Press the GOTO 3 key. The NAVIGATION CONTROL menu appears on the screen.
- Select **5. Distance to WAYPOINT**.
- Use the ◀ or ▶ keys to select WAYPOINT or ROUTE. The active selection is shown in white and the inactive direction is shown in green. Depending upon the selection, the DIST value appearing in the Navigation Information area is from your present position, either to the current waypoint, or to the end of the current route including all remaining waypoints.

To navigate an existing route from the ROUTE menu:

- Use the CURSOR (HM) key to select vessel priority and remove the cursor symbol from the screen.
- Press the GOTO 3 key. If navigation is active, the NAVIGATION CONTROL menu appears on the screen. Press the ENTER key to Stop Navigating. Press the GOTO 3 key again.

  The GOTO MENU appears if navigation is not active.

With the GOTO MENU displayed:

- Select **2. Go to Route** and press the ENTER key. The ROUTE## select menu appears.
- Use the ▲ and ▼ keys or the numeric keys to select the desired route number.

Note: The route number in the menu is its numeric position in the route list. The route identifier that appears on the Plotter Main Screen is the name that follows the route number on the upper line of the menu. If no name is available, the route number appears on the screen.

- Press the ENTER key. A course line, with off-course boundaries, is drawn from your vessel present position to the first route waypoint. Also, dashed lines are drawn connecting the route waypoints. As you navigate along the route and reach a waypoint, the arrival alarm sounds and the course line and off-course boundaries are advanced to the next route waypoint.

Observe the NAVIGATION Information area. Navigation status is indicated next to the title. A sailboat icon indicates navigation is active. The word STOP indicates navigation is inactive. Other information includes, route name, Lat/Lon coordinates, course to steer (STG), distance to go (DIST), and time to go (TTG).

As you proceed toward your route waypoint, the course line from your vessel position to the waypoint is continually updated to show your progress and any deviation from the original course. The NAVIGATION Information area is updated as well, and provides numeric values which are useful if course correction is required.

If you drift off course and want to continue directly to the current waypoint, you can reset the course line to extend from your present position to the waypoint.

To reset the course line:

- Use the CURSOR (HM) key to select vessel priority.
- Press the GOTO 3 key. The NAVIGATION CONTROL menu appears on the screen.
- Select ***2. Reset Course Line** and press the ENTER key. The course line is redrawn and the Navigation Information display is updated.

To skip a route waypoint:

- Use the CURSOR (HM) key to select vessel priority.
- Press the GOTO 3 key. The NAVIGATION CONTROL menu appears on the screen.
- Select ***3. Skip WAYPOINT** and press the ENTER key. The course line and off-course boundaries are redrawn to the next waypoint in the route sequence, and the Navigation Information display is updated.

To reverse the direction of travel:

- Use the CURSOR (HM) key to select vessel priority.
- Press the GOTO 3 key. The NAVIGATION CONTROL menu appears on the screen.
- Select **4. Direction of Progress**.
- Use the ◀ or ▶ keys to select FORWARD or REVERSE. The active direction is shown in white and the inactive direction is shown in green.

The course line and off-course boundaries are redrawn and the Navigation Information display is updated.

To display distance to the end of a route:

- Use the CURSOR (HM) key to select vessel priority.
- Press the GOTO 3 key. The NAVIGATION CONTROL menu appears on the screen.
- Select **5. Distance to WAYPOINT**.
- Use the ◀ or ▶ keys to select WAYPOINT or ROUTE. The active selection is shown in white and the inactive direction is shown in green. Depending upon the selection, the DIST value appearing in the Navigation Information area is from your present position, either to the current waypoint, or to the end of the current route including all remaining waypoints.

To stop navigation to a route waypoint:

- Press the GOTO 3 key. If navigation is active, the NAVIGATION CONTROL menu appears on the screen.
- Select **1. Stop Navigating** and press the ENTER key. Navigation is stopped and the course line and route lines are removed from the screen.

## *Editing Routes*

Routes may be edited on the Plotter Main Screen using the cursor. Also, the data stored in the ROUTE LIST and ROUTE POINT LIST may be modified using the edit functions displayed at the bottom of the lists.

To edit a route on the Plotter Main Screen:

- Press the CURSOR (HM) key to display the cursor symbol.
- Use the ▲▼◀▶ keys to move the cursor to the route waypoint to edit.
- Use the RANGE ▼ and RANGE ▲ keys to zoom the chart display to accurately place the cursor.
- Observe the CURSOR GUIDE. The waypoint ID must appear with the INFO1 icon. The waypoint ID is the numeric position of the route in the ROUTE LIST and is not the name, if named, that appears on the screen. If two waypoints are in very close proximity, both waypoint ID's may appear.

Note: Two waypoints are most likely to appear at the beginning of a route where Route #.0 and Route #.1 coincide.

- Press the INFO 1 key. The INFO SELECT menu appears on the screen with **1. ROUTE#.#** selected. If two route waypoint ID's appear in the menu, use the ▼ and ▲ keys to select the desired waypoint.

- Press the ENTER key. The ROUTE#.# menu appears on the screen with two editing functions, **1. POINT** and **2. EDIT**, displayed at the bottom of the menu.
  The **1. POINT** function is to add, move, or delete route waypoints.
  The **2. EDIT** function is for editing the waypoint attributes displayed on the menu.

To use the **1. POINT** function (ROUTE#.# menu displayed):

- Press the INFO 1 key to select **1. POINT**. The ROUTE EDIT MENU appears on the screen with three functions, **1. ADD POINT**, **2. MOVE POINT**, and **3. DELETE POINT**.
  To add, move, or delete route waypoints, use one of the following three procedures.

1.0 To add waypoints to a route (ROUTE EDIT MENU displayed):

1.1 Press the INFO 1 key to select **1. ADD POINT**. The ADD GUIDE replaces the Cursor Guide.

1.2 Observe the functions, **Pick** and **Cancel** and their key icons, appearing in the ADD GUIDE.

1.3 Move the cursor ↖ to the route waypoint with the lower ID number of two waypoints on a leg of the route where the new waypoint is desired.

1.4 Press the ENTER key to Pick the waypoint. A rubber band line is drawn from the lower numbered waypoint, to the cursor tip, to the higher numbered waypoint. **Place** appears in the ADD GUIDE.

1.5 Move the cursor ↖ to the desired location for the new route waypoint. The rubber band shows the new course line between the waypoints. Position the cursor accurately. Zoom if necessary.

1.6 Press the ENTER key to Place the new waypoint. The route course line is redrawn to include the new waypoint and route waypoints are renumbered.

The Place mode is active until canceled. If more new waypoints are desired on the same leg, continue to move the cursor and Place new waypoints.

1.7 Press the CLEAR key to Cancel when the ADD POINT function is complete for this leg of the route. The ROUTE EDIT MENU returns to the screen. Repeat the above procedure to add waypoints to other legs of the route or select another function from the menu.

If all editing is complete, press the CLEAR key. The CONFIRM pop-up menu appears on the screen. Press the ENTER key to store all edits to the route or press the CLEAR key to cancel all edits and restore the original route.

2.0 To move a route waypoint (ROUTE EDIT MENU displayed):

2.1 Press the LIST 2 key to select **2. MOVE POINT**. The MOVE GUIDE replaces the Cursor Guide.

2.2 Observe the functions, **Pick** and **Cancel** and their key icons, appearing in the MOVE GUIDE.

2.3 Move the cursor to the route waypoint to be moved.

2.4 Press the ENTER key to Pick the waypoint. A rubber band line is drawn from the cursor tip to waypoints on both sides of the selected waypoint. **Place** appears in the MOVE GUIDE.

2.5 Move the cursor to the desired new location for the waypoint. The rubber band shows the new course line between the waypoints. Position the cursor accurately. Zoom if necessary.

2.6 Press the ENTER key to Place the new waypoint. The waypoint is moved to the new location and course lines are redrawn.

The Pick mode is now active. If more waypoints are to be moved, continue to Pick waypoints, move the cursor, and Place at new locations.

2.7 Press the CLEAR key to Cancel when the MOVE POINT function is complete for the route. The ROUTE EDIT MENU returns to the screen. If desired, select another function from the menu.

If all editing is complete, press the CLEAR key. The CONFIRM pop-up menu appears on the screen. Press the ENTER key to store all edits to the route or press the CLEAR key to cancel all edits and restore the original route.

3.0 To delete route waypoints (ROUTE EDIT MENU displayed):

3.1 Press the GOTO 3 key to select **3. DELETE POINT**. The DELETE GUIDE replaces the Cursor Guide.

3.2 Observe the function, **Delete** and key icons, appearing in the DELETE GUIDE.

3.3 Move the cursor to a route waypoint to delete.

3.4 Press the ENTER key to Delete the waypoint. The waypoint is deleted from the route, course lines are redrawn, and the route waypoints are renumbered.

The Delete mode is still active. If more waypoints are to be deleted, move the cursor to a waypoint, and press the ENTER key.

3.5 Press the CLEAR key when the DELETE POINT function is complete for the route. The ROUTE EDIT MENU returns to the screen. If desired, select another function from the menu.

If all editing is complete, press the CLEAR key. The CONFIRM pop-up menu appears on the screen. Press the ENTER key to store all edits to the route or press the CLEAR key to cancel all edits and restore the original route.

To use the 2. EDIT function (ROUTE#.# menu displayed):

- Press the LIST 2 key to select **2. EDIT.** The attribute fields subject to editing are shaded indicating the editing function is open.
- Use the ▼ and ▲ keys to move the underscore between fields.
- Press the ENTER key to open the field. Then use arrow and numeric keys to enter values. The ✣ icon represents the cursor CURSOR (HM) key to enter characters in the NAME field.
- When values are correct, press the ENTER again to close the field and move the underscore to the next field.
- When all fields are correct, press the CLEAR key. The CONFIRM pop-up menu appears on the screen. Press the ENTER key to store all edits on the ROUTE#.# menu, or press the CLEAR key to cancel all edits and restore the original attributes.

## Marks

The Mark function provides a method to record locations of charted objects, a sighting, or other points of interest while navigating or cruising. A mark symbol can be placed on the Main Plotter Screen at your vessel present position or at any cursor location. A mark is similar to a waypoint and can be used as a destination for navigation. Much less information stored for marks than waypoints. The Mark List stores shape, color and coordinates for 10,000 marks, 2,000 in each of five groups. Waypoints are stored with addition attributes of water depth and temperature, date and time, and current bearing and distance from vessel position.

To place a mark symbol on the screen:

- Press the MARK 9 key. The current mark symbol is placed on the screen and stored in the mark list. The mark symbol is placed at your vessel present position if the Main Plotter Screen is in vessel priority. If the Main Plotter Screen is in cursor priority, the mark symbol is placed at the cursor tip. The Mark List stores coordinates, shape and color for each mark.

The current mark symbol appears in the Information area next to MARK. The default mark symbol is a green cross (+). Other symbol shapes or colors may be selected by using the CHANGE SYMBOL 5 key to open the Change Symbol Menu.

Mark attributes may be edited using the editing functions appearing at the bottom of the Mark List, or edited on screen using the cursor and INFO 1 key, in the same manner as editing waypoints.

## Tracks

The Track function provides a record of the path over which your vessel has traveled. A track is a series of lines connecting points of vessel present position which are plotted at either time or distance intervals. Tracks are recorded and stored one at a time. Genesis supports five different tracks, each has up to ten thousand (10,000) points of track history. Tracks are displayed on the Main Plotter Screen in any user selectable combination from none to five.

Current track status is displayed on the lower line of the GPS area of the Information display. Track number, On/Off condition, and number of track points used are presented.

To select a track function:

- Press the TRACK 8 key (only when a Plotter screen is active). The TRACK MENU appears on the screen. Track control options for the active track, and track history for all tracks are shown.

**1. Tracking OFF ON**

Use the ◀ or ▶ keys to turn recording of the current selected track On or Off. Only one track is selected at a time. The active condition is shown in white and the inactive condition is shown in green.

2. **Selected track TRACK#**

Use the ◀ or ▶ keys to change the **TRACK#** (# represents track number 1-5). Tracks are drawn in the current color shown on the menu.

3. **Track Color** 

Displays a color bar of the current track color. There are five different color selections. Use the ◀ or ▶ keys to change colors.

*4. **Record style**

Use the ENTER key to open the RECORD STYLE menu. This menu allows selection of whether track points are recorded at time intervals or at distance intervals. Settings for time and distance values are also provided. Use the ▲ and ▼ keys to select menu items and the ◀ and ▶ to change settings.

*5. **Track1 setting** # - #

Displays the number of track points used (each track 10,000 max.).

- Use the ENTER key to open the TRACK1 SET menu which is used to control track attributes.

  **1. Display OFF ON**

  Controls if a track appears on Plotter Main Screen.

  **2. Drawing Type SIMPLE TEMP DEPTH**

  SIMPLE draws colored line on the screen showing the path of your vessel.

  TEMP and DEPTH draw a line on the screen with different colors to indicate either water temperature or water depth along the track.

  **3. Maximum Temp.**

  **4. Minimum Temp.**

  **5. Minimum Depth**

  **6. Maximum Depth**

  The four menu items above are used to set the maximum and minimum values for water temperature and depth. With the proper settings, as you progress along a course, your track also indicates the selected water condition. The current track color is drawn when the temperature or depth value falls between the minimum and maximum settings. The white and black colors are drawn when the values fall outside the set values.

  Use the ▲ and ▼ keys to select menu items and the ◀ and ▶ keys to change settings.

***6. Track2 setting**: see ***5. Track1** setting above.

***7. Track3 setting**: see ***5. Track1** setting above.

***8. Track4 setting**: see ***5. Track1** setting above.

***9. Track5 setting**: see ***5. Track1** setting above.

## *Distance and Bearing Measurement*

The Bearing and Distance function is used to measure bearing angles and distance values between points on the Main Plotter Screen.

To measure distance and bearing from vessel position:

- Use the CURSOR (HMI) key to select vessel priority and remove the cursor symbol from the screen.
- Press the DIST 4 key. A large X is placed on the screen at your vessel present position and the cursor appears on the screen nearby.
- Observe the DISTANCE GUIDE in the Information display. The Lat/Lon coordinates are the present position of your vessel (X) when the DIST 4 key was pressed. The coordinates appearing next to the arrow key icons show the cursor location. The BRG and DIST values are bearing and distance from the X mark to the cursor tip.
- Use the  keys to move the cursor to any point of interest and observe the DISTANCE GUIDE for cursor coordinates plus bearing and distance values from the X to the cursor tip.

To measure distance and bearing between two points:

If the Distance and Bearing function is already active from the procedure above, skip the next two steps.

- Use the CURSOR (HMI) key to select vessel priority and remove the cursor symbol from the screen.
- Press the DIST 4 key. A large X is placed on the screen at your vessel present position and the cursor appears on the screen nearby.
- Use the  keys to move the cursor to the first of two desired measurement points.
- Press the CURSOR (HMI) key. The large X is moved at the cursor tip.

- Use the  keys to move the cursor to the second of the two desired points.
- Observe the DISTANCE GUIDE for cursor coordinates or bearing and distance values from the X to the cursor tip.

  To continue measurement from point to point, repeat the above three steps.
- Use the CLEAR key to exit the Distance and Bearing function.

## *Anchor and Navigation Alarms*

Genesis provides aural and visual alarms to alert you and your crew of certain situations that deserve immediate attention. Alarms are controlled using the Alarm Setting menu which is available from any Main Screen. The Alarm Setting menu has three pages. Settings on each page are described with the associated main function for plotter, radar and sounder. Alarm sounds are heard even if Volume setting is minimum.

- Press the ALARM 0 key. The ALARM SETTING menu and ALARM STAT menu appear in the display. The ALARM SETTING menu lists the alarms and settings for each alarm. The ALARM STAT menu displays the current status of each alarm. An X indicates the alarm is inactive, a bell symbol indicates the alarm is active but has not alerted, the filled bell symbol indicates an alarm alert condition.
- Use the ▲ and ▼ keys to select ALARM SETTING menu items and ◀ and ▶ to change settings. Active conditions are shown in white and inactive settings are shown in green.

1. **Arrival Alarm** is an aural and visual alarm that is activated when your vessel approaches the active destination waypoint while navigating. Setting options are: OFF, or either of, CIRCLE or BISECT. CIRCLE is a circle of adjustable radius centered on the waypoint. BISECT is a line that passes through the waypoint at an angle and extends some distance to either side. For single waypoint navigation, the bisect alarm line is drawn perpendicular to the course line. For route navigation, the bisect alarm line is drawn at an angle half way between the course to the current waypoint and the course to the next waypoint in the route.
2. **Arrival Radius** is the radius of the arrival alarm circle. Radius values are adjustable from 0.01 nm to 9.99 nm.
3. **XTE Alarm** is an aural and visual alarm that sounds when the boundary that parallels the course line is crossed while navigating to a waypoint. Select ON or OFF.
4. **XTE Distance** is the distance setting for the XTE alarm boundary on either side of the course line. Distance values are adjustable from 0.01 nm to 9.99 nm.
5. **Anchor Alarm** is an aural and visual alarm that sounds if you drift away from the anchor waypoint by a distance greater than the Anchor Radius.

6. **Anchor Radius** is the radius of the anchor alarm circle. Radius values are adjustable from 0.01 nm to 9.99 nm.
7. **Interval Alarm** is an aural only alarm that sounds at the end of a preset time interval.
8. **Interval Time** is the preset time interval for the Interval Alarm. Time values are adjustable from 1 minute to 60 minutes. If the time setting is changed while the timer is running the new interval does not start until the previous interval expires.

## *Plotter Menu*

The Plotter Menu provides options for controlling variable characteristics of plotter function and display.

To access the Plotter Menu:

- Press the MAIN SCREEN key and select **1. Plotter**. The Plotter Main Screen appears in the display.
- Press the MENU key and select **1. Plotter** on the PLOTTER MENU.
- Press the ENTER key to open the next PLOTTER MENU which lists functions used for plotter control.
- Use the ▼ or ▲ keys to select and item on the list. Then use the ◀ or ▶ keys to select or change the current condition. Active conditions appear in white and inactive alternative conditions appear in green.

PLOTTER MENU (1/2)

**1. Radar Overlay** **OFF ON R. RING**

Controls the presence of radar image on the Plotter Main Screen.

OFF: Radar image is not displayed.

ON: Radar image is overlaid on chart image.

R. RING: Radar image and range rings are displayed on chart.

**2. Own Ship Color**

Selects display of vessel icon from choice of 10 colors.

**3. Select North/South** **NORTH UP SOUTH UP**

Sets North or South orientation of chart Mode setting.

**4. Heading Line Limit** **FIX, 5kt, 10kt, 20kt, 40kt**

Selects length of heading line of vessel cursor.

**5. Latitude Variance** **North 0.000′**

Provides setting of chart coordinates to known reference location.

**6. Longitude Variance** **East 0.000′**

Provides setting of chart coordinates to known reference location.

7. **Bearing Type** **TRUE MAG**

Allows selection of bearing values as true or magnetic.

8. **Magnetic Variance** **East 0.0°**

Allows manual setting for magnetic variation.

9. **Average Direction** **0sec**

Provides smoothing for rapid changes in direction.

0. **Average Speed** **0sec**

Provides smoothing for rapid changes of speed.

PLOTTER MENU (2/2)

1. **Select ETA Form** **Time required, Arrival time**

Selects navigation time display (TTG) in Navigation Guide.

Time required: Elapse time enroute from present position to destination.

Arrival time: Actual date and time of arrival at destination.

2. **Erase Mark by Shape**

Erases only Marks, not waypoints or routes, from plotter screen according to symbol selection.

3. **Erase Mark by Color**

Erases only Marks, not waypoints or routes, from plotter screen according to color selection.

## *Chart Menu*

The Chart Menu provides options for displaying various charted areas and objects on the Plotter Main Screen.

To access the Chart Menu:

- Press the MAIN SCREEN key and select **1. Plotter**. The Plotter Main Screen appears in the display.
- Press the MENU key and select **2. Chart** on the PLOTTER MENU.
- Press the ENTER key to open the CHART MENU which lists cartographic items appearing on the Plotter Main Screen.
- Use the ▼ or ▲ keys to select and item on the list. Then use the ◀ or ▶ keys to select or change the current condition. Active conditions appear in white and inactive alternative conditions appear in green.

CHART MENU (1/2)

**1. Chart Boundaries** **OFF ON**

Controls the presence of chart boundaries on the Plotter Main Screen. Chart boundaries outline areas having different levels of detail for local map cartridges.

OFF: Chart boundaries are not displayed.

ON: Local map cartridge boundaries appear on the chart.

**2. Lat/Lon Grid** **OFF ON**

Selects display of grid lines for visual estimate of Lat/Lon coordinates.

OFF: Lat/Lon grid is not displayed.

ON: Lat/Lon grid appears on the chart.

**3. Names** **OFF ON BORDERLINE**

Selects display of names for prominent land and marine areas.

OFF: Names for charted areas are not displayed.

ON: Displays names of charted areas in black.

BORDERLINE: Displays names in black with white background.

**4. Spot Soundings** **OFF ON**

Selects display of spot soundings which indicate water depth at various locations.

OFF: Spot sounding values are not displayed.

ON: Spot sounding values are displayed in red.

**5. Land Features** **OFF ON**

Selects display of natural features, cultural features and landmarks.

OFF: Land features are not displayed.

ON: Displays land features

**6. Marine Features** **OFF ON**

Selects display of marine designated areas, caution areas, tide stations and seabed features.

OFF: Marine features are not displayed.

ON: Displays Marine features.

**7. Aids to Nav.** **OFF ON**

Selects display navigational aids: lights, buoys and day marks.

OFF: Nav aids are not displayed.

ON: Displays nav aid symbols.

**8. Routes & Tracks** **OFF ON**

Selects display of charted deep water routes and fairways.

OFF: Routes and tracks are not displayed.

ON: Displays routes and tracks.

**9. Ports & Services** **OFF ON**

Selects display of icons indicating port and services facility.

OFF: Icons are not displayed.

ON: Displays icons designating ports and services.

**0. Paper Chart Data** **OFF ON**

Selects display of paper chart data: text, legends, datum, etc.

OFF: Paper chart data is not displayed.

ON: Displays paper chart data.

**CHART MENU** **(2/2)**

**1. Light Sector** **OFF ON AUTO**

Controls the display sector arc and color for marine lights.

OFF: Light sectors are not displayed.

ON: Displays light sectors.

AUTO: Displays light sectors according to time of day setting in menu item 2. Sector Indication.

***2. Sector Indication** **16:00 - 07:00**

Sets time day for light sector display when set to AUTO.

Use ENTER key to pop-up LIGHTING TIME menu to set time values.

***3. Shallow Area Limit** **32f**

Sets shallow area limit for depth contours.

Use ENTER key to pop-up SHALLOW AREA LIMIT menu to set value.

***4. Deep Area Limit** **164ft**

Sets deep area limit for depth contours.

Use ENTER key to pop-up DEEP AREA LIMIT menu to set value.

**5. Overzoom** **OFF ON**

Allows the display to zoom-in to levels beyond levels in the map cartridge. However, no cartography appears on these levels.

OFF: Overzoom function is disabled.

ON: Enables overzoom function.

***6. World Wide info**

Use ENTER key to access World Wide chart data.

***7. Cartridge1 info**

Use ENTER key to access cartridge data.

***8. Cartridge2 info**

Use ENTER key to access cartridge data.

## *Radar Main Screen*

Radar functions for Genesis require the SI-TEX RADAR*pc* radar sensor. There are three radar sensors available for use with Genesis, they are; 2kW dome, 4kW dome and 4kW open array. Genesis automatically adjusts to specific features of the different radar sensors. For example, each sensor has a different maximum range. Operation is very similar for all units. Although Genesis has a radar simulator, radar operation is best described using a working RADARpc sensor.

The Radar Main Screen presents a radar image of objects surrounding your vessel. Objects may be other vessels, buoys or day marks, heavy rain, land mass or practically any solid object large enough to produce a radar echo. Radar may used alone or the radar image can be overlaid on the chart. This overlay capability is one of Genesis' integration advancements over using separate radar and chart plotter equipment.

To display the Radar Main Screen, use the MAIN SCREEN key to open the MAIN SCREEN menu and select **4. Radar**. The radar display appears in the Main Screen as concentric circles with your vessel in the center. If the radar is already in operation, the radar image appears. If not, a status message appears. The status message reports either OFF or WAIT or TX READY in large letters. Also, the RADAR GUIDE appears in the Information display.

To turn the radar On:

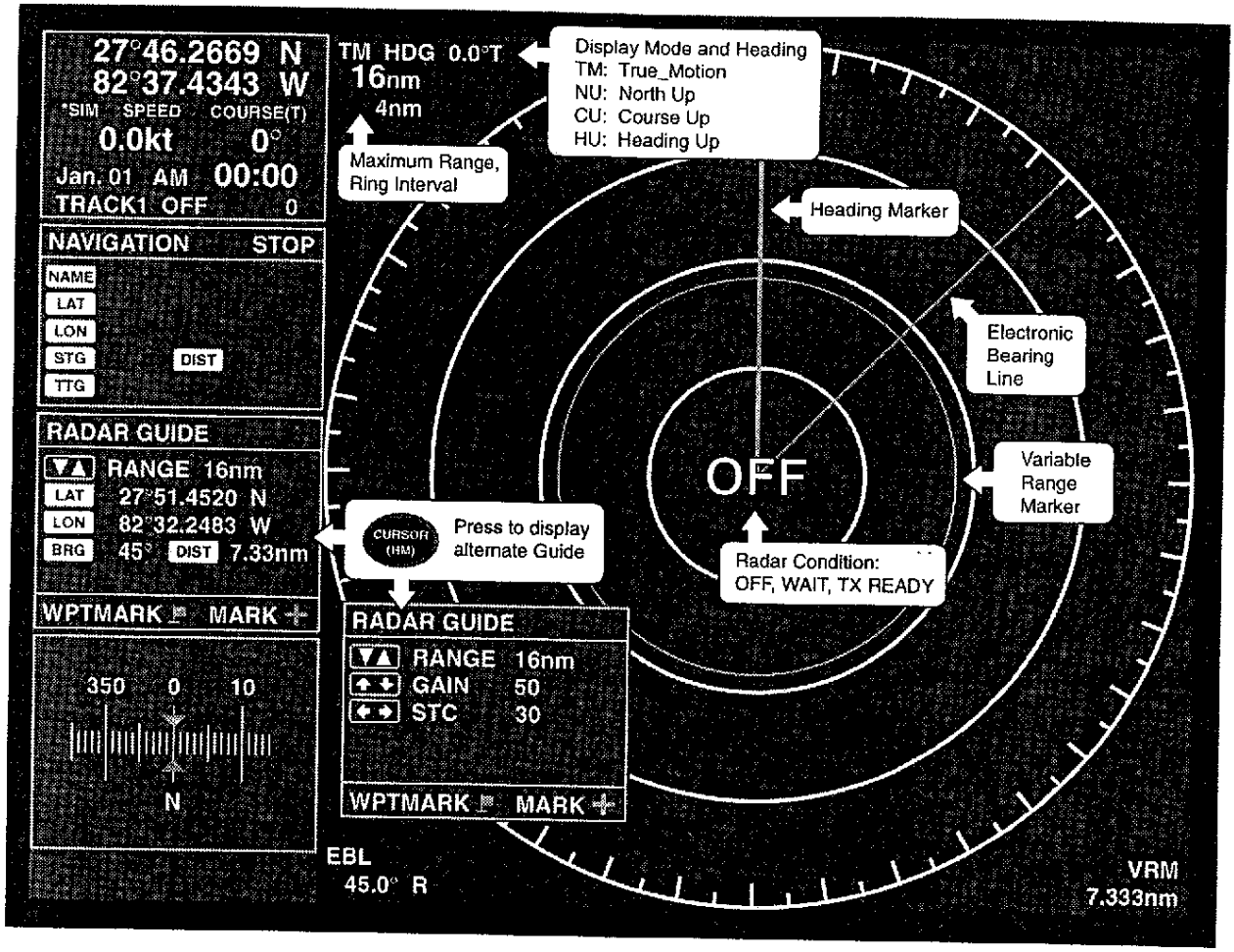
- Press the MENU key. The RADAR select MENU appears on the screen. Select **1. Radar**.
- Press the ENTER key. The RADAR functions MENU appears. Select **1. Condition**. Radar status is indicated by the condition OFF, STANDBY, or TX, displayed in white. The inactive conditions are displayed in green.

Presuming this is the first time the radar is operated and the condition is OFF:

- Press the ▶ key to select **STANDBY** and then press again to select **TX**.
- Use the CLEAR key to close the menus. WAIT, and a countdown timer appear in the center of the Radar Main Screen.

WAIT, and the timer appear while the radar magnetron warms up. After the warm-up period expires, a radar image appears.

- Use the RANGE ▼ and RANGE ▲ keys to change the range setting, if necessary, to show an image in the center and in outer areas of the screen.




**Radar Main Screen**

When radar is used alone, it is usually operated in the Head Up mode. When the radar image is overlaid on a chart, one of the other display modes may be preferred. For now, use the Head Up mode.

- Press the MODE key and select **4. Head Up**. The display is updated with vessel heading upward.

The heading marker line extends from the center of the radar display upward and represents the forward direction of travel. There is another line extending from the center of the display which may be at any angle from the heading mark. This is the Electronic Bearing Line (EBL) which is described later. The four white concentric circles, also know as range rings, represent distance from your vessel outward in all directions. The outer most circle represents the range setting of the radar and the inner circles represent intermediate distances.

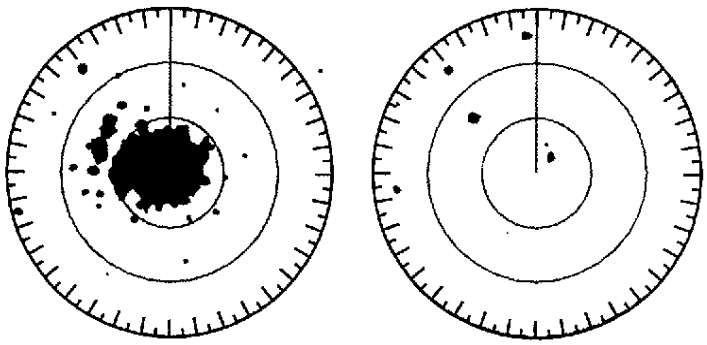
The outer circle also has azimuth tick marks every five degrees (5°) to aid in estimating image position. Minimum range is 1/8 nm and maximum is 16, 36 or 48 nm depending upon the sensor type. Another circle appearing on the screen is the Variable Range Marker (VRM) which is described later.

Observe the upper left hand corner of the Radar Main Screen. The upper line of the three lines of information shows the display mode (HU for heading up), and compass direction of the heading marker (T for true or M for magnetic). The middle line shows the radar range setting and the lower line shows the distance between each of the inner range circles.

Observe the RADAR GUIDE area in the Information display. The RADAR GUIDE has two pages which are selected alternately with the CURSOR (HM) key. One page controls range, gain and STC while the other page controls range, EBL and VRM. The CURSOR (HM) key also removes the heading marker when pressed and held.

- Press the CURSOR (HM) key to display RANGE, GAIN and STC in the RADAR GUIDE. The icons next to the functions show the keys used to control each item.

The gain control sets the radar receiver overall gain from 0 to 50. Higher settings are used to see small or distant targets. However, high gain settings can overdrive the receiver on strong close range targets such as rough water to windward (sea clutter). STC is useful to help overcome this condition. STC also controls receiver gain, but STC reduces gain more on short ranges and less on longer ranges. STC can be set from 0 to 50. If set too high, short range small targets may not be seen. It takes some practice because gain and STC settings are interactive and because range and target characteristics have an affect on radar image quality.



STC low setting STC nominal setting

- Press the CURSOR (HM) key to display RANGE, Lat/Lon coordinates, BRG and DIST in the RADAR GUIDE. The values next to the icons show the values for the EBL and VRM. BRG is the EBL compass bearing from your vessel and DIST is the VRM distance from your vessel. The Lat/Lon coordinates are the location of the EBL and VRM intersection.

The EBL and VRM are used to determine the bearing and distance radar returns are from your vessel.

- Press the ◀ and ▶ keys to rotate the EBL counterclockwise or clockwise.
- Press the ▲ and ▼ keys to move the VRM out or in.

  Place the intersection of the EBL and VRM over a target radar return and observe the values shown in the RADAR GUIDE.

When the EBL and VRM controls are active, their values also appear in the lower right and left corners of the Radar Main Screen. On the lower right is the VRM value which indicates the distance from your vessel to the VRM circle. On the lower left is the EBL value which indicates the relative angle in degrees from the heading marker to the EBL. Notice that this value is different than the BRG value in the RADAR GUIDE. This value is the relative bearing, or the angle from the bow of your vessel. The bearing value shown in the RADAR GUIDE is compass bearing from your vessel position.

## *Radar Alarm Zones*

Genesis provides aural and visual alarms to alert you and your crew of certain situations that deserve immediate attention. Alarms are controlled using the Alarm Setting menu which is available from any Main Screen. The Alarm Setting menu has three pages. Settings on each page are described with the associated main function for plotter, radar and sounder. Alarm sounds are heard even if Volume setting is minimum.

The Radar Alarm Zone is an arc shaped zone with adjustable inner and outer diameters, and is also adjustable in angular length and position. The alarm zone may be used on Radar Main Screen and on Plotter Main Screen with radar overlay.

- Press the ALARM key. The ALARM SETTING menu and ALARM STAT menu appear in the display. The ALARM SETTING menu lists the alarms and settings for each alarm. The ALARM STAT menu displays the current status of each alarm. An X indicates the alarm is inactive, a bell symbol indicates the alarm is active but has not alerted, the filled bell symbol indicates an alarm alert condition.

- Use the MENU key to scroll to page **(3/3)** of the ALARM SETTING menu for radar alarm settings.

- Use the and keys to select ALARM SETTING menu items and and to change settings. Active conditions are shown in white and inactive settings are shown in green.

**1. Radar Alarm** **OFF IN OUT**

Controls alarm function and type of alarm.

OFF: Disables radar alarm zone.

IN: Alarms when target is detected inside alarm zone.

OUT: Alarms when target is no longer detected inside alarm zone.

When the radar alarm zone is enabled, an icon appears in the GPS data area of the Information display. If the radar is Off or Standby, a red X appears on the icon.

**2. Target Level** 

Controls target detection sensitivity level.

| | |
|---|---|
| 3 segments | Weak, medium and strong targets |
| 2 segments | Medium and strong targets |
| 1 segment | Strong targets only |

***3. Zone Position**

- Use the ENTER key to open the GUARD ZONE GUIDE in the Information display area. The GUARD ZONE GUIDE displays key icons and associated functions for setting the alarm zone size and location. Settings may be adjusted with either the Radar Main Screen or Plotter Main Screen active. The alarm is disabled while the alarm zone is being set.
- Use the CURSOR (HM) key to toggle between which zone boundaries are adjusted using the ▲ and ▼ or ◀ and ▶ keys. In one case the keys adjust azimuth position and outer diameter, while for the alternate case, the keys adjust angular length and inner diameter. Adjustable zone boundaries are shown in white, while boundaries shown in yellow are fixed. When settings are complete, press the ENTER key. All boundaries are yellow when the alarm zone is set.

## *Plotter and Radar Overlay*

The Genesis' ability to overlay a radar image on an electronic chart adds a new dimension to confidence and convenience in navigation. The Plotter Main Screen is overlaid with the same radar image as seen on the Radar Main Screen. Radar and Plotter controls are combined so that both change together for Range and Mode settings. The full functionality of both Plotter and Radar are retained.

If your radar is not operating:

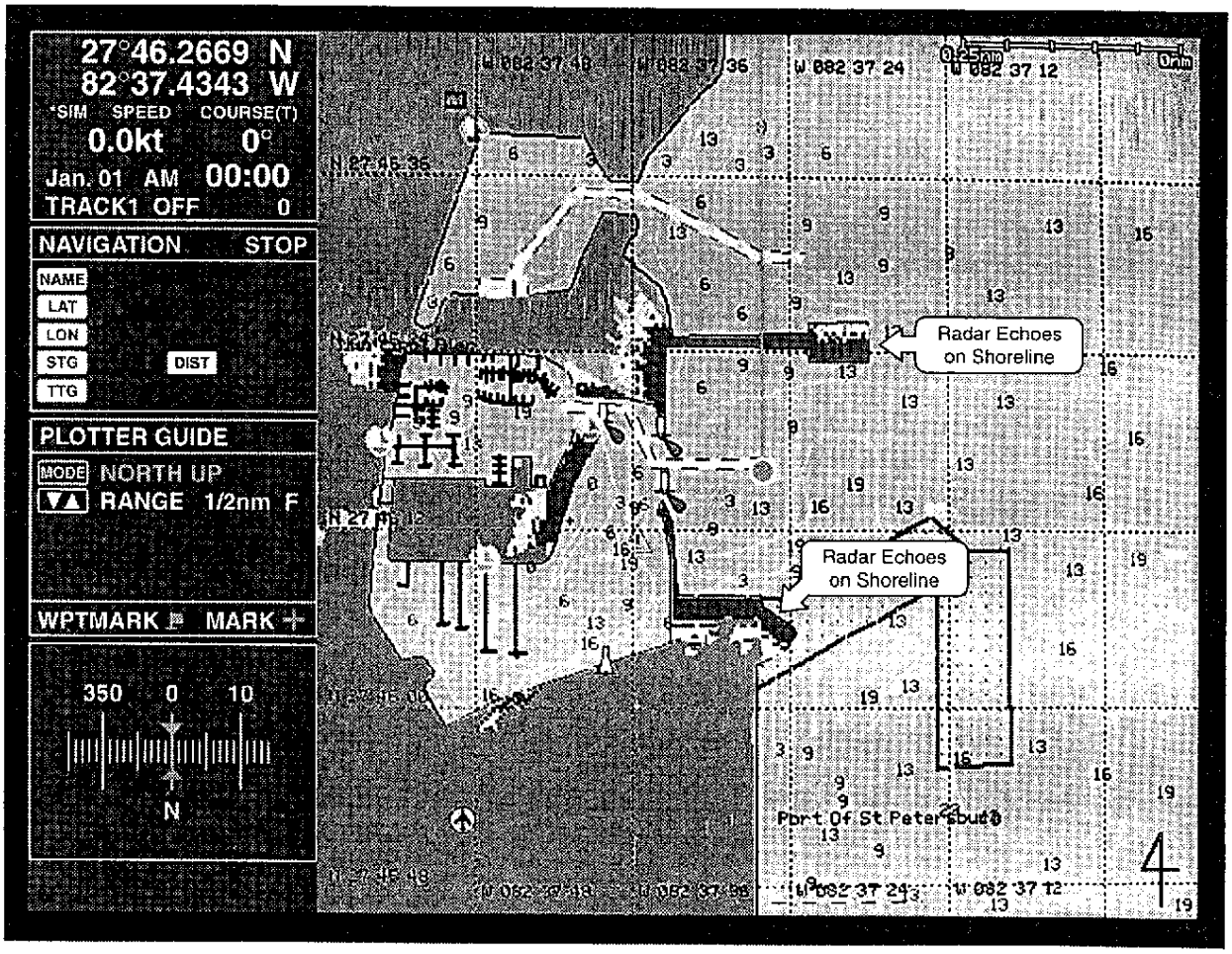
- Press the MAIN SCREEN key and select **4. Radar**. The Radar Main Screen appears in the display.
- Press the MENU and select **1. Radar**.
- Press the ENTER key and select **1. Condition**.
- Use the ▶ key to select **TX**.
- Use the CLEAR key to close the menus.

When the magnetron warm-up time expires, a radar image appears in the Radar Main Screen. Perform any adjustments desired for range, gain or STC settings.

If your radar is operating:

- Press the MAIN SCREEN key and select **1. Plotter.** The Plotter Main Screen appears in the display.
- Use the CURSOR (HM) key to select vessel position priority if appears on the screen.
- Press the MENU key and select **1. Plotter.**
- Press the ENTER key and select **1. Radar Overlay**. There are three options available for Radar Overlay; OFF, ON, R. RING. The active option appears white and the inactive options appear green.

  OFF, removes the radar image from the Plotter Main Screen. ON, overlays the radar image on the Plotter Main Screen. R. RING, overlays the radar image and radar range rings on the Plotter Main Screen.
- Use the and keys to select an option to turn On Radar Overlay.




**Plotter with Radar Overlay**

- Use the CLEAR key to close the menus. The radar image appears on the Plotter Main Screen at the vessel present position.
- Use the RANGE ▼ and RANGE ▲ keys to change ranges in order to observe the radar image in an area where water and shoreline meet.

Notice how the radar image follows the shoreline features of the chart. Also, observe the radar returns from other charted object such as buoys, channel markers, stacks, towers, etc. Radar Gain and STC controls can be adjusted to improve the radar image of some targets.

- Press the SEL key to display the RADAR GUIDE in the Information display. The Guide alternates between PLOTTER GUIDE and RADAR GUIDE each time the key is pressed.
- Use the ▲ ▼ and ◀ ▶ keys to adjust the radar image.

The Plotter Mode for azimuth orientation of the Plotter Radar Overlay Main Screen is used in the same manner as with the Plotter and Radar Main Screens individually.

- Press the MODE key to change the azimuth orientation of the Plotter Radar Overlay Main Screen. Each key press selects the next Plotter Mode on the pop-up menu.

Cursor priority for the Plotter Radar Overlay Main Screen is used in the same manner as with the Plotter Main Screen.

- Use the CURSOR (MM) key to change the Main Screen display priority. Each key press alternates between cursor priority and vessel position priority.

When cursor priority is selected, the chart freezes while the cursor is present. The vessel symbol continues to track vessel present position on the chart.

## *Radar Menu*

The RADAR MENU provides functions for radar control and options which are used to reduce adverse environmental effects on the radar image or to enhance the display for easier viewing. The menus are specific to the model of radar sensor and are automatically selected according to the model installed.

To access the Radar Menu:

- Press the MAIN SCREEN key and select **4. Radar.** The Radar Main Screen appears in the display.
- Press the MENU key and select **1. Radar** on the RADAR MENU.
- Press the ENTER key to open the next RADAR MENU which lists functions used for radar control.

- Use the ▼ or ▲ keys to select and item on the list. Then use the ◀ or ▶ keys to select or change the current condition. Active conditions appear in white and inactive alternative conditions appear in green.

For 2KW Dome Radar Sensor

**RADAR MENU (MDS-1) (1/1)**

**1. Condition** **OFF STANDBY TX**

Controls radar operation.

OFF: Operating power in radar sensor is turned Off.

STANDBY: Operating power is turned On and radar is ready to transmit if magnetron warm-up period has expired. Commands radar to not transmit.

TX: Commands radar to transmit in normal operation.

**2. Off Center** **OFF ON**

Shifts center of Radar Main Screen toward lower edge of display window to allow larger target area forward of vessel.

OFF: Radar display is centered in screen area.

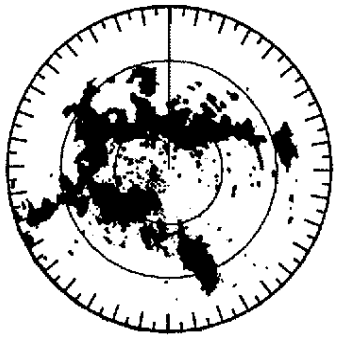
ON: Radar display is shifted below center of screen.

**3. Manual FTC** **OFF ON**

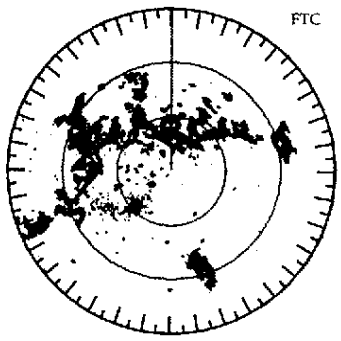
Use to remove clutter caused by rain or snow or fog.

OFF: Normal condition, FTC inactive.

ON: FTC active. Can eliminate small targets.



3. FTC turned Off



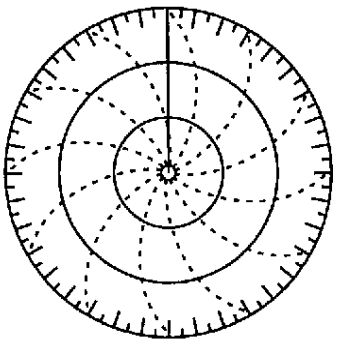

3. FTC turned On

**4. IR** **OFF 1 2 3**

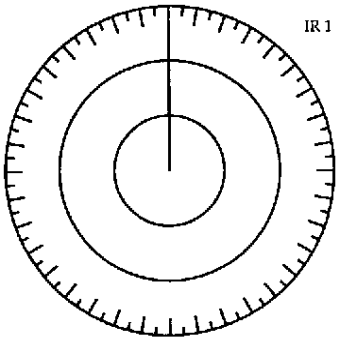
Rejects interference caused by another radar operating nearby.

OFF: Normal condition, IR inactive.

Setting 1, 2, or 3: Use minimum setting necessary to reduce interference.



4. IR turned Off



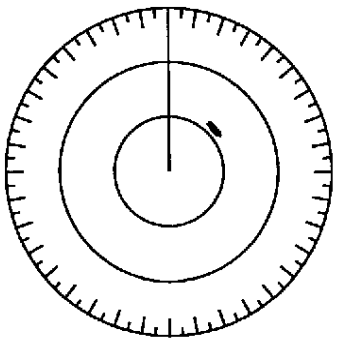

4. IR turned On

**5. Enhance** **OFF ON**

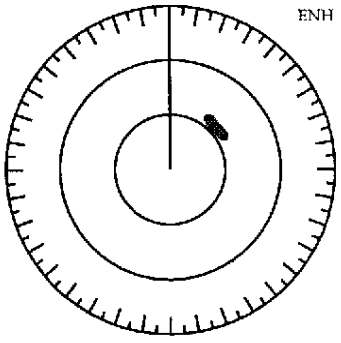
Expands radar image so small or distant targets are more easily observed.

OFF: Normal condition, Enhance inactive.

ON: Enhance active.



5. Enhance turned Off




5. Enhance turned On

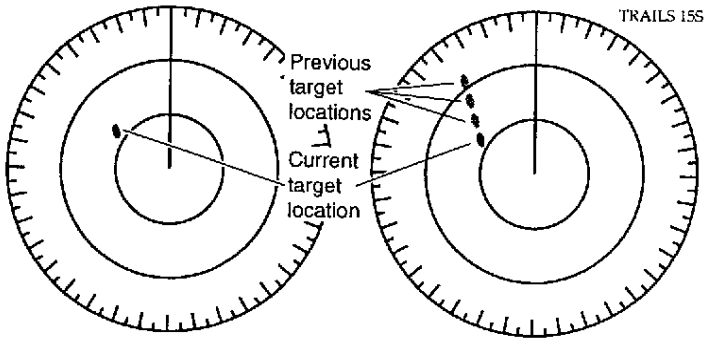
6. Trails **OFF Continuation, 15 sec, 30 sec, 1 min, 3 min, 6 min**

Plots history of targets on screen in next lower color level. Moving objects appear as a having a wake or leaving a trail of targets so their speed and direction of travel are more apparent, thus helping prevent collisions. Trails are erased and start over when Range setting is changed.

OFF: Normal condition, no Trail is displayed.

CONTINUATION: Targets are stored on each antenna revolution (approximately 2 seconds).

15 seconds ~ 6 minutes: Time intervals for storing new target images.




6. Trails turned Off 6. Trails turned On

7. Color Tone

Allows radar images to be displayed in choice of three color patterns. Each pattern has three levels which represent target strength of low, medium, high, from left to right.

8. Transparent **OFF SIMPLE DETAIL**

Allows chart detail and objects to appear through the radar image.

OFF: All objects under radar image are hidden.

SIMPLE: Allows only object drawn in black to appear through radar image.

DETAIL: Allows more objects to appear through the radar image.

For 4KW Dome and Open Array Radar Sensors

**RADAR MENU (MDS-21 & MDS-22) (1/2)**

1. Condition **OFF STANDBY TX**

Controls radar operation.

OFF: Operating power in radar sensor is turned Off.

STANDBY: Operating power is turned On and radar is ready to transmit if magnetron warm-up period has expired. Commands radar to not transmit.

TX: Commands radar to transmit in normal operation.

**2. Off Center** **OFF ON**

Shifts center of Radar Main Screen toward lower edge of display window to allow larger target area forward of vessel.

OFF: Radar display is centered in screen area.

ON: Radar display is shifted below center of screen.

**3. Auto GAIN** **OFF ON**

Controls radar receiver gain automatically from preset values.

OFF: Disables auto control and allows manual control.

ON: Enables auto control and disables manual gain control.

**4. Auto STC/FTC** **OFF ON**

Provides automatic STC and FTC control from preset values. Includes Harbour STC for short range settings (1/8 and 1/4 nm).

OFF: Disables auto control and allows manual control.

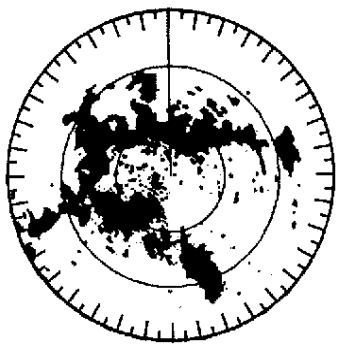
ON: Enables auto STC and FTC, and disables manual controls.

**5. Manual FTC** **OFF 1 2 3 4**

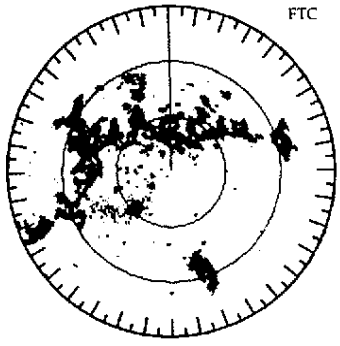
Use to remove clutter caused by rain or snow or fog. Disabled if Auto STC/FTC is enabled.

OFF: Normal condition, FTC inactive.

ON: FTC active. Can eliminate small targets.



3. FTC turned Off



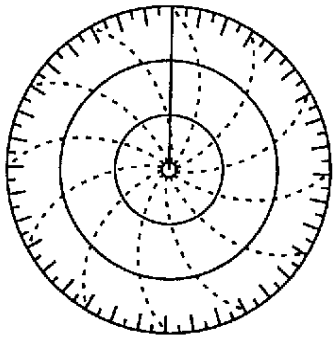

3. FTC turned On

6. IR OFF 1 2 3

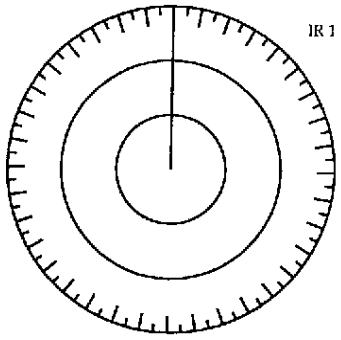
Rejects interference caused by another radar operating nearby.

OFF: Normal condition, IR inactive.

Setting 1, 2, or 3: Use minimum setting necessary to reduce interference.



4. IR turned Off



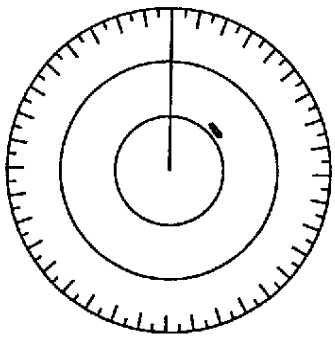

4. IR turned On

7. Enhance OFF ON

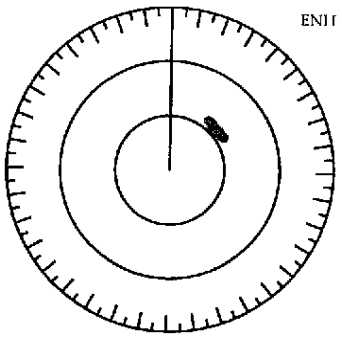
Expands radar image so small or distant targets are more easily observed.

OFF: Normal condition, Enhance inactive.

ON: Enhance active.



5. Enhance turned Off




5. Enhance turned On

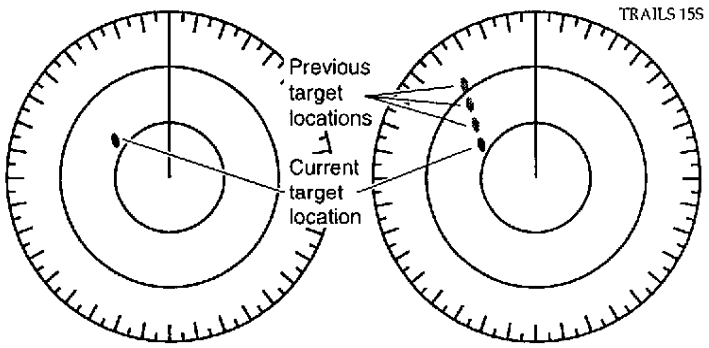
8. Trails **OFF Continuation, 15 sec, 30 sec, 1 min, 3 min, 6 min**

Plots history of targets on screen in next lower color level. Moving objects appear as a having a wake or leaving a trail of targets so their speed and direction of travel are more apparent, thus helping prevent collisions. Trails are erased and start over when Range setting is changed.

OFF: Normal condition, no Trail is displayed.

CONTINUATION: Targets are stored on each antenna revolution (approximately 2 seconds).

15 seconds ~ 6 minutes: Time intervals for storing new target images.




6. Trails turned Off 6. Trails turned On

9. Color Tone

Allows radar images to be displayed in choice of three color patterns. Each pattern has three levels which represent target strength of low, medium, high, from left to right.

0. Transparent **OFF SIMPLE DETAIL**

Allows chart detail and objects to appear through the radar image.

OFF: All objects under radar image are hidden.

SIMPLE: Allows only object drawn in black to appear through radar image.

DETAIL: Allows more objects to appear through the radar image.

**RADAR MENU (MDS-21 & MDS-22) (2/2)**

Presets are used to set nominal initial values for control functions. STC curves are used to reduce receiver gain at short range where transmit power is strongest.

| Function | Default | Range |
|---|---|---|
| **1. Auto GAIN Preset** | **4** | 0 ~ 16 |
| **2. Manual Gain Preset** | **4** | 0 ~ 16 |
| **3. Auto STC Preset** | **12** | 0 ~ 16 |
| **4. Manual STC Preset** | **12** | 0 ~ 16 |
| **5. Auto tune Preset** | **87** | 0 ~ 255 |
| **6. Harbour STC Preset** | **10** | 0 ~ 16 |
| **7. Manual STC Curve** | **4** | 0 ~ 8 |

## *Radar Error Messages*

There are six conditions for the radar sensor that report errors to the Genesis display. If an error is detected, an alarm sounds, an error message is displayed, and the radar is turned Off.

Error conditions can be caused by component failure or defective cables. If inspection reveals no external cause, report the problem to an authorized service facility.

| | |
|---|---|
| 1. Azimuth Error | **Radar AZI Error!** |
| 2. Heading Mark Error | **Radar SHF Error!** |
| 3. Trigger Error | **Radar PRF Error!** |
| 4. System Error | **Radar ANT Error!** |
| 5. RAM Error | **Radar RAM Error!** |
| 6. ROM Error | **Radar ROM Error!** |

## *Video Displays*

Genesis provides connections for external video and audio devices. Video is displayed on the full display area or on the Sub Screen area of the Information display. Audio is routed to an internal speaker and to a rear panel connector (J9) for connection to an external stereo amplifier and speakers. Genesis' sound level control affects only the internal speaker. If an external amplifier is used, it must have its own volume control.

Genesis supports up to three video cameras which may connect directly to the Genesis display unit or through an optional video adapter. The video adapter also includes a TV/FM tuner to provide entertainment video and audio. TV and cameras are viewed singly or in any one of ten user selected scanning combinations.

Genesis does not supply power to external video or audio devices. If video cameras are connected directly to Genesis, power for cameras must be supplied from another source. If cameras are connected through the optional video adapter, the adapter requires its own power connection which also supplies power to the cameras. Refer to *Video Adapter Installation* for information on connecting video and audio devices to Genesis.

The following procedures concerning camera operation are appropriate for cameras connected through the video adapter or connected directly to the Genesis display unit. However, for proper operation of the scan sequence it is necessary to set the type of camera connection.

To select Video Adapter or direct camera connection:

- Press the MAIN SCREEN key and select **6. Audio/Video** on the MAIN SCREEN menu.

- Press the MENU key and select **1. Audio/Video** on the A/V MENU.
- Press the ENTER key and select **5. Video Adapter** on the AUDIO VIDEO MENU. The current settings appear adjacent to the menu item. The active option appears white while the inactive option appears green.
- Use the ◀ and ▶ keys to select USE if the optional Video Adapter is installed or DIRECT if cameras are connected directly to the Genesis display unit.
- Use the CLEAR key to clear menus from the screen.

To view video on the full display area:

- Press the MAIN SCREEN key and select **6. Audio/Video** on the MAIN SCREEN menu.
- Press the MODE key and select **3. Camera** on the A/V MODE menu. Video from camera 1 or the last previously selected camera appears in the full display area.
- Use the ▲ and ▼ to select a different camera. The active camera number appears in the upper left hand corner of the display.

To view video from all cameras:

- Press the MODE key and select **4. Video Scan** on the A/V MODE menu. Video from each camera appears in sequence. The source for each screen is identified in the upper right hand corner of the screen. Scan interval and scan sequence is user selectable.

To set scan interval and scan sequence:

- Press the MENU key and select **1. Audio/Video** on the A/V MENU.
- Press the ENTER key and select ***1. Video Scan Order** on the AUDIO VIDEO MENU. The current settings appear adjacent to the menu item.
- Press the ENTER key and review the selections on the VIDEO SCAN ORDER menu.
- Use the ▲ and ▼ keys or a numeric key to select an option appropriate to your video installation.
- Press the ENTER key to complete the selection.
- Select **2. Video Scan** Time on the AUDIO VIDEO MENU.
- Use the ◀ and ▶ keys to set the Video Scan Time to a value from 1 to 10 seconds.

- Use the CLEAR key to clear menus from the screen.

- Press the MODE key and select **4. Video Scan** on the A/V MODE menu. The scan sequence starts. The source for each screen is identified in the upper right hand corner of the screen. If TV is included in the scan sequence, TV audio continues while camera video is displayed.

To view TV video:

Installation of optional Video Adapter and TV/FM antenna are required for TV and FM radio reception.

- Press the MODE key and select **1. TV** on the A/V MODE menu. TV video appears in the full display area and sound is heard from the internal speaker. A TV icon and channel number appear in the upper left hand corner of the screen. If a TV signal is not available, noise (snow) appears on the screen and noise is heard from the speaker.

- Use the ▲ and ▼ keys to change TV channels and the ◀ and ▶ keys to adjust sound level from the internal speaker. Sound level settings also control key sound level. Alarm sounds are audible with sound level set to minimum.

To listen to FM radio:

- Press the MODE key and select **2. FM** on the A/V MODE menu. The Genesis welcome screen appears in the full display area and FM radio sound is heard from the speaker.

- Use the ▲ and ▼ keys to change FM channels and the ◀ and ▶ keys to adjust sound level from the internal speaker. Sound level settings also control the level of key press sounds. Alarm sounds are audible with sound level set to minimum.

## *Sub Screen Display*

The Sub Screen area of the Information display is used to monitor certain selectable functions without having to change the Main Screen. TV, cameras, water temperature and depth graph, and compass heading are functions that appear in the Sub Screen area when selected. The default function appearing at power-on is compass heading. The optional Video Adapter is required for FM stereo or TV video and audio. TV channels and sound level cannot be changed from Sub Screen view.

- Press the SUB SCREEN key and select an item on the SUB SCREEN pop-up menu. Each key press selects the next item. After a brief pause the selected function appears in the Sub Screen area.

Audio from the speaker depends upon the current mode settings for the Audio/Video Main Screen and the active Sub Screen selection. The Audio/Video Main Screen mode setting remains active even when other Main Screens are displayed.

The following table shows the speaker audio source for the various Audio/Video modes and Sub Screen selections.

| | | Audio/Video Mode | | | | |
|---|---|---|---|---|---|---|
| | | TV | FM | Camera | Video Scan (with TV) | Video Scan (w/o TV) |
| Sub Screen Selection | TV | TV Sound | TV Sound | TV Sound | TV Sound | TV Sound |
| | Camera 1 | No Sound | No Sound | No Sound | No Sound | No Sound |
| | Camera 2 | No Sound | No Sound | No Sound | No Sound | No Sound |
| | Camera 3 | No Sound | No Sound | No Sound | No Sound | No Sound |
| | Video Scan (with TV) | TV Sound | TV Sound | TV Sound | TV Sound | No Sound |
| | Video Scan (w/o TV) | No Sound | No Sound | No Sound | No Sound | No Sound |
| | Temp/Depth | No Sound | FM Sound | No Sound | No Sound | No Sound |
| | Compass | No Sound | FM Sound | No Sound | No Sound | No Sound |

**Speaker Output Table**

## *Microphone Input*

The audio/video functions for Genesis also provide for a microphone input. A dedicated microphone may be connected to J9 on the rear panel of the Genesis display unit. Microphone audio is routed to the internal speaker and to a rear panel connector (J9) which may be connected to a stereo amplifier and speakers. The Audio Video Menu is used to turn the microphone On or Off and to set the microphone volume level.

To turn the microphone On or Off or adjust microphone volume:

- Press the MAIN SCREEN key and select **6. Audio/Video** on the MAIN SCREEN menu.
- Press the MENU key and select **1. Audio/Video** on the A/V MENU.
- Press the ENTER key and select **3. Microphone Switch** or **4. Microphone Volume** on the AUDIO VIDEO MENU.
- Use the ◀ or ▶ keys to make or change settings.
- Use the CLEAR key to clear menus from the screen.

## *Weather Fax Display*

Genesis' Weather Fax functions store and display facsimile (fax) transmissions of weather and satellite images received from NOAA radio broadcasts. Up to five fax images can be stored and reviewed individually. There are options to alter the view of stored images by rotation, reversing image black and white colors, and increased contrast.

A separate communications receiver is required to receive the broadcasts and send data to Genesis. The data rate is low, so receiving a weather fax takes some time. After fax reception is started, the Main Screen can be changed to other more immediate functions. Although fax reception continues while other Main Screen functions are performed, it is still necessary to monitor progress and store fax images manually.

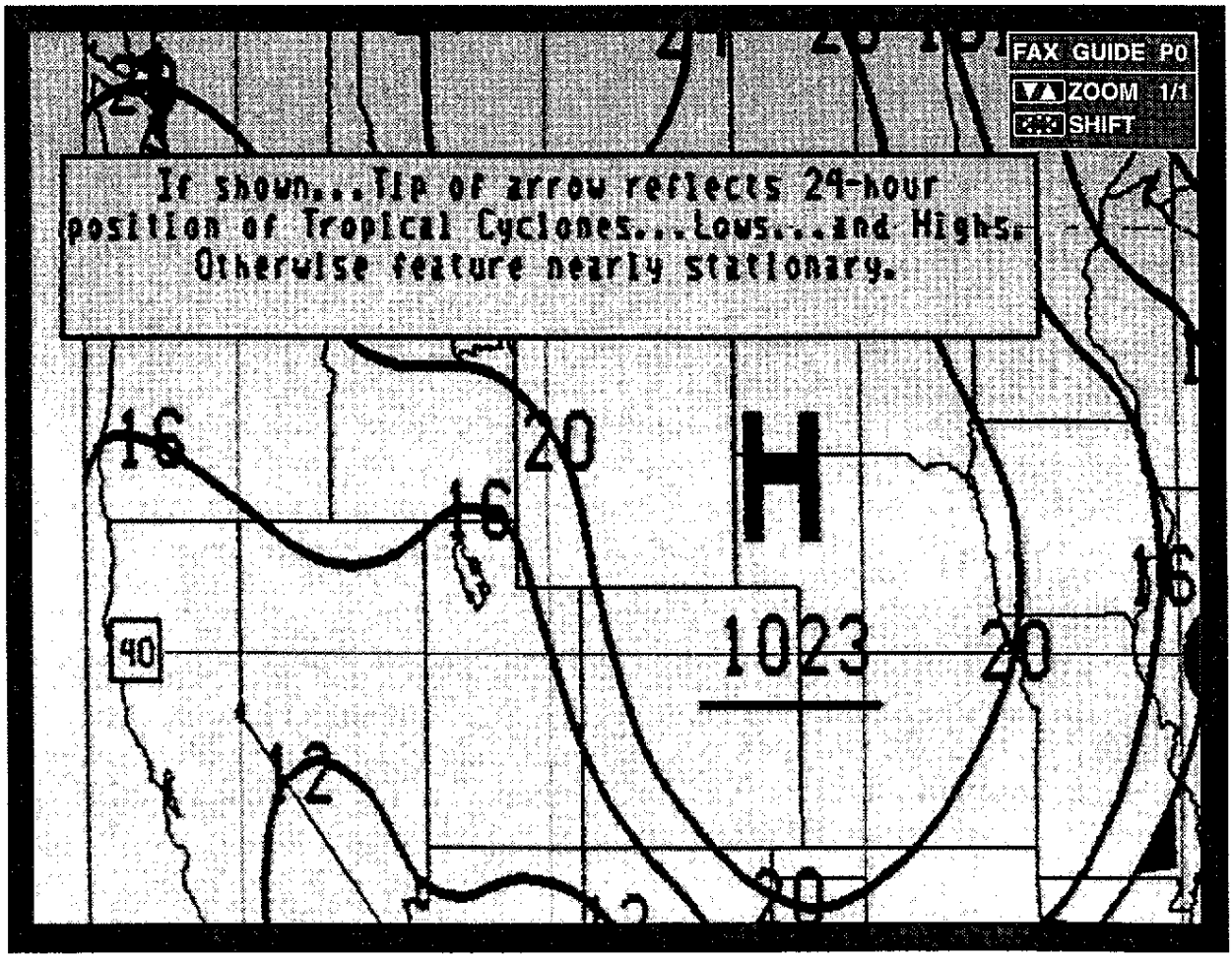
- Press the MAIN SCREEN key and select **7. Weather Fax** on the MAIN SCREEN menu. The fax monitor screen appears in the full display. If fax reception is turned Off, FAX STOPPING appears in the screen and the FAX GUIDE Rx appears in the upper right hand corner of the screen.
- Press the ▲ key to start fax reception. The image develops slowly, a single line at a time. To stop reception, press the ▼ key.


**Fax Monitor Screen**

- Use the ◀ and ▶ keys to locate and align the left hand edge of the received image to the Left Align mark on the screen. If there is approximately 50/50 black and white noise (snow) on the screen, a fax is not being received. If noise is received for an extended period of time, fax receiving is automatically turned Off. It does not automatically turn On again when the next transmission begins. When a fax transmission is in progress the screen appears white or shades of gray as the image builds. The appearance of the screen is very dependent upon tuning of the communications receiver and atmospheric conditions.

There are seven modes available for viewing fax images; 1. Monitor, 2. Receive, 3. Page1, 4. Page2, 5. Page3, 6. Page4, 7. Page5. The screen mode that is active as a fax image develops is **1. Monitor** mode. If the screen is full of noise or and old image is present when a new image starts, use the CLEAR key to delete the previous image and allow the new image to develop.

- Press the MODE key and select **2. Receive** on the FAX MODE menu. The fax image appears on the full display screen to the extent that it has been received on the Monitor screen. The image appearing on the Receive screen may be saved as is or allowed to develop further as the Monitor screen continues to build. The Receive screen is updated each time the Monitor screen or a Page screen is opened.




**Fax Receive Screen**

- Use the RANGE ▼ and RANGE ▲ keys to zoom the Receive screen image.

- Use the  keys to shift the image on the screen or view parts of an image that are outside the screen area.

- Press the MENU key and select **1. Weather FAX** on the FAX MENU.

- Press the ENTER key and select ***1. Storing Page** on the WEATHER FAX MENU.

- Use the ◀ and ▶ key to select a memory page (P1...P5) on which to store the current Receive screen image.

- Press the ENTER key to complete the operation.

- Use the MODE key to select stored pages on the FAX MODE menu to display.

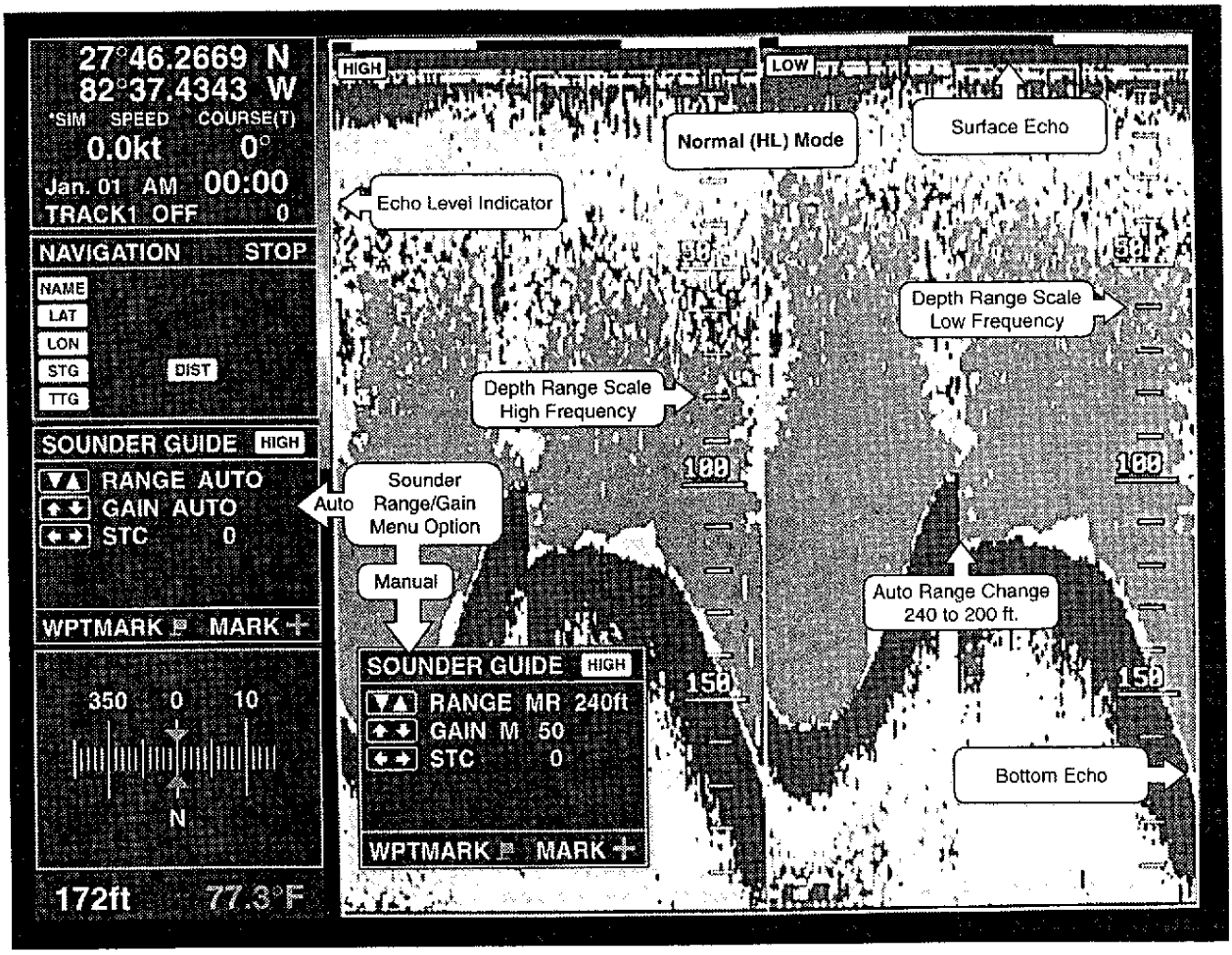
  The WEATHER FAX MENU, which lists storing and display options for stored fax images, is accessed by the MENU key in any Fax Mode except Monitor.

## *Sounder*

An internal sounder/fishfinder capability for Genesis is available as an option. The sounder/fishfinder option is a powerful dual frequency system (50 and 200 kHz) with temperature capability. A compatible underwater transducer is also required. The sounder/fishfinder modules are designed specifically for Genesis and offer many features for fish detection and display of the underwater environment. The Sounder functions may be displayed on the full Main Screen or share the Main Screen with either Plotter or Radar.

The following procedures presume the sounder simulator is turned On (sounder modules must be installed). See *Turning On Simulators* in the Getting Started section. The sounder simulator provides a programmed pattern of fish and bottom echoes which are similar to actual operation.

- Use the MAIN SCREEN key to select **3. Sounder** on the MAIN SCREEN menu. The Sounder Main Screen appears after a brief pause. The sounder image develops along the right hand edge of the display with the water's surface at the top of the screen and water depth increasing toward the bottom of the screen. The sounder operates continuously. As new echoes appear on the right, older information moves to the left.




**Sounder Main Screen**

Observe the Sounder Main Screen. The default Screen Mode for the Sounder is Normal (HL) where the Main Screen is divided into two sections with the high frequency sounder displayed on the left and the low frequency sounder displayed on the right. An icon in the upper left hand corner of each section identifies each sounder. A depth scale appears along the right hand edge of each sounder display. Also by default, Range and Gain controls are set to automatic (AUTO). When set to automatic, Range is adjusted as necessary to keep the sea bottom echo in the lower half of the screen, and Gain is adjusted to make the sea bottom echo appear in red color. The Sounder Menu offers selections for manual setting of Range and Gain as well as many other functions to optimize sounder performance to individual needs.

Observe the Information Area of the display. At the lower edge are displayed digital depth and temperature. The default units of measure are meters for depth, and degrees centigrade for temperature. Other units of measure may be selected from the Setup Menu.

To change the unit of measure:

- Press the MENU key. The SOUNDER select MENU appears on the screen. Select **3. Setup**.
- Press the ENTER key. The SETUP MENU appears. Select **9. Depth Unit**. The active unit of measure is displayed in white. Other inactive selections are displayed in green.

- Use the ◀ and ▶ keys to activate the desired unit of measure.
- If desired, use the same procedure to change other settings on the menu.
- Use the CLEAR key to close the menus. The new values are present in the appropriate displays.

The Sounder Guide, near the center of the Information Area, presents the Range, Gain and STC control settings for the sounders. Icons appearing next to each control show the keys used to make adjustments. Range and Gain settings cannot be adjusted when set for automatic control (AUTO). The icon appearing after the title, SOUNDER GUIDE, identifies the sounder that is affected by control adjustments. Use the SEL key to toggle between the HIGH and LOW sounders.

RANGE may be set for automatic control (AUTO), auto shift (AS), or manual range control (MR). GAIN may be set for automatic (AUTO) or manual (M) control. When set for manual control, a numeric value is shown for each sounder's Gain setting.

## *Sounder Range Control*

The method for Range control may be set for automatic control (AUTO), auto shift (AS), or manual range control (MR). Each control method offers a different view of the underwater scene.

When set for automatic Range control, depth Range is adjusted automatically to display the sea bottom echo in the lower half of the screen. The full depth range, from the surface to the bottom is displayed. Manual setting is not allowed.

When set for auto shift, the sea bottom is displayed in the lower half of the screen. The portion of the full depth appearing on the screen above the bottom is determined by the RANGE setting appearing in the Sounder Guide. By setting the Range to values less than the actual depth, the area from the bottom upward is magnified to view more detail. The scale on the right hand side of the screen shows the depth range appearing in the display. Use the RANGE ▼ and RANGE ▲ keys to adjust the depth range appearing on the screen.

When set for manual Range control, depth Range is adjusted using the RANGE ▼ and RANGE ▲ keys. The full depth range, from the surface to the RANGE setting in the Sounder Guide is displayed. Echoes within the set depth range are displayed. The sea bottom appears in the display only when the Range setting is deeper than the actual water depth. The scale on the right hand side of the screen shows the depth range appearing in the display.

To select the Range control method:

- Press the MENU key and select **1. Sounder** on the SOUNDER select MENU.
- Press the ENTER key and select **1. Auto Range/Shift** on the SOUNDER functions MENU.

  OFF selects manual Range control. RANGE selects automatic Range control. SHIFT selects automatic shift.
- Use the ◀ and ▶ keys to select either OFF, RANGE, or SHIFT. The active selection appears white and inactive selections appear green.
- Use the CLEAR key to close the menus.

## *Sounder Gain Control*

The method for Gain control may be set for automatic (AUTO) or manual (M) control. When set for automatic Gain control, the sonar receiver gain is automatically adjusted to display stronger sea bottom echoes in red. Weaker echoes are displayed in one of 14 other colors with the dark blue background as the weakest. When set for manual control, gain is adjusted using the ▲ and ▼ keys. Manual Gain control allows finer adjustments over a wider range of conditions.

To select the GAIN control method:

- Press the MENU key and select **1. Sounder** on the SOUNDER select MENU.
- Press the ENTER key and select **6. Auto Gain** on the SOUNDER functions MENU.

  OFF selects manual Gain control. ON selects automatic Gain control.
- Use the ◀ and ▶ keys to select either OFF or ON. The active selection appears white and inactive selection appears green.
- Use the CLEAR key to close the menus.

## *Digital Depth*

Digital depth is displayed in the lower left hand corner of the screen. Certain Sounder operating conditions must be met in order for depth readout to be accurate. This is especially true if Sounder Gain and Range are set for manual control. The Range setting must be set to display the sea bottom on the screen and the Gain setting must be set to display a continuous red sea bottom echo. Auto Range and Auto Gain maintain these conditions under most circumstances. However, there are times when digital depth is uncertain; such as running at high speed, following in another vessel's wake, or if underwater turbulence is present. When digital depth is not available, **XXXX** appears in the display.

## *Sounder Main Screen Modes*

There are eight display mode selections for Sounder Main Screens, which provide combinations of the three modes; Normal, Bottom Zoom, and Bottom Lock.

The display mode selections are:

1. Normal (H)
2. Bottom Zoom (H)
3. Bottom Lock (H)
4. Normal (L)
5. Bottom Zoom (L)
6. Bottom Lock (L)
7. Normal (HL)
8. Bottom Zoom (HL)

Each mode presents the Sounder Main Screen in a different perspective.

**Normal( ):**

Normal mode (with Auto Range active) displays the sounder image with the surface at the top of the screen and the sea bottom in the lower part of the screen. The depth scale indicates the depth range appearing in the display. Bottom contours and fish echoes are displayed at the depths where they are detected. If the depth Range is set manually to a value less than actual water depth, sea bottom echoes are not displayed, but all other echoes within the Range setting are displayed.

**Bottom Zoom( ):**

Bottom Zoom magnifies the sounder display from the sea bottom toward the surface for a short distance. The sea bottom contour is displayed and additional contour lines are added at intervals above the sea bottom to aid in determining distances of echoes near the bottom. Use the Sounder Menu to set the magnified Bottom Range from 2.5 to 20 m (10 to 60 ft.). Default setting is 10 m (40 ft.). If the depth Range is set manually, the setting must place the sea bottom echo in the lower portion of the screen for Bottom Zoom to be effective.

**Bottom Lock( ):**

Bottom Lock divides the Sounder Main Screen image for the selected sounder into two sections. The left hand section displays a Normal Mode image. The right hand section of the screen displays the sounder image relative to the sea bottom. The sea bottom appears as a straight line with the sounder image magnified for a short distance toward the surface. A scale appears on the right for estimating distances of echoes near the bottom. Use the Sounder Menu to set the magnified Bottom Range from 2.5 to 20 m (10 to 60 ft.). Default setting is 10 m (40 ft.). If the depth Range is set manually, the setting must place the sea bottom echo in the lower portion of the screen for Bottom Lock to be effective.

- Use the 

key to select a Sounder Main Screen mode from the SOUNDER MODE pop up menu. Each key press steps to the next selection. The selected screen appears after a brief pause.

## Sounder Sub Screen

The Sounder Sub Screen displays graphs of temperature and depth history in the Sub Screen area of the Information display. The Sounder Sub Screen may be used to monitor depth and temperature while Plotter or Radar Main Screens are displayed. The depth range and scroll time for the graph are controlled on the Sounder Menu page 2/2.

- Use the SUB SCREEN key to select **6. Temp/Depth** from the SUB SCREEN pop up menu. Each key press steps to the next selection. The selected Sub Screen appears after a brief pause.

## Sounder Menu

The Sounder Menu provides options for setting operation and display of sounder functions. To access the Sounder Menu:

- Press the MAIN SCREEN key and select **3. Sounder**. The Sounder Main Screen appears in the display.
- Press the MENU key and select **1. Sounder** on the SOUNDER MENU.
- Press the ENTER key to open the next SOUNDER MENU which lists control and display options.
- Use the ▼ or ▲ keys to select and item on the list. Then use the ◀ or ▶ keys to select or change the current condition. Active conditions appear in white and inactive alternative conditions appear in green.

SOUNDER MENU (1/2)

**1. Auto Range/Shift** **OFF RANGE SHIFT**

Auto range automatically adjusts the depth setting to display sea bottom echoes in the lower 1/2 of the screen while the surface remains at 0 depth. Auto shift adjusts both upper and lower depth settings to display the sea bottom in the lower 1/2 of the screen.

OFF: Disables auto control and enables manual depth control.

RANGE: Enables automatic range control.

SHIFT: Enables automatic shift control.

**2. A Scope** **OFF ON**

A-scope appears on the right hand edge of the sounder screen and magnifies the leading edge of the normal sounder display.

OFF: Disables A-scope display.

ON: Enables A-scope display.

**3. Image Speed** **4X, 2X, 1X, 1/2, 1/4, 1/8, 1/16, 1/32, STOP**

Selects the relative speed at which the sounder image moves from right to left across the screen.

**4. Shift** **0ft**

Selects the manual shift depth value for the upper edge of the sounder image (0 ~ 1969 ft.).

**5. White Line** **OFF BLACK WHITE**

Selects an optional black or white color for strong bottom echoes.

**6. Auto Gain** **OFF ON**

Automatically adjusts receiver gain to maintain a nominal sounder image.

OFF: Disables auto gain and enables manual gain control.

ON: Enables auto gain control.

**7. Auto Gain Adj (H)** **-10, 0, 10**

Adjusts the nominal automatic gain control setting for the 200 kHz sounder.

**7. Auto Gain Adj (L)** **-10, 0, 10**

Adjusts the nominal automatic gain control setting for the 50 kHz sounder.

**9. Intrf Rejection** **OFF 1 2**

Use to reduce or eliminate interference from sounders operating on nearby vessels. Select minimum effective setting.

OFF: Disables interference rejection.

1, 2: Selects level of interference rejection.

**0. Noise Rejection** **OFF 1 2 3**

Use to reduce or eliminate noise from turbulence, bubbles, grass or other debris in suspension below the surface. Select minimum effective setting.

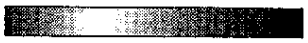
**SOUNDER MENU** **(2/2)**

**1. Color Priority** **OFF 1 2 3**

Controls the signal level at which echoes are displayed in red color.

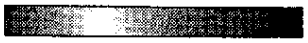
OFF: Disables color priority function.

1, 2, 3: Set for individual preference.

**2. Color Rejection** 

From left to right, colors represent strength of echoes, weak to strong.

Reduce clutter by removing colors for weak echoes.

**3. Color Selection** 

Provides selection for number of colors and shades to represent strength of echoes.

Set for individual preference.

**4. Pulse Width** **0.5x, 1x, 1.5x**

Controls sounder transmitter pulse width.

Set for best echo definition.

**5. Output Power** **OFF 1 2 3**

Controls sounder transmitter output power.

OFF: Disables transmitter output.

1, 2, 3: Select best echo response for water depth.

**6. Bottom Range** **10ft, 20ft, 40ft, 60ft**

Controls depth of zoom area above bottom echo for bottom zoom and bottom lock sounder modes.

Set for individual preference.

**7. Graph Range** **120ft** (10 ~ 2000 ft.)

Controls depth range for sounder sub screen graph.

Set for individual preference.

**8. Graph Scroll Time** **1hr** (1 ~ 12 hr.)

Controls recording period for sounder sub screen graph.

Set for individual preference.

## *Setup Menu*

The Setup Menu provides a means for selecting and setting options to customize Genesis to individual preferences. There are two menu pages listing 14 items which can be set to suit your particular installation.

To access the Setup Menu, select an item and set an option:

- Press the MENU key. The Main Menu for the current Main Screen appears in the display.
- Use the ▼ and ▲ keys or the appropriate number key to select **Setup** from the list and open the SETUP MENU.
- Use the MENU key to toggle between SETUP MENU (1/2) or SETUP MENU (2/2).
- Use the ▼ and ▲ keys to highlight an item on the menu.
- Use the ◀ and ▶ keys to set or adjust the corresponding value. If an item on the list starts with an asterisk (*), use the ENTER key to toggle the selected condition On or Off. Active conditions are shown in white and inactive alternatives are shown in green.
- When settings are complete, use the CLEAR key to clear menus from the screen.

SETUP MENU (1/2)

**1. Information Area** **OFF ON**

Allows the Information Area along the left side of the Main Screen to be turned Off for split screen displays only. When turned Off, the Plotter and Radar Main Screens remain full size and the Sounder appears on the left side of the display. When turned On, the Information Area appears on the left side of all Main Screens except Audio/Video and Weather Fax. For split screen displays the Sounder appear on the right side of the display.

***2. Simulator** **RADAR GPS SOUNDER**

Use to display simulated images of radar, GPS or sounder, either individually or collectively. The Sounder option must be installed for its simulator to operate. Simulator images are useful for familiarity, training or demonstration and should not be used while a vessel is under way.

**3. Simulator Track** **ROUTE00**

Use to select an existing route, Route 00 to 49 from the Route List, for the GPS simulator to follow automatically.

***4. Simulator Date/Time** Month/Day/Year, AM/PM, 00:00

The GPS simulator also simulates UTC time. Use this item, if desired, to correct simulator time to current UTC time of day.

**5. Temperature Shift** **0.0°C or °F**

Allows the Genesis temperature display to be corrected ±18°F (±10°C) if a more precise temperature reference is available.

**6. Time Difference** **00:00**

Provides for local time offset from UTC (-12:00 to +13 hours in 1/2 hour steps).

**7. DF Direction Line** **OFF ON**

Displays information from radio direction finder (RDF) equipment on Plotter Main Screen. Displays direction line of position, frequency and channel of RDF signal. Requires NMEA sentence DFDTS or PKODD,2 from RDF device.

**8. Distance/Speed Unit** **nm/kt, km/kmh, sm/mph**

Select desired unit of measure for distance and speed. Choose from: nautical mile/knots, kilometer/kilometers per hour, statute mile/miles per hour.

**9. Depth Unit** **m ft. fm Ifm Jfm**

Select desired unit of measure for depth of water. Choose from: meter, foot, fathom, Italian fathom, Japanese fathom.

**0. Temperature Unit** **C° F°**

Select desired unit of measure for temperature of water. Choose from: Celsius (°C) or Fahrenheit (°F).

SETUP MENU (2/2)

**1. Input CheckSum** **NoCheck Check**

NoCheck: Checksum at end of received NMEA sentences is not checked. Check: Checksum at end of received NMEA sentences is checked. If checksum is checked and fails, sentence is ignored. Use NoCheck to accept NMEA 0183 V1.5 sentences.

***2. NMEA Output A** **AAM APB BOD BWR GGA**

Turns On or Off NMEA sentence output from rear panel connector J11.

Use ◀ or ▶ keys to select a sentence, then use ENTER key to toggle output On or Off. Sentences appearing in white are turned On and those in green are turned Off.

***3. NMEA Output B** **RMB RMC VTG WNC XTE**

Use same procedure as 2. NMEA Output A above.

***4. NMEA Output C** **ZDA DBT MTW**

Use same procedure as 2. NMEA Output A above.

## *Maintenance Menu*

The Maintenance Menu provides auxiliary functions for testing or initializing system components during installation, maintenance or replacement. There are two pages listing 13 items which may be used to verify normal operation and to save user information to memory cards. The current Genesis system software version appears in the title area of the menus.

To access the Maintenance Menu and select a function:

- Press the MENU key. The Main Menu for the current Main Screen appears in the display.
- Use the ▼ and ▲ keys or the appropriate number key to select **Maintenance** from the list and open the MAINTENANCE MENU.
- Use the MENU key, as necessary, to toggle between MAINTENANCE MENU (Verx.xx/xx) (1/2) or MAINTENANCE MENU (Verx.xx/xx) (2/2).
- Use the ▼ and ▲ keys to highlight an item on the menu.
- Use the ◀ and ▶ keys to set or adjust the corresponding value. If an item on the list starts with an asterisk (*), use the ENTER key to toggle the selected condition On or Off. Active conditions are shown in white and inactive alternatives are shown in green.
- When settings are complete, use the CLEAR key to clear menus from the screen.

MAINTENANCE MENU (1/2)

**1. TFT Scan Direction** **T0 T1 T2 T3**

Changes the LCD display orientation. The LCD image can be flipped or rotated.

***2. Serial Monitor** **J6 J11 PC J5**

Displays the input data present on the selected connector.

***3. Serial Port Test** **J6 J11 PC J5**

Sends a message on the selected port which is repeated on screen if the output pin is looped back to the input pin of the same port. The output message appears in white and the received message appears in red.

***4. Key Test**

Opens a sub screen to display remote controller key test.

Press each key on remote controller and verify key name appears on sub screen.

***5. Save To Memory Card**

Saves WPT Mark, Route, Mark and Draw list data to a C-MAP user data cartridge when inserted into an empty map slot. Press the ENTER key and follow on-screen prompts.

***6. Load from Memory Card**

Loads WPT Mark, Route, Mark and Draw list data previously saved to a C-MAP user data cartridge. Insert cartridge into empty map slot and press the ENTER key. Follow on-screen prompts.

***7. Format Memory Card**

Use to format an empty C-MAP user data cartridge to receive data. Also, erases data on previously used cartridges. Follow on-screen prompts.

MAINTENANCE MENU (2/2)

***1. GPS/BEACON Initialize**

Sends a message to compatible sensors that clears memory and resets units to factory default settings. Depending upon sensor characteristic, recovery to normal conditions will take considerably more time than usual.

***2. System Initialize**

Resets Genesis to factory default settings. This function does not automatically reset sensors and does not clear Tracks or Lists.

***3. File Clear**

Provides a method to clear tracks and entire WPT Mark, Route, Mark, Draw lists. Tracks and lists are selected and cleared individually. A menu appears on-screen to confirm or cancel the operation.

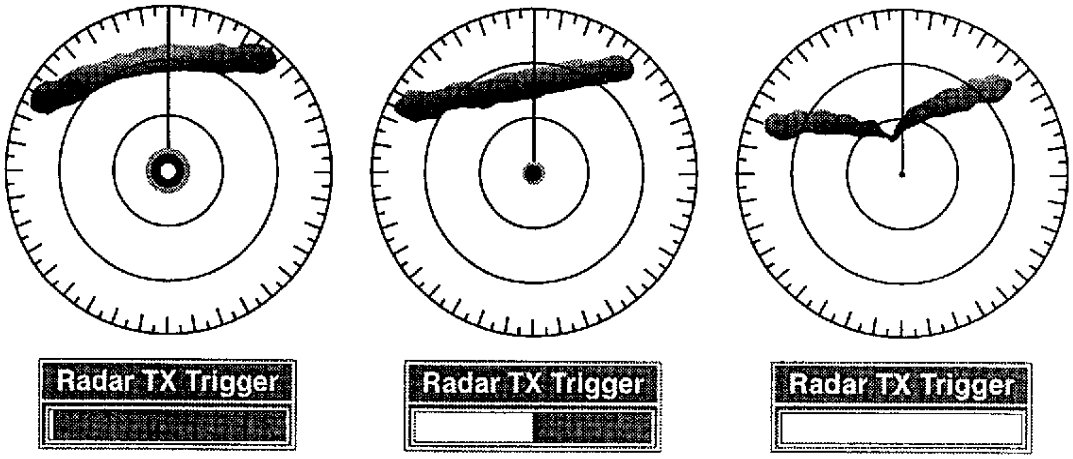
***4. Radar HM Adj.** **0°**

Provides ±180° of azimuth alignment of the radar image to the vessel's center line. Access the Maintenance Menu from the Radar Main Screen.

***5. Radar TX Trigger Adj.** Bar graph

Corrects for delays, usually associated with cable length between the radar display and the scanner, which can distort the radar image. After installation, readjustment is seldom necessary. Access the Maintenance Menu from the Radar Main Screen.

Adjust the Radar Tx Trigger, while viewing the radar image of a known straight object such as a jetty, seawall, bridge, etc. Adjust to remove curvature in the image. Also, observe alignment of radar returns with objects in known locations on a local chart.




***6. Radar Auto Tune** **START**

Initiates the radar automatic tuning process for MDS-1 radar sensor. MDS-21 and MDS-22 sensors use a different auto tune process. After installation, retuning is seldom necessary unless some obvious loss of performance is observed. Automatic tuning takes approximately 5 minutes and a timer appears in the center of the Radar Main Screen. If tuning is stopped before completion, the previously stored values are used. However, the radar must be turned Off and the turn-on sequence repeated. Access the Maintenance Menu from the Radar Main Screen.

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# INSTALLATION

GENESIS brings expandable display technology to your bridge or navigation station. A careful installation will assure maximum benefit from GENESIS' integrated features.

## *Display Unit Location*

Select a location for your GENESIS display unit that provides easy viewing from all likely operator's positions. The display unit is designed to be mounted on either a console or from an overhead surface. The Genesis display unit is also designed for flush mounting using six threaded holes on the rear panel. Locate the display in an area with protection from the elements and avoid direct sunlight on the viewing window. Also, consider access to the rear panel of the unit for connecting power and cables to the various remote sensors. The mounting surface must be flat and solid to support the unit and prevent vibration. There should be access to the inside of the surface to permit through bolt fastening for the mounting bracket.

## *Display Unit Installation*

- Temporarily install the mounting bracket on the GENESIS display unit and place the unit at the selected location.

**CAUTION**

**The GENESIS display unit is unstable when the mounting bracket is not secured. Hold the unit in place at all times.**

- Check the suitability of the location and make any adjustments. When all is satisfactory, use the holes in the mounting bracket as a guide and mark the hole locations on the mounting surface.
- Drill a 1/4 in. diameter hole at each marked location. Mount the GENESIS display bracket using bolts through the mounting surface. Place large flat washers on the opposite side of the mounting surface from the bracket and then install lock washers and nuts. Tighten securely.
- Install the display unit into the mounting bracket. Check alignment and operation of the pivots and security of the mounting. Make any adjustments necessary to prevent binding and assure even meshing of the pivot locking washers.

It is advised to remove the display unit and store it in a safe place to prevent damage during the rest of the installation process.

## *Power Connection*

Power is supplied to the GENESIS Charting System through a connector on the rear panel of the display unit.

- Route the power cable from the GENESIS location to the ship's power distribution panel.
- Connect the black wire to a battery negative (-) terminal of the power panel.
- Connect the white wire to a fused battery positive (+) terminal of the power panel (12 to 24 Vdc nominal). If a fused terminal is not available, install an in-line fuse holder.
- Install a 5 Amp fuse.

## Control Unit

GENESIS is controlled with a remote hand control unit which may be connected either directly to the display unit with a cable or through an infrared wireless link. The cable connection for the remote control unit is on the rear panel of the display unit. A molded cradle is provided which can be mounted in a convenient place to secure the remote control unit.

## Sensor Connection

There are many sensors and transducers available which may be used to expand the capabilities of the GENESIS Charting System. Connectors for these accessories are provided on the rear panel of the GENESIS display unit. For most sensors, only data and control connections are routed to the GENESIS display unit. Except for GPS sensors, the GENESIS display unit does not supply operating power to external units. Most sensors have separate power connections which are routed to a ship's power panel.

The following diagram shows GENESIS display unit rear panel connectors and their pin functions. Functions designated as input (In, Rx) or output (Out, Tx) are from the GENESIS' point of view. An input designation means, input to GENESIS and an output designation means, output from GENESIS. Sensors will have similar designations, but from the sensors point of view. Therefore, a sensor output will connect to a GENESIS input and a sensor input will connect to a GENESIS output.

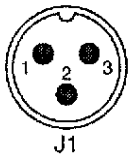
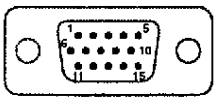
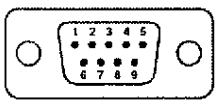
## GPS Connector (J6)

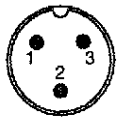
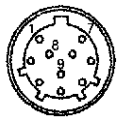
GPS sensors or GPS navigators must connect to J6. Other NMEA devices such as heading sensors, autopilots, external sounders, etc., must connect to J11.

## NMEA Data Connector (J11)

NMEA data to and from all devices except GPS sensors or GPS navigators must connect to J11.

## *Rear Panel Connectors*

| Connector | Pin | Function |
|---|---|---|
|  J1 GENESIS POWER | 1 | Ship's Battery (+) |
| | 2 | Ship's Battery (–) |
| | 3 | No Connection |
|  J2 TRANSDUCER | 1 | No Connection |
| | 2 | No Connection |
| | 3 | Xducer #1 |
| | 4 | Xducer Shield |
| | 5 | Xducer #2 |
| | 6 | Temperature Power +5 Vdc |
| | 7 | Temperature Signal |
| | 8 | Ground |
|  J3 RADAR ON/OFF | 1 | Radar Switch In |
| | 2 | Radar Switch Out |
|  J4 PANEL LINK | 1 | Tx C (–) |
| | 2 | Tx 0 (–) |
| | 3 | Tx 1 (–) |
| | 4 | Tx 2 (–) |
| | 5 | Key Rx (–) |
| | 6 | Speaker 1 Out |
| | 7 | Speaker 2 Out |
| | 8, 9 | No Connection |
| | 10 | Ground |
| | 11 | Tx C (+) |
| | 12 | Tx 0 (+) |
| | 13 | Tx 1 (+) |
| | 14 | Tx 2 (+) |
| | 15 | Key Rx (+) |
|  J5 RADAR SENSOR | 1 | No Connection |
| | 2 | Data Rx (+) In |
| | 3 | Ground |
| | 4 | Data Tx (+) Out |
| | 5 | No Connection |
| | 6 | No Connection |
| | 7 | Data Rx (–) In |
| | 8 | Data Tx (–) Out |
| | 9 | No Connection |

| Connector | Pin | Function |
|---|---|---|
|  J6 GPS SENSOR | 1 | Shield |
| | 2 | Tx (+) Out to GPS |
| | 3 | Ground & Tx(–) |
| | 4 | NMEA Rx (+) In |
| | 5 | NMEA Rx (–) In |
| | 6 | GPS Power +12 Vdc |
|  J7 FAX RECEIVER | 1 | No Connection |
| | 2 | FSK (–) In |
| | 3 | FSK (+) In |
|  J8 VIDEO ADAPTER | 1 | NTSC 0 Video In* |
| | 2 | NTSC 1 Video In* |
| | 3 | V Audio Right |
| | 4 | V Audio Left |
| | 5 | I²C Clock |
| | 6 | I²C Data |
| | 7 | NTSC 2 Video In* |
| | 8 | Camera Switch In |
| | 9 | Ground* |
| | 10 | Camera Switch Out |
|  J9 LINE OUT / MIC | 1 | No Connection |
| | 2 | Line Out, Left Chan. |
| | 3 | Mic Input 2 |
| | 4 | Audio Ground |
| | 5 | Mic Input 1 |
| | 6 | Line Out, Right Chan. |
| | 7 | Ground |
|  J10 REMOTE CONTROL | 1 | Remote Power +5 Vdc |
| | 2 | Ground |
| | 3 | No Connection |
| | 4 | Ground |
| | 5 | Key_Wire |
|  J11 NMEA I/O DATA | 1 | Shield |
| | 2 | NMEA Tx (+) Out |
| | 3 | Ground & Tx(–) |
| | 4 | NMEA Rx (+) In |
| | 5 | NMEA Rx (–) In |
| | 6 | No Connection |

* Cameras may connect directly to pins 1, 2, 7 & 9
Camera power must be supplied externally

**GENESIS REAR PANEL CONNECTORS**

# VIDEO ADAPTER INSTALLATION

The Video Adapter adds TV and FM stereo capabilities to the Genesis. It also provides for connection and control of three video cameras. Two cables are supplied with the Video Adapter. One cable connects to ship's power and the other connects the Video Adapter to the Genesis display unit. Control functions for selecting TV programs, tuning FM stations and viewing camera video are accessed from the Audio/Video Main Screen, its Mode selections, and Menus.

## *Mounting*

Mount the Video Adapter on a flat surface in a dry location near the Genesis display unit. Avoid running cables in close proximity to sounder transducer cables and radio antenna cables. For best results use shielded cable for TV and FM antenna connections.

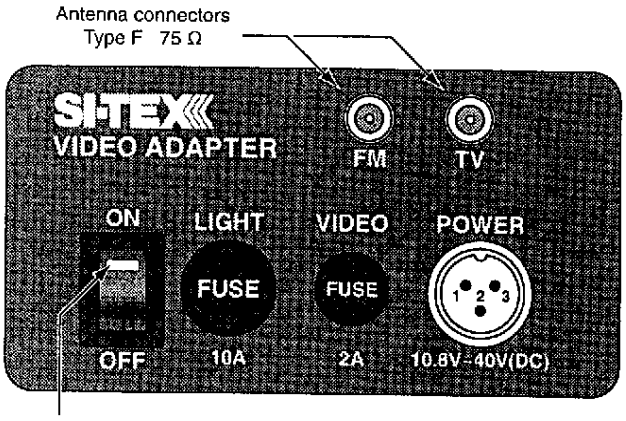
## *Power Connection*

The Genesis display unit does not supply power to the Video Adapter or to cameras. A separate power connection is required. However, Genesis does provide power control for the Video Adapter and turns it Off when its functions are not being used. The Video Adapter supplies power to the cameras.

Route the power cable to a ship's power panel. Connect the black wire to battery negative (-). Connect the white wire to battery positive (+).

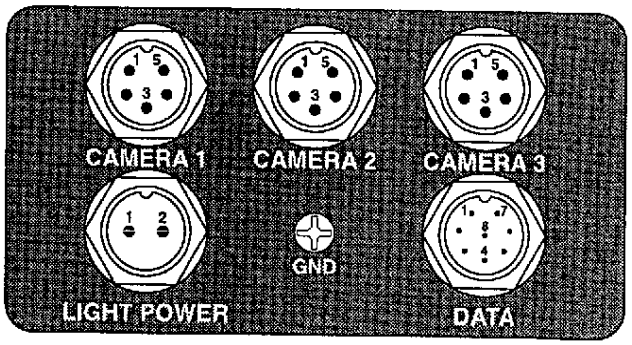
## *Video Data Cable Connection*

A video data cable is supplied with the Video Adapter. Connect the cable from the DATA connector on the Video Adapter to J8 on the rear panel of the Genesis display unit.




POWER Input
1 Battery (+) White
2 Battery (–) Black
3 Case, No Connection

**SI-TEX Video Adapter**
**Front Panel**




LIGHT POWER Out
1 (+) Same as Power Input
2 (–) Same as Power Input

CAMERA 1, 2, 3
1 +12 Vdc
2 Ground
3 Signal Ground
4 Camera Signal
5 Light Control

DATA
1 Video Out
2 Audio Out Rt.
3 Audio Out Lt.
4 I²C Clock
5 I²C Data
6 Ground
7 Control 1
8 Control 2

**SI-TEX Video Adapter**
**Rear Panel**

## Camera Connection

Cameras are usually supplied with shielded cables. If it is necessary to extend a camera cable, use the same type of cable. Also, when purchasing cameras, make sure they are capable of driving the cable length necessary to reach from the camera location to the Video Adapter.

Refer to the camera manufacturer's data sheet and the Video Adapter illustration to install connectors on camera cables.

## Video Adapter Operation

Except for the power switch on the Video Adapter, all control functions for the Video Adapter are provided by the Genesis display unit. After installation, place the power switch in the On position. It is not necessary to turn Off the Video Adapter individually except when connecting cables or cameras. A signal from the Genesis display unit applies power only when needed for audio/video functions.

## Audio Connections

The Video Adapter reproduces high fidelity audio from TV and FM stereo broadcasts that is beyond the capability of the internal speaker. High fidelity stereo audio is available from J9 on the Genesis display unit rear panel. The audio from J9 is line level (not speaker level) output suitable for connection to PC style powered speakers or to a stereo amplifier with external speakers. The hifi audio level is fixed which requires volume control by the external amplifier. Genesis' sounds and alarms, which are mixed with the hifi audio, are also fixed level and are not volume controlled from the Audio/Video Main Screen.

## Microphone Connections

A monaural microphone input is provided on Genesis rear panel connector J9. Either a dynamic or an electret microphone, with an internal Off/On switch, may be used. Microphone audio is present on the internal speaker, and on external speakers, if an external amplifier and speakers are installed.

Connections for J9 Line Out/Mic are:

1. No connection
2. Line out, left channel
3. Mic input 2, dynamic or electret
4. Audio ground
5. Mic input 1, electret only
6. Line out, right channel
7. Ground

Connect dynamic mic to pins 3 and 4.

Connect electret mic to pins 3, 4 and 5 (Pin 5 supplies ~3 Vdc bias).

# TRANSDUCER INSTALLATION

If you have chosen a Sonar option for your Genesis, a transducer must be installed on your vessel. The installation of sonar transducers require some planning and skill to achieve the best results. It is strongly advised that you read the installation instructions completely before starting. Several transducers are available for the Genesis sounder. Refer to the Optional Equipment list for the variations available. Use only transducers supplied by SI-TEX or the Genesis warranty is void.

## CAUTION

Mounting a sonar transducer for your Genesis Sonar requires drilling holes into the hull of your boat which could affect its water integrity. Therefore, installation should be attempted only by qualified individuals. If you have any doubt about your ability to complete the process successfully, we recommend you obtain the services of a SI-TEX dealer or marine service center with knowledge and experience in transducer installation.

Since your Genesis' Sonar performance depends upon how well the transducer is installed, please carefully observe the following mounting procedures.

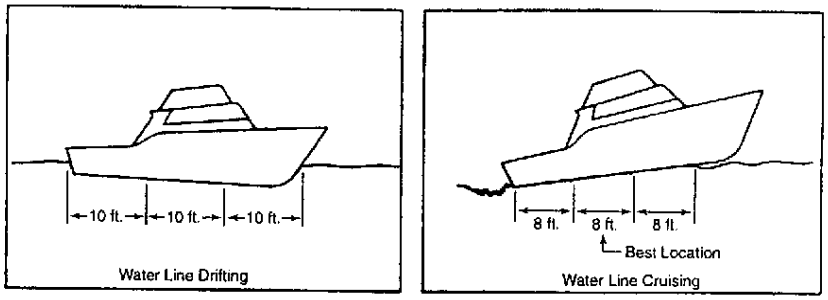
For proper performance, the transducer's mounting location must be chosen carefully. The transducer must be mounted in a location that is free from turbulence and air bubbles created by movement of the boat through water. Air bubbles greatly reduce the efficiency of the transducer.

### *Through-hull Transducers*

Through-hull transducers are recommended. SI-TEX offers several models of bronze through-hull transducers. To enjoy the full capability of your Genesis Sonar, select a dual frequency model with temperature sensor. Sturdy bronze construction assures a secure installation and provides a strong base for fairing blocks, if needed, to compensate for hull shape.

The transducer should be installed in a location free of bubbles and away from disturbed water flow. Smooth water flow around the transducer and along its surface are very important for consistent operation.

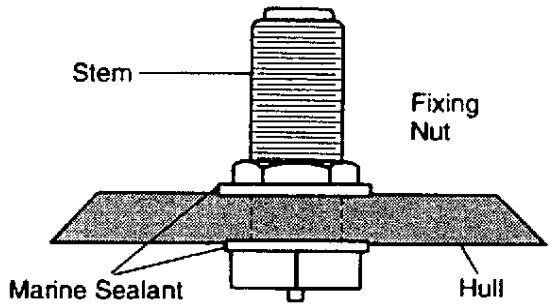
Areas in the center third of water line length at cruising speed are usually satisfactory.




Locations forward of the engine and in a flat area near the center line of the boat are preferred. Do not install the transducer behind water intakes, other through-hull fittings or irregularities in the hull.

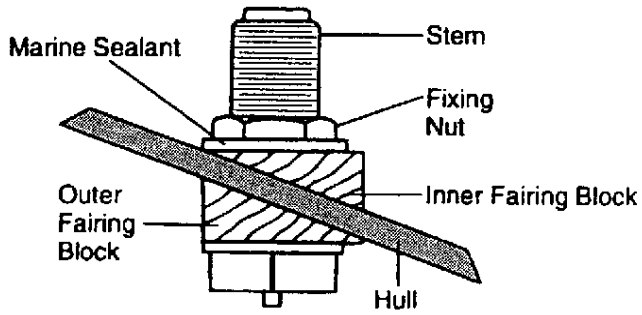
### *Dead-rise*

On hulls with dead-rise of 5° or less, the transducer may be mounted directly through the hull. Where dead-rise is greater than 5°, fairing blocks must be used to orient the face of the transducer parallel with the water surface.




**Dead-rise Less Than 5°**

In this case, no fairing block is necessary. To prevent leakage, any gaps between the stem threads and holes drilled in the hull should be completely filled with waterproof marine sealant. Tighten the stem nuts securely but do not over tighten.




**Dead-rise Greater Than 5°**

In this situation, install fairing blocks both inside and outside the hull. Install the transducer with the face aiming straight down. To prevent leakage, any gaps between the stem threads and holes drilled in the hull should be completely filled with waterproof marine sealant. Tighten the stem nuts securely but do not over tighten.

## *Through-hull Transducer Maintenance*

If your boat is kept in the water, performance of your Genesis Sonar will be adversely affected by accumulations of sea growth on the face of the transducer. To prevent sea growth effects, the face of the transducer may be coated with antifouling paint specially formulated for transducers. Do not use regular antifouling paint on the face of the transducer. The bronze housing may be coated with any antifouling paint. If fairing blocks are used, especially if made of wood, complete sealing prior to painting is important.

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# MDS-1 RADAR*pc* Installation

## *Safety Notice*

### HIGH VOLTAGE WARNING

Dangerously high voltages are present within the RADARpc Radar Sensor unit. There are no internal connections or adjustments necessary for installation. The cover should be removed only by a qualified radar service technician. Technicians must exercise extreme care when working inside the unit. Always remove power before removing the cover. Some capacitors may take several minutes to discharge, even after switching off the radar. Before touching the magnetron or any high voltage components, ground them with a clip lead.

### MICROWAVE RADIATION HAZARD

The microwave energy radiated by a radar antenna is harmful to humans, especially to one's eyes. Never look directly into an open waveguide or into the path of radiation from an enclosed antenna. Radar and other radio frequency radiation can upset cardiac pacemakers. If someone with a cardiac pacemaker suspects abnormal operation, immediately turn off the equipment and move the person away from the antenna. Turn off the radar whenever it is necessary to work on the antenna unit or on other equipment in the beam of the radar.

## General Description

These installation instructions pertain to the MDS-1, 2kW dome RADARpc Sensor. Instructions for other models are included with the units.

The RADARpc is a complete Radar Sensor for the Genesis Color LCD Charting System. The Genesis Charting System provides all radar display and control functions for the Radar Sensor. The RADARpc Radar Sensor unit includes the radar antenna, transmitter, receiver and necessary electronics to deliver radar information to the Genesis. Also included with the RADARpc Sensor are the mounting hardware kit, interconnecting cable and connectors.

MDS-1 RADARpc Physical characteristics:

| | |
|---|---|
| Diameter | 12.375 in., (315 mm) |
| Height | 8.125 in., (206 mm) |
| Weight | 10 lb.,( 4.5 kg) |
| Cable Length | 33 ft., (10 meters) |

Electrical characteristics:

| | |
|---|---|
| Voltage | 10.8 to 31.2 Vdc |
| Power | 30 Watts or less |
| Data interface | RS-422 bi-directional, proprietary data format |

## Equipment Supplied

MDS-1 Radar Sensor Unit, RADARpc MRT-152 with cable

Fasteners, stainless steel:

| | |
|---|---|
| 4 | Bolts, hex metric M8 x 25U (approx. 3/8 dia. x 1 in. long) |
| 4 | Flat washer |
| 4 | Lock washer |
| 1 | RS-422 Data Interface Connector, DB9F |
| 1 | Connector Housing, DB9 |
| 1 | Template, for locating mounting holes |
| 2 | Fuses, 5A (spare) |

## Installation Considerations

Prior to actual installation of the RADARpc Radar Sensor unit, several factors must be considered to assure maximum performance. The Radar Sensor must be located so that passengers and crew are not exposed to the direct radar beam. The Radar Sensor unit should be mounted on the center line of your vessel in a location that has an unobstructed view forward and is as clear as possible the rest of the way around the unit. A location as high as practical to improve maximum range is desirable, keeping in mind that minimum range objects may be overlooked if mounted too high. Position the unit forward of large structure and exhaust stacks. Large structure or stacks cause blind spots. Contamination from engine exhaust on the Radar Sensor housing reduces radar performance.

Antennas for GPS, radio communication or other equipment should not be in the radar beam. Use non-metallic extension poles to move the active area of antennas above the radar beam.

In selecting a location, consider the suitability of the mounting surface. It must be flat and approximately level with the vessel's water line. The surface must support the weight of the Radar Sensor and have access to the under side for installation of four mounting bolts.

**Note**

The recommended mounting surface thickness is 3/8 to 1/2 in. (9 mm to 13 mm). If the mounting surface is thin, a doubler should be added. If it is thicker, longer bolts must be purchased. The Radar Sensor will be damaged if bolts penetrate more than 9/16 in. (15 mm).

Also, consider the cable route from the Radar Sensor to the Genesis location. Avoid routing the interconnecting cable through areas of possible damage from moving objects, machinery, exposure to chemicals or high temperature.

## Prepare RADARpc For Installation

Unpack your new RADARpc and check the contents against the packing list. Do not remove the cover from the unit. There are no connections or adjustments inside the unit that are needed for installation or operation. The cable must remain attached. For ease of handling, coil the cable and place it on top of the Radar Sensor. Then secure it with tape. Invert the Radar Sensor and make sure the four mounting holes are clear to accept bolts.

Working at higher elevations may become necessary while installing the Radar Sensor unit. Observe safety measures and take sufficient precaution to avoid personal injury or damage to the equipment.

## Installation Procedure

- Prepare the mounting surface by making sure it is clean and flat.

**Note**

It is a good idea to check the accuracy of the template by measuring the actual dimension between the hole locations. The reproduction process and moisture absorption can affect accuracy.

- Use the template provided to mark the location of four mounting holes. Align the template squarely with the center line of the vessel and with the arrow pointing forward.
- Drill four 3/8 in. (10 mm) diameter holes through the mounting surface.
- Check that each bolt (with lock washer and flat washer) protrude through the mounting surface at least 5/16 in. (8 mm) but less than 9/16 in. (15 mm). The Radar Sensor will be damaged if bolts protrude more than 9/16 in. (15 mm).
- Apply sealant around each mounting hole.
- Place the RADARpc Radar Sensor unit on the mounting surface. Orient the Radar Sensor with the index mark on the housing facing forward (cable gland facing aft).
- Install and tighten four M8 x 25U (M8 x 1 in.) mounting bolts.
- Uncoil the Radar Sensor cable.
- Secure the cable near the Radar Sensor to support the weight of the cable and prevent strain on the watertight cable seal. If the cable is to pass through tubing or a bulkhead, protect the unfinished end. Do not use the unfinished wires or fabric braid to pull the cable. Attach a fish cord only to the cable jacket.
- Route the cable to the Genesis location, securing it at appropriate points along the way. Make a drip loop and apply sealant at the entry point of an exterior bulkhead.

## Electrical and Data Connections

The cable from RADARpc Radar Sensor unit provides all power, data and control connections necessary for operation. The large black and white leads are for power connections and connect directly to a 12 to 24 Vdc power buss; the five small leads, in the fabric braid, connect the RS-422 data interface to the Genesis Radar Sensor connector; and the two remaining small leads connect to the Genesis Radar On/Off control connector. The Genesis Radar On/Off control does not carry main power to the Radar Sensor unit, but it does provide a signal that controls dc power inside the Radar Sensor unit.

## Connection Procedures

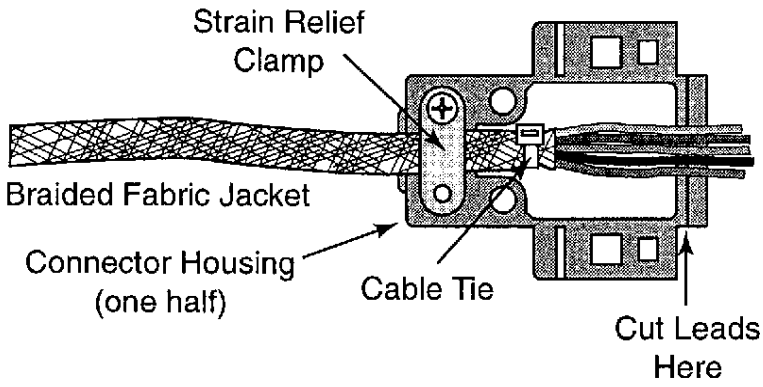
**Note**

In the following procedures, small wires must be stripped and tinned, and then soldered to certain pins on the RS-422 interface connector, and to pins on the Radar On/Off control connector. If you are uncertain of your skill in completing these tasks, it is strongly advised to obtain the services of a qualified technician. It is essential to the operation and reliability of your RADARpc Radar Sensor that these procedures are accomplished properly.

- Arrange the free end of the Radar Sensor cable so that the unfinished leads will reach their intended points for connections. The two large wires must reach a power panel; the five leads in the braided fabric jacket must reach the Genesis Radar Sensor connector; and the two remaining leads must reach the Genesis Radar On/Off control connector. If the leads must go in different directions, first route the five leads in the fabric braid to the Genesis Radar Sensor Connector. Then extend the shorter leads using the same size or larger size wire.

## RS-422 Interface Cable Preparation

The braided fabric jacket protects the RS-422 interface leads and should extend from the end of the main cable outer jacket into the interface connector housing. Prepare the interface leads as illustrated below.




**RS-422 Interface Lead Preparation**

- Install the strain relief clamp on the jacket adjacent to the cable tie.
- Temporarily place the strain relief in the recess at the small end of one half of the connector housing.
- Use the other end of the housing as a guide and cut the leads even with the wide end of the housing.
- Strip the insulation 1/8 in. from the end of each lead.
- Twist the strands together on each lead and tin each lead.
- Proceed with connector installation.

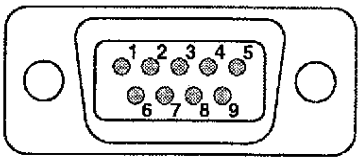
## *RS-422 Data Connector*

The diagram that follows describes connections for the mating connector to the Genesis Radar Sensor connector.

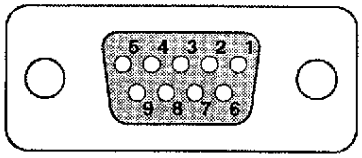
- Referring to the diagram below, solder the color coded wires to the designated pins.
- Place the completed connector in one half of the connector housing, insert the hardware and assemble the remaining half of the housing.

## *Genesis Radar Sensor Data Connector*

| RADARpc Function | Cable Wire Color | DB9F Pin |
|---|---|---|
| | | 1 Not Used |
| Data Out + | Orange | 2 |
| Ground | Black | 3 |
| Data In + | Brown | 4 |
| | | 5 Not Used |
| | | 6 Not Used |
| Data Out – | Yellow | 7 |
| Data In – | Red | 8 |
| | | 9 Not Used |




DB9 Female Rear View
Solder Cups




DB9 Female Front View
Solid Front & Female Pins

Data In (–) and Data Out (–)
MUST NOT BE GROUNDED

**RS-422 to Genesis Radar Connection**

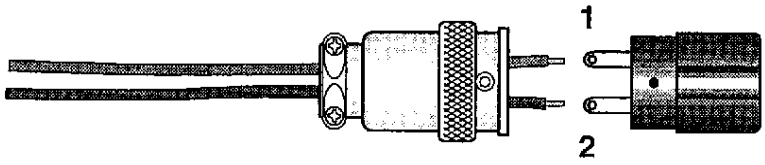
## *Radar On/Off Control*

The Genesis Radar On/Off control connector does not carry the main power for operating the RADARpc Radar Sensor unit. The Genesis supplies a signal to the Radar Sensor that controls internal dc power.

- Strip the insulation 1/8 in. from the end of the blue and green leads.
- Twist the strands together on each lead and tin each lead.
- Pass the blue and green leads through the connector housing.
- Referring to the diagram below, solder the color coded wires to the designated pins.
- Assemble the connector.

## *Genesis Radar On/Off Control Connector*

| RADARpc Function | Wire Color | Connector Pin |
|---|---|---|
| On/Off | Blue | 1 |
| On/Off | Green | 2 |




**Genesis Radar On/Off Control Connection**

## *Power Connections*

- Route the large black and white wires directly to the power panel. No switch is required.
- Connect the large black wire to the battery negative (−) terminal of the power panel.
- Connect the large white wire (with the in-line fuse) to the battery positive (+) terminal of the power panel (12 to 24 Vdc nominal). Do not omit the in-line fuse unless a dedicated and fused terminal is available. If so, install a 5 Amp fuse.

## *Finale*

This completes the installation of your RADARpc Radar Sensor unit. Check out and operation of the RADARpc Radar Sensor is accomplished using the radar functions of your Genesis LCD Charting System.

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# REFERENCE

## *Care and Cleaning*

Your Genesis is made to withstand marine elements but a little care ensures a trouble free life. Accumulations of salt and sand, if not removed, will eventually mar the finish. No solvents or harsh cleaners should be used. The display unit may be wiped down with a damp cloth while avoiding the display window. Be careful not to scratch the display window surface. Gently remove any sand or other grit particles before cleaning the display window. The display window should be cleaned only with water and a clean soft cloth using very light pressure.

## *NMEA*

A standard developed by the National Marine Electronics Association and used by most marine equipment manufacturers for data communication is known as NMEA 0183 version 1.5 and version 2.0. NMEA 0183 specifications offer many recognized sentences for exchanging data between many types of marine equipment.

The following technical information is provided for reference and is accurate to the best of our knowledge at the time of printing. Please refer to the appropriate NMEA specifications for details and the latest information.

The data sentences used by the Genesis are as follows.

Output sentences:

Output A:

GPAAM, GPAPB, GPBOD, GPBWR, GPGGA

Output B:

GPRMB, GPRMC, GPVTG, GPWNC, GPXTE

Output C:

GPZDA, SDDBT, SDMTW

Input sentences, 0183 version 2.0:

Genesis supports NMEA 0183 version 2.0 input sentences and will accept version 1.5 sentences by setting an user option.

J6 GPS Sensor standard sentences:

– –GGA, – –GLL, – –GSA, – –GSV, – –MSK, – –MSS, – –VTG, – –ZDA

Koden proprietary sentences:

PKODA satellite data; PKODG,1 satellite data; PKODG,7 differential data

J11 Serial Data standard sentences:

– –HDG, – –HDM, – –HDT, DFDTS

Koden proprietary sentences:

PKODD,2 direction finder data

NMEA data interface characteristics:

| | |
|---|---|
| Baud rate | 4800 |
| Data bits | 8 |
| Parity | None |
| Stop bits | 2 |
| Character Code | ASCII |
| Voltage Level | 0-5V |

Sentence recurrence rate: 1 second.

### *NMEA 0183 Version 1.5*

To change the NMEA input sentence format from 0183 version 2.0 to 0183 version 1.5:

- Press the MENU key to display a Main Screen MENU and select the **#.Setup** menu item.
- Press the ENTER key to open the SETUP MENU.
- Press the MENU key again to open page 2/2 of the SETUP MENU and select the **1. Input CheckSum** item.
- Use the ◀ key to select **NoCheck**. The active selection appears white and the inactive selection appears green.
- Use the CLEAR key to close the menus.

# Specifications

## General

| | |
|---|---|
| Liquid Crystal Display | 10.4 in. TFT 640 x 480 pixels |
| Displayed Functions | Chart Plotter, Sounder, Radar, GPS, Navigation, Compass, Weather Fax, TV, Camera |
| Voltage Requirement | 10.8 to 31.2 Vdc |
| Power Consumption | 45 Watts |
| Data Input/Output | NMEA 0183 |

## Chart Plotter

| | |
|---|---|
| Cartography | Internal World Map, Two slots for C-MAP *NT* Local Map Cartridges |
| Scale Across Screen | 1/4 to 4,000 nautical miles |
| Track Memory | 10,000 points x five tracks |
| Track Interval | Time: 1 second to 60 minutes<br>Distance: 20 meters to 10 kilometers |
| Navigation Data | GPS Lat/Lon coordinates, Speed, Course, Distance, Bearing, Time To Go, Arrival Time to Waypoint |
| Display Modes | True Motion: North Up; Relative: North Up, Course Up, Heading Up |
| Event Marks | 10,000 points |
| Waypoints | 1,000 points |
| Alarms | Arrival, Off Course (Cross-Track Error), Anchor Watch, Interval Timer |

## Radar Sensor MDS-1 (RADAR*pc*)

| | |
|---|---|
| Antenna | 0.9 ft. Radome |
| Beam Width | 7° Horizontal, 25° Vertical |
| Rotation | 30 RPM |
| Transmitter Frequency | 9445 ±30 MHz |
| Transmit Power | 2 kWatts |
| Bearing Accuracy | 1° |
| Range Accuracy | 1% |
| Minimum Detectable Range | Better than 65 ft. (20 meters) |
| Sidelobes | Better than −20 dB |
| Range Scale | 1/8, 1/4, 1/2, 3/4, 1, 1.5, 2, 3, 4, 6, 8, 12, 16 nautical miles |
| Power Requirement | 10.8 to 31.2 Vdc, 30 Watts or less |
| Functions | Gain, STC, FTC, Interference Reject, Enhance, Trails, Off Center, Color Tone |
| Ambient Temperature | −13 °F to +131 °F (−25 °C to +55 °C) |
| Wind Velocity | 100 knots |

## Sonar Sounder/Fishfinder

| | |
|---|---|
| Display Modes | Normal, Auto Range, Shift, Auto Shift, Bottom Zoom, Bottom Lock, Temperature Graph |
| Frequency | 50/200 kHz |
| Depth Ranges* | 10 to 2,000 ft. (2.5 to 600 meters or fathoms) |
| Image Speed | 8 levels plus freeze |
| Output Power | 600 W rms (4800 W pp) |
| Alarms | Bottom Alarm, Fish Alarm, Temperature Alarm |
| Functions | Auto Gain, STC, Interference Rejection, Power Control, Pulse Width Color Rejection, Color Selection, Noise Rejection, Color Priority, A-Scope, White Line |

* Actual depth capability of depth sounders depends on quality of installation, type of bottom, salinity of water, etc.

# CERTIFICATE OF LIMITED WARRANTY

All Products Except Radar

Providing you present a valid proof of purchase, SI-TEX Marine Electronics Inc. warrants all parts of each new product against defects 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 ON THE FACE HEREOF.

### SPECIFIC EXCLUSIONS

Charges for overtime, standby, 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 there of 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 the 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 USA, ALASKA, HAWAII, AND CANADA.

Mailing Address:

SI-TEX Marine Electronics Inc.
11001 Roosevelt Blvd., Ste 800
St. Petersburg, Florida 33716
(727) 576-5734

# HOW TO OBTAIN SERVICE UNDER THIS WARRANTY

To provide greater 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 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 the 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 Address:

SI-TEX Marine Electronics Inc.
11001 Roosevelt Blvd., Ste 800
St. Petersburg, Florida 33716

SI-TEX Marine Electronics Inc. is a leader of quality digital instruments, LCD and Video Fish Finders, GPS, VHF Radio, Stereo and Radar. For more information, contact your SI-TEX dealer or the main office located in St. Petersburg, Florida