MAX 10 NT

Monochromatic Version - Issue 105B416
Software name SX10M

PRISM 10 NT

Color Version - Issue 104B396
Software name: SX10C

User Manual

Warning!!!

Electronic charts displayed by the chart plotter are believed to be accurate and reliable, but they are not intended to substitute for the official charts which should remain your main reference for all the matters related to the execution of a safe navigation.

For this reason we like to remind you that you are required to carry on board and use the officially published and approved nautical charts.

Caution

- Please read through this manual before the first operation. If you have any questions, please contact the Company customer service or your local dealer.
- The chart plotter is not submersible. Please give attention to avoid water intrusion into the chart plotter. Water damage is not covered by the warranty.
- Extensive exposure to heat may result in damage to the chart plotter.
- Connection to the power source with reversed polarity will damage the chart plotter severely. This damage may not be covered by the warranty.
- The chart plotter contains dangerous high voltage circuits which only experienced technicians can handle.
- The C-MAP NT C-CARD cartridges are available from your local dealer.

Attenzione! (I)

L'esposizione del display ai raggi ultravioletti può accorciare la vita dei cristalli liquidi usati nel vostro plotter cartografico. Questo limite è dovuto alla tecnologia costruttiva degli attuali display.
Si raccomanda pertanto di tenere la macchina protetta dalla luce solare intensa e di coprire lo schermo quando non in uso.
Evitare inoltre che il display si surriscaldi per non causare una diminuzione di contrasto che, in casi estremi, può rendere lo schermo completamente nero.
Tale condizione è comunque reversibile durante il raffreddamento.

Warning! (GB)

Exposure of display to UV rays may shorten life of the liquid crystals used in your plotter. This limitation is due to the current technology of the LCD displays.
Ensure to protect your display from intense direct sunlight when not in use and whenever possible.
Avoid overheating which may cause loss of contrast and, in extreme cases, a darkening of the screen. Problems which occur from overheating are reversible when temperature decreases.

Achtung! (D)

Ultraviolette Strahlen können die Lebensdauer vom Flüssigkristalldisplay verkürzen. Die derzeitige LCD-Technologie bedingt diese verkürzte Lebensdauer.
Schützen Sie daher Ihr LCD-Display vor direktem Sonnenlicht, wenn das Display nicht benutzt wird, wann immer die Möglichkeit besteht.
Überhitzung des Displays durch Sonneneinstrahlung führt zu einem Kontrastverlust und in extremen Fällen sogar in eine Schwär zung des Bildschirmes.
Bei sinkenden Temperaturen normalisiert sich der Kontrast wieder und die Bildschirminformation wird wieder ablesbar.

Attention! (F)

L'exposition de votre écran LCD aux ultra-violets lors de soleil intense réduira la durée de vie de l'afficheur de votre lecteur. Cette contrainte est liée à la technologie des écrans LCD.
Assurez-vous que votre appareil est bien protégé des rayons directs du soleil.
Une augmentation trop importante de température peut obscurer des zones de votre écran et le rendre ainsi inutilisable (non couvert par la garantie).

Aviso! (E)

La exposición de la pantalla a los rayos UV puede acortar la vida del cristal líquido usado en su ploter. Esta limitación se debe a la tecnología actual de las pantallas LCD.
Por ello se recomienda proteger la pantalla de la luz solar intensa y cubrirla cuando no se usa.
Evitar que la pantalla se caliente en exceso pues puede causar pérdida de contraste y, en caso extremo, la pantalla puede quedar totalmente negra.
Este problema revierte al enfriarse la pantalla.

Table of Contents

Chapter

1

Introduction

1.1 Features

The chart plotter is a computer specifically designed for nautical use, but more precisely, to ease and speed up all calculations which so far have been done manually.
If connected to a positioning instrument (i.e. Loran-C and GPS), the chart plotter displays the current position, the speed, and the heading of the boat and its track.
The chart plotter is extremely easy to use. Your ship's position, courses and distances can be easily calculated through the use of a simple keyboard. This information can then be stored on a User C-CARD, and can be recalled at any time. The screen shows navigation data and cartographic information obtained from electronic charts contained into C-MAP NT C-CARDs.

1.2 Software Specifications

The software is supplied with the following features:

Recordable Points: Waypoint, Mark, Event total 1000

Routes : Routes 20
Max n° Waypoint per route 51
Target 1

Tracking : Track 5

Total points per Track 3000

Mark/Event : User point alphanumeric identifier
Type of user points 16

CARTOGRAPHIC FUNCTIONS
- Worldwide Chart Coverage
- Depth, Distance and Speed unit selection
- Depths Area Limit
- Depth Limits & Soundings Range
- Natural Features, Rivers and Lakes, Cultural Features, Landmarks, Tides and Currents, Bathymetric Lines, Spot Soundings, Bottom Type, Ports and Services, Attention Areas, Tracks and Routes, Lights, Buoys and Beacons, Signals, Cartographic Objects, Names, Compass, Chart Generation, New Objects, Complex Object, Info Level, Lat/Lon Grid, Chart Boundaries, Waypoint Icons, Plotter Mode.
- WGS84 Coordinates System

FIX FUNCTIONS
- Fix Correction
- Display Headings True or Magnetic
- Keypad entry to modify Fix correction
- Magnetic Variation user selection
- Filter Functions

REPORT FUNCTIONS
- Route Data Report
- User Points List
- GPS Data Page
- Navigation Data Page
- Graphic Data Page

SPECIAL FUNCTIONS
- Automatic Info on cartographic objects
- Port Info
- Goto Nearest
- Tide Info
- External Waypoint
- Simulation Mode
- M.O.B.
- Map Rotation and Map Rotation Resolution

- EBL & VRM
- User G-GARD

1.3 Basics

The chart plotter is controlled using 14 keys. Ten of the keys are labelled, and are dedicated to specific functions. The other four are "soft" keys and have different functions when you select different modes of operation: their labels for the current functions are shown on the screen immediately above the keys. There is also a trackball to move a cursor across the screen.

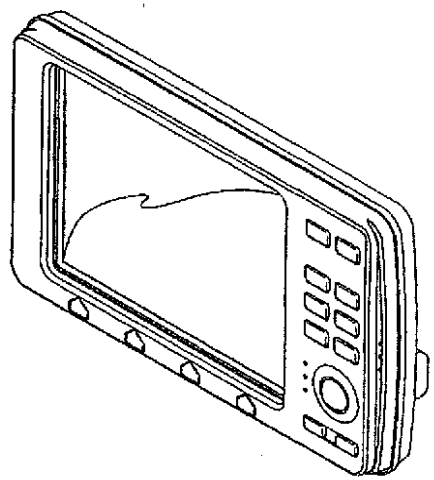


Fig. 1.3 - The chart plotter

Some keys can be used in two ways: the first is *"press the key momentarily and then release it"* and the second is *"press the key and hold it down for a few seconds, then release it"*.
As you press a key, a single audio beep confirms the key action; When a key press is not valid, three rapid beeps sound indicates that no response is available.

1.3.1 Conventions

Throughout this user manual, the keys are shown in capitals

enclosed between single apostrophes, for example 'MENU'; menu names, and all other messages shown on the screen are indicated in bold capitols, for example **MAIN MENU**.

Terms included in the glossary are shown in underlined type, for example Target.

Chapter

2

Getting Started

This chapter provides basic information to get you started using the chart plotter; it will help you to become familiar with the chart display and the functions of the controls before you start using the chart plotter for route handling and navigation. It also explains how to change the brightness and how to insert or remove the C-CARDs.

2.1 Turning the chart plotter On

Before powering On the chart plotter check for the correct voltage (10-35 volt dc) and the correct connections with the positioning instrument:

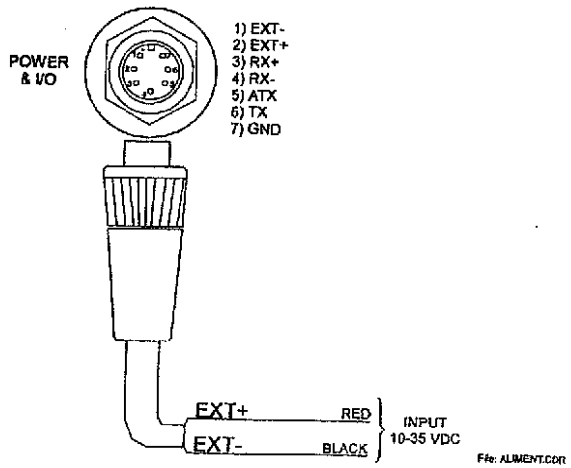


Fig. 2.1 - Power On

Press the 'POWER'. The chart plotter emits two rapid beeps sound. The screen shows the last chart used; over this a window is opened:

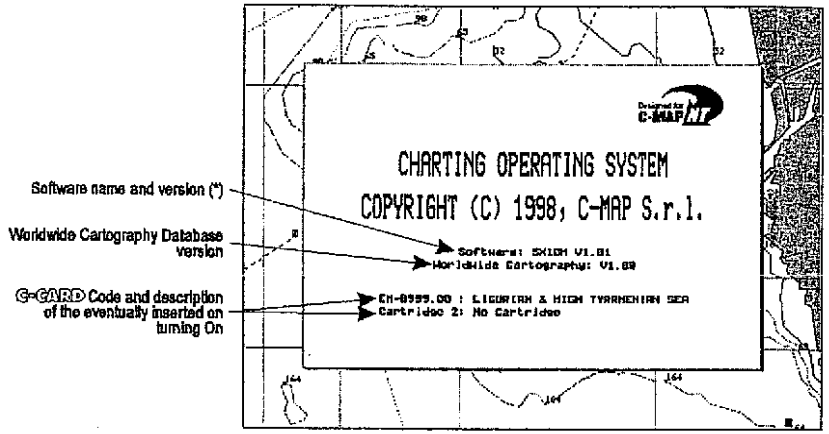


Fig. 2.1a - Initial page

Note

The software version is subject to change without notice. This manual will be valid too. Note that this manual is valid also for the SX10C software (for the color chart plotter).

(*) Note for the color version

The software name for the chart plotter - color version - is SX10C.

After a few seconds, the first of the two Caution Notice pages (also called Warning pages) is displayed, reminding you that the chart plotter is only an aid to navigation, and should be used with appropriate prudence. The electronic charts are not intended to substitute for the official charts:

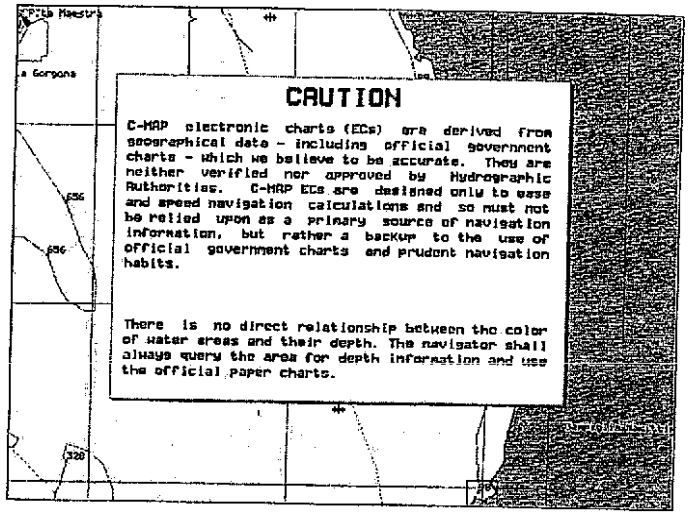


Fig. 2.1b - Caution page (I)

Press the 'ENTER' key:

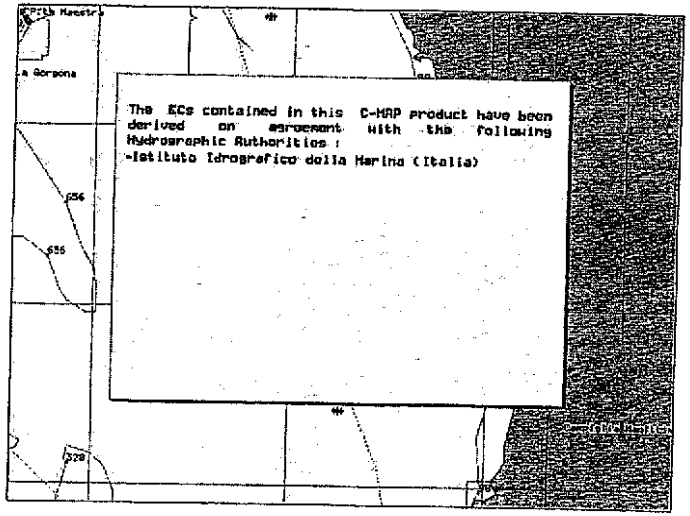


Fig. 2.1c - Caution page (II)

To select the charts page press the 'ENTER' key again.

2.2 Turning the chart plotter Off

To turn the chart plotter Off, press and hold the 'POWER' key for a few seconds.

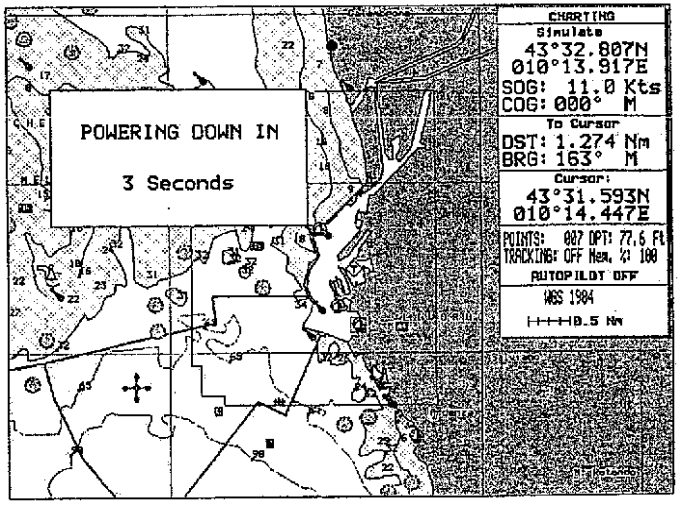


Fig. 2.2 - Cont-down Timer

If you release the key before the count-down timer reaches zero, the chart plotter will remain On.

2.3 The keyboard

All operational functions are accessed by using the keyboard.Here is a brief description of the keys and their functions:

Turn the Chart plotter On/Off → POWER

MOB ← Enables the MOB function

Enables the Target function → GOTO

MENU ← Selects the Main Menu

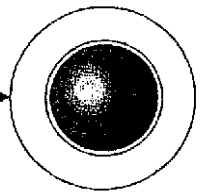
Handles the User Cartridge → DATA

CLEAR ← Exits from menu

Obtains information on Cartographic objects → INFO

ENTER ← Selects the desired option

Moves a cursor across the screen →



Shows more detail in a smaller area → ZOOM IN

ZOOM OUT ← Shows a wider and less detailed view

Soft Keys
Press to select the indicated function.
If no labels are displayed, press any Soft Key to display the default Soft Key labels.
Labels change when you press a dedicated Keys.

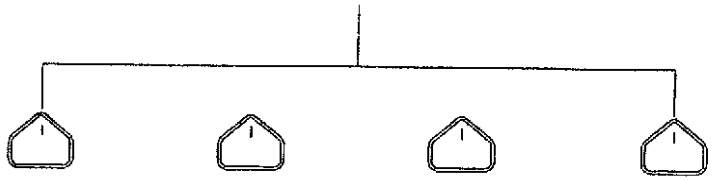


Fig. 2.3 - The keyboard

The cursor is displayed on the screen by the symbol:

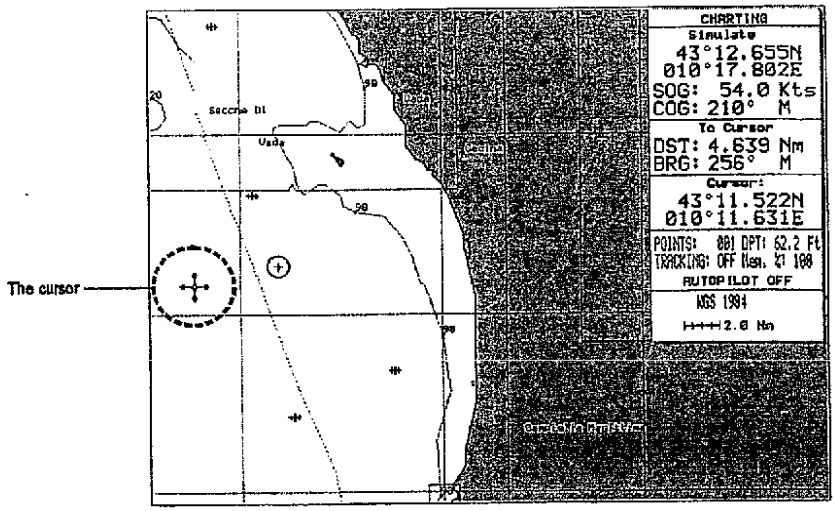


Fig. 2.3a - The cursor

When the cursor reaches one edge of the screen, the electronic chart will move smoothly under it (this function is called Automatic Pan). When the cursor is placed on cartographic object, an information window is opened (Automatic Info).

2.4 G-CARD Insertion

The chart plotter has a built-in world map. But during navigation you will need to use larger scale charts with detailed information. These are available using the C-MAP NT G-CARD data cartridges (from this time forward called G-CARD).

The chart plotter allows you to install two G-CARDs at the same time, because there are two slots; you can also use the slots for the G-CARD, which allows you to store and retrieve data such as Waypoints and routes.

You can insert and remove a G-CARD while a chart is displayed; but you should not insert or remove G-CARD while the map is redrawing.

To insert the G-CARD follow this procedure:

Inserting a Cartridge

- Check that the G-CARD is the correct format (C-MAP NT) and that the required charts are stored on it.

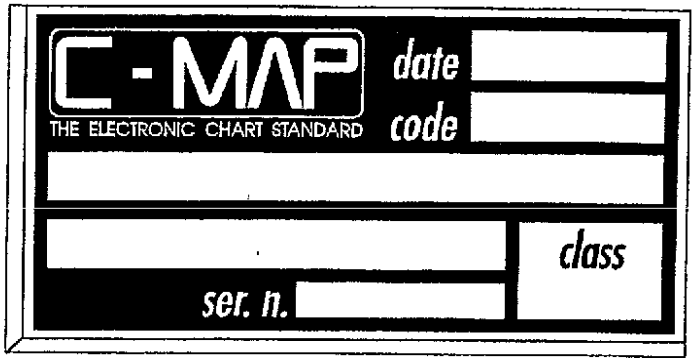


Fig. 2.4 - G-CARD

- Hold the G-CARD by the short smoothed side so that you can see the C-MAP label (see Fig. 2.4).

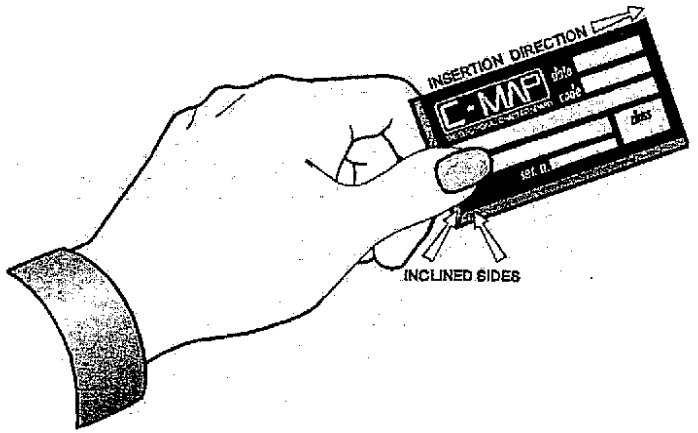


Fig. 2.4a - G-CARD insertion (1)

- Gently push the G-CARD into one of the two slots (1); push the G-CARD in as far as it will go, then slide it to the bottom (2) to hold fixed into the slot (3).

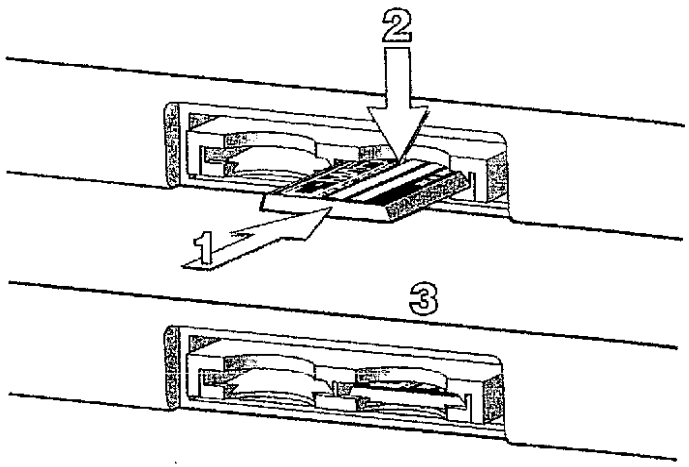


Fig. 2.4b - G-CARD insertion (II)

- The G-CARD cartography information will be displayed when you move the cursor into an area covered by the new charts using pan or zoom operations. The boundary of each chart digitized in the current G-CARD is shown as a rectangle (you may turn On or Off the chart boundaries display from menu - see par. 4.2.5):

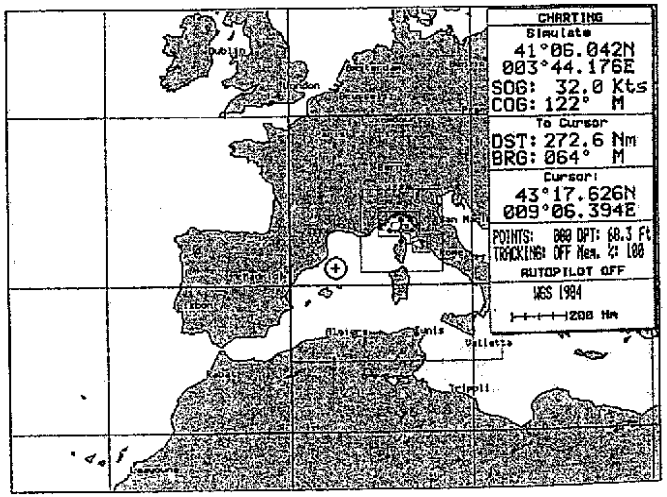


Fig. 2.4c - Chart boundaries (I)

Move the cursor inside one of the chart boundaries and press the 'ZOOM IN' key. The cartography area is expanded so that you can see more detail:

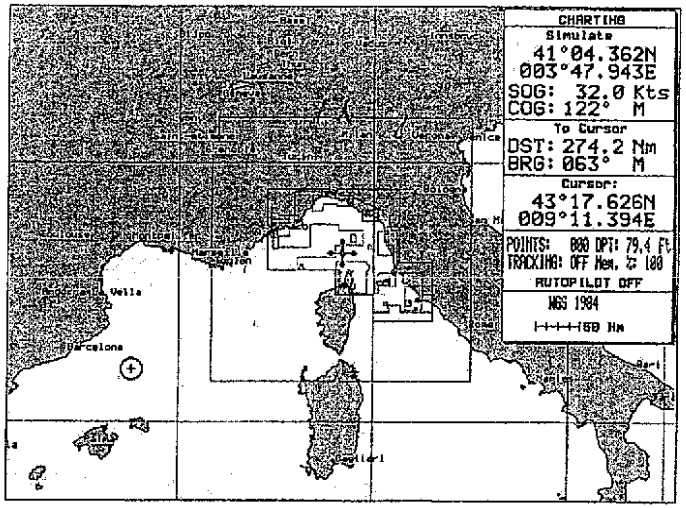
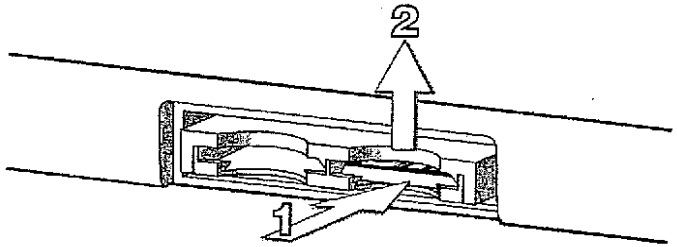


Fig. 2.4d - Chart boundaries (II)

To remove the G-CARD follow the procedure:

Removing a Cartridge

- Press lightly on the G-CARD you wish to remove (1) and move it to the top (2) until you hear a click: the G-CARD will ejected out of the slot (3).



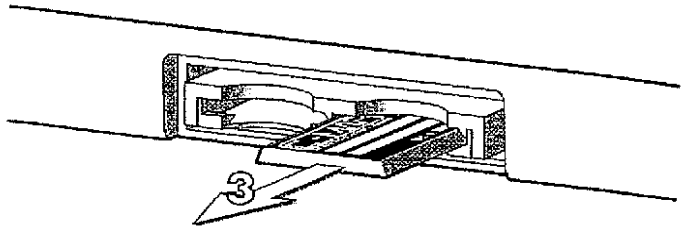


Fig. 2.4e - Removing C-CARD

2.5 Adjusting the Brightness and Contrast

You can modify the level of brightness and contrast to make reading easy and confortable. Press and immediately release the 'POWER' key (do not press and hold the key, or the power-off message will be displayed!). Two sliding bars appear on the screen, showing the current settings for brightness and contrast:

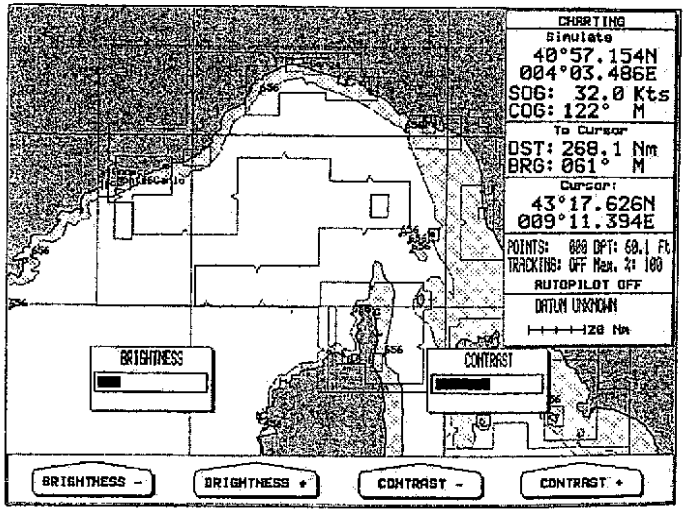


Fig. 2.5 - Brightness and Contrast handling

The screen brightness can be controlled using the 'BRIGHTNESS -" and "BRIGHTNESS +" soft keys: adjust the brightness to the required level, the brightness changes as you adjust the slider. Press the 'ENTER' key to confirm the new setting (this operation also clears the soft key and the graphical display). Alternately, you can press the 'CLEAR' key to exit without making any changes.

To change the contrast operate in the same mode, use the 'CONTRAST -" and "CONTRAST +" soft keys. Press 'ENTER'.

The new brightness and contrast levels are retained until you change them or turn Off the chart plotter.

Note for color chart plotter

For the color chart plotter the soft keys for contrast handling are not available.

Warning!!!

At low temperatures the CCFL backlight may not glow properly. Allow a few minutes to warm up.

2.6 Setting Receiving Port and Format

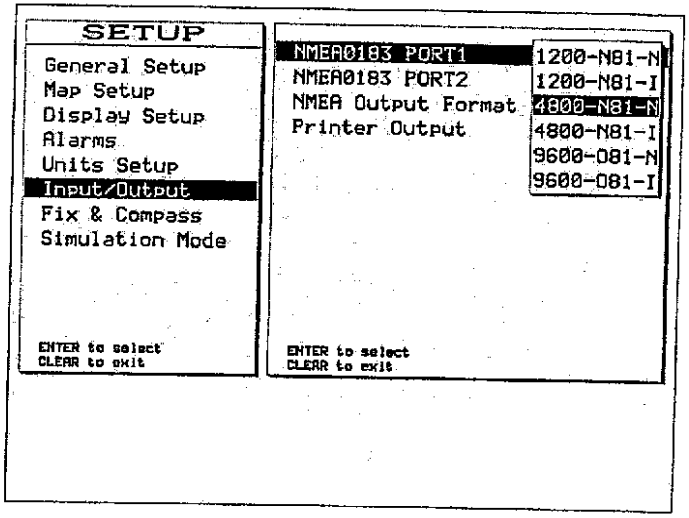


Fig. 2.6 - Receiving GPS Setting

Select the proper input format for the NMEA0183 positioning device in use.
(Refer to the par. 4.6 for setting of the desired format).

Chapter

3

'MENU' and Soft Keys Functions

Pressing the 'MENU' key, the 4 labels for the current functions appear on the screen, immediately above the keys.

3.1 'NXTSCRN' soft key: Screen Display configuration

The screen can display 3 different data pages. To select the configuration you wish press the 'NXTSCRN' soft key repeatedly.

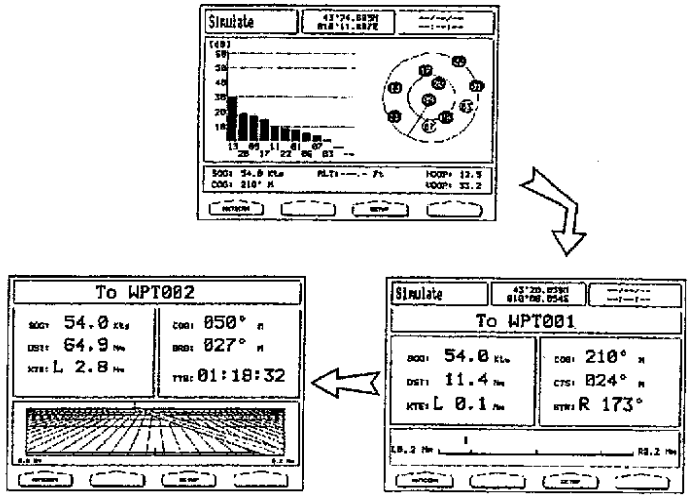


Fig. 3.1 - The 'NXTSCRN' soft key

3.1.1 GPS Data Page

The GPS Data Page is the first screen:

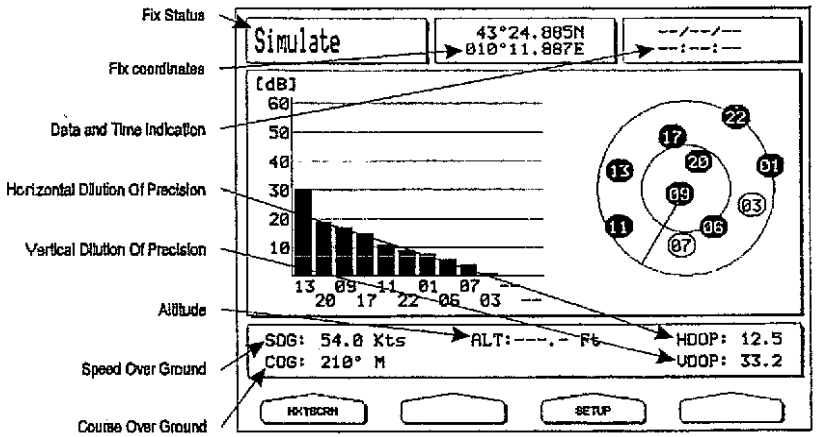


Fig. 3.1.1 - GPS Data Page

The right side of the page shows the satellites position, where each satellite is indicated by a number. The bars in the graph give you an indication of what satellites are visible to the receiver and the signal quality. At least three satellites are necessary to receive an accurate ship's position, which coordinates are shown in the top of the page, with the date and time.

3.1.2 Navigation Data Page

The Navigation Data Page is the second screen:

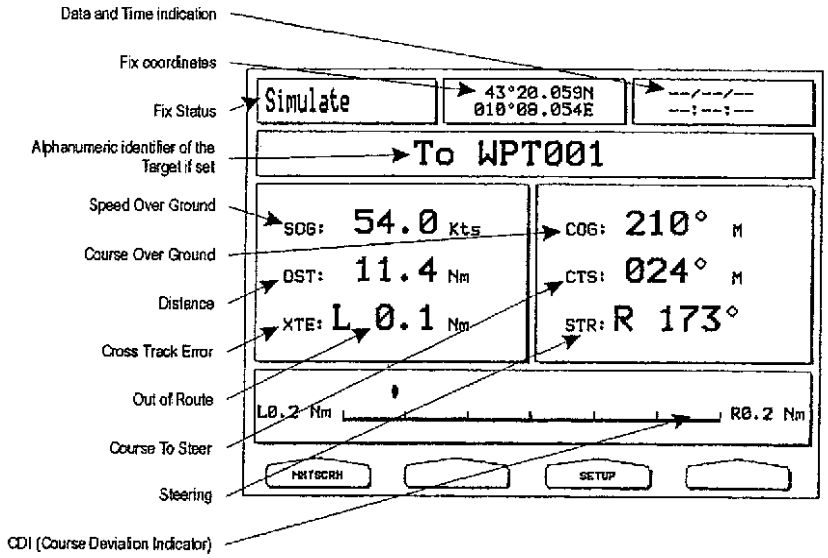


Fig. 3.1.2 - Navigation Data Page

3.1.3 Graphic Data Page

The Graphic Data Page shows graphic navigation data and is the last page in this loop.

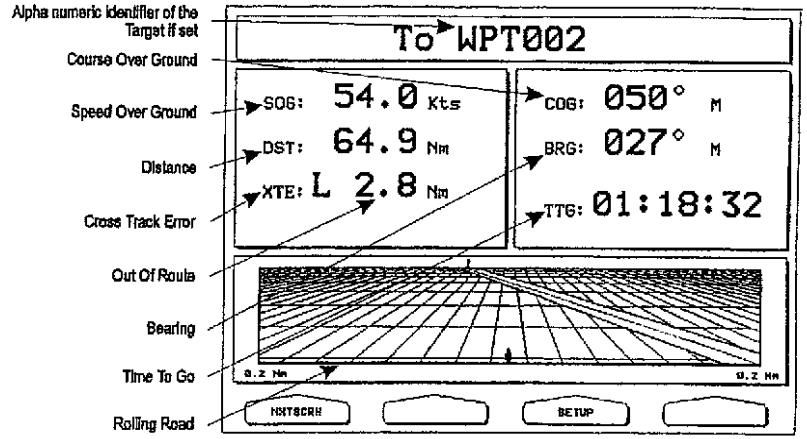


Fig. 3.1.3 - Graphic Data Page

3.2 'FULL/SPLIT' soft key: Text Area configuration

Press the 'FULL'/'SPLIT' soft key to select the desired text configuration: the Text Area can be shown on the screen in two different modes.

3.2.1 Split screen

In this configuration the Text Area is shown on the right side of the screen:

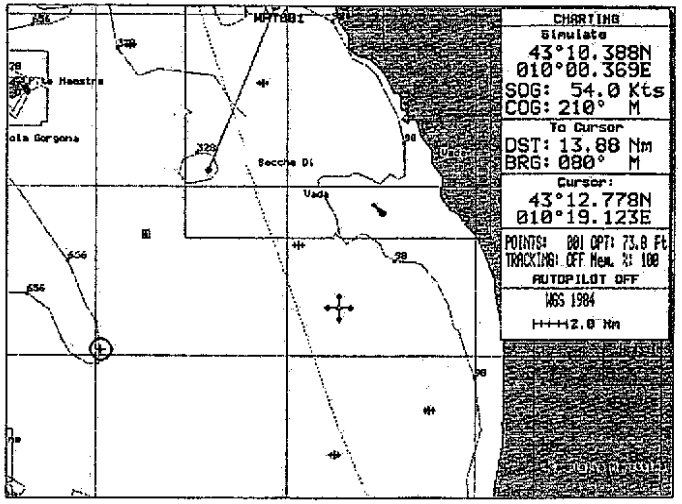


Fig. 3.2.1 - Text Area on right side of the screen

Data displayed is:

- the operation mode, Charting or Navigation:the message "CHARTING" or "NAVIGATION" is displayed.
- the fix coordinates.
- information on speed (SOG) and route (COG) of the ship.
- information on the distance (DST) and bearing (BRG) to Target.
- the cursor or ship coordinates.
- the percentage of user points free.
- the tracking status (ON/OFF).
- the depth information.

- the percentage of track memory free.
- the autopilot status.
- the chart scale and the selected datum. If the displayed map is in Local Datum, the message "Local Datum" is shown.

3.2.2 Full screen

In this configuration the Data Area is shown on the top of the screen (as a text line):

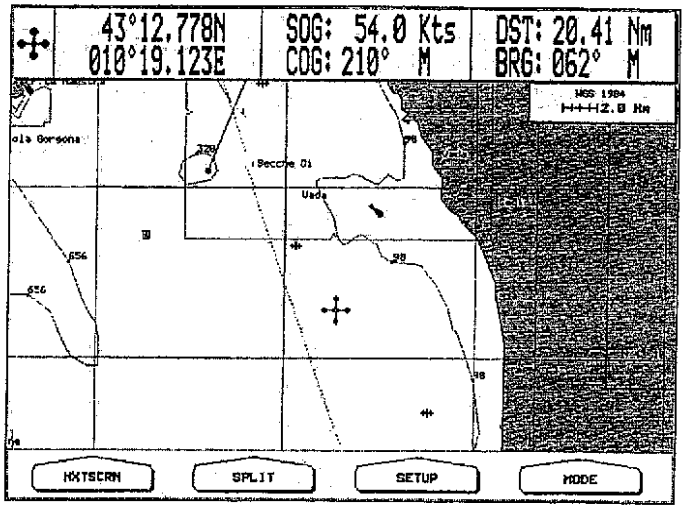


Fig. 3.2.2 - Text Area on the top of the screen

Data displayed is:

- the operation mode, Charting or Navigation: the related icon is shown.
- the cursor or ship coordinates.
- information on speed (SOG) and heading (COG) of the ship.
- information on the distance (DST) and bearing (BRG) to Target.
- the chart scale and the selected datum. If the displayed map is in Local Datum, the message "Local Datum" is shown.

3.3 The 'MODE' soft key: Operation Mode

The chart plotter features two different operation modes: Charting and Navigation. To select the desired mode press the 'MODE' soft key: the 2 modes are selected in a loop. The indication of the selected mode is shown in the Text Area (see par. 3.2).

Chapter

4

Setup Menu

To select the Setup Menu press the 'MENU' key and then the 'SETUP' soft key. On the screen appears:

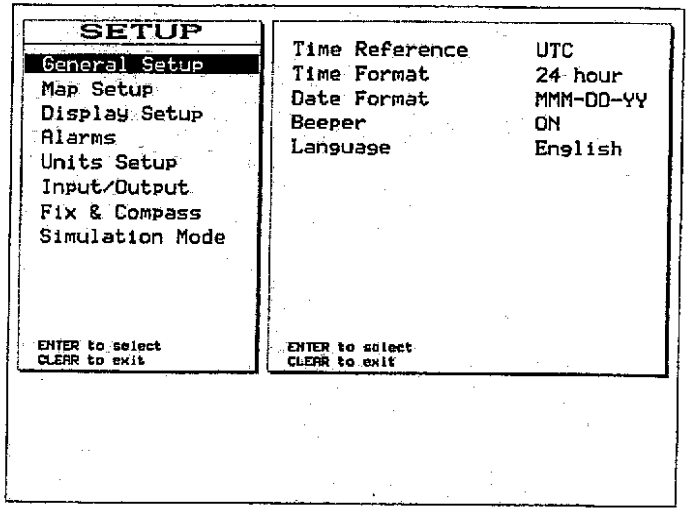


Fig. 4 - Setup Menu

Each one of the 8 menu items, shown in the illustration above, may be displayed in reverse video screen by moving the trackball up and down and selected by pressing the 'ENTER' key (press the 'CLEAR' key to exit from Main Menu). When an item is shown in reverse video, the relative menu is shown in the right side of the screen.

Note for the color chart plotter

For the color chart plotter in the Main Menu another item is present to modify the Mark, Waypoint,

Event and track color, the Color Setup menu. Note that also the color of the existed user points or tracks is changed when you modify the color by menu:

Mark Color : You select the color for the Mark
Event Color : You select the color for the Event
Waypoint Color : You select the color for the Waypoint
Track Color : You select the color for the track line
Alt. Track Color : You select the color for the alternate track

4.1 GENERAL SETUP Menu

Selecting **General Setup** - a window with 5 items is opened on the right side of the screen:

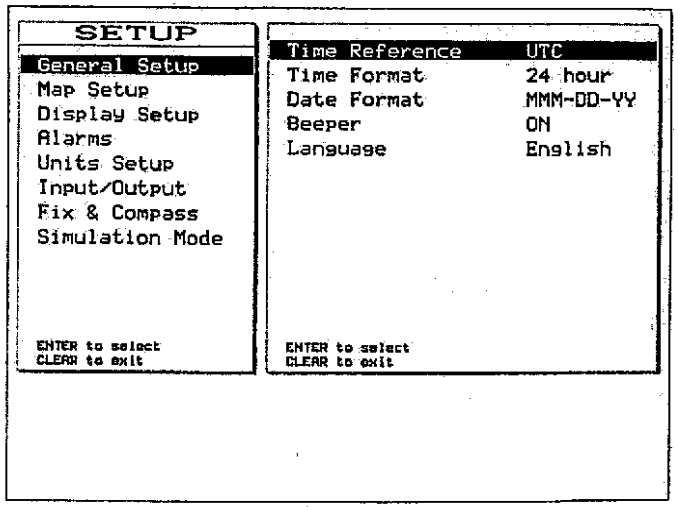


Fig. 4.1 - Setup Menu

Time Reference : specifies either **UTC** (universal time) or **Local**, shown on the screen "+/-00:00"). To insert Local time use the trackball to change offset value to local time. Press 'ENTER' to confirm. The default setting is UTC.

Time Format : sets you preferred time between **12 hour** and **24 hour**. The default setting is 24 hour.

Date Format : sets you preferred date between **MMM-DD-YY** (month-day-year) and **DD-MMM-YY** (day-month-year). The default setting is MMM-DD-YY.

Beeper : enables (**ON**) or disables (**OFF**) the sound after pressing a key ("beep"). The default setting is ON.

Language : selects the language in which you wish information to be displayed. The selected language is used for screen labels, menus and options, but it is not affect the map information. The default setting is ENGLISH.

4.2 MAP SETUP Menu

Selecting **Map Setup** - a window with 5 items is opened on the right side of the screen:

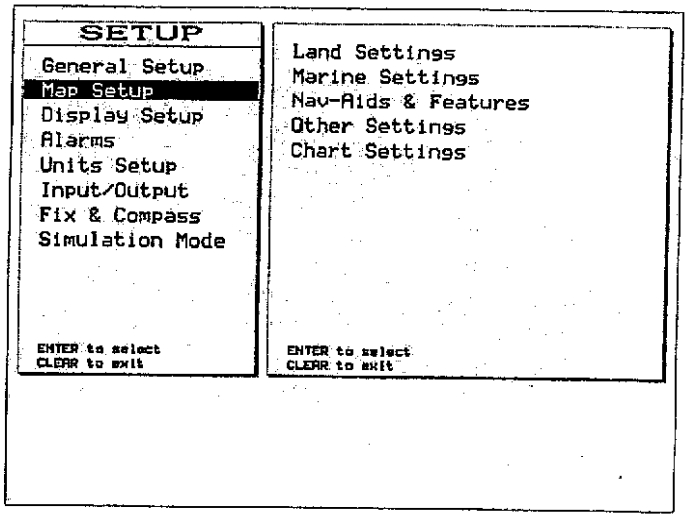


Fig. 4.2 - Map Setup Menu

4.2.1 Land Settings Menu

Selecting **Land Settings** - a window with 4 items is opened on the right side of the screen:

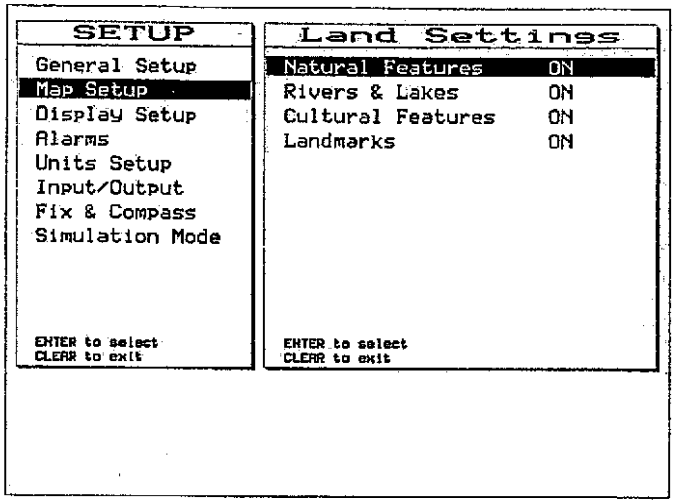


Fig. 4.2.1 - Land Settings Menu

Natural Features : enables (**ON**) or disables (**OFF**) the displaying of the Natural Features. The default setting is ON.

Rivers & Lakes : enables (**ON**) or disables (**OFF**) the displaying of the Rivers and Lakes. The default setting is ON.

Cultural Features : enables (**ON**) or disables (**OFF**) the displaying of the Cultural Features. The default setting is ON.

Landmarks : enables (**ON**) or disables (**OFF**) the displaying of the Landmarks. The default setting is ON.

4.2.2 Marine Settings Menu

Selecting **Marine Settings** - a window with 6 items is opened on the screen:

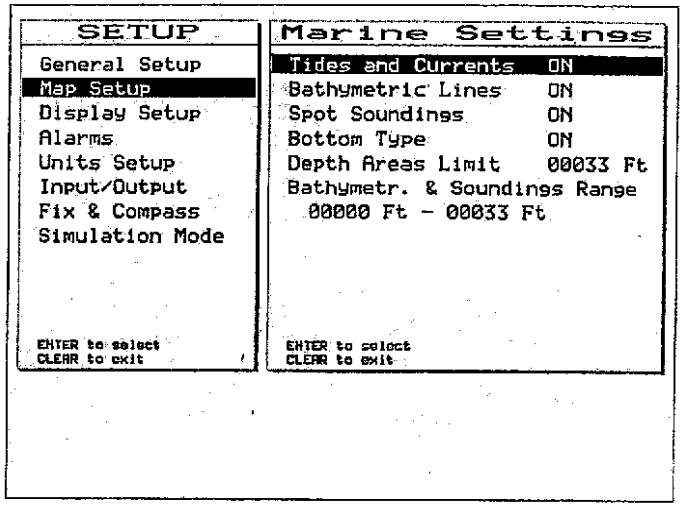


Fig. 4.2.2 - Marine Settings Menu

Tides and Currents : enables (**ON**) or disables (**OFF**) the displaying of the Tides and Currents. The default setting is ON.

Bathymetric Lines : enables (**ON**) or disables (**OFF**) the displaying of the Bathymetric Lines. The default setting is ON.

Spot Soundings : enables (**ON**) or disables (**OFF**) the displaying of the Spot Soundings. The default setting is ON.

Bottom Type : enables (**ON**) or disables (**OFF**) the displaying of the Bottom Type. The default setting is ON.

Depth Areas Limit : sets the desired value (in the range [0 - 30000]) for the Depth Area Limit; when you set a reference depth value the software fills with gray all the bathymetric areas that have starting depth area lower than the reference value. All other bathymetric areas are white. So, if the reference depth is 0, all areas are white, if it is 99.999 all areas are gray. By moving the trackball up/down the selected value is increased/decreased, moving it to the left/ right the cursor is moved; then press 'ENTER' to confirm. The depth unit (Meters (Mt), Feet (Ft) or Fathom (FM)) is selected by Setup + Units Setup (see the par. 4.5). The default setting is 33 Ft.

Note for color chart plotter

For the color chart plotter the Depth Areas are shown on the screen fills with three different shades of blue. Selecting the Min and Max values in the range of Depth Limit, there are three areas: [0, Min] colored with dark blue, [Min, Max] colored in blue and [Max, 12000] colored in light blue.

Bathymetr. & Soundings Range : sets the minimum and maximum value for Bathymetrics and Soundings. After selecting this option by pressing the 'ENTER' key, a window for the desired value selection is opened for the Min Value and for the Max Value. Moving the trackball up/down, the selected value increases/decreases, moving it to the left/right the cursor is moved; then press 'ENTER' to confirm. If the selected depth (selected in Setup + Units Setup, see the par. 4.5) is Metres (Mt) the range is [0 - 12000], if it is Feet (Ft) the range is [0 - 39369], if it is Fathom (FM) the range is [0, 6593]. The default setting is [0 - 33] Ft.

4.2.3 Nav-Aids & Features Menu

Selecting **Nav-Aids & Features** - a window with 7 items is opened on the right side of the screen:

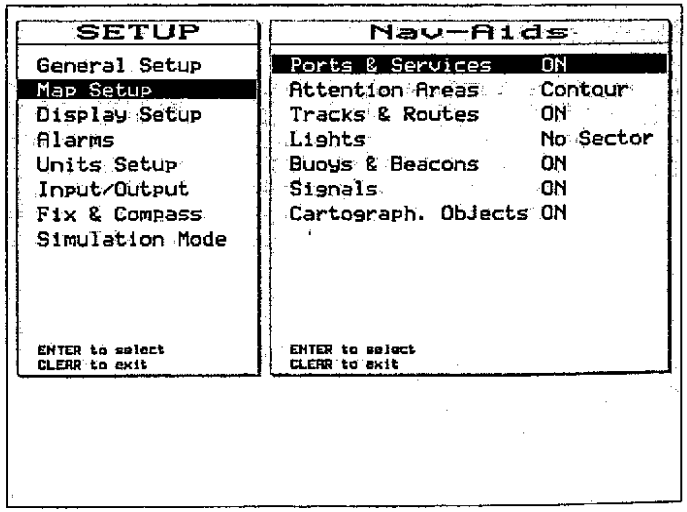


Fig. 4.2.3 - Nav-Aids & Features Menu

Ports & Services : enables (**ON**) or disables (**OFF**) the displaying of the Ports and Services. The default setting is ON.

Attention Areas : enables (**ON**), enables only contour (**Contour**) or disables (**OFF**) the displaying of the Attention Areas. Also for the categories: FISHING FACILITY, MARINE FARM/CULTURE, MILITARY PRACTICE AREA, RESTRICTED AREA, SEAPLANE LANDING AREA, when the setting is contour a special symbol (!) is placed inside the area. When the area is small, it is identified only by the boundary. The default setting is Contour.

Tracks & Routes : enables (**ON**) or disables (**OFF**) the displaying of the Tracks & Routes. The default setting is ON.

Lights : enables (**ON**), enables without sectors (**No Sector**) or disables (**OFF**) the displaying of Lights. The default setting is No Sector.

Buoys & Beacons : enables (**ON**) or disables (**OFF**) the displaying of the Buoys and Beacons. The default setting is ON.

Signals : enables (**ON**) or disables (**OFF**) the displaying of the Signals. The default setting is ON.

Cartograph. Objects : enables (**ON**) or disables (**OFF**) the displaying of the Cartographic Objects. The default setting is ON.

4.2.4 Other Settings Menu

Selecting **Other Settings** - a window with 6 items is opened on the right side of the screen:

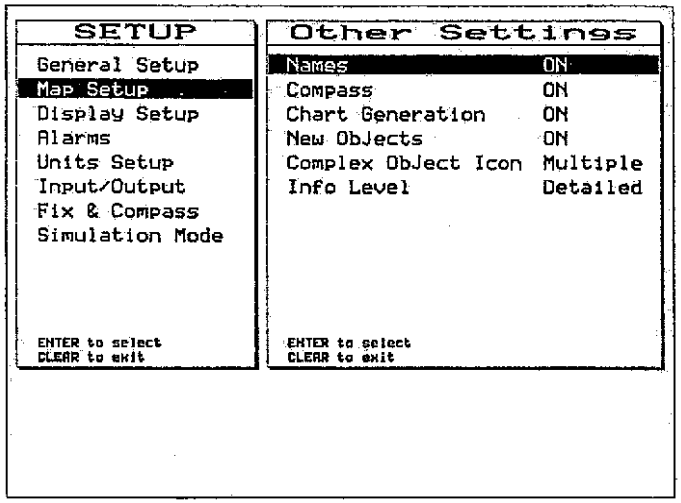


Fig. 4.2.4 - Other Settings Menu

Names : enables (**ON**) or disables (**OFF**) the displaying of the Names. The default setting is ON.

Compass : enables (**ON**) or disables (**OFF**) the displaying of the Compass. The default setting is ON.

Chart Generation : enables (**ON**) or disables (**OFF**) the displaying of the Chart Generation. The default setting is ON.

New Objects : enables (**ON**) or disables (**OFF**) the displaying of the Chart Generation. The default setting is ON.

Complex Object Icon : moves between **Multiple** and **Single**. By selecting the Complex Object Icon as Multiple (Complex Object Icon Multiple), an object is shown by a single icon which represented the componed symbols; by selecting Single the object is represented by its all component symbols. The default setting is Multiple.

Info Level : sets the desired information degree, between **Detailed** and **Basic**. By selecting the Basic level, information obtained by the Info function about an object is related on the particular characteristics of that object, while by selecting Detailed (Info Level Detailed) the information is enriched with more details. The default setting is Deatiled.

4.2.5 Chart Settings Menu

Selecting **Chart Settings** - a window with 4 items is opened on the right side of the screen:

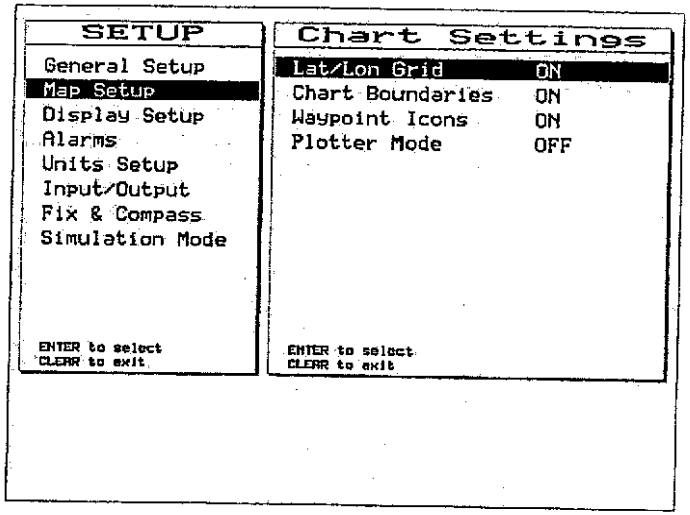


Fig. 4.2.5 - Chart Settings Menu

Lat/Lon Grid : enables (**ON**) or disables (**OFF**) the displaying of the Latitude and Longitude Grids. The default setting is ON.

Chart Boundaries : enables (**ON**) or disables (**OFF**) the displaying of the Chart Boundaries, while by selecting **Auto** if we are in background charts only the first charts level contained in the C-CARD are displayed, if we are in a chart level contained in the C-CARD the next four chart levels are displayed. The default setting is ON.

Waypoints Icons : enables (**ON**) or disables (**OFF**) the displaying of the Waypoint Icons. The default setting is ON.

Plotter Mode : enables (**ON**) or disables (**OFF**) the Plotter Mode. The default setting is OFF.

4.3 DISPLAY SETUP Menu

Selecting **Display Setup** - a window with 8 items is opened on the right side of the screen:

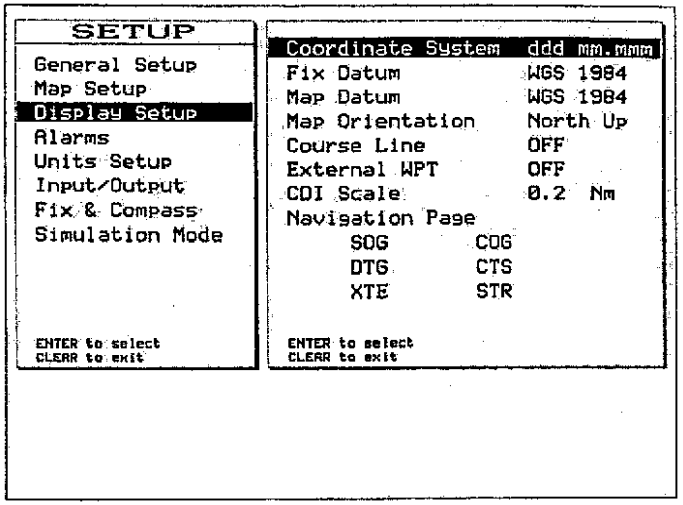


Fig. 4.3 - Display Setup Menu

Coordinate System : sets your desired Coordinate System among **ddd mm ss, ddd mm.mm, ddd mm.mmm, UTM** (UTM = Universal Transverse Mercator), **OSGB** (OSGB), **TD** (TD = Time Difference). The default setting is ddd mm.mmm.

Fix Datum : selects the Fix Datum among 130 items (the list of all Fix Datum available is shown in the Part A of C-MAP Handbook). WGS 1984 is the default Fix Datum.

Map Datum : selects the Map Datum among 130 items (the list of all Map Datum available is shown in the Part A of C-MAP Handbook)) WGS 1984 is the default Map Datum.

Map Orientation : sets the map orientation among **North Up** (the chart is displayed with North upwards) or **Track Up** (the chart is displayed with the vessel's current heading upwards). The default setting is North Up. If you select the Track Up, a window is opened on the screen to insert the resolution angle for the Map Rotation in the range [5, 30] degrees. Move the trackball up/down to insert the value and moving it to the left/right to move cursor; press 'ENTER' to confirm. The default setting is 15°.

Course Line : sets you preferred time among **OFF, 2 min., 10 min., 30 min., 1 hour, 2 hours.** The default setting is OFF.

External WPT : enables (**ON**) or disables (**OFF**) the displaying of the External Waypoint. The default setting is OFF.

CDI Scale : sets you preferred CDI (CDI = Course Deviation Indicator) Scale among **0.2, 0.5, 1.0, 2.0, 4.0, 10.0.** The default setting is 0.2.

Navigation Page : selects the desired data for the Navigation Page, choose **BRG** (BRG = Bearing), **SOG** (SOG = Speed Over Ground), **COG** (COG = Course Over Ground), **STR** (Steering), **CTS** (CTS = Course To Steer), **TRN** (TRN = Turning), **DTG** (DTG = Distance To Go), **VMG** (VMG = Velocity May Good), **SOA** (SOA = Speed Of Advance), **XTE** (XTE = Cross Track Error). The default setting is SOG, COG, DTG, CTS, XTE, STR.

4.4 ALARMS Menu

Selecting **Alarms** - a window with 4 items is opened on the right side of the screen:

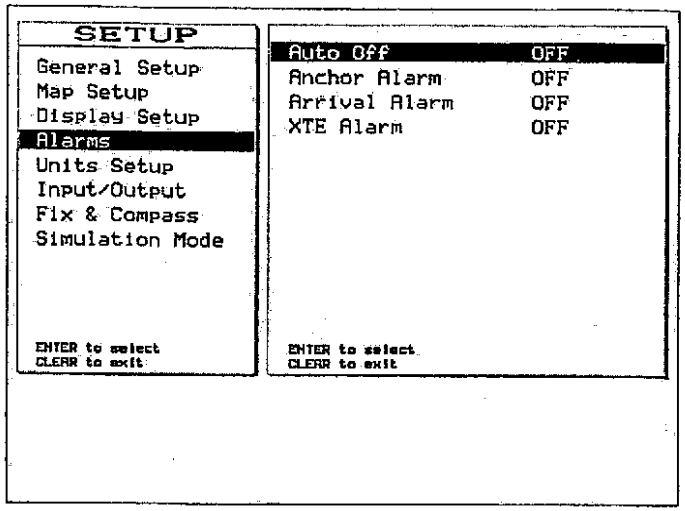


Fig. 4.4 - Alarms Menu

Auto Off : enables (**ON**) or disables (**OFF**) the automatic shutdown of the alarms when the alarm condition disappears. The default setting is OFF.

Anchor Alarm : disables (**OFF**) or sets the alarm radius for Anchor Circle, that is shown on the screen as **0.00 NM**. To insert the desired value use the trackball. Then press 'ENTER' to confirm. The default setting is OFF.

Arrival Alarm : disables (**OFF**) or sets the alarm radius for Target Circle, that is shown on the screen as **0.00 NM**. To insert the desired value use the trackball. Then press 'ENTER' to confirm. The default setting is OFF.

XTE Alarm : disables (**OFF**) or sets the alarm distance for the Off Course (XTE), that is shown on the screen as **0.00 NM**. To insert the desired value use the trackball. Then press 'ENTER' to confirm. The default setting is OFF.

4.4.1 Alarms General Conditions

The following alarms conditions may be heard:

1. Anchor Alarm: when the ship moves outside the Anchor Circle, the chart plotter emits a beep and a pop-up window is opened.
2. Arrival Alarm: when the ship enters into the Target circle, the chart plotter emits a beep and a pop-up window is opened.
3. XTE Alarm: when the ship is off course by more than the value set by the user, setting the "XTE ALARM" option (see par. 4.4), the chart plotter emits a beep and on the screen a window is displayed.

4.5 UNITS SETUP Menu

Selecting **Units Setup** - a window with 3 items is opened on the right side of the screen:

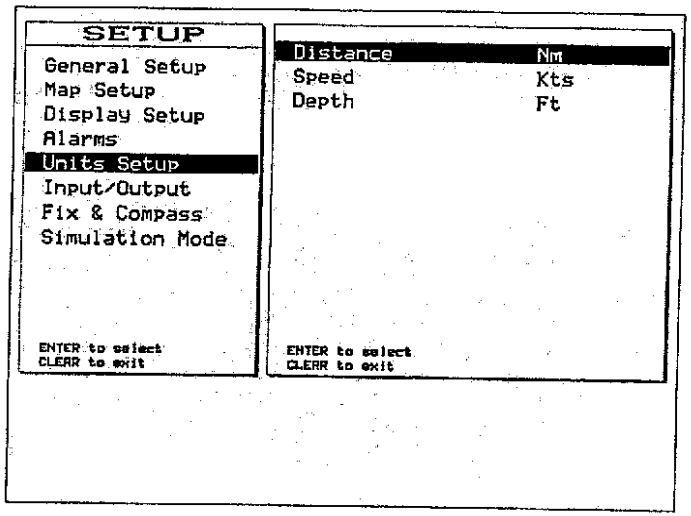


Fig. 4.5 - Units Setup Menu

Distance : sets the distance unit either **Nm** = nautical miles, **Sm** = status miles **Km** = kilometers. The default setting is Nm.

Speed : sets the speed unit either **Kts** = knots, **Mph** = miles per hour **Kmh** = kilometers per hour. The default setting is Kts.

Depth : sets the depth unit either **Ft** = Feet, **Fm** = Fathoms and **Mt** = Meters. The default setting is Ft.

4.6 INPUT/OUTPUT Menu

Selecting **Input/Output** - a window with 4 items is opened on the right side of the screen:

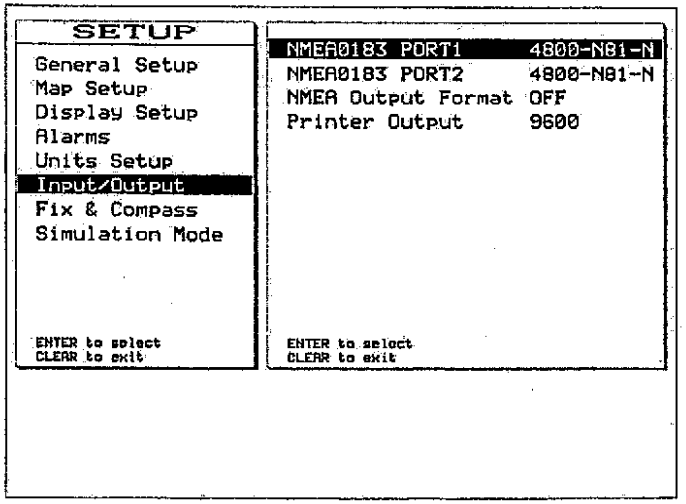


Fig. 4.6 - Input/Output Menu

NMEA0183 PORT1 : sets the format for the navigation data input PORT1 (POWER & I/O). For example to set the Port as NMEA0183 (4800 Baud Rate, Parity None, 8 Bits Number, 1 Stop Bit and Normal Polarity) you must select 4800-N81-N. The available choice is among (**1200-N81-N**), (**1200-N81-I**), (**4800-N81-N**), (**4800-N81-I**), (**9600-O81-N**), (**9600-O81-I**), . The default setting is (4800-N81-N).

NMEA0183 PORT2 : sets the format for the navigation data input PORT2 (GPS). See the previous item.

NMEA Output Format : sets the format for the NMEA Output, among **OFF**, **0183**, **0180**, **0180/CDX**. The default setting is OFF.

Printer Output : sets the desired value for the baud rate to the output printer either **300**, **600**, **1200**, **2400**, **4800**, **9600**. The default setting is 4800.

4.7 FIX & COMPASS Menu

Selecting **Fix & Compass** - a window with 10 items is opened on the right side of the screen:

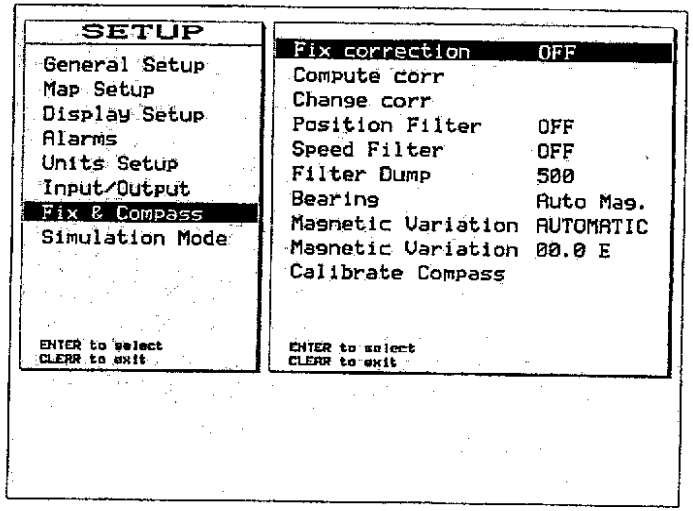


Fig. 4.7 - Fix & Compass Menu

Fix correction : enables (**ON**) or disables (**OFF**) the Correction from the positioning device. If a new Correction is calculated, but the Correction is not enabled, the ship's position will not change. The default setting is OFF.

Compute corr : automatically corrects fixes from the positioning instrument. By placing the cursor on the ship's real position and selecting this option, the error is calculated and internally memorized for appropriate correction, but not applied.

Change corr : manually corrects fixes from the positioning instrument. Once this option is selected, a window with the cursor coordinates is opened on the screen; move the trackball up/down to set the desired value, move it to the left /right sets the cursor to the desired field, press the 'ENTER' key to accept.

Position Filter : enables (**ON**) or disables (**OFF**) the Position

Filter. The default setting is OFF.

Speed Filter : enables (**ON**) or disables (**OFF**) the Speed Filter. The default setting is OFF.

Filter Dump : sets the Filter step. After selecting this option, a window to insert the desired value is opened on the screen. Move the trackball up/down to insert the desired value, move it to the left/right to move the cursor to the desired field, press the 'ENTER' key to accept. The default setting is 500.

Bearing : selects either degrees magnetic, **Auto Mag.**, or degrees true, **True**. If magnetic readings are selected the variation is computed automatically for every zone as soon as the chart displayed. The default setting is Auto Mag.

Magnetic Variation : it is possible to calculate the Magnetic Variation in an automatic, **AUTOMATIC**, or manual mode, **MANUAL**. The default setting is AUTOMATIC.

Magnetic Variation : inserts the step for calculation of Magnetic Variation, that appears on the screen as **00.0 E/O**. To insert the desired value use the trackball: move it up/down the selected value is increased/decreased, move it to the left/right the cursor is moved to the left/right. Then press 'ENTER' to confirm.

Calibrate Compass : when selected a window with the Compass Calibration is opened.

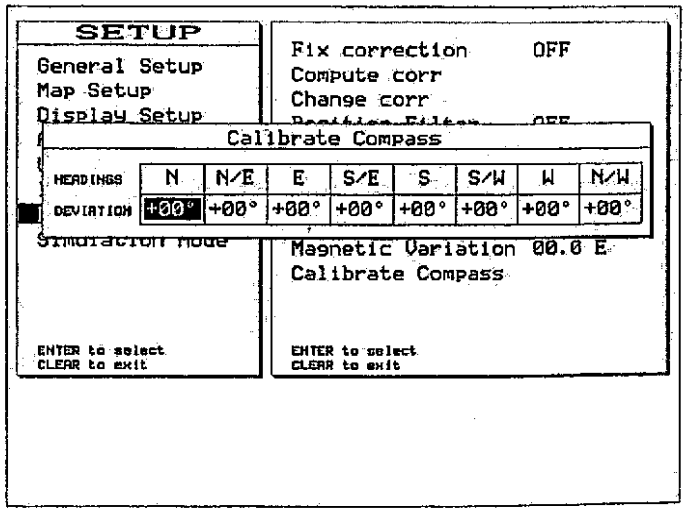


Fig. 4.7a - Compass Calibration Menu

To modify the Compass Calibration use the trackball: move the key to the left/right to move the cursor, then press 'ENTER' and move the trackball up/down to increase/decrease the amount highlighted by the cursor.

4.8 SIMULATION Menu

Selecting **Simulation Mode** - a window with 3 items is opened on the right side of the screen:

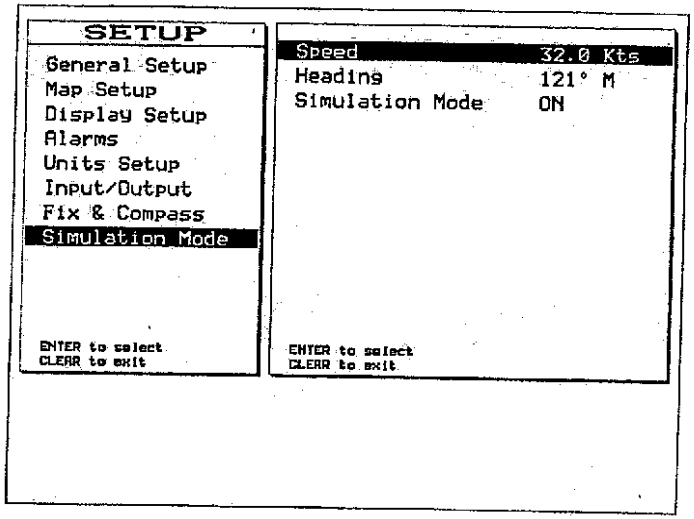


Fig. 4.8 - Simulation Mode Menu

Speed : sets the desired value for speed, that is shown as **01.0 Kts**. To insert value use the trackball: move it up/down to increase/decrease value, move it to the left/right to move the cursor left/right. Then press 'ENTER' to confirm. The default setting is 01.0 Kts.

Heading : sets the desired value for heading, that is shown as **000° M.** To insert value use the trackball: move it up/down to increase/decrease value, move it to the left/right to move the cursor left/right. Then press 'ENTER' to confirm. The default setting is 000° M.

Simulation Mode : activates (**ON**) or deactivates (**OFF**) the Simulation. The activation is possible only if values for required settings for speed and heading have been set. The default setting is OFF.

Chapter

5

Soft Keys Functions

As explained before, the 4 "soft" keys are called soft because they can have different functions when you select different modes of operation. These keys do not have labels printed on them, but the labels for the current functions are displayed on the screen above the keys. If no labels are shown, press one of the soft keys to make them appear. The labels automatically disappear again if you do not press a key .

5.1 EVENT

Using the 'EVENT' soft key it is possible to insert an Event, a marker directly related to the ship's position:

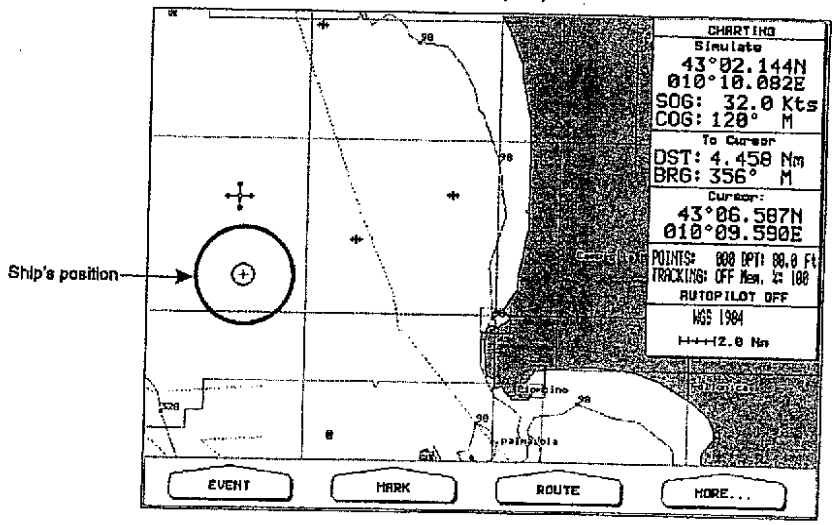


Fig. 5.1 - 'EVENT' soft key

5.1.1 CREATE EVENT Function

Press the 'EVENT' soft key again, a window to insert the Name and the Symbol of the Event point appears:

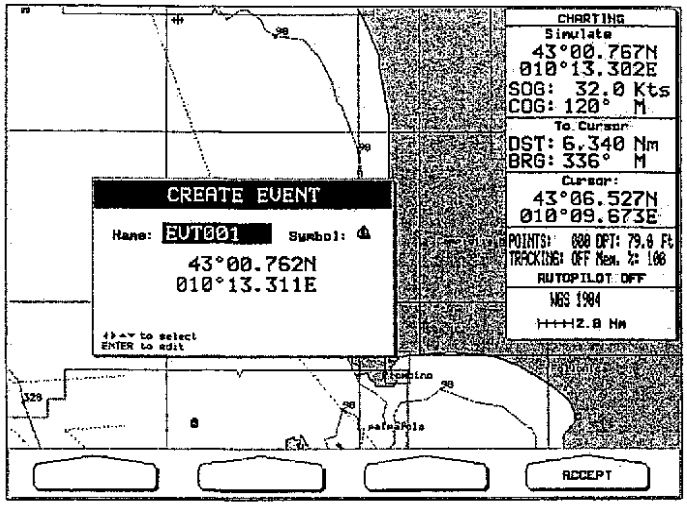


Fig. 5.1.1 - Event creation (I)

Use the trackball to select the desired field. If you have selected Name, press the 'ENTER' key to edit this field: use the trackball to insert the desired character (8 characters max), then press 'ENTER' key again. Select the Symbol field and then press 'ENTER' to edit: a window with 16 different symbols appears on the screen. Use the trackball to select the desired symbol and press 'ENTER'. Then press 'ACCEPT' soft key: a symbol appears on the screen, marking the boat's position:

Event symbol

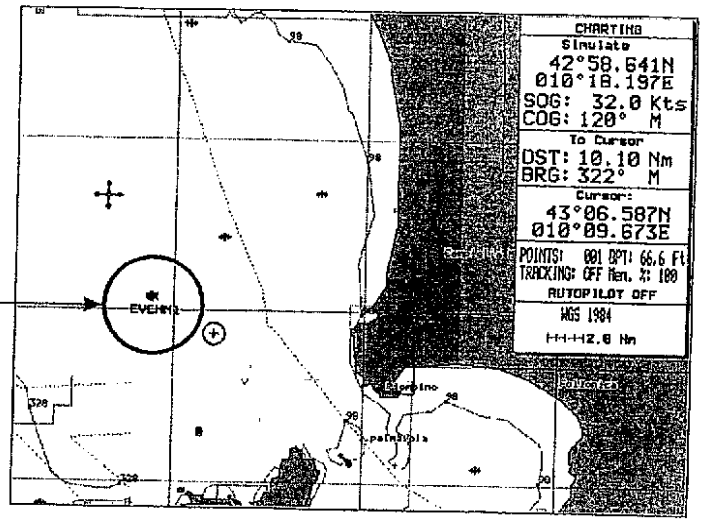


Fig. 5.1.1a - Event creation (II)

By placing the cursor on the Event symbol, a window showing information on the user point is opened:

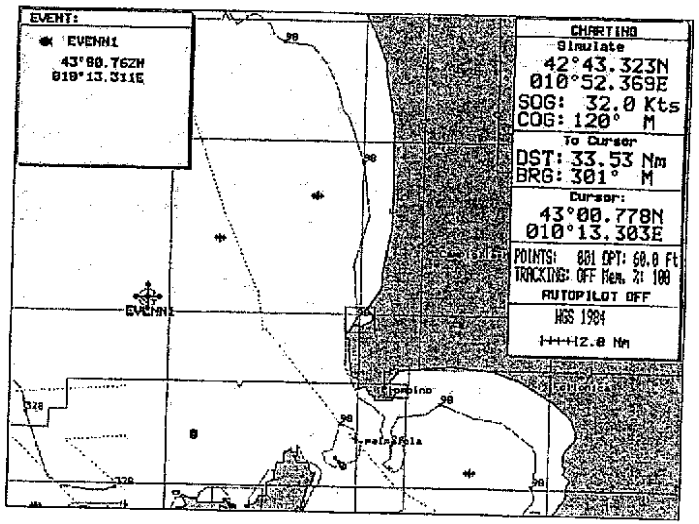


Fig. 5.1.1b - Event with info window

5.1.2 DELETE EVENT Function

To delete an Event, place the cursor on it: the info window appears on the screen. Then press the 'MARK'soft key and then the 'DELETE'soft key: a window to confirm the deletion appears on the screen. Select "YES" and the press 'ENTER': the Event disappears from the screen.

5.2 MARK

Using the 'MARK'soft key it is possible to place a reference point, called Mark, related to the cursor position.

5.2.1 CREATE MARK Function

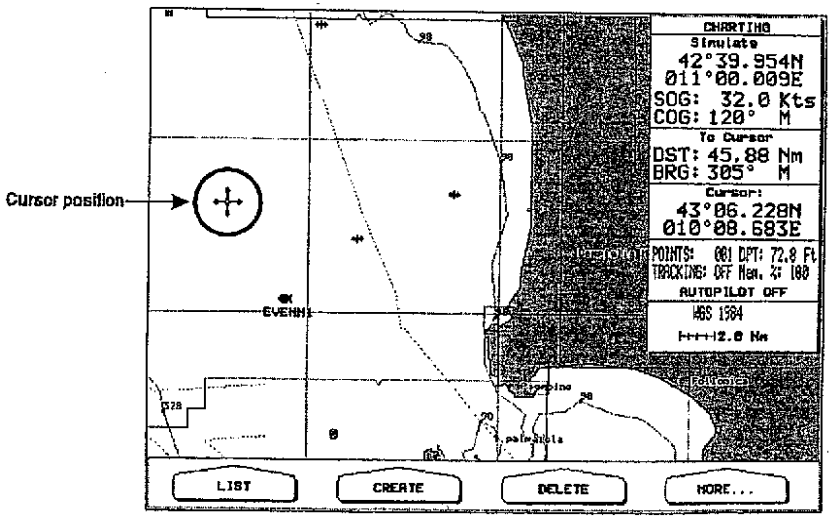


Fig. 5.2.1 - Mark creation (I)

By pressing the 'CREATE'soft key, a window to insert the Name, the Symbol and the coordinates of the Mark point appear:

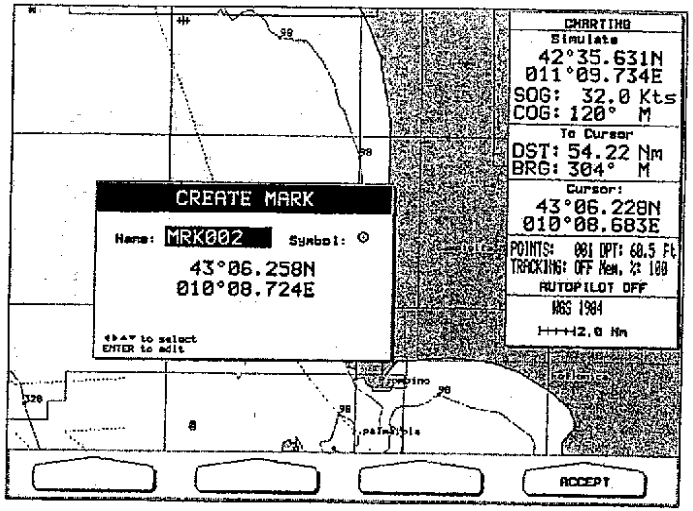


Fig. 5.2.1a - Mark creation (II)

Use the trackball to select the desired field. If you have selected Name, press the 'ENTER' key to edit this field: use the trackball to insert the desired character (8 characters max), then press 'ENTER' key again. Select the Symbol field and then press 'ENTER' to edit: a window with 16 different symbols appears on the screen. Use the trackball to select the desired symbol and press 'ENTER'. Select the coordinates field, press 'ENTER' and then use the trackball to insert the desired value. Then press 'ACCEPT' soft key: a symbol appears.

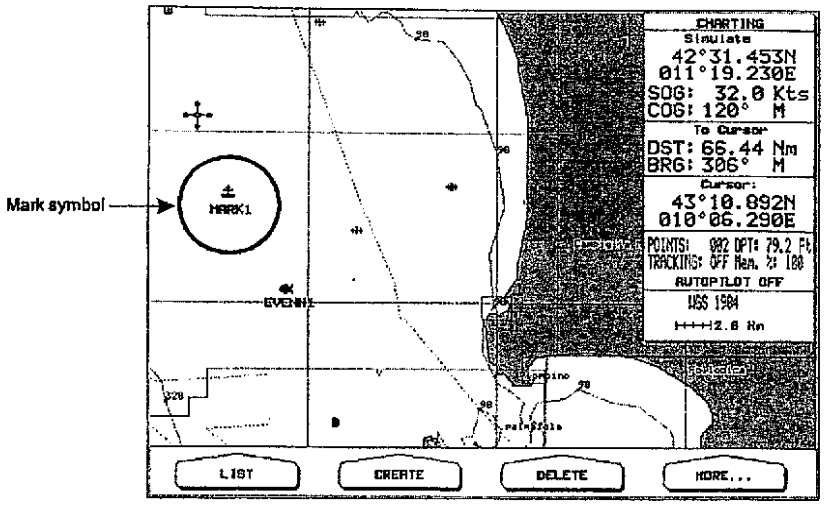


Fig. 5.2.1b - Mark creation (III)

When the cursor is placed on the Mark symbol, an info window appears:

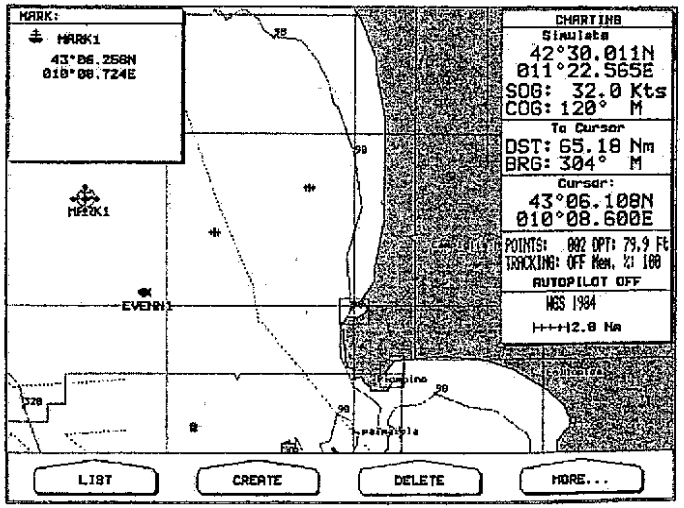


Fig. 5.2.1c - Mark with info window

5.2.2 DELETE MARK Function

To delete a Mark, place the cursor on it: the info window appears on the screen. Then press the 'DELETE' soft key: a window to confirm the deletion appears on the screen. Select "YES" and then press 'ENTER': the Mark disappears from the screen.

5.2.3 EDIT MARK Function

To edit a Mark, place the cursor on it and the press the 'MORE...' and 'EDIT' soft keys. An information window on the existing Mark appears on the screen:

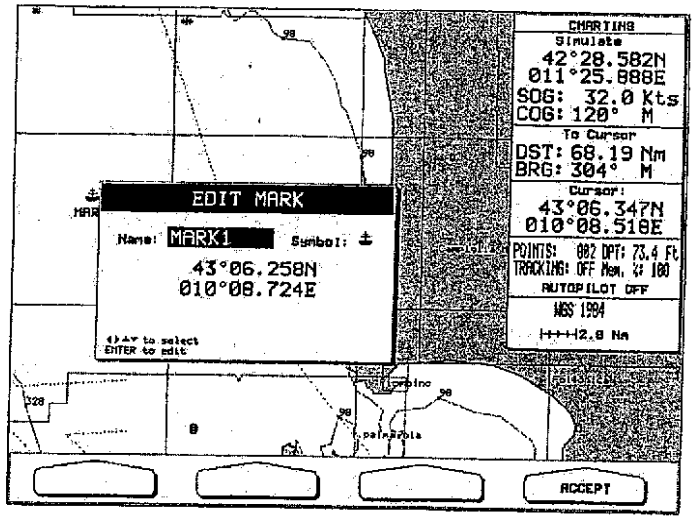


Fig. 5.2.3 - Edit Mark

It is possible to modify the label, symbol and coordinates of the existing Mark. See the previous par. 5.2.1.

5.2.4 MOVE MARK Function

The chart plotter allows you to move on the screen already existing Marks to place them in new positions.
Place the cursor on the existing Mark and then press the 'MORE...' and 'MOVE' soft keys.

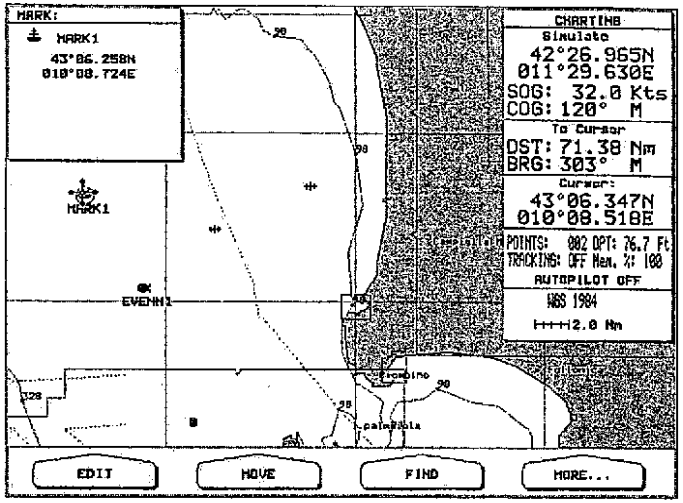


Fig. 5.2.4 - Move Mark function (I)

Now it is possible to move Mark on the screen, with its identifier, to place it on the new position. By moving the cursor with the trackball, a dotted line that connects the Mark with the new position is shown on the screen:

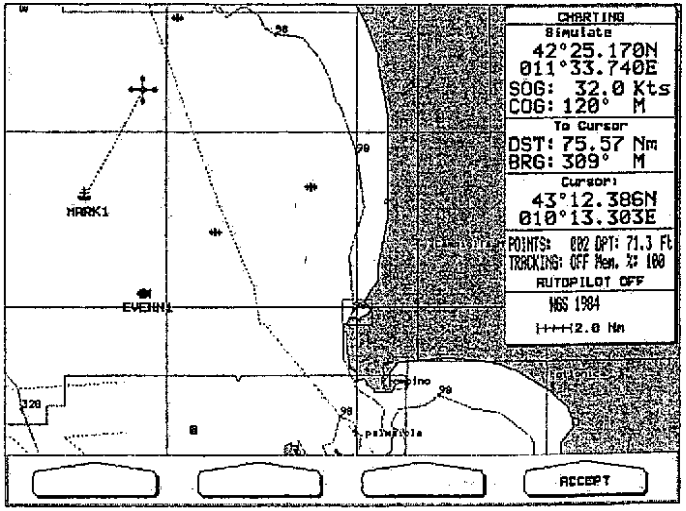


Fig. 5.2.4a - Move Mark function (II)

Press the 'ACCEPT' soft key to confirm the new position:

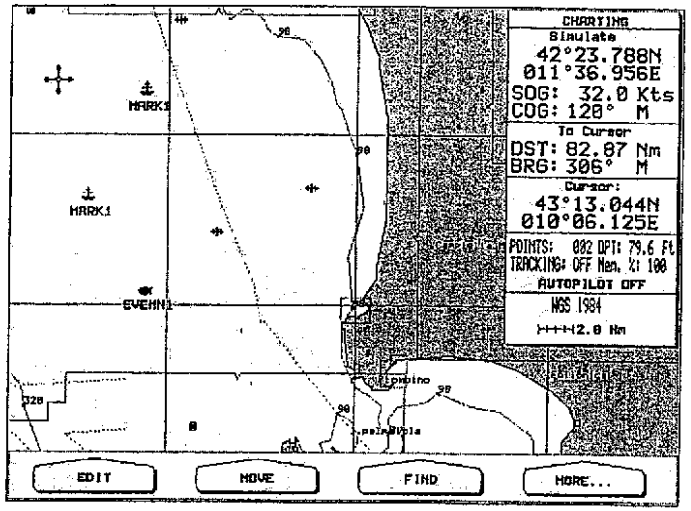


Fig. 5.2.4b - Move Mark function (III)

The Mark is placed on the new position, the "old" Mark, remains on the screen colored by gray until the screen is redrawn.

5.2.5 FIND MARK Function

You can find a Mark on the screen given its label. After pressing the 'MORE...' and 'FIND' soft keys, on the screen a window is opened:

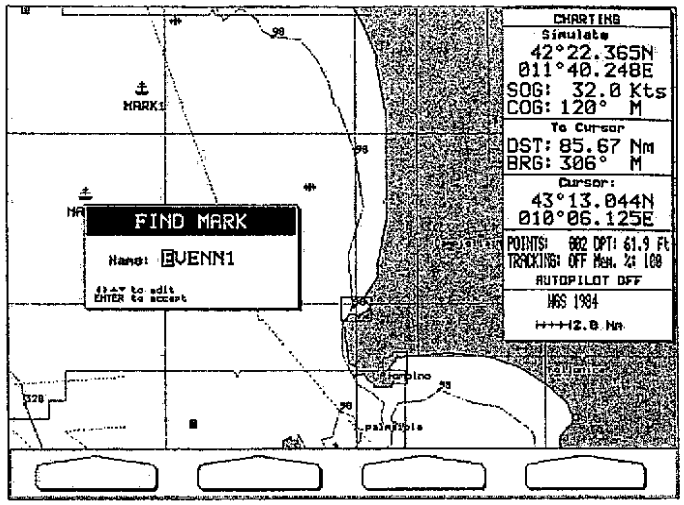


Fig. 5.2.5 - Find Mark function (I)

Using the trackball insert the desired Name and then press 'ENTER'. For example, if the Name is MARK1, the cursor is placed on this Mark, and the info window is opened on the screen:

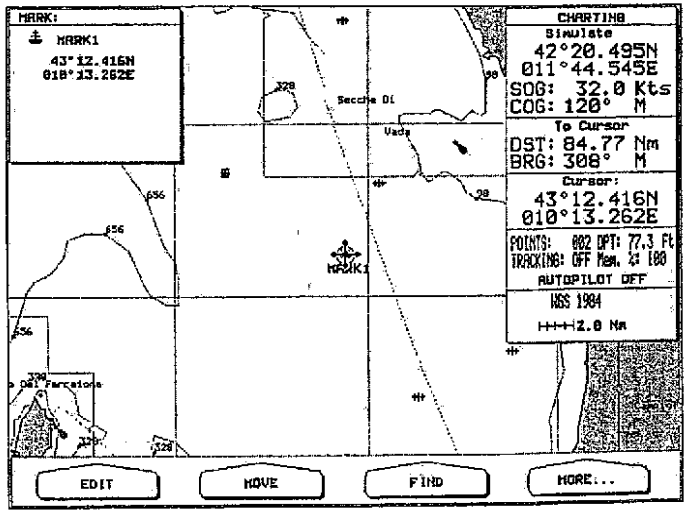


Fig. 5.2.5a - Find Mark function (II)

5.2.6 LIST USER POINTS Function

After pressing the 'LIST' soft key, a full window is opened, that gives information about all stored user points (Marks, Events and Waypoints). Each point shows: the symbol, the name, type, the Latitude and the Longitude, the distance and bearing from the cursor (if in Charting) or from the ship's position (if in Navigation). By moving up and down the trackball it is possible to select the user point you wish. If the page contains more than 8 user points, the list continues in the next pages.

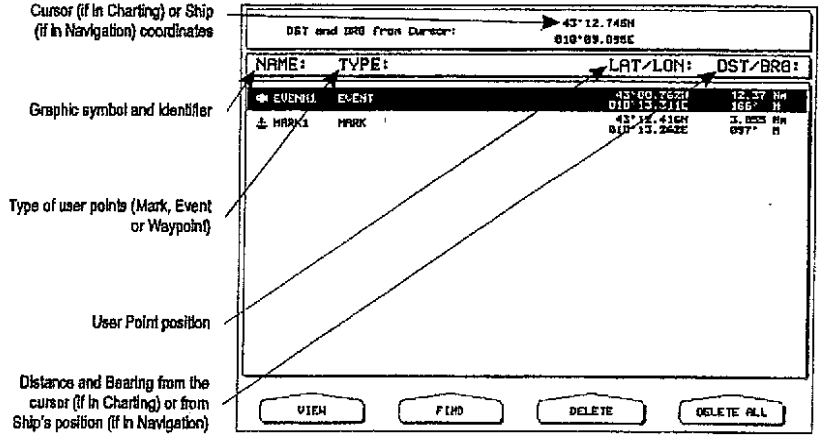


Fig. 5.2.6 - List User Points

VIEW : displays the selected point. After pressing the 'VIEW' soft key, the chart plotter exits from the User Points List page and redraws the chart, showing the selected point, with the cursor placed on it: the window that contains the coordinates, the symbol and the identifier of the user point is opened on the screen. Press 'CLEAR' to exit.

FIND : finds (in the page) the desired point. After pressing the 'FIND' soft key, a window appears to insert the Name. Press 'ENTER', then the chart plotter shows the desired point on the user point list.

DELETE : deletes the selected point. After pressing the 'DELETE' soft key, a warning message is shown

on the screen, select **YES** and press 'ENTER' to confirm deletion.

DELETE ALL : deletes all the existed user points. After pressing the 'DELETE ALL' soft key, a warning message is shown on the screen, select **YES** and press 'ENTER' to confirm deletion.

5.3 ROUTE

The 'ROUTE' soft key allows to handle the route management, enabling the Waypoint placing.

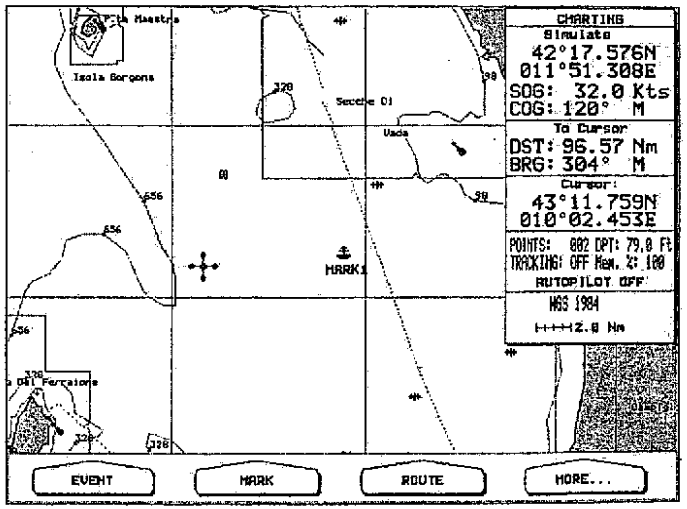


Fig. 5.3 - 'ROUTE' soft key

5.3.1 SELECT ROUTE Function

The 'SELECT' soft key allows to select the route to edit. After pressing this key:

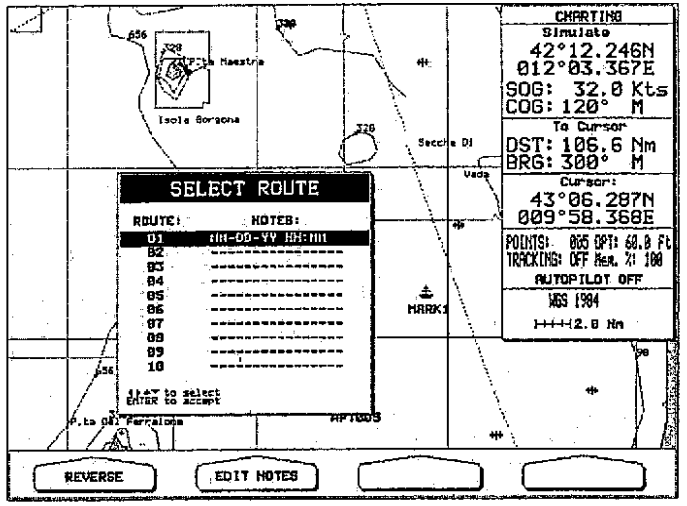


Fig. 5.3.1 - Select route function (I)

Rotate the trackball up/down to select the desired route number (1 - 20) and then press the 'ENTER' key to confirm. The selected route, shown by straight segments, is centered in the screen, with the cursor placed on the central Waypoint of the route:

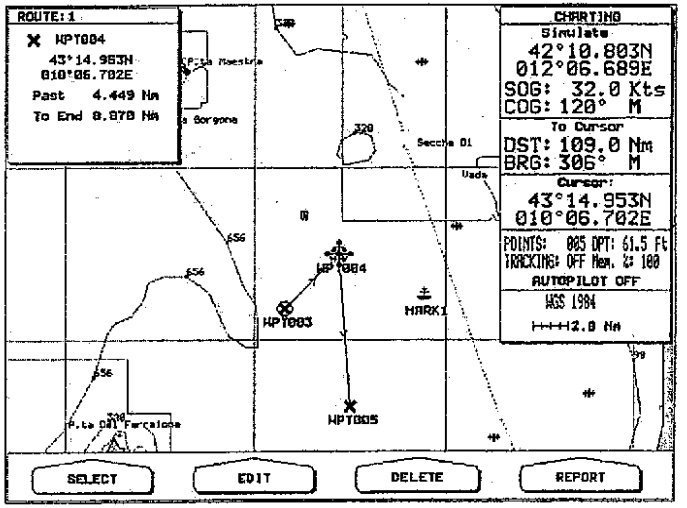


Fig. 5.3.1a - Select route function (II)

REVERSE ROUTE Function

It is possible to follow a route plan in reverse by pressing the 'REVERSE' soft key. Reversing a route plan is most tipically used to return to the point where the voyage originally started, perhaps several days after having arrived at the final destination.
After pressing the 'REVERSE' soft key, a window is opened on the screen to advise that the selected route direction has been inverted: the first Waypoint of the route becames the last and vice versa.

EDIT NOTES Function

To modify the route notes (date and time) that appears in the "SELECT ROUTE" window, press the 'EDIT NOTES' soft key: another window is opened on the screen:

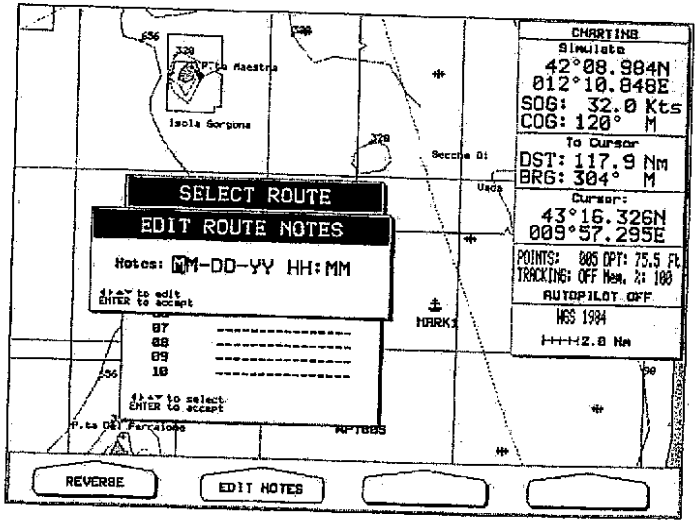


Fig. 5.3.1b - Edit Notes

Use the trackball to insert the desired date (MM-DD-YY) and time (HH:MM). Press 'ENTER' to confirm.

5.3.2 EDIT ROUTE Function

To modify the selected route or to create a new one, press the 'EDIT' soft key. On the screen appears:

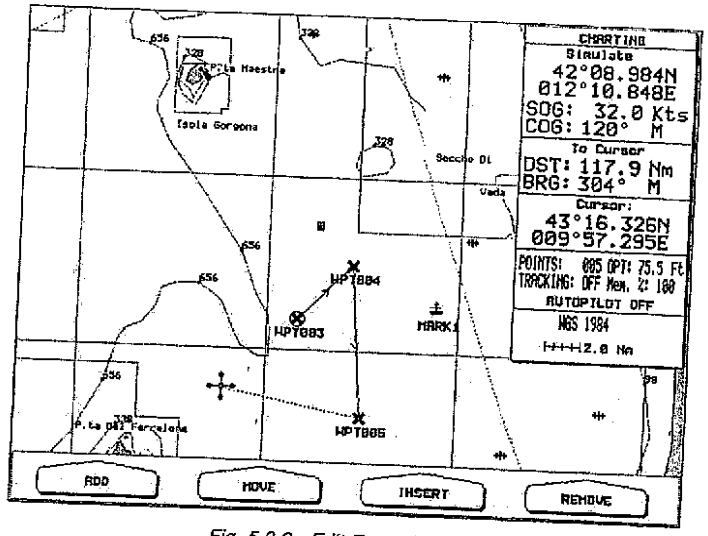


Fig. 5.3.2 - Edit Route function

ADD WAYPOINT Function

Press the 'ADD' soft key to insert a Waypoint on the place identified by the cursor (if the route exists, the Waypoint is place at the end of the route)

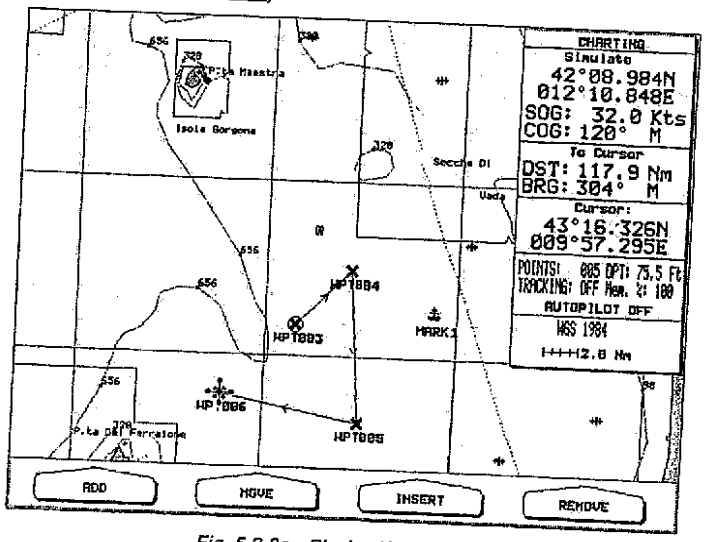


Fig. 5.3.2a - Placing Waypoint (I)

The sequence of moving the cursor and pressing the 'ADD' soft key is continued to create the route. Segments connecting the new Waypoint and the last one in the route are shown, and a circled point indicates the first Waypoint of the route.

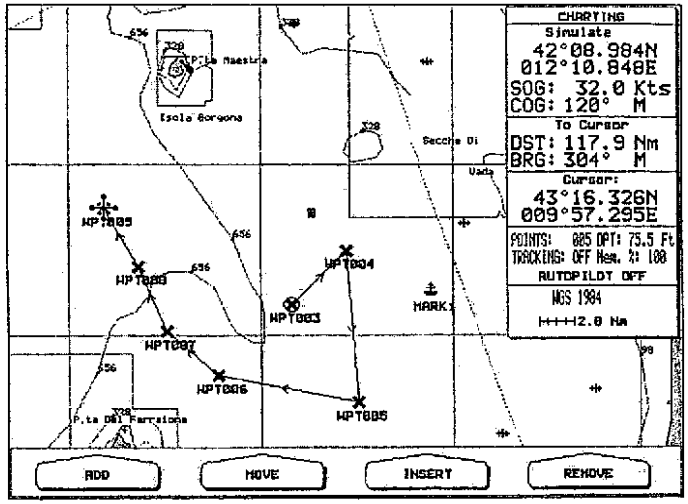


Fig. 5.3.2b - Route planning

MOVE WAYPOINT Function

The chart plotter allows you to move on the display existing Waypoints to place them in new positions. To move a Waypoint, place the cursor on existing Waypoint and then press the 'MOVE' soft key:

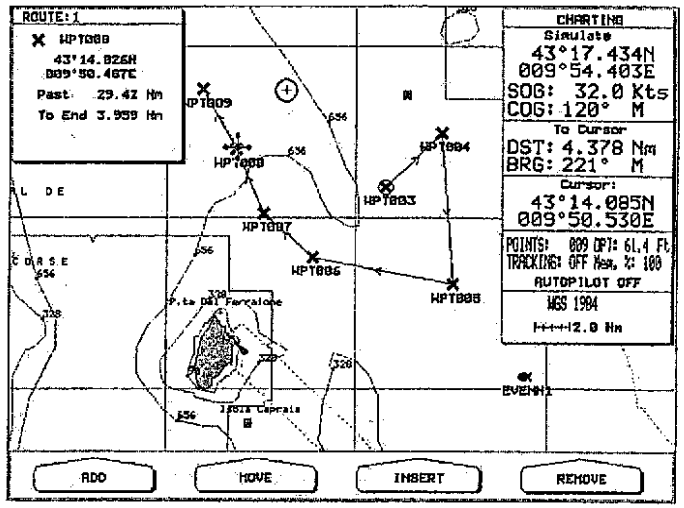


Fig. 5.3.2c - Moving Waypoint function (I)

It is possible to move a Waypoint on the display and place it on a new position. When moving the cursor with the trackball, on the screen a dotted line "rubber bands" the Waypoint to the new position as shown:

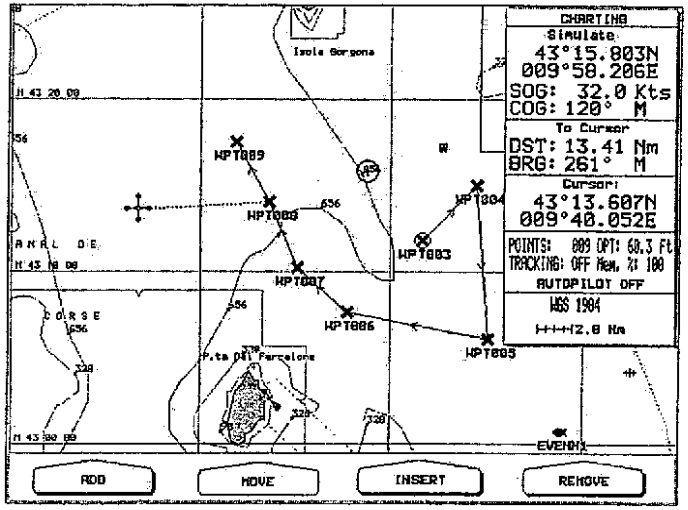


Fig. 5.3.2d - Moving Waypoint function (II)

Choose the new position and press 'ENTER' key. On the screen the Waypoint is placed at the new position:

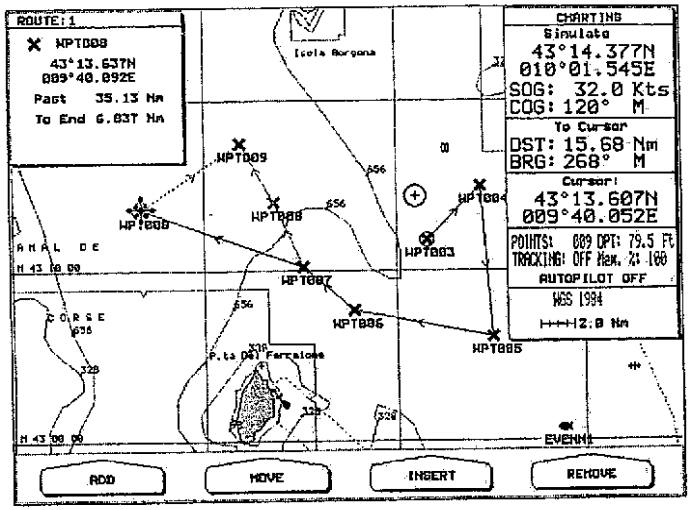


Fig. 5.3.2e - Moving Waypoint function (III)

INSERT WAYPOINT Function

It is possible to insert a Waypoint between two existing Waypoints of a route by placing the cursor on the route segment and pressing the 'INSERT' soft key:

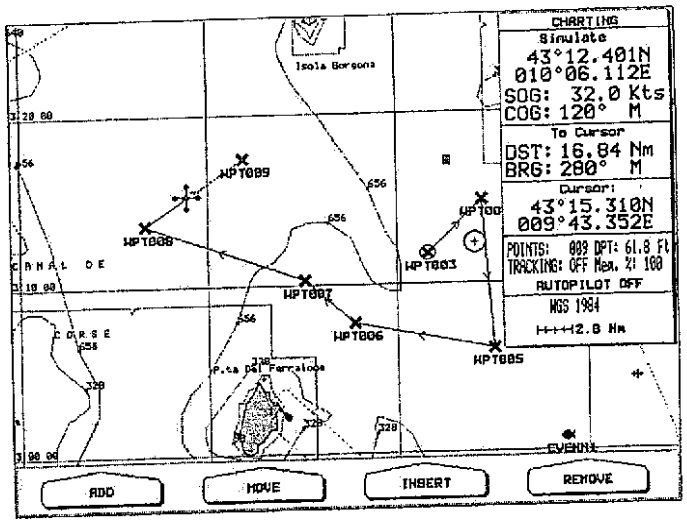


Fig. 5.3.2f - Placing Waypoint between two existing ones (I)

The line between the two Waypoints changes into a dotted line and the cursor can be moved to the new position. When the cursor is stationary for a second or two, the line will "rubber-band", drawing a dotted line between the last Waypoint and the cursor, and another dotted line between the cursor and the next Waypoint:

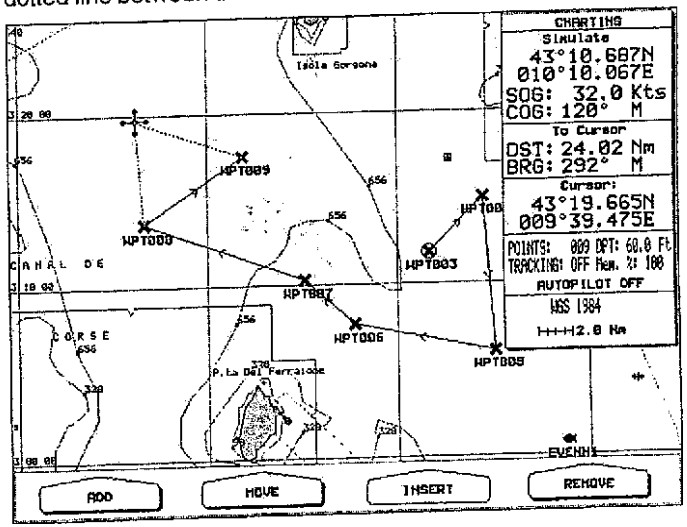


Fig. 5.3.2g - Placing Waypoint between two existing ones (II)

Once you have positioned the cursor at the new location press the 'ENTER' key (the 'CLEAR' key aborts operation):

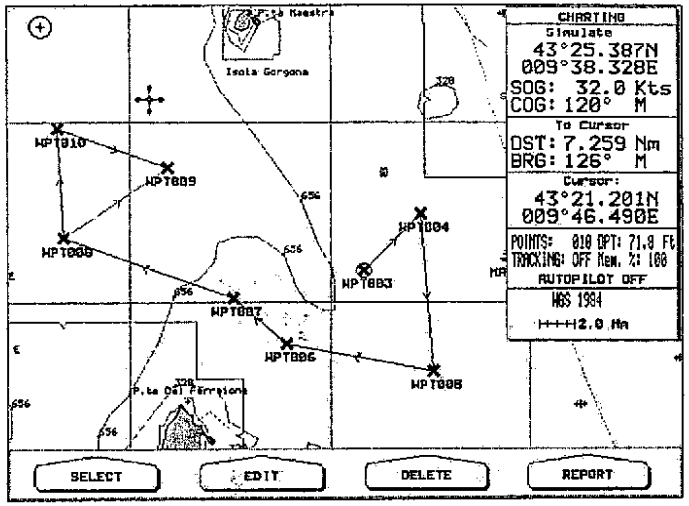


Fig. 5.3.2h - Placing Waypoint between two existing ones (III)

REMOVE WAYPOINT Function

You can delete a Waypoint from the working route that is indicated by the cursor. To delete the Waypoint, place the cursor on it:

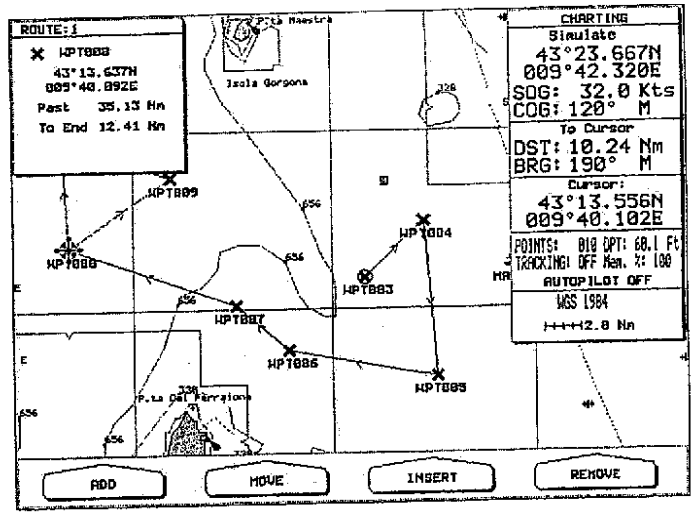


Fig. 5.3.2i - Deleting Waypoint function (I)

Press the 'REMOVE' soft key: the line connecting the Waypoint from the previous one is deleted, the line between the Waypoint and the next one is deleted, and a new line between the remaining Waypoints is shown on the screen. The deleted Waypoint remains on the screen is colored in gray until the screen is redrawn.

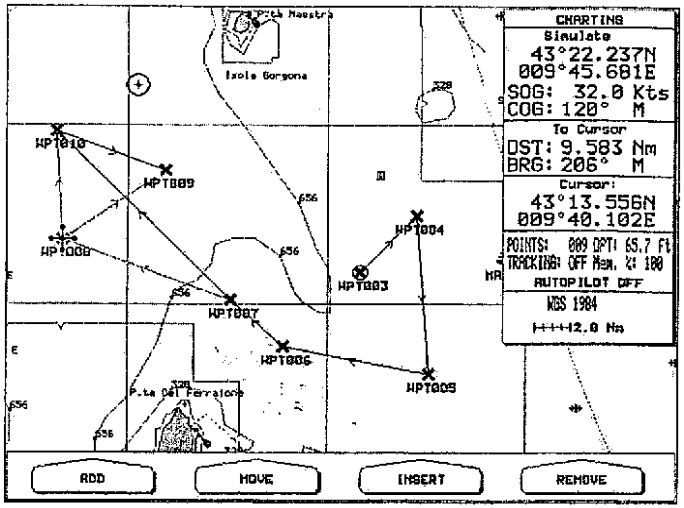


Fig. 5.3.2l - Deleting Waypoint function (II)

5.3.3 DELETE ROUTE Function

To delete the active route, press the 'DELETE' soft key. On the screen a window is opened: select **YES** to confirm the deletion (**NO** otherwise) and then press 'ENTER'. The route remains on the screen colored in gray until the screen is redrawn.

5.3.4 ROUTE REPORT Function

To display the data report of the activeroute, press the 'REPORT' soft key:

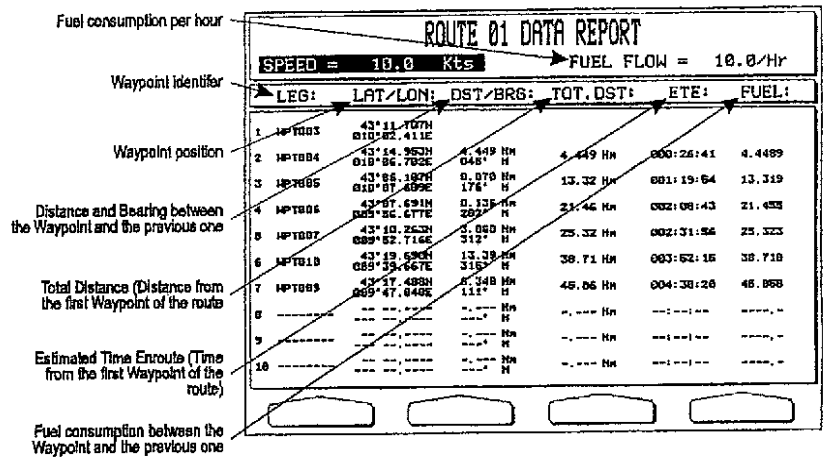


Fig. 5.3.4 - Route Data Report

It is possible to customize the speed and fuel consumption values for your boat, by selecting the field with the trackball and pressing the 'ENTER' key. Insert the desired value using the trackball and press the 'ENTER' key. Use the trackball again to select another page.

5.4 PAN

With the 'MORE' and 'PAN' soft keys it is possible to select the Pan function; this allows you to shift to an area around the ship's position or a remote position to the center of the display.

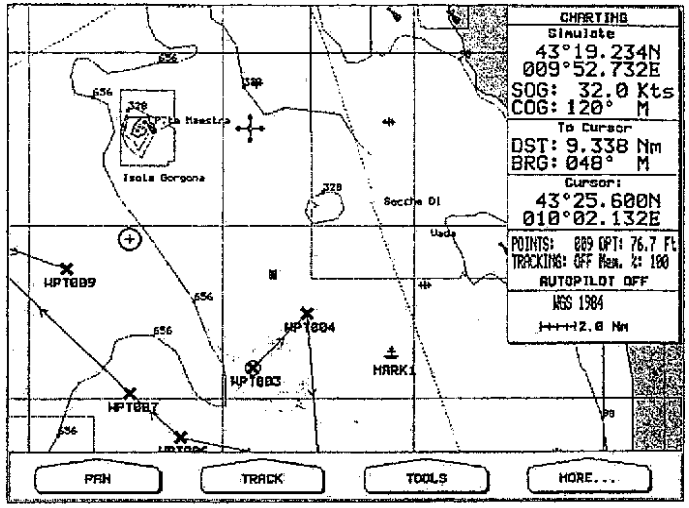


Fig. 5.4 - Pan function (I)

5.4.1 PAN Function: GPS

Press the 'GPS' soft key: the screen is redrawn, the fix position will shift to the centre of the screen:

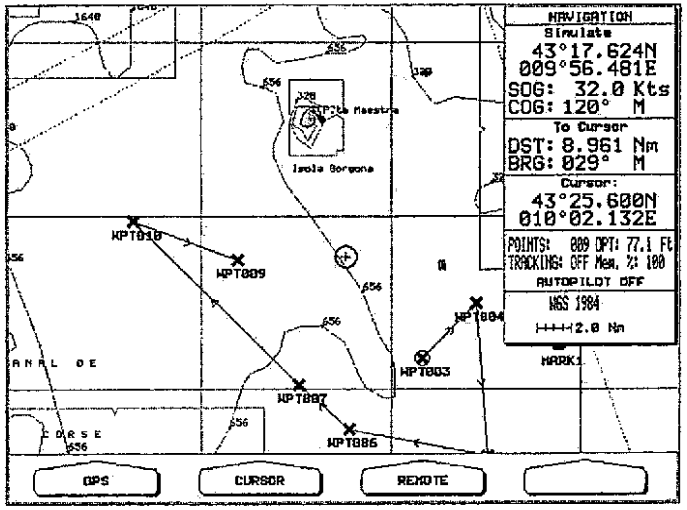


Fig. 5.4.1 - Setting PAN function (II)

5.4.2 PAN Function: CURSOR

Press the 'CURSOR' soft key: the screen is redrawn, the cursor location you want to see will shift to the centre of the screen:

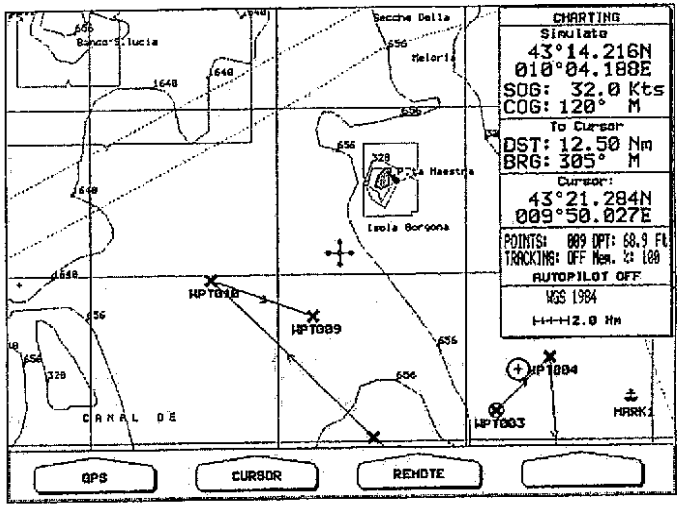


Fig. 5.4.2 - Setting PAN function (III)

5.4.3 PAN Function: REMOTE

Press the 'REMOTE' soft key:it is possible to activate the Pan function at preset coordinates.

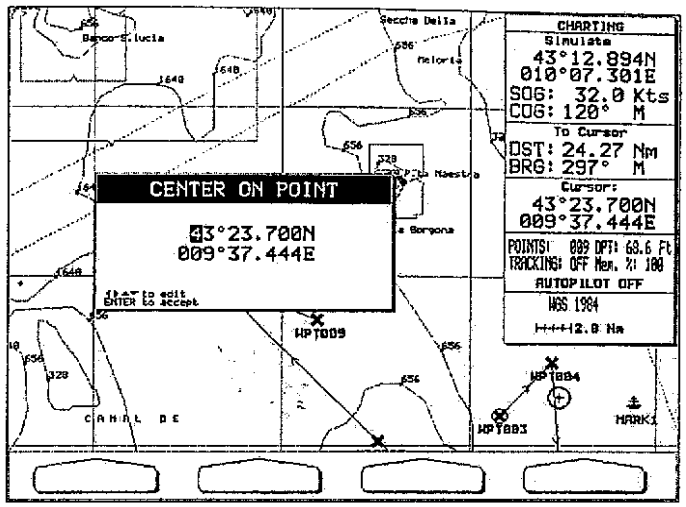


Fig. 5.4.3 - PAN on coordinates function

Use the trackball to enter desired coordinates and press the 'ENTER' key to accept.

5.5 TRACK

With the 'MORE' and 'TRACK' soft key it is possible to select the track functions:

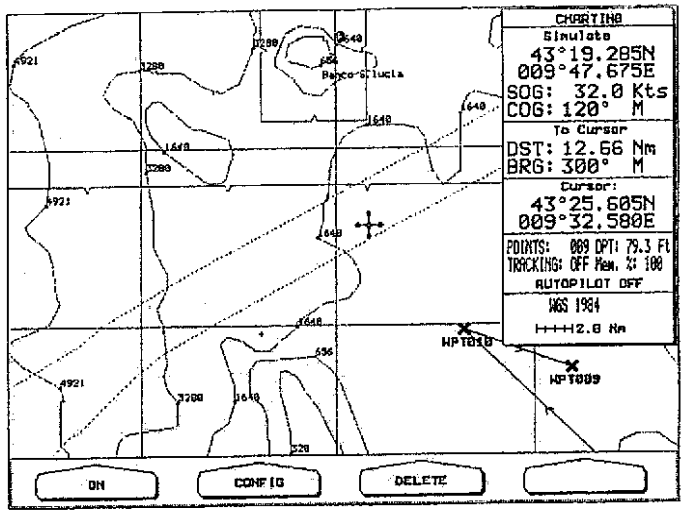


Fig. 5.5 - Track function

5.5.1 TRACK Function: ON

Pressing the 'ON/OFF' soft key to enables (ON) or disables (OFF) track storing. It is not possible to use track storing if you are not receiving a valid fix. The default setting is ON.

5.5.2 TRACK Function: DELETE

Press the 'DELETE' soft key to delete all the stored track. After pressing the 'DELETE' soft key, a window is shown on the screen: select **ON** to confirm, or **OFF** to abort deleting.

5.5.3 TRACK Function: CONFIG

Press the 'CONFIG' soft key to select the Track Settings menu:

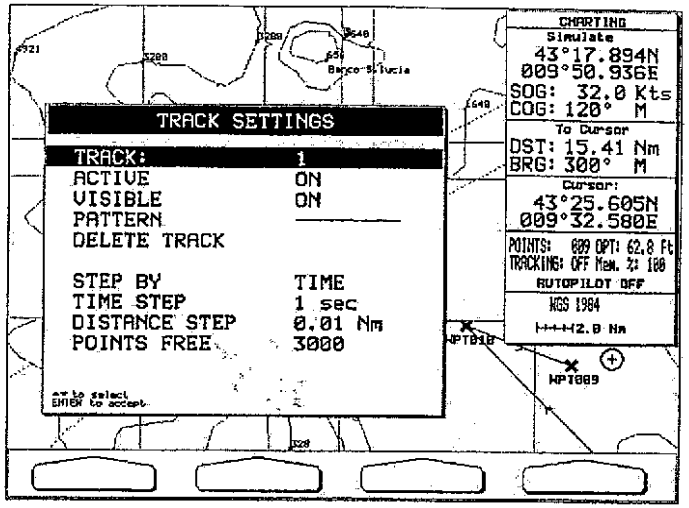


Fig. 5.5.3 - Track Settings menu

TRACK : selects the track to work [1 -5]. The default setting is 1.

ACTIVE : enables (**ON**) or disables (**OFF**) the active track. The default setting is ON.

VISIBLE : enables (**ON**) or disables (**OFF**) the displaying of the past track. The default setting is ON.

PATTERN : selects the desired pattern for the selected track.

DELETE TRACK : deletes the selected track.

STEP BY : sets the track memorizing type, **DIST** (the chart plotter can store a fix when the distance from its last stored position is greater than a defined distance) or **TIME** (the chart plotter can store a fix after a defined time). The default setting is TIME.

TIME STEP : when the tracking function is On and the type of memorizing of the track is Time, the chart plotter can store a fix after a defined time, selected among **1 sec, 5 sec, 10 sec, 30 sec, 1 min**. The default setting is 1 sec.

DISTANCE STEP : when the tracking function is On and the type of memorizing of the track is Distance, you can store a fix when the distance from its last stored position is greater than a defined distance, selected in the range **0.01, 0.05, 0.1, 0.5, 1.0, 2.0, 5.0, 10.0 Nm** (the distance unit is selected by General Setup + Units Setup + Distance, see par. 4.5). The default setting is 0.01 Nm.

POINTS FREE : indicates the track points free. The default setting is 3000.

5.6 FR-TO (A-B)

With the 'MORE', 'TOOLS' and 'A-B' soft keys it is possible to activate the From-To function, which allows you fast and easy measurements of distance and bearing between two points.

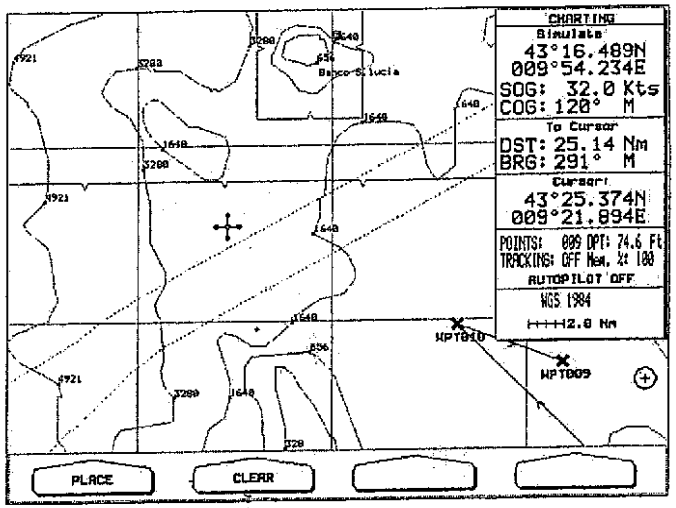


Fig. 5.6 - 'FR-TO' soft key

5.6.1 FR-TO Function: PLACE

To activate the From-To function place the cursor on the desired location and press the 'PLACE' soft key: the point "A" appears on the screen identified by a cross:

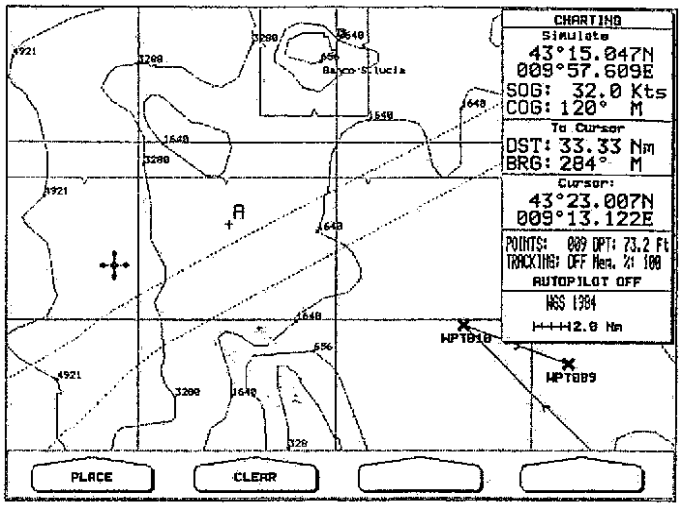


Fig. 5.6.1 - Placing the "A" point

Move the cursor to another position and then press the 'PLACE' soft key again: "B" appears on the screen identified by a cross:

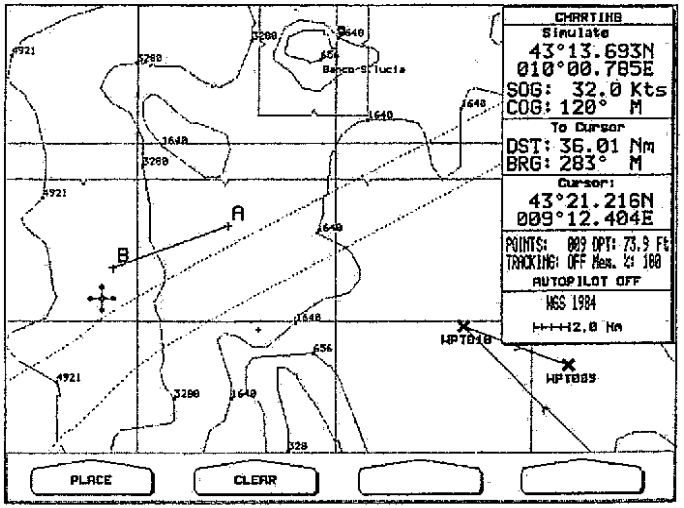


Fig. 5.6.1a - Placing the "B" point

The two points are connected by a straight line, a cross identifies the beginning and the end of the "A-B" line. When the cursor is placed on "A" or "B" point, a window appears with the distance (DST) and bearing (BRG) values.

5.6.2 FR-TO Function: CLEAR

To delete the "A" and "B" points and the line, press the 'CLEAR' soft key.

5.7 VRM

Using the 'MORE', 'TOOLS' and 'VRM' soft keys it is possible to select the VRM option, where VRM is "Variable Range Marker". The VRM is a circle and its radius is determined by the user. The circle's center is the ship's position if the system is in Navigation mode or the cursor position if in Charting mode.

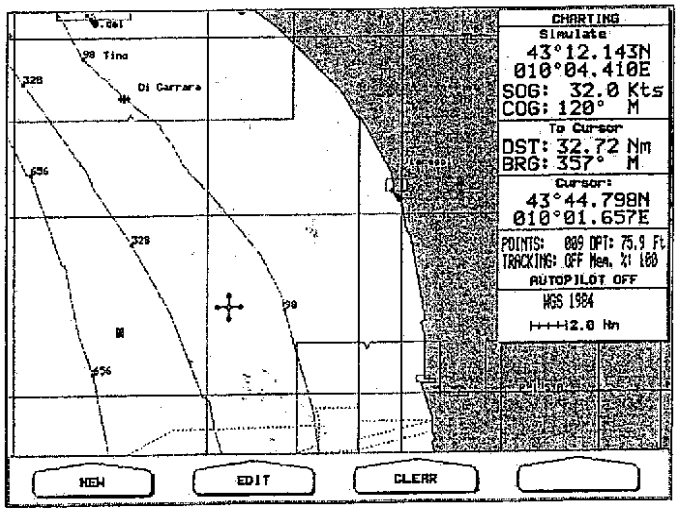


Fig. 5.7 - 'VRM' soft key

5.7.1 VRM Function: NEW

Press the 'NEW' soft key to create VRM. On the screen a circle appears:

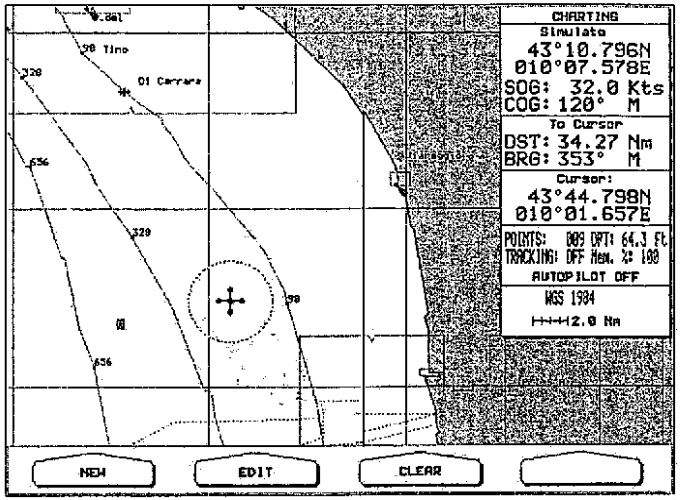


Fig. 5.7.1 - VRM setting (I)

5.7.2 VRM Function: EDIT

Pressing the 'EDIT' soft key, you can modify the radius of the circle rotating up and down the trackball:

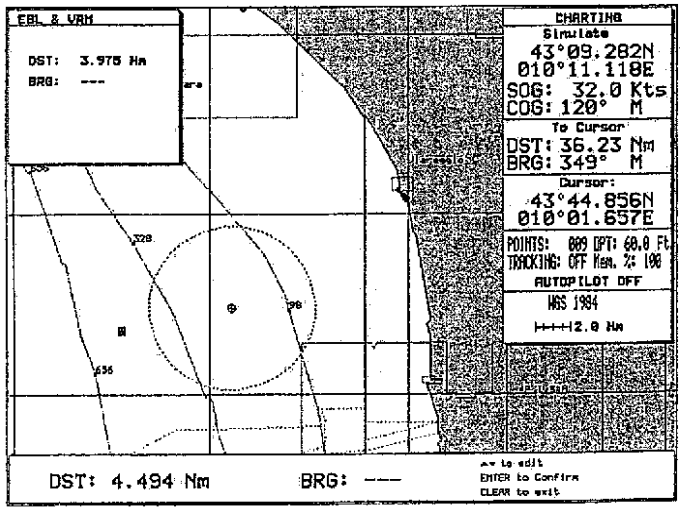


Fig. 5.7.2 - VRM setting (II)

Press the 'ENTER' key to confirm or the 'CLEAR' key to abort.

5.7.3 VRM Function: CLEAR

Press the 'CLEAR' soft key to delete VRM: the circle disappears from the screen.

5.8 EBL

Using the 'MORE', 'TOOLS' and 'EBL' soft keys it is possible to select the EBL option, where EBL is "Electronic Bearing Line". The EBL is a dotted line: the origin of the line is the ship's position if the system is in Navigation mode or the cursor position if in Charting mode.

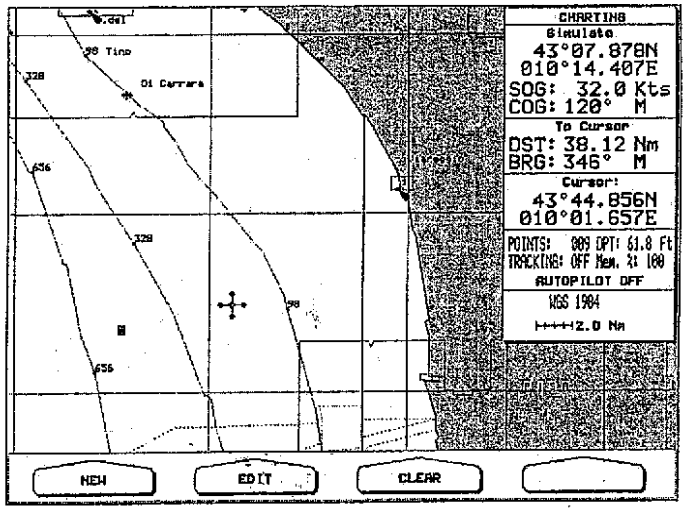


Fig. 5.8 - 'EBL' soft key

5.8.1 EBL Function: NEW

Press the 'NEW' soft key to create EBL: on the screen a dotted line appears.

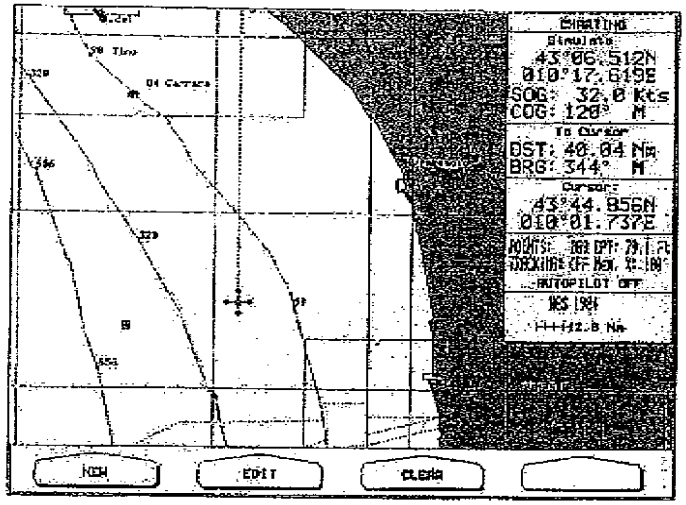


Fig. 5.8.1 - EBL setting (I)

5.8.2 VRM Function: EDIT

By pressing the 'EDIT' soft key, you can move the dotted line in any direction you choose rotating the trackball up and down:

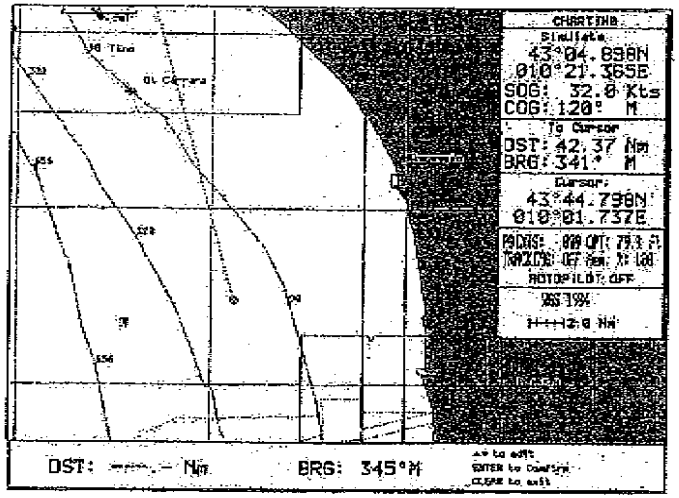


Fig. 5.8.2 - EBL setting (II)

5.8.3 VRM Function: CLEAR

Press the 'CLEAR' soft key to delete EBL: the dotted line disappears from the screen.

Chapter

6

Direct Functions

The Direct Functions are functions activated by a dedicated key, allowing you to immediately activate a function.

6.1 The 'ZOOM' keys: change of scale

The Zoom functions allow the user to select the desired scale of the charts by "zooming in", to display larger scales (more details of a smaller area) and by "zooming out", to display smaller scales (fewer details of a larger area).
Please note that in Navigation mode the chart plotter will show the area around the ship's position, while in Charting mode it will show the area around the cursor.

6.2 The 'INFO' key: information on cartographic objects

Using the 'INFO' key you can obtain detailed information for any object present on the charts as explained in the following paragraphs.

6.2.1 INFO Function

When pressing the 'INFO' key, if in the range of the cursor there is a cartographic object present, a page is opened displaying a list of all objects (in a tree structure), found in the range of the cursor.

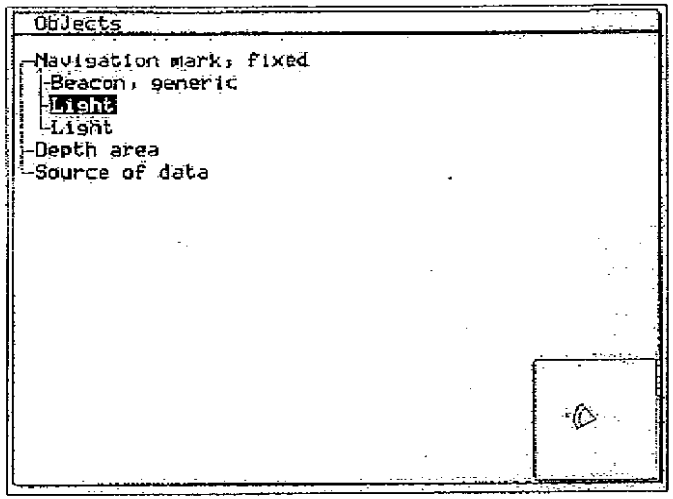


Fig. 6.2.1 - Info on cartographic objects

To select the desired object rotate the trackball up/down.
The selected object is shown in reverse video screen. On the right side, at the bottom a window containing the icon of the selected object is displayed. Press 'ENTER' and on the screen appears:

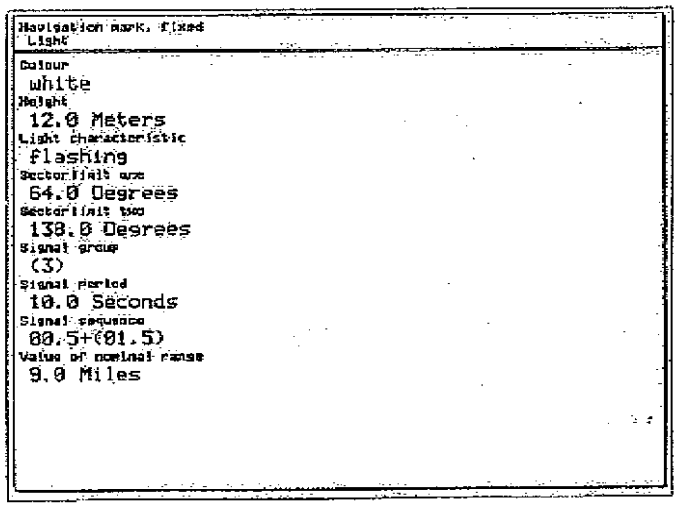


Fig. 6.2.1a - Info on selected object

Sometimes the information is contained in several pages, to select the additional pages rotate the trackball down.
To return to the previous page and to exit from info page press the 'CLEAR' key.

Note that by placing the cursor over a cartographic object an automatic info window (called also "Quick Info") is opened on the screen:

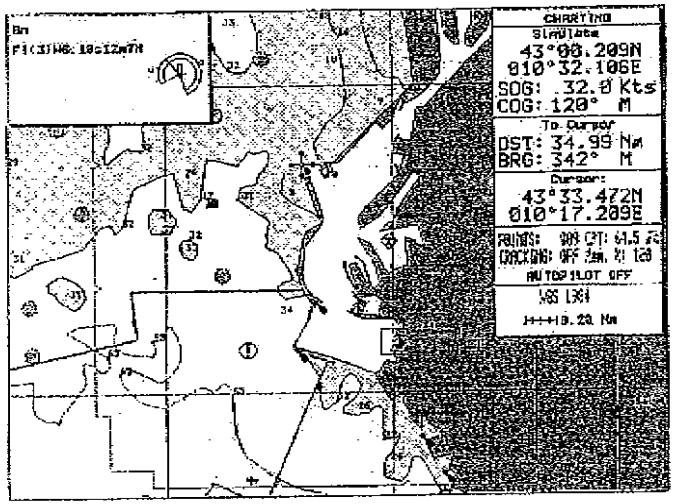


Fig. 6.2.1b - Automatic Info

If the object is complex, a short note is displayed. To obtain all information press the 'ENTER' key (see Fig. 6.2.1).

6.2.2 PORT INFO

The Port Info function is a combination of a new Port Info database of all the relevant Safety and Navigational information normally found in good pilot books and a new presentation software which displays special Port Facility Symbols.
Upon viewing the chart of a port or harbor, the user is presented with a Port Info icon that can be clicked on to query the available detailed information. The Port Info icon is visible only if the Ports & Services option in the Nav-Aids & Features menu is set ON - see par. 4.2.3.

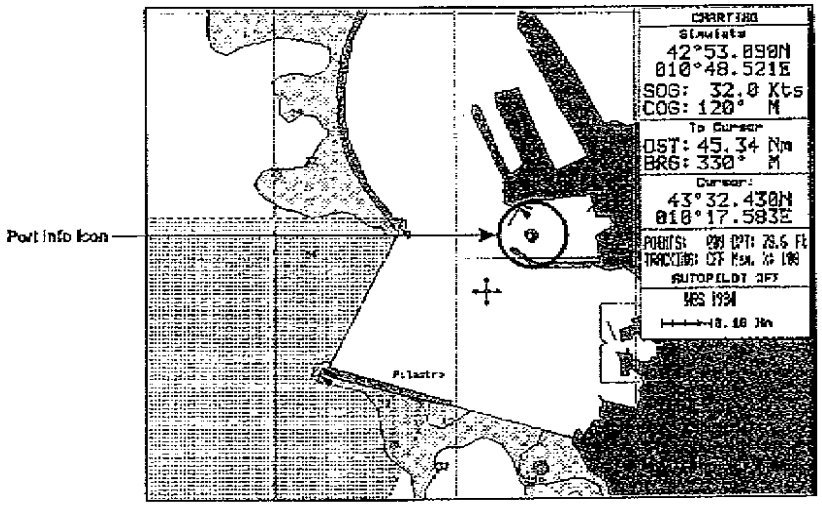


Fig. 6.2.2 - Port Info icon

The available Port information is shown in the "Quick Info" window (if the Info Level setting in the Other Settings menu is Detailed, see par. 4.2.4), so the icons of the available services are presented:

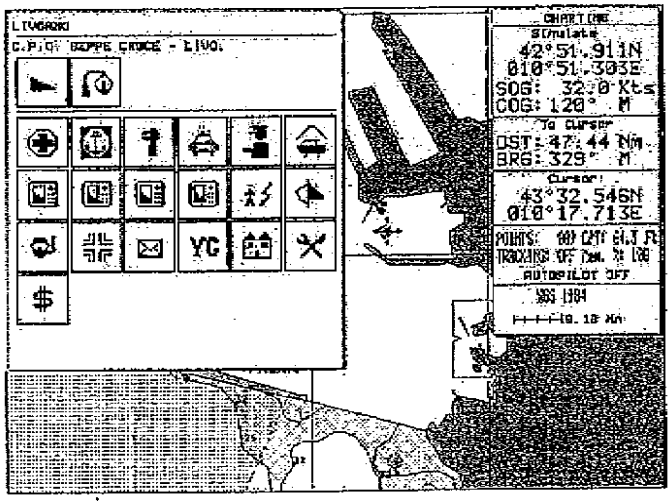


Fig. 6.2.2a - "Quick Info" window

or is expanded in the "Full Info" window you can obtain detailed information on the service (such as the opening and closing time of the Fuel station, the telephone number of the Health facility, and so on). To select it press the 'ENTER' key:

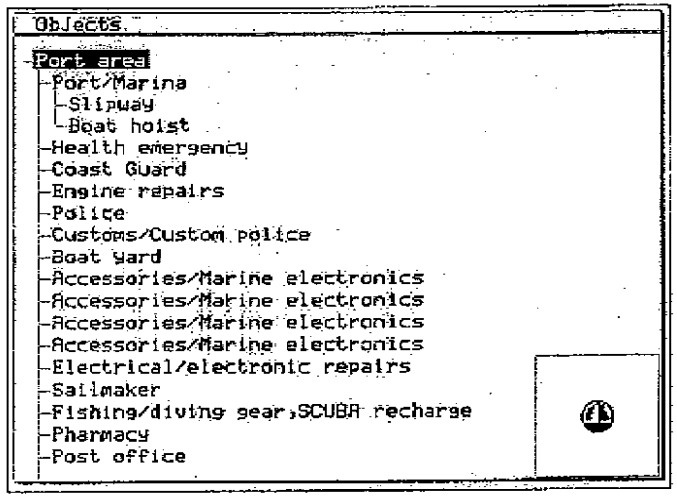


Fig. 6.2.2b - "Full Info" (I)

Press the 'ENTER' key:

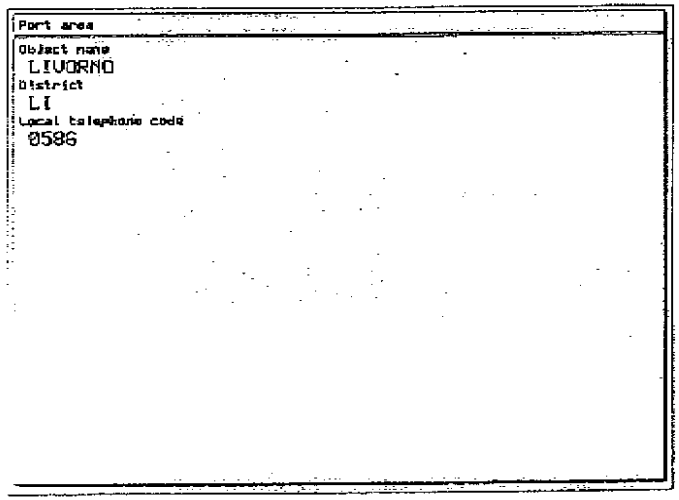


Fig. 6.2.2c - "Full Info" (II)

For many countries, where such information exists on the paper chart, you are also presented with accurately positioned symbols that show where many useful facilities are located.

6.2.3 GOTO NEAREST feature

This feature allows users to locate and display the nearest available facilities of a particular type (i.e. the nearest Hospital, sailmaker, bank, etc.). Pressing the 'INFO' key for more than 1 second, on the screen the icons list of the available services is shown:

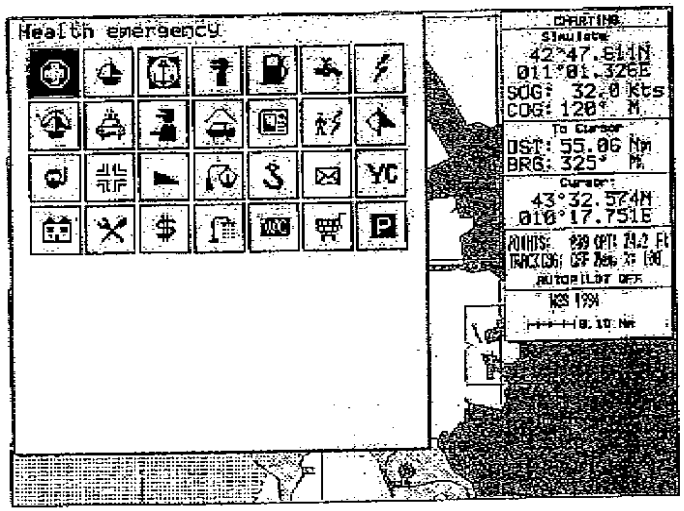


Fig. 6.2.3 - Goto Nearest feature

Select the icon, Press 'ENTER': and a list of the up to 10 nearest ports in which this service is present is shown on the screen; you can choose the facility location you want and the chart plotter will display its position on the chart.

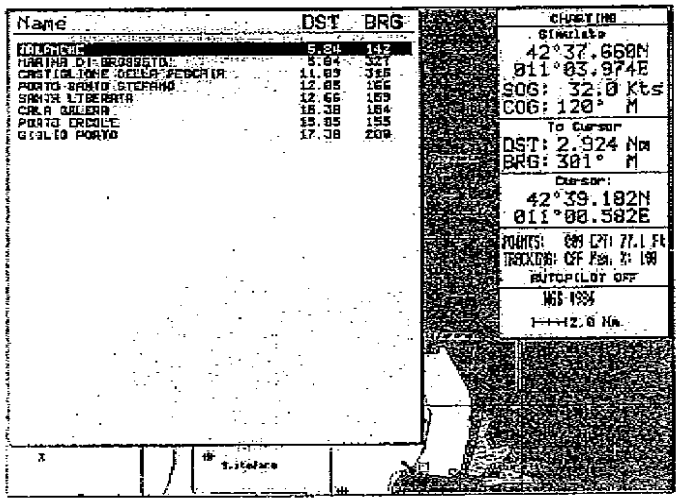


Fig. 6.2.3a - List of the nearest ports

Press the 'ENTER' key:

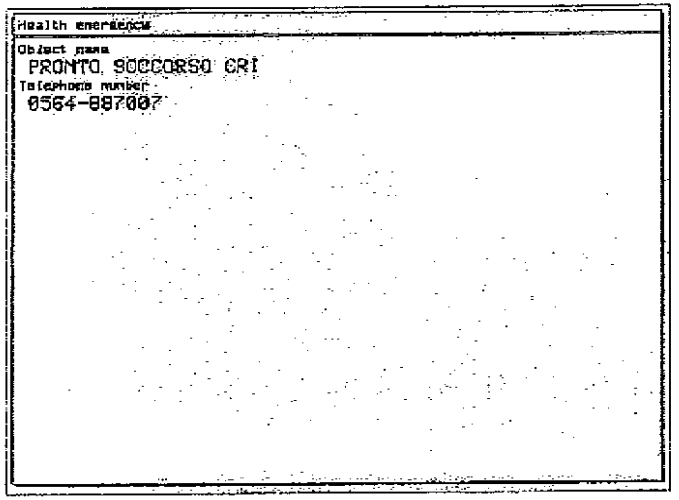


Fig. 6.2.3b - Info on selected service

6.2.4 TIDE INFO

The Tide Info feature is the combination of a new tide heights database that will be included in future C-CARDs and will calculate the tide graph for all primary and secondary ports world-wide. This function can calculate the tide heights for any past or future date and as a by-product of this calculation will also display the Maximum and Minimum Tidal height and time for the day selected plus the times of Sunrise and Sunset. In some chart levels, the plotter will display a new Tidal Diamond Symbol for every Port or tidal point in the database covered by that particular C-CARD.

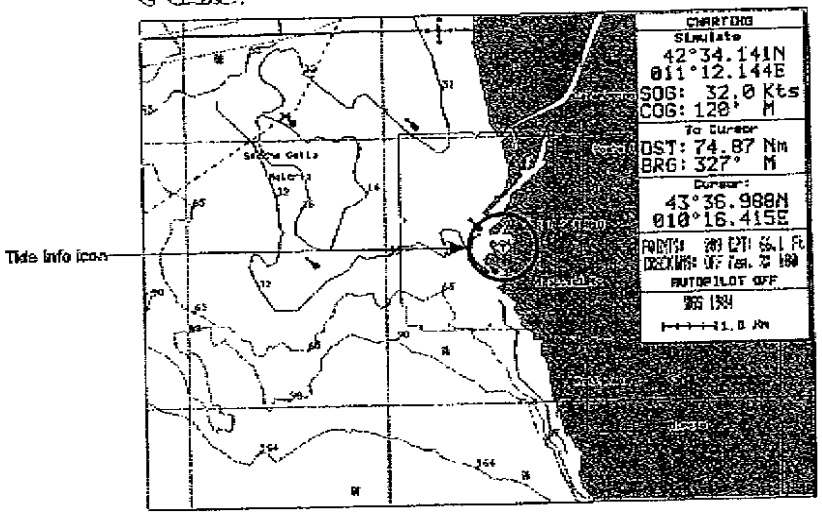


Fig. 6.2.4 - Tide Info icon

Place the cursor on this symbol, a "quick info" window is opened:

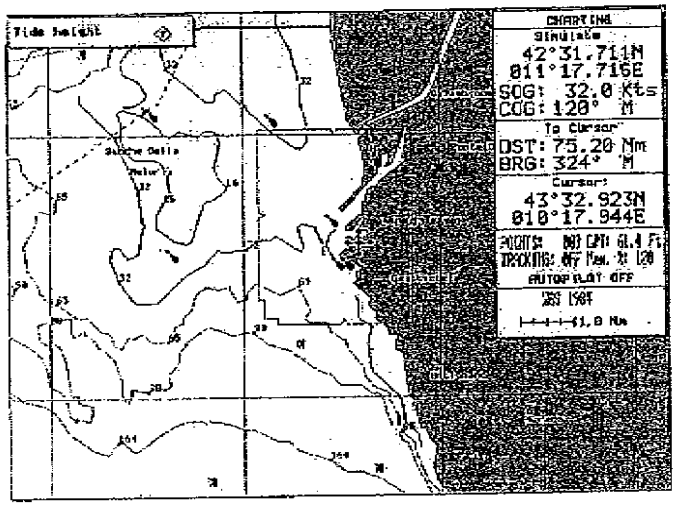


Fig. 6.2.4a - "Quick Info" window on Tide Info

To display the "Full Info" page press the 'INFO' key:

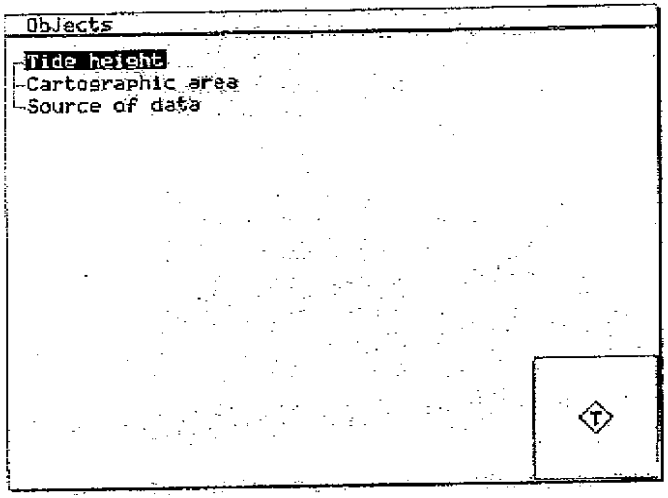


Fig. 6.2.4b - "Full Info" window on Tide Info

After pressing the 'ENTER' key, the Tide graph appears:

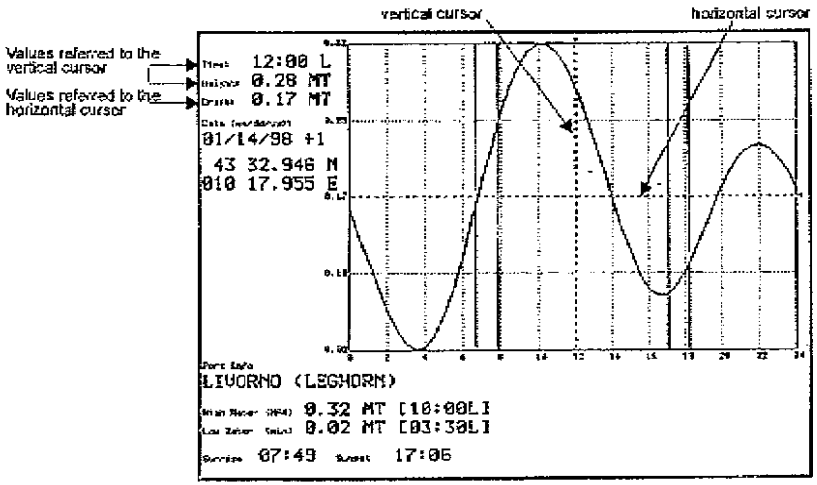


Fig. 6.2.4c - Tide Graph

Using the trackball it is possible to position an X,Y cursor anywhere on the graph and display the time at which it is possible to enter a harbour based on your boats draft.

6.3 The 'DATA' key: USER C-CARD Menu

Using the 'DATA' key you can select a special menu for the handling of an optional memory C-CARD. Besides displaying all the used Marks, Events, routes and tracks in memory, a list of all available functions is displayed such as save, load and delete file and format user cartridge.

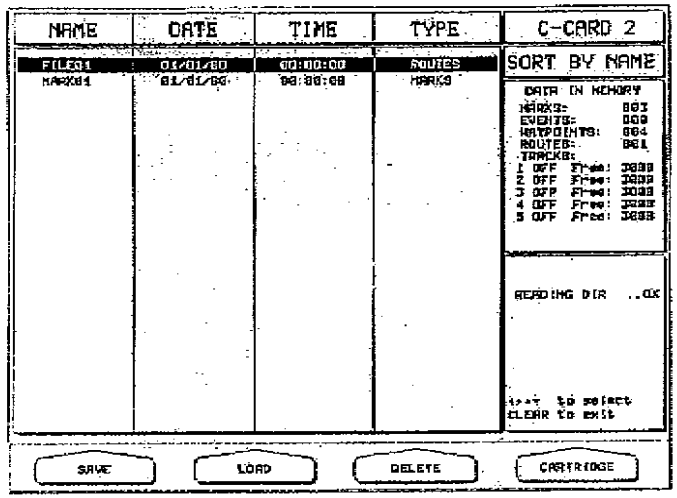


Fig. 6.3 - User C-Card Menu

6.3.1 SAVE function

Press the 'SAVE' soft key to store on a user cartridge the desired group (file) of user points. For example, a file of routes, present on screen. After selecting this option, a window is opened on the screen to insert the type of data to save.

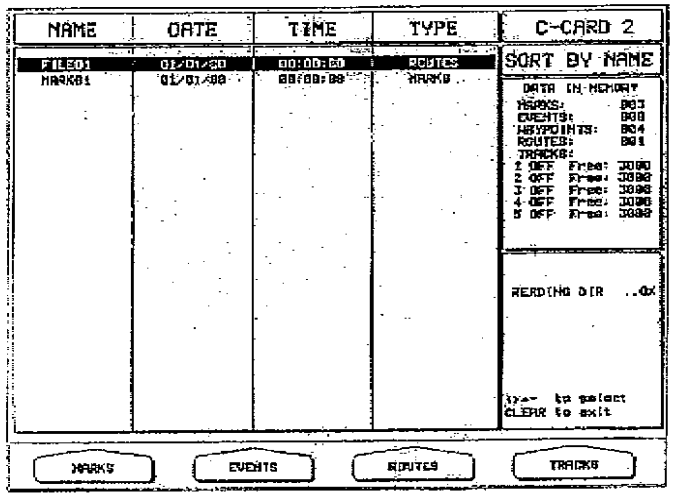


Fig. 6.3.1 - Save File function (I)

Choose the type of information to save (i.e. MARKS, EVENTS, ROUTES and TRACKS) by pressing the soft key indicated ('MARKS', 'EVENTS', ROUTES' and 'TRACKS').

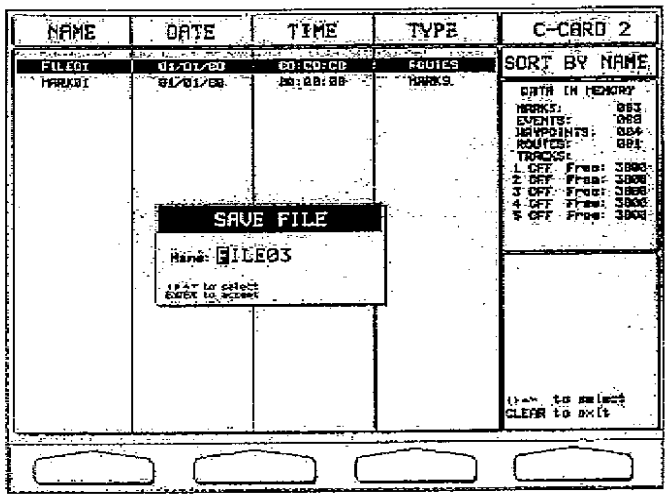


Fig. 6.3.1a - Save File function (II)

Choose the file name. At first a default name is shown: use the trackball to insert the desired name. Press the 'ENTER' key to accept. By pressing 'ENTER' this window disappears from the screen.

Note

When naming a file, you may have trouble finding a name that uniquely identifies the file's contents. Dates, for example, are often used in filenames; however, they take up several characters, leaving you with little flexibility. The secret is to find a compromise, a point where you can combine a date with a word, creating a unique filename. The maximum length of the filename is 8 characters. The characters may be numbers (0, ..., 9), letters (A, ..., Z) and spaces (for example legal identifiers are "ABC", "AA", "12121212", "A B C", "1 A 1", and so on.

6.3.2 LOAD function

Press the 'LOAD' soft key to load from User G-CARD a desired group of user points. For example a file of routes. Before selecting this option, choose the file name in the list shown on the screen, using the trackball.

6.3.4 DELETE Functions

Just as you may need to save files, you may also need to remove old or unnecessary files to clean up your User G-CARD. When you want to erase a file from User G-CARD, you can use this option. Remember though, that this option permanently erases the file. Press the 'DELETE' soft key to delete the file indicated using the trackball. A window is shown: select YES to confirm or NO to abort and then press 'ENTER'.

6.3.4 CARTRIDGE functions

Press the 'CARTRIDGE' soft key to enable the management of the User G-CARD. On the screen appears:

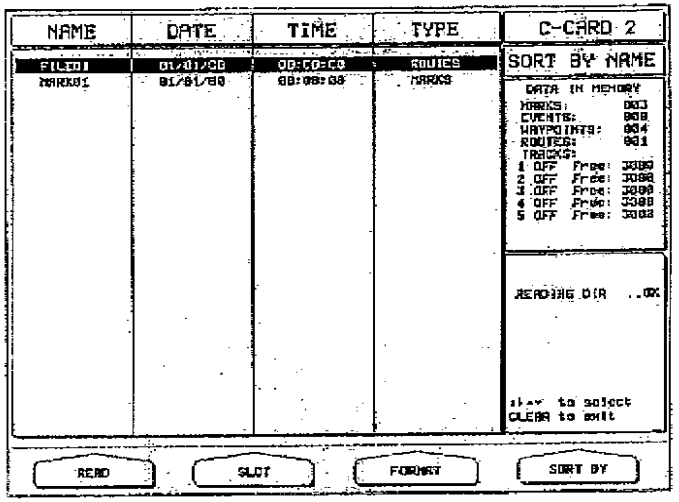


Fig. 6.3.4 - Cartridge functions

CARTRIDGE functions: READ

Press the 'READ' soft key to read the User G-CARD. It will display the list of the files present on the User G-CARD inserted into the slot.

CARTRIDGE functions: SLOT

Press the 'SLOT' soft key to select the desired slot where inserting the User G-CARD. If the User G-CARD is not present

in the selected slot, a warning message appears on the screen.

CARTRIDGE functions: FORMAT

Press the 'FORMAT' soft key to format the User C-CARD. This must be done before using a new User C-CARD: this operation prepares the User C-CARD to receive and store information.

CARTRIDGE functions: SORT BY

Press the 'SORT BY' soft key to order the file directory. This is possible in three different modes:

- Press the 'NAME' soft key to order by the filename;
- Press the 'TIME' soft key to order by the time of file creation;
- Press the 'TYPE' soft key to order by the type of data.

6.4 The 'GOTO' key: Target

You can tag a particular mark on the map using the Target function. To activate the Target function, the cursor must be placed on a location and then press the 'GOTO' key. On the screen appears:

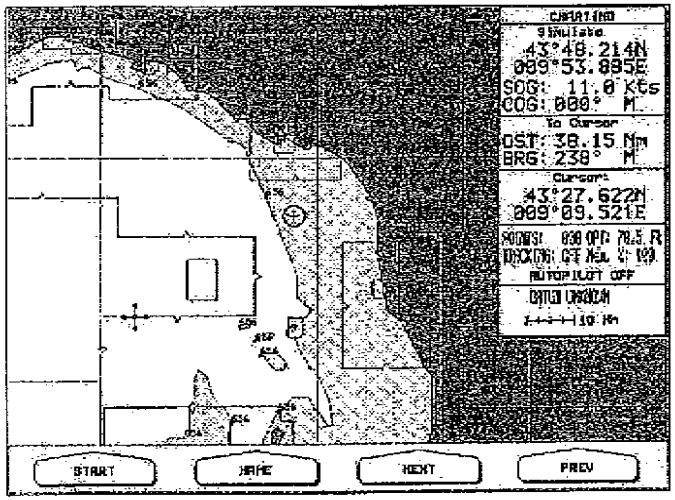


Fig. 6.4 - 'GOTO' key

6.4.1 START/STOP function

Press the 'START' soft key to insert the Target. If the position selected by the cursor is a user point (Mark, Event or Waypoint), a circle enclosed the symbol:

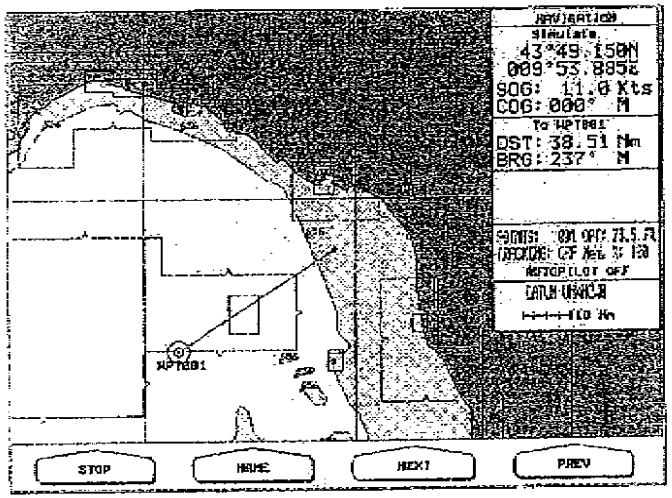


Fig. 6.4.1 - Target insertion

If under the cursor position there is not a user point, a Mark is placed and it is enclosed in a circle. On the display a straight line is shown, connected the Target with the initial ship's position. When the Target is set, all navigation data is refered to this Target. Press the 'STOP' soft key to delete the Target. The symbol that identifies Target disappears from the screen and the user point remains on the screen.

6.4.2 NAME function

Press the 'NAME' soft key to automatically find the existing waypoint, then activate the Target function.

6.4.3 NEXT function

Press the 'NEXT' soft key to switch navigation to next Waypoint.

6.4.4 PREV function

Press the 'PREV' soft key to switch navigation to previous Waypoint.

6.5 The 'MOB' key: Man Over Board function

Press the 'MOB' key to set the Man Overboard: the symbol that identifies the MOB is placed at ship's coordinates and when the cursor is placed on this symbol, an info window with the MOB coordinates is shown:

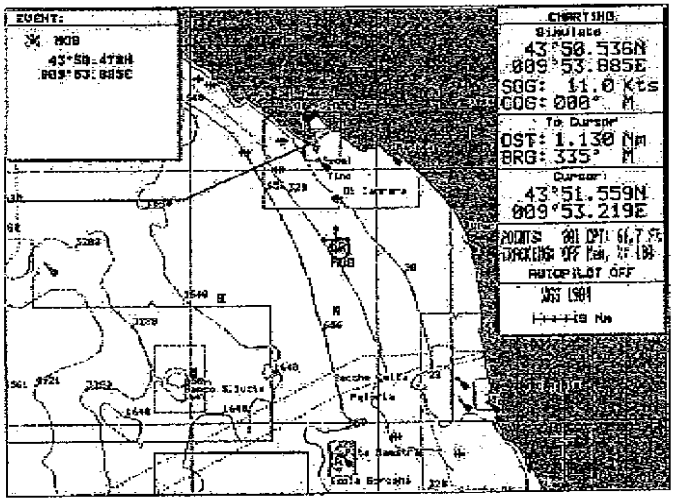


Fig. 6.5 - The 'MOB' key

To activate navigation to MOB, place the cursor on MOB and press the 'GOTO' key.

To delete the MOB press the 'MOB' key again. If navigation to MOB was activated, you must disabled this navigation.

6.6 The 'MENU' key for 1 second: print screen

This unit can output and print on paper the screen image, if the chart plotter is properly connected with a printer (see par. 7.5 for more information).

6.6.1 Print screen on paper

To activate the print screen function press the 'MENU' key for more than 1 second: to abort print screen, press the 'CLEAR' key.

Chapter

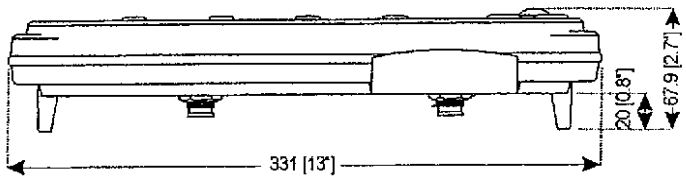
7

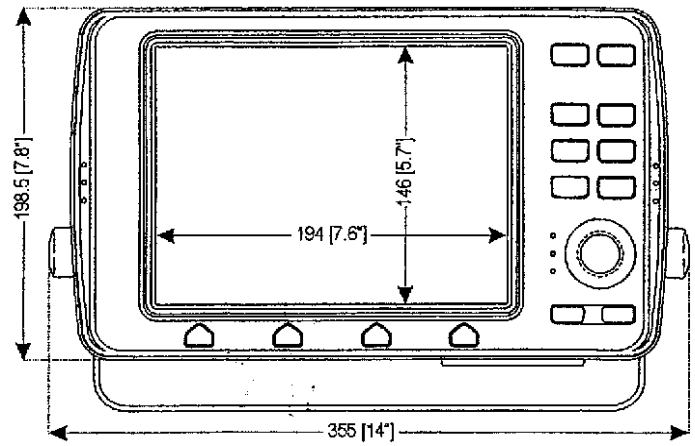
The Chart Plotter

7.1 Features

The technical specifications of the chart plotter are:

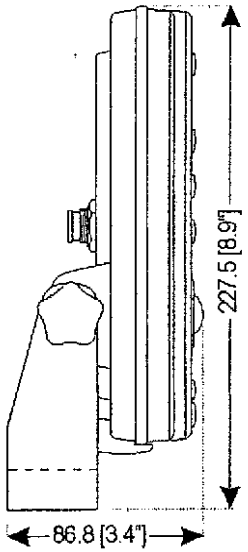
- **Power consumption** ..... : 7 Watt, 10 - 35 Volt dc
- **Interface** ..... : NMEA0183
- **Autopilot Interface** ..... : NMEA-0180
  NMEA-0180/CDX
  NMEA-0183 (*)
- **Display (mono)** ..... : LCD 9,4"
- **(color)** ..... : LCD 8,4"
- **Display Resolution** ..... : 640 x 480 pixels
- **Cartography** ..... : C-MAP NT C-CARD
- **Operational temperature range** : 0/+55 gradi Celsius
- **Memory** ..... : Non volatile with battery back-up
- **Keyboard** ..... : Silicon rubber, backlight
- **Weight** ..... : 1800 gr.
- **Dimensions:** (mm[inch])





Note for color chart plotter

For the color chart plotter the display dimensions are: 173 [6.8"] lenght and 131.5 [5.2"] heigth



Note

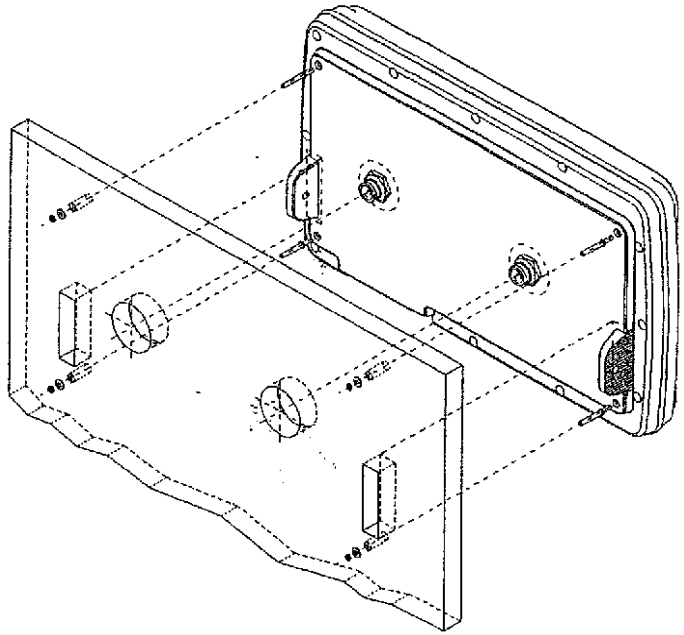
(*) In accordance with Standard NMEA-0183 V.2.00

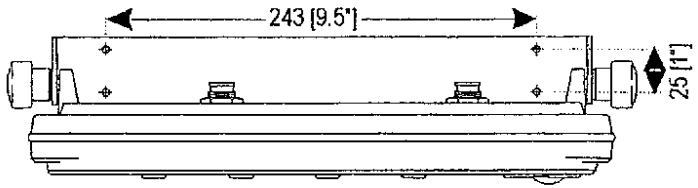
The following items are shipped with the chart plotter:

- Protective cover
- Bracket
- Flush mounting brackets kit + mounting template
- CBC0FS0702 (for mono chart plotter)
  CBC0FS0709 (for color chart plotter)
  Power supply and I/O cable 1,5 mt./5.9"
- CBC0FS0603 GPS CABLE 1 mt./3.9"
- External packaging: Handbag with inserts or Carton box
- Instruction manual

7.2 Installation

To install the chart plotter:



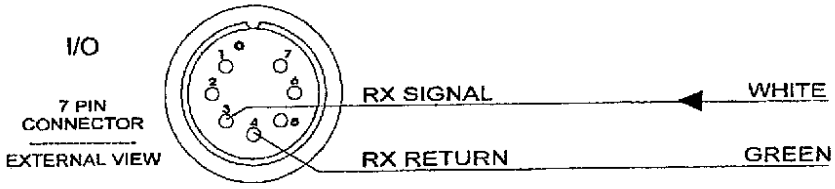


Installation types

After mounting the unit, connect the chart plotter to the power supply.

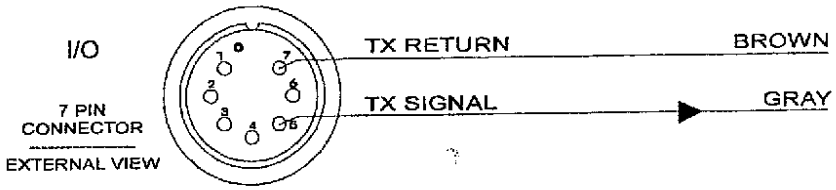
7.3 Typical Connections: "POWER & I/O" Connector

POSITIONING DEVICE

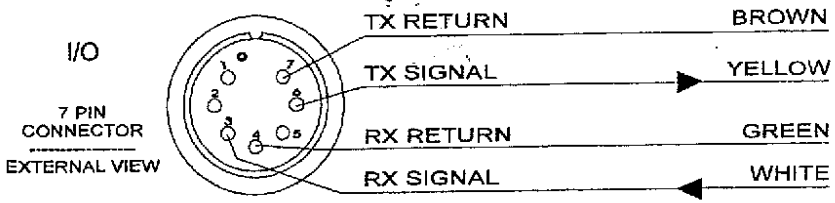


NOTE: POSITIONING DEVICE = GPS, LORAN, ECC.

AUTOPILOT



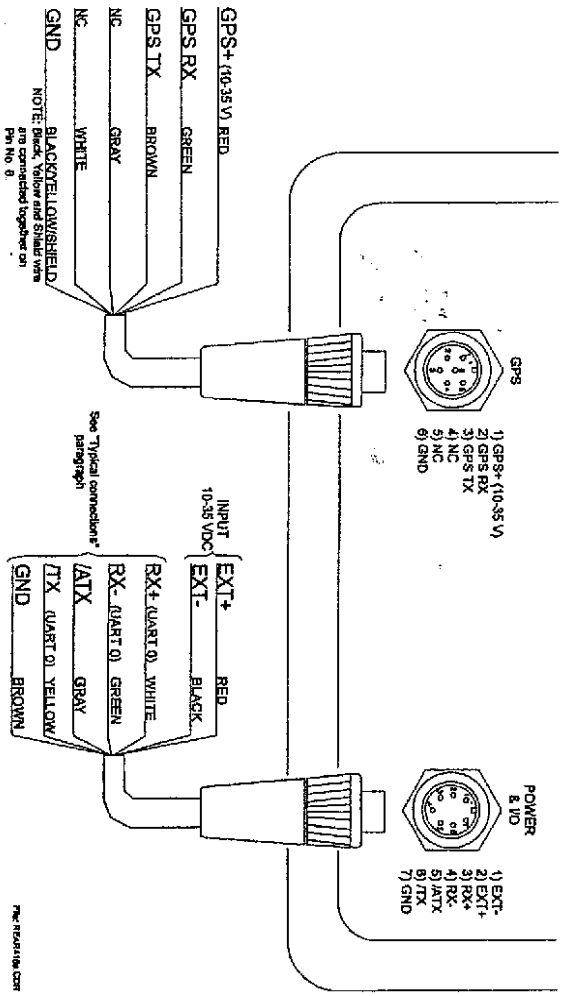
BIDIRECTIONAL COMMUNICATION



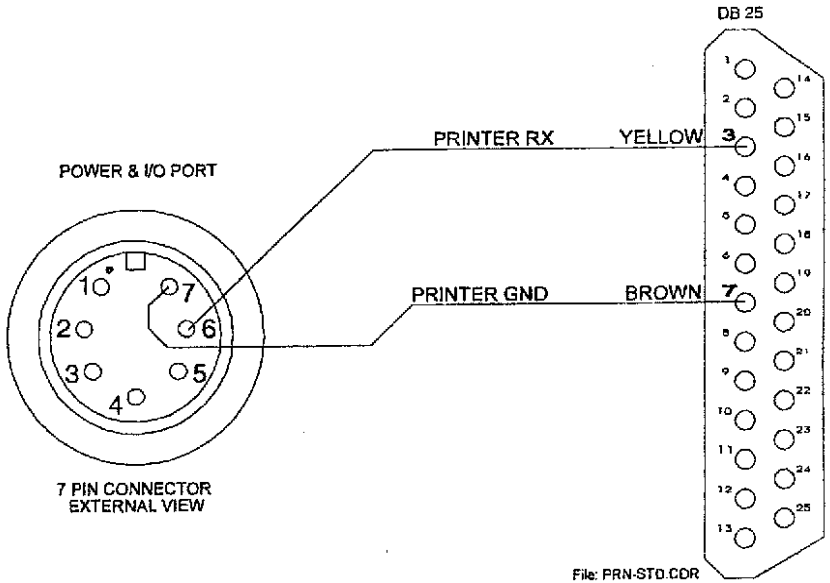
NOTE:
Wire colors are referred to the supplied 7-wires cable.

FILE: CONN-02.CDR

7.4 External Wiring



7.5 Printer Specifications



To exit from the System Test Menu, turn the chart plotter Off.

A.1.1 RAM MENU

This test verifies the integrity of the RAM memory and if desired during this test all the internal memory can be erased and the default settings will be restored.

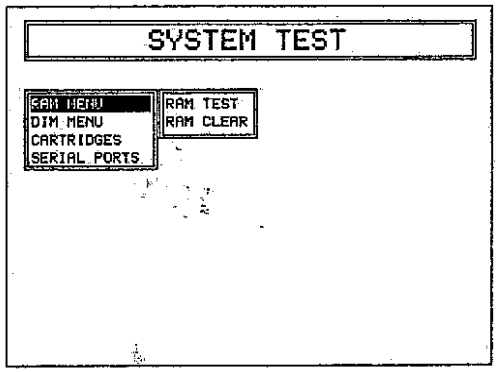


Fig. A.1.1a - RAM Menu

The first item of the RAM Menu verifies the integrity of the RAM:

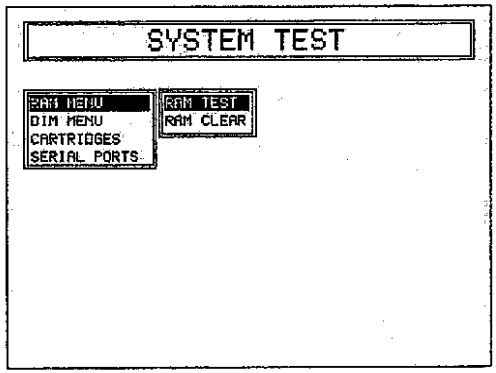


Fig. A.1.1b - RAM Test (I)

Press 'ENTER':

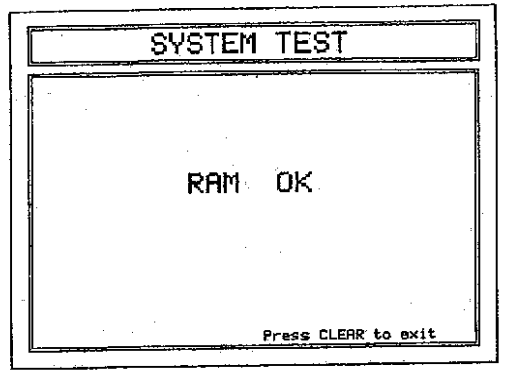


Fig. A.1.1c - RAM Test (II)

If the message "ERROR" appears, the RAM is physically damaged.

The second item allows you to clear internal memory. If the chart plotter exhibits unusual behavior, or appears to be malfunctioning, it may be possible to correct the problem by clearing RAM. This operation will erase all Marks, Events, Routes, stored track plots and destinations. It will also return all selections (Input Data Format, Autopilot selection, etc.) to original default values.

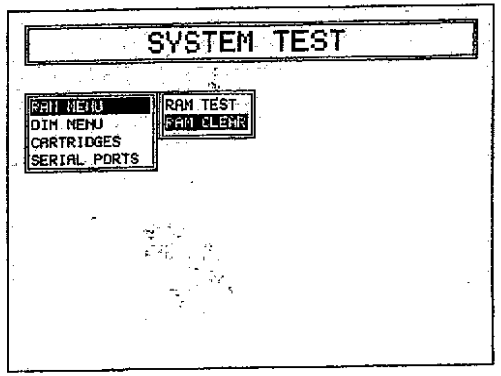


Fig. A.1.1d - Clearing RAM (I)

Press 'ENTER':

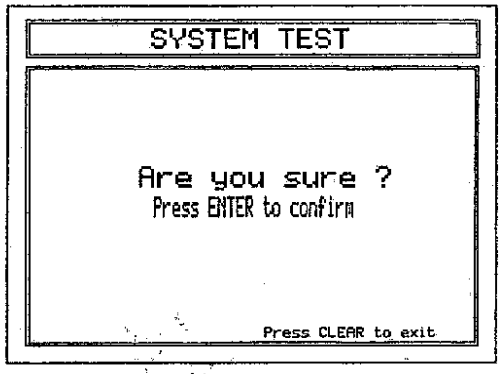


Fig. A.1.1e - Clearing RAM (II)

To confirm your decision to clear RAM:
Press 'ENTER' (note: if at this time you do not wish to clear RAM press 'CLEAR')

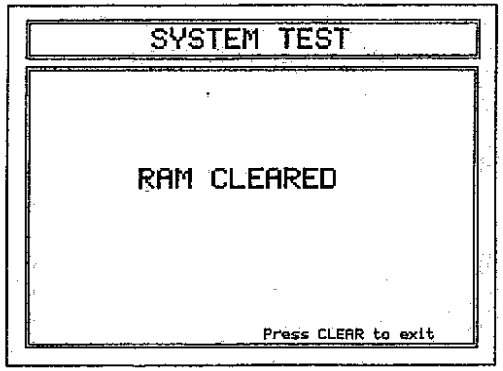


Fig. A.1.1f - Clearing RAM (III)

A.1.2 DIM MENU

The DIM MENU allows to select the desired value for contrast and backlight.

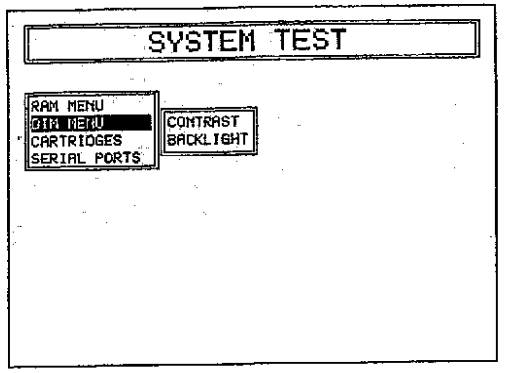


Fig. A.1.2a - DIM Menu

The first item allows to set the contrast:

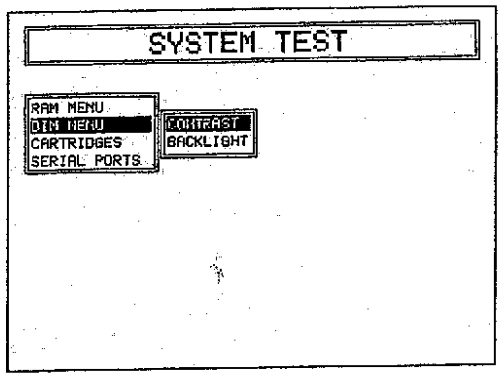


Fig. A.1.2b - Contrast setting (I)

Press 'ENTER':

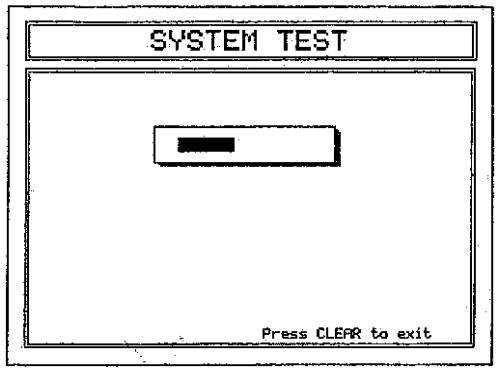


Fig. A.1.2c - Contrast setting (II)

Each time you rotate the trackball to right, the screen will decrease brightness, and to left, the screen will increase brightness.

The second option allows to set the backlight.

A.1.3 CARTRIDGES

The CARTRIDGES Menu checks the C-CARD and its connector.

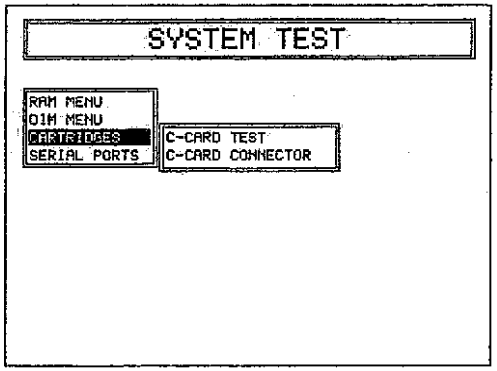


Fig. A.1.3a - C-Card Menu

The first item tests the C-CARD:

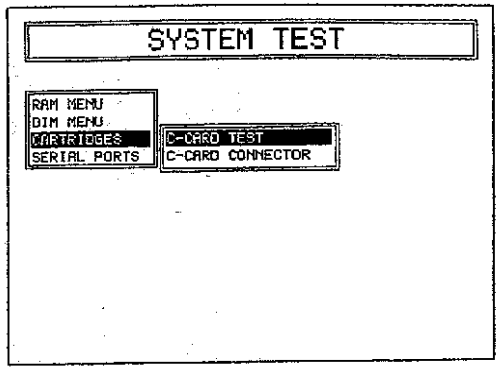


Fig. A.1.3b - C-CARD Test (I)

Press 'ENTER':

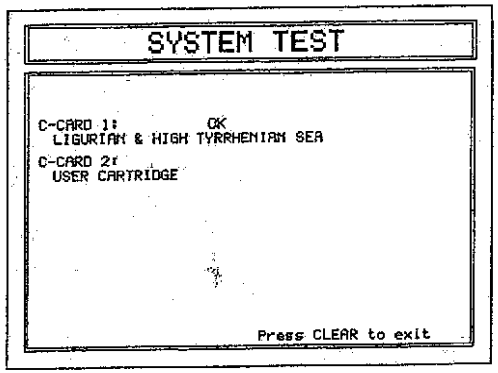


Fig. A.1.3c - C-CARD Test (II)

There are four possible situations:

1. if there is a data cartridge inserted in the slot and there is not a malfunction, the name of the cartridge and the message "OK" is shown.
2. if there is a data cartridge inserted in the slot, but it is a damaged cartridge, the name of the cartridge and the message "Faulty" is shown.
3. if there is not a cartridge inserted in the slot, the message "not present" is shown.

4.if there is an user cartridge inserted in the slot, the message "USER CARTRIDGE" is shown.

The second item indicates if there is a malfunction in the connector. It is used only in production.

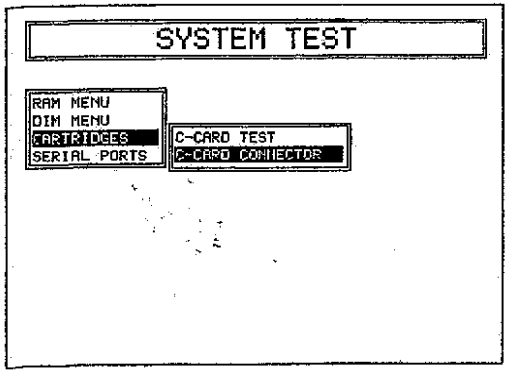


Fig. A.1.3d - Test on C-CARD connector

A.1.4 SERIAL PORTS

If you are having problems receiving data from the position-finding instrument, this test should help determine the problem. When you select this test a new menu will appear:

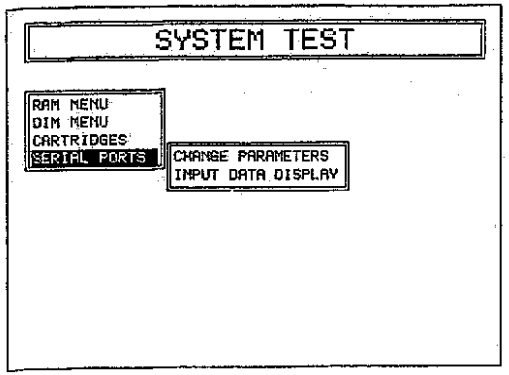


Fig. A.1.4a - Serial Port Menu

Press 'ENTER'. The first item allows to change the parameters of the serial interface:

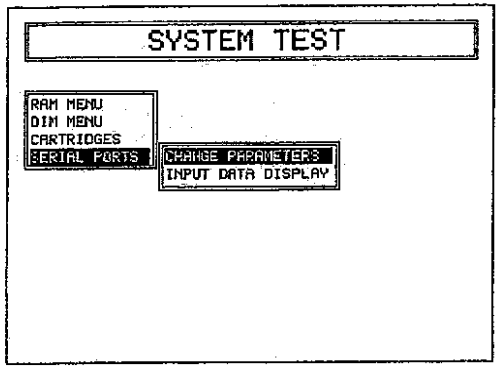


Fig. A.1.4b - Change parameters (I)

Press 'ENTER':

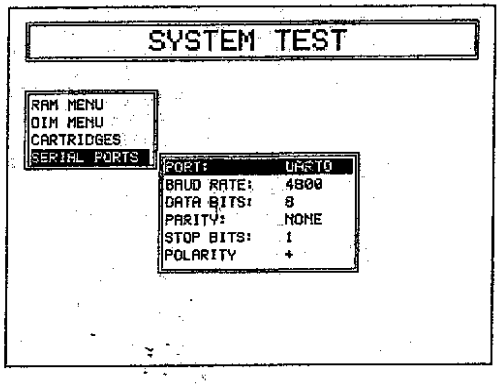


Fig. A.1.4c - Change parameters (II)

This menu allows to select the **PORT** (Signal Source) between UART0 or UART1, the **BAUD RATE** between 4800 or 9600, the **DATA BITS** (Word Lenght) between 7 or 8, the **PARITY** between EVEN, ODD or NONE, the **STOP BITS** between 1 or 2, the **POLARITY** between + or -.

The second item allows the chart plotter to act as a computer terminal and display the incoming data exactly as it received.

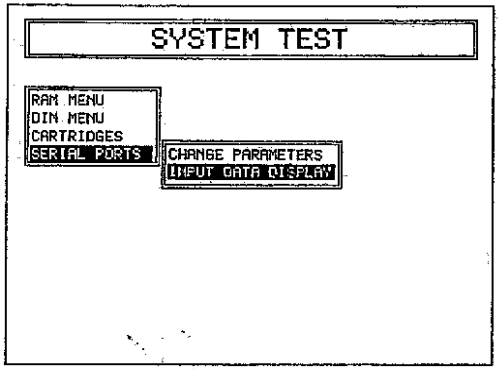


Fig. A.1.4d - Input Data Display (I)

Press 'ENTER':

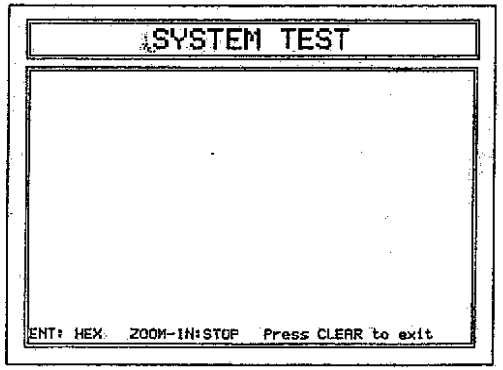


Fig. A.1.4e - Input Data Display (II)

If the data displayed on the screen is unrecognizable, you may have selected the wrong input parameters for your particular receiver, for example, NMEA-0182 instead of NMEA-0183. Check your receiver manual to be sure that you have selected the proper interface format. If the screen is blank, you may have a broken connection, and no data is being received.
Use the 'ZOOM IN' key to stop (or continue after pause) data displaying, the 'ENTER' key to show data in hex or ASCII mode (normal or small) and the 'CLEAR' key to exit.

GLOSSARY

This Glossary explains the terms that may be unfamiliar to the reader. Terms underlined are shown in the Glossary.

Arrival Alarm
Specifes the radius of a circle around the Waypoint: when your vessel reaches this circle the alarm sounds.

BRG = Bearing
It is the angle between the Nord, True or Magnetic, and a Waypoint. It represents the direction to follow.

Chain
The Loran chains are groups of trasmitting stations that use timed radio pulse trasmissions. In each of these chains there is a master station and two or more slave or secondary stations. Stations belonging to a same chain transmit pulses in timing groups: each chain is identified by a different time base. The time base of each chain is called the Group Repetition Interval or GRI.

Charting
Mode of operation in which all operations refer to the position of the cursor. It is used to prepare the navigation and allows you to plan your course. You do not need to have a position finding device connected to your chart plotter in order to use this mode of operation. When in Charting mode the cursor reaches one edge of the screen, the chart will move in order to show the part of the chart the cursor has been moved to.

COG = Course Over Ground
The actual direction of your vessel's calculated movement over the ground.

CTS = Course To Steer
The optimum direction the boat should be steered in order to efficientely make headway back to the coursefine while also proceeding toward the destination Waypoint.

Compass Calibration
The variation table is used to match a magnetic value readout on the chart plotter comparable with the value given by the compass of the boat. In other words,since the compass of the boat must be compensed (due to the iron masses, ...) we use the same values given by the plotter. This means that, for example, if the BRG to the next Waypoint readout in the plotter display is "X" MAG degree, if you steer the boat reading "X" MAG degree from the compass, you are driving toward the next Waypoint well.

Complex Object Icon
Current official documentation S57 supports "Complex Object". Complex objects are nautical object not containing attributes, but grouping other (element) objects in one logical unit. For example, Navigation aid, float, is the name of one complex object that should group all the navigation aid objects floating in the sea: lights, buoys, radar reflector. Very often, navigational aid objects are grouped in complex objects. This does not mean that object usually belonging to complex objects can not exist even as simple instances. One buoy of tower can exist both as stand alone object as it can

exist as a part of one Navigational Aid, fixed or floating complex object.
The decision when one object will be encoded in one or another way is influenced by many rules on paper charts. Sometimes, it is better to in one way, sometimes in another. Therefore, there can happen that one buoy on one scale level in one chart belong to a complex object, and on the more detailed level in another chart the same object with the same coordinates can be stand alone object.

Complex Object Icon Detailed

If object is "BUOY, GENERIC", "BUOY, CARDINAL", "BUOY, SAFE WATER", "BUOY, ISOLATED DANGER", "BUOY INSTALLATION", "BUOY, LATERAL", "BUOY, SPECIAL PURPOSE", the symbol that appears on the screen is the complex object "BUOY".
If the objects are "TOWER", "LIGHT", "RADAR REFLECTOR", "FOG SIGNAL", "RADAR TRASPONDER BEACON", "RADIO STATION_REFCO", "RADAR STATION", the displayed symbol is the complex object "NAVIGATIONAL MARK FIXED".
If the objects are "BUOY, GENERIC", "BUOY, CARDINAL", "BUOY, SAFE WATER", "BUOY, ISOLATED DANGER", "BUOY INSTALLATION", "BUOY, LATERAL", "BUOY, SPECIAL PURPOSE", "LIGHT", "RADAR REFLECTOR", "FOG SIGNAL", "RADAR TRASPONDER BEACON", "RADIO STATION_REFCO", "RADAR STATION", the displayed symbol is the complex object "NAVIGATIONAL MARK FLOATING".
If the objects are "BEACON, CARDINAL", "BEACON, SAFE WATER", "BEACON, ISOLATED DANGER", "BEACON, GENERIC", "BEACON, LATERAL", "BEACON, SPECIAL PURPOSE", "LIGHT", "RADAR REFLECTOR", "FOG SIGNAL", "RADAR TRASPONDER BEACON", "RADIO STATION_REFCO", "RADAR STATION", the displayed symbol is the complex object "LIGHT HOUSE".

Correction

The chart plotter can automatically correct fixes from the positioning instrument which have a low accuracy level (use this function carefully as misuse can cause positioning errors.To compute the fix error in automatic mode, move the cursor to the ship's real position and then follow the appropriate procedure. It is also possible to compute the fix error in manual mode. Once you compute the error, you may turn the fix correction On or Off.

Cross Track error (XTE)

The distance from the ship's present position to the closest point on a line between the origin and destinations Waypoints of the navigation leg being travelled.

Datum

The Latitude and Longitude lines printed on any map are based on certain models of the shape of the earth: these models are called "Datum" or "Coordinate Systems". There are many different Datum in use, each one gives different Lat/Lon positions for an identical point on the surface of the earth (for more information see Part A of "C-MAP NT Handbook").

Dead Reconing

The process of determining the position of the ship at any instant by applying to the last well-determined position the run that has since been made, usually based on the recent history of speed (SOG) and heading (COG) measurements.

Dedicated key

A key with permanently defined function. These keys are labelled on the fron panel of the chart plotter.

Default

Indicates a value when the user has not defined a particular value. The user can modify this value using the menu settings.

Depth Lines

Lines that connect points at same depth.

DGPS = Differential GPS

The *Differential GPS* or simply DGPS is a sophisticated form of GPS, which provides even greater positioning accuracy than standard GPS (for more information see Part B of "C-MAP NT Handbook").

DTG = Distance To Go

The actual distance to reach the target.

Event

User point refers to the ship's position. It is simply a way of marking where the boat is.

External Waypoint

The coordinates of a Waypoint, received from a GPS or a Loran connected to the chart plotter, can be stored into the plotter, if the GPS or the Loran are NMEA-0183 protocol compatible and support the $BWC sentence (this symbol remains on the screen for 30 seconds). The user may save it by placing a Waypoint or a Mark onto that symbol. As soon as the chart plotter receives another $BWC sentence with the coordinates of a new Waypoint, the symbol moves to the new point.

File

A file is a collection of information (of the same type) stored on a user cartridge. Each file must have a unique name, ideally one that describes its contents. The names of your files are kept in a directory on each user cartridge. If you want to know which files are on your user cartridge, you can use the "User C-CARD" option.

Formatting

Formatting user cartridge must be done before using a new user cartridge: this operation prepares the user cartridge to receive and store information. Before you start the formatting procedure, insert a new user cartridge into the slot and follow the appropriate procedure. Be sure to label it; the label will remind you that you have formatted the user cartridge, and will help you identify its contents. A used user cartridge can also be formatted; if a used user cartridge is formatted, however, all previously stored data on the user cartridge will be lost completely.Formatting a user cartridge destroys all information on it.

From-To (FR-TO)

The function From-To allows you to calculate distance and bearing between two given points.

GPS = Global Positioning System

The GPS is a satellite based navigation system operated by the US Department of Defense . It gives the navigator a position 24 hours a day, 365 days a year under any weather conditions (for more details see Part B of "C-MAP NT Handbook").

HDG = Heading

The horizontal direction in which a ship actually points or heads at any instant (see also COG).

HDOP = Horizontal Dilution Of Precision

HDOP is the index for position-fixing accuracy. The smaller the HDOP value, the more accurately position can be fixed. (for more details see Part B of "C-MAP NT Handbook").

Info Level Detailed

The Information shown is: production information (source of data); digitalization information (quality of information); survey information; ECDIS visualization scale range, (eventual) external graphic file.

Loran

The Loran Chains are groups of trasmitting stations that use timed radio pulse trasmissions.

Magnetic Variation

The difference in degrees between the True North and the Magnetic North.

Magnetic Deviation

The angle between the Magnetic North and the Compass North.

Map Rotation

You can select the normal orientation of your chart according to your personal preference. The orientation can be North-Up, Course-Up and Head-Up.

- North-Up: the map is shown with North upwards. This is the standard orientation for the map;
- Course-Up: the map is shown with the currently selected course leg upwards. If you change course, the chart will rotate to keep the course upwards.
- Head-Up: the map is shown with the ship's current heading upwards.

Also it is possible to select the resolution, setting a value in the range [5, 30] degree.

Mark

Marks are reference points related to Cross-Hair position.

MOB = Man OverBoard

The Man Overboard function is an important function should someone or something falls overboard.

Navigation

In Navigation mode all operations refer to the ship's position. It monitors the navigation, provided a positioning instrument is connected and working properly. When the ship's position will eventually reach one edge of the screen, the chart will shift in order to scroll in the direction the vessel is moving to. Unlike the Charting mode, when the Cross-Hair "bumps" the edge of the chart, no redrawing will take place. Your boat will never leave the chart while in Navigation mode.

NMEA-0183

The NMEA-0183 Data Interface Standard was developed by the National Marine Electronics Association of America. It is an International standard that enables equipment from many different manufactures to be connected together and to share information (for more details see Part B of "C-MAP NT Handbook").

OSGB

A coordinate system describing only Great Britain. Generally used with GBR36 datum, which also described only Great Britain. This coordinate system cannot be used in any other part of the world.

Pan

This function allows you the video window changed: the point indicated by the cursor or by the ship's position, depending on the set operation mode (Charting or Navigation,) will shift to the center of the screen.

Plotter Mode

You can select the Plotter Mode On which allows you to zoom-in and pan everywhere regardless the existence of data. While in virtual cartography (Plotter Mode On) setting Plotter Mode Off from menu, the chart plotter displays the previous scale level with charts. The same behaviour exiting from charts coverage panning with the Cross-Hair (in Charting) or due to a ship movement (in Navigation) while in Plotter Mode Off. When Plotter Mode On, it is also possible to have virtual cartography between two subsequent scale levels with charts.

Position Filter

The chart plotter can filter the fix received from a positioning device. In case of a jittering fix this option makes the ship' position more stable and track smoother. This is called Position Filter. The plotter can set the filter step for the position.

Rolling Road Scale

BD (Threedimensional) representation of the ship's movement related to a Target, shown the Cross Track Error too.

Route

Sequece of Waypoint connecting by segments.

Simulation

The Simulation mode allows you to use your plotter without input data. It generates a display with a moving vessel, so that you can practice using the controls in safety.

SOG = Speed Over Ground

A calculation of the rate of movement of the ship over the ground.

Speed Filter

The chart plotter can filter the speed of the ship, to regularize the speed. The plotter can set the filter step for the speed.

Soft key

A key without a printed label, whose function depends on the context in which it is used. The current function is indicated by a label on the screen immediately above the soft key.

STR = Steering

The difference between COG and CTS. If COG is 25° and CTS is 30°, then STR is 5° Right.

Target

To tag on the chart the point which the ship goes to, you can use a special Mark, called the Target.

TD = Time Difference

Loran-C positions are determined by precise timining of the intervals between reception of pulses trasmitted by pairs of stations in the selected chain. Between any two stations a ship must be located somewhere along a line of possible positions where the measured Time Difference, TD, between arrival of pulses from those stations would be observed. The TD is measured from the time of reception of the master station signal to the time of reception of the slave station signal.

Time Line

The location where the ship will be after the time set by the user.