SI-TEX«««®

ONYX

Monochromatic chartplotter with Internal *GPS Receiver*
CODE: A7IGsw11m1/...m6 500a733/260202

ULTRACOLOR Plus

Sunlight Readable Display Color chartplotter with Internal *GPS Receiver* & *Video Camera* Input
CODE: A7IGsw11c1/...c6 500a697/260202

USER MANUAL

Warning!

Electronic charts displayed by the chartplotter 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 would 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 chartplotter is not built water proof. Please give attention to avoid water intrusion into the chartplotter. Water damage is not covered by the warranty.

■ Extensive exposure to heat may result in damage to the chartplotter.

■ Connection to the power source with reversed polarity will damage the chartplotter severely. This damage may not be covered by the warranty.

■ The chartplotter contains dangerous high voltage circuits which only experienced technicians can handle.

■ The C-MAP NT+ C-CARD are available from your local dealer.

■ We will not be liable for errors contained herein, or for incidental or consequential damages in connection with the performance or use of this material.

■ 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.
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.

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Introduction

Congratulations on your purchase of the ONYX/ULTRACOLOR Plus!

If you have not used a position-finding instrument before and intend to use your chartplotter for navigating, we suggest you should read this User Manual and make sure you are familiar with its contents. The User Manual is related both to the monochromatic (ONYX) and color (ULTRACOLOR Plus) model of the chartplotter.

The User Manual is divided into three main parts. Chapter "Before You Begin" introduces you to the basic information to get you start using the chartplotter. Chapter "For the New User" should be read first to become familiar with your new instrument. Chapter "For the Experienced User" introduces the advanced features of the chartplotter.

1.1   CONVENTIONS

Throughout this User Manual, the labelled keys are shown in capitals letters enclosed between single inverted commas, for example 'MENU'; the software keys are shown in small capitals letters enclosed between single inverted commas, for example 'EDIT'.

Menu operations are in bold characters listed by keys sequence with the menu names enclosed between inverted commas, for example **'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS + 'ENTER'** means: press the 'MENU' key, using the *Joystick* to select the ADVANCED menu and press 'ENTER' to go in it; then using the *Joystick* to select the FIX & COMPASS menu and press 'ENTER' to go in it.

Terms underlined, for example <u>Target</u>, are explained in the Appendix A.

1.2 FEATURES

The chartplotter 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, the chartplotter displays the current position, the speed, and the heading of the boat and its Track. The user information like Waypoints, Marks and Tracks can then be stored on a User C-CARD and can be recalled at any time. On the screen are shown navigation data and cartographic information obtained from electronic charts of **C-MAP NT+ C-CARD**.

When the package containing the chartplotter is first opened, please check it for the following contents (if any parts are missing contact the dealer the chartplotter was purchased from):
- External bracket and I/O cable 1,5 mt/5.9"
- Chartplotter's protective cover
- Floush mounting kit
- GPS Antenna
- User Manual

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
Fuse 2 Amp. + fuseholder.

C-MAP NT+ C-CARD (cartography data cards) are available through your local dealer. For additional information on C-MAP Cartography visit web site at www.c-map.com.

1.2.1 SPECIFICATIONS
1.2.1.1 MAIN CHARACTERISTICS
Recordable Individual points
- User Points   : 1000
- Type of User Points : 16

Routes
- Routes   : 50
- Max User Points per Route : 50

Tracking
- Tracks   : 5
- Points per Track   : 5000
- Step by Distance   : 0.01, 0.05, 0.1, 0.5, 1, 2, 5, 10 Nm
- Step by Time   : 1, 5, 10, 30 Sec, 1 Min

Cartographic Functions
- Worldwide Background
- Built-in Continental Cartography
- Detailed Map by using **C-MAP NT + C-CARD**
- Coordinates System (ddd mm ss, ddd mm.mm, ddd mm.mmm, UTM, OSGB, TD)
- Map Datum
- Data Window mode
- Display Mode (Full, Simple, Fishing, Low, Custom)
- Marine

   Names, Nav-Aids, Light Sectors, Attention Areas, Tides & Currents, Seabed Type, Ports & Services, Tracks & Routes
- Depth

   Depth Areas, Depth Areas Min/Max, Depth Lines & Sndgs, Depth Lines & Sndgs Min/Max
- Land

   Natural Features, Rivers & Lakes, Cultural Features, Landmarks
- Chart

   Lat/Lon Grid, Chart Boundaries, Cartography, Mixing Levels, Declutter, Map Presentation

Fix Functions
- DGPS
- WAAS
- Fix Correction (manual and automatic)
- Position Filter
- Speed Filter
- Map Orientation (North, Course)
- Fix Datum
- Compass Calibration
- Bearings True and Magnetic
- Variation user selectable
- Static Navigation

Report Functions
- Depth Graph page
- Depth Graph Full page
- Navigation Data page (change the fields)
- 3D Road page (change the fields)
- GPS Status page
- GPS Data page

- Wind Data Page
- Wind Speed Page
- Wind Direction Page
- User Points List page
- About page

Special Functions
- Auto Info
- Find
  Port Services, Port Tide Stations, Wrecks, Obstructions, Cursor, Coordinates, User Points
- R/B Function
- Navigation to Destination
- Speed Unit (Mph, Kts, Kph)
- Distance Unit (Km, Nm, Sm)
- Depth Unit (Ft, FM, Mt)
- Altitude Unit (Ft, FL, Mt)
- Date & Time Setup (Local, UTC)
- Keypad Beep selection
- Alarms Handling
  Arrival Alarm, XTE Alarm, Anchor Alarm, Depth Alarm, Grounding Alarm, Grounding Depth Limit, Grounding Alarm Range, Grounding Alarm Report
- MOB Function
- Simulation
  Speed, Heading, Date, Time, Cursor Control, Simulation On/Off

Auxiliary Memory
- User C-CARD 1MB (about 52,000 Track point; 26,000 User Points available)

Interface
- Two ports I/O
- Printer Output

1.2.1.2 PHISICAL CHARACTERISTICS

Chartplotter size (inch/mm)
- Monochromatic: 13"x 9.1"x 1.9" (329mm x 230.5mm x 47mm)
- Color: 13"x 9.1"x 2" (329mm x 230.5mm x 53mm)

Chartplotter weight
- Monochromatic: 1,4 Kg
- Color: 1,6 Kg

LCD display
- Monochromatic: Monochromatic transflective LCD *(active area 9.4")*

- Color: Color TFT transflective LCD *(active area 10.4")*
- Resolution: 640 x 480 pixels

Video Input (ONLY for COLOR chartplotters)
- PAL or NTSC video signals automatically selected

Power consumption
- Monochromatic: 6 Watt, 10–35 Volt DC
- Color: 16,5 Watt, 10–35 Volt DC

Operating Temperature Range
- From 0°C to 55°C (from 32°F to 131°F)

Memory
- Non volatile with battery back-up

Keyboard
- Backlighted, silicon rubber

1.2.1.3 GPS RECEIVER SPECIFICATIONS

Receiver
- L1, C/A code, WAAS ready

Channels
- 12

Max Solution Update Rate
- 10/sec

Cold Start (avg)
- < 45 sec

Warm Start (avg)
- < 40 sec

Hot Start (avg)
- 8 sec

1.3 BASICS

The chartplotter is controlled by using fourteen keys. Ten keys are labelled and are dedicated to specific functions. The other four are software keys (hereinafter named soft keys) and have different functions when you select different modes of operation: their labels are shown on the screen immediately above the keys (the user can customize the function associated, see Par. 2.1.1). There is also a *Joystick* to move a cursor across the screen.
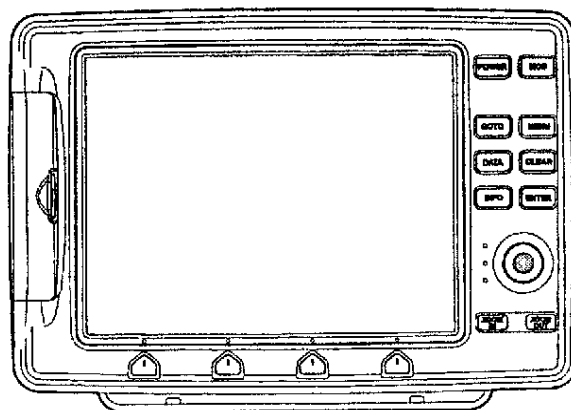
Fig. 1.3 - The chartplotter

As you press a key, a single audio beep confirms the key action; every time the key pressed is not valid, three rapid beeps sound indicates that no response is available. Note that it is possible to enable (On) or disable (Off) the keypad beep following the procedure:

➤ 'MENU' + "GENERAL" + 'ENTER' + "Keypad Beep" + 'ENTER'

2

Before You Begin

This chapter provides basic information to get you start using the chartplotter; it will help you to become familiar with the chart display and the functions of the controls before you start using the chartplotter.

2.1 THE KEYBOARD

The [POWER] key

Press 'POWER' to turn the chartplotter On. Press and hold 'POWER' down (once the chartplotter has been turned On) for 3 seconds turns the chartplotter Off. Press and immediately release 'POWER' to adjust the backlight and contrast of the display.

The [MOB] key

Press 'MOB' to insert the MOB (Man OverBoard). Press 'MOB' when the MOB is already present deletes it.

The [CLEAR] key

Press 'CLEAR' to exit from menu or to leave a menu without making changes. If you are not into a menu, sets the Navigate mode (Home).

Note_____ **ONLY FOR COLOR CHARTPLOTTER**
Pressing 'CLEAR' for 3 seconds activates the Video Mode (also it is possible to activate the Video Mode from menu, see Video Input menu in Cap. 5). Once the Video Mode is active use the following keys to adjust video settings: press and immediately release 'POWER', use the 'CONTR + '/'CONTR-' and 'BRIGHT + '/'BRIGHT-' soft keys to adjust contrast and backlight; move the Joystick up/down to adjust brightness and left/right to adjust colors; press 'ZOOM IN'/ZOOM OUT' to adjust hue phase.

The [ENTER] key

Press 'ENTER' to select the preferred option, to confirm selection, to create Objects (Mark, Waypoint, R/B).

The [GOTO] key

Press 'GOTO' to select the Goto function.

The [DATA] key

Press 'DATA' to select the configuration you wish among cartography and text area, Depth Graph pages, GPS Data page, GPS Status Page, Navigation Data page, 3D Road Data page, Wind Data page, Wind Speed page, Wind Direction page.

The [INFO] key

Press 'INFO' to select Info function.

The [ZOOM IN] and [ZOOM OUT] keys

Press 'ZOOM IN' shows more details of a smaller area, by changing the chart scale and zooming in on your display. Press 'ZOOM OUT' to operate similarly to the 'ZOOM IN', except in reverse, changing the scale and showing a wider, otherwise less detailed view.

The [MENU] key

Press 'MENU' to select the FUNCTIONS Menu. When in Functions Menu, moving the *Joystick* to the right enters a selection, moving the *Joystick* to the left clears the function.

If pressing 'MENU' for 3 seconds from chart and data page allows to customize all data fields shown in the selected page.

The ⊙ *Joystick*

The *Joystick* moves the cursor about on the display screen, quickly and accurately. It also scrolls the preferred option in the menu page(s).

If in Navigate (Home) mode, it allows to exit from navigate mode.

The ⌂ soft key

The software keys (hereinafter named soft keys) can have different functions when you select different operations, for example info on cartographic objects, management of Marks and Waypoints... . Also they are used from the chart screen or from the data pages to select one of the data pages available to allow faster access to the page selection executable from the Main Menu.

When the chart page is selected, the soft key labels are not shown. By pressing one of the four soft keys their labels for the current functions are shown on the screen immediately above the soft keys. When the soft key labels are shown, pressing the associated soft key the relative function is executed. Pressing 'CLEAR' the four soft key labels disappear.

2.1.1 SOFT KEYS CUSTOMIZATION

When the soft keys labels are shown the user can customize them. Pressing and holding down any of the four soft key shows a pop-up window on the top of the soft key pressed that contains all possible data pages assignable to the soft key pressed.
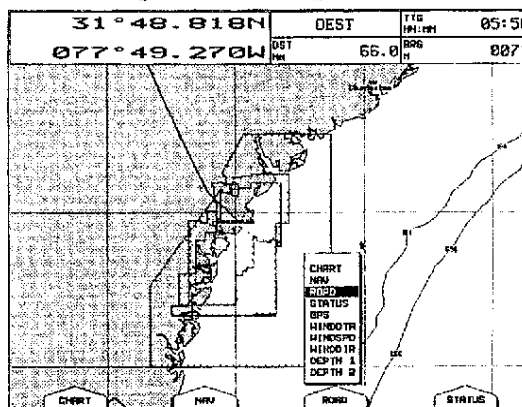
Fig. 2.1.1 - The soft keys labels customization

Move the *Joystick* up/down to place the selector on the preferred item; move the *Joystick* to the right or press 'ENTER' to set the selected item; move the *Joystick* to the left or press 'CLEAR' to close the pop-up window.

The possible choices are:

CHART	'CHART'	(Chart and data page, see Par. 3.1.1)
NAVIGATION	'NAV'	(Navigation Data page, see Par. 3.1.3)
3D ROAD	'ROAD'	(3D Road page, see Par. 3.1.4)
GPS STATUS	'STATUS'	(GPS Status page, see Par. 3.1.5)
GPS DATA	'GPS'	(GPS Data page, see Par. 3.1.6)
WIND DATA	'WINDDTA'	(Wind Data page, see Par. 3.1.7)
WIND SPEED	'WINDSPD'	(Wind Speed page, see Par. 3.1.8)
WIND DIRECTION	'WINDDIR'	(Wind Direction page, see Par. 3.1.9)
DEPTH	'DEPTH 1'	(Depth page, see Par. 3.1.2)
DEPTH FULL	'DEPTH 2'	(Depth Full page, see Par. 3.1.2)

The default settings for the soft keys labels are: 'CHART', 'NAV', 'ROAD', 'STATUS'.

Note _____

The following figures on this User Manual could not display the default soft keys labels.

2.2 TURNING THE CHARTPLOTTER ON AND OFF

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

POWER & I/O CONNECTOR		
PIN #	CABLE WIRE COLOR	FUNCTION
1	BLACK	PWR - (GND)
2	RED	PWR + (10-35 Vdc)

Fig. 2.2 - Power On

2.2.1 TURNING ON

Press and hold 'POWER' for 1 second. The chartplotter emits one rapid beep sound, and a title page is opened:
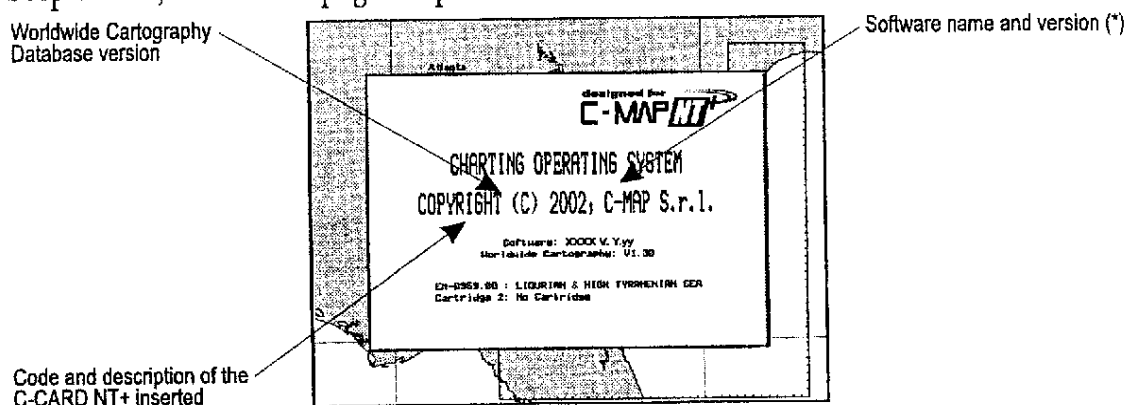
Fig. 2.2.1 - Title page

Note (*)
The software version is subject to change without notice. This User Manual is valid anyway.

After a few seconds, the first of the two Caution Notice pages is displayed, reminding you the chartplotter 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. Then the cartographic screen is displayed.

2.2.2 TURNING OFF

Press 'POWER' and hold for 3 seconds: a countdown timer appears on the screen, if you release the key before the countdown timer reaches zero, the chartplotter will remain On.

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2.3 CHANGING BACKLIGHT AND CONTRAST

Press and immediately release 'POWER' (do not press and hold the key, or the "power-off" message will be displayed!). Two sliders appear on the screen, showing the current settings for backlight and contrast.
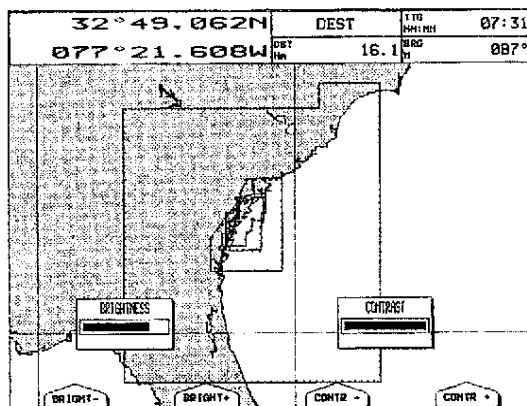
Fig. 2.3 - Brightness and Contrast control

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

To change the contrast operate in the same mode, using 'CONTR -' and 'CONTR + '.

The new backlight and contrast levels are retained until you reset them or turn Off the chartplotter.

WARNING !!!
At very low temperatures the CCFL backlight may not glow properly. Allow a few minutes for it to warm up.

2.4 SELECTING THE LANGUAGE

It is possible to select the language in which you wish information to be displayed (for screen labels, menus and options, but it is not affect the map information). The <u>default</u> setting is English.

➤ 'MENU' + "GENERAL" + 'ENTER' + "Language" + 'ENTER'
   Choose the language you prefer and press 'ENTER' to confirm.

2.5   EXTERNAL CONNECTIONS

2.5.1   EXTERNAL NMEA-0183

Sets the format for the navigation data input serial Port1 (POWER & I/O). For example to set the Port as NMEA-0183 (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), (4800-N81-N), (4800-N82-N), (9600-O81-N), (9600-N81-N). The default setting is (4800-N81-N).

> ➤   'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "External NMEA0183" + 'ENTER' + "4800-N81-N" + 'ENTER'
> Choose your preferred setting and press 'ENTER' to confirm.

To connect an external NMEA-0183 device (GPS, depth, wind, ...) to the chartplotter the setting is External NMEA0183 4800-N81-N.

POWER & I/O CONNECTOR		
PIN #	WIRE COLOR	FUNCTION
3	WHITE	NMEA 1 INPUT + (OPTOISOLATED)
4	GREEN	NMEA 1 INPUT - (OPTOISOLATED)

EXTERNAL NMEA0183 DEVICE
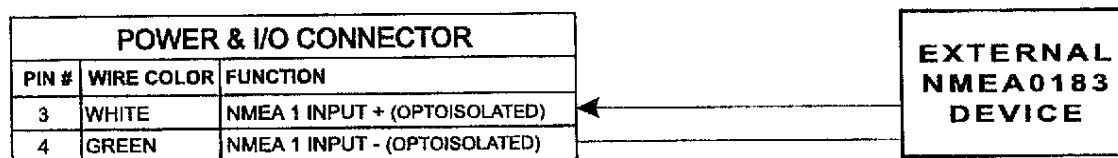
Fig. 2.5.1 - External Input

2.5.2   INTERNAL GPS

The setting should be On.

> ➤   'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Internal GPS" + 'ENTER' + "ON" + 'ENTER'

2.5.3   INTERNAL GPS SETUP

It is possible to set the your preferred configuration for the Internal GPS.

> ➤   'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "INTERNAL GPS SETUP" + 'ENTER'

2.5.3.1 Restart GPS

Restars all GPS processes.

> ➤   'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "INTERNAL GPS SETUP" + 'ENTER' + "Restart GPS" + 'ENTER'

2.5.3.2 Static Navigation

Sets up a threshold for the speed. When the speed received from the positioning device is under that threshold, the chartplotter displays zero. The default value is On.

➤ 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "INTERNAL GPS SETUP" + 'ENTER' + "Static Navigation" + 'ENTER'

2.5.3.3 Differential Correction Source

Allows the selection of the Differential Correction signal source among None, WAAS and DGPS. The default setting is WAAS.
➤ 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "INTERNAL GPS SETUP" + 'ENTER' + "Diff Correction Source" + 'ENTER'

2.5.3.4 External RTCM Baud Rate

Allows the selection of the Baud Rate of the External RTCM data (among 1200, 2400, 4800, 9600, 19200 and 38400 Baud; it is possible also to disable). It is activated only when the Differential Correction Source is set to External RTCM. The default setting is 4800 Baud.
➤ 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "INTERNAL GPS SETUP" + 'ENTER' + "External RTCM Baud Rate" + 'ENTER'

2.5.4 NMEA OUTPUT FORMAT

Disables (Off) or sets the interface as 0183. The default setting is 0183.
➤ 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "NMEA Output Format" + 'ENTER'

2.5.5 NMEA OUTPUT

The chartplotter can be connected to external equipment that accepts NMEA-0183 data input. Once attached, the output of NMEA formatted position information can be enabled in the following manner:
➤ 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "NMEA Output" + 'ENTER'

The Output NMEA-0183 messages are the following: APA, APB, BOD, BWC, GGA, GLL, HSC, RMA, RMB, RMC, VTG, WCV, XTE. The default setting is Off for all sentences expect for GLL, VTG and APA.

POWER & I/O CONNECTOR			
PIN #	WIRE COLOR	FUNCTION	
1	BLACK	PWR - (GND)	
5	GRAY	NMEA OUTPUT -	

EXTERNAL
NMEA0183
DEVICE
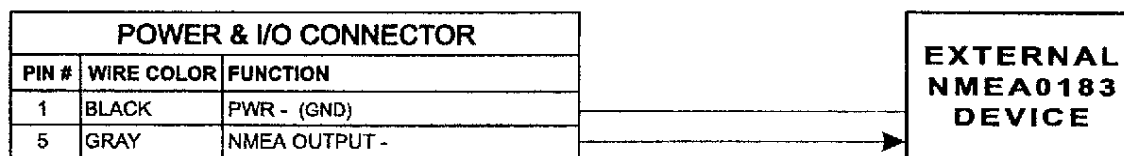
Fig. 2.5.5 - NMEA Connections

2.5.6 CABLE WIRING

Shows a window containing the inteface cable wiring. See Par. 6.3 and 6.4.
➤ 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Cable Wiring" + 'ENTER'

2.6 ADDITIONAL C-CARDS

The chartplotter uses two types of C-MAP cartridges: either a chart cartridge or a data storage cartridge. A chart cartridge, called C-CARD, contains detailed charts of the area covered. A data storage cartridge, called User C-CARD can be used to permanently store your Routes, Waypoints, Marks, Events and Tracks (see Par. 4.6).

2.6.1 INSERTING C-CARD

Hold the C-CARD by the short inclined side so that you can see the C-MAP label.
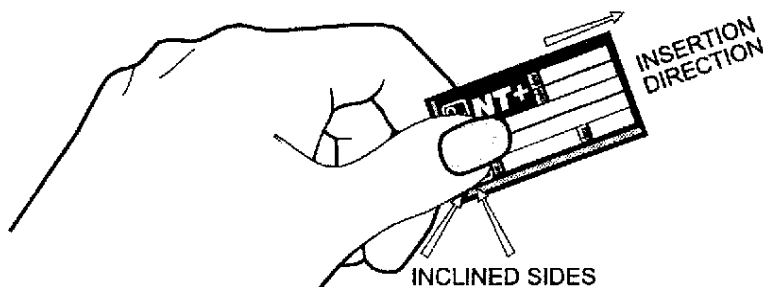
Fig. 2.6.1 - Inserting C-CARD (I)

Open the door (see left side of Fig. 2.6.1a), gently push the C-CARD into one of the two slots; push the C-CARD in as far as it will go, then close the door to hold fixed into the slot.
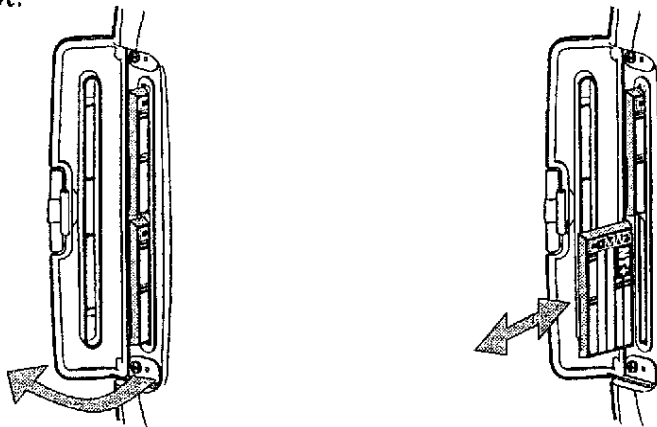
Fig. 2.6.1a - Inserting C-CARD (II)

2.6.2 REMOVING C-CARD

Open the door and remove the C-CARD out of one of the two slots (as shown in the right side of the previous Fig. 2.6.1a).

Note _____

C-MAP is continuously creating new charts and revising old ones. If you wish to receive information on the newest availbale charts, you can write for the catalog of available **C-MAP NT+** *C-CARD at your dealer.*

2.7   PRINT SCREEN ON PAPER

The user can print the screen image on paper, if the chartplotter is connected to a printer. To set the printer, see Par. 6.6.

To activate the print screen press and hold 'MENU' until you hear beeps. To print one page it takes several minutes. To abort print screen press 'CLEAR'.

To select the preferred settings:

➤ 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Printer Output" + 'ENTER'

2.8   MENU OPTIONS

You may select how the chartplotter displays primary information (such as how time is displayed) from the Functions Menu.

➤ 'MENU'

2.9   DATA ENTRY

Information is keyed into the chartplotter when editing a <u>Waypoint</u>, entering a <u>Route</u> or using the Fix <u>Correction</u> functions. When the field is highlighted:

- Enter or edit data by pressing up/down *Joystick* to step through the available characters until the preferred character is displayed.

- Press right *Joystick* to move the cursor to the right.

- Use left *Joystick* to move the cursor to the left.

3
For the New User

In order to get started using your chartplotter, you must do the following things:

1) Your chartplotter must have been installed properly according to the installation instruction on Par. 6.2.

2) You must have performed the proper settings for use with your positioning instrument (see Par. 2.5) and inserting the C-CARD for navigating in area you wish (see Par. 2.6).

3) You must have turned on the chartplotter and adjust the brightness and contrast of the display (see Par. 2.2 and 2.3).

Once this is done, you can use your chartplotter for navigation.

3.1   SCREEN DISPLAY CONFIGURATION

The screen display can be shown in different modes: Chart page, Depth Graph pages, Navigation Data page, 3D Road Data page, GPS Data page, GPS Status page, Wind Data page, Wind Speed page, Wind Direction page. See the following paragraphs.

3.1.1   CHART DISPLAY

It is very important to access the information you need as you need it and understand what is displayed on the screen.

➤   'DATA' + "CHART DISPLAY" + 'ENTER'

or

➤   press any soft keys + 'CHART' (if it is present)

Shows the chart display and Text Area (if selected). With the following procedure:

➤ 'MENU' + "DISPLAY" + 'ENTER' + "Data Window Mode" + 'ENTER'

it is possible to customize the Text Area layout among Full Screen, Text Area with 5 boxes and Text Area with 8 boxes.

No Data Window

Data Window with 5 boxes

Data Window with 8 boxes
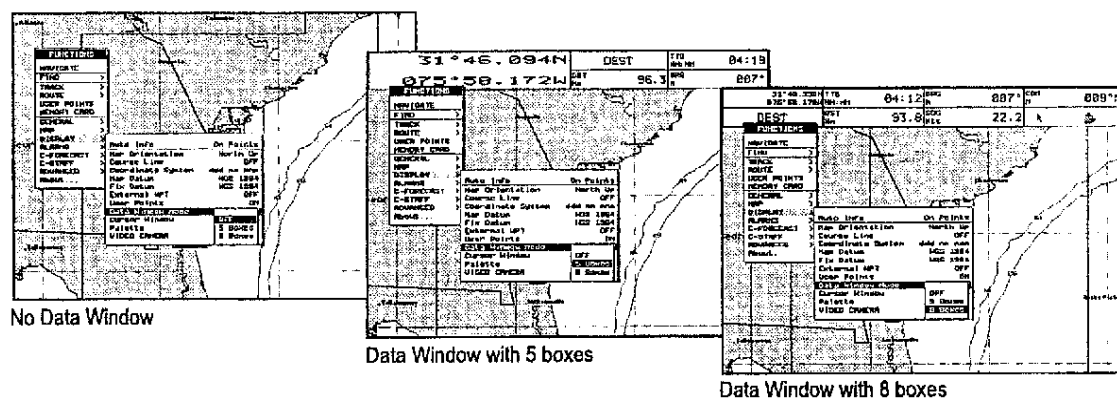
Fig. 3.1.1 - Text Area layout

It is also possible to edit fields shown in every screen configuration. Edit mode is activated directly from the chart display pressing 'MENU' for 3 seconds. Once the Edit mode is active, the first box with the label turns in reverse video screen. The user can choose the active box by moving the *Joystick* left or right. Pressing 'ENTER' the user can choose the data to be shown on the selected field by moving through the selections and pressing 'ENTER' again.
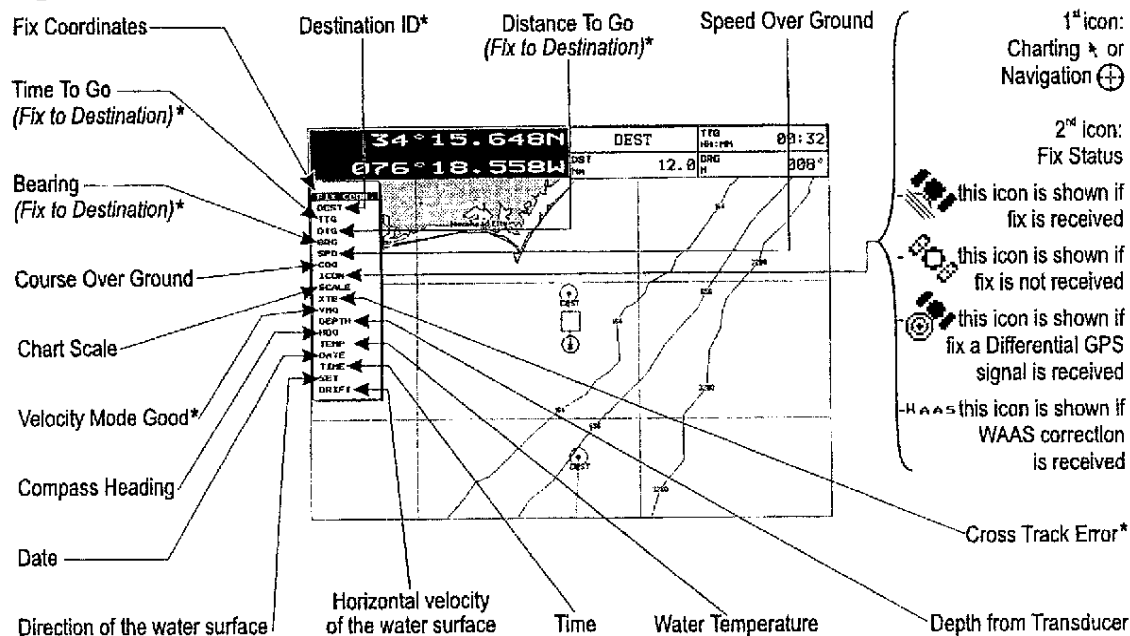
Fig. 3.1.1a - Edit mode

Note

(*) It will be shown only if the Destination is present.

Once 'ENTER' is pressed the data type is set. The selection window is closed and the Text Area changes according to the selected data type. Press 'CLEAR' to exit the Edit mode.

Note _____

The Display Menu can be selected only from the Chart Display page and the Depth Graph page in split mode.

3.1.2 DEPTH GRAPH PAGES

The Depth graph can be shown in two different modes. To select the Depth Graph in split mode:

➤ 'DATA' + "DEPTH GRAPH" + 'ENTER'

or

➤ press any soft keys + 'DEPTH 1' (if it is present)
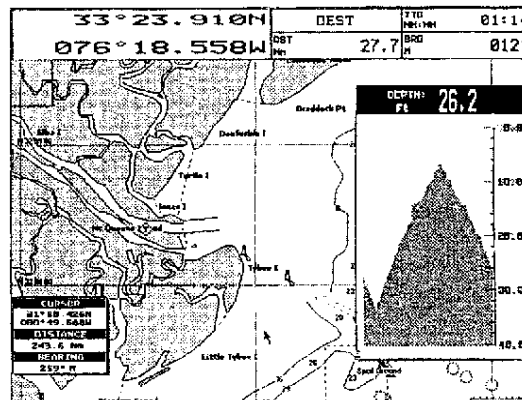
Fig. 3.1.2 - The Depth Graph in split mode

Otherwise selecting the Depth graph displayed at full screen:

➤ 'DATA' + "DEPTH GRAPH FULL" + 'ENTER'

or

➤ press any soft keys + 'DEPTH 2' (if it is present)
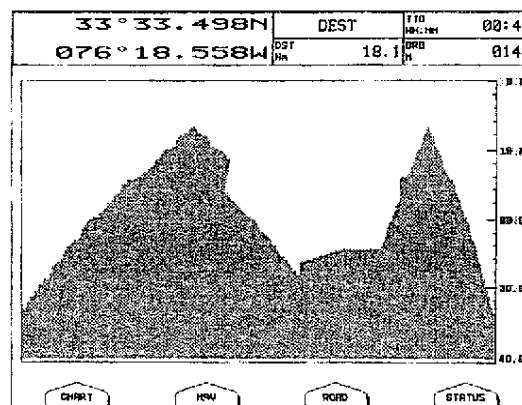
Fig. 3.1.2a - The Depth Graph Full

3.1.3 NAVIGATION DATA PAGE

The Navigation Data page shows information about the most relevant navigation information, the status of the received signal and ship's coordinates. It is possible to customize the information contained in the page selecting the Nav Display menu (see Par. 5.2).

➤ 'DATA' + "NAVIGATION DATA" + 'ENTER'

or

➤ press any soft keys + 'NAV' (if it is present)
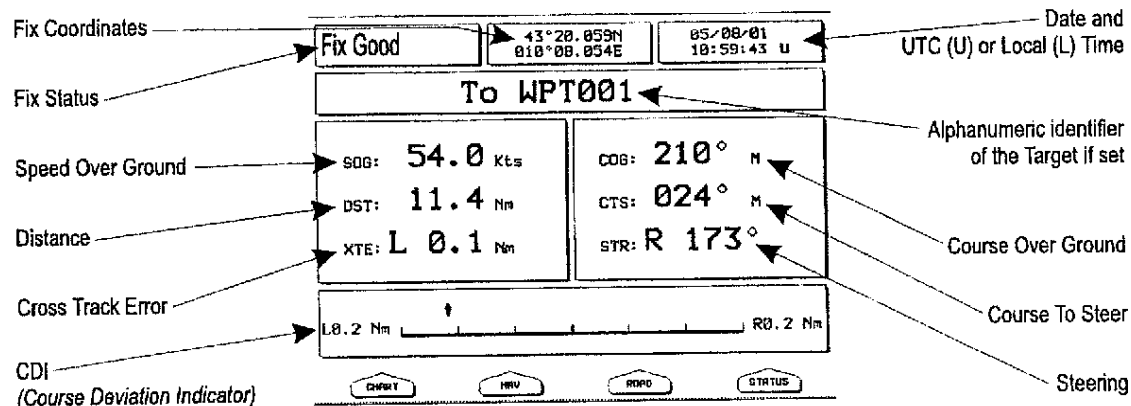
Fig. 3.1.3 - Navigation Data Page

3.1.4 3D ROAD PAGE

The 3D Road Data Page shows in graphic mode navigation data. It is possible to customize the information contained in the page selecting the Nav Display menu (see Par. 5.2).

➤ 'DATA' + "3D ROAD" + 'ENTER'

or

➤ press any soft keys + 'ROAD' (if it is present)
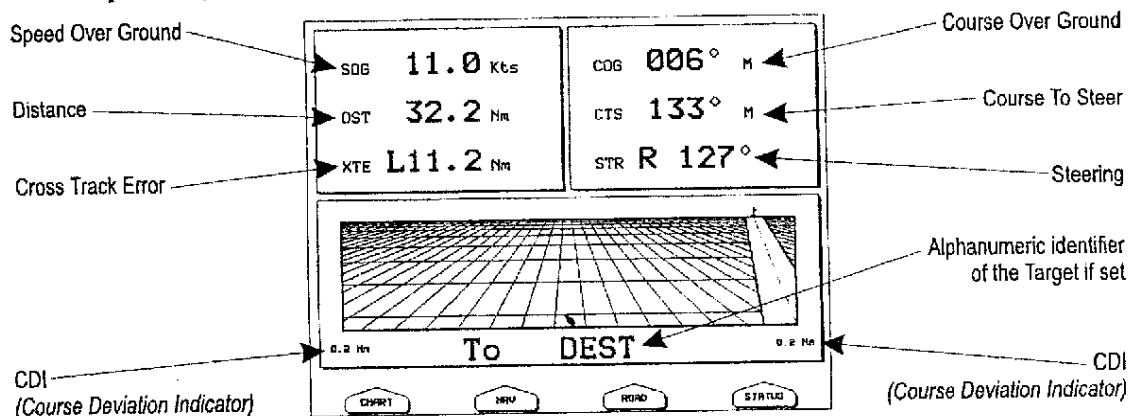
Fig. 3.1.4 - 3D Road Data Page

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3.1.5 GPS STATUS PAGE

The GPS Status page shows in graphic mode GPS data.
➤ 'DATA' + "GPS STATUS" + 'ENTER'

or

➤ press any soft keys + 'STATUS' (if it is present)
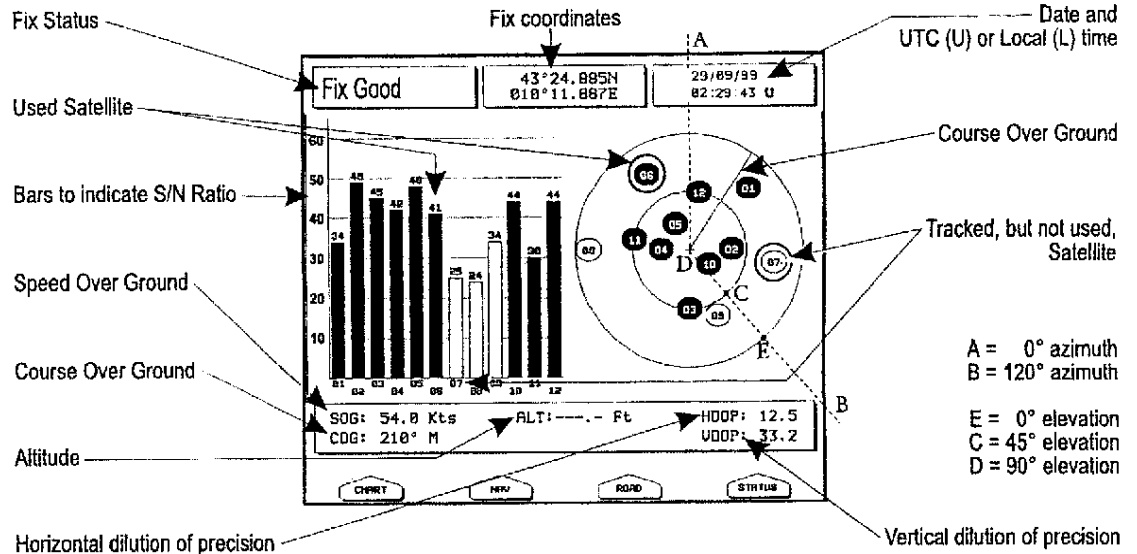
Fig. 3.1.5 - GPS Status Page

On the right side of the screen (see Fig. 3.1.5), there is a polar representation of the azimuth and elevation of each satellites. The circles contain a number indicating the PRN of the satellite and they are filled when they are used for the fix solution. On the left side there are histograms indicating the S/N ratio (SNR). The bar is filled when the satellite is used for fix solution. As example, the satellite with PRN = 10 is used for fix solution with S/N = 44, Azimuth = 119degree and Elevation = 70degree. When a valid fix is received, the Lat/Lon, Date, Time, HDOP, VDOP, ALT, COG, SOG are shown in the page.

3.1.6 GPS DATA PAGE

The GPS Data page shows the GPS data.
➤ 'DATA' + "GPS DATA" + 'ENTER'

or

➤ press any soft keys + 'GPS' (if it is present)

Speed Over Groun —
Fix Coordinates —
Course Over Ground —
Fix Status —
Date and
UTC (U) or Local (L) Time —
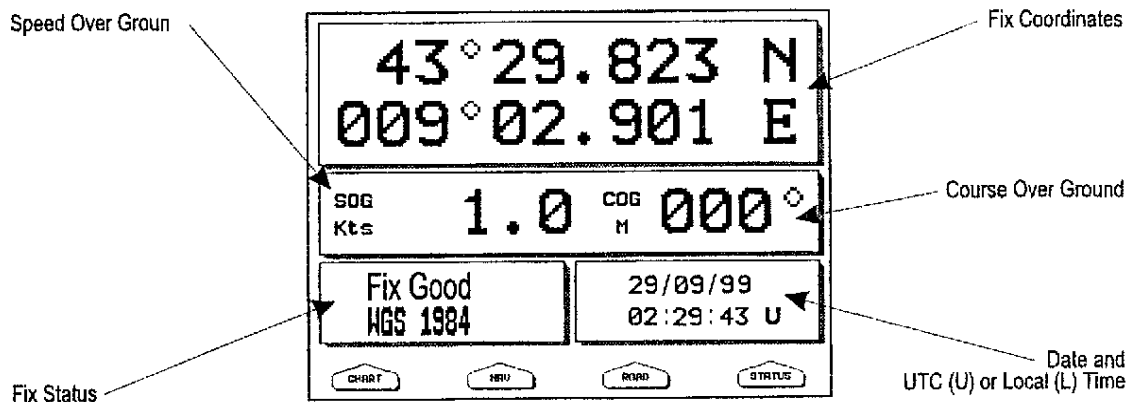
Fig. 3.1.6 - GPS Data Page

3.1.7 WIND DATA PAGE

The Wind Data Page shows data related to the wind.

➤ 'DATA' + "WIND DATA" + 'ENTER'

or

➤ press any soft keys + 'WɪɴᴅDᴛᴀ' (if it is present)
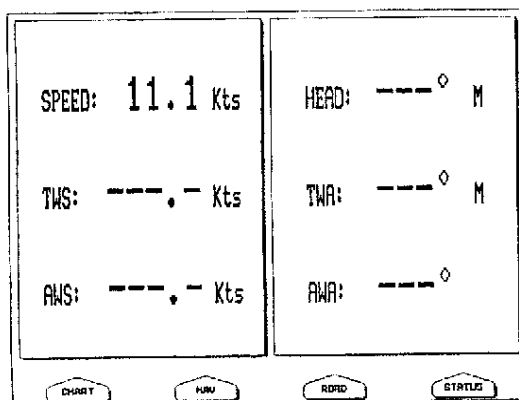
Fig. 3.1.7 - Wind Data Page

3.1.8 WIND SPEED PAGE

The Wind Speed page shows the True Wind Speed & Time Graph.

➤ 'DATA' + "WIND SPEED" + 'ENTER'

or

➤ press any soft keys + 'WɪɴᴅSᴘᴅ' (if it is present)
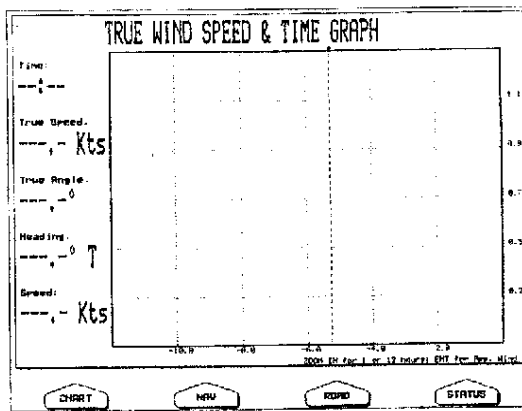
Fig. 3.1.8 - Wind Speed Page

3.1.9 WIND DIRECTION PAGE

The Wind Direction page shows the True Wind Direction & Time Graph.

➤ 'DATA' + "WIND DIRECTION" + 'ENTER'

or

➤ press any soft keys + 'WindDir' (if it is present)
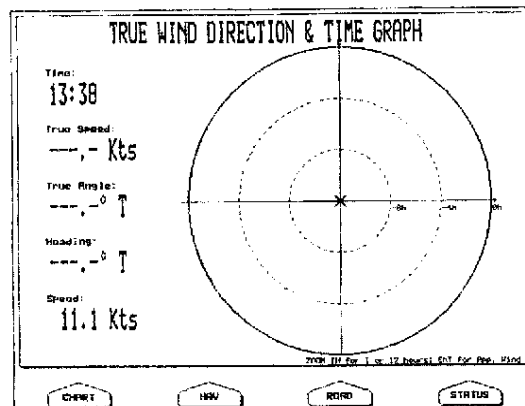
Fig. 3.1.9 - Wind Direction Page

3.2 GENERAL MENU

The General Menu provides access to the set up functions. Here you can choose the language you want (see Par. 2.4), the measure units, the date and time settings and enable or disable the Keypad Beep (see Par. 1.2).

➤ 'MENU' + "GENERAL" + 'ENTER'

3.2.1 UNITS SELECTION

Allows to select the preferred unit for Distance, Speed, Depth and Altitude (altitude of GPS Antenna on the medium sea level).

Distance & Speed Units: Nm(Nautical Miles) & Kts(knots) / Sm(statute miles) & Mph(miles per hour) /Km(chilometres) & Kph(chilometres per hour). The default setting is Nm & Kts.
> 'MENU' + "GENERAL" + 'ENTER' + "Dist&Speed Units" + 'ENTER'

Depth Unit: Ft(Feet)/FM(Fathoms)/Mt(Meters). The default setting is Ft.
> 'MENU' + "GENERAL" + 'ENTER' + "Depth Unit" + 'ENTER'

Altitude Unit: Ft(Feet)/FL(Flight Level)/Mt(Meters). The default setting is Ft.
> 'MENU' + "GENERAL" + 'ENTER' + "Altitude Unit" + 'ENTER'

3.2.2 TIME & DATE SETTING

Allows to select the preferred time and date.

Time Reference: Sets UTC or Local Time. The default setting is UTC.
> 'MENU' + "GENERAL" + 'ENTER' + "Time Reference" + 'ENTER'

Time Format: Sets you preferred time between 12 hour and 24 hour. The default setting is 24 hour.
> 'MENU' + "GENERAL" + 'ENTER' + "Time Format" + 'ENTER'

Date Format: Sets you preferred date between MM-DD-YY (month-day-year) and DD-MM-YY (day-month-year). The default setting is MM-DD-YY.
> 'MENU' + "GENERAL" + 'ENTER' + "Date Format" + 'ENTER'

3.3 NAVIGATING TO A SINGLE DESTINATION

3.3.1 DISTANCE AND BEARING TO TARGET

Once you have positioned the cursor on your preferred location press 'GOTO'.

Target ——————————————— ┌─── 30°59.279N ─►│ DEST │TTG │ 07:43│◄──────── Time to Go
                        │   079°41.874W│DST   85.7│BRG 006°│

Distance to Target ⟋   ⟍ Bearing to Target
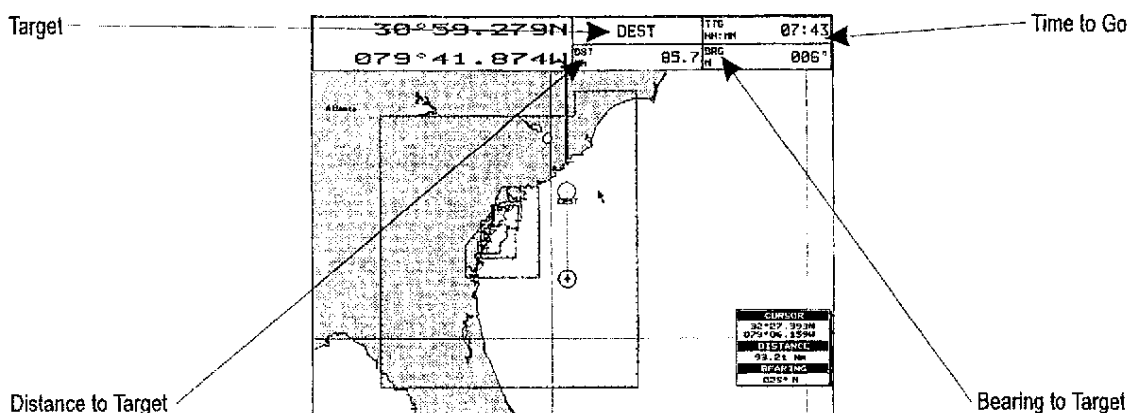
Fig. 3.3.1 - Navigation to a single destination

On the screen is shown a dotted line connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.

3.3.2 TIME TO GO

When the Target is set the <u>TTG</u> value can be displayed in the Text Area (see Par. 3.1.1). Otherwise select the 3D Road Page (see Par. 3.1.4) where you can read <u>TTG</u> value:

➤ 'DATA' + "3D ROAD" + 'ENTER'

or

➤ press any soft keys + 'ROAD' (if it is present)

3.3.3 DELETING TARGET

Place cursor on Target icon then press 'STOP'. A window appears to confirm the stop of the navigation: press 'CONFIRM' and the symbol identifies Target disappears from the screen.

3.4 NAVIGATION ON A ROUTE

Sometimes it is preferable to define a series of locations, called <u>Waypoints</u>, in a sequence called a <u>Route</u> and navigate following a <u>Route</u> towards its end point.

3.4.1 ADDING WAYPOINT

To create a <u>Waypoint</u> place the cursor on position you want, press 'ENTER',

select "WAYPOINT", press 'ENTER' again. The Waypoint appears on the screen and this becomes the first point on your first Route. An info window containing Route number, data and time, Waypoint name, symbol and Latitude/Longitude is shown.

3.4.2 CREATING A ROUTE

Repeat the "Adding Waypoint" procedure described in the previous Par. 3.4.1. The sequence of moving the cursor and pressing 'ENTER' is continued to create the Route, until you have reached the last Waypoint, your final destination. Segments connecting the Waypoints are shown and the starting point is identified by a circle surrounding the first Waypoint of the Route:
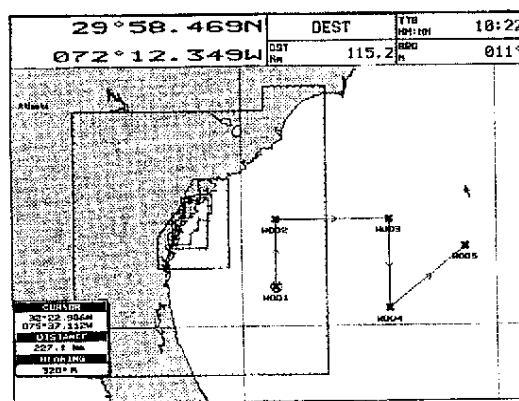
Fig. 3.4.2 - Route planning

3.4.3 DELETING WAYPOINT

Place the cursor on the Waypoint to be deleted:
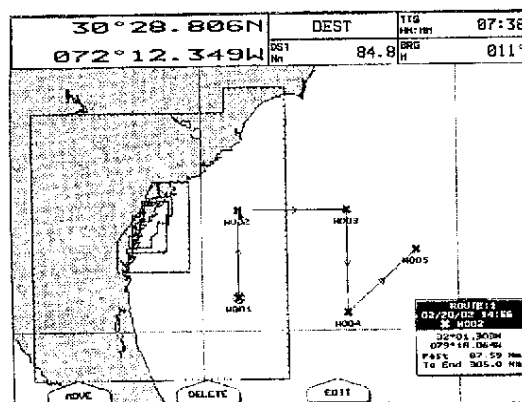
Fig. 3.4.3 - Deleting Waypoint (I)

Press 'DELETE'. A window is opened to advise that Waypoint is being used in a Route, "are you sure you want to delete it?": press 'CONFIRM' ('CANCEL' otherwise).

The Waypoint is deleted and a new line between previous and next Waypoint is shown.

The deleted Waypoint remains shaded until the screen is redrawn.

3.4.4 DISTANCE AND BEARING TO TARGET

Once you have positioned the cursor on the preferred starting Waypoint (it could be the first Waypoint of the Route or another one) press 'GOTO'.

A circle surrounds the Waypoint symbol. A dotted line is shown, connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.
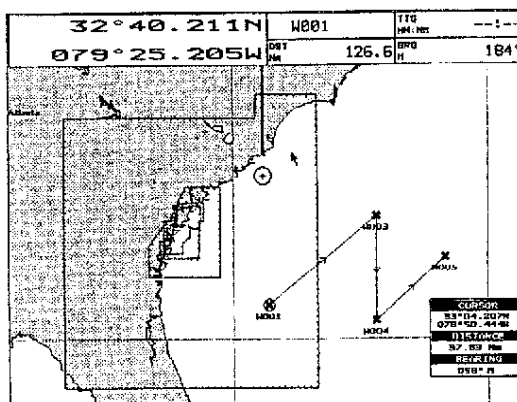
Fig. 3.4.4 - Selecting destination (Target)

The destination will automatically switch to the next Waypoint on the Route when you reach or pass the present destination.

3.4.5 TIME TO GO

When the Target is set the TTG value can be displayed in the Text Area (see Par. 3.1.1). Otherwise select the 3D Road Page (see Par. 3.1.4) where you can read TTG value:

> 'DATA' + "3D ROAD" + 'ENTER'

or

> press any soft keys + 'ROAD' (if it is present)

3.4.6 DELETING TARGET

Place cursor on Target icon then press 'STOP'. A window appears to confirm the stop of the navigation: press 'CONFIRM'. The symbol that identifies Target disappears from the screen and the Waypoint remains.

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3.5 C-MAP NT+ INFORMATION

As part of C-MAP's continuous Electronic Vector Chart product development and improvement program, **C-MAP NT+**, a natural evolution of our Electronic Chart technology, has been released.

The key points of NT+ can be divided into five main categories:
1. Coverage/Price
2. Chart/Display Presentation
3. New Features/Functions
4. Accessories
5. Compatibility

Looking at the chart displayed on the screen, you will see a variety of objects and symbols. Refer to the Cartography Reference Guide for their explanation.

The display can be customized for your personal preferences and needs (see the following paragraphes).

3.5.1 DISPLAY MODE

> 'MENU' + "MAP" + 'ENTER' + "Display Mode" + 'ENTER'

To simplify the customization of the chart display, the map settings are now re-organized in modes allowing the user to choose the preferred setting. Pre-programmed settings are user selectable from Full, Simple, Fishing, Low and Custom. The <u>default</u> setting is Custom. The custom selection allows the user to customize the chart to users preferences. The chart below shows the selections for each mode:

Setting	Full	Simple	Fishing	Low	Custom (Default values)
Names	On	On	On	Off	On
Nav-Aids	INT	INT	INT	INT	INT
Light Sectors	On	Off	Off	Off	On
Attention Areas	On	On	On	Off	On
Tides & Currents	On	On	Off	Off	On
Seabed Type	On	Off	On	Off	On
Ports & Services	On	On	Off	Off	On
Tracks & Routes	On	Off	Off	Off	On
Depth Areas	On	On	On	Off	On
Depth Areas >	0005	0005	0005	0005	00002 Mt
Depth Areas <	0030	0030	0030	0030	00009 Mt (**)
Depth Lines & Soundings	On	On	On	Off	On
Depth Lines & Soundings >	0000	0000	0000	0000	00000 Mt
Depth Lines & Soundings <	9999	0005	9999	0005	00305 Mt
Rivers & Lakes	On	On	Off	Off	On

Natural Features	On	Off	Off	Off	On
Cultural Features	On	Off	Off	Off	On
Landmarks	On	On	Off	Off	On
Lat/Lon Grid	On	Off	On	Off	On
Chart Boundaries	On	Auto	Off	Off	On
Cartography	On	On	Off	On	On
Mixing Levels	On	Off	On	Off	On
Declutter	Off	On	Off	On	Off
Map Presentation	Marine	Marine	Marine	Marine	Marine(*)

Note _____

(*) Only on color chartplotter.   (**) Only on monochromatic chartplotter.

3.5.2 CUSTOMIZE MAP

➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER'

This function allows the user to customize the following selections and is divided into the following setting menus: Marine Settings, Depth Settings, Land Settings and Chart Settings. If any of the settings are changed while in the Customize Map mode, when exiting the chartplotter will show a prompt "Do you want to change Display Mode to Custom?". Press 'CONFIRM' to accept.

Note _____

The Warning window appears only if Display Mode is not Custom.

3.5.2.1 Marine Settings

The Marine Settings menu controls the display on the map of the marine features.

Names: On/Off. The <u>default</u> setting is On.

➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + " MARINE SETTINGS" + 'ENTER' + "Names" + 'ENTER'

Nav-Aids: US/US Simple/INT/INT Simple/Off. The <u>default</u> setting is US. When selected it affects Lights, Signals, <u>Buoys</u> & <u>Beacons</u> display.

- **INT(ernational)**: Draws Nav-Aids using international symbology. All components of Complex Objects are shown.

- **INT(ernational) Simplified**: Shows Complex Object with one icon only. Non-complex Nav-Aids are shown using international symbology.

- **US**: Draw Nav-Aids using NOAA symbology. All components of Complex Objects are shown.

- **US Simplified**: Shows Complex Object with one icon only. Non-complex Nav-Aids are shown using NOAA symbology.

- Off: Lights, Signals, <u>Buoys</u> & <u>Beacons</u> are no longer displayed on the charts.
  - ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + " MARINE SETTINGS" + 'ENTER' + "Nav-Aids" + 'ENTER'

Light Sectors: On/Off. The <u>default</u> setting is On. Light Sectors are not displayed when Nav-Aids option is set to Simplified or Off (the display of Light Sectors is decided by the cartographic Library).
  - ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + " MARINE SETTINGS" + 'ENTER' + "Light Sectors" + 'ENTER'

<u>Attention Areas</u>: On/Off. The <u>default</u> setting is On. The <u>Attention Areas</u> will always be contour only when On.
  - ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + " MARINE SETTINGS" + 'ENTER' + "Attention Areas" + 'ENTER'

<u>Tides</u> & <u>Currents</u>: On/Off. The <u>default</u> setting is On.
  - ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + " MARINE SETTINGS" + 'ENTER' + "Tides & Currents" + 'ENTER'

Seabed Type: On/Off. The <u>default</u> setting is On.
  - ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + " MARINE SETTINGS" + 'ENTER' + "Seabed Type" + 'ENTER'

<u>Ports</u> & <u>Services</u>: On/Off. The <u>default</u> setting is On.
  - ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + " MARINE SETTINGS" + 'ENTER' + "Ports & Services" + 'ENTER'

<u>Tracks</u> & <u>Routes</u>: On/Off. The <u>default</u> setting is On.
  - ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + " MARINE SETTINGS" + 'ENTER' + "Tracks & Routes" + 'ENTER'

3.5.2.2 Depth Settings

The Depth Settings menu controls the display on the map of the depth informations.

Depth Areas: On/Off. The <u>default</u> setting is On.
  - ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "DEPTH SETTINGS" + 'ENTER' + "Depth Areas" + 'ENTER'

Depth Areas >: Sets a min reference depth value. The <u>default</u> setting is 5 Ft.
  - ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "DEPTH SETTINGS" + 'ENTER' + "Depth Areas >" + 'ENTER'

Depth Areas <: Sets a max reference depth value. The <u>default</u> setting is 30 Ft (*).
- ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "DEPTH SET-TINGS" + 'ENTER' + "Depth Areas <" + 'ENTER'

Note _____
(*) The item "Depth Areas <" is present only on color chartplotter.
_____

Depth Lines & Sndgs: On/Off. The <u>default</u> setting is On.
- ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "DEPTH SET-TINGS" + 'ENTER' + "Depth Lines & Sndgs" + 'ENTER'

Depth Lines & Sndgs >: Sets a min reference depth & soundings value. The <u>default</u> setting is 0 Ft.
- ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "DEPTH SET-TINGS" + 'ENTER' + "Depth Lines & Sndgs >" + 'ENTER'

Depth Lines & Sndgs <: Sets a max reference depth & soundings value. The <u>default</u> setting is 09999 Ft.
- ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "DEPTH SET-TINGS" + 'ENTER' + "Depth Lines & Sndgs <" + 'ENTER'

3.5.2.3 Land Settings
The Land Settings menu controls the display on the map of the terrestrial features.

Rivers & Lakes: On/Off. The <u>default</u> setting is On.
- ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "LAND SET-TINGS" + 'ENTER' + "Rivers & Lakes" + 'ENTER'

<u>Natural Features</u>: On/Off. The <u>default</u> setting is On.
- ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "LAND SET-TINGS" + 'ENTER' + "Natural Features" + 'ENTER'

<u>Cultural Features</u>: On/Off. The <u>default</u> setting is On.
- ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "LAND SET-TINGS" + 'ENTER' + "Cultural Features" + 'ENTER'

<u>Landmarks</u>: On/Off. The <u>default</u> setting is On.
- ➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "LAND SET-TINGS" + 'ENTER' + "Landmarks" + 'ENTER'

3.5.2.4 Chart Settings
The Chart Settings menu controls the display on the map of the chart features.

<u>Lat/Lon</u> Grid: On/Off. The <u>default</u> setting is On.
>   'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "CHART SETTINGS" + 'ENTER' + "Lat/Lon Grid" + 'ENTER'

Chart Boundaries: On/Off/Auto. The <u>default</u> setting is On.
>   'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "CHART SETTINGS" + 'ENTER' + "Chart Boundaries" + 'ENTER'

Cartography: On/Off. The <u>default</u> setting is On. Used to <u>zoom-in</u> and pan everywhere regardless the existence of data. While in "virtual cartography" (Cartography Off) by setting Cartography On from menu, the chartplotter displays the previous scale level with charts. Again while in Cartography On, the chartplotter will work in the same way also when you exit from the charts coverage, panning with the cursor or because of a ship position change. When in Cartography Off, it is also possible to have virtual cartography between two subsequent scale levels with charts.
>   'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "CHART SETTINGS" + 'ENTER' + "Cartography" + 'ENTER'

Mixing Levels: On/Off. The <u>default</u> setting is Off. When the map coverage at the current zoom level does not fill the entire screen, the chartplotter draws the rest of the map expanding the cartographic information read from, at most, two zoom levels above the current zoom level. For this reason the map is drawn three times: firstly it draws the two levels before the current level and then the current level. The area covered by the cartographic data read from the previous levels is identified by a dotted pattern. When the cursor is moved on an area not covered by data of the current level and the Cartography item is switched Off, the chartplotter zooms out to the first level covered by cartographic data. When the Cartography item is switched On, the cursor can be moved on the areas obtained from the previous levels but no information is provided on the objects found on that area since it is considered not suitable for navigation at that scale level.
>   'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "CHART SETTINGS" + 'ENTER' + "Mixing Levels" + 'ENTER'

Note _____
The Mixing Levels function works only with the new NT+ C-CARDs. It also affects the speed of the redraw of the screen. If this function is not used it maybe disabled.

Declutter: On/Off. The <u>default</u> setting is Off. When it is On removes overlapping text (e.g. Names, Spot Soundings etc.).
>   'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "CHART SETTINGS" + 'ENTER' + "Declutter" + 'ENTER'

Map Presentation: Marine/Terrestrial. The <u>default</u> setting is Marine (*).

➤ 'MENU' + "MAP" + 'ENTER' + "CUSTOMIZE MAP" + 'ENTER' + "CHART SETTINGS" + 'ENTER' + "Map Presentation" + 'ENTER'

Note _____

(*) The item "Map Presentation" is present only on monochromatic chartplotter.

3.5.3 GETTING AUTOMATIC INFO

The type of Automatic Info is user selectable.

➤ 'MENU' + "DISPLAY" + 'ENTER' + "Auto Info" + 'ENTER'

The possible settings are:

- Off: disabled, no automatic info shown at all.
- On Points: only on points. This is the <u>default</u> setting.
- On All: on all objects (points, lines, areas and text).

The Automatic Info On Points shows information when the cursor is placed on points (as Port Services, <u>Tides</u>, lights, wrecks, rocks, <u>buoys</u>, <u>beacons</u>, obstructions, land markers, etc.). The Automatic Info On All shows information when the cursor is placed on points, on lines (as <u>Depth contours</u>, Traffic Separation, Territorial Sea, Cartographic Lines etc.) on areas (Depth, Built-up, Sea, Attention, Restricted etc.) and on names (on the beginning of the text -hot spot- or on any of the characters of the name -name message box-).

The details on Land, Source of Data, Cartographic Area and Spot Soundings are not shown.
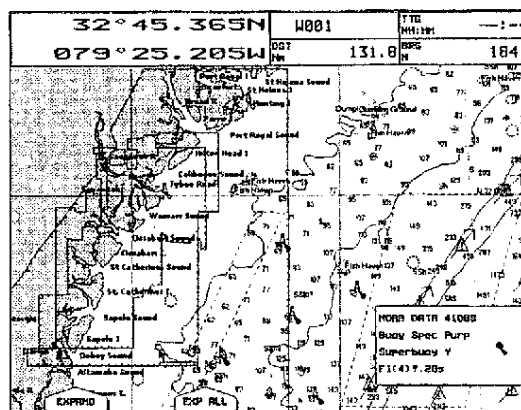
Fig. 3.5.3 - Automatic Info on Points window

If you press 'EXPAND' you get the information about that object.

Otherwise if you press 'EXP ALL' all available information about the cartographic point under the cursor will be shown (see Par. 3.5.4).

3.5.4 INFO TREE AND EXPANDED INFO PAGE

This page combines the Info Tree and the Expanded Info pages; this gives the advantage of showing the details of the object selected on the Info Tree while the cursor is moving through the Info Tree's items.

The upper side of the page contains the Info Tree and the Lower side contains the expanded information. While moving the cursor through the Info Tree, all the relevant information of the selected object is shown on the lower part of the page.

When the selected object is a Tide Height, pressing 'ENTER' the Tide page is shown.

Pressing 'CLEAR' the page is closed.

If the information shown exceeds the page size, the user may scroll the page down pressing 'PAGE DN'. The 'HOME' restart the Expanded Info.

3.5.5 INFO FUNCTION

Place the cursor in any place you want and press:
➤ 'INFO'
to show the Info Tree and Expanded Info page (see Par. 3.5.4).

3.5.6 GETTING PORT INFO

Upon viewing the chart of a port or harbour, you will see a Port Info icon that can be clicked on to query the available information immediately displayed with many details. The Port Info icon is visible only if the Ports & Services option is On (default setting).

Port Info Icon

Fig. 3.5.6 - Port Info icon

The available information is shown in the Automatic Info window where icons of the available services are shown:
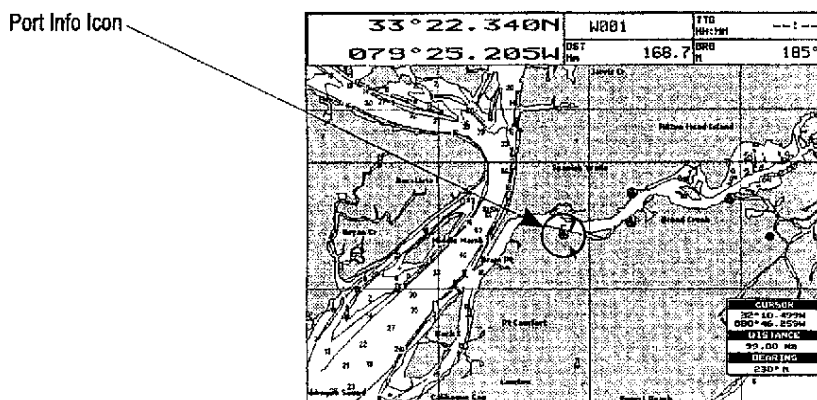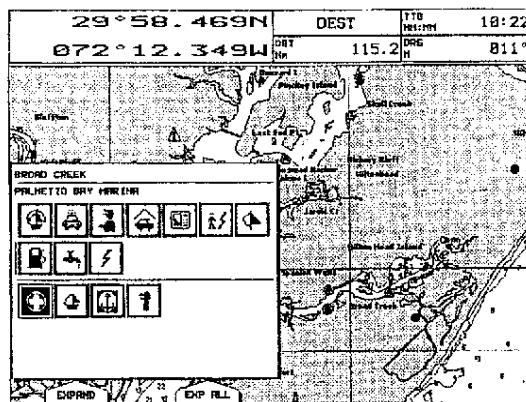
Fig. 3.5.6a - Automatic Info window

To expand information about that object press 'EXPAND' and to expand all available information for that cartographic point press 'EXP ALL'.

3.5.7 GETTING TIDE INFO

When you will see a Tide Info icon you can click on it to query the available information that will immediately be displayed.
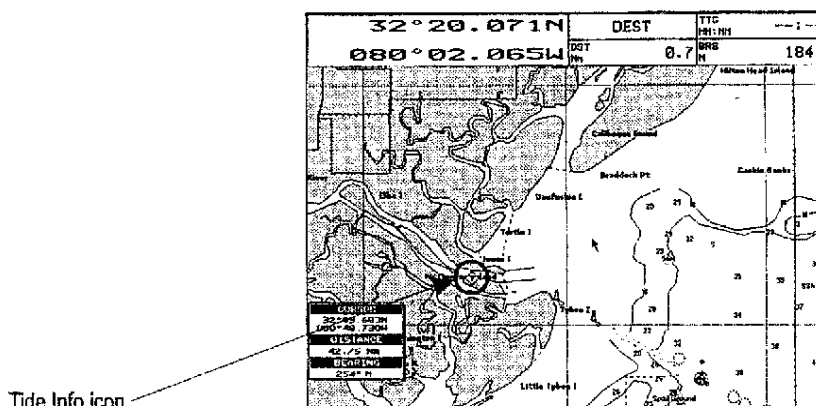
Fig. 3.5.7 - Tide Info icon

Place the cursor on the Tide symbol, a Automatic Info window is opened:
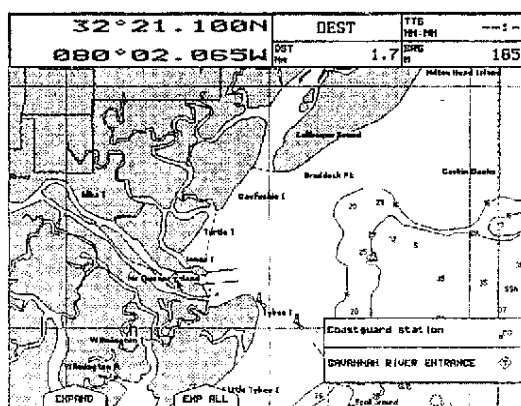
Fig. 3.5.7a - Automatic Info on Tide

To display the <u>Tide</u> Graph page, press 'EXPAND' (otherwise, press 'EXP ALL' to select all available information).
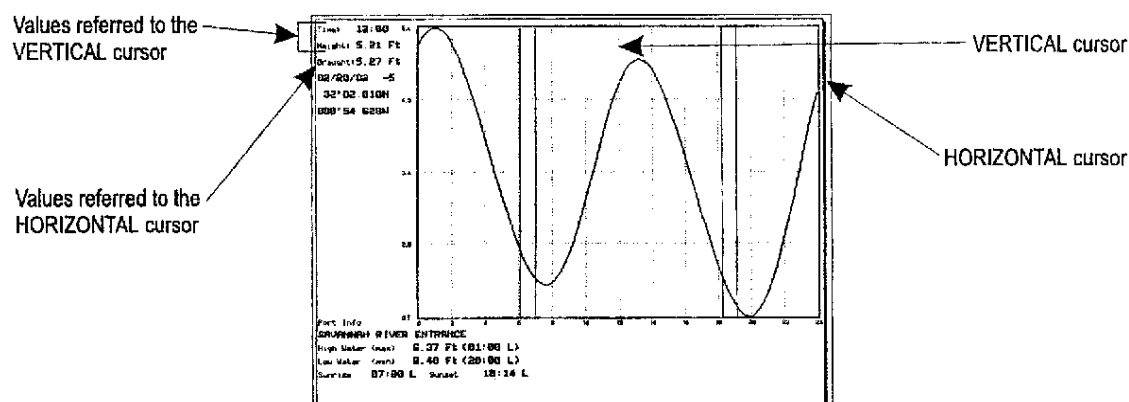
Fig. 3.5.7b - Tide Graph

Using the *Joystick*, it is possible to move the cursor anywhere on the graph and display the time, height (vertical cursor) and draught (horizontal cursor) on a particular graph point.

Also use 'ZOOM IN' or 'ZOOM OUT' to go to previous or next day and 'ENTER' to set date (move the *Joystick* up/down to insert the preferred number and use it left/right to move cursor to left/right).

Note _____

Tide graphs are an approximation of the tide and they should be used in conjunction with traditional tide tables and navigational methods.

3.5.8 FIND FUNCTION

The chartplotter allows finding Port Services, Port By name, <u>Tide</u> Stations, Wrecks, Obstructions, Cursor (see Par. 4.5.1), Coordinates (see Par. 4.5.2) and <u>User Points</u> (see Par. 4.1.2.7, 4.2.1.6, 4.2.2.5) .
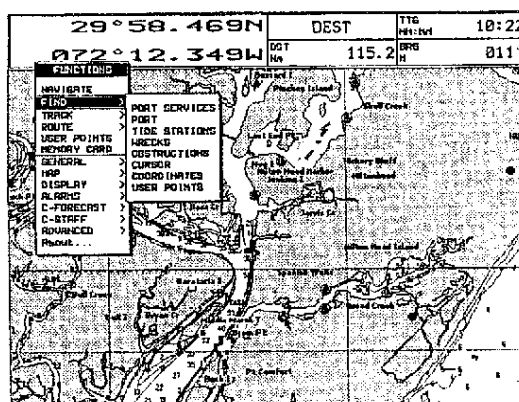
Fig. 3.5.8 - Find funtion

3.5.8.1 Finding Port Services

To locate and display the nearest available facilities of a particular type (i.e. the nearest Hospital, sailmaker, bank, etc.).

➤ 'MENU' +"FIND" + 'ENTER' + "PORT SERVICES" + 'ENTER'

The icons of the available services are shown.

Use the *Joystick* to select any facility and press 'ENTER' or 'FIND'. The list of the nearest ports (up to 10) containing the facility, will be shown on the screen.

Then choose the port you want and press 'ENTER' or 'FIND'.

3.5.8.2 Finding Nearest Ports

Shows the list of all (max 8 ports) placed near the cursor position.

➤ 'MENU' +"FIND" + 'ENTER' + "PORT" + 'ENTER'

Use the *Joystick* to select the port. Press 'ENTER' or 'FIND' to locate it.

Finding All Ports

To show the list of all ports stored on the C-CARD and to locate them on the map follow the procedure:

➤ 'MENU' +"FIND" + 'ENTER' + "PORT" + 'ENTER' + 'PORTS'

Use the *Joystick* to select the port and 'ZOOM IN'/'ZOOM OUT' to select next/previous page. Press 'ENTER' or 'FIND' to locate the selected port on the map.

Note _____
A Warning message is shown if there is not C-CARD inserted or there are not ports on the C-CARD.
_____

Searching by name

➤ 'MENU' +"FIND" + 'ENTER' + "PORT" + 'ENTER' + 'PORTS' + 'NAME'

Use the *Joystick* to insert port name (max 15 characters). Press 'CONFIRM' or 'ENTER' to accept; press 'CANCEL' or 'CLEAR' to cancel name entry.

If inserted name is found, the list with all ports containing the inserted name is shown. Repeat the operation to refine search or move through the list with *Joystick*.

Press 'ENTER' to locate the port on the map.

Note _____
A Warning message is shown when the inserted name is not in the ports list.
_____

Searching by list

➤ 'MENU' +"FIND" + 'ENTER' + "PORT" + 'ENTER' + 'PORTS' + 'LIST'

Rebuild and display the complete ports list.

Use the *Joystick* to select the port and 'ZOOM IN'/'ZOOM OUT' to select next/previous page. Press 'ENTER' or 'FIND' to locate the selected port on the map.

3.5.8.3 Finding Tide Stations

Finds the nearest Tide Stations (up to 10) on the map, from the boat position - if a valid fix is received - or from the cursor position - if the received fix position is not good.

➤ 'MENU' +"FIND" + 'ENTER' + "TIDE STATIONS" + 'ENTER'

A new window will appear in few seconds.

Choose the Tide Stations you want and press 'ENTER' or 'FIND' to display the Tide Graph page (see Par. 3.5.7b). Press 'CLEAR' to display the Tide Station chosen.

3.5.8.4 Finding Wrecks

Searches for Nearest Wrecks:

➤ 'MENU' +"FIND" + 'ENTER' + "WRECKS" + 'ENTER'

Use the *Joystick* to select the port and 'ZOOM IN'/'ZOOM OUT' to select next/previous page. Press 'ENTER' or 'FIND' to locate the selected Wreck on the map.

3.5.8.5 Finding Obstructions

Searches for Nearest Obstructions:

➤ 'MENU' +"FIND" + 'ENTER' + "OBSTRUCTIONS" + 'ENTER'

Use the *Joystick* to select the port and 'ZOOM IN'/'ZOOM OUT' to select next/previous page. Press 'ENTER' or 'FIND' to locate the selected Obstruction.

3.5.8.6 Finding Cursor

Centers the cursor on the screen:

➤ 'MENU' +"FIND" + 'ENTER' + "CURSOR" + 'ENTER'

3.5.8.7 Finding Coordinates

Allows to enter LAT/LON to locate a cartographic point:

➤ 'MENU' +"FIND" + 'ENTER' + "COORDINATES" + 'ENTER'

3.5.8.7 Finding User Points

Searches the User Points by name:

➤ 'MENU' +"FIND" + 'ENTER' + "USER POINTS" + 'ENTER'

3.6   MAN OVERBOARD (MOB)

It is an important function useful in the case someone or something falls overboard.

3.6.1 INSERTING MOB

Press 'MOB' to place MOB symbol at ship's coordinates: the message "MOB Activate" is shown for a few second, then disappears. Data displayed in Text Area are related to MOB.
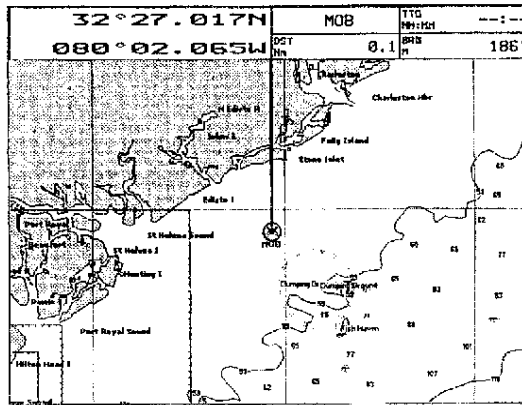
Fig. 3.6.1 - Man Overboard

3.6.2 DELETING MOB

Press 'MOB': a window to confirm the MOB deletion is shown, press 'CONFIRM' (or "CANCEL" to abort operation). The MOB symbol remains on the screen shaded until the next screen redraws.

4

For the Experienced User

Now that you are familiar with your new chartplotter, it is time to found about a large number of advanced features that you will find helpful.

4.1 MORE ABOUT CREATING AND USING ROUTES

At anytime, you may add or delete Waypoints, see a Route summary, reverse the direction of the Route or erase the entire Route.

4.1.1 ROUTES

The following functions are used for the Route management.

4.1.1.1 Selecting Route

➤ 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER'

Fig. 4.1.1.1 - Select route window

Use the *Joystick* to select the preferred Route number. The following functions are available.

Displaying Route

➤ 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER' + 'SELECT'

The <u>Route</u>, shown by straight segments, is centered on the screen, with the cursor on the central <u>Waypoint</u>.

Editing notes

➤ 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER' + 'NOTES'

Another window is shown: use the *Joystick* to insert the notes (this is possible only if you have already created a <u>Route</u>). Press 'ENTER' to confirm ('CANCEL' otherwise).

Note _____ **ONLY FOR COLOR CHARTPLOTTER**

➤ 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER' + 'COLOR'

It is possible to change color. After pressing 'COLOR' another window is shown: use the Joystick to choose the preferred color (among 8 colors) for the Route. Press 'ENTER' to confirm ('CANCEL' otherwise).

Hide/Show Route

➤ 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER' + 'HIDE/SHOW'

Allows to hide or show the selected <u>Route</u> on the screen.

4.1.1.2 Deleting Route

➤ 'MENU' + "ROUTE" + 'ENTER' + "DELETE" + 'ENTER'

A window is opened: press 'CONFIRM' to delete ('CANCEL' otherwise). The <u>Route</u> remains on the screen shaded until the screen is redrawn.

4.1.1.3 Finding information on Route: Route Report

➤ 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER'

Fig. 4.1.1.3 - Route Data Report page

If there are more than nine <u>Waypoint</u> shown, use the *Joystick* to select another page.

Changing Speed & Fuel values

➤ 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + 'Fuel'
➤ 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + 'Speed'

Insert value by using the *Joystick* and pressing 'ENTER' or 'Confirm' ('CLEAR' or 'Cancel' abort operation).

Reversing Route

➤ 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + 'Reverse'

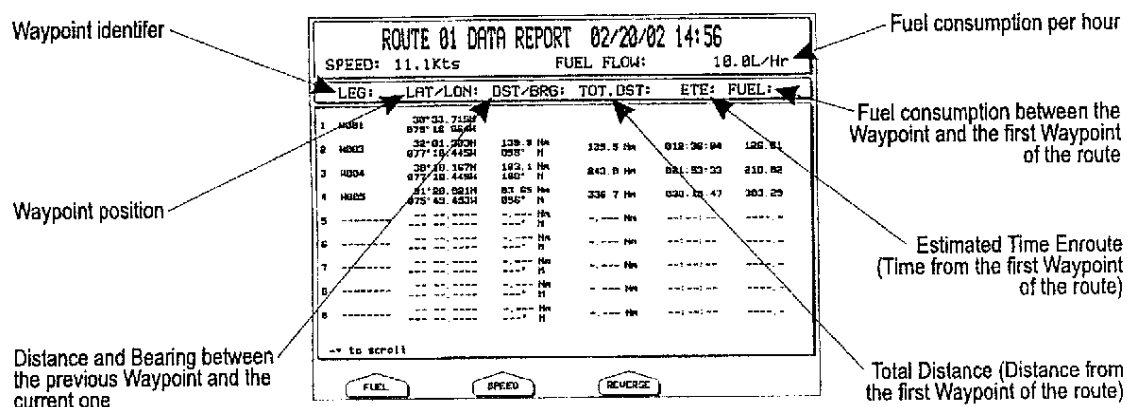Reversing a Route plan is most typically used to return to the point where the Route originally started.

4.1.1.4 Sending Route

The Send Route function allows you to send the current Route to the serial port using the NMEA-0183 $WPL and $RTE sentences:

➤ 'MENU' + "ROUTE" + 'ENTER' + "SEND" + 'ENTER'

4.1.1.5 Receiving Route

The Receive Route function allows you to receive Route from the serial port using the NMEA-0183 $WPL and $RTE sentences:

➤ 'MENU' + "ROUTE" + 'ENTER' + "RECEIVE" + 'ENTER'

The received Route is saved in the current Route. If the current Route contains data the user should be asked to confirm the action (overwriting the existing Route) or choose another Route.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**

➤ 'MENU' + "ROUTE" + 'ENTER' + "COLOR" + 'ENTER'

It is possible to change Route color. After pressing 'ENTER' a window with 8 different colors appears. Use the Joystick to select the Route legs color and press 'Accept' ('Cancel' otherwise).

4.1.2 WAYPOINTS

You may add Waypoints, delete Waypoints from a Route, move any Waypoint in the Route to another location, insert a Waypoint between two existing ones, find any Waypoint at anytime. Every time you place the cursor on a Waypoint the following functions are available.

4.1.2.1 Adding Waypoint

➤ 'ENTER' + "WAYPOINT" + 'ENTER'

The Waypoint appears on the screen on the cursor position. An info window is shown containing Route number, data and time, Waypoint name, symbol and Latitude/Longitude, information on previous and - if the Waypoint is not the

last of the Route - also on the next Waypoint. To create a Route inserting additional Waypoints repeat the above described sequence.

4.1.2.2 Moving Waypoint

➤ Add Waypoint ('ENTER' + "WAYPOINT" + 'ENTER') or Place cursor on existing Waypoint

Press 'MOVE'. Use the *Joystick* to move the cursor: a dotted line, connecting the Waypoint to the new position, is shown:
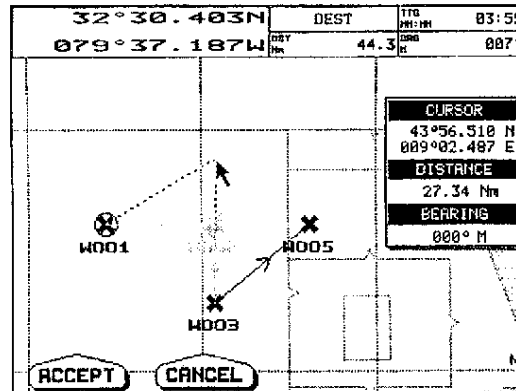
Fig. 4.1.2.2 - Moving Waypoint function (I)

To place the Waypoint in the new position, choose the new place and press 'ACCEPT' (or 'CANCEL' otherwise). The "old" Waypoint remains shaded until the screen is redrawn.
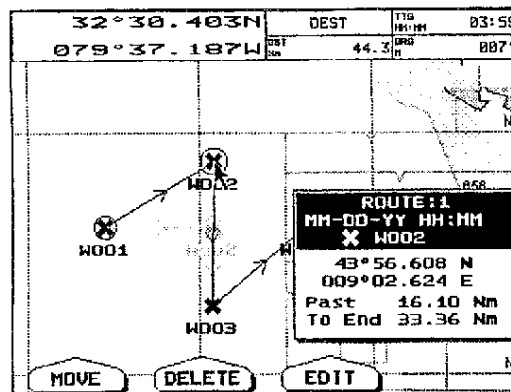
Fig. 4.1.2.2a - Moving Waypoint function (II)

4.1.2.3 Deleting Waypoint

➤ Add Waypoint ('ENTER' + "WAYPOINT" + 'ENTER') or Place cursor on existing Waypoint
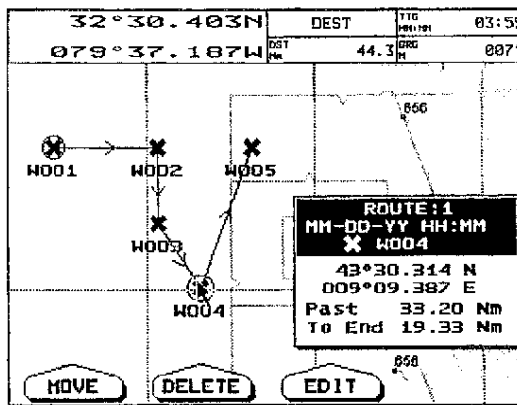
Fig. 4.1.2.3 - Deleting Waypoint (I)

Press 'DELETE'. A Warning message is shown to advise that Waypoint is currently used in a Route: press 'CONFIRM' to confirm deletion ('CANCEL' otherwise). The Waypoint is deleted and a new line between previous and next Waypoint is shown. The deleted Waypoint remains shaded until the screen is redrawn.
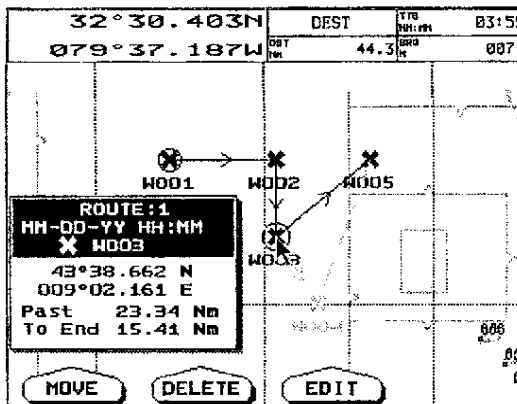
Fig. 4.1.2.3a - Deleting Waypoint (II)

4.1.2.4 Editing Waypoint

➤ Add Waypoint ('ENTER' + "WAYPOINT" + 'ENTER') or Place cursor on existing Waypoint

Press 'EDIT' to modify a Waypoint. A window will be shown with Name, Symbol and Latitude/Longitude of the Waypoint, advicing about what Waypoint data are modifiable:
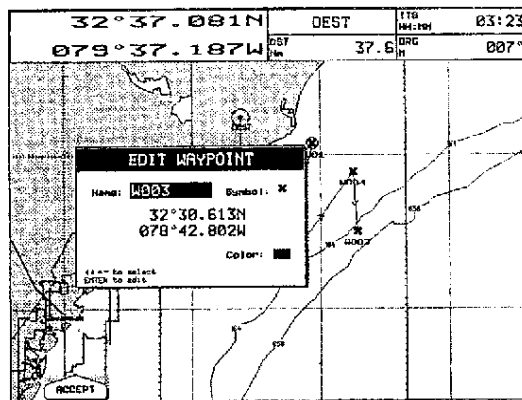
Fig. 4.1.2.4 - Edit Waypoint

Use the *Joystick* to select the field. If you have selected Name field, press 'ENTER': use the *Joystick* to insert the character (8 characters max), press 'ENTER'. If Symbol field is selected press 'ENTER', a window with 16 different symbols appears:
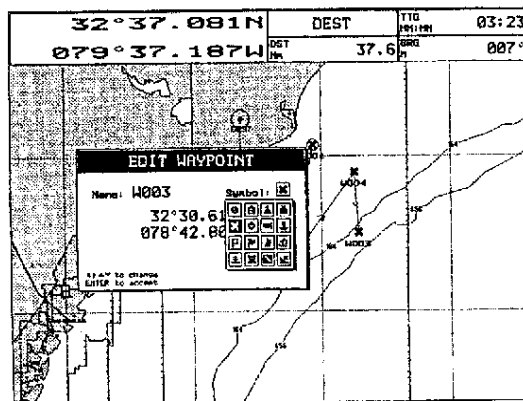
Fig. 4.1.2.4a - Waypoint symbols

Use the *Joystick* to select the Symbol and press 'ENTER'. If Coordinates field is selected, press 'ENTER' and then use the *Joystick* to insert the value. Then press 'ACCEPT'.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
It is possible to change Waypoint color. If you have selected Color field, press 'ENTER': a window with 16 different colors appears. Use the Joystick to select the color and press 'ENTER'.

4.1.2.5 Goto

➤ Add Waypoint ('ENTER' + "WAYPOINT" + 'ENTER') or Place cursor on existing Waypoint

Press 'GOTO': a circle encloses the Waypoint symbol. On the screen a straight line is shown, connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.

4.1.2.6 Inserting Waypoint

Every time you place the cursor on the segment connecting two existing Waypoints of a Route the following function is available.

➤ Place cursor on Route leg
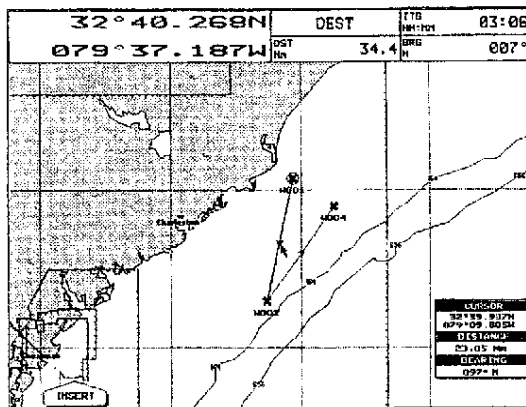
Fig. 4.1.2.6 - Placing Waypoint between two existing ones (I)

Press 'INSERT'. The line between the two Waypoints is turned into a dotted line: move the cursor to the new position. When the cursor is stationary for one 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:
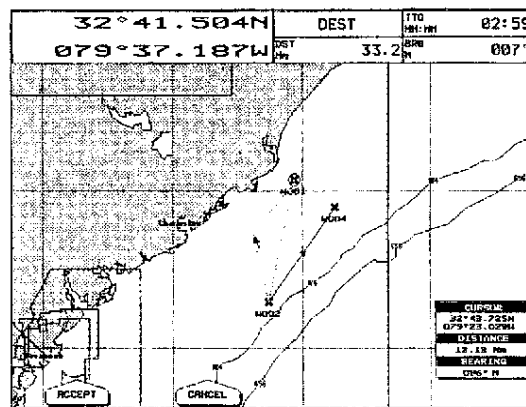
Fig. 4.1.2.6a - Placing Waypoint between two existing ones (II)

Once you have positioned the cursor at new location, press 'ACCEPT':
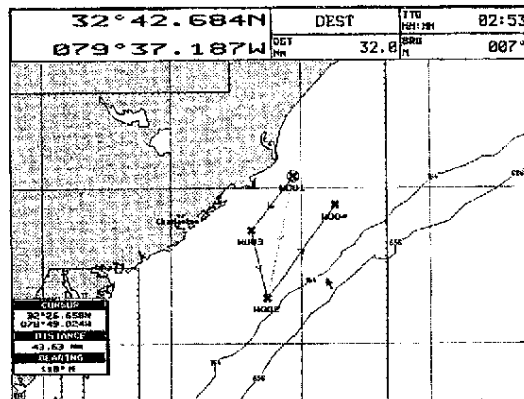
Fig. 4.1.2.6b - Placing Waypoint between two existing ones (III)

4.1.2.7 Finding Waypoint

➤ 'MENU' + "FIND" + 'ENTER' + "USER POINTS" + 'ENTER'
A window is opened to find a stored Waypoint by entering its label:
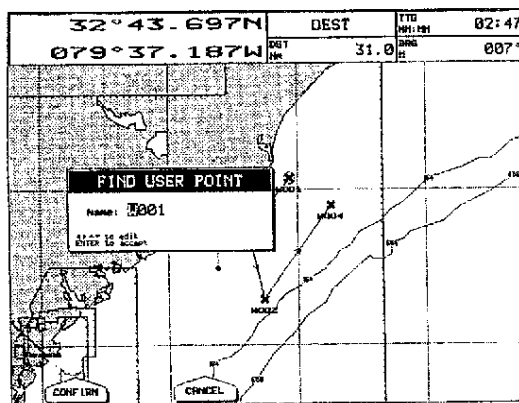
Fig. 4.1.2.7 - Finding Waypoint function (I)

Use the *Joystick* to insert the name and press 'CONFIRM' ('CANCEL' otherwise). For example, if the inserted name is W001, the cursor is placed on this Waypoint and the info window is shown:
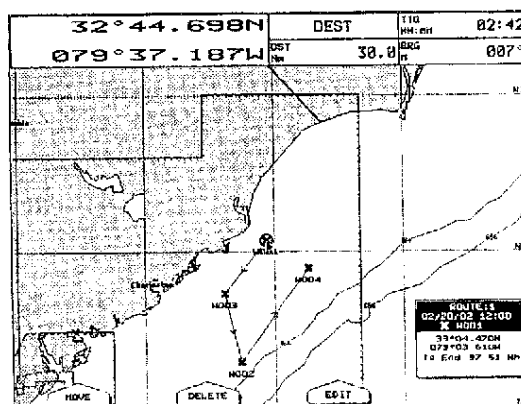
Fig. 4.1.2.7a - Finding Waypoint function (II)

4.1.2.8 Finding information on Waypoints: User Points List page

> 'MENU' + "USER POINTS" + 'ENTER'

A full window is opened showing information about all stored User Points. Move up/down the *Joystick* to select the User Point you wish. If the page contains more than 11 User Points, the list continues in the next pages.

Fig. 4.1.2.8 - User Points page

Note _____

In the list to identify the current Target a circle encloses the User Point symbol.

Viewing Waypoint in map display

> 'MENU' + "USER POINTS" + 'ENTER' + 'VIEW'

The chartplotter exits from the User Points List page and redraws the chart. The selected point appears, with the cursor placed on it. Press 'CLEAR' to exit and return to User Point List page.

Finding Waypoint in the User Points List page

> 'MENU' + "USER POINTS" + 'ENTER' + 'FIND'

A window appears: insert the name by using the *Joystick*. Press 'ENTER': in the User Points List page the chartplotter shows the Waypoint in reverse video screen.

Deleting Waypoint

> 'MENU' + "USER POINTS" + 'ENTER' + 'DELETE'

A warning message is shown; press 'CONFIRM' ('CANCEL' othewise).

Deleting all stored User Points

> 'MENU' + "USER POINTS" + 'ENTER' + 'DEL ALL'

A warning message is shown, press 'CONFIRM' ('CANCEL' otherwise).

Note _____

If you try to delete any User Point used as GOTO a Warning window will appear, advicing that the User Point belongs to an active Route and cannot be deleted.

4.2   USING MARKS & EVENTS

You may place a Mark, as it is called, at your cursor position, while Event is created at your vessel position.

4.2.1   MARKS

You may tag a location on the chart with a Mark symbol and number, which you can record for later use. Every time you place the cursor on a Mark the following functions are available.

4.2.1.1 Adding Mark

➤   'ENTER' + "MARK" + 'ENTER'

The new Mark appears on your cursor position. An info window containing Mark name, symbol and Latitude/Longitude is shown.

4.2.1.2 Moving Mark

➤   Add Mark ('ENTER' + "MARK" + 'ENTER') or Place cursor on existing Mark

Press 'MOVE'. By moving the cursor with the *Joystick*, a dotted line connecting the Mark with the new position is shown:
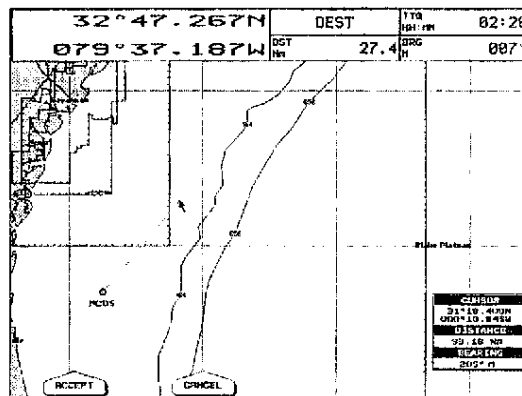
Fig. 4.2.1.2 - Moving Mark function (I)

Press 'ACCEPT':
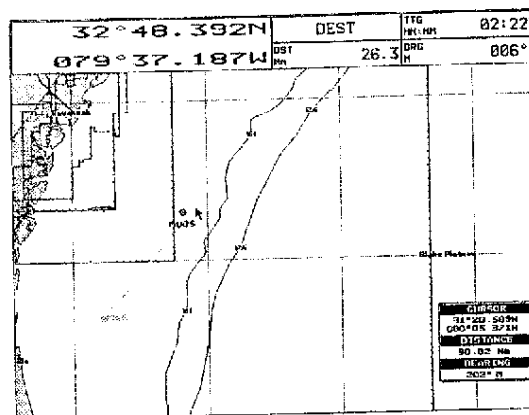
Fig. 4.2.1.2a - Moving Mark function (II)

The Mark is placed in the new position, the "old" Mark, remains on the screen shaded until the screen is redrawn.

4.2.1.3 Deleting Mark

➤ Add Mark ('ENTER' + "MARK" + 'ENTER') or Place cursor on existing Mark
Press 'DELETE': a window to confirm the deletion is shown. Press 'CONFIRM' ('CANCEL' otherwise): the Mark remains on the screen shaded until the next screen is redrawn.

4.2.1.4 Editing Mark

➤ Add Mark ('ENTER' + "MARK" + 'ENTER') or Place cursor on existing Mark
Press 'EDIT'. A window appears to modify Name, Symbol and coordinates of the existing Mark.

Fig. 4.2.1.3 - Graphic symbol setting

Use the *Joystick* to select the field. If you have selected Name field, press 'ENTER': use the *Joystick* to insert the character (8 characters max), then press 'ENTER'. If Symbol field is selected press 'ENTER': a window with 16 different symbols appears. Use the *Joystick* to select the symbol and press 'ENTER'.

If Coordinates field is selected, press 'ENTER' and then use the *Joystick* to insert the value. Then press 'ACCEPT'.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
It is possible to change Mark color. If you have selected Color field, press 'ENTER': a window with 16 different colors appears. Use the Joystick to select the color and press 'ENTER'.

4.2.1.5 Goto
➤ Add Mark ('ENTER' + "MARK" + 'ENTER') or Place cursor on existing Mark

Press 'GOTO': a circle encloses the <u>Mark</u> symbol. A straight line is shown on the screen connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.

4.2.1.6 Finding Mark
➤ 'MENU' + "FIND" + 'ENTER' + "USER POINTS" + 'ENTER'

A window is opened to find a stored <u>Mark</u> by entering its label. Use the *Joystick* to insert the name and press 'CONFIRM' ('CANCEL' otherwise).

4.2.1.7 Finding information on Marks: User Points List page
➤ 'MENU' + "USER POINTS" + 'ENTER'

A full window is opened showing information about all stored <u>User Points</u> (<u>Marks</u>, <u>Events</u> and <u>Waypoints</u>). Move up/down the *Joystick* to select the <u>User Point</u> you wish. If the page contains more than 11 <u>User Points</u>, the list continues in the next pages. See Par. 4.1.2.8.

4.2.2 EVENTS

In <u>Navigate</u> mode you may place a location with an <u>Event</u> symbol and number, directly on the ship's position. Move the cursor to exit from <u>Navigate</u> mode; place the cursor on an <u>Event</u> to access the following functions.

4.2.2.1 Adding Event
➤ Select Navigate mode: 'MENU' + "NAVIGATE" + 'ENTER', then 'ENTER' + "MARK" + 'ENTER'

An <u>Event</u> is placed directly on the ship's position.

Note _____
It is possible to place an Event only if the chartplotter is making a valid position fix.

4.2.2.2 Deleting Event
➤ Place cursor on existing Event + 'DELETE'

A window to confirm the deletion is shown. Press 'CONFIRM' ('CANCEL' otherwise): the Event remains on the screen shaded until the next screen is redrawn.

Note _____
If you try to delete any User Point used as GOTO a Warning window will appear, advicing that the User Point belongs to an active Route and cannot be deleted.

4.2.2.3 Editing Event

➤ Place cursor on existing Event + 'EDIT'
A window appears to modify Name and Symbol the existing Event.

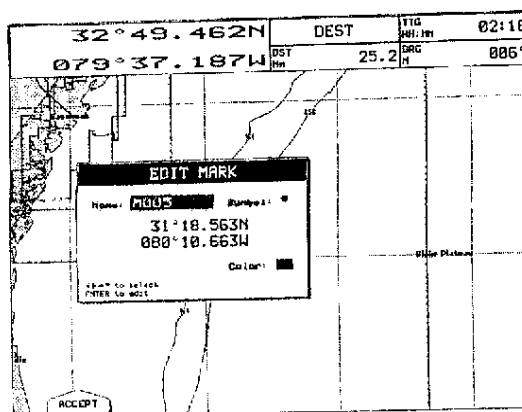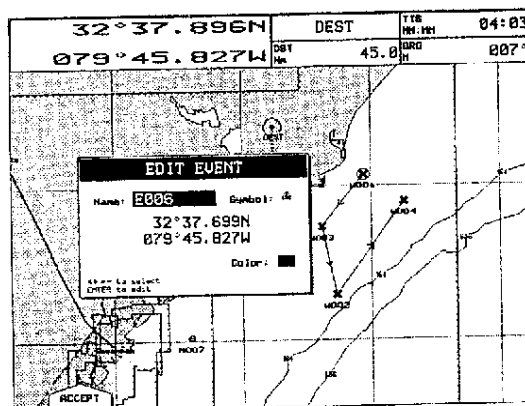*Fig. 4.2.2.3 - Editing Event*

Use the *Joystick* to select the field. If you have selected Name field, press 'ENTER': use the *Joystick* to insert the character (8 characters max), press 'ENTER'. If Symbol field is selected press 'ENTER': a window with 16 different symbols appears. Use the *Joystick* to select the Symbol and press 'ENTER'.

If Coordinates field is selected, press 'ENTER' and then use the *Joystick* to insert the value. Then press 'ACCEPT'.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
It is possible to change Event color. If you have selected Color field, press 'ENTER': a window with 16 different colors appears. Use the Joystick to select the color and press 'ENTER'.

4.2.2.4 Goto

➤ Place cursor on existing Event + 'GOTO'
A circle encloses the Event symbol. A straight line is shown connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.

4.2.2.5 Finding Event

➤ 'MENU' + "FIND" + 'ENTER' + "USER POINTS" + 'ENTER'
A window is opened to find a stored Event by entering its label. Use the *Joystick* to insert the name and press 'CONFIRM' ('CANCEL' otherwise).

4.2.2.6 Finding information on Events: User Points List page
➤   'MENU' + "USER POINTS" + 'ENTER'

    A full window is opened showing information about all stored <u>User Points</u> (<u>Marks</u>, <u>Events</u> and <u>Waypoints</u>). Move up/down the *Joystick* to select the <u>User Point</u> you wish. If the page contains more than 11 <u>User Points</u>, the list continues in the next pages. See Par. 4.1.2.8.

4.3   R/B FUNCTION

    Selects the Range and <u>Bearing</u>, R/B, function.

4.3.1   INSERTING R/B
➤   'ENTER' + "R/B" + 'ENTER'

    A dotted line and a circle appears on the screen. A window with the DST and <u>BRG</u> values is shown. The origin of the line and the circle's centre is the cursor position: use the *Joystick* to move the dotted line in any direction you choose; in the same time the radius changes. Press 'ACCEPT' to confirm ('CANCEL' otherwise).

4.3.2   DELETING R/B
➤   'ENTER' + "R/B" + 'ENTER' + 'ACCEPT'

    Press 'DELETE' to delete the line and the circle.

4.3.3   EDITING R/B
➤   'ENTER' + "R/B" + 'ENTER' + 'ACCEPT'

    Press 'EDIT' to modify the line direction and the circle' radius. Use the *Joystick* to move the dotted line in any direction you choose; in the same time the radius changes. Press 'ACCEPT' to confirm ('CANCEL' otherwise).

4.4   USING THE TRACK FUNCTION

    The chartplotter can be set up for recording your <u>Track</u> as you move and for plotting this <u>Track</u> on the chart.

4.4.1 ENABLING TRACK STORING

> 'MENU' + "TRACK" + 'ENTER' + "ACTIVATE" + 'ENTER'
> To enable the Track storing. It is not possible to use the Track storing if you
are not receiving a valid fix.
> When Track storing is activated, to disable:
> 'MENU' + "TRACK" + 'ENTER' + "DEACTIVATE" + 'ENTER'

4.4.2 DELETING TRACK

> 'MENU' + "TRACK" + 'ENTER' + "DELETE" + 'ENTER'
> Deletes all the Track or part of it. 'BEGIN', 'END' and 'WHOLE' allow to iden-
tify the start or the end point of the segment to delete.

4.4.3 TRACK SETTING MENU

> 'MENU' + "TRACK" + 'ENTER' + "CONFIG" + 'ENTER'
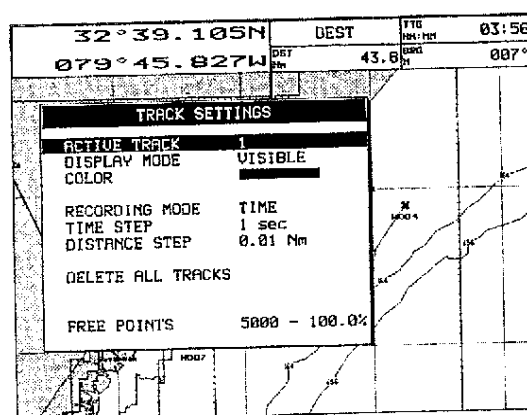
Fig. 4.4.3 - Track Settings menu

4.4.3.1 Selecting Active Track

> 'MENU' + "TRACK" + 'ENTER' + "CONFIG" + 'ENTER' + "ACTIVE TRACK"
> + 'ENTER'
> Pressing 'ENTER' more times selects the number of the active Track. The
default setting is 1.

4.4.3.2 Displaying Track

> 'MENU' + "TRACK" + 'ENTER' + "CONFIG" + 'ENTER' + "DISPLAY MODE"
> + 'ENTER'
> Selects the displaying of the past course Visible or Hidden. The default set-
ting is Visible.

4.4.3.3 Selecting Line Pattern

➤   'MENU' + "TRACK" + 'ENTER' + "CONFIG" + 'ENTER' + "LINE PATTERN" + 'ENTER'

Press 'ENTER' as many times as needed to select the pattern for the selected Track.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
It is possible to select the color for the Track. The item "Line Pattern" is changed to "Color".

4.4.3.4 Selecting Track memorizing type

➤   'MENU' + "TRACK" + 'ENTER' + "CONFIG" + 'ENTER' + "RECORDING MODE" + 'ENTER'

Choose Distance (the chartplotter can store a fix when the distance from its last stored position is greater than a defined distance) or Time (the chartplotter can store a fix after a defined time). The default setting is Time.

4.4.3.5 Selecting Time Step

➤   'MENU' + "TRACK" + 'ENTER' + "CONFIG" + 'ENTER' + "TIME STEP" + 'ENTER'

When the tracking function is On and the type of Track storing is Time, the chartplotter can store a fix after a defined time. Choose among 1, 5, 10, 30 sec, 1 min. The default setting is 1 sec.

4.4.3.6 Selecting Distance Step

➤   'MENU' + "TRACK" + 'ENTER' + "CONFIG" + 'ENTER' + "DISTANCE STEP" + 'ENTER'

When the tracking function is On and the type of Track storing is Distance, you can store a fix when the distance from its last stored position is greater than a defined distance. Choose 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 the user, see Par. 3.2.1). The default setting is 0.01 Nm.

4.4.3.7 Delete all Tracks

➤   'MENU' + "TRACK" + 'ENTER' + "CONFIG" + 'ENTER' + "DELETE ALL TRACKS" + 'ENTER'

Deletes all the stored tracks. After pressing 'ENTER' a Warning window appears: press 'CONFIRM' (or 'CANCEL' to abort operation).

4.5   PAN FUNCTION

It is possible to select the pan function; pan allows you to shift area around the cursor or a remote position to the centre of the screen.

4.5.1 MOVING CURSOR TO THE SCREEN CENTER

➤ 'MENU' + "FIND" + 'ENTER' + "CURSOR" + 'ENTER'

The screen is redrawn and the cursor with the location you want to see will shift to the center of the screen.

4.5.2 PLACING CURSOR ON COORDINATES

➤ 'MENU' + "FIND" + 'ENTER' + "COORDINATES" + 'ENTER'
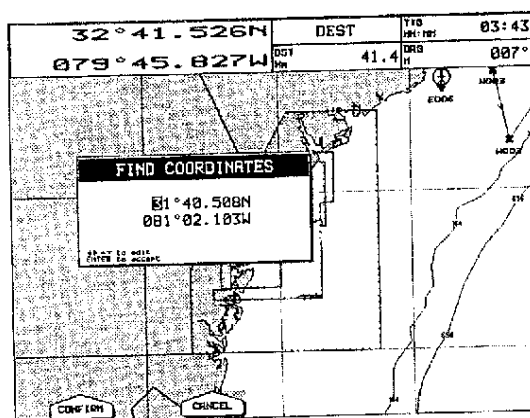
Fig. 4.5.2 - Pan on Coordinates function

Press the *Joystick* up/down to modify coordinates and the *Joystick* left/right to move cursor to left/right. Press 'CONFIRM' ('CANCEL' otherwise).

4.6 USER C-CARD MENU

The chartplotter allows to copy information to an <u>User C-CARD</u>. You can also return the information to internal memory at a later time. This allows virtually unlimited storage.

➤ 'MENU' + "MEMORY CARD" + 'ENTER'
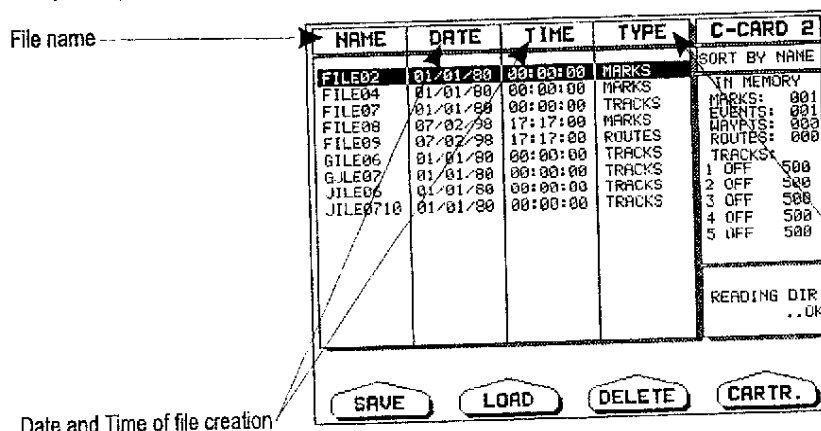
Fig. 4.6 - User C-CARD Menu

4.6.1 SAVING FILE

➤ 'MENU' + "MEMORY CARD" + 'ENTER' + 'Save'

A window is opened to insert the file name and the type of data to save:

Fig. 4.6.1 - Save File function (I)

Choose the type of data to save by pressing the related 'Marks', 'Events', 'Routes' or 'Tracks'. Then on the screen appears:

Fig. 4.6.1a - Save File function (II)

Choose the file name. At first a default name is shown: use the *Joystick* to insert the name. Press 'ENTER'.

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.

4.6.2 LOADING FILE

➤ 'MENU' + "MEMORY CARD" + 'ENTER' + 'Load'

Before pressing 'Load', choose the file name in the list shown, using the *Joystick*.

4.6.3 DELETING FILE

➤ 'MENU' + "MEMORY CARD" + 'ENTER' + 'Delete'

Remove old or unnecessary files to clean up your User C-CARD. Remember that this option permanently erases the file.

4.6.4 USER C-CARD

➤ 'MENU' + "MEMORY CARD" + 'ENTER' + 'Cartr.'

NAME	DATE	TIME	TYPE	C-CARD 2
FILE02	01/01/80	00:00:00	MARKS	SORT BY NAME
FILE04	01/01/80	00:00:00	MARKS	IN MEMORY
FILE07	01/01/80	00:00:00	TRACKS	MARKS: 001
FILE08	07/02/98	17:17:00	MARKS	EVENTS: 001
FILE09	07/02/98	17:17:00	ROUTES	WAYPTS: 000
GILE06	01/01/80	00:00:00	TRACKS	ROUTES: 000
GJLE07	01/01/80	00:00:00	TRACKS	TRACKS:
JILE06	01/01/80	00:00:00	TRACKS	1 OFF 500
JILE07:0	01/01/80	00:00:00	TRACKS	2 OFF 500
				3 OFF 500
				4 OFF 500
				5 OFF 500

(READ) (SLOT) (FORMAT) (SORT BY)

Fig. 4.6.4 - C-CARD functions

4.6.4.1 Reading the User C-CARD Directory

➤ 'MENU' + "MEMORY CARD" + 'ENTER' + 'Cartr.' + 'Read'

The list of the files present on the User C-CARD inserted into the slot appears.

4.6.4.2 Selecting slot

➤ 'MENU' + "MEMORY CARD" + 'ENTER' + 'Cartr.' + 'Slot'

Selects the preferred slot where to insert the User C-CARD. If the User C-CARD is not present in the selected slot, a warning message appears.

4.6.4.3 Formatting User C-CARD

➤ 'MENU' + "MEMORY CARD" + 'ENTER' + 'Cartr.' + 'Format'

In order to be able to use a new User C-CARD you must format it first: this operation prepares the User C-CARD to receive and store information.

4.6.4.4 Ordering the User C-CARD Directory

➤ 'MENU' + "MEMORY CARD" + 'ENTER' + 'Cartr.' + 'Sort By'

It is possible to order the file directory. This is possible in three different modes:
- Press 'NAME' to order by the filename;
- Press 'TIME' to order by the time of file creation;
- Press 'TYPE' to order by the type of data.

5
Menu Settings

There are other three menus, Display, Alarms and Advanced, to handle the chartplotter information. Once you are in the Menu, use your *Joystick* to highlight the item and press 'ENTER' to activate or to proceed to the next selection menu.

5.1 DISPLAY MENU

Display Menu allows you to change how the chartplotter displays information. It is possible to select this menu only when the active page is the Chart Display or the Depth Graph (in split mode); so firstly select one of these pages, for example Chart Display mode.

> 'DATA' + "CHART DISPLAY" + 'ENTER'

or

> press any soft keys + 'CHART' (if it is present)

5.1.1 MAP ORIENTATION

> 'MENU' + "DISPLAY" + 'ENTER' + "Map Orientation" + 'ENTER'
> Selects orientation of your chart according to. The default setting is North Up.
> - North Up: the map is shown with North upwards.
> - Track Up: the map is shown with the ship's current heading upwards. If
> Track Up is selected, insert the Map Orientation Resolution angle by using the *Joy-stick* up and down in the range [5, 30] degrees (the default setting is 15°).

5.1.2 COURSE LINE

> 'MENU' + "DISPLAY" + 'ENTER' + "Course Line" + 'ENTER'
> The chartplotter will display a line with a circle at the end to indicate the position your ship will reach at the set time based on current direction of travel and

speed. This is continuously updated to account for changes. Disables (Off) or sets time as : 2, 10, 30 min, 1, 2 hours, Infinite. The default setting is Infinite.

5.1.3 COORDINATE SYSTEM

➤ 'MENU' + "DISPLAY" + 'ENTER' + "Coordinate System" + 'ENTER'
Sets your preferred Coordinate System among ddd mm ss, ddd mm.mm, ddd mm.mmm, UTM, OSGB, TD. The default setting is ddd mm.mmm.
If TD is selected a new TD Settings menu will be open on the screen:
➤ 'MENU' + "DISPLAY" + 'ENTER' + "COORDINATE SYSTEM" + 'ENTER' + 'TD' + 'ENTER"

Chain: Selects the preferred chain. The default setting is 9970.
Pair: Selects the pair of stations in the selected chain. The default setting is W X.
ASF 1/2: Sets the ASF (Additional Second Factor) for the slave in the selected chain. The default setting is 0.
Alter: Turns On/Off the Alternate Solution in the chain. The default setting is Off.

5.1.4 MAP DATUM

➤ 'MENU' + "DISPLAY" + 'ENTER' + "Map Datum" + 'ENTER'
Selects the Map Datum among 130 items. WGS 1984 is the default Map Datum.

5.1.5 FIX DATUM

➤ 'MENU' + "DISPLAY" + 'ENTER' + "Fix Datum" + 'ENTER'
Selects the Fix Datum among 130 items. WGS 1984 is the default Fix Datum.

5.1.6 EXTERNAL WAYPOINT

➤ 'MENU' + "DISPLAY" + 'ENTER' + "External WPT" + 'ENTER'
The coordinates of a Waypoint, received from a GPS connected to the chartplotter, can be stored into the chartplotter, if the GPS is NMEA-0183 protocol compatible and support the $BWC sentence (this symbol remains on the screen for 30 seconds). You may save it by placing a Waypoint or a Mark onto that symbol. As soon as the chartplotter receives another $BWC sentence with the coordinates of a new Waypoint, the symbol moves to the new point. The default setting is Off.

5.1.7 USER POINTS

➤ 'MENU' + "DISPLAY" + 'ENTER' + "User Points" + 'ENTER'

Sets On (icon + label), Off or Icon (only icon) the displaying of <u>User Point</u>. The <u>default</u> setting is On.

5.1.8 DATA WINDOW MODE

➤ 'MENU' + "DISPLAY" + 'ENTER' + "Data Window Mode" + 'ENTER'
Customizes the Text Area layout among Full Screen, Text Area with 5 boxes and Text Area with 8 boxes (see Par. 3.1.1). The <u>default</u> setting is 5 Boxes.

5.1.9 CURSOR WINDOW

➤ 'MENU' + "DISPLAY" + 'ENTER' + "Cursor Window" + 'ENTER'
Enables (On) or disables (Off) the display of the cursor window on the screen. The <u>default</u> setting is On.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
➤ 'MENU' + "DISPLAY" + 'ENTER' + "Palette" + 'ENTER'
It is possible to set the palette used to enhance the visibility of the screen depending on the surrounding light condition. The possible choices are Normal, Classic, Night Vision and Sunlight. The default setting is Normal. Normal is recommended when the chartplotter is not exposed to the direct sunlight. When this mode is set the maps are displayed in order to use colors as similar as possible to the ones used in the original paper charts. Classic is also recommended when the chartplotter is not exposed to the direct sunlight. The colors used are the same colors used on NT cartography. Night Vision is recommended when the environment is dark in order to reduce the glare of the display. The chartplotter displays maps and screen in darker colors. Sunlight is designed to enhance the visibility of the screen when the chartplotter is exposed to the sunlight. The maps are much brighter than in the other modes and the depth areas are filled with white color so different depth areas are not easily distinguishable.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
➤ 'MENU' + "DISPLAY" + 'ENTER' + "Video Input" + 'ENTER'
By accessing this menu it is possible to see images on the chartplotter display captured from an external video signal source, if connected to the chartplotter. Not all color chartplotters are connectable to the external video signal. Please make sure that your chartplotter is equipped with a video input connection port. The Video Input menu contains the following items: Activate Video Input and Restore Default.
Activate Video Input:
➤ 'MENU' + "DISPLAY" + 'ENTER' + "Video Input" + 'ENTER' + "Activates Video Input" + 'ENTER'
Activates the Video Mode from the Video Input menu (also it is possible to activate Video Mode by pressing 'CLEAR' for 3 seconds). At the activation of the Video Mode the following messages are shown on a dedicated window: "Connnected Video Input Signal is XXXX. The Video Mode will be activated". XXXX can be PAL or NTSC: the software automatically detects the type of Video Input source connected. Once the Video Mode is active use the following keys to adjust video settings: press and immediately release 'POWER' , use the 'CONTR+'/'CONTR-' and 'BRIGHT+'/'BRIGHT-' soft keys to adjust contrast and backlight; move the cursor up/down to adjust brightness and left/right to adjust colors, press 'ZOOM

IN'/ZOMM OUT' to adjust hue phase. Pressing any other key exits from Video Mode.
Restore Defaults:
> 'MENU' + "DISPLAY" + 'ENTER' + "Video Input" + 'ENTER' + "Restore Defaults" + 'ENTER'

Restores default values of Contrast, Brightness, Backlight, color saturation and Hue phase.

5.2   NAV DISPLAY MENU

The Nav Display menu allows to select CDI Scale and Navigation Page. It is possible to display this menu only if the Navigation Data page or the 3D Road page has been selected; so firstly select one of this pages, for example Navigation Data page:
> 'DATA' + "NAVIGATION DATA" + 'ENTER'

or
> press any soft keys + 'Nav' (if it is present)

and then:
> 'MENU' + "NAV DISPLAY" + 'ENTER'

5.2.1   CDI SCALE
> 'DATA' + "NAVIGATION DATA" + 'ENTER' then:
> 'MENU' + "NAV DISPLAY" + 'ENTER' + "CDI Scale" + 'ENTER'

Select your preferred CDI (Course Deviation Indicator) Scale among 0.2, 0.5, 1.0, 2.0, 4.0, 10.0 Nm by using the *Joystick* and then press 'ENTER'. The default setting is 10.0 Nm.

5.2.2   NAVIGATION PAGE
> 'DATA' + "NAVIGATION DATA" + 'ENTER' then:
> 'MENU' + "NAV DISPLAY" + 'ENTER' + "Navigation Page" + 'ENTER'

A new window appears with six items. Using the *Joystick* select the item you want to change and press 'ENTER': another window appears, use the *Joystick* to select the preferred data to display in the Navigation Data page and in 3D Road page among BRG (Bearing), SOG (Speed Over Ground), COG (Course Over Ground), STR (Steering), CTS (Course To Steer), TRN (Turning), DTG (Distance To Go), VMG (Velocity May Good), SOA (Speed Of Advance), XTE (Cross Track Error), DRF (Drift), SET, DPT (Depth), TEMP (Water Temperature). When fished press 'ENTER'. The default setting is SOG, COG, DTG, CTS, XTE, STR.

5.3 ALARMS MENU

The chartplotter provides alarm settings for various functions. Here you can set the system for your navigational requirements.

➤ 'MENU' + "ALARMS" + 'ENTER'

5.3.1 AUTO OFF

➤ 'MENU' + "ALARMS" + 'ENTER' + "Auto Off" + 'ENTER'

You can enable (On) or disable (Off) the automatic shutdown of the alarms when the alarm condition disappears. The default setting is On.

5.3.2 ARRIVAL ALARM

➤ 'MENU' + "ALARMS" + 'ENTER' + "Arrival Alarm" + 'ENTER'

Specifies the radius of a circle around the Waypoint of a Route: when your vessel reaches this circle the alarm sounds. After pressing 'ENTER' a box will appear with Off (00). Using the Joystick select the number preferred and press 'ENTER'. The default setting is 1.00 Nm.

5.3.3 XTE ALARM

➤ 'MENU' + "ALARMS" + 'ENTER' + "XTE Alarm" + 'ENTER'

Specifies the distance your Cross Track Error (XTE) can vary before the sound of an alarm or disables the XTE Alarm (Off). After pressing 'ENTER' a box will appear with 00. Using the Joystick select the number preferred and press 'ENTER'. The default setting is Off (00).

5.3.4 ANCHOR ALARM

➤ 'MENU' + "ALARMS" + 'ENTER' + "Anchor Alarm" + 'ENTER'

This function allows inserting of the limit of anchor dragging: beyond that, the alarm is activated. The chartplotter computes the distance between the current GPS position and the GPS position saved at the activation of the anchor alarm in the menu. If the computed distance exceeds the value set in the menu, the chartplotter shows the alarm message and starts the acoustic alarm. After pressing 'ENTER' a box will appear with 00. Using the Joystick select the number preferred and press 'ENTER'. The default setting is Off (00).

5.3.5 DEPTH ALARM

➤ 'MENU' + "ALARMS" + 'ENTER' + "Depth Alarm" + 'ENTER'

Specifies the depth or disables the Depth Alarm. After pressing 'ENTER' a box will appear with 00. Using the *Joystick* select the number preferred and press 'ENTER'. The default setting is Off (00).

5.3.6 GROUNDING ALARM

➤ 'MENU' + "ALARMS" + 'ENTER' + "Grounding Alarm" + 'ENTER'

The chartplotter is provided with a function that, by querying the map's data, verifies potential danger to navigation due to shallow water, land, rocks, obstructions and shoreline constructions. The maps are scanned periodically (every 10 seconds).

When the Grounding Alarm is active, the chartplotter scans an area in front of the boat. This area is identified by a triangle drawn in front of the boat icon whose direction is determined by the current boat heading. The length of the triangle is user selectable and its angle is 30 degrees. If any of the above objects are found, the chartplotter notifies the danger on a dedicated warning message box in the Grounding Alarm Report page (see Par. 5.2.8).

The Grounding Alarm is switched Off by default after a Master Reset. Once the Grounding Alarm has been activated, a warning message is shown.

Note _____

The Grounding Alarm function only operates with the new NT+ C-CARDs. It also affects the speed of the redraw of the screen. If this function is not used it maybe disabled.

5.3.7 GROUNDING DEPTH LIMIT

➤ 'MENU' + "ALARMS" + 'ENTER' + "Grounding Depth Limit" + 'ENTER'

The user can enter the minimum depth.

5.3.8 GROUNDING ALARM RANGE

➤ 'MENU' + "ALARMS" + 'ENTER' + "Grounding Alarm Range" + 'ENTER'

Allows setting the length of the sector to be detected among 0.25, 0.5, 1.0 Nm. The default setting is 0.25 Nm. When any of the searched objects is found in the scanned area, a tick marker is printed on the relative box in the Grounding Alarm Report page (see Par. 5.2.8) to identify which dangerous objects have been currently detected.

5.3.9 GROUNDING ALARM REPORT

> ➤ 'MENU' + "ALARMS" + 'ENTER' + "Grounding Alarm Report" + 'ENTER'
> Allows displaying the report of the dangerous objects currently detected.

5.4 ADVANCED MENU

The Advanced options are arranged in sub-menus. For example, all options that relate to the Fix functions are in Fix & Compass sub-menu. See Par. 2.5 for informations about Input/Output menu.

> ➤ 'MENU' + "ADVANCED" + 'ENTER'

5.4.1 FIX & COMPASS MENU

> ➤ 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER'
> The Fix & Comapss sub-menu contains options relating to GPS data input and display.

5.4.1.1 Fix Correction

> ➤ 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Fix correction" + 'ENTER'
> Turns On/Off the Correction from the positioning system. If the new Correction is calculated, but the Correction is not enabled, the ship's position is not changed. The default setting is Off.

5.4.1.2 Compute Correction

> ➤ 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Compute correction" + 'ENTER'
> 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.

5.4.1.3 Correction Offset

> ➤ 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Correction Offset" + 'ENTER'
> Manual correction of fix position.

5.4.1.4 Position Filter

> ➤ 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Position Filter" + 'ENTER'

Turns On/Off the Position Filter. In case of a jittering fix this option makes the ship' position more stable and the track smoother. The default setting is Off.

5.4.1.5 Speed Filter
> ➤ 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Speed Filter" + 'ENTER'

Turns On/Off the Speed Filter. When it is On, you can filter the speed of the ship, to optimize it. The default setting is Off.

5.4.1.6 Bearing
> ➤ 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Bearing" + 'ENTER'

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

5.4.1.7 Magnetic Variation
> ➤ 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Magnetic Variation" + 'ENTER'

It is possible to calculate the Magnetic Variation in an Automatic or manual mode, by inserting the step for calculation of Magnetic Variation. The default setting is Automatic.

5.4.1.8 Calibrate Compass
> ➤ 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "CALIBRATE COMPASS" + 'ENTER'

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

5.4.2 SIMULATION MENU
> ➤ 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER'

The built-in Simulator function allows you to become proficient in the use of the chartplotter. No current position fix is required because the chartplotter simulates position data internally.

5.4.2.1 Speed

➤ 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Speed" + 'ENTER'

To start the simulator you can insert the <u>Speed</u> value. Using the *Joystick* select the preferred <u>Speed</u> and press 'ENTER'. The <u>default</u> setting is 01.0 Kts.

5.4.2.2 Heading

➤ 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Heading" + 'ENTER'

To start the simulator you can insert the <u>Heading</u> value. Using the *Joystick* select the preferred <u>Heading</u> and press 'ENTER'. The <u>default</u> setting is 000° M.

5.4.2.3 Date and Time

➤ 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Date" + 'ENTER'

➤ 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Time" + 'ENTER'

Using the *Joystick* insert the preferred Date and Time and press 'ENTER'.

5.4.2.4 Cursor Control

➤ 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Cursor Control" + 'ENTER'

Enables (On)/disables (Off) the cursor control. The <u>default</u> setting is Off.

5.4.2.5 Simulation Mode

Once the settings are selected, turn on the Simulator:

➤ 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Simulation Mode" + 'ENTER' + "On" + 'ENTER'

To turn On the Simulation select Off. The <u>default</u> setting is Off.

6

For the Technician

6.1   DIMENSIONS
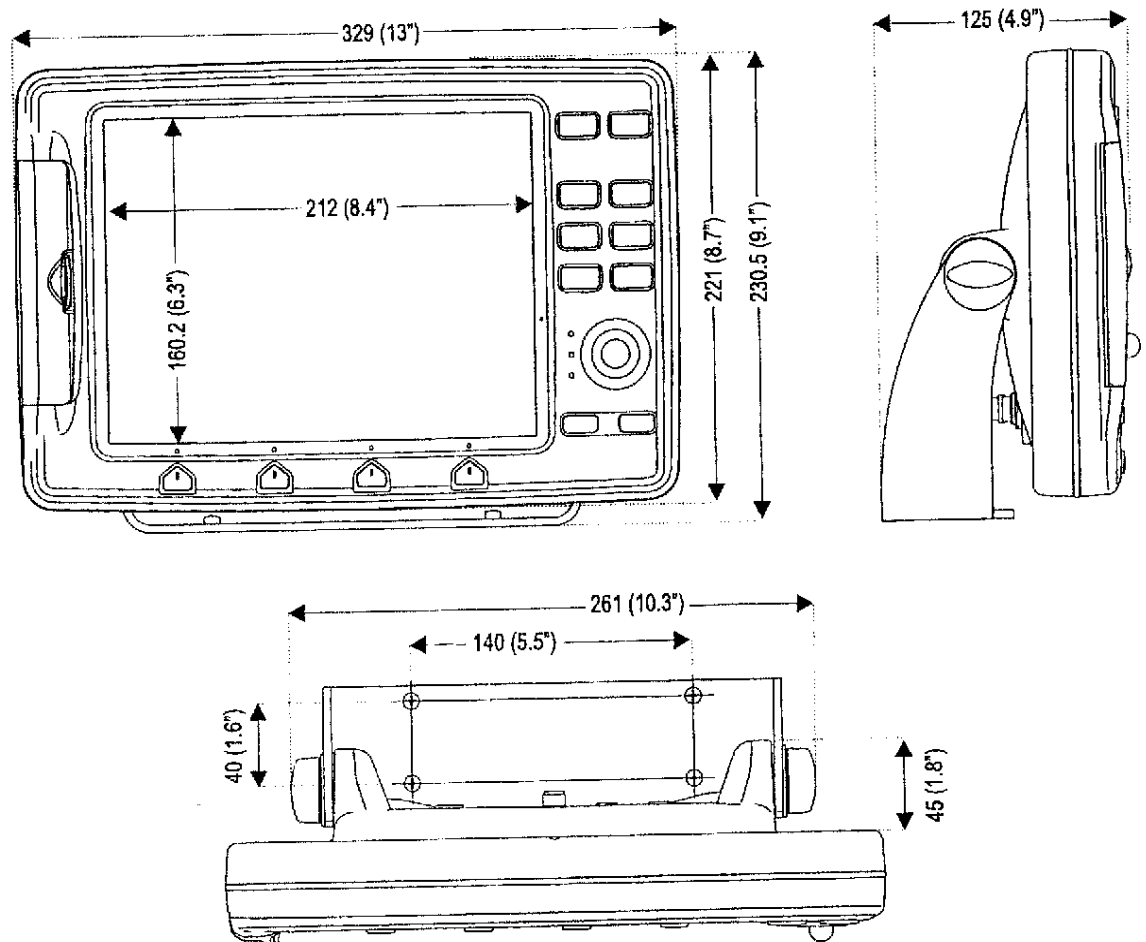
6.2 INSTALLATION AND REMOVING

6.3 EXTERNAL WIRING

VIDEO - IN 1   VIDEO - IN 2   GPS ANTENNA   POWER & I/O

GPS ANTENNA
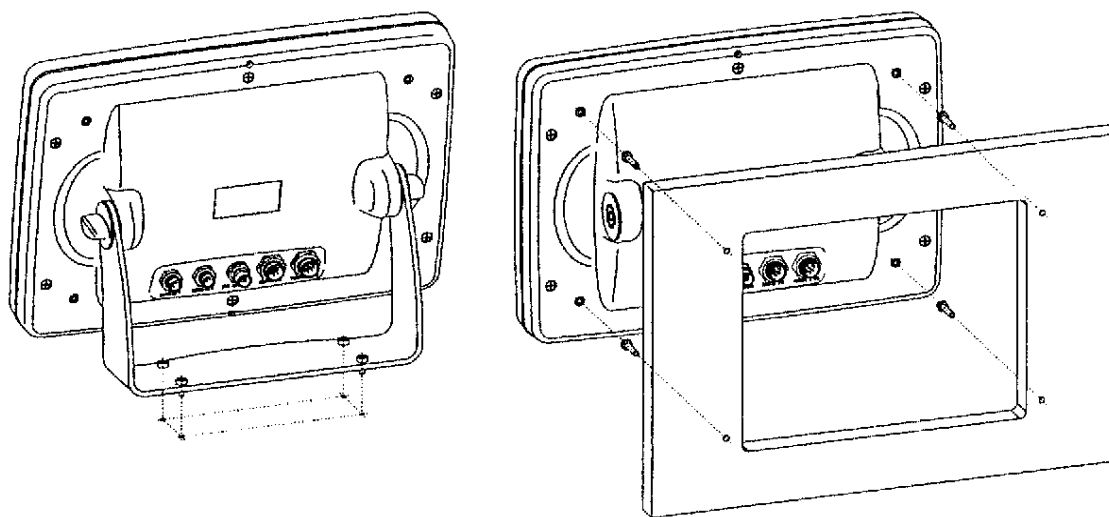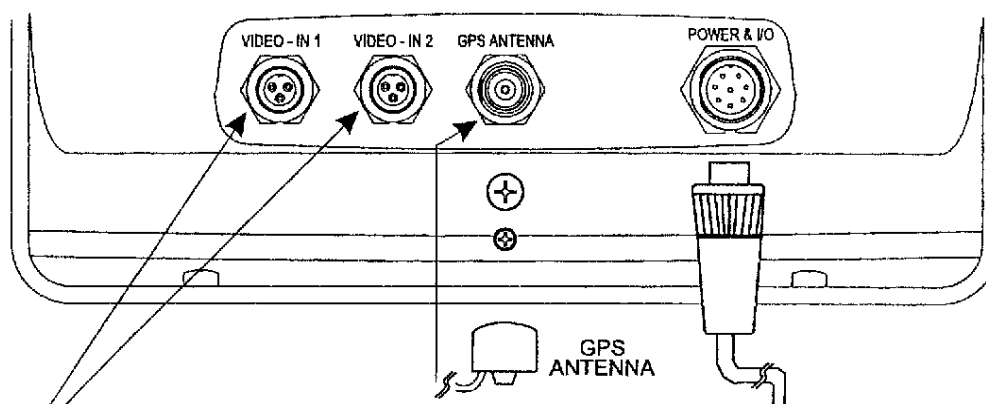
VIEW CAM/FISH CAM option ONLY for COLOR CHARTPLOTTER

CAM CONNECTORS PIN-OUT

1=GND
2=PWR+
3=SIGNAL
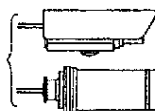
POWER & I/O CONNECTOR		
PIN #	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	PWR + (10-35 Vdc)
3	WHITE	NMEA 1 INPUT + (OPTOISOLATED)
4	GREEN	NMEA 1 INPUT - (OPTOISOLATED)
5	GRAY	NMEA 2 OUTPUT +
6	YELLOW	PRINTER OUTPUT +
7	BROWN	DIFFERENTIAL INPUT
8	BLUE	EXTERNAL ALARM

6.4 TYPICAL CONNECTION - "POWER & I/O" CONNECTOR

INPUT/OUTPUT DATA

POWER & I/O CONNECTOR		
PIN #	WIRE COLOR	FUNCTION
1	BLACK	PWR - (GND)
3	WHITE	NMEA 1 INPUT+ (OPTOISOLATED)
4	GREEN	NMEA 1 INPUT- (OPTOISOLATED)
6	YELLOW	NMEA 1 OUTPUT

EXTERNAL DEVICE

AUTOPILOT OUTPUT

POWER & I/O CONNECTOR		
PIN #	WIRE COLOR	FUNCTION
1	BLACK	PWR - (GND)
5	GRAY	AUTOPILOT

EXTERNAL DEVICE

DIFFERENTIAL INPUT

POWER & I/O CONNECTOR		
PIN #	WIRE COLOR	FUNCTION
1	BLACK	PWR - (GND)
7	BROWN	DIFFERENTIAL INPUT

DIFFERENTIAL BEACON RECEIVER

EXTERNAL ALARM OUTPUT

POWER & I/O CONNECTOR		
PIN #	WIRE COLOR	FUNCTION
1	BLACK	PWR - (GND)
8	BLUE	EXTERNAL ALARM

EXTERNAL DEVICE

6.5 PRINTER SPECIFICATIONS

6.5.1 PRINTING ON SERIAL PRINTER

The printer must be connected to the chartplotter via a serial cable with 2 wires from the 7 Pin Conxall Connector as shown in the following figure:

POWER & I/O PORT

PRINTER RX (YELLOW)

RS232C - DB 25 female

13 12 11 10 9 8 7 6 5 4 3 2 1
25 24 23 22 21 20 19 18 17 16 15 14

8 PIN MALE CONNECTOR
CHART PLOTTER EXTERNAL VIEW

PRINTER GND (GREEN)

SERIAL PRINTER CONNECTOR
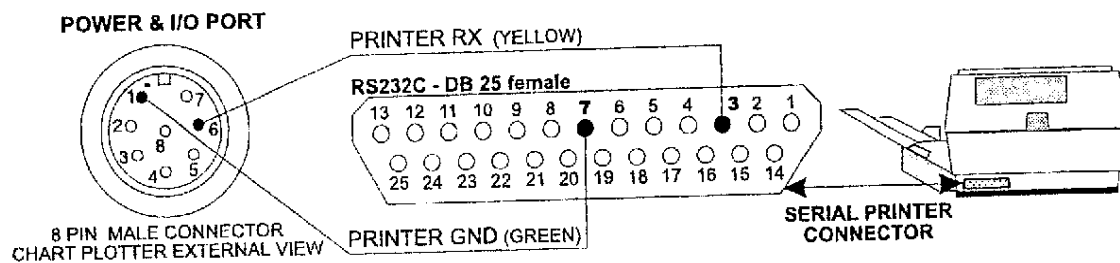
The printer serial interface RS232 must be set as follows:

- 8 bit data
- 1 stop bit
- no parity
- 9600 Baud Rate (see Note)
- Data protocol   :   Ready/Busy
- Carrier detect   :   Disabled
- Clear to send   :   Disabled
- Data set ready   :   Disabled
- CR definition   :   CR only
- LF Definition   :   LF only
- Page Length   :   11"

6.5.2 PRINTING ON PARALLEL PRINTER

The printer must be connected by using a serial to parallel converter.
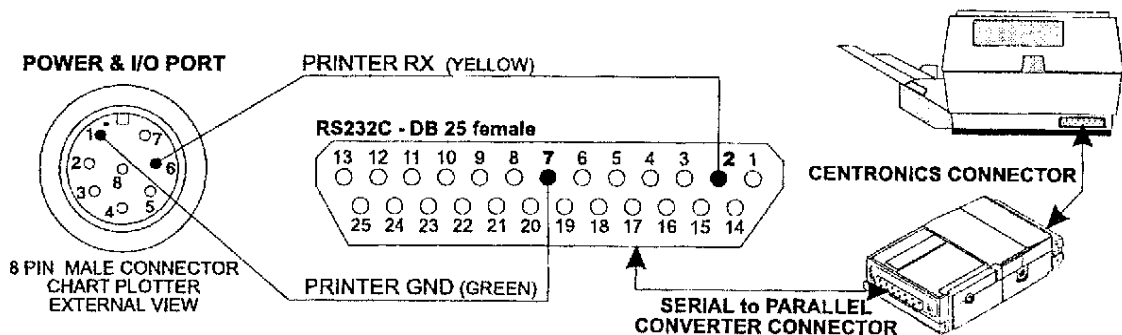
The serial to parallel converter must be set as follows:

- 9600 Baud Rate (see Note (*) at the end of the paragraph)
- Handshake :   XON/XOFF
- Data Lengt :   8"
- Parity   :   none
- Direction   :   S-P

Note (*)

This setting depends on the selection of printer output Baud Rate done in the chartplotter. It is recommended to use the maximum Baud Rate (9600) to reduce the time necessary for printing.

The printer should be compatible with the following formats:
- EPSON LQ 2500
- IBM PROPRINTER XL24 in AGM mode.

6.6 TROUBLE SHOOTING

The following is a brief guide to some of the problems you may experience while using the chartplotter with common solutions.

6.6.1 PROBLEMS AND SOLUTIONS

The chartplotter does not turn On — Make sure that the correct voltage (10-35 volt dc) is present. Check also that the polarity is correct. Refer to the Par. 2.2.

The chartplotter does not turn Off — If, after a 'POWER' pressure (for at least 3 seconds) the chartplotter does not turn Off, then turn Off the voltage.

The chartplotter does not respond to any command — Try to turn Off, and then turn On. If the problem persists, erase the memory (see Par. 6.7.1).

The chartplotter does not get a valid fix — Make sure that no metal obstacle is placed around the chartplotter acting as a shield for the antenna. If, after 15 minutes, the chartplotter does not get the fix, turn it Off and On again.

The chartplotter screen becames very dark after a long exposure to direct sunlight — Control the contrast (see Par. 2.3).

6.6.2 WHEN NOTHING ELSE WORKS

The list above should allow you to solve most of the operating problems you are likely to encounter. Simply disconnecting the chartplotter from power for a moment may solve your problem as well.

If this does not help, you can try one additional memory clear option. This is a factory default RAM Clear that should only be tried after all other attempts have been made. When using the RAM Clear feature, you will loose all user stored information and the chartplotter will default to factory settings. Before this step, you have the option of saving user Marks, Track history and Routes to a User C-CARD (this is an optional purchase from your dealer). To perform a RAM Clear see Par. 6.7.1.

6.6.3 IF YOU NEED ASSISTANCE

If you still need assistance, call your local dealer, reporting the Software Re-

lease and Cartography information available in the About page.

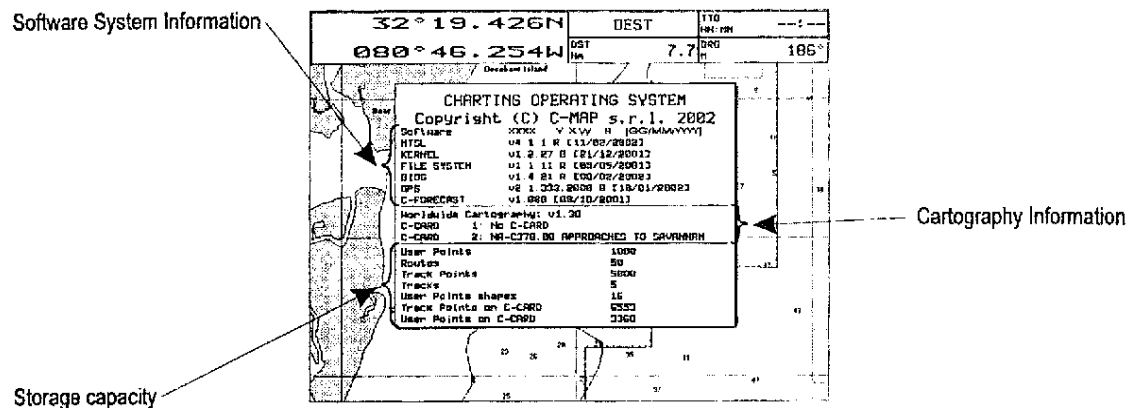➤ 'MENU' + "ADVANCED" + 'ENTER' + "About..." + 'ENTER'

Software System Information

Cartography Information

Storage capacity

Fig. 6.6.3 - About Page

Note (*) _____

The information shown on this page depends on the software running on the chartplotter and on the C-CARDs inserted.

6.7   SYSTEM TEST

If you have connected your position-finding device according to the instructions, and chosen the proper menu selection for your device, and are still having problems with your chartplotter, the extended auto-test should help determine the problem. Make sure the chartplotter is turned Off. While pressing and holding any other key, turn the chartplotter On. A new menu will appear on the display:

Software name and version

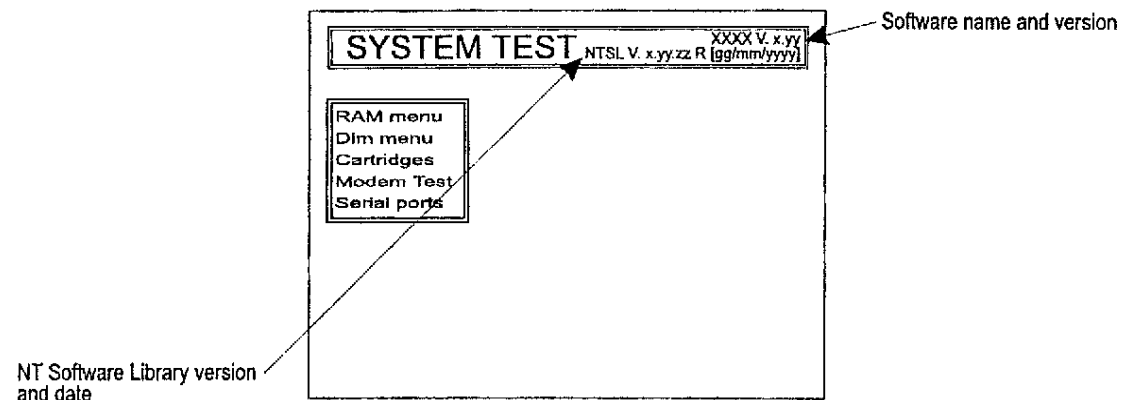NT Software Library version
and date

Fig. 6.7 - System Test

Use the *Joystick* to select the preferred test: this will display in reverse video and with the relative menu window. To choice the test press 'ENTER'. To exit from any submenu press 'CLEAR'. To exit from the System Test turn Off the chartplotter.

6.7.1 RAM menu

This test verifies the integrity of the memories and if preferred during this test all the internal memory can be erased and the default setting restored.

■ **RAM Test**
To verify the integrity of the RAM. If on the screen the message "ERROR" appears, the RAM is physically damaged.

■ **RAM Clear**
To clear internal memory. If the chartplotter exhibits unusual behaviour, 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. To confirm to clear RAM press 'ENTER' again (but if at this time you do not wish to clear RAM press 'CLEAR').

6.7.2 DIM menu

To select the preferred value for contrast and backlight.

■ **Contrast**
Each time you pressed the *Joystick* to right, the screen will decrease brightness, instead of to left it will increase brightness.

■ **Backlight**
To set the backlight. Operates in similar mode as Contrast.

6.7.3 CARTRIDGES

To check the C-CARD and its connector.

■ **Background ROM**
To test the WorldWideBackground. If there is not a malfunction, the code of the Background and the message "OK" are shown.

■ **C-CARD Test**
To test the C-CARD. There are three possible situations:
1. if there is a C-CARD inserted in the slot and there is not a malfunction, the name of the C-CARD zone and the message "OK" are shown.
2. if there is a C-CARD inserted in the slot, but it is a damaged C-CARD, the name of the C-CARD zone and the message "Faulty" are shown.

3. if there is not any C-CARD inserted in the slot, the message "not present" is shown.
4. if there is an <u>User C-CARD</u> inserted in the slot, the message "USER C-CARD" is shown.

■ C-CARD Connector
Indicates if there is a malfunction in the connector. It is used only in production.

6.7.4 MODEM TEST

To check the Modem connections.

6.7.5 SERIAL PORTS

If you are having problems receiving data from the position-finding instrument, this test should help determine the problem.

■ **Change Parameters**
Allows to change the parameters of the serial interface. This menu allows to select the **Port** (Signal Source) between External Port or Differential Input, the **Baud Rate** between 4800 or 9600, the **Data Bits** (Word Length) between 7 or 8, the **Parity** between even, odd or none, the **Stop Bits** between 1 or 2, the **Polarity** between "+" or "-". <u>Default</u> settings are: Port = External Port, Baud Rate = 4800, Data Bits = 8, Parity = none, Stop Bits = 1, Polarity = +.

■ **Input Data Display**
Allows the chartplotter to act as a computer terminal and display the incoming data exactly as it received.
If the data displayed on the screen is unrecognizable, you may have selected the wrong input parameters for your particular receiver. 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 'ZOOM IN' to stop (or continue after pause) data displaying, 'ENTER' to show data in hex or ASCII mode (normal or small) and 'CLEAR' to exit.

A
Terms

This section explains the terms that may be unfamiliar to the reader.

■ **Arrival Time**
The estimated time of day you will reach your destination, based on your current speed and track from GPS.

■ **Attention Areas**
Attention Areas are areas in which special attention by the mariner is required, because of natural or man-made hazards, or sailing regulations and restrictions. Moreover a special symbol (!) is placed inside the area selecting On option. This is valid also for the categories: FISHING FACILITY, MARINE FARM/CULTURE, MILITARY PRACTICE AREA, RESTRICTED AREA, SEAPLANE LANDING AREA. When the area is small, it is identified only by the boundary.

■ **AWA = Apparent Wind Angle**
Direction of the air relative to the moving ship.

■ **AWS = Apparent Wind Speed**
Speed ot the air relative to the moving ship.

■ **Azimuth**
The angular measurement from the horizon to a satellite or another object.

■ **Beacon**
A prominent, specially constructed object forming a conspicuous vertical mark as a fixed aid to navigation.

■ **BRG = Bearing**
It is the angle between the North (True or Magnetic) and a destination. It represents the direction to follow.

■ **Buoy**
A floating object moored to the sea bottom in a particular (charted) place, as an aid to navigation.

■ **Chain**
Selects the preferred chain. The Loran chains are groups of transmitting stations that use timed radio pulse transmissions. 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: a different time base identifies each chain. The time base of each chain is the Group Repetition Interval or GRI. This GRI identifies the chain in unique mode. For example the GRI = 4990 identifies the chain of Central Pacific zone.

■ **COG = Course Over Ground**
Direction of the path over ground actually followed by a vessel.

■ Correction

To compute fix error in automatic mode, place cursor on ship's real position and then follow the procedure (compute correction). It is also possible to compute the fix error in manual mode (correction offset). Once you computed the error, you can turn the fix correction On or Off.

■ CTS = Course To Steer

The optimum direction the boat should be steered in order to efficiently make headway back to the courseline while also proceeding toward the destination Waypoint.

■ Cultural Features

Any man-made topographic feature as built-up area, buildings, roads, ...

■ Current

Non-periodical movement of sea-water, generally horizontal, due to many causes such as different temperatures and prevalent winds. Some may be temporary, others permanent.

■ 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.

■ Default

Indicates a value or a setting which is used if the user has not defined a particular value. You can modify this value using the menu settings.

■ Depth Contours

Imaginary lines connecting points of equal water depth.

■ DGPS = Differential GPS

Provides even greater positioning accuracy than standard GPS.

■ Drift

Horizontal velocity of the water surface.

■ DTG = Distance To Go

The actual distance to reach the Target.

■ Event

User Point that refers to the ship's position. It is simply a way of marking where the boat is (see Par. 4.2).

■ File

Collection of information (of the same type) stored on a User C-CARD. Each file must have a unique name, ideally one that describes its contents. Filenames are kept in a directory on each User C-CARD (see Par. 4.6).

■ GPS = Global Positioning System

It 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.

■ HDG/HEAD = Heading

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

■ HDOP = Horizontal Dilution Of Precision

It is the index for position-fixing accuracy. The smaller the HDOP value, the more accurately the position can be fixed

■ Home

In Operating mode (called also Navigate mode) all operations refer to the ship's position.

■ **Landmarks**

Any prominent object such as monument, buiding, silo, tower, mast, ..., on land which can be used in determining a location or a direction.

■ **Latitude**

The angular distance North or South of the equator measured by lines encircling the earth parallel to the equator in degrees from 0° to 90°.

■ **LAT/LON**

Coordinate system using Latitude and Longitude coordinates to define a position on earth.

■ **LOG**

Speed of the vessel relative to the water.

■ **Longitude**

The angular distance East or West of the prime meridian (Greenwich meridian) as measured by lines perpendicular to the parallels and coverging at the poles from 0° to 180°.

■ **Loran**

The Loran Chains are groups of transmitting stations that use timed radio pulse transmissions.

■ **Magnetic Deviation**

The angle between the Magnetic North and the Compass North.

■ **Magnetic Variation**

The angle between the magnetic and geographic meridians at any place, expressed in degrees West or East to indicate the direction of magnetic North from true North. It changes from point to point, and (at the same point) with time.

■ **Mark**

Reference points related to cursor position (see Par. 4.2).

■ **Natural Features**

Any topographic feature formed by the action of natural processes: coastlines, relief, glaciers, ...

■ **Navigate**

Operating mode (called also Home mode) all operations refer to the ship's position.

■ **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.

■ **OSGB = Ordnance Survey of Great Britain**

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

■ **Port Info**

The Port Info function is a combination of a new Port Info database containing all the relevant Safety and Navigational information normally found in good pilot books and a new presentation software which displays special Port Facility Symbols.

■ **Ports & Services**

Areas along shore with facilities for mooring, downloading and uploading of ships, generally sheltered from waves and winds. Port installations are piers, wharves, pontoons, dry docks, cranes... .

■ **Route**

Sequence of Waypoints connected by segments. Among the available Routes, only one is the active

Route, which is shown by a straight line and arrows to indicate the direction. The first Waypoint of the active Route is surrounded by a circle (see Par. 4.1.1).

■ **RTCM = Radio Technical Commission for Maritime Services**
The data format created by the Radio Technical Commission Maritime to transmit Differential GPS corrections.

■ **SET**
Direction of drift.

■ **Simulation**
Used in order to use your chartplotter without input data. It generates a display with a moving vessel, so that you can practice using the controls in safety.

■ **SNR = Signal to Noise Ratio**
The ratio of the magnitude of a signal that of the noise (interference).

■ **SOG = Speed Over Ground**
A calculation of the rate of movement of the ship over the ground.

■ **Speed**
The current velocity at which you are travelling, relative to a ground location.

■ **SPS = Standard Positioning Service**
The civilian-access signal broadcast by the GPS satellites.

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

■ **TD = Time Difference**
Loran-C positions are determined by precise timing of the intervals between reception of pulses transmitted 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.

■ **Tide**
The periodic rise and fall of the surface of oceans, bays, etc., due principally to the gravitational interactions between the Moon and Earth.

■ **Tide Info**
The Tide Info feature is the combination of a new tide heights database that will be included within new C-CARDs and new features which 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 Tide height and time for the day selected plus the times of Sunrise and Sunset. At some chart levels, the chartplotter will display a new Tide Diamond Symbol for every Port or tide point in the database covered by that particular C-CARD (see Par. 3.4.4).

■ **Time Line**
The location where the ship will be after the time set by the user.

■ **Track**
As long as the chartplotter is connected to a positioning instrument, it stores all points in its memory. The chartplotter can store a fix when the distance from its last stored position is greater than a defined distance or after a defined time. A line connects such points and represents the past course, called the Track of the ship (see Par. 4.4).

■ **Tracks & Routes**
Recommended and established routes for ships at sea, including traffic separation schemes, deep water routes, ...

■ **TRN = Turning**
The difference between <u>COG</u> and <u>BRG</u>. If <u>COG</u> is 80° and <u>BRG</u> is 75°, TRN is 5° Left.

■ **TTG = Time To Go**
The estimated time needed to reach your destination, based on your current <u>speed</u> and the distance to destination.

■ **TWA = True Wind Angle**
Direction of the air relative to fixed point on the heart.

■ **TWS = True Wind Speed**
Speed of the air relative to fixed point on the heart.

■ **User C-CARD**
The chartplotter uses the optional User C-CARD to save user data: it is a convenient medium to store and retrieve your information. Before a new User C-CARD can be used, you must format it. The formatting function initializes the User C-CARD and prepares it for storing information. Remember that if an User C-CARD is not blank, formatting it will destroy any data already present on the User C-CARD (the User C-CARDs must be formatted in order to be reused, this operation means all old data memorized on the User C-CARD will be lost). Data stored on User C-CARD are grouped in <u>files</u>.

■ **User Point**
Place on the chart identified by its coordinates and displayed on the screen with a reference symbol (see <u>Mark</u>, <u>Waypoint</u> and <u>Event</u>).

■ **UTC = Universal Time Coordinated**
A time scale based on the rotation of the earth that is used by most broadcast time services.

■ **UTM = Universal Transverse Mercator**
Metric Grid system used on most large and intermediate scale land topographic charts and maps.

■ **VDOP = Vertical Dilution Of Precision**
It is the index for position-fixing accuracy.

■ **VMG = Velocity May Good**
The Velocity May Good is the component of the velocity that is in the direction of the destination.

■ **WAAS = Wide Area Augumentation System**
The Federal Aviation Administration (FAA), in cooperation with other DOT organizations and DOD, is augmenting the <u>GPS/SPS</u> with a satellite-based augmentation system, the WAAS. It will provide a signal-in-space to WAAS users to support en route through precision approach navigation. After achieving initial operational capability, the WAAS will then be incrementally improved over the next years to expand the area of coverage, increase the availability of precision approaches, increase signal redundancy and reduce operational restrictions.

■ **Waypoint**
Any point to which one intends to navigate. A sequence of Waypoints makes up a <u>Route</u> plan (see Par. 4.1.2).

■ **WGS 1984 = World Geodetic System 1984**
Coordinates System or <u>Datum</u> developed by the Defense Mapping Agency (DMA).

■ **Zoom-In**
Shows more detail in a smaller area.

■ Zoom-Out

Operates similarly to zoom -in, but in the reverse, showing a wider but less detailed view.

■ XTE = Cross Track error

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 traveled.

B

C-Forecast

The C-Forecast System handles information relative to the wind (speed and direction) and waves height provided to the chartplotter by a remote server station via GSM.

The user is allowed to choose the location on the map where he wants to download the weather information given by the server station and starting time of the forecast. All data refer to the next six hours since the required starting time. The server provides 6 hours time forecast in a period of 24 hours since the time of the request. E.g. At 2:00 PM of September 29, 2001 the user can request the forecast of 6 continuous hours time from the current time (2:00 PM) until the same time next day (2:00 PM of September 30, 2001).

The forecast provided by the system covers an area of X degrees (the degrees depend of max speed value, see table below, Fig. B) ahead of the current vessel's position considering the maximum vessel speed (declared in the subscription) and current vessel's course.

Preview area angle size	
Max Speed	Angle
5	160
10	150
15	140
20	130
25	120
30	110
35	100
40	90

Fig. B - Preview area angle size table

B.1 DATA PRESENTATION

The basic information sent by the server consists of two types data represented by two different icons that contain wind and waves information.

The wind icon is a circle with an arrow pointing toward the center of the circle that represents the wind direction and a number inside the circle that represent the wind speed.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
The color of the wind icon turns red when the wind speed is greater than the speed limit set in the menu.

The wave icon is a circle with the wave height value shown inside.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
The wave icon turns red when the foreseen wave height is higher than the value set in the menu.

The information received from the server is stored in the memory (RAM) of the chartplotter to be displayed on the maps when the vessel moves around it. The information shown consists of a series of icons of the same type (wind or waves) that cover a sector of X degrees (see Fig. B) in from of the pre-selected starting point (see also Par. B.2.2, Download Preview).

Each point can contain up to six hours of forecasted data. The amount of forecasted data available for each point depends on the distance between the starting point and the point itself considering the maximum vessel's speed declared in the subscription.

The system returns only the information relative to the time when the vessel can reach the point traveling at its maximum speed and the next hours (up to six). This means that the starting position will contain the forecast for the next six hours while the farthest points will contain only the forecast for the 6th hour.

The amount of icons shown on the map depends on the vessel's position and its speed considering the distance that could be covered by the vessel traveling at the current speed. All icons included in the range will be shown. The fastest the vessel is traveling the most icons are shown on the charts.

- E.g.1: if the vessel is on the staring position traveling at its maximum speed, all icons will be shown on the map display.
- E.g. 2: if the vessel is not moving, not even one icon will be shown.
- E.g. 3: if the current vessel speed does not allow reaching any of the points with the information, no icons will be shown on the map.

Supposing that traveling at the maximum speed, the vessel can reach the area containing the information relative to the 6th hour, the icons relative to the 6th hour are shown on the map display. If the speed decreases to a value that does not allow the vessel to reach the area with the 6th hour data, the icons relative to the 6th hour remain on the map display but their values are removed from the icons. On next map redraw the icons without values inside will be removed.
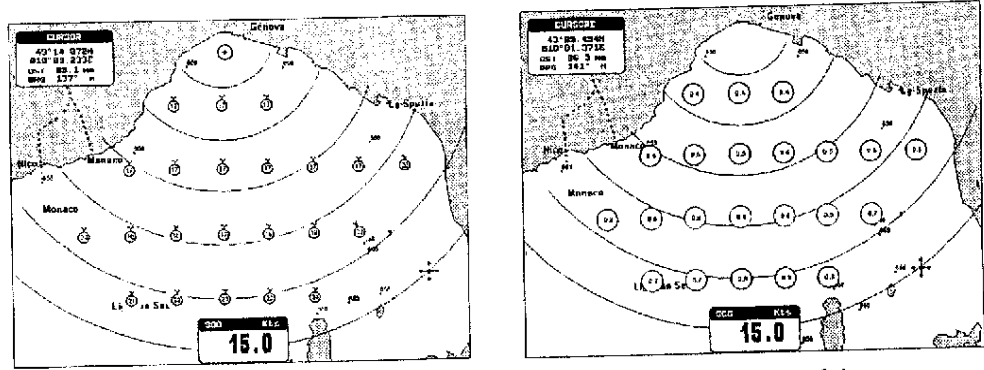

Fig. B.1 - Wind icons (on the left) and waves icons (on the right)

B.2 MENU SETTINGS

All menu settings are reached from the C-Forecast menu:
➤ 'MENU' + "C-FORECAST" + 'ENTER'
The C-Forecast menu contains the following items: C-Forecast Set-Up, Download Preview and Browse.

B.2.1 C-FORECAST SETUP MENU

From the C-Forecast Set-Up menu it is allowed entering the information specified in the subscription and the other settings relative to the display of the weather information on the map. To select the C-Forecast SetUp menu follow the procedure:
➤ 'MENU' + "C-FORECAST" + 'ENTER' + "C-FORECAST SET-UP" + 'ENTER'
The C-Forecast Set-Up menu apperas on the screen with the following items.

B.2.1.1 Display
➤ 'MENU' + "C-FORECAST" + 'ENTER' + "C-FORECAST SET-UP" + 'ENTER' + "Display" + 'ENTER'
Display is the type of weather information to be shown on the map: Wind, Waves and Off. Wind and waves cannot be displayed simultaneously. The default setting is Off.

B.2.1.2 Wind Speed Alert

> ➤   'MENU' + "C-FORECAST" + 'ENTER' + "C-FORECAST SE-TUP" + 'ENTER' + "Wind Speed Alert" + 'ENTER'

Wind Speed Alert is the wind speed above which all icons are drawn in a different gray tone/shape. The value can be in the range from 0 to 250 k/h or it can be set Off. The <u>default</u> setting is Off.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
All icons are drawn in a different color.

B.2.1.3 Waves Height Alert

> ➤   'MENU' + "C-FORECAST" + 'ENTER' + "C-FORECAST SET-UP" + 'ENTER' + "Waves Height Alert" + 'ENTER'

Waves Height Alert is the wave height above which all icons are drawn in a different gray tone/shape. The value can be in the range from 0.1 to 25.0 Mt or it can be set Off. The <u>default</u> setting is Off.

Note _____ **ONLY FOR COLOR CHARTPLOTTER**
All icons are drawn in a different color.

B.2.1.4 Wind Speed Unit

> ➤   'MENU' + "C-FORECAST" + 'ENTER' + "C-FORECAST SET-UP" + 'ENTER' + "Wind Speed Unit" + 'ENTER'

Wind Speed Unit is the unit of measure used for the wind speed display: Kts; m/s; Kph; Bft; Mph. The <u>default</u> setting is Kph.

B.2.1.5 Wave Height Unit

> ➤   'MENU' + "C-FORECAST" + 'ENTER' + "C-FORECAST SET-UP" + 'ENTER' + "Wave Height Unit" + 'ENTER'

Wave Height Unit is the unit of measure used for the waves height display: Mt, Ft. The <u>default</u> setting is Mt.

B.2.1.6 User Id

> ➤   'MENU' + "C-FORECAST" + 'ENTER' + "C-FORECAST SET-UP" + 'ENTER' + "User ID" + 'ENTER'

User Id is needed for the data transferring authorization and must match the data provided in the subscription. The User Id is provided to the end user by C-MAP when the user subscribes a new contract. The User Id is 16 Characters string "####-####-####-####". The character "-" is not part of the User Id and it is used to make the code better readable. The set of characters for the User Id is "3 4 7 9 A C E F H K P R T W X Y"

B.2.1.7 Telephone Number

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "C-FORECAST SET-UP" + 'ENTER' + "Telephone Number" + 'ENTER'

Telephone Number is the telephone number of the service provider. The maximum length of telephone number is 20 characters.

B.2.1.8 Sim Pin

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "C-FORECAST SET-UP" + 'ENTER' + "SIM PIN" + 'ENTER'

Sim Pin is the PIN of the SIM Card used in the GSM module. The Sim Pin is always shown. The maximum length is 8 digits. The default PIN is an empty string.

B.2.1.9 Max Speed

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "C-FORECAST SET-UP" + 'ENTER' + "Max Speed" + 'ENTER'

Max Speed is the maximum vessel's speed declared in the subscription. The value can be in the range from 5.0 to 40.0 Kts. If a value lower than 5.0 Kts is entered, the chartplotter emits three beeps and sets the value to 5.0 Kts; if the entered value is greater than 40.0 Kts the chartplotter emits three beeps and sets the value to 40.0 Kts. The default setting is 15 Kts.

Note

The Max Speed is used to define the area covered by the weather information in the Preview display mode (see Par. B.2.2).

B.2.2 DOWNLOAD PREVIEW

The Preview allows seeing the map area that will be covered by the weather information.

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "Download Preview" + 'ENTER'

Once the Preview is activated the Main Menu is closed and the map is centered on the vessel's position. The map scale changes automatically to the zoom level that contains the whole area covered by weather information.

The Preview consists of a X degrees (the degrees depend of max speed value, see Fig. B) sector drawn ahead of the selected starting position (vessel or the cursor depending on the user's selection) whose bisector direction can be set by the user. The width of the area covered is proportional to the vessel's speed and depends on the maximum vessel's speed declared in the subscription (entered in the C-Forecast Set-Up menu, see previous Par. B.2.1).

Once the Preview function is active a prompt is shown on the map display inside a dedicated window.

The user can change the values in the prompt manually. Moving about the selections it's possible to set the starting position coordinates between Fix and Cursor. Max Speed and Local Time Offset are shown and cannot be changed.

B.2.2.1 Type

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "Download Preview" + 'ENTER'+ "Type" + 'ENTER'

Type determines the type of data downloaded from the server. Type can be set to Wind (downloads only Wind information); Waves (download only waves information); Wind + Waves (download both types simultaneously). The default setting is Wind + Waves.

B.2.2.2 Fix and Cursor

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "Download Preview" + 'ENTER'+ "Fix/Cursor" + 'ENTER'

Available options are Fix and Cursor. If the active mode is Fix the coordinates field cannot be modified manually. When the cursor is placed on the field Position and 'ENTER' is pressed the option can be switched to Cursor. In this way the selection can be moved over the coordinates field while instead when the active mode is Fix the coordinates cannot be changed. If the GPS is not providing a valid fix position or the Simulation mode is not active, the active mode is Cursor, the starting position is at the cursor coordinates and it is not possible to switch to Fix mode. The default Lat/Lon is the current vessel's position (received from the GPS or simulated).

B.2.2.3 Show On Chart

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "Download Preview" + 'ENTER'+ "Show on Chart" + 'ENTER'

Show On Chart enables to display chart at full screen. By pressing 'CLEAR' from chart return to this menu.

B.2.2.4 Course

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "Download Preview" + 'ENTER'+ "Course" + 'ENTER'

The default Course value is the one received from the GPS. If the GPS is not providing a valid data, the default Course is to be set to 000.

B.2.2.5 ETD and Date

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "Download Preview" + 'ENTER'+ "ETD" + 'ENTER'

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "Download Preview" + 'ENTER'+ "Date" + 'ENTER'

ETD (Estimated Time of Departure) and Date: the default Date and ETD are received from the GPS. If they are not received the default Date and ETD are to be the last most recently received values; a Warning message is shown. In case Date and ETD have never been received the default Date is the software release date and the default ETD is 12:00. The value inserted is Local Time: The user is to make sure that the correct Local Time Offset was set. The software will check that the entered ETD is not after 18 hours from current time (because the system provides a valid forecast for 24 hours from current time). The test is valid only when the GPS is providing valid Date and ETD.

B.2.2.6 DOWNLOAD NOW

> 'MENU' + "C-FORECAST" + 'ENTER' + "Download Preview" + 'LOAD'

When the Download function is activated the Preview window is closed and replaced by another window. Information contained in this window is related to the current contract status, that can be **Shots based** or **Time based.**

If the subscription is Time Based the servers returns the expiration data, while instead if the subscription is Shots based the server returns the number remaining shots and the expiration data. The Expiration Data and/or the Number of Remaining Downloads are to be saved in the chartplotter memory so that it can be displayed on the message shown before starting the downloading procedure.

Message shown for Shots Based contract:

```
┌─────────────────────────────────────┐
│                                       │
│   Maritime Nowcasting Service         │
│   By Nowcasting International Ltd      │
│                                       │
│   Remaining Downloads: ###            │
│   Expiration Date: dd-mm-yy           │
│                                       │
│   Are you sure you want to download?  │
│                                       │
└─────────────────────────────────────┘
```

Message shown for Time based contract:

```
┌─────────────────────────────────────┐
│                                       │
│   Maritime Nowcasting Service         │
│   By Nowcasting International Ltd      │
│                                       │
│   Expiration Date: dd-mm-yy           │
│                                       │
│                                       │
│   Are you sure you want to download?  │
│                                       │
└─────────────────────────────────────┘
```

The first time the download is performed or after a Master Reset the chartplotter does not know the subscribed contract type and the number of remaining shots or the expiration date cannot be shown. In this case the message "Remaining Downloads" or "Expiration date: dd-mm-yy" is not displayed in the window.

In every case the message "Are you sure you want to download?" is shown. If you confirm the downloading procedure is activated, otherwise the chartplotter returns to the preview screen. At the end of the data transferring the following message is to be shown:

```
┌─────────────────────────────────────┐
│                                     │
│   Maritime Nowcasting Service       │
│   By Nowcasting International Ltd    │
│                                     │
│                                     │
│                                     │
│   expiration date: dd-mm-yy)        │
│   (and Remaining Downloads: ###)    │
│                                     │
└─────────────────────────────────────┘
```

The expiration date and the number of remaining downloads are updated at the end of the downloading process.

Note _____
The date format in the expiration date message depends on the user selection done in the dedicated menu (if present).

Error Messages

All possible error messages that can happen during the data transferring are shown on a dedicated window on the map display.

Error with PIN

If the SIM card in use has the PIN code enabled and the PIN is not entered in the C-Forecast Setup menu, the following window is shown:

```
┌─────────────────────────────────────┐
│                                     │
│   Maritime Nowcasting Service       │
│   By Nowcasting International Ltd    │
│                                     │
│   DOWNLOADING ERROR                 │
│   SIM PIN not entered               │
│   Please enter PIN in the C-FORECAST Setup │
│                                     │
└─────────────────────────────────────┘
```

If the inserted PIN is not correct, the following window is shown:

```
Maritime Nowcasting Service
By Nowcasting International Ltd


DOWNLOADING ERROR
Incorrect SIM PIN
Please change PIN in the C-FORECAST Setup
```
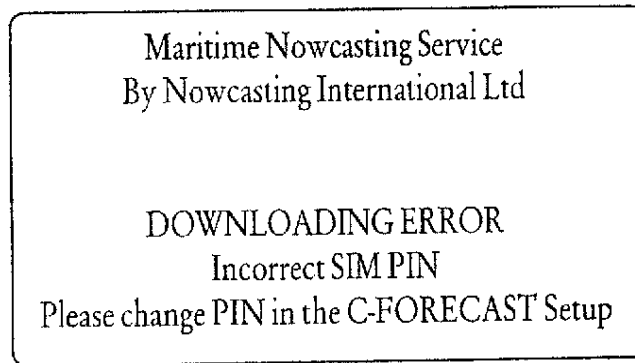
If the wrong PIN was entered for more than 3 times, the following message is shown:

```
Maritime Nowcasting Service
By Nowcasting International Ltd

DOWNLOADING ERROR
Incorrect SIM PIN
SIM locked!
```
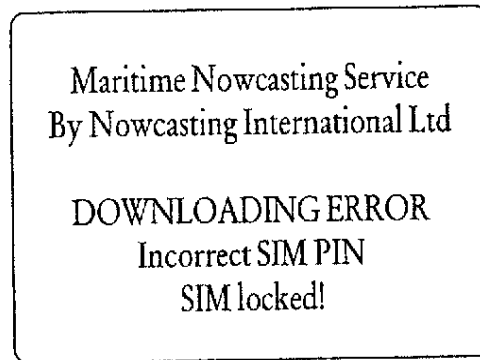
Other Errors

Other errors are the following:

Subscription not fount (i.e. User not register at all)
Invalid Password (future use)
Registration Code Incorrect
License not found
License not active
License expired
License date not yet started
No shots available (for Shots Based subscription)
Unable to authorize subscriber (Server is down or cannot be reached)
No enough shots left

B.2.3 BROWSE

Browse allows seeing the wind or waves figures referring to a specific hour only, amongst the 6 hours preview provided by the server.

Browse mode can only be selected if at least one of the two data types has been downloaded from the server. If neither wind nor waves information is present, the chartplotter emits three beeps and shows a warning message saying that the Browse cannot be activated. Browse mode allows showing only one data type at time; this means that wind icons and wave icons cannot be shown simultaneously. If both types are loaded the default type will be Wind. If only one data type is loaded, it will be the active selection of the browse and it will not be possible to switch to the other type.

➤ 'MENU' + "C-FORECAST" + 'ENTER' + "Browse" + 'ENTER'

When Browse is selected from the C-Forecast menu the chartplotter goes on chart display (full mode – all data windows must be removed) and selects the map scale that allows seeing the whole area covered by the weather icons.

On the side of the starting position (depending on its rotation) there will be shown a prompt where the user can select the preferred time and the type of information to be displayed. The default time is the time of the first data received. Supposing to have data from 10:00 AM to 3:00 PM the first time will be 10:00 AM and the icons shown on the map will be only the ones referring to 10:00 AM.

The user is allowed to change the time of the preview (among the 6 hours) and the type of data between Wind and Waves by acting on the *Joystick*. *Joystick* up and down change the time. *Joystick* left and right change the data type.

The time step is one hour. When the last or first hour is set and the user tries to increase or decrease the time the chartplotter sounds three beeps and does not change the selected time. Changing the time, all the icons referring to the selected time are displayed on the map. If the time is increased the number of icons shown will cover a wider area. If the time is decreased, the icons shown on the map display will decrease. In this case, in order to avoid the map redraw, the icons without information will be represented by empty spots (no value and arrow shown).

Changing the data type between Wind and Waves the map display will be redrawn. If the current type is Wind and there is no Waves information, the chartplotter does not allow to set Waves. Sounds 3 beeps and shows the message: "Warning Waves information not present". On the other hand, changing from Waves to Wind when wind icons are not loaded, the warning will be "Warning Wind information not present".

Pressing 'CLEAR' the Browse mode is quitted and the map is restored to the normal display.

C

C-Staff

The STAFF Concept ® (Satellite Tracking Aided Fleet Fishing) is designed for professional fishing purpose to allow monitoring the position of the vessels of a fleet from each vessel.

STAFF system is a network that allows information exchange between a fleet amongst a wide range of services:

- Exchange geographical position between fleet members
- Fax, SMS and e-mail
- Communicate with other network users
- Internet access

The <u>NMEA-0183</u> $PCMPE is a C-MAP proprietary sentence designed to request to the OBC (On Board Computer) two commands that are now activated by a dedicated keyboard. The PCMPE sentence can be used to require the positions of the fleet's members or to update the current vessel position to the other fleet members.

C.1   C-STAFF MENU

All menu settings are reached from the C-Staff menu:
> 'MENU' + "C-STAFF" + 'ENTER'
The C-Staff menu contains the following items: Send Position and Position Request.

C.1.1 SEND POSITION
> 'MENU' + "C-STAFF" + 'ENTER' + "SEND POSITION" + 'ENTER'
Activates $PCMPE,S sentence transmission. When the command is executed, the message "...OK" is shown next to the relative menu item.

C.1.2 POSITION REQUEST

➤ 'MENU' + "C-STAFF" + 'ENTER' + "POSITION REQUEST" + 'ENTER'
Activates $PCMPE,R sentence transmission. When the command is executed, the message "...OK" is shown next to the relative menu item.

C.2 SENTENCE DEFINITION

The sentence is formatting in the following mode:
$PCMPE,MsgMode,SeqNo,MsgNo,status,llll.lll,a,yyyyy.yyy,a,sog,cog,id,label,distress*hh<CR> <LF>

MsgMode	: R = Position Request mode
	S = Send Position mode
SeqNo	: Sequence Number (0 - 255) (See "Sentences transmission handling")
MsgNo	: Message Number (1 - 255) (See "Sentences transmission handling")
Status	: A = Fix, sog & cog valid
	V = Fix sog & cog not valid
	Not required in Position Request Mode
llll.lll,a	: Latitude, N/S
	Not required in Position Request Mode
yyyyy.yyy,a	: Longitude, E/W
	Not required in Position Request Mode
sog	: Speed Over Ground – Knots
	Not required in Position Request Mode
cog	: Course Over Ground – Mag
	Not required in Position Request Mode
Id	: Ship Id (1 - 20)
	optional
Label	: Ship Name (Max 8 chars)
	optional
distress	: Nature of distress
	optional - Not required in Position Request Mode

Symbol No.	Nature of distress
100	Fire, explosion
101	Flooding
102	Collision

103	Grounding
104	Listing, in danger of capsizing
105	Sinking
106	Disabled and adrift
107	Undesignated distress
108	Abandoning ship
109	Piracy/armed robbery attack
110	Man overboard
112	EPIRB emission

C.2.1 POSITION REQUEST SENTENCE FORMAT

$PCMPE,R,SeqNo,MsgNo,,,,,,,,*hh<CR><LF>
For example: $PCMPE,R,1,1,,,,,,,,,,*hh<CR><LF>

C.2.2 SEND POSITION SENTENCE FORMAT

$PCMPE,S,SeqNo,MsgNo,A,llll.lll,a,yyyyy.yyy,a,sog,cog,id,label,distress*hh<CR><LF>
For example:
$PCMPE,S,3,1,A,4303.270,N,00946.723,E,2,256,7,MYNAME,110*hh<CR><LF>

C.2.3 SENTENCES TRASMISSION HANDLING

When Position Request or Send Position commands are executed a *sequence* of $PCMPE sentences is transmitted. A *sequence* is formed by group of 3 $PCMPE sentences containing the same information. The *sequence* is used to make sure that the receiver device reads the sentence, as there is no acknowledge between the two devices

Transmission Timing is 3 seconds between each sentence:
- The sentence of the *sequence* are transmitted every 3 seconds.
- The first sentence of a new *sequence* must be transmitted after 3 seconds from the transmission of the last sentence of the previous *sequence*.
- The field SeqNo (Sequence Number. 0–255) is needed by the receiver to recognize what *sequence* a sentence belongs to. The filed SeqNo is set before the first message is transmitted then it remains the same until the sequence is completed. The Sequence Number field is erased on Power Up or when it reaches 255.

The SewNo is common for Position Request or Send Position sentence mode; that is, it is increased when any type of *sequence* is sent.
- The field MsgNo (Message Number) is set to 1 when the first message of the se-

quence I sent and it is increased in the following message. The Message Number field is set to 1 each time a new sequence is transmitted.

For example:

A. Position Request command required by the user.
$PCMPE,R,1,1,,,,,,,,,,*hh<CR> <LF>
$PCMPE,R,1,2,,,,,,,,,,*hh<CR> <LF>
$PCMPE,R,1,3,,,,,,,,,,*hh<CR> <LF>

B. Send Position command required by the user.
$PCMPE,S,2,1,A,4100.234,N,00912.123,E,2,256,7,MYNAME,110*hh<CR> <LF>
$PCMPE,S,2,2,A,4100.234,N,00912.123,E,2,256,7,MYNAME,110*hh<CR> <LF>
$PCMPE,S,2,3,A,4100.234,N,00912.123,E,2,256,7,MYNAME,110*hh<CR> <LF>

C.2.4 COMMANDS SYNCHRONIZATION

C.2.4.1 Same Command

If the same command (Send Position or Position Request) is required before the *sequence* relative to the first command is finished, the second command will be ignored.

For example:
<POSITIONS REQUEST> command
$PCMPE,R,1,1,,,,,,,,,,*hh<CR> <LF>
$PCMPE,R,1,2,,,,,,,,,,*hh<CR> <LF>
<POSITIONS REQUEST> command
$PCMPE,R,1,3,,,,,,,,,,*hh<CR> <LF>

In the above example the Position Request command is executed, the chartplotter starts transmitting the $PCMPE,R, sequence. Before the sequence is finished, when the second sentence of the sequence is sent, the Position Request command is executed again. The chartplotter sends the 3rd sentence of the sequence and ignores the new Position Request command.

C.2.4.2 Different commands

If a *sequence* is being transmitted and a command different from the one currently transmitted is required, the new request is transmitted only when the first *sequence* is finished.

For example:
<SEND POSITION> command
$PCMPE,S,2,1,A,4100.234,N,00912.123,E,2,256,7,MYNAME,110*hh<CR> <LF>
$PCMPE,S,2,2,A,4100.234,N,00912.123,E,2,256,7,MYNAME,110*hh<CR> <LF>
<POSITION REQUEST> command
$PCMPE,S,2,3,A,4100.234,N,00912.123,E,2,256,7,MYNAME,110*hh<CR> <LF>
$PCMPE,R,1,1,,,,,,,,,*hh<CR> <LF>
$PCMPE,R,1,2,,,,,,,,,*hh<CR> <LF>
$PCMPE,R,1,3,,,,,,,,,*hh<CR> <LF>

In the above example the command Send Position is executed and the chartplotter starts transmitting the $PCMPE,S, sequence. Before the sequence is completed the command Position Request is executed from the menu. The chartplotter completes the first sequence then starts transmitting the new sequence.

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