LORENZ
MARINE ELECTRONICS
One Touch To Choose Your World

WORLD MAP Pro Color

Color Chartplotter
CODE: S3egLZ11c 1100b859/060406

WORLD MAP Pro Color VD

Color Chartplotter with *Video Input*
CODE: S3egLZ11c 1100b859/060406

WORLD MAP Pro Sun

Sunlight Readable Display Color Chartplotter
CODE: S3egLZ11c 1100b859/060406

WORLD MAP Pro Sun VD

Sunlight Readable Display Color Chartplotter with *Video Input*
CODE: S3egLZ11c 1100b859/060406

USER MANUAL

MAX
C-MAP NT

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** 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.

Cleaning procedure for the plotter screen

Cleaning of the plotter screen is a very important operation and must be done carefully. Since the surface is covered by a antireflective coating, the procedure for cleaning all the surfaces can be performed using the following procedure: You need a tissue or lens tissue and a cleaning spray containing Isopropanol (a normal spray cleaner sold for the PC screen, for example PolaClear by Polaroid). Fold the tissue or lens tissue into a triangular shape, moisten the tip and use the index finger behind a corner to move the tissue across the surface, in overlapping side to side strokes. If the tissue is too wet, a noticeable wet film will be left in its path and you will need to repeat the process. If too dry, the tissue won't glide easily, and may damage the surface.

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1
Introduction

Congratulations on your purchase of the chartplotter!

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 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'.

Menu operations are in bold characters listed by keys sequence with the menu names enclosed between inverted commas, for example **'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER'** means: press the 'MENU' key, using the cursor key select the Basic Settings menu and press 'ENTER', using the cursor key select the Input/Output menu and press 'ENTER'.

Terms underlined, for example <u>Mark</u>, are explained in the Appendix "Terms".

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 <u>heading</u> of the boat and its <u>Track</u>. The user information like <u>Waypoints</u>, <u>Marks</u> and <u>Tracks</u> can then be stored on a <u>User C-CARD</u> and can be recalled at any time. On the screen are shown navigation data and cartographic information obtained from electronic charts of **C-MAP** 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"
- AUX IN I/O cable 1,5 mt/5.9"
- Chartplotter's protective cover
- Flush mounting kit
- Fuse 2 Amp. + fuseholder
- Smart DGPS WAAS Receiver GPH00 with cable 15 mt/45 feet
- User Manual

C-MAP 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	: 25
·	Max User Points per Route	: 100

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, 5, 10 Min

Cartographic Functions

- Detailed Map by using **C-MAP** C-CARD
- Coordinates System (ddd mm ss, ddd mm.mm, ddd mm.mmm, UTM, OSGB, TD)
- Map Datum

- Display Mode (Full, Medium, Low, Radar, Tides, Custom)
- Marine
  Place Names, Name Tags, Nav-Aids & Light Sectors, Attention Areas, Tides & Currents, Seabed Type, Ports & Services, Tracks & Route
- Depth
  Depth Range Min/Max
- Land
  Land Elevation, Land Elevation Values, Roads, Points Of Interest
- Chart
  Lat/Lon Grid, Chart Boundaries, Value-Added data, Chart Lock
- Underwater Objects
  Underwater Objects Limit, Obstructions, Diffusers, Rocks, Wrecks

Map Menu
- Zoom Type
- Fonts & Symbols
- Perspective View
- Dynamic Nav-Aids
- Map Orientation (North, Head, Course)
- Mixing Levels
- Safety Status Bar
- Palette
- Currents Prediction

Fix Functions
- Fix Correction (manual and automatic)
- Position Filter
- Speed Filter
- Dead Reckoning
- Reset Total and Partial Trip
- Rolling Road Scale
- Fix Datum
- Compass Calibration
- Bearings True and Magnetic
- Variation user selectable
- Course Vector
- Static Navigation
- A-B-C-D Function

Report Functions
- GPS Data Page

- Navigation Data Page
- Graphic Data Page
- Depth Graph Page (1/2 screen and 1/3 screen)
- Wind Data page
- About Page

Special Functions
- C-Link, C-Weather Service and C-Staff
- AIS Menu
- Fish Finder capability if connected to Fish Finder Black Box
- Radar functions display if connected to Radar scanner
- Automatic Info
- Find (Nearest Service, Tide Stations, Wrecks, Obstructions, Port By Name, Port By Distance, Lakes By Name, Lakes Information, POIs)
- Navigation to Destination
- Speed Unit (Mph, Kts, Kph)
- Distance Unit (Km, Nm, Sm)
- Depth Unit (Ft, FM, Mt)
- Altitude Unit (Ft, FL, Mt)
- Temperature Unit (°C, °F)
- Alarms Handling
  Arrival Alarm, XTE Alarm, Anchor Alarm, Depth Alarm, Grounding Alarm, Grounding Alarm Range, Grounding Alarm Report
- MOB Function
- Simulation
  Speed, Heading, Date, Time, Cursor Control, Activate Simulation

Auxiliary Memory
- User C-CARD 1/2/4 MB
  Interface
- 5 I/O ports

1.2.1.2 Phisical Characteristics
Chartplotter size (inch/mm)
- 13" x 9.1" x 2" (329 mm x 230.5 mm x 53 mm)
Chartplotter weight
- 1,6 Kg
Display
- TFT trasmissive color (active area 10.4")
- Sun Light Viewable (active area 10.4")
- Resolution 320 x 240 pixels

Video Input (ONLY FOR CHARTPLOTTER with Video Input)
 · PAL or NTSC video signals automatically selected
Power consumption
 · Color   : 1280mA max @ 12V
 · Color with Camera connected: 1500mA max 12V
Power supply
 · Color   : 10 - 35 Volt dc, 15 Watt max
 · Color with Camera connected: 10 - 35 Volt dc, 18 Watt max
Operating Temperature Range
 · da 0°C a 55°C (da 32°F a 131°F)
Memory
 · Non volatile with battery back-up
Keyboard
 · Backlighted, silicon rubber

1.3   BASICS

The chartplotter is controlled by using ten keys. There is also a cursor key to move a cursor across the screen. 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.
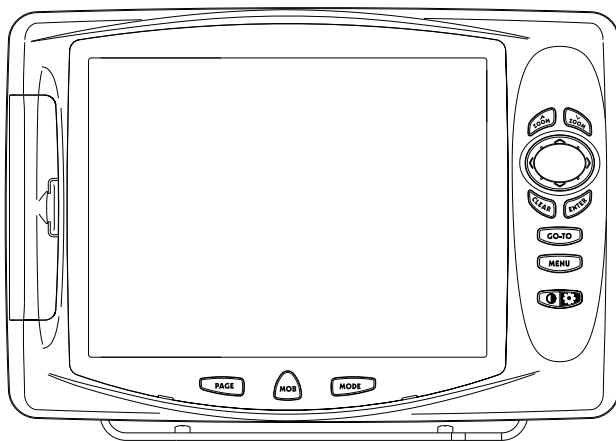
Fig. 1.3 - The chartplotter

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 〔◐❄〕 'CONTRAST'/'BACKLIGHT'/'POWER' key

Press and hold the right side of 'POWER' down for 1 second to turn the chartplotter On. Press and hold the right side of 'POWER' down (once the chartplotter has been turned On) for 3 seconds turns the chartplotter Off.

Press and immediately release the right side of 'POWER' to adjust the backlight, press and immediately release the left side of 'POWER' to adjust the contrast of the display.

The 〔MENU〕 key

Press 'MENU' to select the Functions Menu.

The 〔GO-TO〕 key

Place the cursor and press 'GO-TO' to set Target.

The 〔PAGE〕 key

Press 'PAGE' to select the configuration ou wish among cartography and text area in two different modes (text area on the right side or on the bottom line of the screen, full screen if Target has been inserted or with partial information on SOG), only cartography, Depth Graph 1/2 screen and 1/3 screen pages, GPS Data page, Navigation Data page, Graphic Data page, Wind Data page.

Note ————————————————— **ONLY FOR CHARTPLOTTER WITH VIDEO INPUT**
If in the Video Input menu the item Select Video Input is set to Video 1, Video 2 or Auto Switch, then the Video Input image can be selected by pressing 'PAGE' . When Select Video Input is set to Video 1, the image shown is the one from Video Input 1; when Select Video Input is set to Video 2, the image shown is the one from Video Input 2; when Select Video Input is set to Auto Switch, the image will change alternatively between Video Input 1 and Video Input 2 (also it is possible

to activate the Video Mode from menu, see Video Input menu in Par. 2.8). Once the Video Mode is active use the following keys to adjust video settings: press the left side and the right side of 'POWER' to adjust contrast and backlight; move cursor up/down to adjust brightness and left/ right to adjust colors; press 'ZOOM IN'/'ZOOM OUT' to adjust hue phase.

The ⬭MODE key

Press 'MODE' to set the <u>Navigate</u> mode (<u>Home</u>).

The ⬭MOB key

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

The ⬭CLEAR key
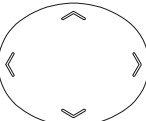
Press 'CLEAR' to exit from menu or to leave a menu without making changes. In <u>Basic Mode</u> deletes the A, B, C, D points, the <u>User Point</u> (<u>Mark</u>, <u>Event</u>, <u>Waypoint</u>), the MOB, the <u>Target</u> identified by the cursor.

The ⬭ENTER key

Press 'ENTER' to select the desired option, to confirm selection; in <u>Basic Mode</u> places A, B, C, D points on the cursor coordinates, in <u>Advanced Mode</u> creates Objects (<u>Mark</u>,, Event, <u>Waypoint</u>, <u>A-B-C-D</u>).

Note ———————————————— **ONLY FOR CHARTPLOTTER WITH VIDEO INPUT**
Pressing 'ENTER' for 1 second activates the Video 1 and pressing 'CLEAR' for 1 second activates Video 2 (also it is possible to activate the Video Mode from menu, see Video Input menu in Par. 2.8). Once the Video Mode is active use the following keys to adjust video settings: press left and right side of 'POWER' to adjust the 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.

The ⬭ cursor key

The cursor key moves the cursor about on the display screen, quickly and accurately. It also scrolls the desired option in the menu page(s). If in <u>Navigate</u> (<u>Home</u>) mode, it allows to exit from navigate mode.

The ⬭ZOOM and ⬭ZOOM 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.

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	GND/COMMON
2	RED	+10-35 Vdc

Fig. 2.2 - Power On

2.2.1 TURNING ON

Press and hold the right side of 'POWER' for 1 second. The chartplotter emits one rapid beep sound and a title page is opened.

After a few seconds, the first of the two Caution Notice pages is displayed, reminding you that 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 the right side of '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 chart plotter will remain On.

2.3   CHANGING BACKLIGHT AND CONTRAST

Press and immediately release the right side of 'POWER' (do not press and hold the key, or the "power-off" message will be displayed!): the backlight increases. Repeat this operation the backlight decreases.

Press and immediately release the left side of 'POWER': the contrast increases. Press and immediately release the left side of 'POWER' the contrast decreases. In other words, first pressure of the key will increase the value till you keep it pressed, next pressure of the key will decrease the value till you keep it pressed.

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 Italian.
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "LANGUAGE" + 'ENTER'
Choose the language you prefer and press 'ENTER' to confirm.

2.5   EXTERNAL CONNECTIONS

2.5.1 GPS CONNECTIONS

Connects the GPS to the GPS Port (serial Port 3). To choose your preferred setting follow the procedure:

GPS SENSOR CABLE		
PIN	WIRE COLOR	FUNCTION
1	RED	POWER OUTPUT+ (10-35 Vdc)
2	GREEN	GPS RX+
3	BROWN	GPS TX+
6	BLACK/YELLOW/SHIELD	GND COMMON
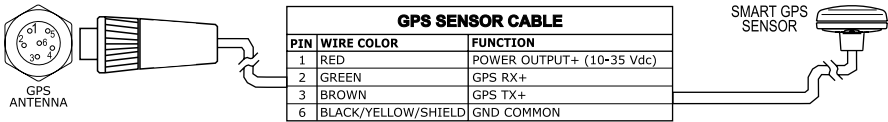
Fig. 2.5.1 - GPS Connection on Port 3

To choose your preferred setting follow the procedure:
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 3 INPUT" + 'ENTER'
Then choose your preferred setting among the NMEA available settings NMEA 1200-N81-N, NMEA 4800-N81-N, NMEA 4800-N82-N, NMEA 9600-O81-N, NMEA 9600-N81-N (the <u>default</u> setting is 4800-N81-N) and press 'ENTER' to confirm.
If you are connecting the model Smart DGPS WAAS Receiver GPH00, select:
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 3 INPUT" + 'ENTER' + "NMEA-4800-N81-N" + 'ENTER'

2.5.2 AUTOPILOT CONNECTIONS

To connect the Autopilot to the serial Port 1 see the following picture:

POWER & I/O CABLE

PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
3	WHITE	INPUT 1+
4	GREEN	INPUT 1-
6	YELLOW	OUTPUT 1+
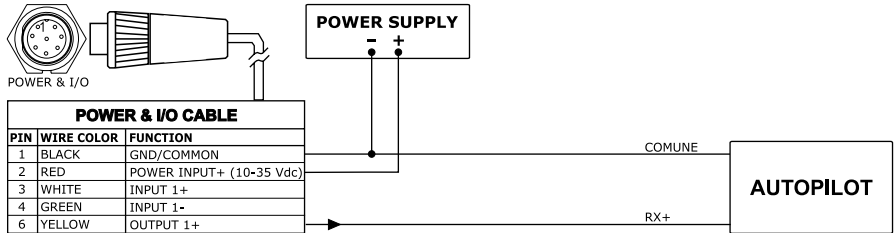
Fig. 2.5.2 - Autopilot Connections on Port 1

To choose your preferred setting follow the procedure:

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 1 OUTPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings NMEA 0183 4800-N81-N, NMEA 0180, NMEA 0180/CDX (the <u>default</u> setting is NMEA 0183 4800-N81-N) and press 'ENTER' to confirm.

To connect the Autopilot to the serial Port 2 see the following picture:

POWER & I/O CABLE

PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
5	GRAY	OUTPUT 2+
7	BROWN	INPUT 2+
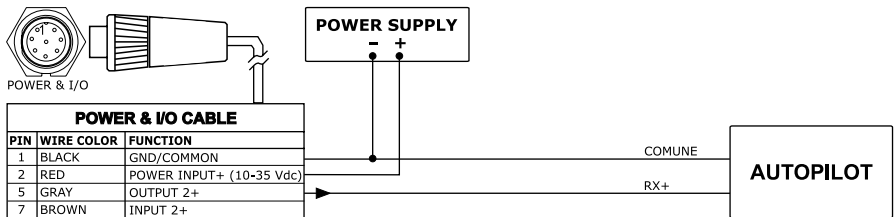
Fig. 2.5.2a - Autopilot Connections on Port 2

To choose your preferred setting follow the procedure:

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 2 OUTPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings NMEA 0183 4800-N81-N, NMEA 0180, NMEA 0180/CDX (the <u>default</u> setting is NMEA 0183 4800-N81-N) and press 'ENTER' to confirm.

2.5.3 EXTERNAL NMEA CONNECTIONS

To connect the External NMEA to the serial Port 1 see the following picture:

PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
3	WHITE	INPUT 1+
4	GREEN	INPUT 1-
6	YELLOW	OUTPUT 1+
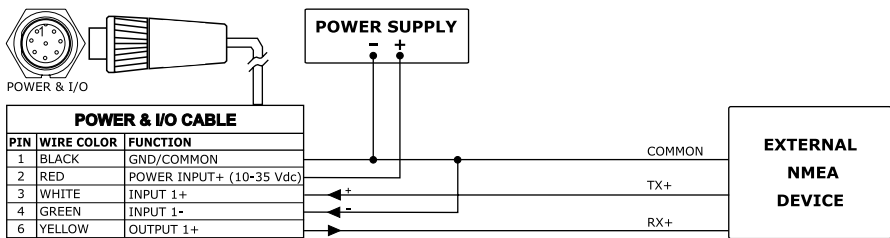
Fig. 2.5.3 - External NMEA Connections on Port 1

To choose your preferred setting follow the procedure:
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 1 INPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings NMEA 1200-N81-N, NMEA 4800-N81-N, NMEA 4800-N82-N, NMEA 9600-O81-N, NMEA 9600-N81-N (the <u>default</u> setting is 4800-N81-N) and press 'ENTER' to confirm.

To connect the External NMEA to the serial Port 2 see the following picture:

PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
5	GRAY	OUTPUT 2+
7	BROWN	INPUT 2+
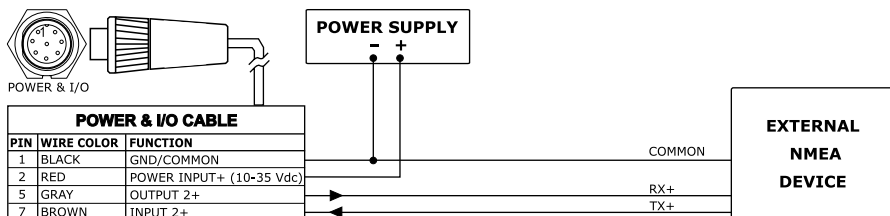
Fig. 2.5.3b - External NMEA Connections on Port 2

To choose your preferred setting follow the procedure:
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 2 INPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings NMEA 1200-N81-N, NMEA 4800-N81-N, NMEA 4800-N82-N, NMEA 9600-O81-N, NMEA 9600-N81-N (the <u>default</u> setting is 4800-N81-N) and press 'ENTER' to confirm.

2.5.4 C-COM CONNECTIONS

To connect the modem C-COM to the chart plotter follow the procedure:
1. Connect Power & I/O as follows:

POWER & I/O CONNECTOR		
PIN	CABLE COLOR	FUNCTION
1	BLACK	GND COMMON
2	RED	PWR + (10-35 Vdc)
3	WHITE	Used by C-COM
4	GREEN	Used by C-COM
5	GRAY	OUTPUT3+
6	YELLOW	Used by C-COM
7	BROWN	INPUT3+
8	BLUE	OUTPUT EXTERNAL ALARM+
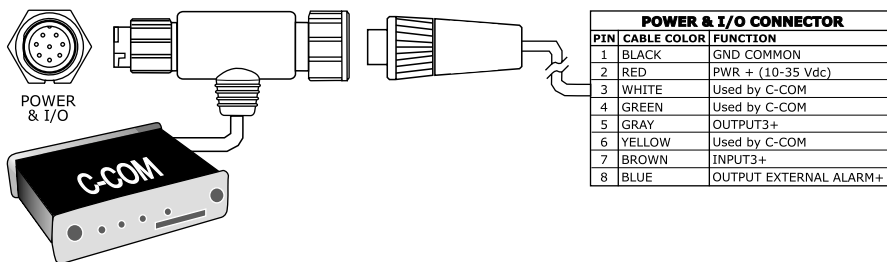
Fig. 2.5.4 - C-COM Connection

Note

The connection is valid for the C-COM IR and C-COM RS232 too.

2. Into the Input/Output menu, set the C-COM for Port 1 as follows:
  ➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 1 INPUT" + 'ENTER' + "C-COM" + 'ENTER'
  Also the modem C-COM can be connected to the other Ports, in this case set the format for the selected Port.

2.5.5 EXTERNAL ALARM CONNECTION

To connect the External Alarm device see the following picture:

POWER & I/O CONNECTOR		
PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
8	BLUE	EXTERNAL ALARM OUTPUT+ (OPEN COLLECTOR)

Fig. 2.5.5 - External Alarm Connection

Once the connection is active, to enable the External Alarm follow the procedure:
  ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "EXTERNAL ALARM" + 'ENTER' + "ON" + '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.
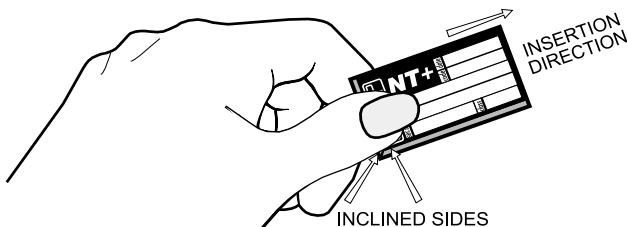
Fig. 2.6.1 -   Inserting C-CARD (I)

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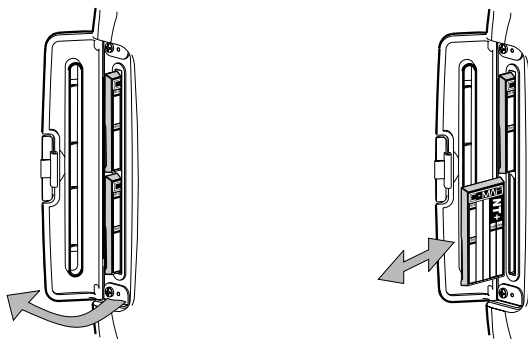
Fig. 2.6.1a - Inserting C-CARD (II)

2.6.2 REMOVING C-CARD

Open the door and press lightly the C-CARD you wish to remove and move it until you hear a click: the C-CARD will eject out of the slot (see right side of 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** *C-CARD at your dealer.*

2.7 VIDEO INPUT only for chartplotter WITH Video Input

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.
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "VIDEO INPUT" + 'ENTER'

2.7.1 SELECT VIDEO INPUT

Selects the preferred Video Input, among None, Video 1, Video 2 or Auto Switch. If Auto Switch is selected, choose the switching time.
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "VIDEO INPUT" + 'ENTER' + "SELECT VIDEO INPUT" + 'ENTER'

2.7.2 ACTIVATE VIDEO INPUT

Activates the Video Mode from the Video Input menu:
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "VIDEO INPUT" + 'ENTER' + "ACTIVATE VIDEO INPUT" + 'ENTER'

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 the left side of 'POWER' to adjust the contrast and the right side of 'POWER' to adjust 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.

2.7.2.1 Quick Activation

Pressing 'ENTER' for1 second enables the Video Input 1 and pressing 'CLEAR' for 1 second enables the Video Input 2.

2.7.2.2 Activation from pages selection

If in the Video Input menu the Select Video Input item is selected as Video 1, Video 2 or Auto Switch, it is possible by pressing 'PAGE' select the Video Input image displayed from the Video Input 1, from the Video Input 2 or alternatively between Video Input 1 and Video Input 2.

2.7.3 SWITCHING TIMEOUT

Select the timeout for the Auto Switch option among 5, 10, 30 seconds, 1, 5, 10 minutes.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "VIDEO INPUT" + 'ENTER' + "SWITCHING TIMEOUT" + 'ENTER'

2.7.4 RESTORE DEFAULTS

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

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "VIDEO INPUT" + 'ENTER' + "RESTORE DEFAULTS" + 'ENTER'

After pressing 'ENTER' on the screen a window with three options appears: Video 1, Video 2, All. If Video 1 o Video 2 is selected, their relative settings will be set to the default values and the message "OK" will be shown next to the selected item. If All is selected, both the settings for Video 1 and Video 2 will be restored to the default values and the message "OK" will be shown next to Video 1, Video 2 and All.

2.8 MENU OPTIONS

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

➤ 'MENU'

Refer to Chapter 5 for more information on Main 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 cursor key to step through the available characters until the preferred character is displayed.
- Press right cursor key to move the cursor to the right.
- Use left cursor key 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 (wrap around) among cartography and text area in two different modes (text area on the right side or on the bottom line of the screen, complete if <u>Target</u> has been inserted or with partial information on <u>SOG</u>), only cartography, Depth Graph 1/2 screen and 1/3 screen pages, GPS Data page, Navigation Data page, Graphic Data page, Wind Data page. To select the configuration you wish:

➤   'PAGE' more times

Note _____ **ONLY FOR CHARTPLOTTER WITH VIDEO INPUT**
If in the Video Input menu the Select Video Input item is selected as Video 1, Video 2 or Auto Switch, it is possible by pressing 'PAGE' select the Video Input image displayed from the Video Input 1, from the Video Input 2 or alternatively between Video Input 1 and Video Input 2.

3.1.1 CHARTS AND TEXT AREA
The charts and text area can be shown in two different modes. The first is with text area on the right side of the screen:

Fix received Indication
- *if fix is not received the following icon is shown:*
- *if a Differential GPS signal is received the following icon is shown:*

Charting   or Navigation (Home)

Ship icon (if in Charting the
displayed icon is   )

Cursor or Ship Coordinates

Speed Over Ground

POSITION
43°01.767N
008°07.970E

SOG Kts COG   M
1.0 000°

Distance and Bearing
from Ship to Cursor
(from Ship to Target
if Target is set,
from Ship to MOB
if MOB is set)

Course Over Ground

TO CURSOR
DST Nm BRG   M
10.97 090°

Map Datum selected

MAP DATUM
WGS 1984

SCALE
20Nm

Chart Scale

Fig. 3.1.1 - Charts and text area

The second is with text area on the bottom line of the screen (with partial information on <u>SOG</u>):

Cursor Coordinates

CURSOR
43°01.765N
008°22.970E
DST 10.9 Nm
BRG 090° M

Distance and Bearing
from Ship To Cursor
(from Ship to Target if Target
is set, from Ship to MOB if
MOB is set)

Ligurian Sea

Bastia

SOG Kts
1.0

Speed Over Ground
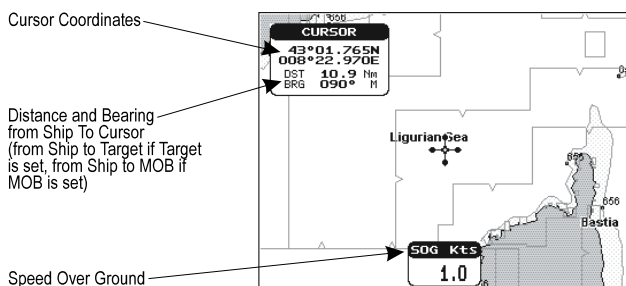
Fig. 3.1.1a - Charts and text windows

If <u>Target</u> is set, in the previous Fig. 3.1.1a instead of the only <u>SOG</u> information window, a text line with <u>DST</u>, <u>BRG</u>, <u>XTE</u>, <u>SOG</u> and <u>TTG</u> information appears.

Then it is possible to see on the screen only charts:

Monaco

000°

Ligurian Sea

Bastia
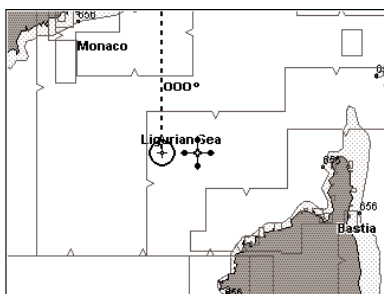
Fig. 3.1.1b - Full charts

3.1.2 DEPTH GRAPH

The depth graph can be shown in two different modes. Depth graph displayed only on 1/3 of the screen:
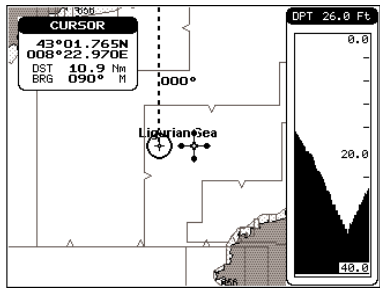
Fig. 3.1.2 - The Depth Graph 1/3 of the screen

or Depth graph displayed on 1/2 of the screen:
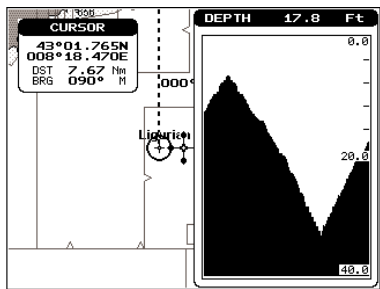
Fig. 3.1.2a - The Depth Graph 1/2 of the screen

3.1.3 GPS DATA PAGE

The <u>GPS</u> Data page shows in graphic mode <u>GPS</u> data.
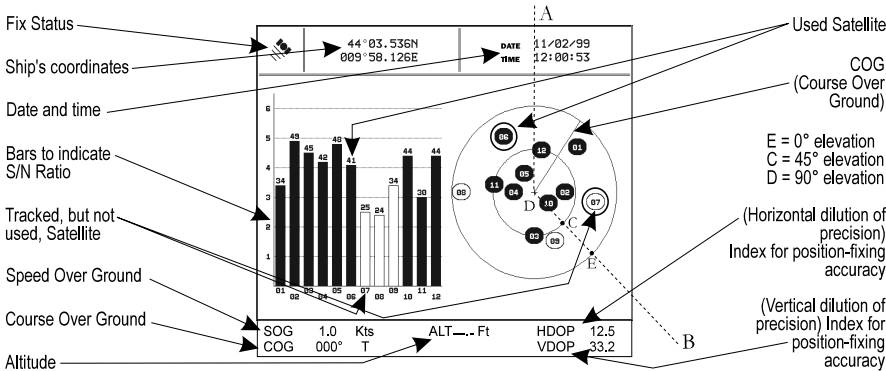
Fig. 3.1.3 - GPS Data Page

On the right side of the screen (see Fig. 3.1.3), there is a polar representation of the <u>azimuth</u> and elevation of each satellites. The circle contains a number indicating the PRN of the satellite and it is filled when it is used for the fix solution. On the left side there are histograms indicating the S/N ratio (<u>SNR</u>). The bar is filled when the satellite is used for solution. As example, the satellite with PRN = 10 is used for solution with S/N = 44, Azimuth = 127degree and Elevation = 70degree. When a valid fix is received, the Lat/Lon, Date, Time, <u>Altitude</u>, VDOP, <u>HDOP, SOG</u> and <u>COG</u> are shown in the page.

3.1.4 NAVIGATION DATA PAGE

The Navigation Data page shows information about speed (<u>SOG</u>) and course (<u>COG</u>) of the ship, status of the received signal, ship's coordinate and other general information.
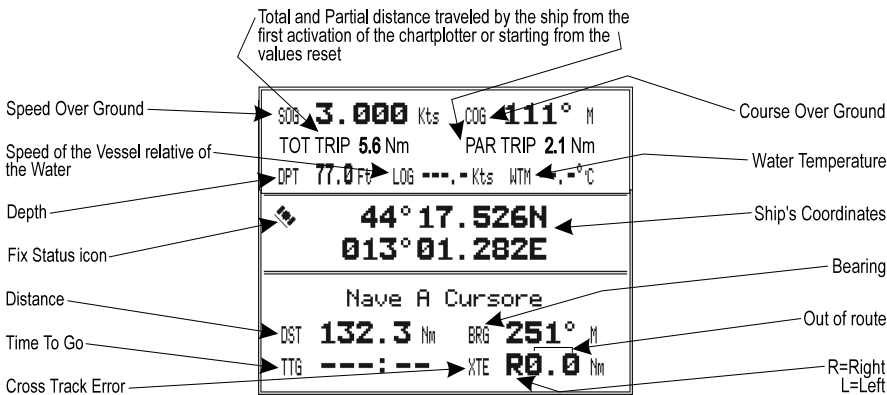
Fig. 3.1.4 - Navigation Data Page

3.1.5 GRAPHIC DATA (ROLLING ROAD) PAGE

The Graphic Data Page shows in graphic mode navigation data.
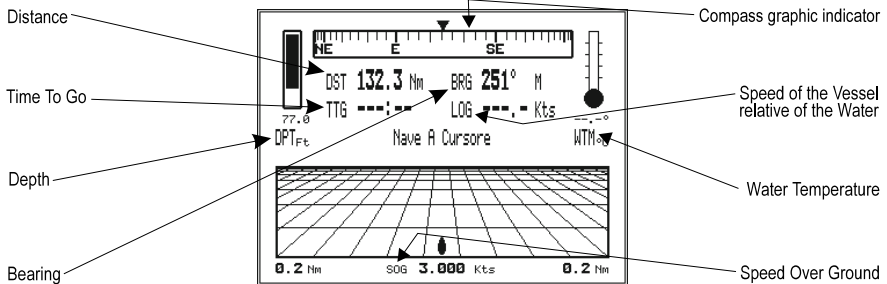
Fig. 3.1.5 - Graphic Data Page

3.1.6 THE WIND DATA PAGE

The Wind Data page shows data related to the wind: TWS (True Wind Speed: Velocity of the Wind relative to a fixed point on the earth), AWS (Apparent Wind Speed: the Speed at which the Wind appears to blow relative to a moving point, also called Relative Wind Speed), TWA (True Wind Angle) and AWA (Apparent Wind Angle). Also SPEED (Ship Speed) and HEAD (Ship Heading) are shown.

Fig. 3.1.6 - The example of Wind Data page

3.2 BASIC SETTINGS

The Basic Settings menu provides access to the set up functions. Here you can choose the language you want (see Par. 2.4).
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER'

3.2.1 COURSE VECTOR

Disables (Off) the Course Vector or selects the preferred time among: 2, 10, 30 Min, 1 hour, 2 hours, Infinite. The <u>default</u> setting is Infinite.
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "COURSE VECTOR" + 'ENTER'

3.2.2 SCREEN AMPLIFIER

The Screen Amplifier function allows, when it is On and Home mode is set, to place map on the screen related to the fix position and direction, so the map shown is that before the ship. The <u>default</u> setting is On.
➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "SCREEN AMPLIFIER" + 'ENTER'

3.2.3 ADVANCED FUNCTIONS

When it is On the chartplotter works in <u>Advanced Mode</u>, otherwise when it

is Off the chartplotter works in <u>Basic Mode</u>. The <u>default</u> setting is Off.
➤   'MENU' + "BASIC SETTINGS" + 'ENTER' + "ADVANCED FUNCTIONS" +
     'ENTER'

3.2.4 USER POINTS
Selects the User Point display among On, Off or Icon. The <u>default</u> setting is On.
➤   'MENU' + "BASIC SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER'

3.2.5 DEPTH WINDOW
Enables/Disables the display on the Depth Window on the screen. The <u>default</u> setting is Off.
➤   'MENU' + "BASIC SETTINGS" + 'ENTER' + "DEPTH WINDOW" + 'ENTER'

3.2.6 UNITS SELECTION
Allows to select the preferred unit for Distance, Speed, Depth and Altitude (altitude of <u>GPS</u> Antenna on the medium sea level).

Speed: Kts(knots)/Mph(miles per hour)Kph(chilometres per hour). The <u>default</u> setting is Kts.
➤   'MENU' + "BASIC SETTINGS" + 'ENTER' + "SPEED" + 'ENTER'

Distance: Nm(Nautical Miles)/Sm(statute miles)Km(chilometres). The <u>default</u> setting is Nm.
➤   'MENU' + "BASIC SETTINGS" + 'ENTER' + "DISTANCE" + 'ENTER'

Depth: Ft(Feet)/FM(Fathoms)/Mt(Meter). The <u>default</u> setting is Ft.
➤   'MENU' + "BASIC SETTINGS" + 'ENTER' + "DEPTH" + 'ENTER'

Altitude: Ft(Feet)/FL(Flight Level)/Mt(Meter). The <u>default</u> setting is Ft.
➤   'MENU' + "BASIC SETTINGS" + 'ENTER' + "ALTITUDE" + 'ENTER'

Temperature: °C/°F. The <u>default</u> setting is °C.
➤   'MENU' + "BASIC SETTINGS" + 'ENTER' + "TEMPERATURE" + 'ENTER'

3.2.7 NAV AIDS PRESENTATION
Allows to set the Nav Aids presentation as US or INTERNATIONAL. The <u>default</u> setting is INTERNATIONAL. When selected it affects Lights, Signals, <u>Buoys</u> & <u>Beacons</u> display.

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

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

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "NAV AIDS PRESENTATION" + 'ENTER'

3.2.8 INPUT/OUTPUT MENU

3.2.8.1   Port 1/Port 2/Port 3/Port 4/Port 5 Input

Disables (selecting Off) or sets the format for the navigation data input serial Port1/2/3/4/5. For example to set the Port as <u>NMEA-0183</u> (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), NMEA (4800-N81-N), NMEA (4800-N82-N), NMEA (9600-O81-N), NMEA (9600-N81-N), C-COM (*). The <u>default</u> setting is (4800-N81-N).

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 1/2/3/4/5 INPUT" + 'ENTER'

Choose your preferred setting and press 'ENTER' to confirm.

Note (*)
The port selection for C-COM or BBFF (Fish Finder) system defines on which Port (in Input or Output) are to be connected the two systems. It is important to remark that this setting affects the Input and the Output of the selected Port. If the C-COM or BBFF (Fish Finder) was already assigned to one Port and the user tries to set the C-COM or BBFF (Fish Finder) to another port, the chart plotter will show a message that warns the user about the current settings and asks if the new settings should overwrite the previous ones.

3.2.8.2 Port 1/Port 2/Port 3/Port 4/Port 5 Output

Disables (Off) or sets the interface as NMEA 0183, NMEA 0180, NMEA 0180/CDX.. The <u>default</u> setting is 0183.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 1/2/3/4/5 OUTPUT" + 'ENTER'

3.2.8.3 Port 1/Port 2/Port 3/Port 4/Port 5 NMEA Output

The chart plotter allows customizing the NMEA-0183 sentence transmitted on each port. Each port can transmit a different set of sentences among: GLL, VTG, BOD, XTE, BWC, RMA, RMB, RMC, APB, WCV, GGA, HSL, HDG. The <u>default</u> setting is GLL, VTG, XTE, RMB, RMC, APB On and BOD, BWC, RMA, WCV, GGA, HSL , HDG Off.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 1/2/3/4/5 NMEA OUTPUT" + 'ENTER'

3.2.8.4 GPS Setup Menu

It is possible to set the your preferred configuration for the connected <u>GPS</u>.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "GPS SETUP" + 'ENTER'

Note

This item is shown alternately to the selection of the output messages when to the related port is connected a GPS identificable by the chart plotter.

Restart GPS

Restars all <u>GPS</u> processes. Once executed, the message "Done" is shown.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "GPS SETUP" + 'ENTER' + "RESTART GPS" + 'ENTER'

Differential Correction Source

Allows setting what kind of Differential Correction will be used by the GPS between WAAS-EGNOS and RTCM (beacon correction). The <u>default</u> setting is WAAS-EGNOS.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "GPS SETUP" + 'ENTER' + "DIFF CORRECTION SOURCE" + 'ENTER'

Navigation Speed

Allows setting the Navigation Speed among Low Speed, Medium Speed and High Speed.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "GPS SETUP" + 'ENTER' + "NAVIGATION SPEED" + 'ENTER'

3.2.8.5 Send & Receive Marks/Routes

Sets the desired port used for transferring User Points and Routes functions:

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "SEND/REC ROUTES & MARKS" + 'ENTER' + "Port1/Port2" + 'ENTER'

3.2.8.6 C-Link

Selects the Master unit (Primary Station) or the Slave unit (Secundary Station):

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "C-LINK" + 'ENTER' + "Secundary Station/Primary Station" + 'ENTER'

3.2.8.7 Cable Wiring Pages

Shows a window containing the inteface cable wiring. See Par. 6.3 and 6.4.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "POWER I/O CABLE WIRING" + 'ENTER'

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "GPS CABLE WIRING" + 'ENTER'

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "AUX IN I/O CABLE WIRING" + 'ENTER'

3.2.9 C-VOICE MENU

AVAIBLE ONLY IF THE CHARTPLOTTER IS CONNECTED TO VOICE NAVIGATION SYSTEM

The chartplotter has two different vocal modes, Navigation and Echosounder. According to what mode is selected the messages spoken from the chartplotter are different.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "C-VOICE" + 'ENTER'

3.2.9.1 Navigation

Enables (On), disables (Off) or insert the time (2, 5, 10, 15 minutes) for the Navigation Voice mode. If it is On, the message is always sent, as fast as possible. Instead if it is one among the available values, for example 2 minutes, the message is sent related to the selected time, in the previous example every two minutes.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "C-VOICE" + 'ENTER' + "NAVIGATION" + 'ENTER'

3.2.9.2 Echosounder

Enables (On) or disables (Off) the Echosounder Voice mode. If it is On, the Depth message is spoken. The message is spoken if a valid depth data is received by the chartplotter or if it is in Simulation mode. The default setting is Off.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "C-VOICE" + 'ENTER' + "ECHOSOUNDER" + 'ENTER'

3.2.9.3 Output Port

Selects the Output Port for the Voice function. The <u>default</u> setting is Port 1.

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "C- VOICE" + 'ENTER' + "OUTPUT PORT" + 'ENTER'

3.3 A-B-C-D FUNCTION

The A-B-C-D function allows you to create the A, B, C, D points and to delete them.

3.3.1 INSERTING THE A-B-C-D POINTS

Place the cursor on the desired position and press 'ENTER': the A point and an information window on A appear. Move the cursor and press 'ENTER' again: the B point appears, connected to A with a straight segment; an information window on A-B segment (distance (DST), bearing (BRG) and total distance from the first point) appears. Moving the cursor and pressing 'ENTER' places the C and D points:
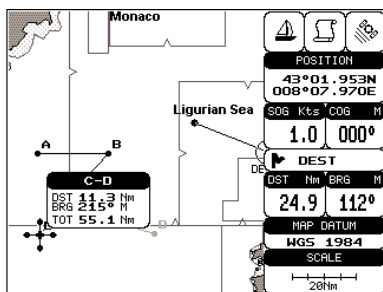
Fig. 3.3.1 - A-B-C-D points

3.3.2 DELETING THE A-B-C-D POINTS

Place the cursor on the desired point (A, B, C or D) and press 'CLEAR': the point is deleted. When the point is deleted, the cursor is placed on the previous point, if existed. The labels of the next points are renamed.

3.3.3 NAVIGATING ON THE A-B-C-D POINTS

If fix received is good, place the cursor on the desired point A, B, C or D and press 'GO-TO'. When the ship arrives to the Destination point, navigation follows to the next point (if existed).

3.4   NAVIGATING TO A SINGLE DESTINATION

3.4.1 DISTANCE AND BEARING TO TARGET

Once you have positioned the cursor on your desired location (a generic point on the map) press 'GO-TO'.
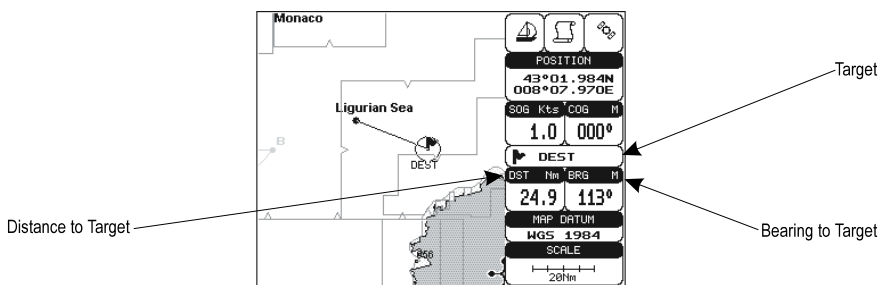
Fig. 3.4.1 - Navigation to a single destination

On the screen is shown a straight line connecting the <u>Target</u> (called DEST) with the ship's position and an information window with <u>Target</u> position, that disappears when the cursor is moved from the <u>Target</u>. When the <u>Target</u> is placed, all navigation data are referred to this <u>Target</u>.

Note
When the chartplotter is turned Off, the Target does not remain in memory.

3.4.2 TIME TO GO

When the Target is set the TTG value is displayed in the Graphic Data page:
➢ 'PAGE' more times to select the Graphic Data page

Note
If SOG value is less than 1.0 knots or the BRG is greater than 90 degrees, the TTg value is not displayed.

3.4.3 DELETING TARGET

Place cursor on <u>Target</u> icon, press 'CLEAR': the symbol identifies <u>Target</u> disappears from the screen.

Otherwise (when the cursor is placed in a generic position on the chart) press 'GO-TO'. A window appears to advise that the Destination is present: select the item "STOP" and press 'ENTER', the symbol identifies <u>Target</u> disappears from the screen.

Note
If you select the "START" item and press 'ENTER', the Target icon is moved on the new cursor position.

3.5   C-MAP NT MAX INFORMATION

MAX is a major evolution of the NT/NT⁺ product technology. Key points are:

New Data Features
- Tides and Currents (intuitive arrows show direction and strength)
- World Background Charts with terrestrial data
- Value Added Data (Pictures and Diagrams, Land Data)
- Enhanced Port Info

New Presentation Features
- Clear View (advanced legibility techniques providing more chart data on the screen)

- Clear Info (sophisticated "Human Disctionary" to translate Nav-Aid abbreviations found on paper cahrts)
- Dynamic Fonts and Symbols
- Dynamic Nav-Aids (an innovative and dynamic presentation mode)
- Flexi-Zoom (increased Under and Over Zoom between chart levels, resulting in optimal scale display for any situation)
- Dynamic Elevation Data (optimised palettes for chart plotters with 256 or more colors; inludes new NOAA palette for US market)
- Perspective View ("Real World" perspective view of the chart, updated realtime during navigation)

MAX and NT/NT⁺ C-CARD coexistence
- When NT⁺ data and MAX data cover different areas, the chart plotter gets data from both charts (depending on the current position).
- When NT⁺ data and MAX data cover the same area, the chart plotter gets data only from MAX chart.

3.5.1 MAP MENU
It is possible to select the Map Menu following the procedure:
➤   'MENU' + "MAP SETTINGS" +'ENTER'

3.5.1.1   Perspective View
➤   'MENU' + "MAP SETTINGS" +'ENTER'   + "Perspective View" + 'ENTER'
        Chart data may be projected in perspective mode during navigation. This function allows setting the panoramic View of the chart.
As the upper side of the map is more compressed than the lower side, a wider map area is visible. The perspective view allows showing more chart information immediately ahead and around the cursor.
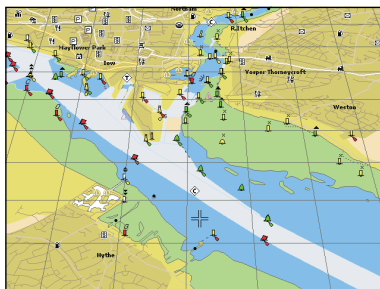
Fig. 3.5.1.1 - Perspective View

User Manual

3.5.1.2   Palette
➤ 'MENU' + "MAP SETTINGS" +'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, NOAA, Night Vision and Sunlight. The default setting is Classic. **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** uses more vivid colors. **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. **Sunligh**t 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. NOAA allows setting NOAA paper chart colors presentation.

3.5.1.3   Map Orientation
➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Map Orientation" + 'ENTER'

Selects the orientation of your chart according to: North (the map is shown with North upwards), Head (the map is shown with the ship's current <u>heading</u> upwards), Course (the map is displayed with the currently selected course leg upwards). The <u>default</u> setting is North

It is possible to select the resolution angle for the Map Orientation.

3.5.1.4   Zoom Type
➤ 'MENU' + "MAP SETTINGS" +'ENTER' + " Zoom Type" + 'ENTER'

This feature allows more expansions or compression of the chart scale while zooming in or out. Zoom Mode has two options; STANDARD (default) or FLEXI-ZOOM. When in FLEXI-ZOOM mode, a short 'ZOOM...' push causes a change of chart, whilst a long 'ZOOM...' push (press and hold) causes a pop-up window to be displayed on a corner of the screen. The window shows the current Zoom Factor.

By pressing 'ZOOM IN'/'ZOOM OUT' the map is expanded or compressed according to the zoom factor selected.

The Window is automatically closed if 'ZOOM...' is not pressed for 2 seconds and the selected zoom factor will be used at the next zoom in/out.

3.5.1.5   Fonts & Symbols
➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Fonts & Symbols" + 'ENTER'

On MAX charts it is possible to set the size of all names and symbols drawn on the charts, selecting between Normal size (the regular characters size) and Large size.
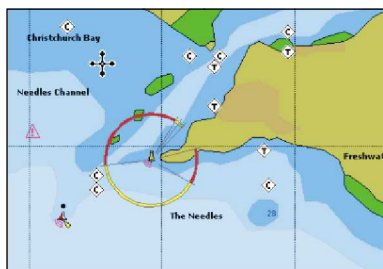
NORMAL size   **LARGE size**
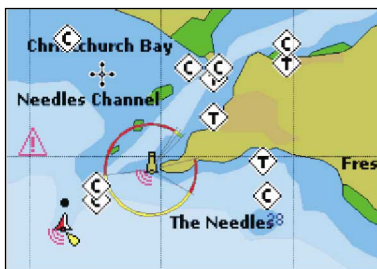
Fig. 3.5.1.5 - Example of Normal size (on the left side) and Large side (on the right side) settings

3.5.1.6   Dynamic Nav-Aids

➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Dynamic Nav-Aids" + 'ENTER'

This function allows settings blinking lights on Nav-Aids. The blink period and color of each Nav-aid is read from the Nav-Aid attributes available on the data cartridge. When the ship is inside the Nav-Aid nominal range, the light of the Nav-Aid will start blinking.

When Dynamic Nav-Aids option is set to On, when the flashing light is Off, or when fix position is out of the sector, the light color is displayed by using a faint light color.

3.5.1.7   Mixing Levels

➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Mixing Levels" + 'ENTER'

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 the chartplotter zooms out to the first level covered by cartographic data. The <u>default</u> setting is Off.

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

3.5.1.8   Safety Status Bar (DSI - Data Safety Indicator)

➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Safety Status Bar" + 'ENTER'

It is possible to choose between the three following options:

·   ON   : the Safety Status Bar is shown
·   OFF   : the Safety Status Bar is not shown

- ICON : the Safety Status Bar is not shown, but a warning alarm icon is shown on the corner of the map screen as soon as any item controlled by the DSI function returns an alarm condition. The Warning Icon remains displayed until the alarm condition persists. Placing the cursor over it, a quick help message is shown next to the DSI icon, allowing to show the DSI bar. In this case - when the DSI bar is opened via DSI alarm icon - it is allowed to obtain information about each "active" DSI box (the red ones): it is possible to select them by cursor movement left/right, and a list of active alarms is shown underneath the selected box. By pressing 'CLEAR', the DSI bar is removed from the screen.

When Safety Status Bar is On, this feature displays a status bar with six boxes showing the status of certain functions. Any warning or alarm condition is identified by the red colour to indicate possible risk.

①	②	③	④	⑤	⑥
NORMAL	BEST MAP	DATA OFF	DECLUT.	DANGERS	CAUTIONS

Fig. 3.5.1.8 - Safety Status Bar

Boxes definition is as follows:

① **Zoom**
- Normal: when the chart is displayed at normal scale.
- U. Zoom: red when the chart is under-zoomed out more than twice normal scale, gray otherwise.
- O. Zoom: red when the chart is over-zoomed in more than twice normal scale, gray otherwise.
- Chart Lock: red when the chart is zoomed in more than twice normaln scale, gray otherwise.

② **Best Scale**
Red when a more detailed chart is available under the cursor position.

③ **Data Off**
Red when at least one of the following objects or layers is turned off (by the user): Depths/soundings; Wrecks/obstructions; Tracks/routes; Attention areas; Nav-Aids.

④ **Clear View**
Displays when Clear View function is On.

⑤ **Dangers**

Red when "Guardian Technology" detects one of the following objects: Land, Intertidal, Depth Area, Rocks, Obstructions, Shoreline Constructions, Fishing Facility, Wrecks, Dragged area, Diffusion area, Mooring facilities, Pingos and Production installations.

⑥ **Caution**

Red when "Guardian Technology" detects cautionary or restricted area.

3.5.1.9 Currents Prediction

➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Currents Prediction" + 'ENTER'

It is possible to see the variation of the Tidal arrows on the selected area at any given time. A window is shown on the low-left side of the chart, press 'ENTER' to set the date and time manually, 'MENU' to decrease time and 'GOTO' to increase time.

3.5.1.10 Other Map Configurations

➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'

This function allows the user to customize the following selections and is divided into the following settings: Marine Settings, Depth Settings, Land Settings and Chart Settings.

Display Mode: 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, Medium, Low, Radar, Tides, Custom. The default setting is Custom.

➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' + "Display Mode" + 'ENTER'

The table below shows the selections for each mode:

Setting	Full	Medium	Low	Radar	Tides	Custom (Default values)
Place Names	On	On	On	On	On	On
Name Tags	On	Off	Off	Off	Off	Off
Nav-Aids & Light Sectors	On	No Sector	No Sector	No Sector	Off	On
Attention Areas	On	On	Off	Off	Off	On
Tides & Currents	On	Off	Off	Off	On	On
Seabed Type	On	Off	Off	Off	Off	On
Ports & Services	On	On	Off	On	Off	On
Tracks & Routes	On	Off	Off	Off	Off	On
Depth Range Min	3 Mt	3 Mt	3 Mt	3 Mt	3 Mt	3 Mt
Depth Range Max	10 Mt	10 Mt	10 Mt	10 Mt	10 Mt	10 Mt
Land Elevations	On	Off	Off	Off	Off	On
Land Elevation Data	On	Off	Off	Off	Off	On
Roads	On	Off	Off	Off	Off	On

POIs	On	Off	Off	Off	Off	On
Lat/Lon Grid	On	Off	Off	Off	Off	On
Chart Boundaries	On	Auto	Off	Off	Off	Auto
Mixing Levels	On	Off	Off	Off	Off	Off
Value Added Data	On	Off	Off	Off	Off	On
Chart Lock	On	On	On	On	On	On
Und. Objects Limit	9999Mt	10Mt	10Mt	10Mt	10Mt	10Mt
Rocks	Icon+Depth	Icon	Icon	Icon	Icon	Icon
Obstructions	Icon+Depth	Icon	Icon	Icon	Icon	Icon
Diffusers	Icon+Depth	Icon	Icon	Icon	Icon	Icon
Wrecks	Icon+Depth	Icon	Icon	Icon	Icon	Icon

Place Names: On/Off. The <u>default</u> setting is On.
➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' + "Place Names" + 'ENTER'

Name Tags: On/Off. The <u>default</u> setting is On.
➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' + "Name Tags" + 'ENTER"

Nav-Aids & Light Sectors : On (Nav-Aids & Light Sectors are shown)/Off (Nav-Aids & Light Sectors are not shown)/No Sector (Nav-Aids are shown, Light Sectors are hidden). The <u>default</u> setting is On.
➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' + "Nav-Aids & Light Sectors" + 'ENTER'

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

<u>Tides</u> & <u>Currents</u>: On/Off. The <u>default</u> setting is On.
➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' + "Tides & Currents" + 'ENTER'

Seabed Type: On/Off. The <u>default</u> setting is On.
➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' +"Seabed Type" + 'ENTER'

<u>Ports</u> & <u>Services</u>: On/Off. The <u>default</u> setting is On.
➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' +"Ports & Services" + 'ENTER'

<u>Tracks</u> & <u>Routes</u>: On/Off. The <u>default</u> setting is On.
➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' + "Tracks & Routes" + 'ENTER'

Depth Range Min: Sets a min reference depth value. The <u>default</u> setting is 3 Mt.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    + "Depth Range Min" + 'ENTER'

Depth Range Max: Sets a max reference depth value. The <u>default</u> setting is 10 Mt.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    +"Depth Range Max" + 'ENTER'

Land Elevations: On/Off. The <u>default</u> setting is On.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    + "Lan Elevations" + 'ENTER'

Land Elevation Values: On/Off. The <u>default</u> setting is On.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    + "Lan Elevation Values" + 'ENTER'

Roads: On/Off. The <u>default</u> setting is On.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    + "Roads" + 'ENTER'

POIs (Points Of Information): On/Off. The <u>default</u> setting is On.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    + "POIs" + 'ENTER'

Lat/Lon Grid: On/Off. The <u>default</u> setting is On.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    + "Lat/Lon Grid" + 'ENTER'

Chart Boundaries: On/Off/Auto. The <u>default</u> setting is On.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    + "Chart Boundaries" + 'ENTER'

Value Added Data: On/Off. The <u>default</u> setting is On.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    + "Value Added data" + 'ENTER'

Chart Lock: On/Off. The <u>default</u> setting is On.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    + "Chart Lock" + 'ENTER'

Underwater Object Limit: Selects the max depth value to display Underwater Objects. The <u>default</u> setting is 10 Mt.
➤   'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER'
    + "Underwater Object Limit" + 'ENTER'
·   If value is set to 0 Mt, the Underwater Objects are not shown on the charts.
    Menu options are grayed out.

- If value is more than 0 Mt (i.e. 10 Mt), in the Range from 0 Mt to the selected value the Underwater Objects are displayed according to their setting below.

Rocks: Off/Icon/Icon+Depth (*). The <u>default</u> setting is Icon.
  ➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' + "Rocks" + 'ENTER'

Obstructions: Off/Icon/Icon+Depth (*). The <u>default</u> setting is Icon.
  ➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' + "Obstructions" + 'ENTER'

Diffusers: Off/Icon/Icon+Depth (*). The <u>default</u> setting is Icon.
  ➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' + "Diffusers" + 'ENTER'

Wrecks: Off/Icon/Icon+Depth (*). The <u>default</u> setting is Icon.
  ➤ 'MENU' + "MAP SETTINGS" +'ENTER' + "Other Map Configurations" + 'ENTER' + "Wrecks" + 'ENTER'

Note (*) _____
Choose the option:
- *OFF* : *the object is not visible independently of the selected "Underwater Object Depth Value"*
- *ICON* : *the object icon is visible without tags, in the range selected from "Underwater Object Depth Value" option*
- *ICON+DEPTH* : *the object icon and tag is visible, in the range selected from "Underwater Object Depth Value" option*

3.5.2 GETTING AUTOMATIC INFO
The type of Automatic Info is user selectable.
  ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SETUP" + '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 and areas).

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.
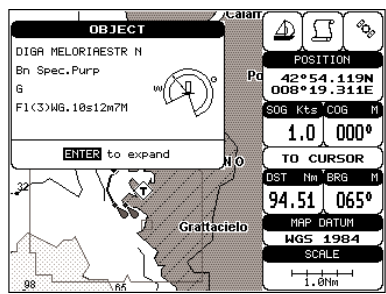
Fig. 3.5.2 -Automatic Info on Points window

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

3.5.2.1 Info on objects with Pictures

On the Quick Info, there will be the camera icon on the top bar of the window if at least one of the objects found has one or more pictures associated.
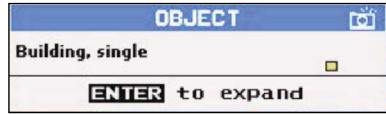
Fig. 3.5.2.1 - Example of Quick Info on objects with picture

On the Full Info, there will be the small camera icon on a corner of the square containing the object icon or a big photo icon centered on the square for the object without icon.
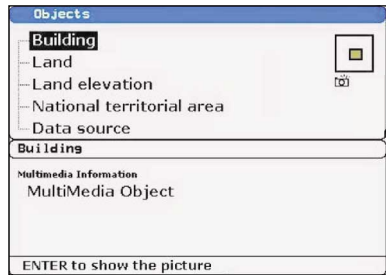
Fig. 3.5.2.1a - Example of Full Info on objects with picture

To see the picture press 'ENTER' when the object with a picture is highlighted.

Change Picture Size
When the picture is shown, it is possible to fit it to screen by pressing 'ENTER'.

3.5.2.2   Quick Info on Lakes
Upon viewing the chart of a lake, you will click on to query the available information immediately displayed with many details. For example, see the following picture:

Lakes Info icon
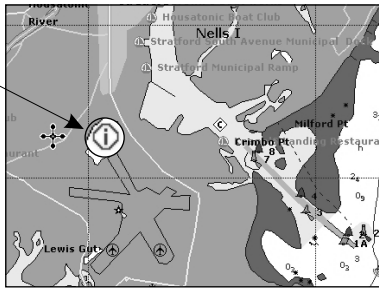
Fig. 3.5.2.2 - Example of Lakes info

When the cursor is placed over the icon, the icons of the available services are shown:
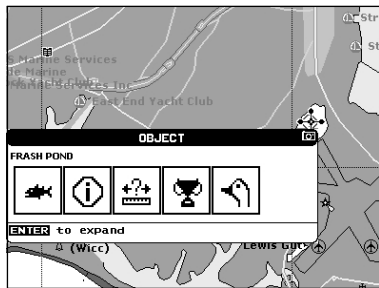
Fig. 3.5.2.2a - Quick Info: available services

If you press 'ENTER' all available information about the cartographic point under the cursor will be shown. See the next paragraph.

3.5.2.3   Full Info on Lakes
The following is an example of Full Info on Lakes:
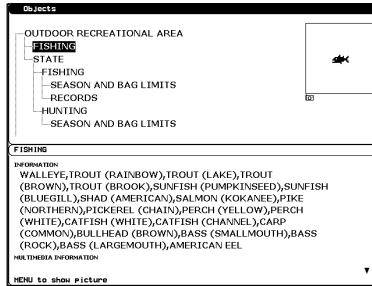
Fig. 3.5.2.3 - Example of Full Info page

To see the "Fishing" object press 'MENU' (when the "Fishing" object is highlighted). On the screen appears:
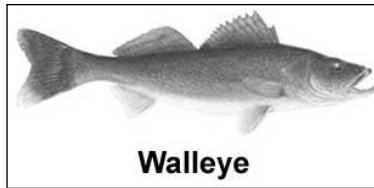
Fig. 3.5.2.3a - Example of picture associated to the Fishing object

3.5.3 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.

3.5.4 INFO FUNCTION

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

3.5.5 GETTING PORT INFO

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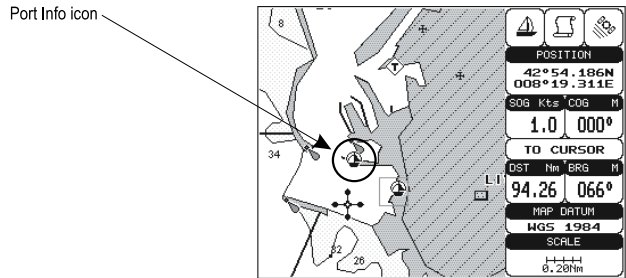
Port Info icon

Fig. 3.5.5 - Port Info icon

The available information is shown in the Automatic Info window where icons of the available services are shown:
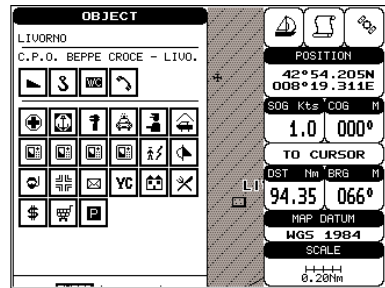
Fig. 3.5.5a - Automatic Info window

To expand information about that object press 'ENTER'.

3.5.6 GETTING TIDE INFO

When you will see a <u>Tide Info</u> icon you can click on it to query the available information that will immediately be displayed.
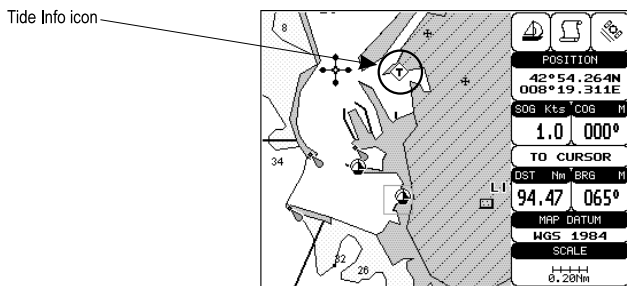
Tide Info icon

Fig. 3.5.6 - Tide Info icon

Place the cursor on the <u>Tide</u> symbol, a Automatic Info window is opened:
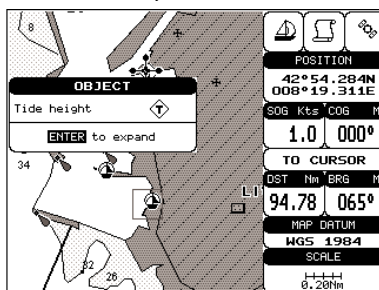
Fig. 3.5.6a - Automatic Info on Tide

To display the <u>Tide</u> Graph page, press 'ENTER':

Values referred to the VERTICAL cursor

Values referred to the HORIZONTAL cursor

VERTICAL cursor

HORIZONTAL cursor

```
Time:    04:35
Height: 0.45 Ft
Draught:0.65 Ft
01/01/97  +1
  43°32.860N
  010°18.022E

Port Info
LIVORNO (LEGHORN)
High Water (max)    0.86 Ft (13:30 L)
Low Water  (min)    0.35 Ft (21:00 L)
Sunrise   07:52 L  Sunset    16:53 L
```
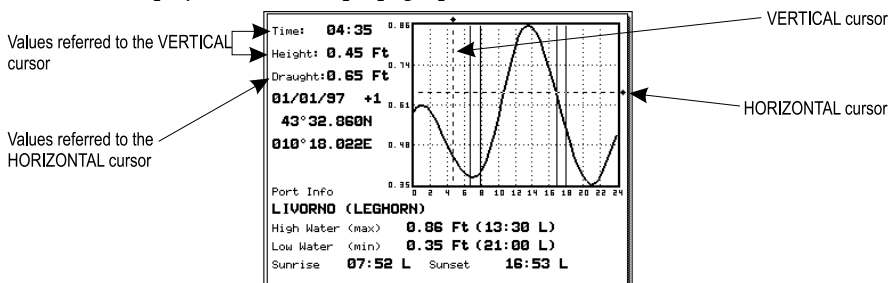
Fig. 3.5.6b - Tide Graph

Using the cursor key, 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 cursor key 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.

3.5.7 FIND FUNCTION

The chartplotter allows finding <u>Nearest Services</u>, <u>Port By name</u>, <u>Port By distance</u>, <u>Tide Stations</u>, <u>Wrecks</u>, <u>Obstructions</u>, <u>Lakes info</u>, <u>POIs</u>.

3.5.7.1 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' + "NEAREST SERVICES" + 'ENTER'

The icons of the available services are shown. Use the cursor key to select any facility and press 'ENTER'. 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'.

3.5.7.2 Finding Ports By Name

To select the Ports By Name function following the procedure:

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

Shows the list of all ports stored on the C-CARD in alphabetical order and allows to search ports by name to locate the ports on the map.

3.5.7.3 Finding Ports By Distance

To select the Ports By Distance function following the procedure:

➤ 'MENU' + "FIND" + 'ENTER' + "PORTS BY DISTANCE" + 'ENTER'

Shows the list of all ports stored on the C-CARD in closest distance order and allows to locate the ports on the map.

3.5.7.4 Finding Tide Stations

Finds the nearest <u>Tide</u> 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 <u>Tide</u> Stations you want and press 'ENTER' or 'Fɪɴᴅ' to display the <u>Tide</u> Graph page (see Par. 3.5.4). Press 'CLEAR' to display the <u>Tide</u> Station chosen.

3.5.7.5 Finding Wrecks

Searches for Nearest Wrecks:

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

Use the cursor key to select the port and 'ZOOM IN'/'ZOOM OUT' to select next/previous page. Press 'ENTER' to locate the selected Wreck on the map.

3.5.7.6　　　Finding Obstructions

Searches for Nearest Obstructions:

➤ 'MENU' +"FIND" + 'ENTER' + "OBSTRUCTIONS" + 'ENTER'
Use the cursor key to select the port and 'ZOOM IN'/'ZOOM OUT' to
select next/previous page. Press 'ENTER' to locate the selected Obstruction.

3.5.7.7　　　Finding POIs

Searches for Nearest Points Of Interest:

➤ 'MENU' + "FIND" + 'ENTER' + "POINTS OF INTEREST" + 'ENTER'
A sub-menu is opened to find different categories of POIs.

3.5.7.8　　　Finding Lakes By Names

Selects the Lakes By Names function:

➤ 'MENU' + "FIND" + 'ENTER' + "LAKES BY NAME" + 'ENTER'
Shows the list of all lakes stored on the C-CARD in alphabetic order. Press-
ing '**MENU**' to insert the Lake name.

3.5.7.9　　　Finding Lakes Information

Searches for Nearest Lakes Info:

➤ 'MENU' + "FIND" + 'ENTER' + "LAKES INFORMATION" + 'ENTER'
It founds the Outdoor Recreational Area objects. See the following picture:
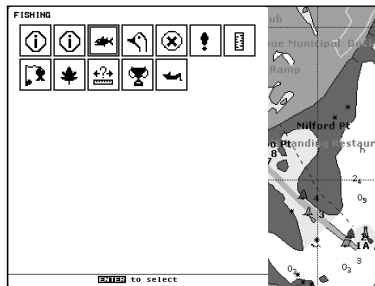
Fig. 3.5.7.9 - Outdoor Recreational Area objects

Use the cursor key to select any objects and press 'ENTER'. The list of the
nearest lakes containing the facility will be shown on the screen.
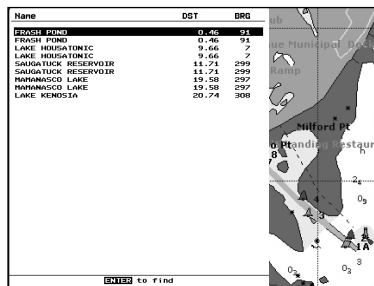
Fig. 3.5.7.9a - Nearest Lakes list

Then choose the lake you want and press 'ENTER': the Full Info page is shown.

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. On the screen the MOB symbol and a window to advise tha the MOB is activated appear, press 'CLEAR' to delete this window. Data displayed in Text Area are related to MOB. Placing the cursor on the MOB symbol an information window appears:
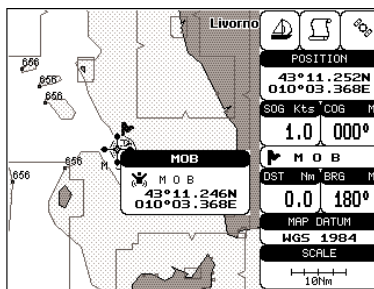
Fig. 3.6.1 - Man Overboard

Note

In the information window the bottom side "ENTER for Options" appears only if the "Advanced Functions" item in the "Basic Settings" menu is activated (On).

3.6.2 DELETING MOB

Press 'MOB', select 'CANCEL" and press 'ENTER' again. The MOB symbol remains on the screen shaded until the next screen redraws.

Note
If the "Advanced Settings" item in the menu "Basic Settings" is activated (On), placing the cursor on MOB the information window appears as shown in the previous Fig. 5e. Press 'ENTER', select "CANCEL" and press 'ENTER' again: the MOB symbol remains on the screen shaded until the next screen redraws.

4

For the Experienced User

Now you have had a chance to became familiar with your new chartplotter, there are a great number of advanced features that you will find helpful. First of all the use of the Advanced Mode.

The chartplotter can operate in two different modes: Basic Mode and Advanced Mode. In the first mode there is a restricted number of functions, while in Advanced Mode it is possible to have more available functions, for example it is possible to handle Waypoints. To select the Advanced Mode:

➤ 'MENU' + "BASIC SETTINGS" + 'ENTER' + "ADVANCED FUNCTIONS" + 'ENTER' + "ON" + 'ENTER'

When Advanced Functions is Off the chartplotter operates in Basic Mode.

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 WAYPOINT

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.

4.1.1.1   Adding Waypoint
➤ Select Advanced Mode + 'ENTER' + "WAYPOINT" + 'ENTER'

The Waypoint appears on the cursor position. An info window is shown containing route number, Waypoint name, symbol and Latitude/Longitude.
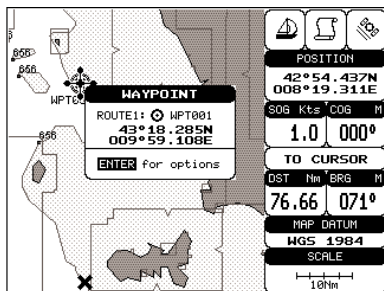
Fig. 4.1.1.1 - Waypoint placing

4.1.1.2 Creating a route

Repeat the "Adding Waypoint" procedure described in the previous Par. 4.1.1.1. The sequence of moving the cursor and pressing 'ENTER' is continued to create the <u>route</u>, until you have reached the last <u>Waypoint</u>, your final destination. Segments connecting the <u>Waypoints</u> are shown, and the starting point is identified by a circle surrounding the first <u>Waypoint</u> of the <u>route</u>:
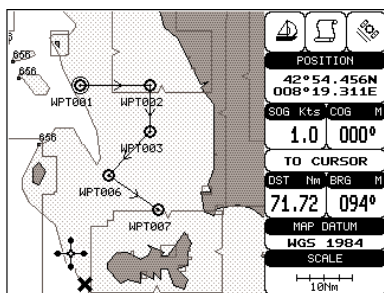
Fig. 4.1.1.2 - Route planning

4.1.1.3 Deleting Waypoint

➤ Select Advanced Mode + Place cursor on Waypoint
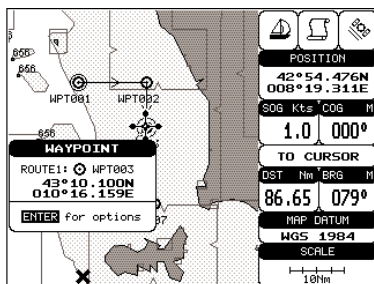
Fig. 4.1.1.3 - Deleting Waypoint (I)

Press 'ENTER'. Select "DELETE" and press 'ENTER'. The <u>Waypoint</u> is deleted and a new line between previous and next <u>Waypoint</u> is shown. The deleted <u>Waypoint</u> remains shaded until the screen is redrawn.
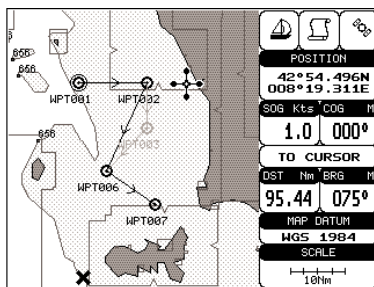
Fig. 4.1.1.3a - Deleting Waypoint (II)

4.1.1.4   Deleting route

➤ **Select Advanced Mode + Place cursor on Waypoint**

Press 'ENTER'. Select "DELETE ROUTE" and press 'ENTER'. A window is opened: select "YES" and press 'ENTER' to confirm (select "NO" and press 'ENTER' otherwise). The <u>route</u> remains on the screen shaded until the screen is redrawn. To delete <u>route</u> see also Par. 4.1.2.2 and 4.1.2.4.

4.1.1.5   Distance and Bearing to Target

Once you have positioned the cursor on the desired starting <u>Waypoint</u> (it could be the first <u>Waypoint</u> of the <u>route</u> or another one) press 'GO-TO'. A circle surrounds the <u>Waypoint</u> symbol. A line is shown, connecting the <u>Target</u> with the ship's position. When the <u>Target</u> is placed, all navigation data are referred to this <u>Target</u>.
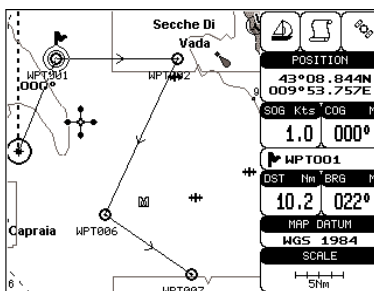
Fig. 4.1.1.5 - Selecting destination (Target)

The destination will automatically switch to the next <u>Waypoint</u> on the <u>route</u> when you reach or pass the present destination.

Time To Go

When the Target is set the TTG value is displayed in the Graphic Data page:

➤ 'PAGE' more times to select Graphic Data page

Deleting Target

If in Basic Mode place cursor on Target icon and press 'CLEAR': the symbol that identifies Target disappears from the screen, but the Waypoint remains.

If in Advanced Mode (see Par. 3.4.3) place cursor on Target icon, press 'ENTER', select "STOP NAV" and press 'ENTER': the symbol that identifies Target disappears from the screen, but the Waypoint remains.

Note _____
If you select "NEXT"/"PREV" and press 'ENTER', the Target icon is moved on the next/ previous Waypoint in the route.

Otherwise in both Modes (when the cursor is placed in a generic position on the chart) press 'GO-TO'. A window appears to advice that the Destinetion point is present: select "STOP" and press 'ENTER', the symbol that identifies Target disappears from the screen, but the Waypoint remains.

Note _____
If you select "START" and press 'ENTER', the Target icon is moved on the new cursor position.

4.1.1.6 Moving Waypoint

➤ Select Advanced Mode + Place cursor on Waypoint

Press 'ENTER'. Select "MOVE" and press 'ENTER'. Use the cursor key to move the cursor: a dotted line, connecting the Waypoint to the new position, is shown:
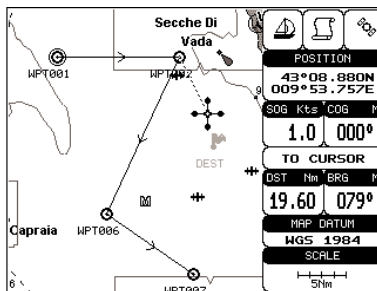
Fig. 4.1.1.6 - Moving Waypoint function (I)

To place the Waypoint in the new position, choose the new place and press 'ENTER' ('CLEAR' otherwise), Waypoint appears in the new position:
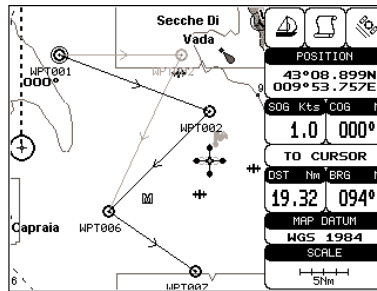
Fig. 4.1.1.6a - Moving Waypoint function (II)

4.1.1.7 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**
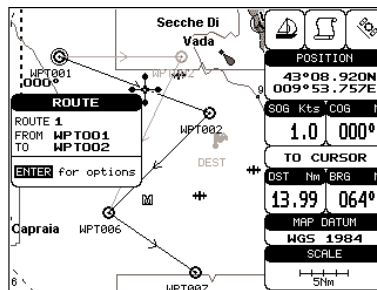
Fig. 4.1.1.7 - Placing Waypoint between two existing ones (I)

Press 'ENTER'. Select "INSERT" and press 'ENTER'. 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:
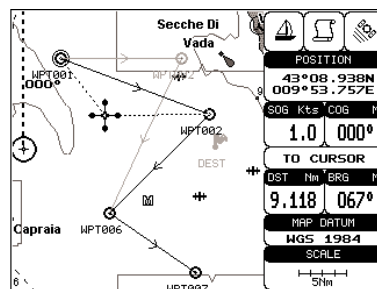
Fig. 4.1.1.7a - Placing Waypoint between two existing ones (II)

Once you have positioned the cursor at new location, press 'ENTER' (press 'CLEAR' to abort operation):
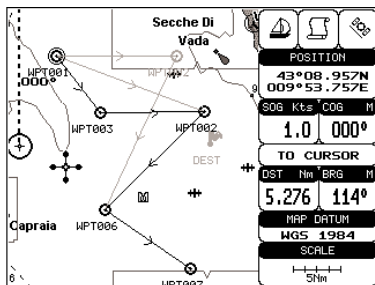
Fig. 4.1.1.7b - Placing Waypoint between two existing ones (III)

4.1.1.8   Editing Waypoint

➤ **Select Advanced Mode + Place cursor on Waypoint**

Press 'ENTER'. Select "EDIT" and press 'ENTER' to modify a <u>Waypoint</u>. A window will be shown with Name, Symbol, Color and <u>Latitude</u>/<u>Longitude</u> of the <u>Waypoint</u>, advising about what <u>Waypoint</u> data are modifiable.
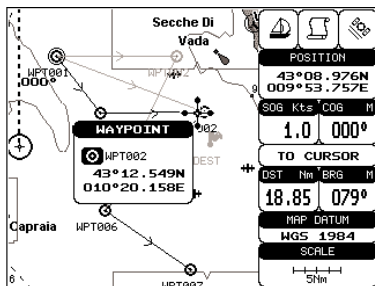
Fig. 4.1.1.8 - Edit Waypoint (I)

Use the cursor key to select the field. If you have selected Name field, press 'ENTER': use the cursor key to insert the character (8 characters max), then press 'ENTER'. If Symbol field is selected press 'ENTER': a window with 16 different symbols appears:
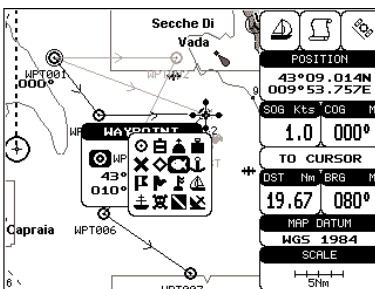
Fig. 4.1.1.8a - Edit Waypoint (II): Waypoint symbols

Use the cursor key to select the symbol and press 'ENTER'. If select Coordinates field, press 'ENTER' and then use the cursor key to insert the value. Then press 'CLEAR'. If Color field is selected press 'ENTER': a window with 8 different colors appears, use the cursor key to select the desired color and press 'ENTER'.
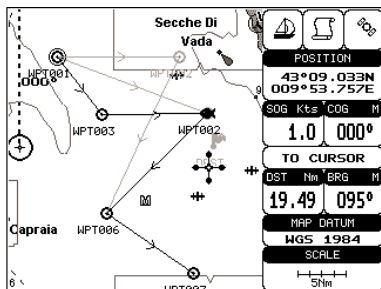
Fig. 4.1.1.8b - Edit Waypoint (III)

4.1.1.9 Finding information about Waypoints: User Points List page
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER'
Move up/down the cursor key to select the <u>User Point</u> you wish. If the page contains more than 8 <u>User Points</u>, the list continues in the next pages.

Finding User Points
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER' + "FIND" + 'ENTER'
The chartplotter exits from the <u>User Points</u> List page and redraws the chart. The selected point appears, with the cursor placed on it.

Deleting selected User Point
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER' + "CLR-ONE" + 'ENTER'
Deletes the selected <u>User Point</u>. A warning message appears, select "YES" and press 'ENTER' ('CLEAR' otherwise).

Deleting all User Points with the same symbol
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER' + "CLR-SYM" + 'ENTER'
Deletes all <u>User Points</u> which have the same identifier of that shown in the selected row. A warning message appears, select "YES" and press 'ENTER' ('CLEAR' otherwise).

Deleting all User Points with the same type
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER' + "CLR-TYP" + 'ENTER'

Deletes all <u>User Points</u> which have the same type of that shown in the selected row. A warning message appears, select "YES" and press 'ENTER' ('CLEAR' otherwise).

Deleting all stored User Points
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER' + "CLR-ALL" + 'ENTER'

A warning message appears, select "YES" and press 'ENTER' ('CLEAR' otherwise) to delete all stored <u>User Points</u>.

Send/Receive User Points
      Sends all User Points to an external device using the serial port:
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER' + "SEND"
      Reads all User Points from NMEA Input port:
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER' + "RECEIVE"

4.1.2 ROUTES

The following functions are used for the <u>route</u> management. The chartplotter handles <u>routes</u> from 1-25, which are permanently stored in the memory as they are created. Only one <u>route</u> can be selected for work at any one time.

4.1.2.1 Selecting route
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "CURRENT ROUTE" + 'ENTER'

A window appears with the <u>route</u> number list and the related <u>route</u> name. Use the cursor key to scroll the list up/down. Pressing 'ENTER' the selected <u>route</u> becames the current <u>route</u>.

Note _____
If there is the Target in the current route, it is not possible to change the current route. So if the "Current Route" item is selected, a Warning window appears because Target is placed in the current route.

4.1.2.2 Deleting route
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "DELETE ROUTE" + 'ENTER'

A window is opened: select "YES" and press 'ENTER' to confirm (select "NO" and press 'ENTER' otherwise). The <u>route</u> remains on the screen shaded until the screen is redrawn. To delete route see also Par. 4.1.1.4 and 4.1.2.4).

4.1.2.3　　　Reversing route

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "ROUTE REVERSE" + 'ENTER'

Reversing a <u>route</u> plan is most typically used to return to the point where the route originally started.

4.1.2.4　　　Route Color

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

A window is opened: use the cursor keys to select the route color you want among the eight colors available. Press 'ENTER' to confirm. The route appears on the screen colored by the selected color. It is possible to select a different color for any route.

4.1.2.5　　　Finding information about a route: Route Report

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

If there are more than 8 <u>Waypoint</u>s shown, use the cursor key to select another page.
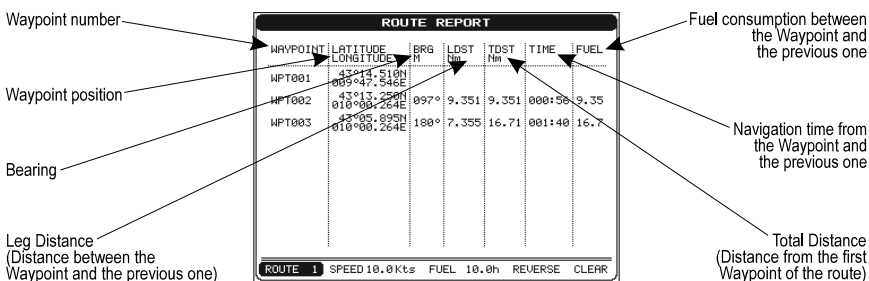
Fig. 4.1.2.5 - Route Data Report page

Selecting route

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "ROUTE REPORT" + 'ENTER' + "ROUTE #" + 'ENTER'

Use the cursor key to select the <u>route</u> number and press 'ENTER'. The <u>route</u>, shown by straight segments, is centered on the screen, with the cursor on the central <u>Waypoint</u>. See also Par. 4.1.2.1.

Note

If there is the Target in the current route, it is not possible to change the current route. So if the "Route #" item is selected, the chart plotter emits three beeps.

Changing Speed & Fuel values
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "ROUTE REPORT" + 'ENTER'

It is possible to modify the Speed and Fuel consumption values, respectively by selecting "SPEED" and "FUEL". Insert value by using the cursor key and pressing 'ENTER'.

Reversing route
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "ROUTE REPORT" + 'ENTER' + "REVERSE" + 'ENTER'

Reversing a <u>route</u> plan is most typically used to return to the point where the route originally started. See also Par. 4.1.2.3.

Deleting route
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "ROUTE REPORT" + 'ENTER' + "CLEAR" + 'ENTER'

A window is opened: select "YES" and press 'ENTER' to confirm (select "NO" and press 'ENTER' otherwise). The <u>route</u> remains on the screen shaded until the screen is redrawn. To delete the <u>route</u> see also Par. 4.1.1.4 and 4.1.2.2.

4.1.2.6   Route Name
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "ROUTE NAME" + 'ENTER'
Use the cursor key to insert the <u>route</u> name (max 16 alphanumeric char.).

4.1.2.7   Send/Receive Route
To transmit the Active Route information onto the NMEA output port.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "SEND"
The NMEA WPL & RTE messages are sent to the output port.

To save Route information received from the NMEA input port.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "RECEIVE"
The received route is saved on the Active route, overwriting it. The NMEA WPL & RTE messages are sent to the input port.

4.2   MARK & EVENT

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

4.2.1 MARKS

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

4.2.1.1 Adding Mark

➤ **Select Advanced Mode + 'ENTER' + "MARK" + 'ENTER'**

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

4.2.1.2 Deleting Mark

➤ **Select Advanced Mode + Place cursor on Mark**

Press 'ENTER'. Select "DELETE" and press 'ENTER': the <u>Mark</u> remains on the screen shaded until the next screen is redrawn.

Note _____

If you try to delete a Mark that belongs to many routes, the chart plotter emits three beeps and on the screen a Warning message appears. If you want to delete the Mark, press 'ENTER'.

4.2.1.3 Goto

➤ **Place cursor on Mark**

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

4.2.1.4 Moving Mark

➤ **Select Advanced Mode + Place cursor on Mark**

Press 'ENTER'. Select "MOVE" and press 'ENTER'. Move the cursor by the cursor key, a dotted line connecting the <u>Mark</u> with the new position is shown:
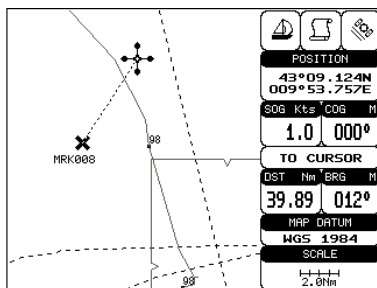
Fig. 4.2.1.4 - Moving Mark function (I)

Press 'ENTER':
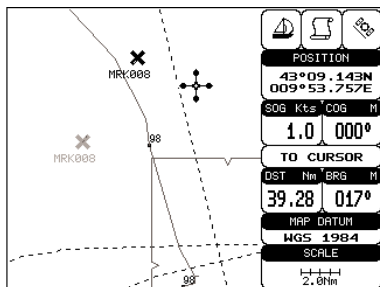
Fig. 4.2.1.4a - Moving Mark function (II)

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

Note

If you try to move a Mark that belongs to many routes, the chart plotter emits three beeps and on the screen a Warning message appears. If you want to move the Mark, press 'ENTER'.

4.2.1.5   Editing Mark

➤ **Select Advanced Mode + Place cursor on Mark**

Press 'ENTER'. Select "EDIT" and press 'ENTER'. A window appears to modify Name, Symbol, Color and coordinates of the existing <u>Mark</u>.

Fig. 4.2.1.5 - Edit Mark

Use the cursor key to select the field. If you have selected Name field, press 'ENTER': use the cursor key 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 cursor key to select the symbol and press 'ENTER'. If Color field is selected press 'ENTER': a window with 8 different colors appears, use the cursor key to select the desired color and press 'ENTER'. If Coordinates field is selected, press 'ENTER' and then use the cursor key to insert the value. Then press 'CLEAR'.

4.2.1.6 Finding information about Marks: User Points List page
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "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 cursor key to select the <u>User Point</u> you wish. If the page contains more than 8 <u>User Points</u>, the list continues in the next pages. See Par. 4.1.1.9.

4.2.1.7 Add to Route
➤ Select Advanced Mode + Place cursor on Mark

Press 'ENTER'. Select "ADD TO ROUTE" and press 'ENTER': the selected <u>Mark</u> is connected to the current <u>route</u>. The same <u>Mark</u> can be added in many <u>routes</u>.

Note _____

An existing Mark can be connected to the current route in another mode too. Place cursor on Mark, the information window related to the Mark appears, press 'CLEAR' to close the window and then press 'ENTER', select the Waypoint option and press 'ENTER'. The Mark is connected to the current route.

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 Advanced Mode + 'MODE', then 'ENTER' + "EVENT" + 'ENTER'

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

4.2.2.2 Deleting Event
➤ Place cursor on Event

Press 'ENTER'. Select "DELETE" and press 'ENTER': the <u>Event</u> remains on the screen shaded until the next screen is redrawn.

Note _____

If you try to delete a Event that belongs to many routes, the chart plotter emits three beeps and on the screen a Warning message appears. If you want to delete the Event, press 'ENTER'.

4.2.2.3 Goto
➤ Place cursor on Event

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

4.2.2.4 Editing Event
➤ Place cursor on Event

Press 'ENTER'. Select "EDIT" and press 'ENTER'. A window appears to modify Name, Symbol, Color of the existing Event.
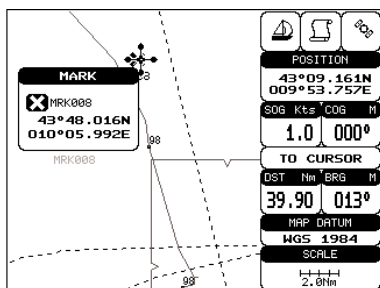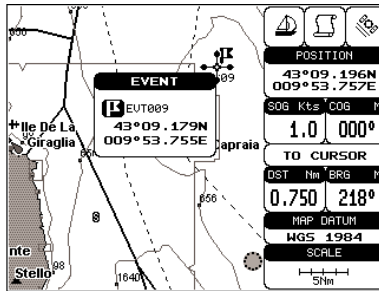

Fig. 4.2.2.4 - Edit Event

Use the cursor key to select the field. If you have selected Name field, press 'ENTER': use the cursor key to insert the character (8 characters max), then press 'ENTER'. If Color field is selected press 'ENTER': a window with 8 different colors appears, use the cursor key to select the desired color and press 'ENTER'. If Symbol field is selected press 'ENTER': a window with 16 different symbols appears. Use the cursor key to select the symbol and press 'ENTER'. Then press 'CLEAR'.

4.2.2.5 Finding information about Events: User Points List page
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER'

A full window is opened showing information about all stored User Points (Marks, Events and Waypoints). Move up/down the cursor key to select the User Point you wish. If the page contains more than 8 User Points, the list continues in the next pages. See Par. 4.1.1.9.

4.2.2.6 Add to Route
➤ Place cursor on Event

Press 'ENTER'. Select "ADD TO ROUTE" and press 'ENTER': the selected Event is connected to the current route. The same Event can be added in many routes.

Note

An existing Event can be connected to the current route in another mode too. Place cursor on Event, the information window related to the Event appears, press 'CLEAR' to close the window and then press 'ENTER', select the Waypoint option and press 'ENTER'. The Event is connected to the current route.

4.3   MORE ABOUT A-B-C-D FUNCTION

The A-B-C-D function, explained in the previous paragraph 3.2, if Advanced Mode is selected, allows you not only to create the A, B, C, D points and to delete them, but also to modify and move them.

4.3.1 INSERTING THE A-B-C-D POINTS

Place the cursor on the desired position and press 'ENTER'. On the screen the Create window appears, by using the cursor key select "A-B-C-D" and press 'ENTER': the A point and an information window on A appear. Move the cursor, press 'ENTER', select "A-B-C-D" and press 'ENTER' again: the B point appears, connected to A with a straight segment; an information window on A-B segment (distance (DST), bearing (BRG) and total distance from the first point) appears. Moving the cursor, pressing 'ENTER', selecting "A-B-C-D" and pressing 'ENTER' places the C and D points (see previous Fig. 3.3.1).

4.3.2 DELETING THE A-B-C-D POINTS

When placing the cursor on the desired point (A, B, C or D) the information window appears. Press 'ENTER', select "DELETE" and press 'ENTER' again: the point is deleted. When the point is deleted, the cursor is placed on the previous point, if existed. The labels of the next points are renamed.

4.3.3 DELETING THE A-B-C-D SEGMENT

When placing the cursor on the desired point (A, B, C or D) or on segment between two points the information window appears. Press 'ENTER', select "DELETE ALL" and press 'ENTER' again: all points and connecting segments are deleted.

4.3.4 MOVING THE A-B-C-D POINTS

When placing the cursor on the desired point (A, B, C or D) the information window appears. Press 'ENTER', select "MOVE" and press 'ENTER': by the cursor key move the cursor, on the screen a dotted line connecting the point to move with the new position appears. By pressing 'ENTER' the point is placing in the new position.

4.3.5 INSERTING THE A-B-C-D POINTS

Placing cursor on the segment connecting two points, the information window appears. Select "INSERT" and press 'ENTER': by the cursor key move the cursor, on the screen a dotted line appears. By pressing 'ENTER' the new point is placing between the two existed points which are renamed.

4.3.6 NAVIGATING ON THE A-B-C-D POINTS

If fix received is good, place the cursor on the desired point A, B, C or D and press 'GO-TO'. When ship reaches the Destination point, navigation follows the next point (if exists). When <u>Target</u> is set, three options are available: STOP NAV, NEXT and PREV.

4.4   USING THE TRACK FUNCTIONS

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.
➤   'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER'

4.4.1 SELECTING ACTIVE TRACK
➤   'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "ACTIVE TRK" + 'ENTER'
Select the number of the active <u>track</u>. The <u>default</u> setting is 1.

4.4.2 ENABLING TRACK STORING
➤   'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "TRACCIA" + 'ENTER'
To enable (On) or disable (Off) the <u>track</u> storing. It is not possible to use the <u>track</u> storing if you are not receiving a valid fix. The <u>default</u> setting is On.

4.4.3 DISPLAYING TRACK
➤   'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "VISIBILE" + 'ENTER'
To enable (On) or disable (Off) the displaying of <u>track</u>. The <u>default</u> setting is On.

4.4.4 SELECTING TRACK COLOR

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "COLOR" + 'ENTER'

Selects the desired color among the eight colors available for the track.

4.4.5 DELETING TRACK

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "DELETE" + 'ENTER'

Deletes the all track storing. After pressing 'ENTER' a warning window appears: select "Yes" and press 'ENTER' to confirm (select "No" otherwise).

4.4.6 DELETING SELECTED TRACK

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "DELETE SELECTION" + 'ENTER'

Deletes the track selected. After pressing 'ENTER' a window appears: press 'ENTER' to set the first point , then press 'ENTER' to set the second point. A warning window appears: select "Yes" and press 'ENTER' to confirm the deletion (select "No" otherwise).

4.4.7 SELECTING TRACK MEMORIZING TYPE

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "STEP UNIT" + 'ENTER'

Choose Distance (Dist) - the chartplotter can store a fix when the distance from its last stored position is greater than a defined distance; Time - the chartplotter can store a fix after a defined time; Auto - the software decides when storing a position, on the basis of the straight or curved track. The default setting is Time.

4.4.8 SELECTING DISTANCE

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "DISTANCE" + '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 Cap. 5). The default setting is 0.01 Nm.

4.4.9 SELECTING TIME

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "TIME" + 'ENTER'

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

4.5 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' + "ADVANCED SETTINGS" + 'ENTER' + "USER C-CARD" + 'ENTER'

Fig. 4.5 - User C-CARD Menu

4.5.1 SAVING FILE

➢ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER C-CARD" + 'ENTER' + "SAVE" + 'ENTER'

A window is opened to insert the <u>file</u> name and the type of data to save:

Fig. 4.5.1 - Save File function (I)

Select the <u>file</u> name. At first a <u>default</u> name is shown: use the cursor key to insert the name. Press 'ENTER'. Select the data type to save among "MARK", "EVENT", "ROUTE" or "TRACK".

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.

Press 'CLEAR'. On the screen appears:

Fig. 4.5.1a - Save File function (II)

4.5.2 LOADING FILE
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER C-CARD" + 'ENTER' + "LOAD" + 'ENTER'

Before pressing 'ENTER', choose <u>file</u> name in the list shown on the screen using the cursor key.

4.5.3 DELETING FILE
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER C-CARD" + 'ENTER' + "DELETE" + 'ENTER'

A warning window is shown, select "YES" and press 'ENTER' to confirm deletion (select "NO" otherwise). This operation remove old or unnecessary <u>files</u> to clean up your <u>User C-CARD</u>. Remember that this option permanently erases the <u>file</u>.

4.5.4 FORMATTING USER C-CARD
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER C-CARD" + 'ENTER' + "FORMAT" + 'ENTER'

A warning window is shown, select "YES" and press 'ENTER' to confirm the formatting (select "NO" otherwise). The <u>format</u> of <u>User C-CARD</u> must be done before using a new <u>User C-CARD</u>: this operation prepares the <u>User C-CARD</u> to receive and store information.

4.5.5 CHANGING USER C-CARD

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER C-CARD" + 'ENTER' + "CHANGE" + 'ENTER'
Allows to change the <u>User C-CARD.</u>

4.6 C-LINK

C-Link system is a feature which allows to sharing the same cartographic data between two chart plotter units (CP) linked via serial I/O port.

In order to activate C-Link function, a "MAX data C-CARD" (called REGULAR C-CARD) must be inserted into one of the two chart plotters and a special MAX data C-CARD (called MIRROR C-CARD) must be inserted on the other chart plotter.

The two MAX data C-CARDs must have the same code and revision. So, the MIRROR C-CARD can be utilized only on a chart plotter linked to another chart plotter provided with the equivalent REGULAR C-CARD.

It is important to point out that the two chart plotters must have the update s/w versions that allow C-Link function.

4.6.1 HOW C-LINK SYSTEM WORKS

When the CP is powered up, it switches into the "Stand-Alone Mode". In this work mode, the CP unit periodically scans all the available C-CARD slots searching for MIRROR C-CARDs.

When one or more MIRROR C-CARD is found (in one or both CPs) a special connection is established between the CPs to abilitate the MIRROR C-CARDs. If a regular C-CARD which has previously activated a MIRROR C-CARD is removed, even the MIRROS card will be not read anymore on the other unit.

4.7 C-LINK NAVIGATION DATA TRANSFER

This function allows transferring C-Link navigation data (Route Name, Destination ID & Position, Next Waypoint ID & Position, Total Route length, Fuel Consumption Rate, ETA, TTG etc.) (Hereinafter "c-link navigation data") between two chart plotters linked through the C-Link system.

The chart plotters can be set to operate in two modes:

- MASTER mode (Primary Chart Plotter that sends data)
- SLAVE mode (Secondary Chart Plotter that receives data)

When the navigation is activated on the Master chart plotter, the C-Link navigation data will be continuously sent to the Slave until the navigation is active. If the Master is navigating to a Single Destination, the Slave will show the Destination position and activate the navigation to it.

If the Master is navigating to a Route, the Slave will show the Route Leg composed by the Destination and the Waypoint after the Destination (Next Waypoint) and activate the navigation to it. Any variation to the current C-Link navigation data will be transferred from the Master to the Slave. The Slave will be provided with a few dedicated pages to show the C-Link navigation data received from the Master.

4.7.1 OPERATIONS

4.7.1.1 Introductive elements

It is important remark, once more, that this function does not transfer the whole route but just the information relative to the navigation. Such information will be removed from the Slave Chart Plotter as soon as the navigation is terminated.

C-Link navigation data is exchanged by using two NMEA-0183 C-MAP proprietary sentences: $PCMPN,1 and $PCMPN,2.

When the navigation is activated on the Master, it starts outputting the C-Link navigation data. If the Slave is connected, all c-link navigation data received are stored in its memory and the navigation is started.

The information sent by the Master consists of the following values:
- Navigation mode   (To Single Destination / to a Route)
- Route Name (*)
- Destination ID
- Destination Position
- Next Waypoint ID (*)
- Range from Destination to next Waypoint (*)
- Bearing from Destination to next Waypoint (*)
- Route Length (*)
- Distance from Destination to Last Route Waypoint (*)
- Remaining Route Legs (*)
- Planned Cruising Speed
- Average Fuel Consumption
- Initial Fuel Load

C-Link navigation datacan refer to:
- Single Destination navigation
- Route Following navigation.

Values identified by (*) are sent only for Route Following navigation.

The Destination Icon, Navigation leg (Fix Position to Destination), the Next Waypoint Icon and all other relevant c-link navigation data will be shown on the Slave chart plotter. Any variation of the C-Link navigation data on the Master will be communicated to the Slave so to keep data aligned on both devices.

4.7.1.2   C-Link serial connection

The two chart plotters should be connected via serial ports. Any of the available ports can be used, the software will recognize automatically the serial ports used. A typical connection is as follows:

```
CP1               CP2
TX    ——————>  RX
RX    <——————  TX
GND   <————>  GND
```

4.7.1.3   Master Chart Plotter

Operating mode
To select the Master mode (Primary Station) follow the procedure:
➤   'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "C-LINK" + 'ENTER' + "Primary Station" + 'ENTER'

Master mode is the default factory setting. All regular chart plotters' functions are allowed. As soon as the Destination is placed, the master chart plotter will start transmitting all C-Link navigation data,
In Master mode the C-Link navigation data received from the NMEA port is ignored. So, if the two chart plotters are both operating in Master mode, the C-Link navigation data sent by the other chart plotter never processed.
Under such condition if the navigation is activated on one of the two chart plotters, a warning message will be shown to notify that the C-Link navigation data will be ignored by the other chart plotter.

4.7.1.4   Slave Chart Plotter

Operating mode
To select the Slave mode (Secundary Station) follow the procedure:
➤   'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "C-LINK" + 'ENTER' + "Secundary Station" + 'ENTER'

When Slave mode is set, the chart plotter cannot manipulate the C-Link navigation data anymore.

Stop current navigation
If the navigation was already active, it will be disabled as soon as Slave mode is set. An appropriate warning message will be shown to notify that the Navigation is already active and to confirm whether Slave mode can be set.

Inhibit Navigation operation
As soon as Slave mode is set, the destination cannot be placed anymore either the C-Link navigation data is received from the Master or not. Also, when the C-Link navigation data is received from the Master, it will not be allowed to deactivate the Navigation.

Inhibit Route following
While navigating to the route received from the Master the destination is reached (either applying distance or perpendicular criteria), the destination will not be moved to the next Waypoint on the route.

MOB handling
If the Navigation to the external destination is active and the the MOB key is pressed on the Slave Chart Plotter, the MOB is placed but the navigation to the MOB is not activated.

Notes
While navigating to the external destination the Operating Mode is switched to Master mode, the navigation to the external destination will be terminated. An appropriate warning message will be shown to notify that the Navigation to the external destination is active and to confirm whether Slave mode can be set. Setting Slave mode, the C-Link navigation data will be deleted.
The C-Link navigation data are deleted at Power Off.

4.7.1.5 C-Link navigation data: Acquisition and Display
As soon as the C-link navigation data is received, the Slave parses the information received and executes the relative actions depending on its current working status.

Important
When the Navigation to the external Destination is activated, the Slave Chart Plotter will show

all relevant c-link navigation data exactly like when the destination is not the external one: (Destination Name, DST and BRG to Destination, calculate XTE, calculate TTG etc). These values will be displayed all places where required and they will be used to format NMEA-0183 output data.

4.7.1.6   Graphical representation on Map Display

D
WPT002

External Destination RED Icon

N
WPT003

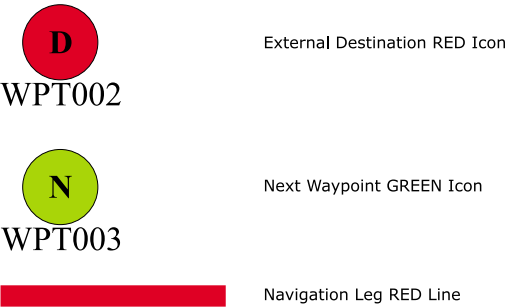Next Waypoint GREEN Icon

Navigation Leg RED Line

Fig. 4.7.1.6 - Graphical Displaying

4.7.1.7   Route Data Report

When the Navigation to the External Route is received, it will be possible to display the information related to the External Route by entering the Route Data Report.

External Route: **ROUTE001**				
Cruising Speed:	12.5 kn	Fuel Consumption Rate:	8.0 l/h	
Total Route length:	71.19 Nm	Total Fuel Consumption:	45.5 l	
Waypoints in Route:	4	Initial Fuel Load:	255 l	
Remaining Waypoints:	4	Remaining Fuel:	209 l	

	DST (nm)	TTG: (hh:mm)	ETA: (hh:mm)	Cons Lit
To Dest	11.93	00:57	11:54 AM	7.4
To Next Wpt	15.97	01:16	1:10 PM	12.3
To Last Wpt	83.12	05:41	6:54 PM	54.4

Fig. 4.7.1.7 - External route on Route Data Report

- External Route   : Name of the External Route (from PCMPN,0)
- Cruising Speed   : Planned Cruising Speed (from PCMPN,1)
- Fuel Consumption Rate : Planned Fuel Consumption Rate (from PCMPN,1)
- Total Route length Route: Length from First to Last Wpt. (from PCMPN,1)
- Initial Fuel Load   : Volume of Fuel available before the navigation was started (Liters)
- Total Fuel Consumption : Calculated Fuel consumption to navigate the whole route.

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- Waypoints in Route   : No. of Wpts in the Route (from PCMPN,1)
- Remaining Waypoints   : No. of Wpts from Dest to Last Wpt (from PCMPN,1)
- Distance to Destination : Distance from Ship to Destination (Calculated)
- Distance to Next Wpt   : Distance to travel from ship to the Wpt after the Destination (calculated: Distance to Dest + Next Route Leg length)
- Distance to Last Wpt   : Distance to travel from ship to the End of the Route (Calculated: Distance to Dest +Distance From Dest to last Wpt received from PCMPN,1)
- TTG To Destination   : Estimated Time to travel the "*Distance to Last Wptt*". Calculated using Cruising Speed.
- TTG To Next Wpt   : Estimated Time to travel the "*Distance to Next Waypoint*" Calculated using Cruising Speed.
- TTG to Last Wpt   : Estimated Time to travel the "*Distance to Last Wpt*". Calculated using Cruising Speed
- ETA to Destination   : Estimate Time of Arrival to the Destination Point. Calculated: Current Time + "*TTG To Destination*"
- ETA to Next Waypoint : Estimate Time of Arrival to the Waypoint after the Destination. Calculated: Current Time + "*TTG To Next Waypoint*"
- ETA to Last Wpt   : Estimate Time of Arrival to the End of the Route. Calculated: Current Time + "*TTG To Last Wpt*"

4.7.1.8   Quick Info

Route Navigation: Quick Info on the Destination

Route Name, DESTINATION ID   Wpt1/4

Distance, TTG and Consumption from Ship to Dest
Distance, TTG and Consumption from Ship to Last Wpt

Fig. 4.7.1.8 - Quick Info on Destination

Quick info on Single Destination

Fig. 4.7.1.8a - Quick Info on Single Destination

5
Advanced Settings

The Advanced Settings menu allows to handle the chartplotter functions. The menu options are arranged in sub-menus. For example, all options that relate to the Fix functions are in Fix sub-menu. See Par. 3.5 for informations about Map Setting menu, see Par. 4.4 about Track menu, see par. 4.1.2 about Route menu, see Par. 4.1.1.9 about User Points menu and Par. 4.5 about User C-CARD menu.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER'
Once you are in the Menu, use your cursor key to highlight the item and press 'ENTER' to activate or to proceed to the next selection menu.

5.1 SETUP

The Setup menu allows to enable or disable general options in the chartplotter handling. See Par. 3.5.3 about Auto Info option.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SETUP" + 'ENTER'

5.1.1 TIME REFERENCE
Sets <u>UTC</u> or Local Time. The <u>default</u> setting is <u>UTC</u>.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SETUP" + 'ENTER' + "TIME REFERENCE" + 'ENTER'

5.1.2 TIME FORMAT
Sets you preferred time between 12 hour and 24 hour. The <u>default</u> setting is 24 hour.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SETUP" + 'ENTER' + "TIME FORMAT" + 'ENTER'

5.1.3 DATE FORMAT

Sets you preferred date between MM-DD-YY (month-day-year) and DD-MM-YY (day-month-year). The <u>default</u> setting is MM-DD-YY.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SETUP" + 'ENTER' + "DATE FORMAT" + 'ENTER'

5.1.4 WIND SPEED

Selects the Wind Speed unit amang Kts = Knots, m/s and Kmh = kilometers per hour. The <u>default</u> setting is Kts.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SETUP" + 'ENTER' + "WIND SPEED" + 'ENTER'

5.1.5 BEEPER

Turns On/Off the sound after pressing a key ("beep"). The <u>default</u> setting is On.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SETUP" + 'ENTER' + "BEEPER" + 'ENTER'

5.1.6 EXTERNAL WPT

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

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SETUP" + 'ENTER' + "EXTERN WPT" + 'ENTER'

5.1.7 BACKLIGHT TIMEOUT

Disables (Off) or sets the desired value (among 1, 3, 5, 10 minutes) for the backlight timeout of the chartplotter. The <u>default</u> setting is Off.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SETUP" + 'ENTER' + "B. LIGHT TIMEOUT" + 'ENTER'

5.2   FIX

The Fix menu handles functions related to the Fix.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER'

5.2.1 FIX CORRECTION

Turns On/Off the Correction from the positioning system. If the new <u>Correction</u> is calculated, but the <u>Correction</u> is not enabled, the ship's position is not changed. The <u>default</u> setting is Off.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER' + "FIX CORRECTION" + 'ENTER'

5.2.2 COMPUTE CORRECTION

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 <u>correction</u>, but not applied.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER' + "COMPUTE CORRECTION" + 'ENTER'

5.2.3 CORRECTION OFFSET

Manual correction of fix position.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER' + "CORRECTION OFFSET" + 'ENTER'

Insert the preferred value and press 'ENTER'.

5.2.4 POSITION FILTER

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 <u>default</u> setting is Off.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER' + "POSITION FILTER" + 'ENTER'

5.2.5 SPEED FILTER

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

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER' + "SPEED FILTER" + 'ENTER'

5.2.6 FILTER DUMP

Inserts the value for the Filter in the range [500 - 12000]. The <u>default</u> setting is 500.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER' + "FILTER DUMP" + 'ENTER'

5.2.7 DEAD RECKONING

Enables (On) or disables (Off0 the Dead Reckoning. The <u>default</u> setting is Off.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER' + "DEAD
   RECKONING" + 'ENTER'

5.2.8 STATIC NAVIGATION

Sets up a threshold for the speed. When the speed received from the position-
ing device is under that threshold, the chartplotter displays zero speed. The <u>default</u>
value is 0.0 Knots.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER' + "STATIC
   NAVIGATION" + 'ENTER'

5.3   NAVIGATE

The Navigate menu allows to handle functions related to navigation.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER'

5.3.1 COORDINATE SYSTEM

Sets your preferred Coordinate System among ddd mm ss, ddd mm.mm,
ddd mm.mmm, <u>UTM</u>, <u>OSGB</u>, <u>TD</u>. The <u>default</u> setting is ddd mm.mmm.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +
   "COORDINATE SYSTEM" + 'ENTER'
   If TD has been selected a new menu is shown on the screen:
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +
   "COORDINATE SYSTEM" + 'ENTER' + "TD" + 'ENTER'

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

5.3.2 FIX DATUM

Selects the Fix <u>Datum</u> among 130 items. <u>WGS 1984</u> is the <u>default</u> Fix <u>Datum</u>.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +
   "FIX DATUM" + 'ENTER'

5.3.3 MAP DATUM

Selects the Map <u>Datum</u> among 130 items. <u>WGS 1984</u> is the <u>default</u> Map <u>Datum</u>.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "MAP DATUM" + 'ENTER'

5.3.4 MAP ORIENTATION AND ORIENTATION RESOLUTION

Selects the orientation of your chart according to your personal needs (see Par. 3.5.1.3 for more information). The Orientation Resolution is the resolution angle for the Map Orientation, range [5, 60] degrees. The <u>default</u> setting is 30°.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "ORIENT. RESOLUTION" + 'ENTER'

5.3.5 ROLL ROAD SCALE

Sets you preferred Rolling Road Scale among 0.2, 0.5, 1.0, 2.0, 4.0, 10.0. The <u>default</u> setting is 0.2.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "ROLL ROAD SCALE" + 'ENTER'

5.3.6 RESET PARTIAL AND TOTAL TRIP

Resets the partial and total distance traveled by the ship from the first activation of the chartplotter or starting from the values reset. The partial and total trip value is shown on the top of the Navigation Page.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "RESET PARTIAL TRIP" + 'ENTER'
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "RESET TOTAL TRIP" + 'ENTER'

5.4   COMPASS

The Compass menu sets the desired value for Bearing and Magnetic Variation, and selects the Calibration page.
➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "COMPASS" + 'ENTER'

5.4.1 BEARINGS

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

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "COMPASS" + 'ENTER' + "BEARINGS" + 'ENTER'

5.4.2 VARIATION

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

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "COMPASS" + 'ENTER' + "VARIATION" + 'ENTER'

5.4.3 CALIBRATION

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 <u>BRG</u> to the next <u>Waypoint</u> 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 <u>Waypoint</u>.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "COMPASS" + 'ENTER' + "CALIBRATION" + 'ENTER'

5.5 ALARMS

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

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER'

5.5.1 ARRIVAL ALARM

Disables (Off) or specifies the radius of a circle around the <u>Waypoint</u> of a <u>Route</u>: when your vessel reaches this circle the alarm sounds. The <u>default</u> setting is Off.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "ARRIVAL ALARM" + 'ENTER'

5.5.2 XTE ALARM

Disables (Off) or specifies the distance your <u>Cross Track Error</u> (<u>XTE</u>) can

vary before the sound of an alarm or disables the XTE Alarm (Off). The <u>default</u> setting is Off.
- ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "XTE ALARM" + 'ENTER'

5.5.3 ANCHOR ALARM

This function allows inserting of the limit of anchor dragging: beyond that, the alarm is activated. The chartplotter computes the distance between the current <u>GPS</u> position and the <u>GPS</u> 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. The <u>default</u> setting is Off.
- ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "ANCHOR ALARM" + 'ENTER'

5.5.4 DEPTH ALARM

Specifies the depth or disables the Depth Alarm. The <u>default</u> setting is Off.
- ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "DEPTH ALARM" + 'ENTER'

5.5.5 GROUNDING ALARM (GUARDIAN TECHNOLOGY)

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 <u>heading</u>. 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. 5.5.7).

The Grounding Alarm is switched Off by <u>default</u> after a Master Reset. Once the Grounding Alarm has been activated, a warning message is shown.
- ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "GROUNDING ALARM" + 'ENTER'

Note _____

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

5.5.6 GROUNDING ALARM RANGE

Allows setting the length of the sector to be detected among 0.25, 0.5, 1.0 Nm. The <u>default</u> 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. 5.5.7) to identify which dangerous objects have been currently detected.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "GROUNDING ALARM RANGE" + 'ENTER'

5.5.7 GROUNDING ALARM REPORT

Allows displaying the report of the dangerous objects currently detected.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "GROUNDING ALARM REPORT" + 'ENTER'

5.5.8 EXTERNAL ALARM

Allows triggering an external alarm device. You can enable (On) or disable (Off) the External Alarm. The <u>default</u> setting is On.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "EXTERNAL ALARM" + 'ENTER'

5.6 SIMULATION

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.

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SIMULATION" + 'ENTER'

5.6.1 ACTIVATE SIMULATION

Once the settings are selected, turn on the Simulator:

➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SIMULATION" + 'ENTER' + "ACTIVATE SIMULATION" + 'ENTER'

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

5.6.2 SPEED

To start the simulator you can insert the <u>Speed</u> value. Using the cursor key

select the preferred Speed and press 'ENTER'. The default setting is 01.0 Kts.
- ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SIMULATION" + 'ENTER' + "SPEED" + 'ENTER'

5.6.3 HEADING

To start the simulator you can insert the Heading value. Using the cursor key select the preferred Heading and press 'ENTER'. The default setting is 000° M.
- ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SIMULATION" + 'ENTER' + "HEADING" + 'ENTER'

5.6.4 DATE AND TIME

- ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SIMULATION" + 'ENTER' + "DATE" + 'ENTER'
- ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SIMULATION" + 'ENTER' + "TIME" + 'ENTER'

Using the cursor key insert the preferred Date and Time and press 'ENTER'.

5.6.5 CURSOR CONTROL

Enables (On)/disables (Off) the cursor control. The default setting is Off.
- ➤ 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SIMULATION" + 'ENTER' + "CURSOR CONTROL" + 'ENTER'

5.7   AIS MENU

AIS is an Automatic Identification System. It has been introduced to improve the safety of navigation by assisting in the efficient operation of ship-to ship, ship reporting and VTS applications. The system should enable operators to obtain information from the ship automatically, requiring a minimum of involvement of ship's personnel, and should have a high level of availability. AIS transponders installed on IMO vessels use VHF frequencies to:
- · Transmit details of their own vessel
- · Receive details from other vessels or navigation aids within VHF range.

Information being transmitted from vessels over 300 tons that, due to recent worldwide legislation, are required to fit Class "A" AIS transponders.

Connecting to the chart plotter an AIS receiver (please contact your local dealer), vessels with AIS transponder within VHF range are displayed on screen giving the skipper or navigator a visual interpretation of the data of nearby vessels.

This improves safety, and specifically for collision avoidance reasons.

5.7.1 AIS SYSTEM DEFINITIONS

- **Target**
  It is a vessel equipped with AIS. Information about the targets is being received by AIS Receiver and displayed on the screen.
- **CPA**
  Closest Point of Approach is the closest distance that will be achieved between your vessel and the tracked target, based on your vessel's speed and direction and the target's speed and direction.
- **CPA Limit**
  This is the distance from your vessel that a target may reach before a target is deemed a threat.
- **CPA Alarm**
  Occurs if CPA is less or equal to CPA Limit. This test is done for active targets only.
- **TCPA**
  Time to closest Point of Approach is the time remaining until the CPA will occur.
- **TCPA Limit**
  This is the time remaining before the CPA is reached.
- **TCPA Alarm**
  Occurs if TCPA is less or equal to TCPA Limit. This test is done for active targets only and if CPA value is less or equal to CPA Limit.
- **Radio Call Sign**
  International call sign assigned to vessel, often used on voice radio.
- **Name**
  Name of ship, 20 characters.
- **MMSI**
  Maritime Mobile Service Identity.
- **MMSI number**
  A unique 9 digit number that is assigned to a DSC radio station. It primarily registers the boat information in the U.S. Coast Guard's national distress database for use in emergency situations.
- **Active Target**
  Target located within the Activation Range. Active target is represented by oriented triangle with COG and Heading vectors. Rate of turn may also be displayed.

- **Dangerous Target**

  Target detected by CPA or TCPA Alarm. Dangerous target is Active Target by definition. For better visibility Dangerous Target symbol is flashing.
- **Sleeping Target**

  Target located outside the Activation Range. Sleeping target is represented by a small oriented triangle.
- **Lost Target**

  When the AIS info is not received from that vessel for 3.5 minutes. The presentation will be a flashing black triangle with a cross through.
- **Activation Range**

  Range around your boat where targets become active. AIS target become active within this range. Activation Range should be greater than CPA Limit by definition.

Note

A target is removed from the screen if data is not received for 10 minutes.
The maximum number of tracked targets is 100.
Depending on the scale the presentation of the targets change to remove clutter on the screen.
This information is updated every 3 seconds to 6 minutes depending on speed and rate of turn, enabling the track of the vessels in range to be plotted.

5.7.2 AIS MENU

To configure the chart plotter to receive AIS data, follow the procedure:
➢ 'MENU' + "AIS SETUP" + 'ENTER'

The AIS menu is shown on the screen, the items are described in the following paragraphs.

5.7.2.1 Display
➢ "MENU' + "AIS SETUP" + 'ENTER' + "DISPLAY" + 'ENTER'

Turns the display of AIS targets overlay on the cartography ON or OFF. The <u>default</u> setting is ON.

5.7.2.2 Activation range
➢ 'MENU' + "AIS SETUP" + 'ENTER' + "ACTIVATION RANGE" + 'ENTER'

Defines the range from the fix within which the AIS Target becomes active. The values allowed are from 0.1 to 20 Nm. The <u>default</u> setting is 5 Nm.

5.7.2.3 CPA Alarm
➢ 'MENU' + "AIS SETUP" + 'ENTER' + "CPA ALARM" + 'ENTER'

Turns ON or OFF the alarm. The <u>default</u> setting is ON.

5.7.2.4　　　CPA Limit
➤　'MENU' + "AIS SETUP" + 'ENTER' + "CPA LIMIT" + 'ENTER'
　The values allowed are from 0.1 to 10 Nm. The <u>default</u> setting is 0.5 Nm.

5.7.2.5　　　TCPA Alarm
➤　'MENU' + "AIS SETUP" + 'ENTER' + "TCPA ALARM" + 'ENTER'
　Turns ON or OFF the alarm. The <u>default</u> setting is ON.

5.7.2.6　　　TCPA Limit
➤　'MENU' + "AIS SETUP" + 'ENTER' + "TCPA LIMIT" + 'ENTER'
　The values allowed are from 1 to 30 min. The <u>default</u> setting is 10 min.

5.7.3 TO SET THE CHART PLOTTER FOR RECEIVING AIS
　　　Make sure that the AIS receiver is properly connected to the chart plotter.
The chart plotter reads the AIS NMEA message VMD, type 1, 2, 3 and 5.
　　　Select the used serial port and transmission speed by following the proce-
dure:
➤　'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +
　"PORT n INPUT" + 'ENTER' + "m" + 'ENTER'
　Where: n = Port 1/Port 2/Port 3/Port 4/Port 5
　　　　　m = NMEA-0183 4800-N81-N
　　　　　　　NMEA-0183 38400-N81-N
　according to the transmission speed of your AIS receiver.

5.7.4 QUICK INFO ON AIS TARGET
　　　By placing the cursor over a AIS target icon, the following information is
displayed:
- **Vessel Name**
- **MMSI number**
- **Radio Call Sign**
- **SOG**
- **COG**
- **CPA and TCPA values**

Note _____
The selected AIS target icon is surrounded by a square frame when user places the cursor over the icon

5.8   C-STAFF

The C-Staff functions are based on STAFF Concept ® (Satellite Tracking Aided Fleet Fishing). The STAFF Concept ® is designed for professional fishing purpose to allow monitoring the position of the vessels of a fleet from each vessel (the fleet may have until 20 vessels max).
➤   'MENU' + "C-STAFF" + 'ENTER'
     For more information see the specific User Manual.

5.9   C-WEATHER SERVICE

C-Weather Service is an innovative meteorological forecasting system with the ability to visualize the weather forecast, overlaying it on cartography. The weather data is held on C-MAP's weather server, which can be accessed via a C-COM modem connected to the chart plotter or by using the C-MAP personal Suite (or the DPS - Dealer Programming System) saving the weather data on a User C-CARD. The weather data are overlaid on a map page as layers. The Weather format data available are:

Data Type	Display
WIND (Speed & Dir)	— 0 ➡
WAVE (Height & Dir)	— 1 ➡
TEMPERATURE (C°)	18°
HUMIDITY (%)	30
VISIBILITY (m)	20
WEATHER TYPE: Sun	☼
WEATHER TYPE: Rain	☔
WEATHER TYPE: Fog	▬
WEATHER TYPE: Snow	❄
WEATHER TYPE: Clouds	☁
WEATHER TYPE: Partly Cloudy	⛅
WEATHER TYPE: Thunderstorm	⛈

Fig. 5.9 - Weather data package

5.9.1 C-WEATHER SERVICE MENU
     To select the menu:
➤   'MENU' + "C-WEATHER" + 'ENTER'
     The C-Weather menu is shown on the screen, the items are described in the following paragraphs.

5.9.1.1   Download
➤ "MENU' + "C-WEATHER" + 'ENTER' + "DOWNLOAD" + 'ENTER'

Allows to connect the software to the C-MAP weather server and to download C-MAP weather data directly via C-COM.

Select Country to Call

Allows the selection of the country to call. The whole telephone number set is automatically updated after every download.

SIM PIN

Allows inserting of the PIN of the SIM.

Download Area

Allows the weather download: a squared grey area, where the weather data will be downloaded, is centered on cursor position. See the following picture.

Area of coverage of downloaded data is located by default with its centre on the cursor position

Cursor is locked to the gray area. Moving the cursor also moves the gray area allowing locating it over the area where the user wants to download the Meteo forecast.

Indicates the LAT/LON position of the cursor
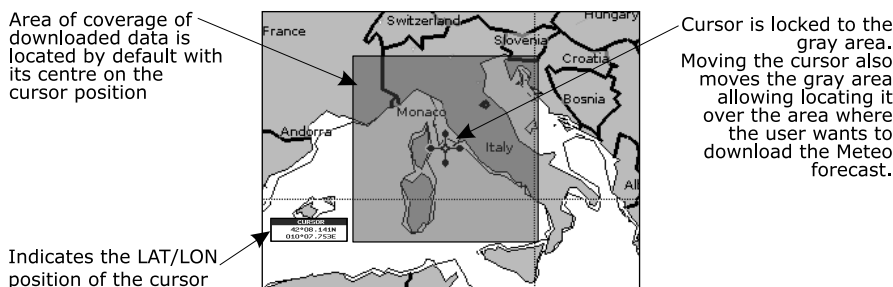
Fig.5.9.1.1 - Download Area

Press 'ENTER' to activate the C-Weather Download: the whole data package (see the previous "Weather data package" table) are downloaded. 'CLEAR' allows to interrupt the data download. At the end of the operation press 'CLEAR' to close the window.

5.9.1.2   Copy from USER C-CARD
➤ "MENU' + "C-WEATHER" + 'ENTER' + "COPY FROM USER C-CARD" + 'ENTER'
Allows the C-MAP WEATHER DATA loading from the User-CARD.

5.9.1.3   Weather Forecast
➤ "MENU' + "C-WEATHER" + 'ENTER' + "FORECAST" + 'ENTER'
Allows selecting the Layer of specific weather data to be displayed on the screen and to change date and time of the forecast preview.

The following functions are available:

- **Panning**
  Default usage of the cursor key is the normal panning function.
- **Zoom In/Out**
  Zoom in/out functions are allowed as usual by using 'ZOOM IN'/'ZOOM OUT'.
- **Set Date and Time**
  'ENTER' to modify date and time values.
- **Layer Selection**
  'PAGE' to cycle the weather layers.
- **Exit**
  'CLEAR' to close the weather prediction page.

5.9.1.4   Real Time View
➤ "MENU' + "C-WEATHER" + 'ENTER' + "REAL TIME VIEW" + 'ENTER'
   The following selections are available:

- **Real Time View On**
  The data is shown (the area of the download) at the current date and time (received from the GPS)
- **Real Time View Off**
  The Weather data is not displayed.

The layer displayed is the one selected into the previous menu item.

5.9.1.5   Type of Data
➤ "MENU' + "C-WEATHER" + 'ENTER' + "TYPE OF DATA" + 'ENTER'
   Allows selecting the type of data, see the previous Fig. 5.9.

5.10 FISH FINDER MENU

The chart plotter combined with the sonar performance of the Fish Finder is one of the most advanced marine navigation system available.

➤ 'MENU' + "FISH FINDER" + 'ENTER'
   For more information see the specific User Manual.

5.11 RADAR SETUP MENU

The Radar consists of a scanner unit which illuminates targets with microwave energy and then collects the echoes from those targets. The scanner unit includes the Radar antenna, transmitter, receiver and necessary electronics. The scanner unit is connected to a chart plotter equipped with software capable of displaying the Radar functions. To select the Radar menu, first select one of the four page related to the Radar:

➤ 'MENU' + "RADAR SETUP" + 'ENTER'

Once the Radar page is selected, access the Radar menu by pressing 'MENU'. For more information see the specific User Manual.

Note

The Radar display page is available only if the Radar is connected and powered On.

6

For the Technician

6.1 DIMENSIONS
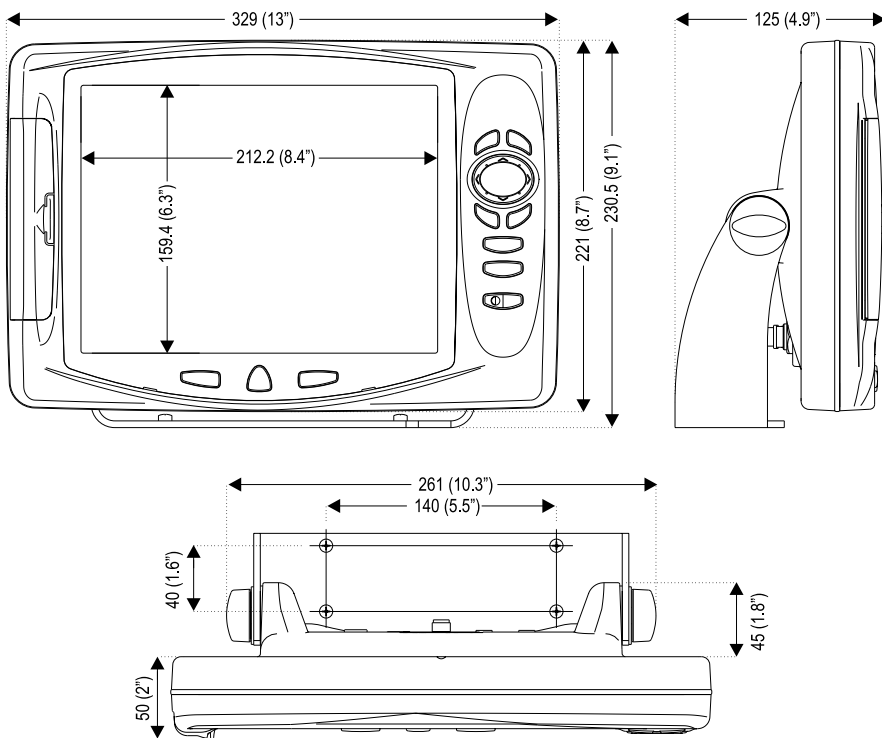
6.2 INSTALLATION AND REMOVING

6.3 EXTERNAL WIRING

ONLY for PLOTTER with VIDEO INPUT

CAM CONNECTORS
PIN-OUT (ON UNIT)

1=GND COMMON
2=POWER+ (10-35Vdc)
3=SIGNAL

SMART GPS
SENSOR

GPS ANTENNA

PIN	WIRE COLOR	FUNCTION
1	RED	POWER OUTPUT+ (10-35 Vdc)
2	GREEN	OUTPUT 3+
3	BROWN	INPUT 3+
4	NC	
5	NC	
6	BLACK/YELLOW/SHIELD	GND/SIGNAL RETURN

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

AUX-IN I/O CABLE

PIN	WIRE COLOR	FUNCTION
1	BLACK	GND COMMON
2	RED	POWER OUTPUT+ (10-35 Vdc)
3	WHITE	INPUT 4+
4	GREEN	INPUT 4-
5	GRAY	OUTPUT 5+
6	YELLOW	OUTPUT 4+
7	BROWN	INPUT 5+
8	BLUE	EXTERNAL ALARM OUTPUT+

POWER & I/O

PIN	WIRE COLOR	FUNCTION
1	BLACK	GND COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
3	WHITE	INPUT 1+
4	GREEN	INPUT 1-
5	GRAY	OUTPUT 2+
6	YELLOW	OUTPUT 1+
7	BROWN	INPUT 2+
8	BLUE	EXTERNAL ALARM OUTPUT+

6.4 TYPICAL CONNECTIONS - "POWER & I/O" Connector

6.4.1 GPS CONNECTIONS

POWER SUPPLY

SMART GPS SENSOR

POWER & I/O

POWER & I/O CABLE		
PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
3	WHITE	INPUT 1+
4	GREEN	INPUT 1-
6	YELLOW	OUTPUT 1+

GPS SENSOR CABLE	
WIRE COLOR	FUNCTION
RED	POWER OUTPUT+ (10-35 Vdc)
GREEN	GPS RX+
BROWN	GPS TX+
BLACK/YELLOW/SHIELD	GND COMMON

GPS on Port 1

POWER SUPPLY

SMART GPS SENSOR

POWER & I/O

POWER & I/O CABLE		
PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
5	GRAY	OUTPUT 2+
7	BROWN	INPUT 2+

GPS SENSOR CABLE	
WIRE COLOR	FUNCTION
RED	POWER OUTPUT+ (10-35 Vdc)
GREEN	GPS RX+
BROWN	GPS TX+
BLACK/YELLOW/SHIELD	GND COMMON

GPS on Port 2

SMART GPS SENSOR

GPS ANTENNA

GPS SENSOR CABLE		
PIN	WIRE COLOR	FUNCTION
1	RED	POWER OUTPUT+ (10-35 Vdc)
2	GREEN	GPS RX+
3	BROWN	GPS TX+
6	BLACK/YELLOW/SHIELD	GND COMMON

GPS on Port 3

6.4.2 AUTOPILOT CONNECTIONS

POWER SUPPLY

POWER & I/O

POWER & I/O CABLE		
PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
3	WHITE	INPUT 1+
4	GREEN	INPUT 1-
6	YELLOW	OUTPUT 1+

COMUNE

RX+

AUTOPILOT

Autopilot on Port 1

POWER & I/O CABLE

PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
5	GRAY	OUTPUT 2+
7	BROWN	INPUT 2+

POWER SUPPLY

COMUNE

RX+
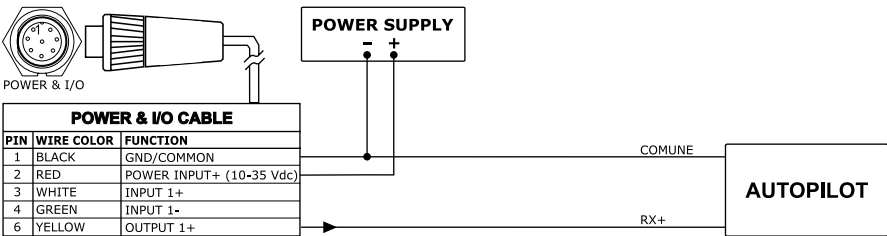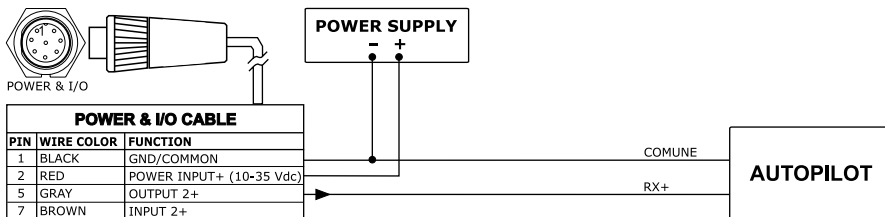
AUTOPILOT

Autopilot on Port 2

6.4.3 EXTERNAL NMEA CONNECTIONS

POWER & I/O CABLE

PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
3	WHITE	INPUT 1+
4	GREEN	INPUT 1-
6	YELLOW	OUTPUT 1+

POWER SUPPLY

COMMON

TX+

RX+

EXTERNAL NMEA DEVICE

External NMEA on Port 1

POWER & I/O CABLE

PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
5	GRAY	OUTPUT 2+
7	BROWN	INPUT 2+

POWER SUPPLY

COMMON

RX+

TX+

EXTERNAL NMEA DEVICE

External NMEA on Port 2

6.4.4 C-COM CONNECTION

POWER & I/O CONNECTOR

PIN	CABLE COLOR	FUNCTION
1	BLACK	GND COMMON
2	RED	PWR + (10-35 Vdc)
3	WHITE	Used by C-COM
4	GREEN	Used by C-COM
5	GRAY	OUTPUT3+
6	YELLOW	Used by C-COM
7	BROWN	INPUT3+
8	BLUE	OUTPUT EXTERNAL ALARM+

C-COM

6.4.5 EXTERNAL ALARM CONNECTION

POWER & I/O CONNECTOR		
PIN	WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
8	BLUE	EXTERNAL ALARM OUTPUT+ (OPEN COLLECTOR)

6.5 TROUBLESHOOTING

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

6.5.1 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. 6.6.1).

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).

6.5.2 QUICK REFERENCE GUIDE

It is avaible an help on line to explain as the chartplotter works:
➤ 'MENU' + "HELP" + 'ENTER'
Using 'ZOOM IN' and 'ZOOM OUT' select previous and next page respectly.

6.5.3 IF YOU NEED ASSISTANCE

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 <u>default</u> 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 <u>default</u> to factory settings. Before this step, you have the option of saving user <u>Marks</u>, <u>Track</u> history and <u>Routes</u> to a <u>User C-CARD</u> (this is an optional purchase from your dealer). To perform a RAM Clear see Par. 6.6.1.

If you still need assistance, call your local dealer, reporting the Software Release and Cartography information available in the About page.

➤ 'MENU' + "About..." + 'ENTER'

6.5.3.1   World Background Charts

The internal background charts can be updated to include the MAX A and B level charts which provide improved marine data, rivers, lakes, terrestrial data (major streets , highways , railways, etc...), Nav-Aids, depth areas, territorial water areas, etc... by reading them from a special data C-CARDs (contact your local dealer). All units must have the WorldWide Background upload function that is activated from the system.

Worldwide Background Update

The System Update menu is entered from the About page. To select this menu follow the procedure:

➤ Plug the special data C-CARD + 'MENU' + "About..." + 'ENTER' + 'MENU' + "Update Worldwide Charts" + 'ENTER'

6.6   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:
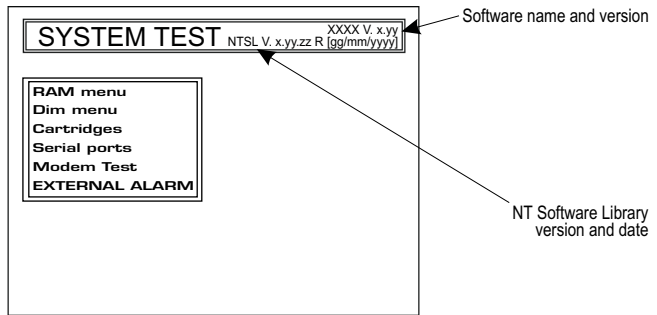
Fig. 6.6 - System Test

Use the cursor key 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.

6.6.1 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').

6.6.2 DIM MENU

To select the preferred value for contrast and backlight.

■ **Contrast**
Each time you pressed thecursor key 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.

6.6.3 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 the 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 User C-CARD 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.

6.6.4 SERIAL PORTS

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

- **Change Parameters**
  To change the parameters of the serial interface. This menu allows to select the **Port 1, 2, 3**, 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. Default settings are: Port = Port2, Baud Rate = 4800, Data Bits = 8, Parity = none, Stop Bits = 1.

- **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.

6.6.5 MODEM TEST

To check the Modem connections. Press 'ENTER' to select the preferred Port related to the connections made, to the Port that the Modem C-COM is connected.

6.6.6 EXTERNAL ALARM

To check if the External Alarm has been trasmetted.

A
Terms

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

■ **Advanced Mode**
The chartplotter can operate in two different modes: Basic Mode and Advanced Mode. In Advanced Mode it is possible to have more available functions, for example it is possible to handle Waypoints.

■ **AIS**
AIS is an Automatic Identification System. It has been introduced to improve the safety of navigation by assisting in the efficient operation of ship-to ship, ship reporting and VTS applications.

■ **Altitude**
Altitude of GPS Antenna on the medium sea level.

■ **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.

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

■ **Basic Mode**
The chartplotter can operate in two different modes: Basic Mode and Advanced Mode. In the first mode there is a restricted number of functions, and it is not possible to handle Waypoints, Marks, Events and A-B-C-D function.

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

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

■ **Buoys and Beacons**
Buoys and Beacons are used to indicate to mariners recommended or established routes, underwater dangers, restrictions and regulations. They can be lighted or not and - for the color chartplotter - are coloured according to their international code.

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

- **Chain**

Selects the preferred chain. The <u>Loran</u> 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.

- **Chart Lock**

When Chart Lock is On, the available zoom scales are only the ones containing cartographic data. Instead when Chart Lock is Off, it is possible to zoom down into zoom scales not covered by cartographic data after the last available zoom scale covered by cartographic data.

Warning

When an empty level is entered, the message "No cartographic coverage" is shown on a window in a corner of the map display. The warning message is always displayed as long as the current zoom has no data coverage.

- **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.

- **Course Vector**

The Course Vector is a graphical indication of the direction in which the Vessel is heading. The Course Vector origin is the vessel's position so the time line movement is synchronized with the vessels Icon. Course Vector course is given by the value of COG (Course Over Ground) and its length is proportional to the SOG (Speed Over Ground).

- **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 <u>Waypoint</u>.

- **Cultural Features**

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

- **Datum**

The <u>Latitude</u> and <u>Longitude</u> 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 <u>Lat/Lon</u> 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 Area Range**

The sea area that is **beyond** the selected range is filled by an uniform white color, the sea area that is **inside** the selected range is filled by ordinary multicolor shading. The Spot Soundings and Depth Contours are displayed on the range only.

- **Depth Lines**

Imaginary lines connecting points of equal water depth.

- **DGPS = Differential GPS**

Provides even greater positioning accuracy than standard <u>GPS</u>.

- **Event**

<u>User Point</u> that refers to the ship's position. It is simply a way of marking where the boat is.

- **File**

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

- **Goto**

Sets a particular mark on the map, called <u>Target</u> or Destination.

- **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 = Heading**

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

- **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 this operating mode (called also <u>Navigate</u> mode) all operations refer to the ship's position.

- **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 <u>Latitude</u> and <u>Longitude</u> coordinates to define a position on earth.

- **LOG**

<u>Speed</u> 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 <u>Chains</u> 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.

- **Natural Features**

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

- **Navigate (mode)**

Operating mode (called also <u>Home</u> 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.

■ **Pictures and Diagrams**
The MAX data format allows assigning one or more image to any cartographic object. These *Pictures* are typically used to facilitate the identification of cartographic objects or places around the map: they can be the landscape layout nearby a harbor, the shape of a bridge or of a buoy etc.
On some objects, such as bridges, the image associated can represent the *Diagram* representing the shape of the objects and the various characteristics (length, heigh, type of bridge etc.).
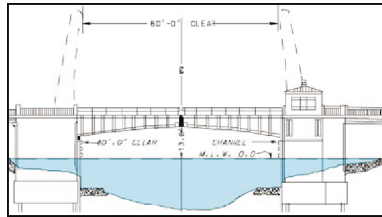
Fig.A.1 - Pictures and Diagrams

■ **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.

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

■ **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.

■ **Spot Sounding**
Depth of the water in a specific and charted position

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

■ **Target**
In order to tag on the chart the point, towards which the ship is Heading, you can use a special mark, called Target. When the Target is placed, all navigation data are referred to this Target.

■ **TD = Time Difference**

Loran 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.

■ **Tide & Currents**

The new worldwide database with tidal stream information is now available with MAX C-CARDs. When data/time is available, Tidal stream arrows are shown on the charts, indicating the direction and strength of the Tide.
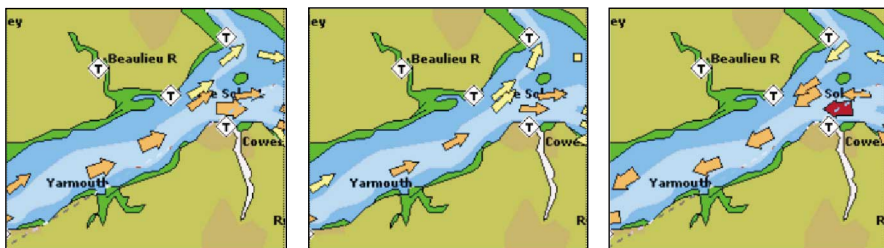
Fig. A.1a - Tides & Currents

If no data/time is available from the GPS or the chart plotter is not in Simulation mode, the icon on the map is generic one.
The colour of the arrow denotes the strength of the current as follows:

0 to 0.1 kn	-	■	Yellow
0.2 to 1.0 kn	-		Yellow
1.1 to 2.0 kn	-		Orange
2.1 to 3.0 kn	-		Orange
3.1 to 9.9 kn	-		Red

Fig. A.1b - Tides & Currents table

When the chart plotter receives a valid position fix, the Tide icons are shown on the charts on the basis of the current date and time: the screen displays and changes arrows as date/time changes.

■ **Time Line**

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

- **Tracks & Routes**

Recommended and established routes for ships at sea, including traffic separation schemes, deep water routes, ...

- **TRN = Turning**

The difference between COG and BRG. If COG is 80° and BRG is 75°, TRN is 5° Left.

- **TTG = Time To Go**

The estimated time needed to reach your destination, based on your current speed and the distance to destination.

- **User Point**

Place on the chart identified by its coordinates and displayed on the screen with a reference symbol (see Mark, Waypoint and Event).

- **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.

- **VAD = Value Added Data**

The Value Added Data (VAD) is a collection of additional cartographic objects which are not present on the original paper chart (from which the electronic chart derives). These objects have been obtained from other sources (that C-MAP believes to be reliable) and then merged to the electronic charts in order to provide more information useful for the navigation.

VAD object can be any cartographic objects and it can be distinguished from the official-chart-objects from the Quick Info. A dedicated icon is shown on the Quick Info window to indicate that the object queried is a VAD.

The same icon is also shown on the Full Info page and in addition the extended text Value Added Data is shown on the details of the VAD object.

- **WAAS = Wide Area Augmentation System**

The Federal Aviation Administration (FAA), in cooperation with other DOT organizations and DOD, is augmenting the GPS/SPS 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 Route plan .

- **WGS-84 = World Geodetic System 1984**

Coordinates System or Datum 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

Smart DGPS WAAS Receiver

B.1   INSTALLING

Choose a location for the antenna that has a clear view of the sky. Ensure there are no major obstructions or fixtures in the immediate proximity to the antenna. The antenna relies on direct "line of sight" satellite reception. If you are unsure that the chosen location is suitable it may be advisable to mount the antenna in a temporary manner to verify correct operation. The thread used on the antenna (1 inch, 14 TPI) is an industry standard thread used on a wide range of mounting brackets, including the swivel joints commonly used for angled surfaces. However due to the manufacturing process of these mounting brackets you may see that there is some slop when tightening down the antenna to the bracket. This is of no concern however as the antenna must be tightened until the antenna stops rotating on the antenna mounting bracket.
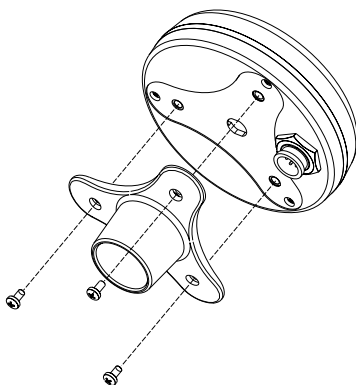
Fig.B.1 - Installing GPS Antenna (I)

The antenna design also allows for easy flush mounting.

1. Apply the adhesive mounting template sheet in the area that was verified to receive satellite signal well.
2. Then, following template instruction, drill a 0,95 inch (24 mm) hole and three 0,155 inch (4 mm) holes.

CUTTING TEMPLATE

Ø 4 mm [0.155"]

Ø 24 mm [0.95"]

Ø 4 mm [0.155"]

Ø 4 mm [0.155"]

GPS OVERALL SHAPE
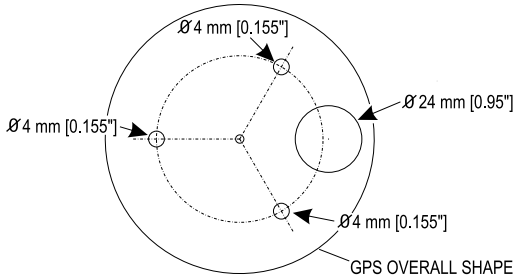
Fig. B.1a - Installing GPS Antenna (II)

3. Remove the template and let the cable go through the central hole.
4. Apply a small coat of RTV to the underside of the antenna.
5. Place the antenna and then screw it with the three M3 screws.
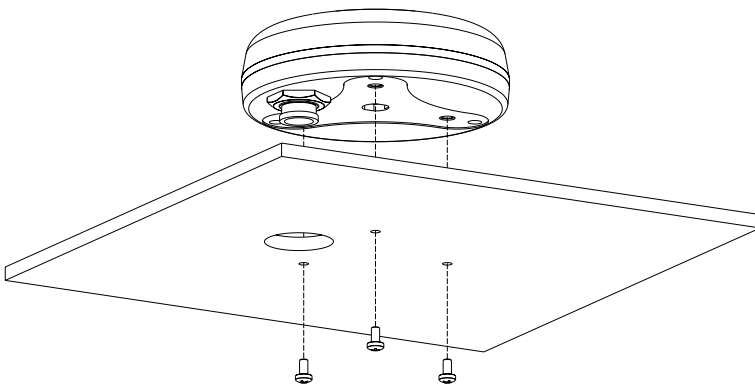
Fig. B.1b - Installing GPS Antenna (III)

User Manual
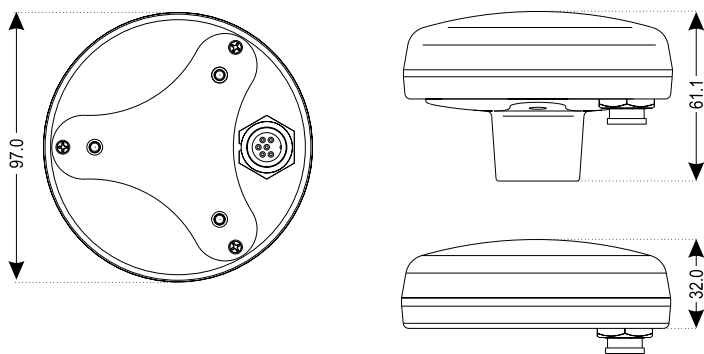
B.2   DIMENSIONS

Fig.B.2 - GPS Antenna Dimensions

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