



COMPACT X7

Sunlight Readable Display Color Chart Plotter with Internal GPS Receiver
CODE: S4igLZ7cx_0ww 1600iC93/060509

SKY X7

Sunlight Readable Display Color Chart Plotter with External GPS Receiver
CODE: CODE: S4egLZ7cx_0ww 1600iC93/060509

COMPACT X7 FISH

Sunlight Readable Display Color Chart Plotter with Internal GPS Receiver and Fish Finder
CODE: S4igLZ7cx_0ww 1600iC93/060509

SKY X7 FISH

Sunlight Readable Display Color Chart Plotter with External GPS Receiver and internal Fish Finder
CODE: S4egLZ7cx_0ww 1600iC93/060509

USER MANUAL



Warning!

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

For this reason we 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 chart plotter is not built water proof. Please give attention to avoid water intrusion into the chart plotter. Water damage is not covered by the warranty.
- Extensive exposure to heat may result in damage to the chart plotter.
- Connection to the power source with reversed polarity will damage the chartplotter severely. This damage may not be covered by the warranty.
- The chart plotter contains dangerous high voltage circuits which only experienced technicians can handle.
- The **C-MAP By JEPPESEN 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 chart 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.

Warning on Serial Ports Connection

Please be aware that the serial ports are not opto-isolated and then the external device is electrically connected to the chart plotter. This allows the connection of high speed devices, like Fish Finder. If you are connecting a NMEA0183 device and you would like to isolate it from the chart plotter, you have to add the opto-isolator externally.

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 chart plotter!

If you have not used a position-finding instrument before and intend to use your chart plotter 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 chart plotter. 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 chart plotter.

1.1 CONVENTIONS

Throughout this user manual, the 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 to select the Basic Settings menu, press 'ENTER', using the cursor key to select the Input/Output menu and then press 'ENTER'.

Terms and functions underlined, for example Target, are explained in the Appendix "Terms".

1.2 FEATURES

The chart plotter is a computer specifically designed for nautical use but, more

precisely, to ease and speed up all calculations, which so far have been done manually. If connected to a positioning instrument, the chart plotter displays the current position, the speed, and the heading of the boat and its Track. The user information like Waypoints, Marks and Tracks can then be stored on a User C-CARD and can be recalled at any time. On the screen are shown navigation data and cartographic information obtained from electronic charts of **C-MAP By JEPPESEN** C-CARD.

When the package containing the chart plotter is first opened, please check it for the following contents (if any parts are missing contact the dealer the chart plotter was purchased from):

- External quick disconnect bracket
- Chart Plotter's protective cover
- Fuse 2 Amp. + fuseholder SKY/COMPACT X7
- Fuse 3.15 Amp. + fuseholder SKY/COMPACT X7 FISH
- Flush mounting kit SKY X7 & SKY/COMPACT X7 FISH
- Smart DGPS WAAS Receiver with cable 15 mt/45 feet SKY X7 & SKY/COMPACT X7 FISH
- User Manual

C-MAP By JEPPESEN C-CARD (cartography data cards) are available through your local dealer. For additional information on **C-MAP By JEPPESEN** Cartography visit web site at www.jeppeesen.com.

1.2.1 SPECIFICATIONS

1.2.1.1 Main Characteristics

Recordable Individual points

- User Points : 500
- Type of User Points : 16

Routes

- Routes : 25
- Max User Points per Route : 100

Tracking

- Tracks : 2
- Points per Track : 1000
- 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

- Worldwide Background
- Detailed Map by using **C-MAP By JEPPESEN** C-CARD
- "C-MAP By JEPPESEN" MAX electronic charts, object-oriented chart system with enhanced functionality including:

- Guardian alarm, Safety Status Bar, Safety route check
- Perspective view
- Satellite image coverage
- Turbo and Smooth Zoom
- Multilanguage
- Enhanced Port information database
- Tides & Currents data
- Photos & Diagrams
- Automatic information on all chart objects
- Search function for ports, tidal information, service facilities
- Coordinate System (ddd mm ss, ddd mm.mm, ddd mm.mmm, UTM, OSGB, TD)
- Map Datum
- Display Mode (Full, Simple, Fishing, Low, Custom)
- Marine Settings
 - Names, Name Tags, Nav Aids & Light Sectors, Attention Areas, Tides & Currents, Seabed Type, Ports & Services, Tracks & Routes
- Depth Settings
 - Depth Range Min/Max
- Land Settings
 - Land Elevations, Land Elevation Values, Roads, Points Of Interest
- Chart Settings
 - Lat/Lon Grid, Chart Boundaries, Value-Added Data, Chart Lock
- Underwater Objects Settings
 - Underwater Objects Limit, Rocks, Obstructions, Diffusers, Wrecks

Map Settings

- 3D View (Perspective View)
- Palette
- Map Orientation (North, Head, Course)
- Zoom Type
- Fonts & Symbols
- Dynamic Nav-Aids
- Mixing Levels
- Safety Status Bar
- Satellite Imagery
- Currents Prediction
- Chart Language

Fix Functions

- Fix Correction (manual and automatic)
- Position Filter

- Speed Filter
- Dead Reckoning
- Screen Amplifier
- 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
- EBL-VRM Function

Report Pages

- Depth Graph Page
- GPS Status Page
- Navigation Data Page
- 3D Navigation Data Page
- Fish Finder full screen Page (*)
- Fish Finder Dual Frequency Page (*)
- Fish Finder Zoom Page (*)
- Chart - Fish Finder Page (*)
- Wind Data Page
- About Page

Special Functions

- C-Link, C-Weather Service and C-Staff
- AIS (Automatic Identification System)
- DSC (Digital Selective Calling)
- MOBILARM System
- Fish Finder capability(*)
- Automatic Info
- Find (Nearest Services, Tide Stations, Wrecks, Obstructions, Port By Name, Port By Distance, Lakes Info, Lakes By Name, Points Of Interest)
- 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, Simulation On/Off

Auxiliary Memory

- User C-CARD 1/2/4 MB

Interface

- 2 ports I/O (FOR COMPACT X7)
- 3 ports I/O (FOR SKY X7)

Note* _____ **SOLO PER SKY & COMPACT X7**

If connected to Fish Finder Black Box.

1.2.1.2 Physical Characteristics FOR SKY & COMPACT X7

Chart plotter size (inch/mm)

- see Par. 7.1 for the related picture

Weight

- 900 g

LCD Display

- Sun Light Viewable LCD (*active area 5.6"*)
- Resolution: 320 x 240 pixels

Power consumption

- 7.5 Watt, 10–35 Volt DC

Operating Temperature Range

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

Memory

- Non volatile

Keyboard

- Backlighted, silicon rubber

1.2.1.3 Physical Characteristics FOR SKY & COMPACT X7 FISH

Chart plotter size (inch/mm)

- see Par. 7.1 for the related picture

Weight

- 1100 g

LCD Display

- Sun Light Viewable LCD (*active area 5.6"*)
- Resolution: 320 x 240 pixels

Power consumption

- 12W average; 27W max peak

Power supply

- 10 - 35 Volt dc

Operating Temperature Range

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

Memory

- Non volatile

Keyboard

- Backlighted, silicon rubber

FF Module 600W-50-200KHz Technical Specifications

- Power Output : 600W (4800W_{pp}), 50/200KHz Dual Frequency
- Max Depth : 213m (700Ft) at 200kHz, 457m(1500Ft) at 50kHz
- Automatic Recognition of the AIRMAR "X-DUCER ID" transducers for best performance
- Advanced Digital Signal Processing
- Speed & Temperature Sensor (if available on transducer)
- Alarms (shallow water, depth, Fish, temp)
- Trip Log, Fish Symbols
- STC, Interference Rejection, Automatic noise reduction
- A-Scope, White Line, Zoom x2/x4
- Auto range/gain/frequency/shift/ping rate

1.3 BASICS

The chart plotter is controlled by using 13 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.

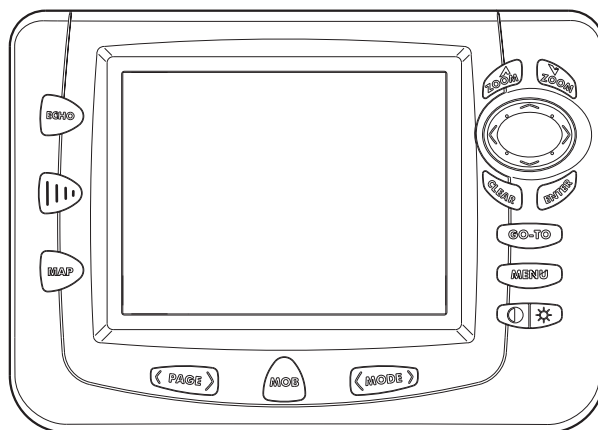


Fig. 1.3 - The chart plotter

2

Before You Begin

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

2.1 THE KEYBOARD

The  'CONTRAST'/'BACKLIGHT'/'POWER' key

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

The  '<MODE>' key

Press '<MODE>' to select Charting or Navigation (Home).

Nota

If the "Selectable Nav 3D" item in the Navigation menu (see Par. 5.3) is set, by pressing '<MODE>' it is possible to select the following modes: Charting, Navigation (Home), Navigation (Home) in 3D, Charting in 3D. Any time the key is pressed, a message describing the newly selected mode is shown on the center of the screen for about 2 seconds. Also it is possible to select the 3D mode, or Perspective View, from menu, see Par. 3.5.1.1.

The key

Press 'MOB' to set MOB (Man OverBoard). When MOB is activated, press 'MOB' to delete it.

The key

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

The key

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

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 Navigation (Home) mode, it allows to exit from Navigation mode.

The and keys

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

The key

Press 'ECHO' to cycle among the Fish Finder pages. If Fish Finder* is connected and the proper driver is set in the Input/Output menu, the Fish Finder page is shown. If no Fish Finder is connected, a warning message is shown.

From Fish Finder page, press 'ECHO' for 1 second to open the Fish Finder Settings Menu.

Note _____ ONLY FOR SKY & COMPACT X7 When Fish Finder or Radar is connected, otherwise the chart plotter emits three beeps. Refer to the Fish Finder or Radar User Manual for more information.*

The key

Press 'MAP' to cycle among the Chart pages. Press 'MAP' for 1 second to open the Map Menu.

The 'FUNCTION' key

The 'FUNCTION' key can be customized to have a quick access to some functions. Pressing and holding down 'FUNCTION' shows a pop-up window that contains all possible functions assignable to the key. Move the cursor key up/down to place the selector on the preferred item; move the cursor key to the right or press 'ENTER' to set the selected item; move the cursor key to the left or press 'CLEAR' to close the pop-up window. The possible choices are:

'WIND'	select Wind pages
'MARK'	place Mark
'EVENT'	place Event
'WAYPOINT'	place Waypoint
'A-B-C-D'	place A, B, C, D points
'EBL-VRM'	place EBL and VRM
'C-WEATHER'	shows C-Weather Forecast mode

Press and release 'FUNCTION' executes the function that was assigned.

Note

The selections Mark, Event, Waypoint and EBL/VRM are available even if Advanced Functions is Off.

2.2 TURNING THE CHART PLOTTER ON AND OFF

Before powering On the chart plotter, check for the correct voltage (10-35 volt dc, see Par. 6.3) and the correct connections with the positioning instrument (see Par. 2.5).

2.2.1 TURNING ON

Press and hold the right side of 'POWER' for 1 second. The chart plotter 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 chart plotter is only an aid to navigation, and should be used with appropriate prudence. The electronic charts are not intended to substitute for the official charts. 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 KEYPAD 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 low temperatures the CCFL backlight may not glow properly. Allow a few minutes to warm up.

2.4 SELECTING THE USER INTERFACE LANGUAGE

It is possible to set the language to display menus, data pages, warning/alarm messages, full/quick info, list of objects found by find/nearest function, and on charts (such as place's names, buoy's names and so on). The default setting is Italian.

To select the language you want:

- **'MENU' + "BASIC SETTINGS" + 'ENTER' + "LANGUAGE" + 'ENTER'**

Choose the language you prefer and press 'ENTER' to confirm.

Note

If the selected language is not available on cartographic data, English language is used instead.

WARNING !!!

*If you have accidentally selected an incomprehensible language, and you don't be able to reselect your language (the above procedure is not of help to you), follow this procedure: press **'MENU'**, move the cursor to highlight the third selection (starting from the top) which corresponds to the Basic Settings menu and press **'ENTER'**. Then a window appears with "Language" message, press **'ENTER'**; now select your language and press **'ENTER'** again. Anyway if you in trouble, see Chapter "System Test" for a RAM Clear operation: the chart plotter will also return all selections, in particular language, to original default values.*

2.5 EXTERNAL CONNECTIONS

2.5.1 GPS CONNECTION FOR SKY X7 & SKY X7 FISH

Connect the GPS : see the picture in Fig. 2.5.1 e Fig. 2.5.1a.

Control the input setting following the procedure:

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 1/2/3 INPUT" + 'ENTER' + "NMEA-4800-N81-N" + 'ENTER'

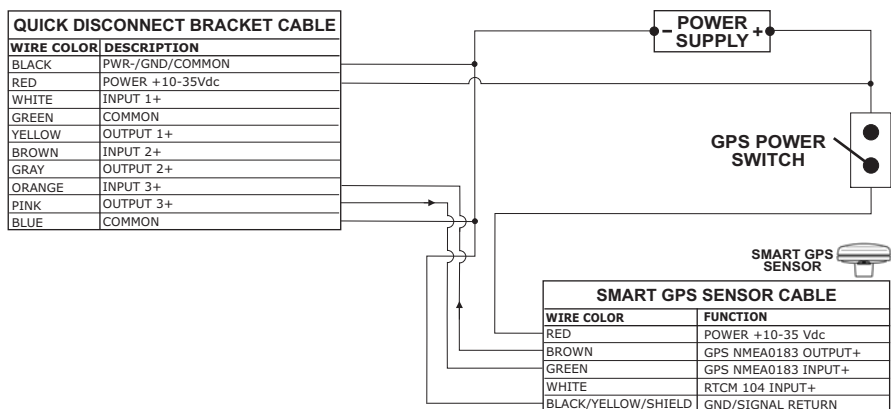


Fig. 2.5.1 - GPS Connection on Port 3 FOR SKY X7

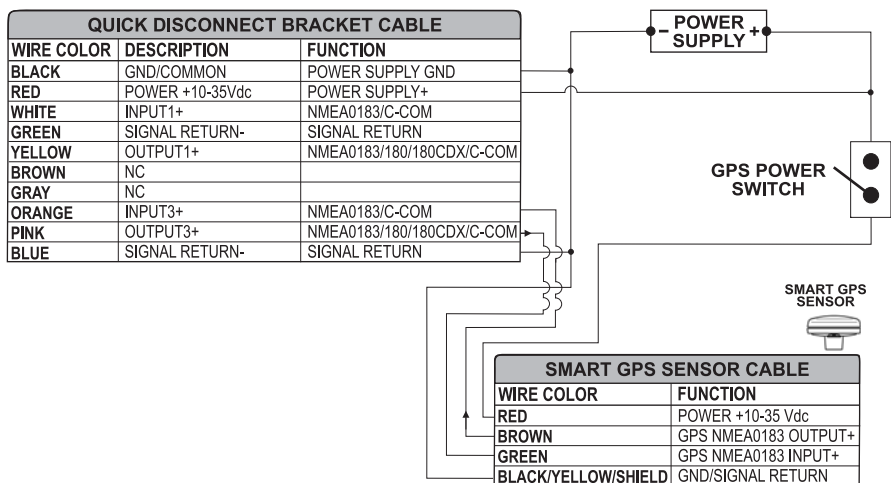


Fig. 2.5.1a - GPS Connection on Port 1 PER SKY X7 FISH

2.5.2 AUTOPILOT CONNECTION

To connect the Autopilot see the following picture:

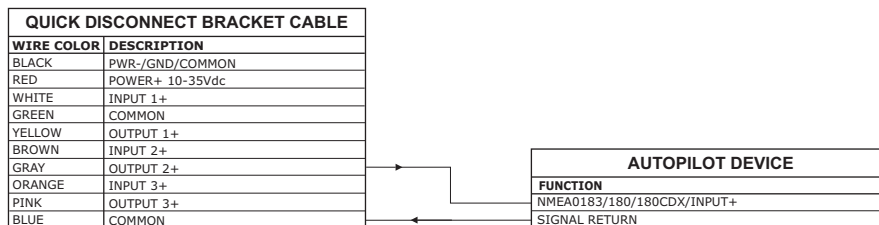


Fig. 2.5.2 - Autopilot Connections on Port 2 PER SKY & COMPACT X7

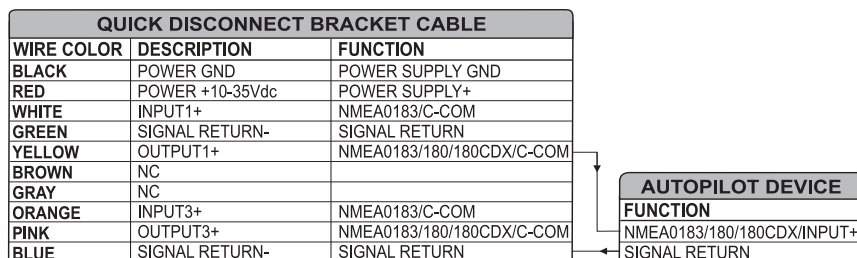


Fig. 2.5.2a - Autopilot Connections on Port 1 FOR SKY X7 FISH

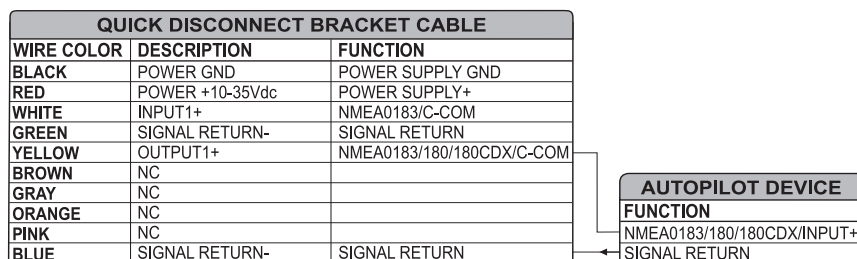


Fig. 2.5.2b - Autopilot Connections on Port 1 FOR COMPACT X7 FISH

To choose your preferred setting follow the procedure:

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 1/2/3 OUTPUT" + 'ENTER'

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

2.5.3 EXTERNAL NMEA CONNECTION

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

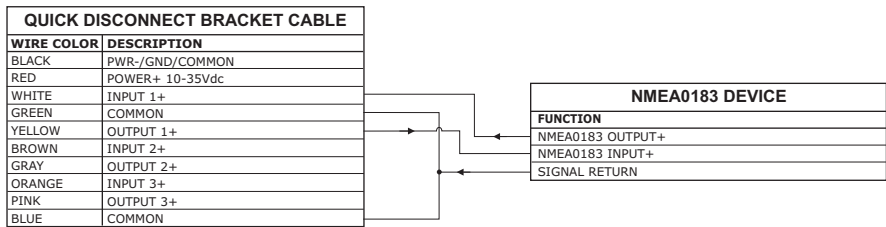


Fig. 2.5.3 - External NMEA Connections on Port 1 FOR SKY & COMPACT X7

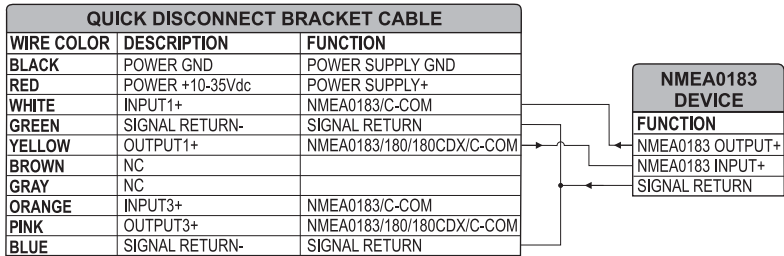


Fig. 2.5.3a - External NMEA Connections on Port 1 FOR SKY X7 FISH

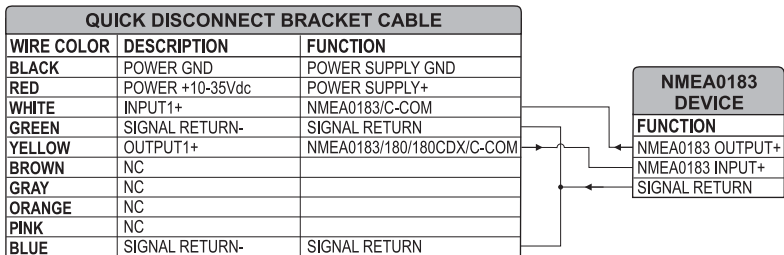


Fig. 2.5.3b - External NMEA Connections on Port 1 FOR COMPACT X7 FISH

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 default setting is 4800-N81-N) and press 'ENTER'.

2.5.4 C-COM GSM PLUS CONNECTION

To connect the modem C-COM to the chart plotter with quick disconnect bracket follow the procedure:

1. Cut the C-COM cable about 5 cm from the "T" connector:

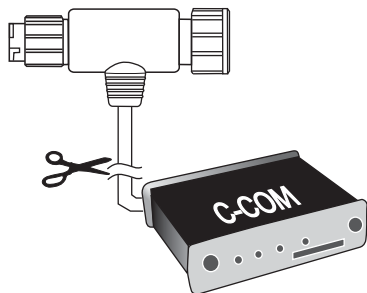


Fig. 2.5.4 - C-COM cable

2. Connect the wires to the quick disconnect bracket cable as follows:

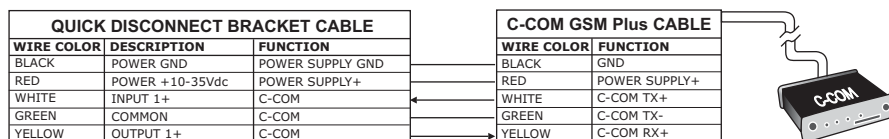


Fig. 2.5.4a - Connection for the Port 1

Note

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

3. Set the C-COM for Port 1 as follows:

- 'MENU' + 'BASIC SETTINGS' + 'ENTER' + 'INPUT/OUTPUT' + 'ENTER' + 'PORT 1 INPUT' + 'ENTER' + 'C-COM' + 'ENTER'

The C-COM can be connected also to the Port 2 and 3, in this case select the format on the used port.

2.6 ADDITIONAL C-CARDS

The chart plotter uses two types of C-MAP By JEPPESEN 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.

Note

During normal operations the C-CARD should not be removed since the chart plotter may lock up.

2.6.1 INSERTING C-CARD

Hold the C-CARD by the short inclined side so that you can see the C-MAP label.

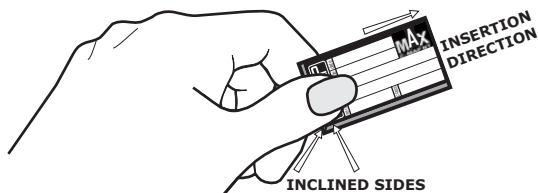


Fig. 2.6.1 - Inserting C-CARD (I)

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



Fig. 2.6.1a - Inserting C-CARD (II)

2.6.2 REMOVING C-CARD

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



Fig. 2.6.2 - Removing C-CARD

Note

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

2.7 MENU OPTIONS

You may select how the chart plotter displays primary information (such as how time is displayed) from the main Menu. Refer to Chapter 5 for more information.

- 'MENU'

2.8 DATA ENTRY

Information is keyed into the chart plotter when editing a Waypoint, entering a Route or using the Fix Correction 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 chart plotter, you must do the following things:

1) Your chart plotter 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 2.6) and inserting the C-CARD for navigating in area you wish (see Par. 2.7).

3) You must have Power On to the chart plotter and adjust the brightness and contrast of the display (see Par. 2.2 and 2.3).

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

3.1 SCREEN DISPLAY CONFIGURATION

Use '<PAGE>' to select the desired page, by showing the next or the previous page as the relative key is pressed.

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:

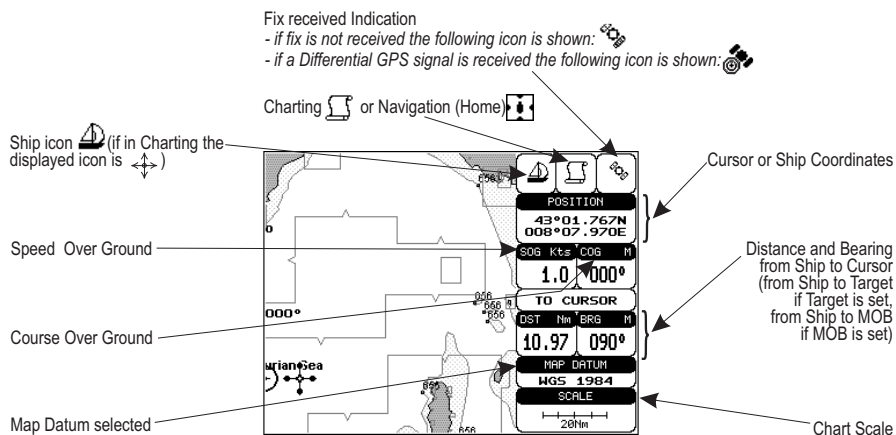


Fig. 3.1.1 - Charts and text area page

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

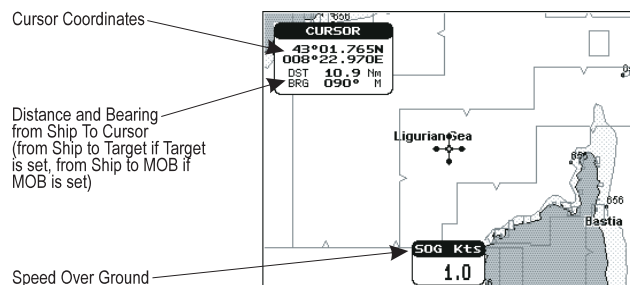


Fig. 3.1.1a - Charts and text windows

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

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

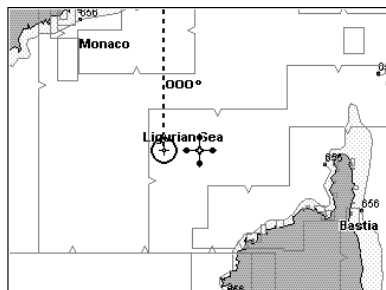


Fig. 3.1.1b - Full charts

3.1.2 THE DEPTH GRAPH PAGES

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

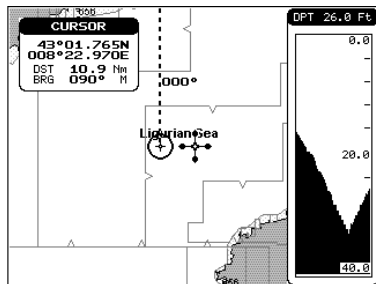


Fig. 3.1.2 - Example of Depth Graph 1/3 of the screen

or Depth graph displayed on 1/2 of the screen:

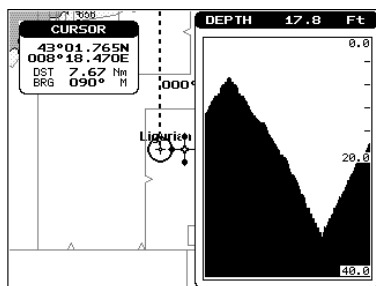


Fig. 3.1.2a - Example of Depth Graph 1/2 of the screen

3.1.3 THE GPS DATA PAGE

The GPS Data page shows in graphic mode GPS data.

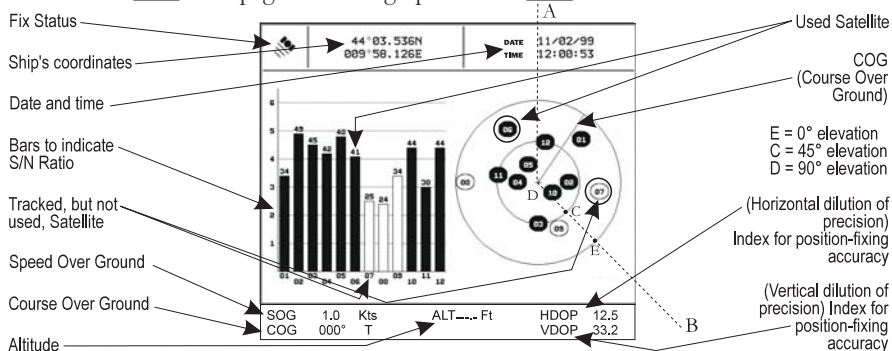


Fig. 3.1.3 - Example of GPS Data page

On the right side of the screen (see Fig. 3.1.3), there is a polar representation of the azimuth 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 (SNR). 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, Altitude, VDOP, HDOP, SOG and COG are shown in the page.

3.1.4 THE NAVIGATION DATA PAGE

The Navigation Data page shows information about speed (SOG) and course (COG) of the ship, status of the received signal, ship's coordinate and other general information.

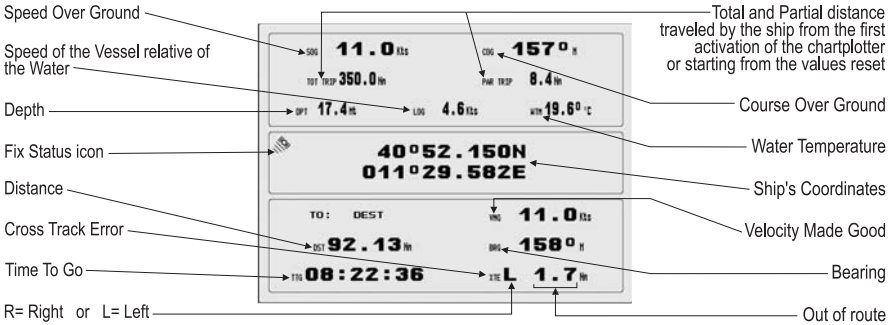


Fig. 3.1.4 - Example of Navigation Data Page

3.1.5 THE GRAPHIC DATA (ROLLING ROAD) PAGE

The Graphic Data page shows in graphic mode navigation data.

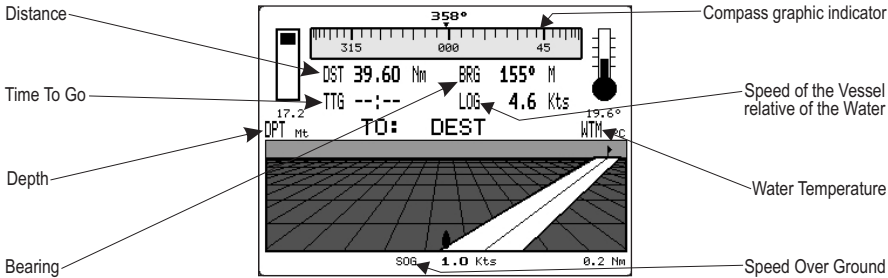


Fig. 3.1.5 - Example of Graphic Data Page

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.

SPEED:	Kts	HEAD:	M
4.6		359°	
TWS:	Kph	TWA:	M
8.6		025°	
AWS:	Kph	AWA:	M
10.3		021°	
DESTINATION			
TO:	DEST		
DST 39.63	Nm	BRG 155°	M
XTE L 0.1	Nm	TTG --:--	

Fig. 3.1.6 - Example of Wind Data page

Note

Press 'WIND' to select the Wind Data page (if 'FUNCTION' is set as 'WIND' - see Par. 2.1)

3.1.7 FISH FINDER PAGES

When the Fish Finder is internal (FOR SKY X7 FISH & COMPACT X7 FISH) or when the Fish Finder Black Box is connected (FOR SKY X7 & COMPACT X7) the following pages are available too:

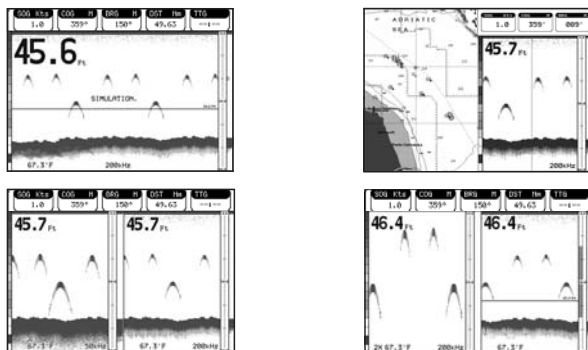


Fig. 3.1.7 - Fish Finder Pages

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) or sets time as : 2, 10, 30 min, 1, 2 hours, Infinite. The default 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 default setting is On.

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "SCREEN AMPLIFIER" + 'ENTER'

3.2.3 ADVANCED FUNCTIONS

The chart plotter can operate in two different modes: Advanced Mode and Basic Mode. In Advanced Mode it is possible to have more available functions, otherwise in Basic Mode there is a restricted number of functions (see Chapter 4). When Advanced Functions is On the chart plotter works in Advanced Mode, otherwise when it is Off the chart plotter works in Basic Mode. The default setting is Off.

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "ADVANCED FUNCTIONS" + 'ENTER'

3.2.4 USER POINTS

Turns On/Off/Icon the displaying of the User Point Name. The default setting is On.

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER'

3.2.5 DEPTH WINDOW

Turns On/Off the displaying of the Depth Window on the screen. The default 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 GPS Antenna on the medium sea level).

Speed: Kts(knots)/Mph(miles per hour)/Kph(chilometres per hour). The default setting is Kts.

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "SPEED" + 'ENTER'

Distance: Nm(Nautical Miles)/Sm(statute miles)/Km(chilometres). The default setting is Nm.

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "DISTANCE" + 'ENTER'

Depth: Ft(Feet)/FM(Fathoms)/Mt(Meters). The default setting is Mt.

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "DEPTH" + 'ENTER'

Altitude: Ft(Feet)/FL(Flight Level)/Mt(Meters). The default setting is Mt.

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "ALTITUDE" + 'ENTER'

Temperature: °C/°F. The default 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 default setting is International. When selected it affects Lights, Signals, Buoys & Beacons display.

- **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

WARNING !!!

After every software upgrade the RAM is cleared and the chart plotter re starts with the usual default settings. Please go to the Input/output menu and set the proper input format once again.

3.2.8.1 Port 1/Port 2/Port 3 Input

Sets or disables the format for the navigation data input serial Port1/2/3. The default setting is NMEA-0183 4800-N81-N. For example to set the Port 2 as NMEA-0183

(4800 Baud Rate, Parity None, 8 Bits Number, 1 Stop Bit and Normal Polarity) you must select:

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 2 INPUT" + 'ENTER' + "NMEA-0183 4800-N81-N" + 'ENTER'

Note

The option C-COM defines on which Port (both Input and Output) the C-COM modem is connected. It is important to remark that this setting affects the Input and the Output of the selected Port. C-COM can only be set on one Port at time. If C-COM was already assigned to a Port and the user tries to set the C-COM to another Port, the chart plotter will show a message that warns the user about the current settings and asks if the new settings must overwrite the previous ones.

3.2.8.2 Port 1/Port 2/Port 3 Output

Sets or disables the output interface. The default setting is NMEA-0183 4800-N81-N. For example to set the Port 2 as NMEA-0180 you must select:

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT 2 OUTPUT" + 'ENTER' + "NMEA-0180" + 'ENTER'

Note

Selecting NMEA-0180 or NMEA-0180CDX the chart plotter shows a message to advise the user that the related input will be disabled.

3.2.8.3 Port 1/Port 2/Port 3 NMEA Output Messages Selection

The chart plotter allows customizing the NMEA-0183 sentence transmitted on each port. The default 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 OUTPUT SENTENCES" + 'ENTER'

3.2.8.4 GPS Setup Menu

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

- '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 identifiable by the chart plotter.

Internal GPS For COMPACT X7

Enables (On) or disables (Off) the Internal GPS. The default setting is On.

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

Restart GPS

Restarts all GPS 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 default 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 (Secondary Station). See also Par. 4.7.:

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

3.2.8.7 Cable Wiring Page

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

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

3.2.8.8 Fish Finder Transmission FOR SKY X7 FISH & COMPACT X7 FISH

The Fish Finder internal is connected directly to the Port 2. To switch the internal Fish Finder transmission On/Off follow the procedure:

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "FISH FINDER" + 'ENTER'

3.2.9 C-VOICE MENU

AVAILABLE IF THE CHART PLOTTER IS CONNECTED TO THE VOICE NAVIGATION SYSTEM
FOR MORE DETAILS SEE YOUR LOCAL DEALER

The chart plotter has two different vocal modes, Navigation and Echosounder. According to what mode is selected the messages spoken from the chart plotter 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 2 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 chart plotter 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 default 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' or 'A-B-C-D' (if it is present): on the screen the A point and an information window on A appear. Move the cursor and press 'ENTER' again or 'A-B-C-D' (if it is present): 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' or 'A-B-C-D' (if it is present) places the C and D points:

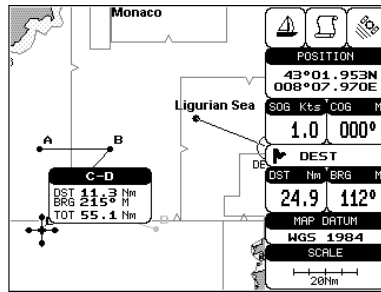


Fig. 3.2.1 - A-B-C-D points

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'.

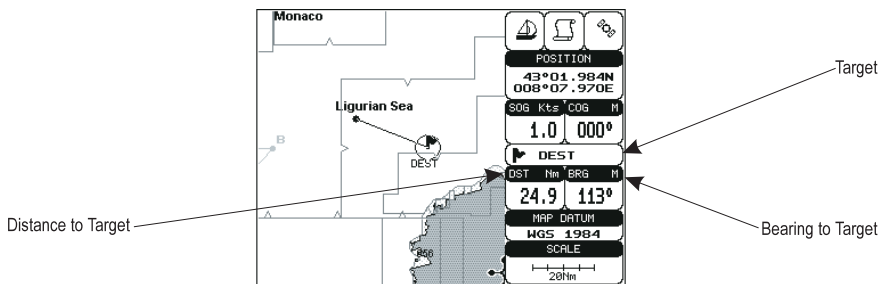


Fig. 3.4.1 - Navigation to a single destination

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

Note

When the chart plotter 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 and in the Navigation Data page:

➤ '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

Press cursor on Target icon, press 'CLEAR': the symbol identifies Target 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 Target 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 BY JEPPESEN MAX CARTOGRAPHY INFORMATION

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

Data Features

- **ISO Certification** (*electronic chart production process with quality certification*)
- **Extra Large Coverage** (*all the C-MAP BY JEPPESEN electronic chart detail and a huge coverage without having to change cartridge*)
- **Official data source** (*data based on use of official data sources*)
- **Detailed World Background** (*worldwide background chart with details*)
- **Depths & Land Elevation** (*color shading of sea depth and land altitude for improved chart reading*)

- **Bathymetric & Spot Soundings** (*additional Data Base with depth and bathy information for an extraordinary view of the seabed depth*)
- **Detailed Port Plan** (*complete port and marina charts with detail*)
- **Search & Find** (*quickly locates chart contents and objects*)
- **Tides Preview** (*dynamic simulation of tides*)
- **Dynamic Currents** (*current arrows dynamically display direction and speed*)
- **Dynamic Nav-Aids** (*displays Nav-Aids in true color and with real interval lighting*)
- **Port Info** (*all the information of the available services in the ports and how to contact them*)
- **Enhanced Port Info & Roads** (*details of the available facilities and services in ports and surrounding areas*)
- **Object Info** (*indicates restricted area details and related information*)
- **Quick Info** (*full information on objects, buoys, wrecks, shoals and Nav-Aids*)
- **Photos & Diagrams** (*high definition pictures of ports, piers, bridge diagrams and nav-aids*)
- **Multilanguage Support** (*displays charts in the local character set*)
- **True-Type Font** (*improves text on chart for optimal reading*)

Presentation Features

- **Clear View** (*advanced legibility techniques providing more chart data on the screen*)
- **Clear Info** (*sophisticated "Human Dictionary" to translate Nav-Aid abbreviations found on paper charts*)
- **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** (*optimized palettes including the NOAA color palette*)
- **Perspective View** (*"Real World" perspective view of the chart, updated real-time during navigation*)
- **Smooth-Zoom** (*smooth transition of cartographic levels*)
- **Enhanced Turbo-Zoom** (*extra fast cartography level change displaying the most important cartographic objects*)
- **Enhanced Mixing Levels** (*seamless data presentation*)
- **Off-line redraw** (*cartography level transition without image construction*)

Cartographic Data related Features

- **Guardian Alarm** (*automatic control and alarm over obstacles on charts in front of your boat*)
- **Safety Toolbar** (*interactive alarm system for situational awareness on screen*)
- **Safety Route Check** (*sophisticated function checking dangerous objects along your navigation route*)

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 SETTINGS MENU

It is possible to select the Map Settings Menu in two modes:

- 'MAP' for 1 second

or

- 'MENU' + "MAP SETTINGS" + 'ENTER'

in the following paragraphs only the first mode is indicated.

3.5.1.1 3D View (Perspective View)

- 'MAP' for 1 second + "3D View" + 'ENTER' + "ON" + 'ENTER'

or:

- '<MODE>' more times (if set by menu, see Par. 5.3)

Note

If selected using '<MODE>', an information window describing the newly selected mode is shown on the center of the screen for about 2 seconds, see also Par. 2.1.

Chart data may be projected in perspective mode (3D) 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.

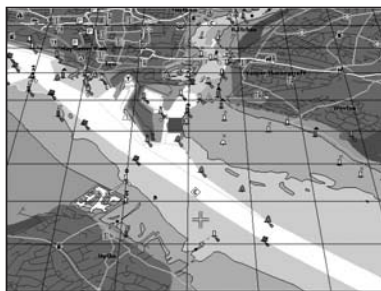


Fig. 3.5.1.1 - Perspective View

3.5.1.2 Palette

- 'MAP' for 1 second + "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 and Sunlight. **Normal** is recommended when the chart plotter 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 (it is the default setting). **Night** is recommended when the environment is dark in order to reduce the glare of the display. The chart plotter displays maps and screen in darker colors. **Sunlight** is designed to enhance the visibility of the screen when the chart plotter 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

- 'MAP' for 1 second + "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 heading upwards), Course (the map is displayed with the currently selected course leg upwards). The default setting is North.

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

3.5.1.4 Zoom Type

- 'MAP' for 1 second + "Zoom Type" + 'ENTER'

This feature allows more expansions or compression of the chart scale while zooming in or out. Zoom Type 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

- 'MAP' for 1 second + "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. The default setting is Normal.

NORMAL size



LARGE size

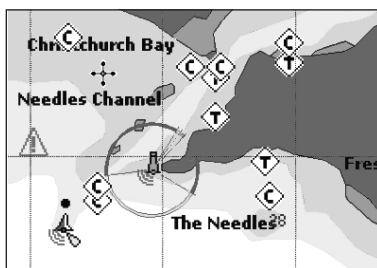


Fig. 3.5.1.5 - Example of Normal size (on the left side) and Large side (on the right side) settings

3.5.1.6 Dynamic Nav-Aids

- 'MAP' for 1 second + "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. The default setting is Off.

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

- 'MAP' for 1 second + "Mixing Levels" + 'ENTER'

When the map coverage at the current zoom level does not fill the entire screen, the chart plotter 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 chart plotter zooms out to the first level covered by cartographic data. The default setting is On.

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)

- 'MAP' for 1 second + "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 color to indicate possible risk.



Fig. 3.5.1.7 - 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 normal 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 Satellite Imagery

- 'MENU' + "MAP SETTINGS" + 'ENTER' + "SATELLITE IMAGERY" + 'ENTER'

It is possible to overlay the Satellite image for background map. When it is set On, the Palette is set to Normal to display the proper colors.

3.5.1.10 Currents Prediction

- 'MAP' for 1 second + "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. Press 'CLEAR' to exit.

3.5.1.11 Selecting the CHART Language

- 'MENU' + "MAP SETTINGS" + 'ENTER' + "Chart Language" + 'ENTER'

The possible choices are:

Language: Allows setting the language to display chart information. The language is chosen among the list of languages available on the cartographic data (C-CARD or embedded charts).

- 'MENU' + "MAP SETTINGS" + 'ENTER' + "Chart Language" + 'ENTER' + "Language" + 'ENTER'

Mode: Defines how objects are translated. It is possible to choose between the three following options:

- OFF : Uses the same Language used for LANGUAGE. If the selected language is not present on the objects information, English is used instead.
- ENGLISH : Always uses English.
- LOCAL : Uses the first Local language present on data. If no Local language is available, English is used instead.
- 'MENU' + "MAP SETTINGS" + 'ENTER' + "Chart Language" + 'ENTER' + "Mode" + 'ENTER'

Note

- When User Interface Language is changed, Chart Language settings are set as follows: MODE is set to Off and Chart Language is set as the User Interface Language selection if available on the chart data, otherwise is set to English.*

3.5.1.12 Other Map Configurations

➤ 'MAP' for 1 second + "Other Map Configurations" + 'ENTER'

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

➤ 'MAP' for 1 second + "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)
Names	On	On	On	On	On	On
Name Tags	On	Off	Off	Off	Off	On
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	0Mt	0Mt	0Mt	0Mt	0Mt	0Mt
Depth Range Max	9999Mt	9999Mt	9999Mt	9999Mt	9999Mt	5Mt
Land Elevations	On	On	Off	Off	Off	Off
Land Elevation Values	On	Off	Off	Off	Off	On
Roads	On	Off	Off	Off	Off	On
Points Of Interest	On	Off	Off	Off	Off	On
Lat/Lon Grid	On	Off	Off	Off	Off	On
Chart Boundaries	On	Auto	Off	Off	Off	Auto
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	3Mt
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

If Display Mode is Custom, it is possible to change the map settings as following:

Names: On/Off. The default setting is On.

➤ 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Names" + 'ENTER'

Name Tags: On/Off. The default setting is On.

- 'MAP' for 1 second + "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 default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Nav Aids & Light Sectors" + 'ENTER'

Attention Areas: On/Off. The default setting is On. The Attention Areas will always be contour only when On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Attention Areas" + 'ENTER'

Tides & Currents: On/Off. The default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Tides & Currents" + 'ENTER'

Seabed Type: On/Off. The default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Seabed Type" + 'ENTER'

Ports & Services: On/Off. The default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Ports & Services" + 'ENTER'

Tracks & Routes: On/Off. The default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Tracks & Routes" + 'ENTER'

Depth Range Min: Sets a min reference depth value. The default setting is 0Mt.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Depth Range Min" + 'ENTER'

Depth Range Max: Sets a max reference depth value. The default setting is 5Mt.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Depth Range Max" + 'ENTER'

Land Elevations: On/Off. The default setting is Off.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Land Elevations" + 'ENTER'

Land Elevation Values: On/Off. The default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Land Elevation Values" + 'ENTER'

Roads: On/Off. The default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Roads" + 'ENTER'

Points Of Interest: On/Off. The default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Points Of Interest" + 'ENTER'

Lat/Lon Grid: On/Off. The default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Lat/Lon Grid" + 'ENTER'

Chart Boundaries: On/Off/Auto. The default setting is Auto.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Chart Boundaries" + 'ENTER'

Value-Added Data: On/Off. The default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Value-Added Data" + 'ENTER'

Chart Lock: On/Off. The default setting is On.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Chart Lock" + 'ENTER'

Underwater Objects Limit: Selects the max depth value to display Underwater Objects.

The default setting is 3Mt.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Underwater Objects Limit" + 'ENTER'
- If value is set to 0 Mt, the Underwater Objects are not shown on the charts. Menu options are greyed 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 default setting is Icon.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Rocks" + 'ENTER'

Obstructions: Off/Icon/Icon+Depth (*). The default setting is Icon.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Obstructions" + 'ENTER'

Diffusers: Off/Icon/Icon+Depth (*). The default setting is Icon.

- 'MAP' for 1 second + "Other Map Configurations" + 'ENTER' + "Diffusers" + 'ENTER'

Wrecks: Off/Icon/Icon+Depth (*). The default setting is Icon.

- 'MAP' for 1 second + "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 default 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, Tides, lights, wrecks, rocks, buoys, beacons, obstructions, land markers, etc.). The Automatic Info On All shows information when the cursor is placed on points, on lines (as Depth contours, 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.

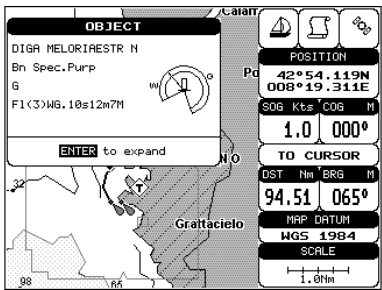


Fig. 3.5.2 - Automatic Info on Points window

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

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.

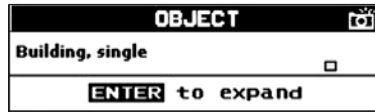


Fig. 3.5.2.1 - Example of Quick Info on objects with picture

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.

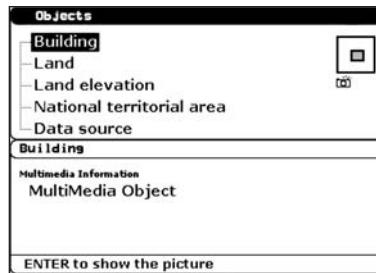


Fig. 3.5.2.1a - Example of Full Info on objects with picture

To see the picture press 'MENU' 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:

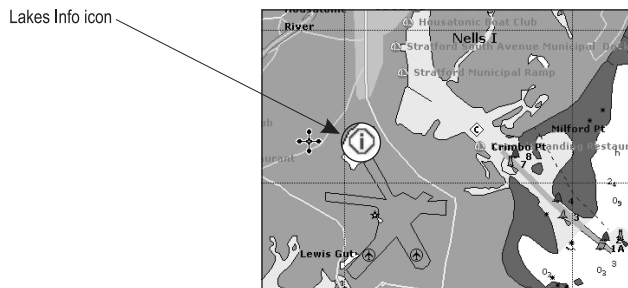


Fig. 3.5.2.2 - Example of Lakes info

When the cursor is placed over the icon, the icons of the available services are shown:

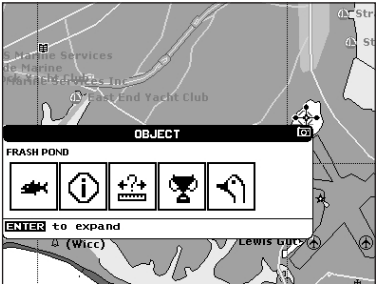


Fig. 3.5.2.2a - Quick Info: available services

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:

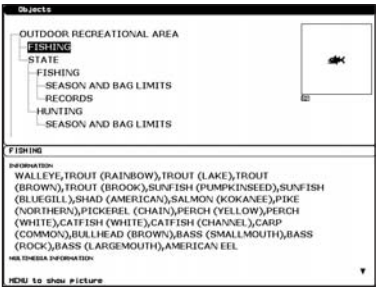


Fig. 3.5.2.3 - Example of Full Info page

To see the "Fishing" object press 'MENU' (when the "Fishing" object is highlighted). On the screen appears:

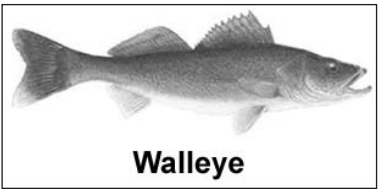


Fig. 3.5.2.3a - Example of picture associated to the Fishing object

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. If the information shown exceeds the page size, the user may scroll the page.

3.5.4 INFO FUNCTION

Place the cursor in any place you want and press:

- 'MENU' + "INFO" + 'ENTER'
to show the Info Tree and Expanded Info page (see Par. 3.5.3).

3.5.5 GETTING PORT INFO

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

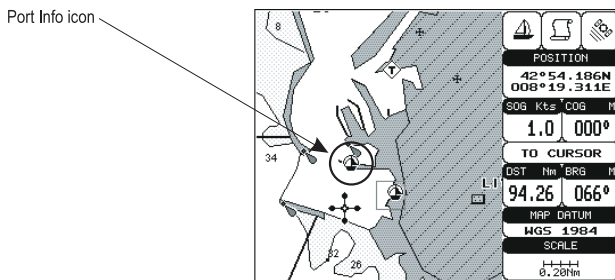


Fig. 3.5.5 - Port Info icon

The available information is shown in the Automatic Info window where icons of the available services are shown:

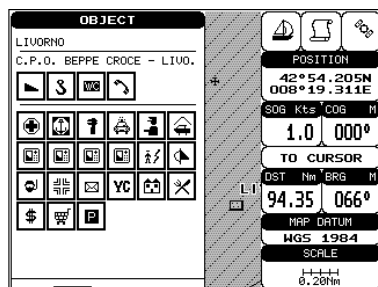


Fig. 3.5.5a - Automatic Info window

To expand information about that object press 'ENTER'.

3.5.6 GETTING TIDE INFO

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

Tide Info icon

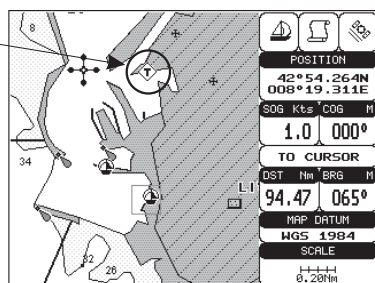


Fig. 3.5.6 - Tide Info icon

Place the cursor on the Tide symbol, a Automatic Info window is opened:

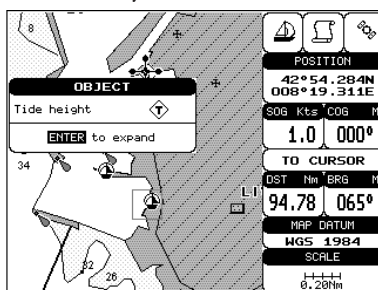


Fig. 3.5.6a - Automatic Info on Tide

To display the Tide Graph page, press 'ENTER' for two times.

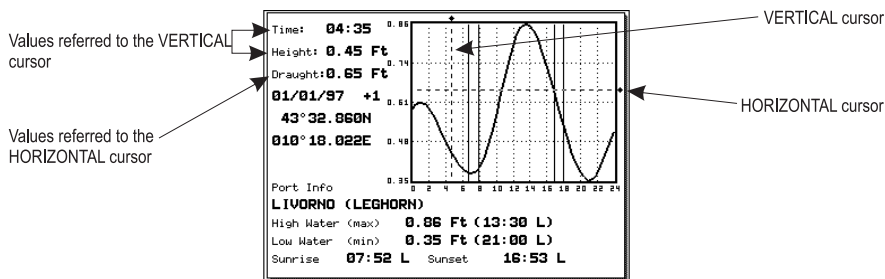


Fig. 3.5.6b - Tide Graph

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 desired 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 chart plotter allows finding Nearest Services, Tide Stations, Wrecks, Obstructions, Port By Name, Port By Distance, Lakes Info, Lakes By Name, Points Of Interest.

3.5.7.1 Finding Nearest 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 Tide Stations

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

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

After a few seconds a window appears. Choose the Tide Station you want and press 'ENTER' to display the Tide Graph page (see Par. 3.5.6). Press 'CLEAR' to display the Tide Station chosen.

3.5.7.3 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.

3.5.7.4 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 on the map.

3.5.7.5 Finding Port By Name

To select the Port By Name function following the procedure:

- 'MENU' + "FIND" + 'ENTER' + "PORT 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.

3.5.7.6 Finding Port By Distance

To select the Port By Distance function following the procedure:

- 'MENU' + "FIND" + 'ENTER' + "PORT 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.

3.5.7.7 Finding Lakes Info

Searches for Nearest Lakes Information:

- 'MENU' + "FIND" + 'ENTER' + "LAKES INFO" + 'ENTER'

It finds the Outdoor Recreational Area objects. See the following picture:

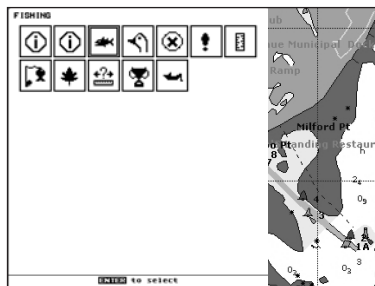
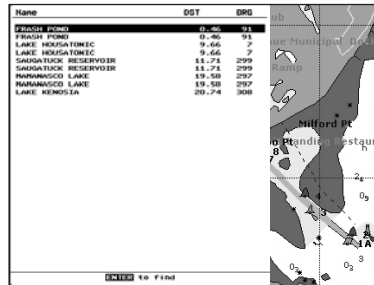


Fig. 3.5.7.7 - Outdoor Recreational Area objects

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.



Name	DIST	DBE
LAKE HENNESSY	0.46	91
FRANCH POINT	9.66	7
LAKE HOUATOWEC	9.66	7
SAUGATUCK RESERVOIR	11.71	2999
SAUGATUCK RESERVOIR	11.71	2999
RAMANAGO LAKE	19.58	297
RAMANAGO LAKE	19.58	297
LAKE HENNESSY	29.74	388

Fig. 3.5.7.7a - Nearest Lakes list

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

3.5.7.8 Finding Lakes By Name

Searches for Lakes inserting the Lake name:

- 'MENU' + "FIND" + 'ENTER' + "LAKES BY NAME" + 'ENTER'

Shows the list of all lakes stored on the C-CARD in alphabetic order. Pressing 'MENU' to insert the Lake name.

3.5.7.9 Finding Points Of Interest

Searches for Nearest Points Of Interest:

- 'MENU' + "FIND" + 'ENTER' + "POINTS OF INTEREST" + 'ENTER'

A sub-menu is opened to find different categories of Points Of Interest.

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 that 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:

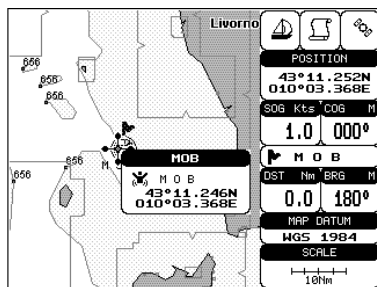


Fig. 3.6.1 - Man Overboard

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), see Par. 3.2.4.

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), see Par. 3.2.4, placing the cursor on MOB the information window appears as shown in the previous Fig. 3.6.1. 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 become familiar with your new chart plotter, there are a great number of advanced features that you will find helpful. First of all the use of the Advanced Mode.

The chart plotter 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 chart plotter 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'

or:

- 'WAYPOINT' (if it is present)

The Waypoint appears on the cursor position. An info window is shown containing

route number, Waypoint name, symbol and Latitude/Longitude.

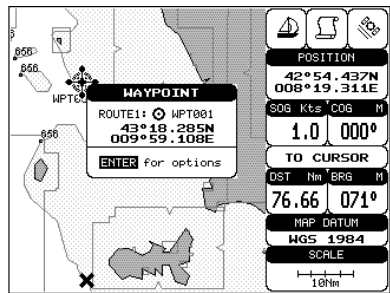


Fig. 4.1.1.1 - Waypoint placing

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 route, until you have reached the last Waypoint, your final destination. Segments connecting the Waypoints are shown, and the starting point is identified by a circle surrounding the first Waypoint of the route:

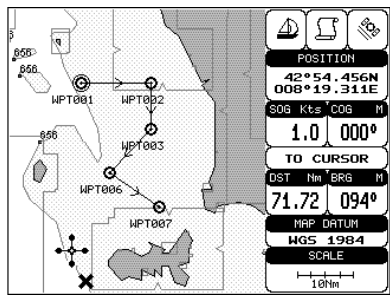


Fig. 4.1.1.2 - Route planning

4.1.1.3 **Deleting Waypoint**

- Select Advanced Mode + Place cursor on Waypoint

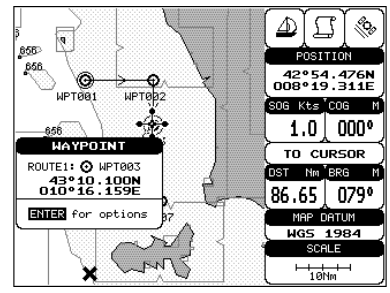


Fig. 4.1.1.3 - Deleting Waypoint (1)

Press 'ENTER'. Select "DELETE" and press 'ENTER'. The Waypoint is deleted and a new line between previous and next Waypoint is shown. The deleted Waypoint remains shaded until the screen is redrawn.

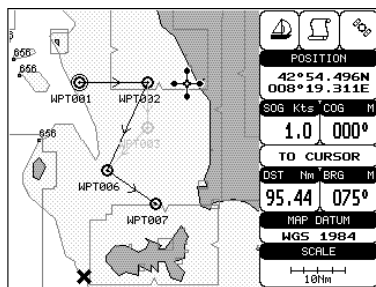


Fig. 4.1.1.3a - Deleting Waypoint (II)

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 route remains on the screen shaded until the screen is redrawn. To delete route see also Par. 4.1.2.2 and 4.1.2.5.

4.1.1.5 Distance and Bearing to Target

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

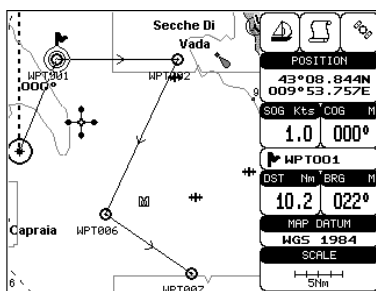


Fig. 4.1.1.5 - Selecting destination (Target)

The destination will automatically switch to the next Waypoint on the route 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 (or in the Navigation Data page):

- 'PAGE' more times

Note

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

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 Destination 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:

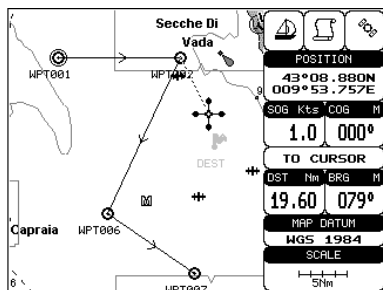


Fig. 4.1.1.6 - Moving Waypoint function (I)

To place the Waypoint in the new position, choose the new place and press 'ENTER' ('CLEAR' otherwise), Waypoint appears in the new position:

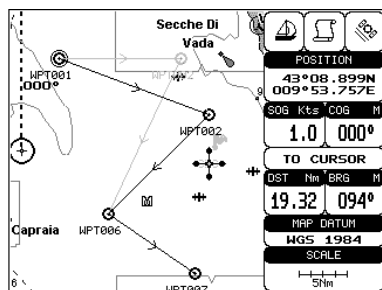


Fig. 4.1.1.6a - Moving Waypoint function (II)

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

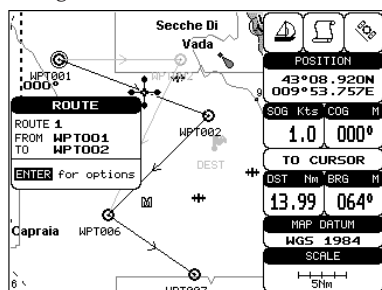


Fig. 4.1.1.7 - Placing Waypoint between two existing ones (I)

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:

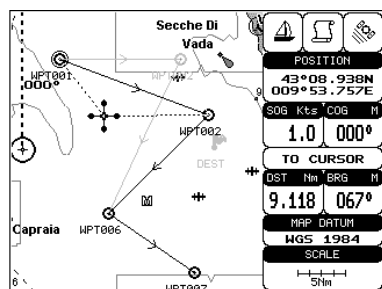


Fig. 4.1.1.7a - Placing Waypoint between two existing ones (II)

Once you have positioned the cursor at new location, press 'ENTER' (press 'CLEAR' to abort operation):

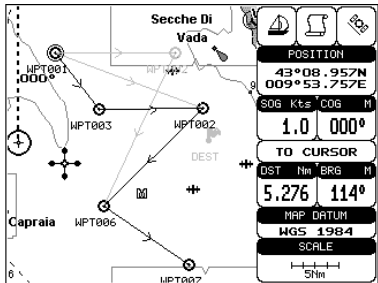


Fig. 4.1.1.7b - Placing Waypoint between two existing ones (III)

4.1.1.8 Editing Waypoint

- Select Advanced Mode + Place cursor on Waypoint

Press 'ENTER'. Select "EDIT" and press 'ENTER' to modify a Waypoint. A window will be shown with Name, Symbol and Latitude/Longitude of the Waypoint, advising about what Waypoint data are modifiable.

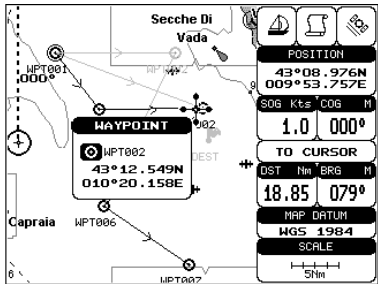


Fig. 4.1.1.8 - Edit Waypoint (I)

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 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:

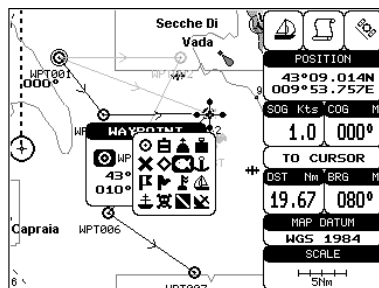


Fig. 4.1.1.8a - Edit Waypoint (II): Waypoint symbols

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'.

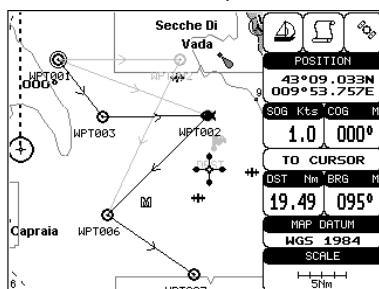


Fig. 4.1.1.8b - Edit Waypoint (III)

4.1.1.9 Finding information on Waypoints: User Points List page

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER'

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.

Finding User Points

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER POINTS" + 'ENTER' + "FIND" + 'ENTER'

The chart plotter exits from the User Points 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 User Point. 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 User Points 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 User Points 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 User Points.

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 route management. The chart plotter handles routes from 1-25, which are permanently stored in the memory as they are created. Only one route 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 route number list and the related route name. Use the cursor key to scroll the list up/down. Pressing 'ENTER' the selected route becomes the current route.

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 Go-To 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 route remains on the screen shaded until the screen is redrawn. To delete route see also Par. 4.1.1.4 and 4.1.2.5).

4.1.2.3 Reversing route

- 'MENU' + 'ADVANCED SETTINGS' + 'ENTER' + 'ROUTE' + 'ENTER' + 'REVERSE ROUTE' + 'ENTER'

Reversing a route 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 8 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 on a route: Route Report

- 'MENU' + 'ADVANCED SETTINGS' + 'ENTER' + 'ROUTE' + 'ENTER' + 'ROUTE REPORT' + 'ENTER'

If there are more than 8 Waypoints shown, use the cursor key to select another page.

WAYPOINT	LATITUDE	LONGITUDE	BRG	LDST	TDST	TIME	FUEL
WPT001	43°13.510N	009°47.546E					
WPT002	43°13.510N	010°00.264E	097°	9.351	9.351	000:58	9.35
WPT003	43°05.835N	010°00.264E	180°	7.355	16.71	001:40	16.7

ROUTE 1 SPEED 10.0 Kts FUEL 10.0h REVERSE CLEAR

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 route number and press 'ENTER'. The route, shown by straight segments, is centered on the screen, with the cursor on the central Waypoint. 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 route 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 route remains on the screen shaded until the screen is redrawn.

To delete the route 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 route 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.

4.1.2.8 Safe Route Checking

This function checks the presence of particular cartographic objects (see the list below) on a range set by the user for all route legs:

- Land Areas
- Shallow Water
- Intertidal Areas
- Rocks
- Wrecks
- Obstructions
- Shoreline Constructions
- Fishing Facility
- Dredged Areas
- Diffusers
- Mooring/Warping Facility
- Production Installation
- Pings
- No Data Available

If any of these alarm conditions is detected, the function returns the list of dangerous objects and the relative dangerous route leg, that is drawn with a different color.

To activate this function:

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "AUTOMATIC CHECK" + 'ENTER' + "ON" + 'ENTER'

Note

If Automatic Check is enabled, anytime you append or insert a new Waypoint, delete, move or edit any Waypoint, the Route is checked. Only the modified Route legs are checked.

To select the width of the detected area aside the route:

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "ROUTE WIDTH" + 'ENTER'

Note

Safe Route width value represents half the total width checked by the function.

To select the depth of the detected area aside the route:

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "ROUTE DEPTH" + 'ENTER'

It also possible to select the accuracy for the route check, among Very Low, Low, Medium, High and Very High:

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "ACCURACY" + 'ENTER'

The list of the dangerous objects found on the charts crossed by the route is shown in the route check report, follow the procedure:

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "ROUTE CHECK REPORT" + 'ENTER'

4.2 USING MARKS & EVENTS

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

4.2.1 MARKS

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

4.2.1.1 Adding Mark

- Select Advanced Mode + 'ENTER' + "MARK" + 'ENTER'

or:

- 'MARK' (if it is present)

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

4.2.1.2 Deleting Mark

- Select Advanced Mode + Place cursor on Mark

Press 'ENTER'. Select "DELETE" and press 'ENTER': the Mark 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 Mark symbol. A straight line is shown on the screen connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.

4.2.1.4 Moving Mark

- Select Advanced Mode + Place cursor on Mark

Press 'ENTER'. Select "MOVE" and press 'ENTER'. By moving the cursor with the cursor key, a dotted line connecting the Mark with the new position is shown:

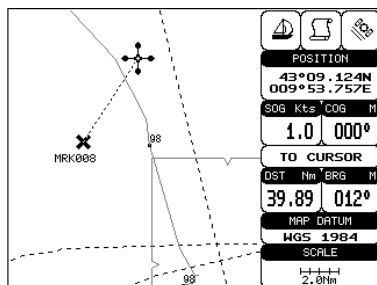


Fig. 4.2.1.4 - Moving Mark function (I)

Press 'ENTER':

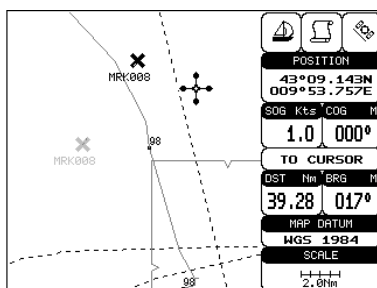


Fig. 4.2.1.4a - Moving Mark function (II)

The Mark is placed in the new position, the "old" Mark, 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 Mark.

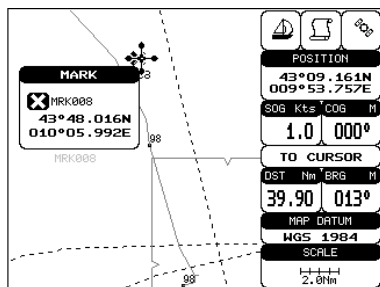


Fig. 4.2.1.5 - Edit Mark

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 on Marks: 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.

4.2.1.7 Add to Route

- Select Advanced Mode + Place cursor on Mark

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

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

4.2.2.1 Adding Event

- Select Advanced Mode + 'MODE', then 'ENTER' + 'EVENT' + 'ENTER'

or:

- 'EVENT' (if it is present)
An Event 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 Event 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 Event symbol. A straight line is shown on the screen connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.

4.2.2.4 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.

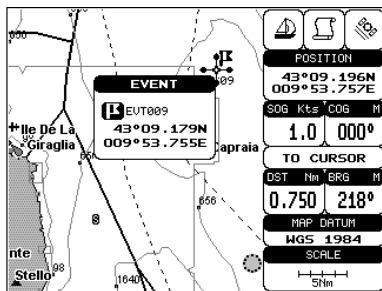


Fig. 4.2.2.4 - Edit Event

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 on 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 EBL & VRM FUNCTION

EBL & VRM function enables to create a dotted line and a circle respectively with direction and radius determined by the user.

4.3.1 PLACING EBL & VRM

- Select Advanced Mode + 'ENTER' + "EBL & VRM" + 'ENTER'

or:

- 'EBL-VRM' (if it is present)

On the screen a dotted line and a circle appear: you can move in any direction you choose rotating the trackball. When the desired position is selected, press 'ENTER'. A window is shown containing the bearing value for the EBL and the radius value for the VRM.

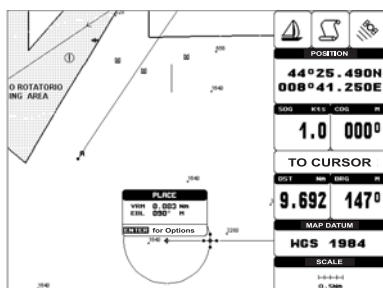


Fig. 4.3.1 - EBL & VRM

4.3.2 DELETING EBL & VRM

- Select Advanced Mode + Place cursor on the cross EBL & VRM + 'ENTER'
Select "DELETE" and press 'ENTER': the line and circle disappear from the screen.

4.3.3 EDITING EBL & VRM

- Select Advanced Mode + Place cursor on the cross EBL & VRM + 'ENTER'
Select "EDIT" and press 'ENTER': with the cursor key move the line and the circle, when the desired position is selected, press 'ENTER'. A window is shown containing the bearing value for the EBL and the radius value for the VRM.

4.4 MORE ABOUT A-B-C-D FUNCTION

The A-B-C-D function, explained in the previous paragraph 3.3, 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.

4.4.1 INSERTING THE A-B-C-D POINTS

Place the cursor on the desired position and press 'ENTER': the Create window appears, by using the cursor key select "A-B-C-D" and press 'ENTER'; or press 'A-B-C-D' (if it is present): the A point and an information window on A appear. Move the cursor, press 'ENTER', select "A-B-C-D" and press 'ENTER' again or 'A-B-C-D' (if it is present): 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' or 'A-B-C-D' (if it is present) places the C and D points (see previous Fig. 3.3.1).

4.4.2 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.

4.4.3 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.

4.4.4 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.

4.4.5 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.

4.4.6 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 Target is set, three options are available: STOP NAV, NEXT and PREV.

4.5 USING THE TRACK FUNCTIONS

The chart plotter can be set up for recording your track as you move and for plotting this track on the chart.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER'

4.5.1 SELECTING ACTIVE TRACK

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "ACTIVE TRK" + 'ENTER'

Select the number of the active track. The default setting is 1.

4.5.2 ENABLING TRACK STORING

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "TRACK" + 'ENTER'

To enable (On) or disable (Off) the track storing. It is not possible to use the track storing if you are not receiving a valid fix. The default setting is On.

4.5.3 DISPLAYING TRACK

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "VISIBLE" + 'ENTER'

To enable (On) or disable (Off) the displaying of track. The default setting is Off.

4.5.4 SELECTING TRACK COLOR

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

Selects the desired color for the selected track.

4.5.5 DELETING TRACK

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "TRACK" + 'ENTER' + "DISTANCE" + 'ENTER'

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

4.5.6 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).

4.5.7 SELECTING TRACK MEMORIZING TYPE

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

Choose Distance (Dist) - the chart plotter can store a fix when the distance from its last stored position is greater than a defined distance; Time - the chart plotter 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.

4.5.8 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.

4.5.9 SELECTING TIME

- 'MENU' + 'ADVANCED SETTINGS' + 'ENTER' + 'TRACK' + 'ENTER' + 'TIME' + 'ENTER'

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

4.6 USER C-CARD MENU

The chart plotter allows to copy information to an User C-CARD. 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'

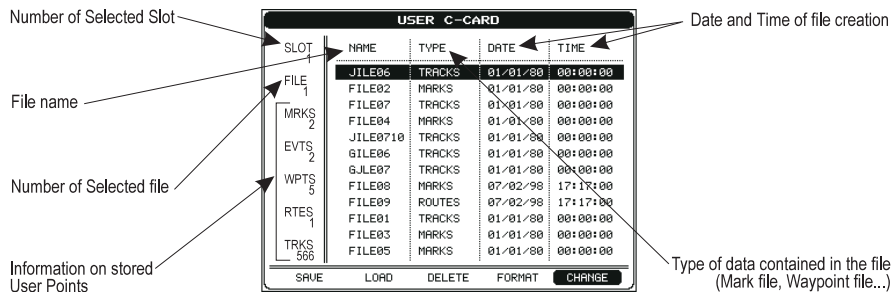


Fig. 4.6 -User C-CARD Menu

4.6.1 SAVING FILE

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

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

USER C-CARD				
SLOT	NAME	TYPE	DATE	TIME
FILE 1	JILE06	TRACKS	01/01/80	00:00:00
FILE 1	FILE02	MARKS	01/01/80	00:00:00
MRKS 2	FILE07	TRACKS	01/01/80	00:00:00
FILE 2	FILE04	MARKS	01/01/80	00:00:00
EVTS 2	JILE06	TRACKS	01/01/80	00:00:00
WPTS 5	GILE06	MARKS	01/01/80	00:00:00
RTES 1	GJLE06	TYPE	EVENTS	00:00:00
TRKS 506	FILE08	ROUTES	07/02/98	17:17:00
	FILE01	TRACKS	01/01/80	00:00:00
	FILE03	MARKS	01/01/80	00:00:00
	FILE05	MARKS	01/01/80	00:00:00

SAVE FILE

NAME	FILE06
TYPE	EVENTS

SAVE
LOAD
DELETE
FORMAT
CHANGE

Fig. 4.6.1 - Save File function (I)

Select the file name. At first a default 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".

Note

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

Press 'CLEAR'. On the screen appears:

USER C-CARD				
SLOT	NAME	TYPE	DATE	TIME
FILE 1	JILE06	TRACKS	01/01/80	00:00:00
FILE 1	FILE02	MARKS	01/01/80	00:00:00
MRKS 2	FILE07	TRACKS	01/01/80	00:00:00
FILE 2	FILE04	MARKS	01/01/80	00:00:00
EVTS 2	JILE06	TRACKS	01/01/80	00:00:00
WPTS 5	GILE06	MARKS	01/01/80	00:00:00
RTES 1	GJLE06	TYPE	EVENTS	00:00:00
TRKS 506	FILE08	ROUTES	07/02/98	17:17:00
	FILE01	TRACKS	01/01/80	00:00:00
	FILE03	MARKS	01/01/80	00:00:00
	FILE05	MARKS	01/01/80	00:00:00

INFORMATION

SAVING ..OK

SAVE
LOAD
DELETE
FORMAT
CHANGE

Fig. 4.6.1a - Save File function (II)

4.6.2 LOADING FILE

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER C-CARD" + 'ENTER' + "LOAD" + 'ENTER'

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

4.6.3 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 files to clean up your User C-CARD. Remember that this option permanently erases the file.

4.6.4 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 format of User C-CARD must be done before using a new User C-CARD: this operation prepares the User C-CARD to receive and store information.

4.6.5 CHANGING USERC-CARD

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "USER C-CARD" + 'ENTER' + "CHANGE" + 'ENTER'

Allows to change the User C-CARD.

4.7 C-LINK

C-Link system is a feature which allows to sharing the same cartographic data between two chart plotter units 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 software versions that allow C-Link function.

4.7.1 HOW C-LINK SYSTEM WORKS

When the chart plotter is powered up, it switches into the “Stand-Alone Mode”. In this work mode, the chart plotter 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 chart plotters) a special connection is established between the chart plotters to habilitate the MIRROR C-CARDS. If a regular C-CARD which has previously activated a MIRROR C-CARD is removed, even the MIRROR C-CARD will be not read anymore on the other unit.

4.8 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.) 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.

4.8.1 OPERATIONS

4.8.1.1 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 Data can refer to:

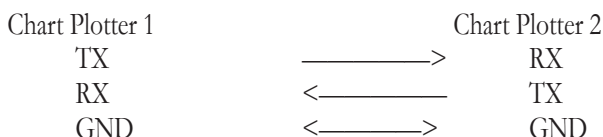
- Single Destination navigation
- Route Following navigation.

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.

4.8.1.2 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:



4.8.1.3 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.

4.8.1.4 Slave Chart Plotter

Operating mode

To select the Slave mode (Secondary Station) follow the procedure:

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "C-LINK" + 'ENTER' + "Secondary 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 'MOB' 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.

4.8.1.5 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.

4.8.1.6 Graphical representation on Map Display




DESCRIPTION	SYMBOL
External Destination - RED Icon	
Next Waypoint - GREEN Icon	
Navigation Leg - RED Line	

Fig. 4.8.1.6 - Graphical Displaying

4.8.1.7 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. 4.8.1.7 - 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

- Total Fuel Consumption : started (liters)
: calculated fuel consumption to navigate the whole Route
- Waypoints in Route : No. of Wpts in the Route (from PCMPN,1)
- Remaining Waypoints : No. of Wpts from Destination 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 Wpt”. 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”

4.8.1.8 Quick Info

Route Navigation: Quick Info on the Destination

EXTERNAL Rte ROUTE001			
			J
	DST (nm)	TTG (hh:mm)	Cons Lit
Dest	11.93	00:57	7.41
Last	83.12	05:41	54.4
Route Length: 71.19 Nm			

Route Name, DESTINATION ID Wpt1/4

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

Fig. 4.8.1.8 - Quick Info on Destination

Quick info on Single Destination

EXTERNAL DESTINATION	
WPT002	
DST	BRG
7.41 Nm	082° M

Fig. 4.8.1.8a - Quick Info on Single Destination

5

Advanced Settings

The Advanced Settings menu allows the user to control the advanced functions of the chart plotter. The functions are organized into menus. For example all options related to the Fix are in a menu called Fix. For menus there is not an explanation because they are in the previous Chapters, so for the Map Setting menu see Par. 3.5, for the Track menu see Par. 4.4, for the Route menu see Par. 4.1.2, for the User Points menu see Par. 4.1.1.9 and for the User C-CARD menu see Par. 4.5.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER'

Once you are in the Advanced Setting 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 the general options for handling of the chart plotter. For the Auto Info option see par. 3.5.3.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "SETUP" + 'ENTER'

5.1.1 TIME REFERENCE

Sets UTC or Local Time. The default setting is UTC.

- '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 default setting is 24 hours.

- '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 default setting is MM-DD-YY.

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

5.1.4 WIND SPEED

Selects the Wind Speed unit among Kts=Knots, m/s, Bft, Mph and Kph=kilometers per hour. The default setting is Kph.

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

5.1.5 BEEPER

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

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

5.1.6 EXTERN WAYPOINT

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

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

5.2 FIX

The Fix menu allows to handle the 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 Correction is calculated, but the Correction is not enabled, the ship's position is not changed. The default 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 correction, 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'

A window with the cursor coordinates appears: insert the preferred value and press 'ENTER'.

5.2.4 STATIC NAVIGATION

Sets up a threshold for the speed. When the speed received from the positioning device is under that threshold, the chart plotter displays zero speed. The default value is 0.0 Knots.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER' + "STATIC NAVIGATION" + 'ENTER'

5.2.5 POSITION FILTER

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

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

5.2.6 SPEED FILTER

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

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

5.2.7 FILTER DUMP

Inserts the value for the Filter Dump in the range [500 - 12000]. The default setting is 500.

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

5.2.8 DEAD RECKONING

Enables (On) or disables (Off) the Dead Reckoning. The default setting is Off.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "FIX" + 'ENTER' + "DEAD RECKONING" + 'ENTER'

5.3 NAVIGATE

The Navigate menu allows to handle the 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, UTM, OSGB, TD. The default setting is ddd mm.mmm.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "COORDINATE SYSTEM" + 'ENTER'

If TD is selected on the screen a new menu appears:

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "COORDINATE SYSTEM" + 'ENTER' + "TD" + 'ENTER'

Chain: Selects the preferred chain. The default setting is 9970.

Pair: Selects the pair of stations in the selected chain. The default setting is W X.

ASF 1/2: Sets the ASF (Additional Second Factor) for the slave in the selected chain. The default setting is 0.

Alter: Turns On/Off the Alternate Solution in the chain. The default setting is Off.

5.3.2 FIX DATUM

Selects the Fix Datum among 130 items. WGS-84 is the default Fix Datum.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "FIX DATUM" + 'ENTER'

5.3.3 MAP DATUM

Selects the Map Datum among 130 items. WGS-84 is the default Fix Datum.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "MAP DATUM" + 'ENTER'

5.3.4 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°]. The default setting is 10°.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "ORIENT. RESOLUTION" + 'ENTER'

5.3.5 SELECTABLE NAV 3D

If the "Selectable Nav 3D" item is set ON, by pressing '<MODE>' it is possible to select the following modes: Charting, Navigation (Home), Navigation (Home) in 3D, Charting in 3D. Any time the key is pressed, a message describing the newly selected mode is shown on the center of the screen for about 2 seconds.

If the "Selectable Nav 3D" item is set OFF, by pressing '<MODE>' it is possible to select Charting or Navigation (Home). The default setting is On.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "SELECTABLE NAV 3D" + 'ENTER'

5.3.6 ROLLING ROAD SCALE

Sets your preferred Rolling Road Scale among 0.2, 0.5, 1.0, 2.0, 4.0, 10.0. The default setting is 0.2.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' + "ROLL ROAD SCALE" + 'ENTER'

5.3.7 RESET TOTAL AND PARTIAL TRIP

Resets the partial or total distance travelled by the ship from the first activation of the chart plotter or starting from the values reset. The partial or total trip value is shown on the top of the Navigation Data 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 Compass Calibration page.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "COMPASS" + 'ENTER'

5.4.1 BEARINGS

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

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

5.4.2 VARIATION

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

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

5.4.3 CALIBRATION

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

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

5.5 ALARMS

The chart plotter 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

Specifies the radius of a circle around the Waypoint of a route: when your vessel reaches this circle the alarm sounds. You can disable (Off) the Arrival Alarm or insert value. The default setting is Off.

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

5.5.2 XTE ALARM

Disables the XTE Alarm (Off) or selects the desired value. The default 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 chart plotter computes the distance between the current GPS position and the GPS position saved at the activation of the anchor alarm in the menu. If the computed distance exceeds the value set in the menu, the chart plotter shows the alarm message and starts the acoustic alarm. The default 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 default setting is Off.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "DEPTH ALARM" + 'ENTER'

5.5.5 GROUNDING ALARM

The chart plotter 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 chart plotter scans an area in front of the boat. This area is identified by a triangle drawn in front of the boat icon whose direction is determined by the current boat heading. The length of the triangle is user selectable and its angle is 30 degrees. If any of the above objects are found, the chart plotter notifies the danger on a dedicated warning message box in the Grounding Alarm Report page. The Grounding Alarm is switched Off by default 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 default setting is 0.5 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 to identify which dangerous objects have been currently detected.

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

5.5.7 GROUNDING ALARM WIDTH

Allows setting the length of the sector to be detected among Thin, Medium and Large. The default setting is Large.

- 'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "GROUNDING ALARM WIDTH" + 'ENTER'

5.5.8 GROUNDING ALARM REPORT

Allows displaying the report of the dangerous objects currently detected.

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

5.6 SIMULATION MENU

The built-in Simulator function allows you to become proficient in the use of the

chart plotter. No current position fix is required because the chart plotter 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 Off the Simulation select Off. The default setting is Off.

5.6.2 SPEED

To start the simulator you can insert the Speed 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 200.

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.





TARGET STATUS	DESCRIPTION	SYMBOL
ACTIVE TARGET	Target located within the Activation Range.	
DANGEROUS TARGET	Target detected by CPA or TCPA Alarm. Dangerous Target is Active Target by definition.	 Flashing
SLEEPING TARGET	Target located outside the Activation Range.	
LOST TARGET	Ais info is not received from that vessel for 3.5 minutes.	

Fig. 5.7.1 - AIS Symbol Table

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 default 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 default setting is 5 Nm.

5.7.2.3 CPA Alarm

- 'MENU' + "AIS SETUP" + 'ENTER' + "CPA ALARM" + 'ENTER'

Turns ON or OFF the alarm. The default 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 default 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 default 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 default 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 procedure:

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "PORT n INPUT" + 'ENTER' + "m" + 'ENTER'

Where: n = Port 1/Port 2/Port 3
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 Jeppesen Marine's weather server, which can be accessed via a C-COM modem connected to the chart plotter or by using the PC Planner (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	18°
HUMIDITY (%)	30
VISIBILITY	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 Jeppesen Marine weather server and to download 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.

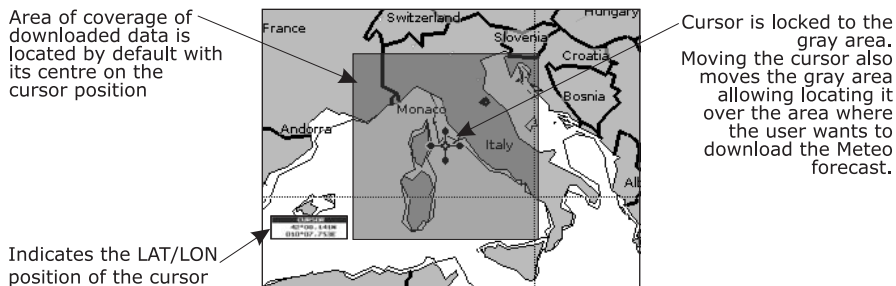


Fig.5.9.1.1 - Download Area

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-Weather** Data loading from the User C-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 DSC

The DSC (*Digital Selective Calling*) is a method of establishing a VHF radio call; it is used to announce urgent maritime safety information broadcasts. This system allows mariners to instantly send Distress Call or/and Position Request to the other vessels equipped with a DSC transceiver within range of the transmission.

The Distress Call, that allows to receive a position of the vessel in distress, and the Position Request, a great feature for anyone wanting to know the location of another vessel - for example you buddy that is catching fish, or finding the location of a person you are cruising with, are performed by an external device, the DSC VHF radio. The chart plotter interfaced with a DSC VHF radio prompts the user to see the GPS position of the vessel in distress and also allows for easy navigation to the vessel.

The Distress Call and the Position Request icons that are displaying on the screen, are shown in the following table:



DESCRIPTION	SYMBOL
Position Request icon	
Distress Call icon	

Fig. 5.10 - Distress Call and Position Request icons

Note

The label can be the MMSI or the corresponding vessel's name. If in the DSC Directory the MMSI has been associated to its relative vessel name, the vessel's name is shown in the label instead of the MMSI.

5.10.1 DISTRESS CALL AND POSITION REQUEST

During a distress situation, a vessel that is equipped with a DSC VHF radio and

Edit

- 'MENU' + "DSC" + 'ENTER' + "DIRECTORY" + 'ENTER' + "EDIT" + 'ENTER'

Edit the fields of any existing entry in the Directory: Vessel Name, MMSI number, contact and phone number.

Add

- 'MENU' + "DSC" + 'ENTER' + "DIRECTORY" + 'ENTER' + "ADD" + 'ENTER'

Add a new entry to the Directory.

Delete

- 'MENU' + "DSC" + 'ENTER' + "DIRECTORY" + 'ENTER' + "DELETE" + 'ENTER'

Delete the selected entry.

Delete All

- 'MENU' + "DSC" + 'ENTER' + "DIRECTORY" + 'ENTER' + "DELETE ALL" + 'ENTER'

Deletes all entries in the page.

5.10.3 QUICK INFO ON DSC ICONS

Placing the cursor on the Distress Call or Position Request icon, the following information is displayed:

- **Vessel Name/MMSI Number**
- **Position**
- **Date and Time**
- **Distance and Bearing from current vessel's position**

Pressing 'ENTER' it is possible, by selecting "DELETE" deletes the DSC icon from the DSC Log page, otherwise by selecting "DSC LOG" the DSC Log page is shown.

5.11 MOBILARM SYSTEM

The MOBILARM is an automated crew monitoring system dedicated to monitoring onboard crew by maintaining a constant link between the crew member and the boat. The instant a man over-board event happens, an automatic alarm is sounded, and the vessels position is logged.

Connect the MOBILARM System to a serial port of the chart plotter.

5.11.1 SOFTWARE SETUP

After connections have been made, the chart plotter has to be setup to be able to

receive NMEA information from the MOBILARM. When a MOBILARM is connected to the chart plotter, any input port of the NMEA Input/Output menu must be changed to MOBILARM as shown below for communications.

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + select any input port you want + 'ENTER' + "MOBILARM" + 'ENTER'

The chart plotter continuously verifies the communication status with MOBILARM instruments. If there is no communication for more than one minute, an alarm window appears.

5.11.2 MOBILARM STATUS

If you want to know information about the MOBILARM connected, follow the procedure:

- 'MENU' + "About" + 'ENTER'

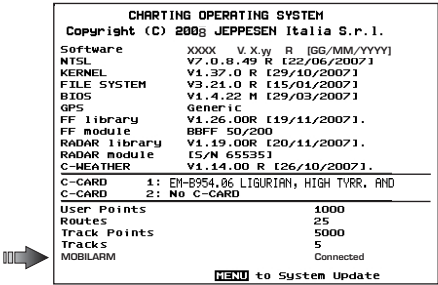


Fig. 5.11.2 - Example of About Page

In the About Page a new item appears, related to MOBILARM status, where status can be:

- **Function Not Activated** : MOBILARM input format has not been set from the Input/Output menu;
- **Not Detected** : the device has never been detected since the chart plotter was turned On and input format was set to MOBILARM;
- **Connected** : the communication with MOBILARM device is Ok;
- **Signal Lost** : the device has been detected but now the signal is no longer received;
- **No Valid GPS Position** : the communication with MOBILARM device is Ok but the GPS position fix is not received.

5.11.3 MOBILARM PTX

PTX is the personal transponder device that is worn by the crew. If a PTX is disconnected from the system a man over-board alarm is raised. So a MOB Waypoint appears on the chart plotter display. In the following for brevity this MOB Waypoint position is called PTX.

Warning!

Activating navigation to PTX pay attention and don't get too near the man-overboard (don't knock the man down!).

5.11.3.1 PTX is received

When a PTX has been received, the PTX data are saved on the chart plotter memory and the PTX icon appears on the map:



Fig. 5.11.3.1 - PTX icon

All menus and/or pages are closed and the chart is centered on the PTX received position. The Audible Alarm starts beeping and a pop-up warning window appears to notify that a PTX has been received:

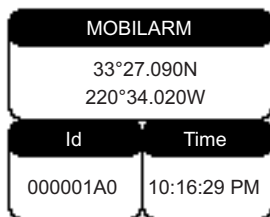


Fig. 5.11.3.2 - Example of PTX warning message

It is possible to navigate to the received PTX (see Par. 5.11.4.2) and open the MOBILARM PTX List Page (see Par. 5.11.4.3). Both Goto and List functions also mute the Audible Alarm.

Note

The List function is active if more than one PTX is store.

5.11.3.2 PTX is received again

When PTX has been received again, it is already present on the chart plotter memory.

If the received PTX is NOT the active one, the user must confirmed to navigate to it.

Otherwise if the received PTX is the active one (the PTX on which we are navigating to), navigation data are updated in memory, the new PTX coordinates becomes the Destination position and the current Fix position becomes the starting position. The map is **not** automatically centered on it.

The PTX icon appears at the new position and a pop-up warning window appears. It is possible to close all menus/data pages (if open) and center the chart on the received PTX (see Par. 5.11.4.4). Otherwise you could close the alarm window and stay on the active screen.

5.11.4 MOVING CURSOR ON THE PTX ICON

Placing the cursor on the PTX icon shown on the screen, an information window containing the PTX Identifier, position and status (Overboard or Recovered) appears:

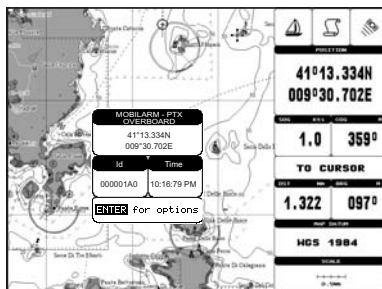


Fig. 5.11.4 - Example of PTX information window

5.11.4.1 Deleting PTX

The Delete PTX function permanently removes the selected PTX from the chart plotter memory and from the chart display.

Move the cursor over the PTX to delete. Press 'ENTER', using the cursor select "DELETE" and press 'ENTER'. A warning pop-up window will be shown. Select "YES" and press 'ENTER'.

5.11.4.2 Goto PTX

The Goto PTX function activates the navigation to the selected PTX.

Place the cursor on PTX cursor. Press 'ENTER', using the cursor select "GOTO" and press 'ENTER'.

If the navigation is set to the selected PTX, to terminate the navigation press 'ENTER', using the cursor select "STOP GOTO" and press 'ENTER'.

5.11.4.3 MOBILARM PTX List Page

The MOBILARM Alarm Status List shows the list of all PTX that returned an alarm event. To obtain the page press 'ENTER', using the cursor select "LIST" and press 'ENTER'.

The screenshot shows a table titled "MOBILARM-Alarm Status List". The table has five columns: PTX identifier, Time of PTX creation, PTX position (latitude and longitude), PTX status, and PTX position (latitude and longitude). The first two rows of data are visible. Annotations with arrows point to specific parts of the table: "PTX identifier" points to the first column, "Time of PTX creation" points to the second column, "PTX status" points to the fifth column, and "PTX position" points to the sixth column.

PTX identifier	Time of PTX creation	PTX position	PTX status	PTX position
00000001	12:00:00 AM	118°10.040W	RECOVERED	33°36.080N
00000002	12:00:00 AM	118°10.040W	Recovered	33°36.080N

Fig. 5.11.4.3 - Example of MOBILARM PTX List page

This page allows you to:

Goto

Activates navigation to the selected PTX. Once the navigation has been activated, close all menus/data pages (if open) and center the chart selected PTX.

Delete

Deletes the selected PTX.

Show

Centers the chart on the selected PTX.

Show All

Selects the best chart scale to see PTX icons on the map at the same time.

5.11.4.4 Show PTX

The Show function is available when PTX has been received again, it is already present on the chart plotter memory and it is the active one.

To select this function press 'ENTER', using the cursor select "SHOW" and press 'ENTER' to close all menus/data pages (if open) and center the chart on the received PTX.

5.12 FISH FINDER MENU_{FOR SKY X7 & COMPACT X7}

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 SETUP" + 'ENTER'

For more information see the specific User Manual.

Note

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

6

Fish Finder

FOR SKY & COMPACT X7 FISH

The Fish Finder consists of a high power transmitter, sensitive receiver and a transducer. The Fish Finder sends an electrical pulse to the transducer which contains an element that converts the pulse into acoustic (sound) wave which is sent through the water. As this wave travels from the transducer to the bottom, it may strike fish, structures, thermoclines (temperature changes in the water). When the wave strikes an object(s) a certain amount of the wave is reflected back to the transducer depending on the composition and shape of the object. When the reflected wave is returned to the transducer it is converted into a voltage and is amplified by the receiver, processed and sent to the display. The speed of sound in water is roughly 4800 ft./sec, so the time lapse between the transmitted signal and the received echo can be measured and the distance to the object determined.

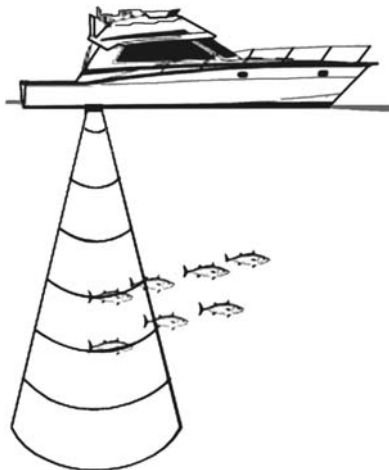


Fig. 6 - Fish Finder working principle

6.1 SETTING THE INTERNAL FISH FINDER ON

The internal Fish Finder driver is connected directly to the dedicated serial Port2. To switch the internal Fish Finder transmission On follow the procedure:

- 'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "FISH FINDER" + 'ENTER' + "ON" + 'ENTER'

Note

It is not possible to connect any external Fish Finder unit to the chart plotter.

6.2 UNDERSTANDING THE FISH FINDER PAGE

The display on chart plotters shows a history of time of the echoes received by the transducer. The chart plotters have a menu that allows adjustments to receiver sensitivity, depth range and scrolling speed of the Fish Finder display.

- ① Warning message
- ② Echogram window
- ③ Color Bar
- ④ Digital Depth
- ⑤ Water temperature
- ⑥ Alarm Bar
- ⑦ Depth ruler
- ⑧ Variable Depth Marker (VDM)
- ⑨ Zoom Bar
- ⑩ A-Scope
- ⑪ Operating Frequency

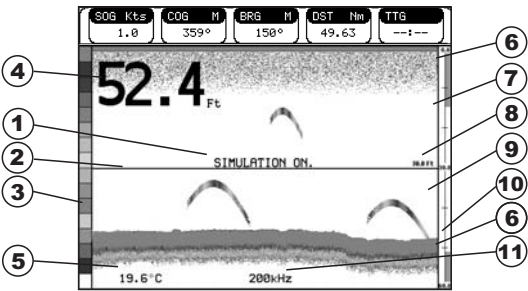


Fig. 6.2 - The Fish Finder page

The following is a short description of terms listed in the previous Fig. 6.2:

- ① **Warning Message**
Flashing label "Simulation" when the echo sounder is in Simulation mode.
- ② **Echogram window**
Graphic presentation of sonar soundings recorded as a continuous profile scrolling across the screen from right to left. Such recordings represent the image of the water beneath your boat, items appear as they pass under your transducer; the items on the

right side of the screen are closer to you than those on the left. The correct interpretation of the Echogram allows retrieving useful information about what is under the boat. See the following Par. 6.2.2 for more information.

③ Color Bar

Colored scale located on the left side of the screen that shows the colors used in the Echogram to represent the echoes strength. The color on the top of the bar represents the maximum sonar strength, while the color on the bottom of the bar represents the minimum sonar strength.

④ Digital Depth

Readout of the current bottom depth.

⑤ Water Temperature

Readout of the current water temperature returned by the TEMP 1 sensor included into specific transducers.

⑥ Alarm Bar

Bar located on the right side of the Depth Ruler, showing the shallow water and deep water alarm values. The alarm is triggered when depth is outside the range.

⑦ Depth Ruler

Vertical graduated bar located along the right side of the screen. It is a scale which reflects the depth of the area being displayed.

⑧ Variable Depth Marker (VDM)

Horizontal line on to the Echogram window with a depth label. The up/down cursor keys can move it up and down. The label displays the depth of the cursor position. It can be moved to any location pinpointing the depth of a target.

⑨ Zoom Bar

Bar located on the left side of the Depth Ruler, showing the portion of the Echogram currently represented in the zoomed window (on the left part of the screen). It is turned On selecting the Echo Sounder Split page.

⑩ A-Scope

A real time representation of fish and bottom features passing through the beam of the transducer. It is drawn as horizontal lines whose length and hue is proportional to the sonar strength returned. When the default palette is selected, the strongest sonar returns will be shown as the color displayed of the top of Color Bar while the weakest as the bottom color.

- ⑪ **Operating Frequency**
Readout of the selected operating frequency.

6.2.1 UNDERSTANDING THE ECHOGRAM DISPLAY

The main elements that can be easily distinguished into an Echogram are:

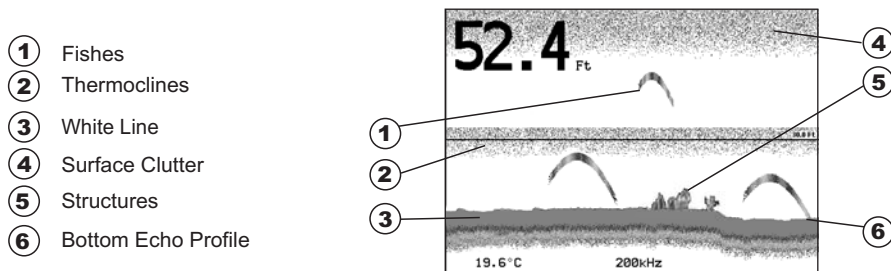


Fig. 6.2.1 - The Fish Finder echogram

① **Fishes**

Fishes are represented as arcs because of the cone angle of the transducer. In fact as the boat passes over the fish the leading edge of the cone strikes the fish, causing a display pixel to be turned on. As the boat passes over the fish, the distance to the fish decreases turning each pixel on at a shallower depth on the display. When the boat is directly over the fish, the first half of the arch is formed and since the fish is closer to the boat, the signal is stronger and the arch is thicker. As the boat moves away from the fish, the distance increases and the pixels appear at progressively deeper depths forming the remaining half of the arch.

② **Thermoclines**

Are the zones where two layers of different water temperatures meet. The greater the temperature differential, the thicker the thermocline is shown on the screen. Thermoclines are represented as horizontal stripes of noise. They are very important for fishing since often many species of game fish like to suspend in, just above, or just below the thermoclines.

③ **White Line**

The White Line shows the difference between hard, soft bottoms and even distinguishes between fishes and structures located near the bottom. In this way it is easier to tell the difference between a hard and soft bottom and even to distinguish fishes and structures located nearby the bottom. For example, a soft, muddy or weedy bottom returns a weaker echo that is shown with a narrow white line while a hard bottom returns a strong echo that causes a wide white bottom line.

④ **Surface Clutter**

Appears like noise at the top of the screen extending many feet below the surface. It's caused by many things, including air bubbles, bait fish, plankton and algae.

⑤ **Structures**

Generally, the term “structure” is used to identify objects like wrecks and weeds rising from the bottom.

⑥ **Bottom Echo Profile**

Bottom profile recorded by the Fish Finder. When the echo sounder is set in auto-range mode it is automatically kept in the lower half of the screen.

Other Elements

Large anchoring cables are returned by the echo sounder as very long and narrow arcs on the screen.

6.3 DISPLAYING THE FISH FINDER PAGE

This section will take you through the frequently used operations and assist you to customize the look of the chart plotter using the Fish Finder.

6.3.1 HOW TO SELECT THE FISH FINDER PAGE

The Page Selection menu allows you to change the Fish Finder page displayed. To access this menu:

- **'PAGE'**

The menu shows the selections related to the Fish Finder. Move the cursor to select the desired item and then press **'ENTER'**.

Note

It is possible to select immediately any Fish Finder by using 'ECHO', the pages are shown wrap around.

6.3.2 FISH FINDER FULL PAGE

To display the Fish Finder Full Page Echogram, follow this procedure:

- **'PAGE' + use cursor to select the Fish Finder Full Screen page + 'ENTER'**

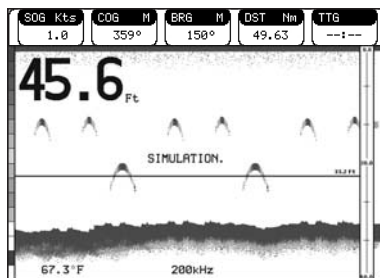


Fig. 6.3.2 - The Fish Finder Full Screen

Note

The frequency displayed depends on the selection done in the Frequency item (see Par 6.6.7).

The MENU key

Pressing 'MENU' activates the Fish Finder Setup menu (see Par. 6.6). Pressing 'MENU' subsequent times toggles between the Fish Finder Setup menu and the Main menu.

The Cursor key

Moving the Cursor key up/down adjusts the Variable Depth Marker (VDM) up or down on the screen.

The ENTER key

Pressing 'ENTER' activates the Sensitivity menu (see Par. 6.6.9) that allows tuning the Gain, the Surface Noise Filter and the STC.



Fig. 6.3.2a - The Sensitivity sub-menu

Pressing 'CLEAR' turns off the Sensitivity menu.

The CLEAR key

By pressing 'CLEAR' the Variable Depth Marker (VDM) is hidden.

The ZOOM IN and ZOOM OUT keys

From this page pressing 'ZOOM IN' once changes to Zoom 2X, pressing 'ZOOM IN' twice changes to Zoom 4X, while pressing 'ZOOM OUT' reverts to Zoom 2X and no zoom.

6.3.3 DUAL FREQUENCY PAGE

To display the Fish Finder Dual Echogram, follow this procedure:

- 'PAGE' + use cursor to select the Fish Finder Dual Frequency page + 'ENTER'

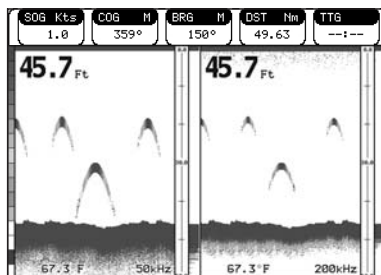


Fig. 6.3.3 - The Fish Finder Dual Frequency

The Cursor key

Moving the cursor to the right or the left moves the Variable Depth Marker (VDM) between the 50 and 200kHz displays. Moving the cursor up or down will move the VDM up and down. Press 'CLEAR' to hide the VDM.

The ZOOM IN and ZOOM OUT keys

From this page pressing 'ZOOM IN' once changes to Zoom 2X, pressing 'ZOOM IN' twice changes to Zoom 4X, while pressing 'ZOOM OUT' reverts to Zoom 2X and no zoom.

6.3.4 ZOOM PAGE

To display the zoomed Fish Finder page on the left half of the screen and the unzoomed Fish Finder Echogram on the right half of the screen, follow this procedure:

- 'PAGE' + use cursor to select the Fish Finder Zoom page + 'ENTER'

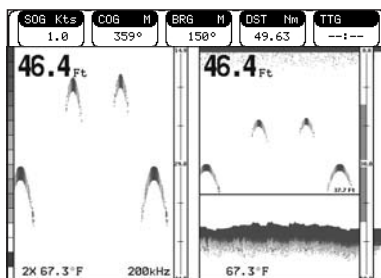


Fig. 6.3.4 - The Fish Finder Zoom

The Depth Cursor is shown only on the unzoomed Fish Finder Echogram.

The ZOOM IN and ZOOM OUT keys

When in this page pressing 'ZOOM IN' changes to Zoom 4X, pressing 'ZOOM OUT' changes to Zoom 2X.

6.3.5 CHART/FISH PAGE

To display the Chart page on the left half of the screen and the Fish Finder Echogram on the right half of the screen, follow this procedure:

- 'PAGE' + use cursor to select the Chart - Fish Finder page + 'ENTER'

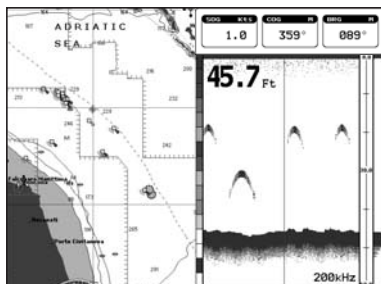


Fig. 6.3.5 - The Chart - Fish Finder

The MENU key (to change the active window)

When in Chart/Fish mode pressing 'MENU':

- if the focus (the active window) is on the Chart, the Main menu is shown. Pressing again 'MENU' opens the Fish Finder Setup menu and moves the focus to the Fish Finder.
- if the focus (the active window) is on the Fish Finder, the Fish Finder Setup menu is shown. Pressing again 'MENU' opens the Main menu and moves the focus to the Chart.

Note

When focus is on the Chart page, all keys work in cartography standard mode.

6.4 ZOOM MODES

6.4.1 THE BOTTOM LOCK ZOOM

The Bottom Lock Zoom mode is activated when the Fish Finder is in Auto Range or Bottom Lock mode (see Par. 6.6.3) and the Variable Depth Marker (VDM) is not displayed on the screen.

In Bottom Lock Zoom mode the Fish Finder Echogram is automatically moved up/down as to keep the Bottom Line always visible in the lower half of the screen.

Note

Moving the Cursor key up/down displays the Variable Depth Marker (VDM) switching the Fish Finder in Marker Zoom mode.

6.4.2 THE MARKER ZOOM

The Marker Zoom mode is activated either when the Fish Finder is in Manual Range mode (see Par. 6.6.3) or the Depth Cursor is displayed on the screen.

In Marker Zoom mode the Fish Finder Echogram position is controlled by moving the Variable Depth Marker (VDM) and pressing and holding **'ENTER'** for 1 second on the selected position. Moving the Variable Depth Marker (VDM) over the top or below the bottom of the screen, automatically moves up/down the current zoomed Echogram view and re-position the Variable Depth Marker (VDM) at the center of the screen.

Note

*Pressing **'CLEAR'** hides the Depth Cursor and if the Fish Finder is in Auto Range or Bottom Lock mode switches into Bottom Lock Zoom mode.*

6.5 FISH FINDER SETUP MENU

The Fish Finder Setup menu provides access to additional functions, setup and layout/data field options. From the Fish Finder page, access this menu by pressing:

➤ **'MENU'**

FISH FINDER SETUP	
PRESET MODE	Fish
GAIN MODE	Manual
RANGE MODE	Manual
Bottom Range	0000.0 Mt
DEPTH	0000.0 Mt
SHIFT	0000.0 Mt
FREQUENCY	50 kHz
INTERFER REJECTION	Off
SENSITIVITY	➤
DISPLAY SETUP	➤
TRANSDUCER SETUP	➤
ALARMS	➤
LOAD SETTINGS FROM USER C-CARD	
SAVE SETTINGS TO USER C-CARD	
RESTORE CURRENT PRESET DEFAULTS	

Fig. 6.5 - The Fish Finder Setup menu

6.5.1 PRESET MODE

Preset modes are pre-defined settings of the Fish Finder operating parameters.

You can use them to quickly set the Fish Finder in the most commonly used operating modes. These are Cruise (sets the Fish Finder in full auto mode with the sensitivity settings optimized for displaying at best the bottom) and Fish (sets the Fish Finder in full auto mode with the sensitivity setting optimized for target searching). See the following table.

➤ 'MENU' + "PRESET MODE" + 'ENTER'

• **Fish**

Gain Mode = Auto, Range Mode = Auto, Frequency = do not change, Shift = 0, STC = Short if Freq=200kHz and Mid if Freq=50kHz, Scrolling Speed = 10, Fish Symbols = Echo, A-Scope = On, Surface Noise Filter = Off.

• **Cruise**

Gain Mode = Auto, Range Mode = Auto, Frequency = do not change, Shift = 0, STC = Short if Freq=200kHz and Mid if Freq=50kHz, Scrolling Speed = 10, Fish Symbols = Echo, A-Scope = On, Surface Noise Filter = 4.

6.5.2 GAIN MODE

Selects Auto or Manual.

➤ 'MENU' + "GAIN MODE" + 'ENTER'

6.5.3 RANGE MODE

Selects among Manual, Auto Range and Bottom Lock. When in **Manual Range Mode** it is possible to set Shift (the offset from the surface) (see Par. 6.5.5) and Depth (see Par. 6.5.4) on which the Fish Finder shall operate. When in **Auto Range Mode** the Fish Finder determines automatically the range as to keep the bottom visible in the lower left of the screen. In this mode, Shift is always set to 0. In **Bottom Lock Mode** the Fish Finder automatically tracks the range around the bottom specified by the Bottom Range value.

➤ 'MENU' + "RANGE MODE" + 'ENTER'

6.5.4 BOTTOM RANGE

Shows the max depth to reach. This option is available when Range Mode is Bottom Lock.

➤ 'MENU' + "BOTTOM RANGE" + 'ENTER'

6.5.5 DEPTH

This option is available only when Range Mode is Manual and it is disabled in Auto Range and Bottom Lock Mode.

➤ 'MENU' + "DEPTH" + 'ENTER'

6.5.6 SHIFT

Shows the depth from which start the bottom scanning. This option is available only when Range Mode is Manual and it is disabled in Auto Range and Bottom Lock Mode.

- 'MENU' + "SHIFT" + 'ENTER'

6.5.7 FREQUENCY

Allows you to choose the frequency among Auto, 50 kHz or 200 kHz when single frequency page is selected.

- 'MENU' + "FREQUENCY" + 'ENTER'

6.5.8 INTERFERENCE REJECTION

Selects a filter to remove interference from other Fish Finders.

- 'MENU' + "INTERFER REJECTION" + 'ENTER'

6.5.9 SENSITIVITY

The Sensitivity menu is accessible both from the Fish Finder Setup menu and by pressing 'ENTER' when in Fish Finder pages. All settings in the Sensitivity menu are related to the Frequency selected.

- 'MENU' + "SENSITIVITY" + 'ENTER'

6.5.9.1 Frequency ONLY IN THE DUAL FREQUENCY PAGE

Allows you to select the Frequency to which the Sensitivity parameters are applied.

Note

The Frequency value is only displayed: to select the desired frequency see the previous Par. 6.5.7.

6.5.9.2 Gain

Allows you to control the Gain of the unit's receiver. To see more details on the screen, increase the receiver sensitivity by selecting a higher gain percentage. If there is too much detail or if the screen is cluttered, lowering the sensitivity may increase the clarity of the display.

6.5.9.3 STC

Sensitivity Time Constant: it is a time varying gain curve which attenuates the sonar receiver gain in shallow water, increasing the gain gradually as the depth increases. This is for the purpose of filtering out surface clutter.

6.5.9.4 STC Length

If STC is Custom, it is possible to change the Length of the Sensitivity Time Constant.

6.5.9.5 STC Strength

If STC is Custom, it is possible to change the Strength of the Sensitivity Time Constant.

6.5.9.6 Surface Noise Filter

This function implements an advanced time varying filter that allows suppressing the surface clutter efficiently while leaving fish targets visible.

Note

Thus imposing the capability of the Fish Finder to correctly detect the weakest echoes coming from a very deep bottom.

6.5.10 DISPLAY SETUP

The Display Setup Menu allows you to change the color scheme of the Fish Finder display, adjusts the chart scrolling rate, enables or disables the White Line and allows determining the graphical representation of fishes.

➤ 'MENU' + "DISPLAY SETUP" + 'ENTER'

6.5.10.1 Color Settings

Allows you to change the color scheme of the Fish Finder display. The available colors are Blue Background, White Background, Black Background, Gray Scale and Reversed Gray Scale.

6.5.10.2 Scrolling Speed

Adjusts the chart scrolling rate. Note that the scrolling rate is limited by the sound speed and the depth according with the following relation: the deeper the setting, the slower the scrolling rate. 100% is the maximum possible.

6.5.10.3 White Line

Controls how the chart plotter displays information about the bottom type (hard or soft).

6.5.10.4 Fish Symbols

This selection allows determining the graphical representation of underwater suspended targets.

- **Echo:** shows echoes
- **Echo + Icon:** shows the Fish icon and echoes
- **Echo + Icon + Depth:** shows the Fish icon, depth values and the fish echoes
- **Echo + Depth:** shows depth values
- **Icon:** shows Fish icons
- **Icon + Depth:** shows Fish icons and their depth (accordingly to currently selected depth unit)

The Fish icons displayed are among four different shapes depending on the size of the Target (Small, Med, Big, Huge).

6.5.10.5 Water Temperature

Allows you to choose the Water Temperature label displayed over the echogram between Primary and External.

6.5.11 TRANSDUCER SETUP

The Transducer Setup menu contains settings that does not require frequent changes.

➤ 'MENU' + "TRANSDUCER SETUP" + 'ENTER'

6.5.11.1 Keel Offset

It is the transducer depth offset from the surface. This makes it possible to measure depth from the surface instead of from the transducer's location.

6.5.11.2 Calibrate Sound Speed

Allows calibrating the value of Sound Speed in the water, depending on the water temperature and salinity.

6.5.11.3 Calibrate Water Speed

Allows calibrating the value of Water Speed sensor. The calibration value, in the range between -10% to +10%, will be applied to the water speed from the transducer.

6.5.11.4 Calibrate Water Temperature

Allows the calibration on the Water Temperature sensor. Using the readings from a precise temperature measuring device, insert here a positive/negative offset to display right value on Fish Finder screens.

6.5.11.5 Calibrate Auxiliary Temperature

Allows the calibration of the Aux Temperature sensor. Using the readings from a

precise temperature measuring device, insert here a positive/negative offset to display right value on FF screens.

6.5.11.6 Set Default Settings

Restores the default values.

6.5.12 ALARMS

The Alarms menu allows you to define additional sonar alarm settings for Fish Alarm, Shallow Alarm, Depth Alarm and Temperature Upper/Lower/Rate.

► 'MENU' + "ALARMS" + 'ENTER'

6.5.12.1 Shallow Alarm

Triggers an alarm when depth becomes shallower than the value set.

6.5.12.2 Deep Water Alarm

Triggers an alarm when depth becomes deeper than the value set.

6.5.12.3 Temp Upper

Triggers an alarm when the transducer reports a temperature (from TEMP 1 sensor) above the value set.

6.5.12.4 Temp Lower

Triggers an alarm when the transducer reports a temperature (from TEMP 1 sensor) below the value set.

6.5.12.5 Temp Rate

Triggers an alarm when the transducer reports a temperature (from TEMP 1 sensor) variation rate above the value set.

6.5.12.6 Fish Alarm

The options for Fish Alarm set the size of the fishes that, if detected by the unit, switches an alarm to sound. These options are: Off, Small, Medium, Big and Huge. The alarm sounds if the set size (or bigger) is detected.

6.5.13 LOAD SETTINGS FROM USER C-CARD

Load the complete settings from the User C-CARD and changes the active menu

settings. Insert the User C-CARD into the slot, then follow the procedure:

- 'MENU' + "LOAD SETTINGS FROM USER C-CARD" + 'ENTER'

6.5.14 SAVE SETTINGS TO USER C-CARD

This is useful to avoid the user having to retune up Fish Finder after a Clear RAM operation or a software update.

6.5.15 RESTORE CURRENT PRESET DEFAULTS

This option restores the default values only for the current presets and does not affect the other presets.



6.6 TRANSDUCERS

The transducer is a device that transmits and receives sound waves into the water. The active component inside the transducer is commonly referred to as an element but actually is a piezoelectric ceramic material.

Note

In the following tables, related to the transducer functions in the "Funct." column, these abbreviations are used: D = Depth, S = Speed and T = Temperature.

6.6.1 DEDICATED AVAILABLE TRANSDUCERS

	AIRMAR #	Model Designation	Housing	Mount	Funct.	Power
P58						
	31-492-1-01	P58 Transom Mount	Plastic	Transom	D/S/T	600W
P66						
	31-680-1-01	P66 Hi Performance	Plastic	Transom	D/S/T	600W



31-494-2-01	P79 Plastic	Plastic	In-hull	D	600W
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31-495-2-01	P319 Plastic	Plastic	Thru-hull	D	600W
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31-658-2-02	B744V W/ Hi Performance Fairing	Bronze	Thru-hull	D/S/T	600W
-------------	---------------------------------	--------	-----------	-------	------



31-696-1-01	B45 W/ Hi Performance Fairing	Bronze	Thru-hull	D/T	600W
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7

For the Technician

7.1 DIMENSIONS

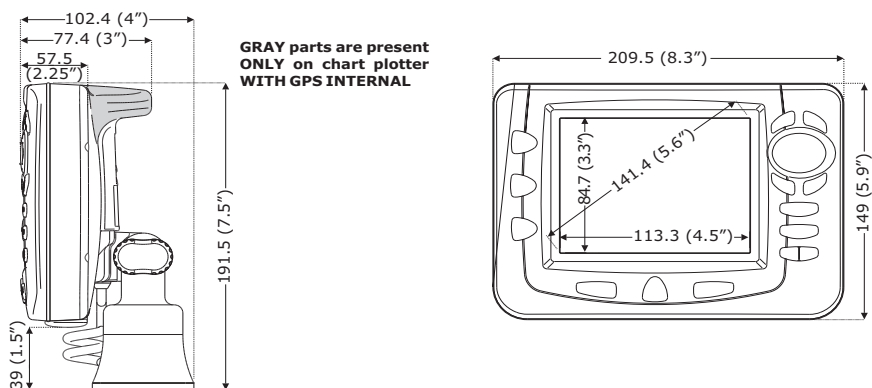


Fig. 7.1 - SKY X7 & COMPACT X7

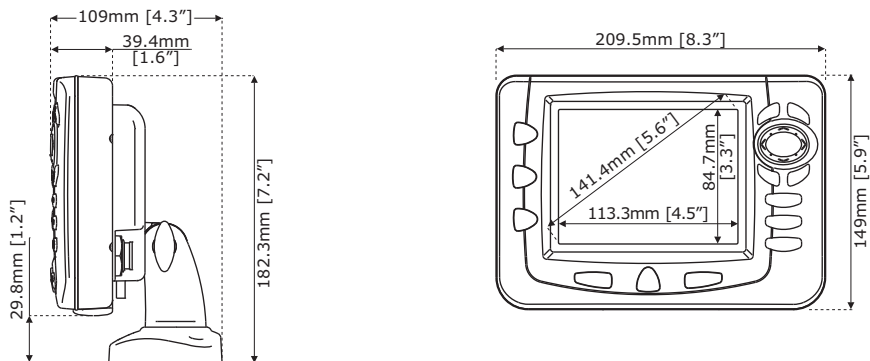


Fig. 7.1a - SKY X7 & COMPACT X7 FISH

7.2 INSTALLATION AND REMOVING

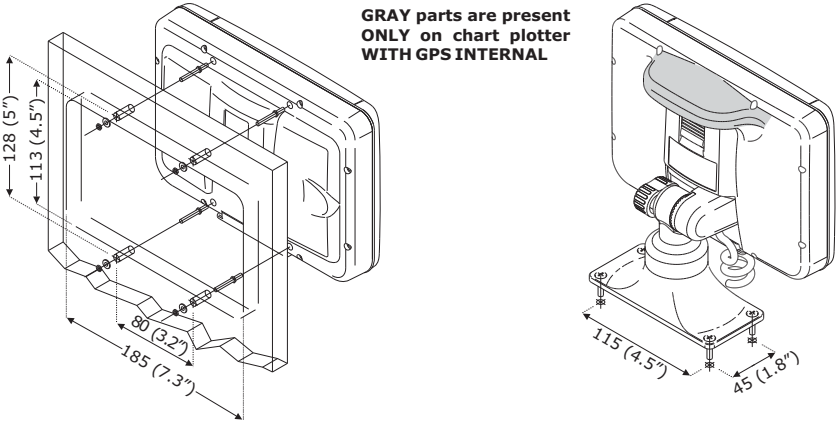


Fig. 7.2 - SKY X7 & COMPACT X7

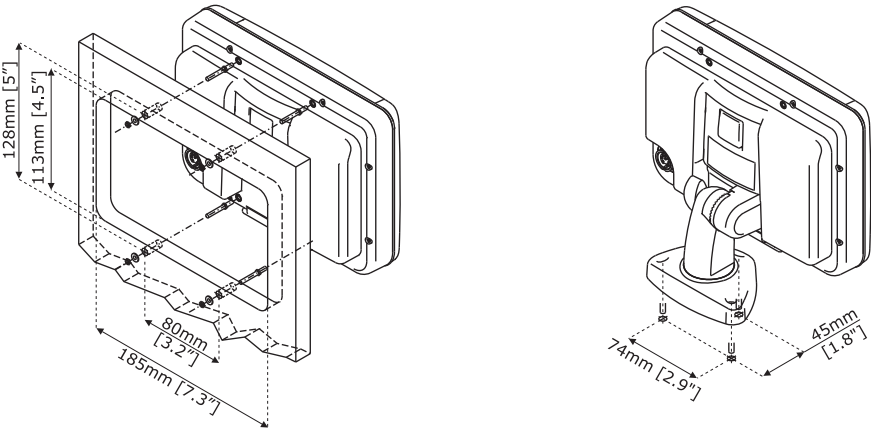


Fig. 7.2a - SKY X7 & COMPACT X7 FISH

7.3 EXTERNAL WIRING

QUICK DISCONNECT BRACKET CABLE	
WIRE COLOR	DESCRIPTION
BLACK	PWR-/GND/COMMON
RED	POWER+ 10-35Vdc
WHITE	INPUT 1+
GREEN	COMMON
YELLOW	OUTPUT 1+
BROWN	INPUT 2+
GRAY	OUTPUT 2+
ORANGE	INPUT 3+
PINK	OUTPUT 3+
BLUE	COMMON

Fig. 7.3 - External Wiring for SKY X7

QUICK DISCONNECT BRACKET CABLE	
WIRE COLOR	DESCRIPTION
BLACK	PWR-/GND/COMMON
RED	POWER+ 10-35Vdc
WHITE	INPUT 1+
GREEN	COMMON
YELLOW	OUTPUT 1+
BROWN	INPUT 2+
GRAY	OUTPUT 2+
ORANGE	NC
PINK	NC
BLUE	COMMON

Fig. 7.3a - External Wiring for COMPACT X7

QUICK DISCONNECT BRACKET CABLE		
WIRE COLOR	DESCRIPTION	FUNCTION
BLACK	GND/COMMON	POWER SUPPLY GND
RED	POWER +10-35Vdc	POWER SUPPLY+
WHITE	INPUT1+	NMEA0183/C-COM
GREEN	SIGNAL RETURN-	SIGNAL RETURN
YELLOW	OUTPUT1+	NMEA0183/180/180CDX/C-COM
BROWN	NC	
GRAY	NC	
ORANGE	INPUT3+	NMEA0183/C-COM
PINK	OUTPUT3+	NMEA0183/180/180CDX/C-COM
BLUE	SIGNAL RETURN-	SIGNAL RETURN

Fig. 7.3b - External Wiring for SKY X7 FISH

QUICK DISCONNECT BRACKET CABLE		
WIRE COLOR	DESCRIPTION	FUNCTION
BLACK	GND/COMMON	POWER SUPPLY GND
RED	POWER +10-35Vdc	POWER SUPPLY+
WHITE	INPUT1+	NMEA0183/C-COM
GREEN	SIGNAL RETURN-	SIGNAL RETURN
YELLOW	OUTPUT1+	NMEA0183/180/180CDX/C-COM
BROWN	NC	
GRAY	NC	
ORANGE	NC	
PINK	NC	
BLUE	SIGNAL RETURN-	SIGNAL RETURN

Fig. 7.3c - External Wiring for COMPACT X7 FISH

7.4 TYPICAL CONNECTIONS

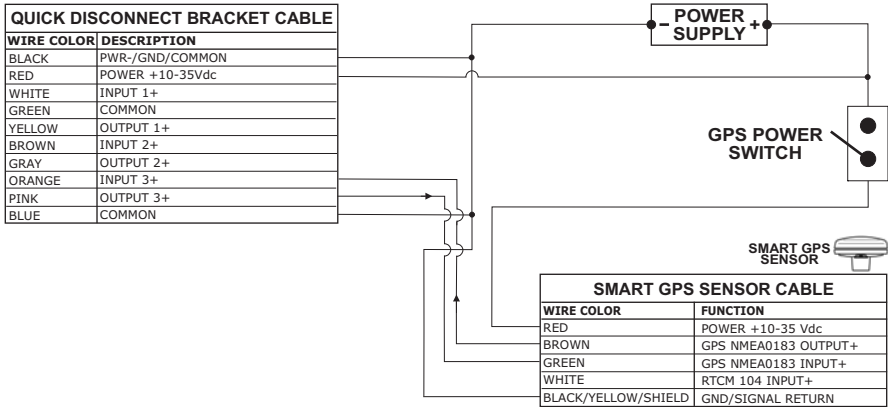


Fig. 7.4 - GPS Connection on Port 3 for Sky X7

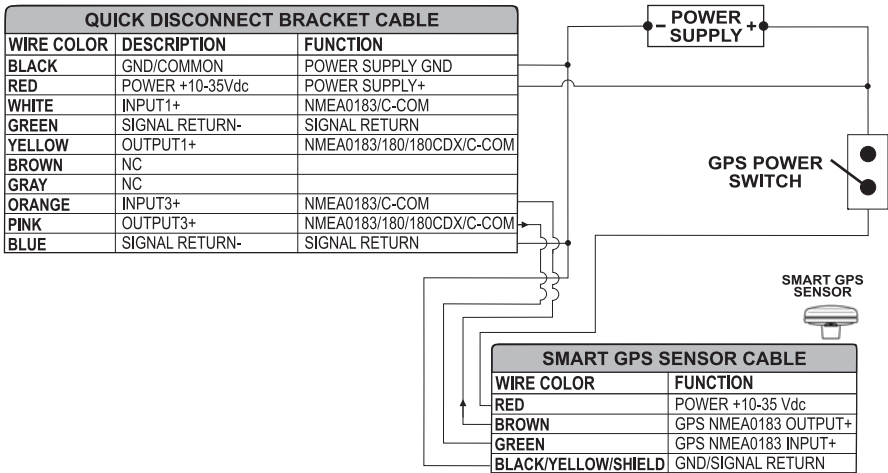


Fig. 7.4a - GPS Connection on Port 3 FOR SKY X7

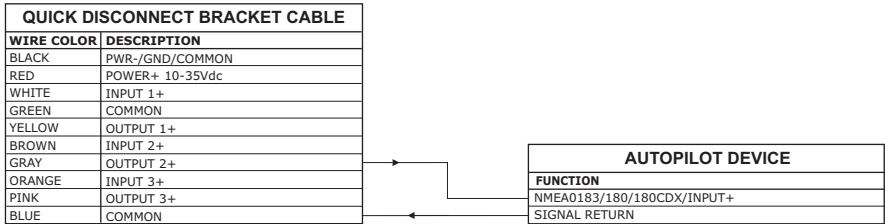


Fig. 7.4b - Autopilot Connection on Port 2 FOR SKY X7 & COMPACT X7

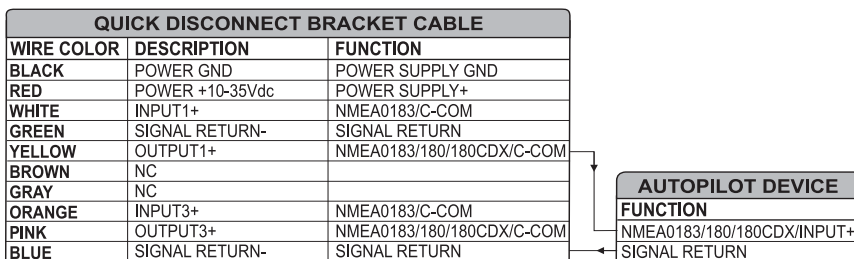


Fig. 7.4c - Autopilot Connection on Port 1 FOR SKY X7 FISH

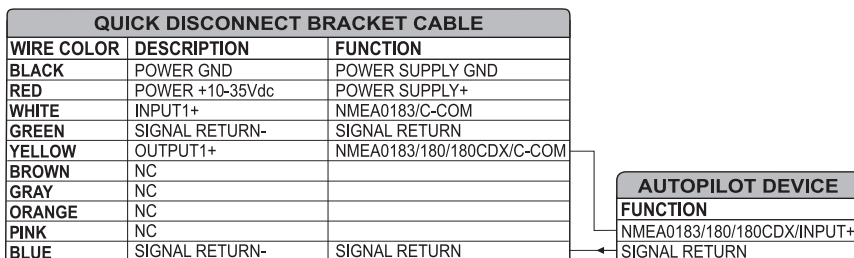


Fig. 7.4d - Autopilot Connection on Port 1 FOR COMPACT X7 FISH

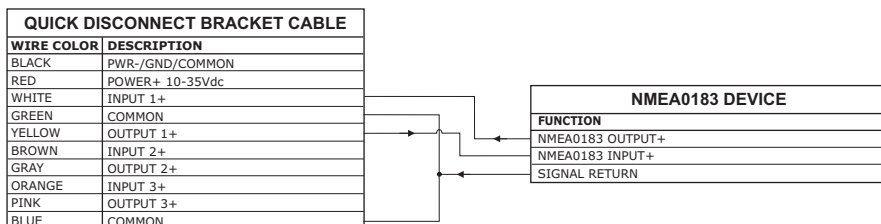


Fig. 7.4e- External NMEA Connection on Port 1 FOR SKY X7 & COMPACT X7

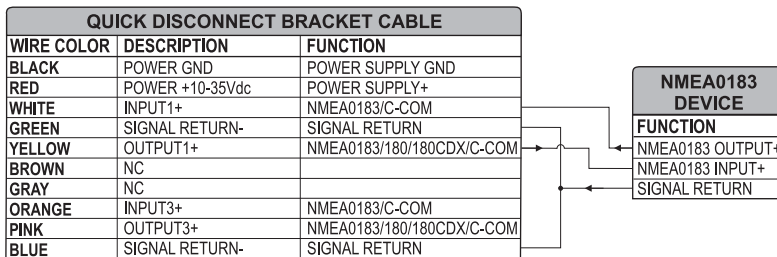


Fig. 7.4f - External NMEA Connection on Port 1 FOR SKY X7 FISH

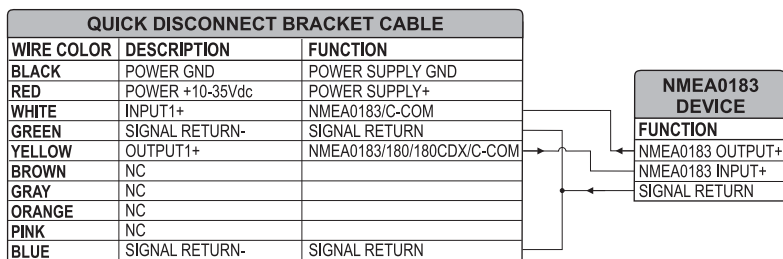


Fig. 7.4g - External NMEA Connection on Port 1 FOR COMPACT X7 FISH

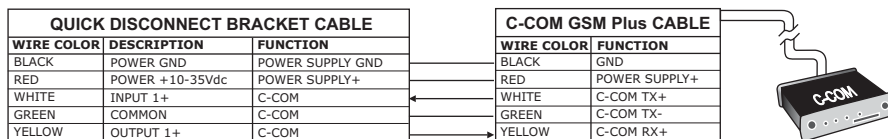


Fig. 7.4b - C-COM Connection on Port 1

7.5 TROUBLESHOOTING

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

7.5.1 PROBLEMS AND SOLUTIONS

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

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

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

7.5.2 IF YOU NEED ASSISTANCE

The list above (see Par. 6.5.1) should allow you to solve most of the operating problems you are likely to encounter. Simply disconnecting the chart plotter from power for a moment may solve your problem as well.

If this does not help, you can try one additional memory clear option. This is a factory default RAM Clear that should only be tried after all other attempts have been made. When using the RAM Clear feature, you will loose all user stored information and the chart plotter will default to factory settings. Before this step, you have the option of saving user Marks, Track history and Routes to a User C-CARD (this is an optional purchase from your dealer). To perform a RAM Clear see Par. 7.6.1.

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

- 'MENU' + "About..." + 'ENTER'

7.5.2.1 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'

7.6 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 chart plotter, the extended auto-test should help determine the problem. Make sure the chart plotter is turned Off. While pressing and holding any other key, turn the chart plotter On. A new menu will appear on the display:

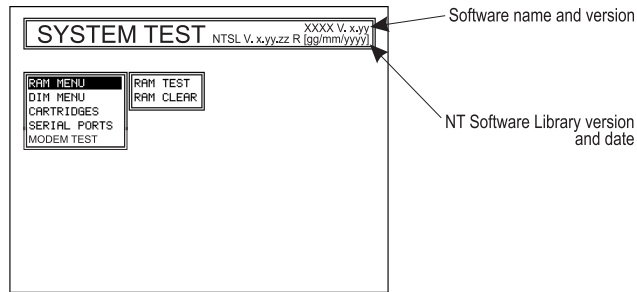


Fig. 7.6 - System Test

Use the cursor key to select the preferred test: this will display in reverse video and with the relative menu window. To choose the test press 'ENTER'. To exit from any submenu press 'CLEAR'. To exit from the System Test turn Off the chart plotter.

7.6.1 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 chart plotter 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').

7.6.2 DIM MENU

To select the preferred value for contrast and backlight.

■ Contrast

Each time you pressed the cursor 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.

7.6.3 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.

7.6.4 SERIAL PORTS

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

■ Change Parameters

Allows to change the parameters of the serial interface. This menu allows to select the **Port** (Signal Source) between Port 1, Port 2 or Port 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.

■ Input Data Display

Allows the chart plotter 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.

7.6.5 MODEM TEST

To check the Modem connections. Press 'ENTER' to select the preferred Port (Port 1 or Port 2 FOR CHART PLOTTER WITH INTERNAL GPS RECEIVER, Port 1, Port 2 or Port 3 FOR CHART PLOTTER WITH EXTERNAL GPS RECEIVER) related to the connections made, to the Port that the Modem C-COM is connected.

A

Terms

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

■ **Advanced Mode**

The chart plotter 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 = 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 chart plotter 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 are colored according to their international code.

■ **BRG = Bearing**

Angle between the North (True or Magnetic) and a destination. It represents the direction to follow.

■ Chain

Selects the preferred chain. The Loran chains are groups of transmitting stations that use timed radio pulse transmissions. In each of these chains there is a master station and two or more slave or secondary stations. Stations belonging to a same chain transmit pulses in timing groups: a different time base identifies each chain. The time base of each chain is the Group Repetition Interval or GRI. This GRI identifies the chain in unique mode. For example the GRI = 4990 identifies the chain of Central Pacific zone.

■ 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.

■ Charting

The cursor is shown on the map and the Zoom functions refer to its position. When in Charting mode, if the ship icon moves off screen, the chart is not centered on it.

■ 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

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 course line while also proceeding toward the destination Waypoint.

■ Cultural Features

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

■ Datum

The Latitude and Longitude lines printed on any map are based on certain models of the shape of the earth: these models are called Datum or Coordinate Systems. There are many different Datum in use, each one gives different Lat/Lon positions for an identical point on the surface of the earth.

■ Default

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

■ Depth Area Range

The sea area that is **beyond** the selected range is filled by a 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 GPS.

■ **DSC = Digital Selective Calling**

Method of establishing a VHF radio call; it is used to announce urgent maritime safety information broadcasts. This system allows mariners to instantly send Distress Call or/and Position Request to the other vessels equipped with a DSC transceiver within range of the transmission.

■ **EBL = Electronic Bearing Line**

Dotted line with direction selectable by the user.

■ **Event**

User Point 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 file 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 Target or Destination.

■ **GPS = Global Positioning System**

It is a satellite based navigation system operated by the US Department of Defence. 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 COG).

■ **HDOP = Horizontal Dilution Of Precision**

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

■ **Home**

In this operating mode (called also Navigate 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 Latitude and Longitude coordinates to define a position on earth.

■ **LOG**

Speed of the vessel relative to the water.

■ **Longitude**

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

■ **Loran**

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

■ **Magnetic Deviation**

The angle between the Magnetic North and the Compass North.

■ **Magnetic Variation**

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

■ **Mark**

Reference points related to cursor position.

■ MOBILARM

Automated crew monitoring system dedicated to monitoring onboard crew by maintaining a constant link between the crew member and the boat. The instant a man over-board event happens, an automatic alarm is sounded, and the vessels position is logged.

■ Natural Features

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

■ Navigate or Navigation (mode)

Operating mode (called also Home mode) all operations refer to the ship's position. The ship icon is always visible on the screen and the chart is always centered on it.

■ 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 harbour, 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, height, type of bridge etc.).

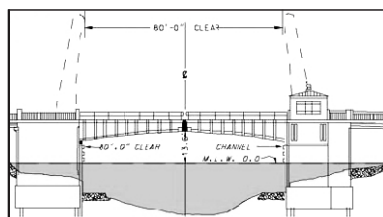


Fig.A.1 - Pictures and Diagrams

■ 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 chart plotter 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 worldwide database with tidal stream information is 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.

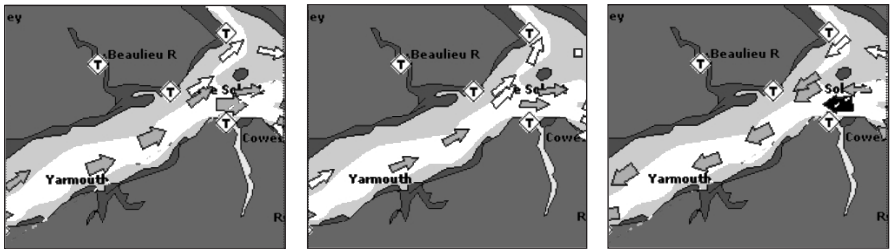


Fig. A.1a - Tides & Currents

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 color of the arrow denotes the strength of the current as follows:

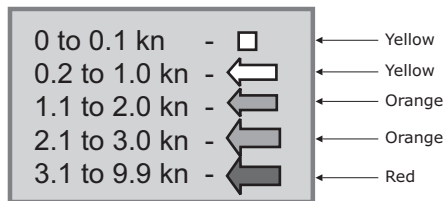


Fig. A.1b - Tides & Currents table

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

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 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.

■ VMG = Velocity Made Good

It is the destination closing Velocity. The VMG is clculated using the current speed of the vessel (SOG) and the difference between the current vessel course and the bearing to the destination.

■ VRM = Variable Range Marker

Circle with radius selectable by the user.

■ 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 Defence 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 travelled.

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", 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.

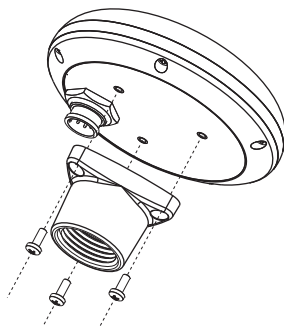


Fig.B.1 - Installing GPS Antenna (1)

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 1" (25mm) hole and three 0.13" (3.2mm) holes.

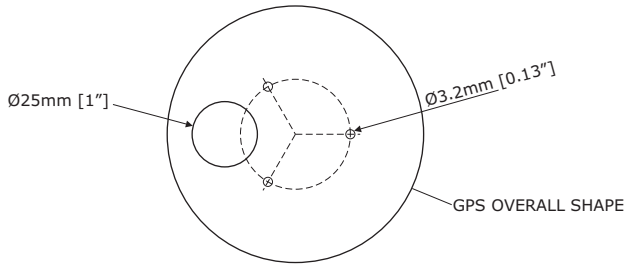


Fig.B.1a - Installing GPS Antenna (II)

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.

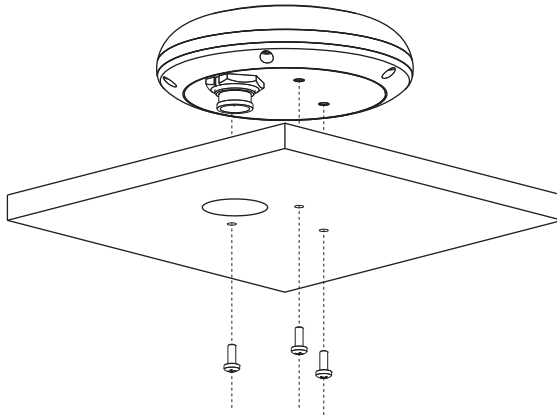


Fig.B.1b - Installing GPS Antenna (III)

B.2 DIMENSIONS

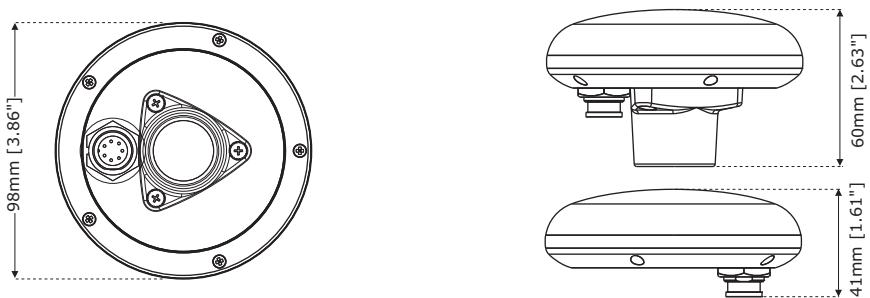


Fig.B.2 - GPS Antenna Dimensions

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