

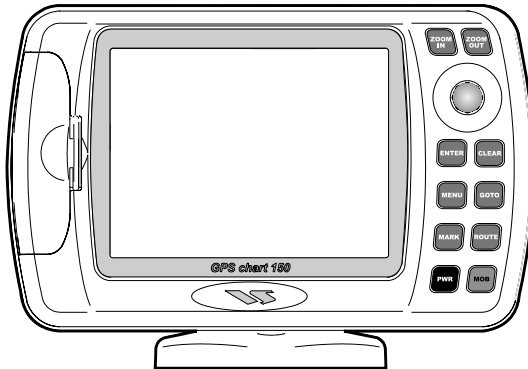


STANDARD HORIZON

CP150

GPS Chartplotter

Owner's Manual



I

Attenzione!

L'esposizione del display ai raggi ultravioletti può accorciare la vita dei cristalli liquidi usati nel vostro plotter cartografico. Questo limite è dovuto alla tecnologia costruttiva degli attuali display.

Evitare inoltre che il display si surriscaldi per non causare una diminuzione di contrasto che, in casi estremi, può rendere lo schermo completamente nero. Tale condizione è comunque reversibile durante il raffreddamento.

GB

Warning!

Exposure of display to UV rays may shorten life of the liquid crystals used in your plotter. This limitation is due to the current technology of the LCD displays. Avoid overheating which may cause loss of contrast and, in extreme cases, a darkening of the screen. Problems which occur from overheating are reversible when temperature decreases.

D

Achtung!

Ultraviolette Strahlen können die Lebensdauer vom Flüssigkristalldisplay verkürzen. Die derzeitige LCD-Technologie bedingt diese verkürzte Lebensdauer.

Überhitzung des Displays durch Sonneneinstrahlung führt zu einem Kontrastverlust und in extremen Fällen sogar in eine Schwärzung des Bildschirms. Bei sinkenden Temperaturen normalisiert sich der Kontrast wieder und die Bildschirminformation wird wieder ablesbar.

F

Attention!

L'exposition de votre écran LCD aux ultra-violets lors de soleil intense réduira la durée de vie de l'afficheur de votre lecteur. Cette contrainte est liée à la technologie des écrans LCD.

Une augmentation trop importante de température peut obscurcir des zones de votre écran et le rendre ainsi inutilisable (non couvert par la garantie).

E

Aviso!

La exposición de la pantalla a los rayos UV puede acortar la vida del cristal líquido usado en su plotter. Esta limitación se debe a la tecnología actual de las pantallas LCD.

Evitar que la pantalla se caliente en exceso pues puede causar pérdida de contraste y, en caso extremo, la pantalla puede quedar totalmente negra. Este problema revierte al enfriarse la pantalla.

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FCC Compliance Statement


This device complies with Part 15 of the FCC limits for Class B Digital devices. This equipment uses, and can radiate, radio frequency energy and, if not installed or used in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular instance. If this equipment does cause harmful interference to other equipment, try to correct the problem relocating the equipment.

WARNING!!!

Electronic charts displayed by the chartplotter are believed to be accurate and reliable, but they are not intended to be a 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 should 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 STANDARD HORIZON Product Support or your local Dealer.
- The chartplotter is designed for maritime use. Please give attention to avoid water intrusion into the **C-MP**  **G-CARD** cartridge holder.
- Extensive exposure to heat may result in damage to the chartplotter.
- The chartplotter contains dangerous high voltage circuits which only experienced technicians can handle.
- 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.

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



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1. GENERAL INFORMATION

Congratulations on your purchase of the **GPS CHART 150**! Whether this is your first chartplotter, or if you have other STANDARD HORIZON equipment, the STANDARD HORIZON organization is committed to ensuring you your enjoyment of this chartplotter. STANDARD HORIZON technical support personnel stand behind every product we sell, and our Product Support team invite you to contact us should you require technical advice or assistance, at 562-404 -2700.

We appreciate your purchase of the **GPS CHART 150**, and encourage you to read this manual thoroughly, to learn and understand the capabilities of the **GPS CHART 150** fully.

NOTE

Throughout this manual, the keys are shown in capital letters enclosed between apostrophies, for example the  key is indicated as 'MENU'. Menu operations are in bold characters listed by key sequence with the menu item names enclosed between quotation marks, for example '**MENU**' + "**ADVANCED SETUP**" + '**ENTER**' + "**INPUT/OUTPUT**" + '**ENTER**' means: press the  key, using the *ShuttlePoint* knob  to select the Advanced Setup menu, press the  key, using the *ShuttlePoint* knob  to select the Input/Output menu and then press the  key.

Terms and functions underlined, for example Target, are explained in the Section 8.

1.1 INTRODUCTION

The chartplotter is a computer specifically designed for nautical use but, more precisely, to ease and speed up all calculations, which so far have been done manually. The chartplotter displays the current position, the speed, and the heading of the boat and its track. The user information like Waypoints, Marks and tracks can be stored on a optional User C-CARD (for backup) and can be recalled at any time. On the screen are shown navigation data and cartographic information obtained from electronic charts **C-MAP*NT*** **C-CARD**.

1.2 IF YOU NEED ASSISTANCE

If your chartplotter does not operate properly, go to the System Test on Section 7.1. Most common operating difficulties can be diagnosed using these tests. If you still need assistance, call STANDARD HORIZON Product Support or your local Dealer, reporting the Software System Information ①, Cartography Information ② and Storage Capacity ③ available in the [About](#) page.

► **Select About Page: 'MENU' + "About..." + 'ENTER'**

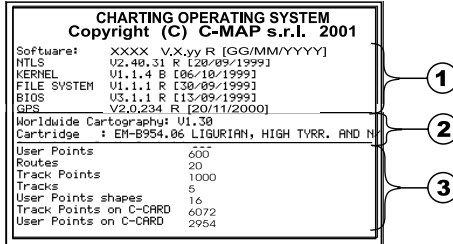


Figure 1.2 - About Page

STANDARD HORIZON Product Support Department may be contacted at 562-404-2700 or via e-mail at marinetech@yaesuusa.com.

2. ACCESSORIES

2.1 PACKING LIST

When the package containing the chartplotter is first opened, please check it for the following contents:

- External bracket (includes the knob) - TT150001CP
- Protective cover - RR150002CP
- Power data cable - TT90000001
- Flush mounting Screws - UU90000001
- Flush mounting Template - RR15000001
- Antenna - QQ150001CP
- 1 amp fuse and holder (see Section 4.1.3 for wiring) - Q0000002
- Owner's Manual - EEC150001
- Quick Reference guide - EEC150002CP
- **C-MAP** **INT** Handbook - EE150002EP

2.2 OPTIONS

- Overhead Mounting Bracket - RR150003CP

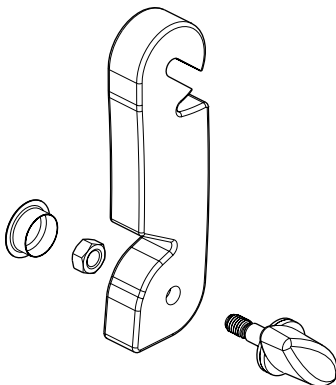


Figure 2.2 - Bracket

If any parts are missing contact the Dealer this chartplotter was purchased from.

Accessories and Replacement parts may be ordered from STANDARD HORIZON's parts Department at 562-404-2700 Ext 351 or via the web at www.standardhorizon.com.

C-MAP **INT** **C-GARD** are available through your local marine Dealer. For additional information on C-MAP Cartography contact 800-424-2627 or visit web site at www.c-map.com.

3. CONTROLS AND INDICATORS

NOTE

This Section defines each control of the chartplotter. For detailed operating instructions, refer to Section 8 of this manual. Refer to Figure 3.1 for the location of the following keys and connections.

3.1 CONTROLS AND CONNECTIONS

The chartplotter is controlled by using 10 keys. There is also a *ShuttlePoint* knob 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.

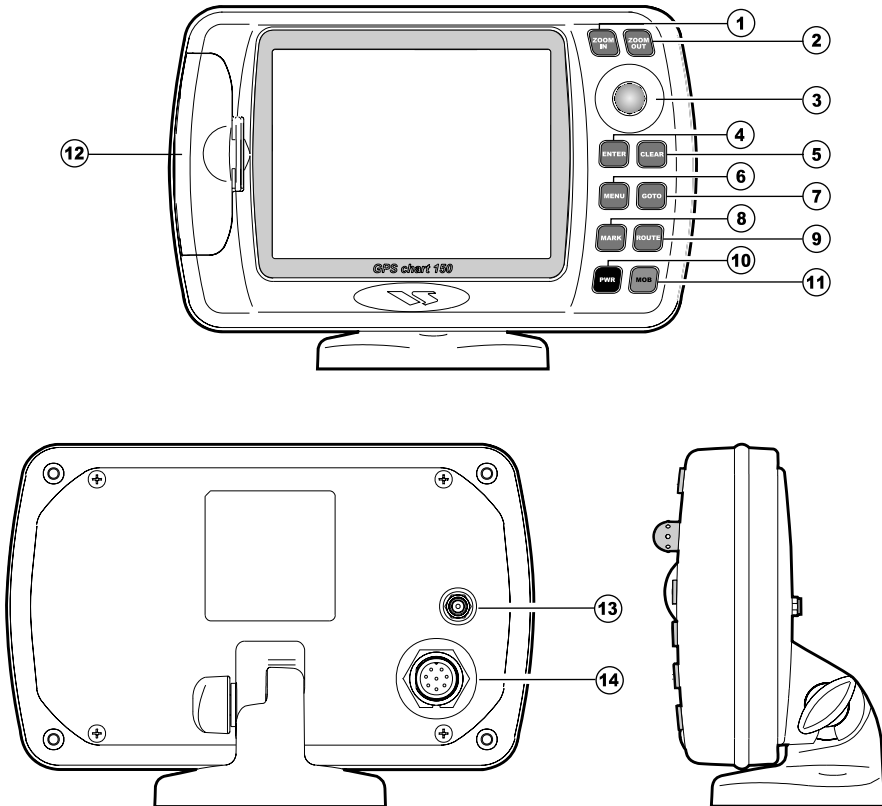


Figure 3.1 - The chartplotter

① - ② The and keys

There are two different modes to change chart scale "By Zoom" and "By Scale".

► 'MENU' + "GENERAL SETUP" + 'ENTER' + "ZOOM TYPE" + 'ENTER' + "By Zoom" + 'ENTER'

Pressing the 'ZOOM IN' shows more detail of a smaller area, by changing the chart scale and zooming in on your display. Press 'ZOOM OUT' to change the scale and show a wider, otherwise less detailed view. Pressing and holding 'ZOOM IN'/ 'ZOOM OUT' allows the quick zoom, that is the fast change of the chart scale where only the land areas are drawn. When 'ZOOM IN'/ 'ZOOM OUT' is released all map details are shown.

► 'MENU' + "GENERAL SETUP" + 'ENTER' + "ZOOM TYPE" + 'ENTER' + "By Scale" + 'ENTER'

When 'ZOOM IN' or 'ZOOM OUT' is pressed the chartplotter will show the zoom window: pressing the 'ZOOM IN'/ 'ZOOM OUT' or moving the *ShuttlePoint* knob up/ down moves the scale and bar graph, press 'ENTER' to zoom to the scale. Press 'CLEAR' to quit the zoom window and keep the selected chart scale.

NOTE

Due to the cartography contained in the **C-MP NT**  there will be multiple charts shown within the same scale range.

③ The *ShuttlePoint* knob

The *ShuttlePoint* knob moves the cursor about on the display screen, quickly and accurately. It also scrolls the desired option in the menu page(s). If in Home (Navigate) mode, it allows to exit from Home mode to cursor mode.

④ The key

Press 'ENTER' to select the desired option or to confirm selection.

⑤ The key

From the chart display press 'CLEAR' to set Home mode. Also press 'CLEAR' to exit from menu or data windows or to leave a menu without making changes, to abort selected function or to step backward from a selection made in the menu.

⑥ The key

Selects the Main Menu. When in menu mode, moving the *ShuttlePoint* knob to the right enters a selection, moving the knob to the left clears the function.

If pressing 'MENU' for 3 seconds from map display activates Edit mode to choose data to be shown in General, 1 Line Small, 1 Line Large or 2 Lines Small windows.

If pressing 'MENU' for 3 seconds from Data pages (Navigation, Highway, GPS Status, NMEA Display) allows to customize all data fields shown in the selected page.

⑦ The **GOTO** key

Allows the user to select a Destination point (Target) at the cursor or a saved Route or Mark.

⑧ The **MARK** key

Places Mark under the cursor position (in Home mode Mark is placed under the ship's position).

⑨ The **ROUTE** key

Places Waypoints to make Routes.

⑩ The **PWR** key and Lamp/Contrast

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

⑪ The **MOB** key

Sets MOB (Man OverBoard).

⑫ **C-CARD** slot (see Section 4.1.7).

⑬ **GPS Antenna** connector

⑭ **Power and I/O** connector (see Section 4.1.2).

3.2 SCREEN DISPLAY CONFIGURATIONS

The chartplotter display can be shown in different pages among (see following Sections):

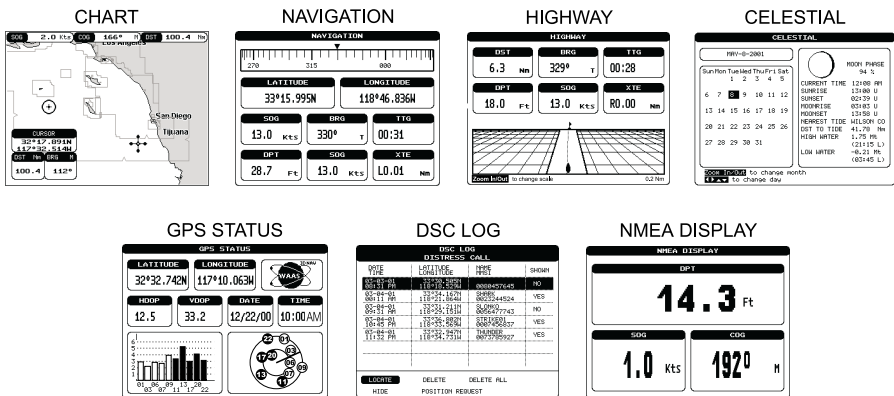


Figure 3.2 - Screen display pages

3.2.1 Chart Page

► 'MENU' + "CHART" + 'ENTER'

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

► 'MENU' + "GENERAL SETUP" + 'ENTER' + "DATA WINDOW" + 'ENTER'

it is possible to customize the Data Window layout among (see following Sections):

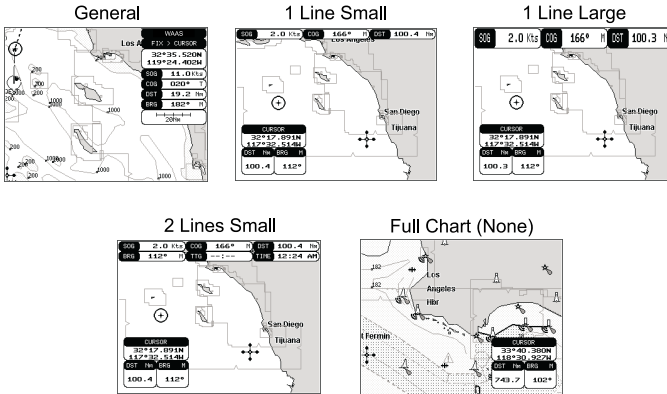


Figure 3.2.1 - Data window layout

It is also possible to edit fields shown in every screen configuration. Edit mode is activated directly from the chart display pressing 'MENU' for 3 seconds.

Once the Edit mode is active, the first box with the label turns gray and its frame is drawn bold. The user can choose the active box by moving the *ShuttlePoint* knob left or right. Pressing 'ENTER' the user can choose the data to be shown on the selected field by moving through the selections and pressing 'ENTER' again.

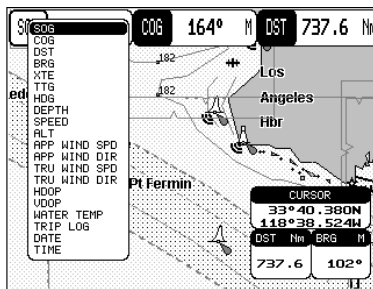


Figure 3.2.1a - Edit mode

If the selected data type can be shown with different units of measure the list of the units is shown next to it. Once 'ENTER' is pressed the data type and its unit are set. The selection window is closed and the Data Window changes according to the selected data type.

Press 'CLEAR' to exit the Edit mode.

3.2.1.1 General

➤ 'MENU' + "GENERAL SETUP" + 'ENTER' + "DATA WINDOW" + 'ENTER' + "General " + 'ENTER'

- ① Fix Status
- ② Cursor coordinates
- ③ Speed Over Ground and Course Over Ground
- ④ Distance and Bearings from Fix to Cursor (if the Fix is NOT received, DST and BRG are empty)
- ⑤ Chart Scale

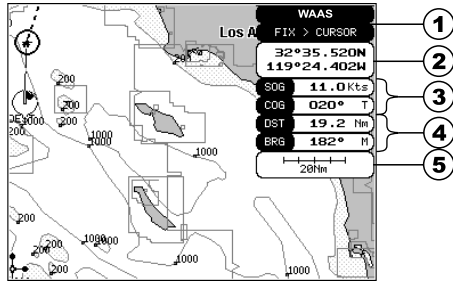


Figure 3.2.1.1 - Charts and general text area

When in Home mode the coordinates field ② shows ship's coordinates; also it is possible to choose the data to be displayed in the four fields ③, ④.

3.2.1.2 Line text window

➤ 'MENU' + "GENERAL SETUP" + 'ENTER' + "DATA WINDOW" + 'ENTER' + "1 line small /1 line large" + 'ENTER'

- ① Cursor Coordinates
- ② Speed Over Ground
- ③ Course Over Ground
- ④ Distance and Bearings from Fix to Target (DEST)
- ⑤ Distance and Bearings from Fix to Cursor (if the Fix is NOT received, DST and BRG are empty)

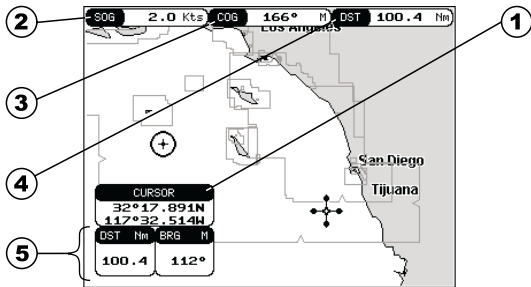


Figure 3.2.1.2 - Charts and line text area

When in Home mode the cursor window (① and ⑤) is not shown; the three fields ③, ④, ⑤ are selectable fields.

It is possible to use small (1 line small) or large (1 line large) characters to display the information.

Otherwise it is possible to use small characters on two lines to display information:

➤ 'MENU' + "GENERAL SETUP" + 'ENTER' + "DATA WINDOW" + 'ENTER' + "2 lines small" + 'ENTER'

① Distance from Fix to Target (DEST)

② Current Time

③ Course Over Ground

④ Time To Go

⑤ Speed Over Ground

⑥ Bearing

⑦ Cursor Coordinates

⑧ Distance and Bearings from
Fix to Cursor (if the Fix is NOT
received, DST and BRG are empty)

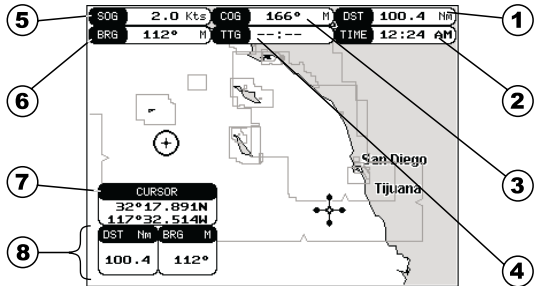


Figure 3.2.1.2a - Charts and 2 lines text area

As in the previous Figure 3.2.1.2, when in Home mode the coordinates field ⑧ shows ship's coordinates; the six fields ①, ②, ③, ④, ⑤, ⑥ are selectable fields as described in the previous Section 3.2.1.

3.2.1.3 Full chart

It is also possible to show the cartography at full screen:

► 'MENU' + "GENERAL SETUP" + 'ENTER' + "DATA WINDOW" + 'ENTER' + "None" + 'ENTER'

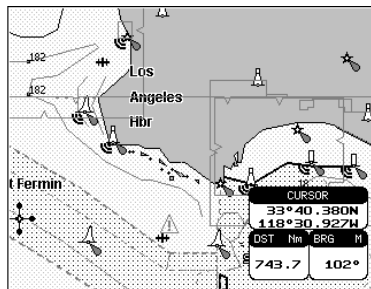


Figure 3.2.1.3 - Full Map Display

3.2.2 Navigation Data Page

► 'MENU' + "NAVIGATION" + 'ENTER'

Shows Compass display, fix position and the most relevant navigation information. Compass ruler ① and Lat/Lon ② fields are fixed fields and cannot be changed. The last six fields (③, ④, ⑤, ⑥, ⑦, ⑧) are selectable fields (default values are DST, BRG, TTG, XTE, SOG, COG) as described in the previous Section 3.2.1.

① Compass Ruler

② Fix position

③ Distance

④ Depth

⑤ Bearing

⑥ Speed Over Ground

⑦ Time To Go

⑧ Cross Track Error

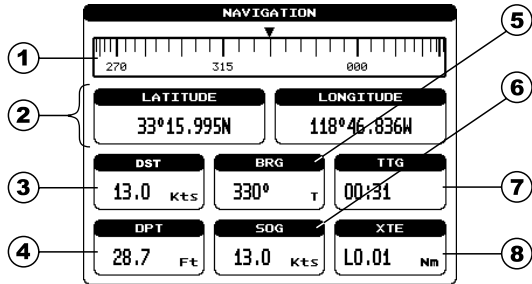


Figure 3.2.2 - Navigation Data Page

3.2.3 Highway Page

> 'MENU' + "HIGHWAY" + 'ENTER'

Shows the 3D Highway and the most relevant navigation information. It is possible to customize all fields shown in the page as described in the previous Section 3.2.1. The scale of the Highway display can be changed by pressing 'ZOOM IN'/'ZOOM OUT'; the ranges available are 0.2, 0.5, 1.0, 2.0, 4.0, 10.0 Nm.

① Distance

② Depth

③ Bearing

④ Time To Go

⑤ Cross Track Error

⑥ Speed Over Ground

⑦ Highway Display

⑧ Highway Scale

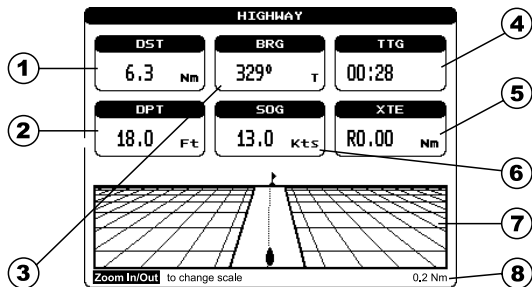


Figure 3.2.3 - Highway Page

3.2.4 Celestial Page

> 'MENU' + "CELESTIAL" + 'ENTER'

Shows the Moon phases, Sunrise/Sunset time and Low Water/High Water level at current location.

The day can be moved in the calendar by moving the ShuttlePoint knob left/right; use 'ZOOM IN'/'ZOOM OUT' to change the month.

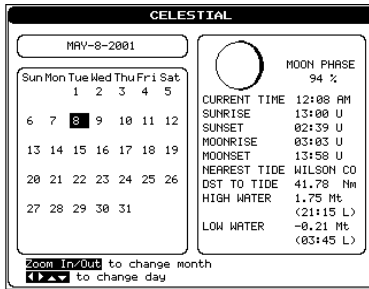


Figure 3.2.4 - Celestial Page

3.2.5 GPS Status Page

► 'MENU' + "GPS" + 'ENTER'

NOTE

To bypass this screen press 'CLEAR' to revert to the chart.
 Screen will default to chart page when fix is received.

Shows GPS satellites information. This is the default page shown at power on.

- ① Ship's Coordinates
- ② Horizontal Dilution of Precision
- ③ Vertical Dilution of Precision
- ④ WAAS/GPS Icon
- ⑤ Date and Time
- ⑥ Tracked, but not used, Satellite
- ⑦ Used Satellite
- ⑧ COG (Course Over Ground)

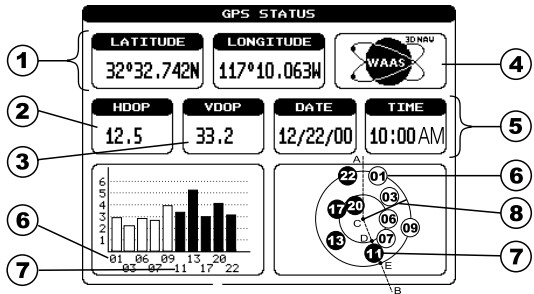


Figure 3.2.5 - GPS Status page

3.2.6 VHF Radio DSC LOG Page

► 'MENU' + "DSC" + 'ENTER' + "LOG" + 'ENTER'

Shows the Distress Call LOG page or Position Request LOG page (it depends which of the two was selected). The default is Distress Call LOG page). Press 'CLEAR' to return to chart display.

DSC LOG DISTRESS CALL			
DATE TIME	LATITUDE LONGITUDE	NAME MMSI	SHOWN
03-04-01 08:31 PM	33°30.595N 118°18.523W	0000457645	NO
03-04-01 09:11 AM	33°34.167N 118°21.864W	SHARK 0023244524	YES
03-04-01 09:31 AM	33°31.211N 118°29.181W	SLOWO 0006477743	NO
03-04-01 10:43 PM	33°36.802N 118°33.969W	STRIKE01 0007456837	YES
03-04-01 11:32 PM	33°32.947N 118°34.731W	THUNDER 0073788927	YES
<input type="button" value="LOCATE"/> <input type="button" value="DELETE"/> <input type="button" value="DELETE ALL"/> <input type="button" value="HIDE"/> <input type="button" value="POSITION REQUEST"/>			

Figure 3.2.6 - DSC LOG - Distress Call Page

Use the *ShuttlePoint* knob up/down to move the selection through the list and left/right to select active function:

Locate

Centers the map on the selected position.

Delete

Deletes selection position.

Delete All

Deletes all entries.

Hide/Show

Allows hiding/showing the selected points on the chart display. The default value of the field is Yes (object shown on the map).

Position Request

Shows Position Request LOG page. When Position Request LOG page is active this message changes to Distress Call LOG page.

3.2.7 NMEA DISPLAY Pages

NOTE

Certain data fields will not operate unless the chartplotter is interfaced with another NMEA instrument.

3.2.7.1 Display Page

➤ 'MENU' + "NMEA DISPLAY" + 'ENTER' + "DISPLAY" + 'ENTER'

It is possible to choose the page layout (the number of fields in the page) and the type of data shown in each of the fields in the page as described in the previous Section 3.2.1. If the selected type of data is not received the field shows dashes.

- ① Speed Over Ground
- ② Depth
- ③ Time
- ④ Course Over Ground
- ⑤ Time To Go
- ⑥ Horizontal Dilution of Precision

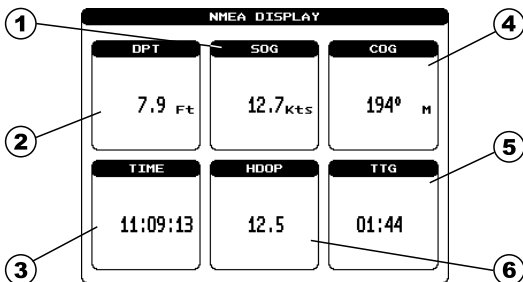


Figure 3.2.7.1 - NMEA DISPLAY Page

Data selectable are: SOG, COG, DST, BRG, XTE, TTG, ALT, HDOP, VDOP, BOAT SPEED, HEADING, DEPTH, TRIP LOG, WATER TEMP, TRUE WIND SPEED, TRUE WIND DIRECTION, APPARENT WIND SPEED, APPARENT WIND DIRECTION.

To change pages move the *ShuttlePoint* knob to the left or to the right.

Press and hold 'MENU' for 3 seconds to change the data fields in the windows.

3.2.7.2 Data Page

➤ 'MENU' + "NMEA DISPLAY" + 'ENTER' + "DATA" + 'ENTER'

Shows the stream of NMEA-0183 sentences read from the NMEA port. Pressing 'ENTER' stops/starts alternatively the page update.

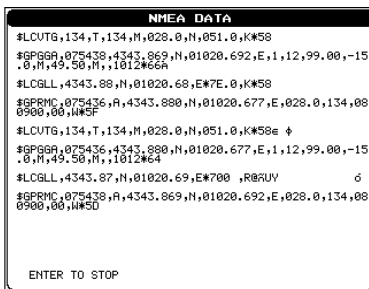


Figure 3.2.7.2 - NMEA Data Page

3.2.7.3 Depth Trend Page

➤ 'MENU' + "NMEA DISPLAY" + 'ENTER' + "DEPTH TREND" + 'ENTER'

Shows the graph of the Depth received from the NMEA Port. Pressing 'ZOOM IN'/'ZOOM OUT' changes the time scale.

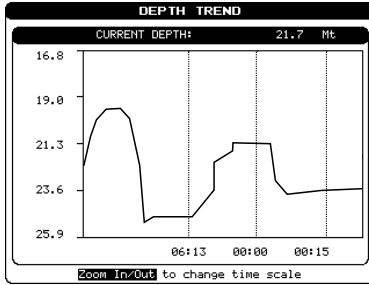


Figure 3.2.7.3 - Depth Graph Page

NOTE

Changing time scale will delete all points on the graph.

3.2.7.4 Wind Speed Trend Page

➤ 'MENU' + "NMEA DISPLAY" + 'ENTER' + "WIND SPEED TREND" + 'ENTER'
Shows the graph of the Apparent Wind Speed received from the NMEA Port. Pressing 'ZOOM IN'/'ZOOM OUT' changes the time scale.

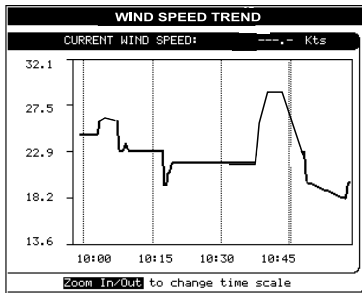


Figure 3.2.7.4 - Wind Speed Graph Page

NOTE

Changing time scale will delete all points on the graph.

3.2.7.5 Temp Trend Page

➤ 'MENU' + "NMEA DISPLAY" + 'ENTER' + "TEMP TREND" + 'ENTER'
Shows the graph of the Water Temperature received from the NMEA Port. Pressing 'ZOOM IN'/'ZOOM OUT' changes the time scale.

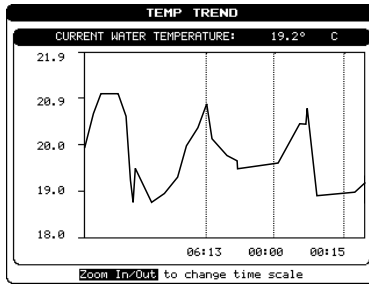


Figure 3.2.7.5 - Temp Graph Page

NOTE

Changing time scale will delete all points on the graph.

3.2.7.6 SOG Trend Page

➤ 'MENU' + "NMEA DISPLAY" + 'ENTER' + "SOG TREND" + 'ENTER'

Shows the graph of the vessel Speed received from the NMEA Port. Pressing 'ZOOM IN'/ 'ZOOM OUT' changes the time scale.

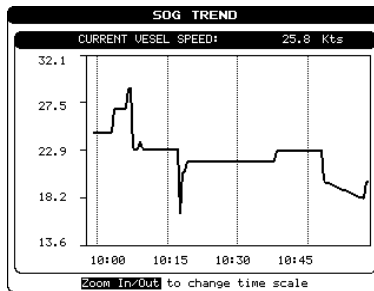


Figure 3.2.7.6 - SOG Graph Page

NOTE

Changing time scale will delete all points on the graph.

4. OPERATION

4.1 INITIAL SETUP

4.1.1 Installing/Removing chartplotter

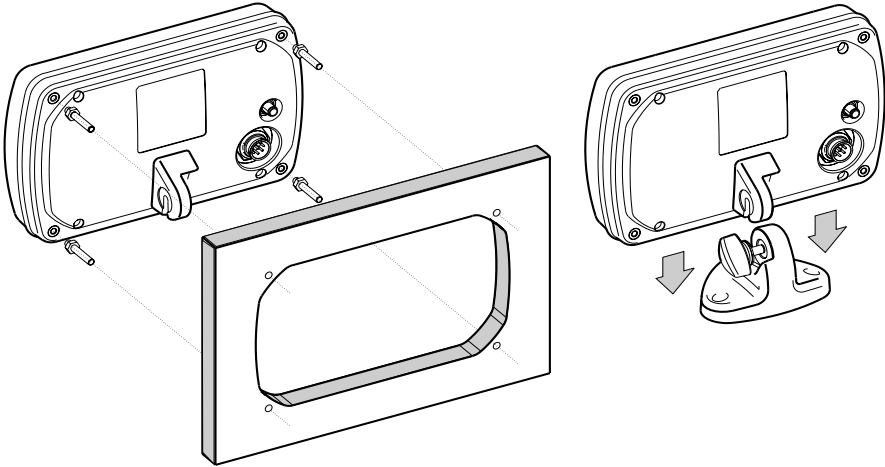


Figure 4.1.1 - Installing/removing chartplotter

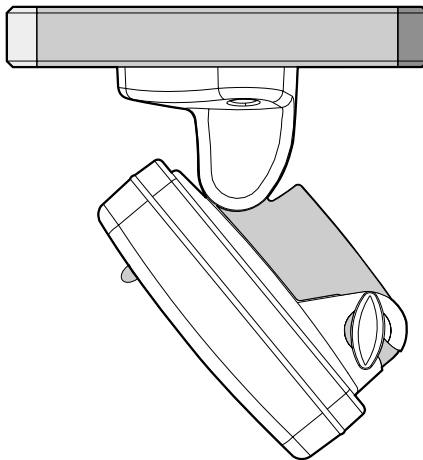



Figure 4.1.1a - Optional overhead mounting bracket

4.1.2 Cable Wiring

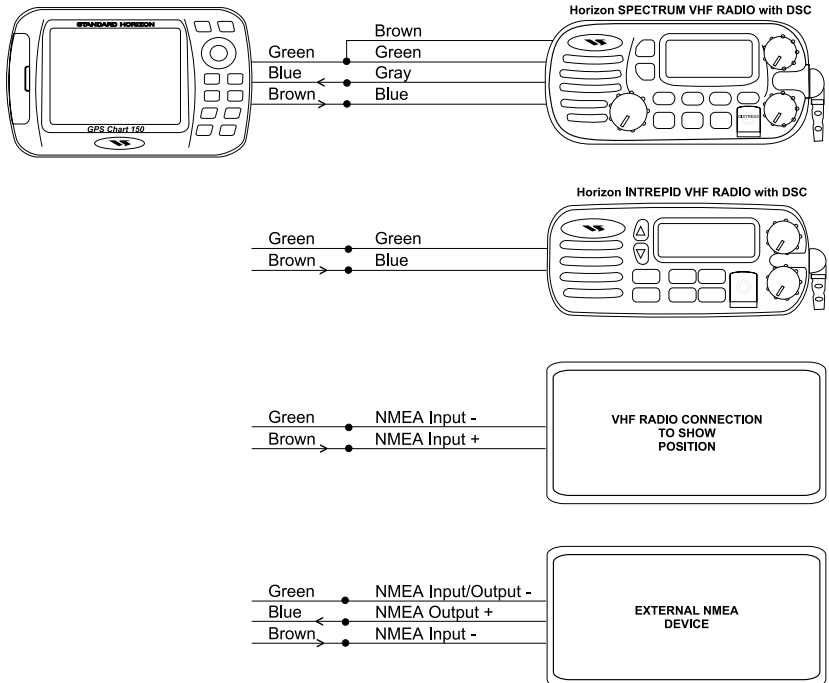
CONNECTOR



POWER & In/Out Cable

PIN	WIRE COLOR - Description	CONNECTION EXAMPLES <i>(Check the equipments owner's manual connections)</i>
1	BLACK - Battery Ground	Negative 12VDC source
2	RED - Positive 12VDC	Positive 12VDC source
3	GREEN - NMEA Ground	Common NMEA (-) connection on VHF's, Instruments and Autopilots
4	BLUE - NMEA 1 Input (+)	NMEA Output (+) of VHF radio for DSC Distress and Position Request
5	BROWN - NMEA 1 Output (+)	NMEA Input of VHF radio (Lat/Lon, Date and time) or other listener
6	GRAY - NMEA 2/RTCM Input (+)	NMEA Output (+) of Digital Instruments or RTCM output of differential beacon receiver
7	WHITE - NMEA 2 Output (+)	NMEA Input (+) of NMEA listeners
8	YELLOW - Autopilot NMEA 3 Output (+)	NMEA Input (+) of Autopilot

CONNECTION EXAMPLE for NMEA 1



Horizon SPECTRUM VHF RADIO with DSC

- Green → Green
- Blue ← Gray
- Brown → Blue

Horizon INTREPID VHF RADIO with DSC

- Green → Green
- Brown → Blue

VHF RADIO CONNECTION TO SHOW POSITION

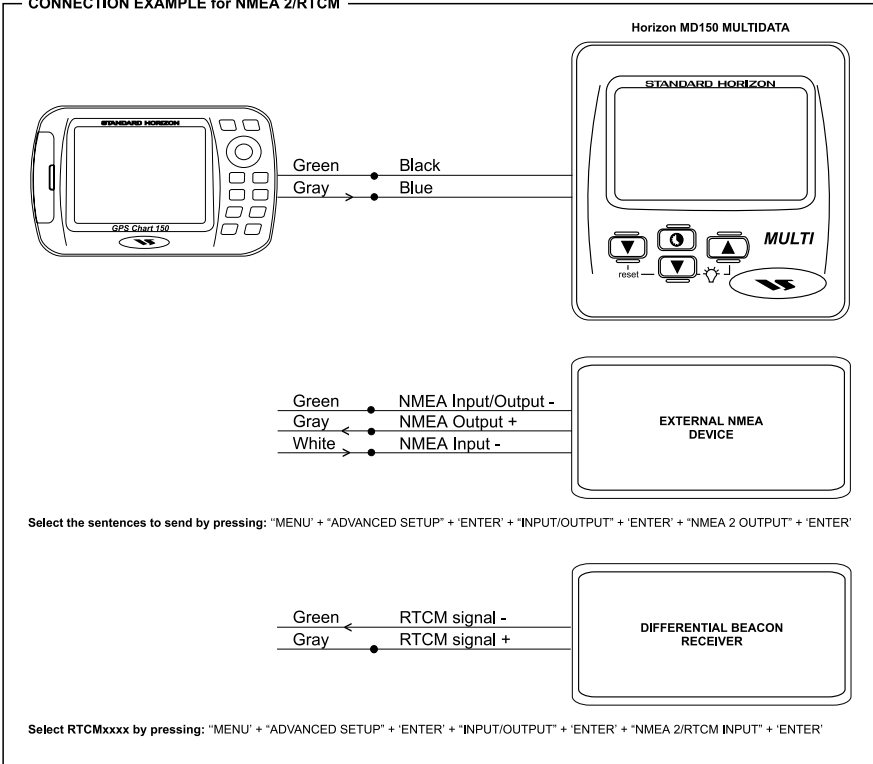
- Green → NMEA Input -
- Brown → NMEA Input +

EXTERNAL NMEA DEVICE

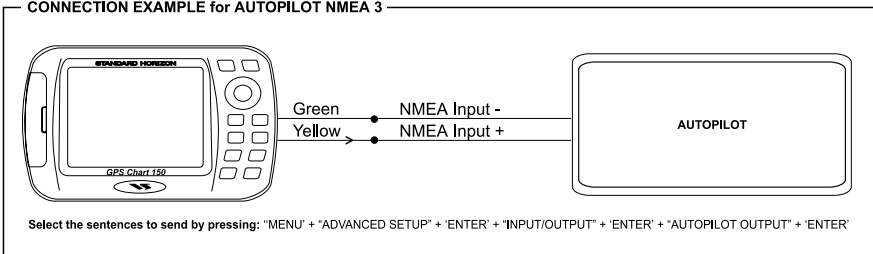
- Green → NMEA Input/Output -
- Blue ← NMEA Output +
- Brown → NMEA Input -

Select the sentences to send by pressing: "MENU" + "ADVANCED SETUP" + "ENTER" + "INPUT/OUTPUT" + "ENTER" + "NMEA 1 OUTPUT" + "ENTER"

CONNECTION EXAMPLE for NMEA 2/RTCM



CONNECTION EXAMPLE for AUTOPILOT NMEA 3



4.1.3 Turning the chartplotter On and Off

Before powering On the chartplotter, check for the correct voltage (10-18 volt dc), the correct polarity and be sure that the supplied 1A Fuse is wired in series on the PWR - (Black) wire:

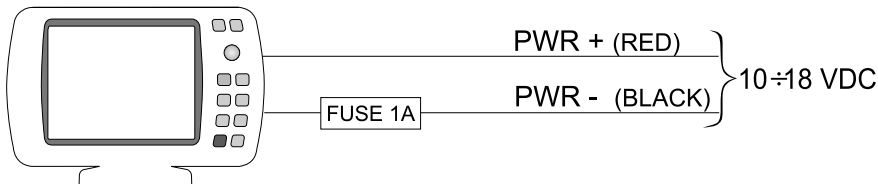


Figure 4.1.3 - Power On

Check also for the correct connection of the GPS antenna.

4.1.3.1 Turning On

Press and hold 'PWR' for 1 second. The chartplotter emits one rapid beep sound and the Start-Up pages are opened:

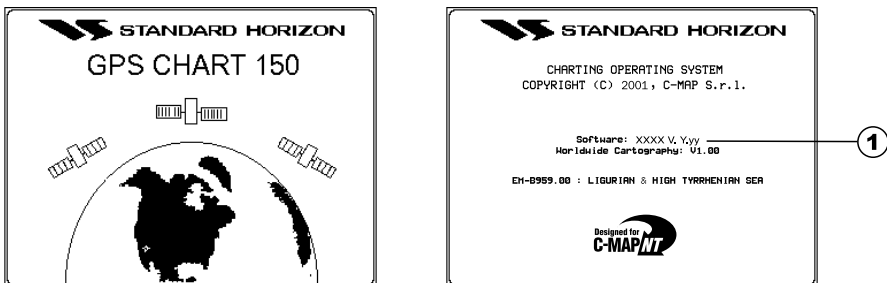


Figure 4.1.3.1 - Start-Up pages

NOTE

The software version ① is subject to change without notice.

After a few seconds, the first of the two Caution Notice pages is displayed, reminding you that the chartplotter is only an aid to navigation, and should be used with appropriate prudence. The electronic charts are not intended to substitute official charts. Then the cartographic screen is displayed.

4.1.3.2 Turning Off

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

4.1.4 Changing Light and Contrast

Press and immediately release 'PWR' (do not press and hold the key, or the "power-off" message will be displayed!); use the *ShuttlePoint* knob to increase/decrease the light (move it left/right) and the contrast (move it up/down). Press 'ENTER' to confirm the setting.

4.1.5 Selecting the Language

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

➤ 'MENU' + "GENERAL SETUP" + 'ENTER' + "LANGUAGE" + 'ENTER'

Choose the Language you want and press 'ENTER' to confirm.

4.1.6 Setting the NMEA Sentences

4.1.6.1 Internal GPS Setup

It is possible to set the desired configuration for the Internal GPS.

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

On the screen a menu is shown with the following options ①, ②, ③.

① Restart GPS

Restarts all GPS processes.

② Static Navigation

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

③ Differential Correction Source

Allows the selection of the Differential Correction Source signal among None, WAAS and External RTCM. If the "NMEA2/RTCM INPUT" is set to NMEA the option External RTCM cannot be selected. The chartplotter shows a Warning message. The default setting is WAAS.

4.1.6.2 Autopilot Output

To connect the chartplotter to an Autopilot, select the desired sentences.

➤ 'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "AUTOPILOT OUTPUT" + 'ENTER'

4.1.6.3 NMEA1 Output & NMEA2 Output

Allows selecting the set of NMEA-0183 sentences transmitted by the chartplotter.

For NMEA1:

➤ 'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "NMEA1 OUTPUT" + 'ENTER'

For NMEA2:

➤ 'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "NMEA2 OUTPUT" + 'ENTER'

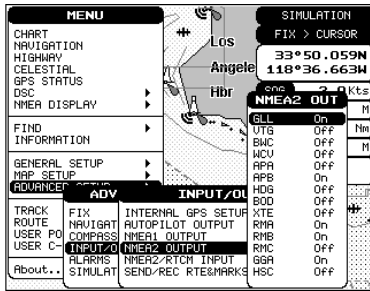


Figure 4.1.6.3 - NMEA Sentences

4.1.6.4 NMEA2/RTCM Input

Selects the input type among NMEA and RTCM 1200, 2400, 4800, 9600, 19200, 38400 (where the number means the Baud Rate of the RTCM signal). By selecting RTCM the Differential Correction Source is automatically set to External RTCM. If NMEA2/RTCM Input is different from NMEA or RTCM 4800, the NMEA2 Output is stopped and a warning message will be shown. The default setting is NMEA.

➤ 'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "NMEA2/RTCM INPUT" + 'ENTER'

4.1.6.5 Send/Rec RTE&MARKS Port

Allows selection from which port the NMEA RTE and WPL sentences are sent/received (to transfer Marks or Routes).

➤ 'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "SEND/REC RTE&MARKS PORT" + 'ENTER'

4.1.7 Additional C-CARDS

The chartplotter uses two types of C-MAP optional 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 Waypoints, Marks and tracks.

4.1.7.1 Inserting C-CARD

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

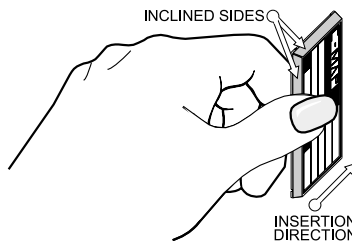


Figure 4.1.7.1 - Inserting/Removing C-CARD (I)

Open the door (see ② in Figure 3.1), gently push the C-CARD into the slot; push the C-CARD in as far as it will go, then close the door to hold fixed into the slot (as shown in the following Figure 4.1.7.1a).

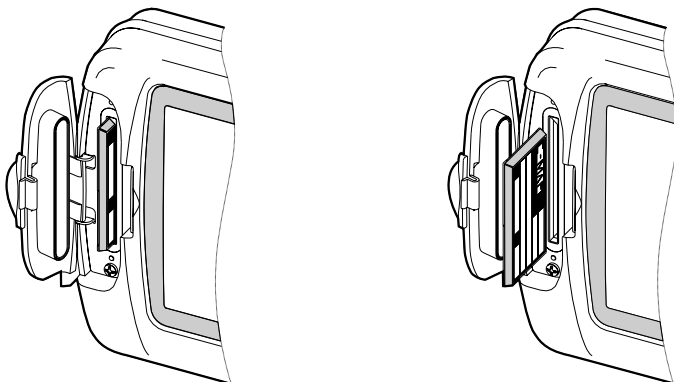


Figure 4.1.7.1a - Inserting/Removing C-CARD (II)

4.1.7.2 Removing C-CARD

Open the door and remove the C-CARD out of the slot (as shown in the previous Figure 4.1.7.1a).

4.2 C-MAP NT INFORMATION

Looking at the chart displayed on the screen, you will see a variety of objects and symbols. Refer to the **C-MAP NT Handbook** for their explanation.

The display can be customized for your personal preferences and needs (see Section 8 Map Setup, Land Settings, Marine Settings, Nav Aids Settings, Chart Settings, Other Settings).

4.2.1 Getting Quick Info

Place the cursor on a cartographic object; an information window is opened on the screen containing the main information and symbols identifying that object:

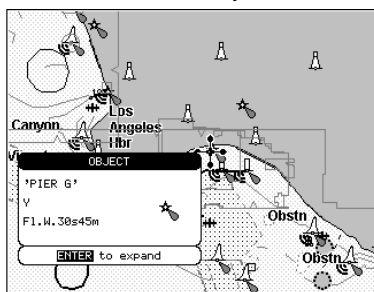


Figure 4.2.1 - Quick Info window

To expand information (to obtain all information) about that object press 'ENTER':

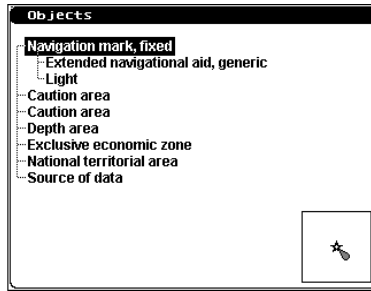


Figure 4.2.1a - Expanded information

4.2.2 Information Function

Place the cursor in any place you want and press 'MENU' + "**INFORMATION**" + 'ENTER' to obtain a whole screen page where a list of all objects (in a tree structure), found in the range of the cursor, is displayed; if there are complex objects (collection of objects logically related) you will also find a list of the components:

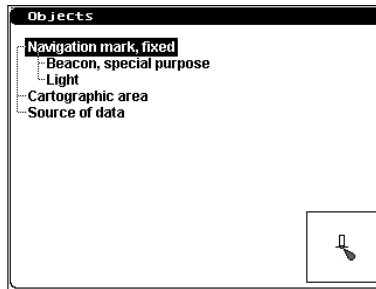


Figure 4.2.2 - Info on cartographic objects

To select the object shown in reverse video screen use the *ShuttlePoint* knob. In the right bottom a window containing the selected object icon is opened. Press 'ENTER' to expand. If the information is contained in several pages, to select the following pages use the *ShuttlePoint* knob. To return to previous page and exit press 'CLEAR'.

4.2.3 Getting Port Info

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

① Port Info icon

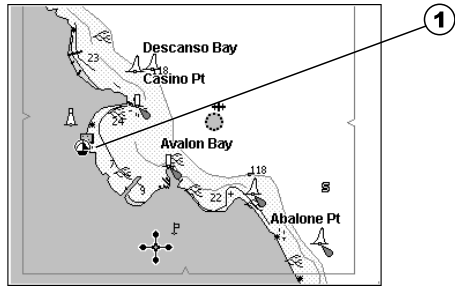


Figure 4.2.3 - Port Info icon

The available information is shown in the Quick Info window (if the Info Level setting is Detailed - default setting) where icons of the available services are shown:

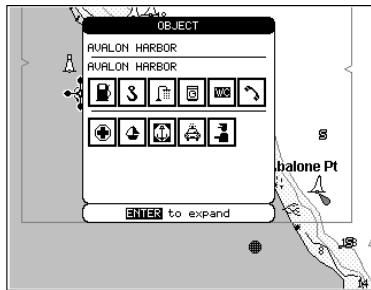


Figure 4.2.3a - Quick Info window

To expand information about that object press 'ENTER':

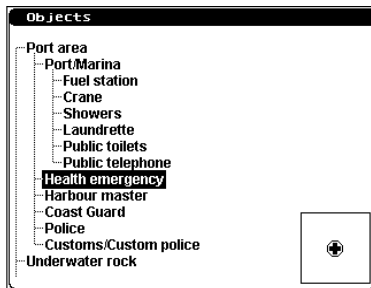


Figure 4.2.3b - Full Info (I)

Select the service you want and press 'ENTER': a detailed information on the services (as the opening and closing time of the Fuel station, the telephone number of the Health emergency... and so on) are shown on the screen:

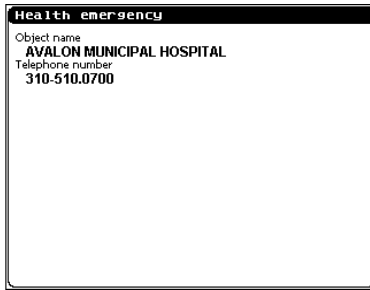


Figure 4.2.3c - Full Info (II)

For all countries, where such information exists on the paper chart, you will also see accurately positioned symbols which show where many useful facilities are located.

4.2.4 Getting Tide Info

To obtain Tide Info:

① Tide Info icon

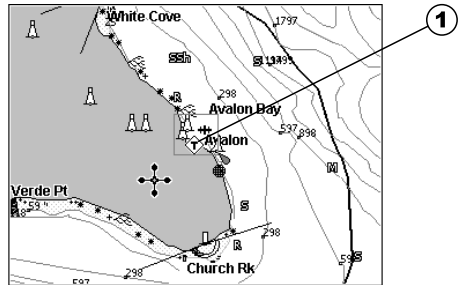


Figure 4.2.4 - Tide Info icon

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

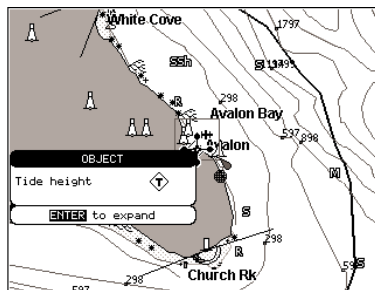


Figure 4.2.4a - Quick Info on Tide

To display the Tide Graph page press 'ENTER':

① VERTICAL cursor

② HORIZONTAL cursor

③ Values referred to the VERTICAL cursor

④ Values referred to the HORIZONTAL cursor

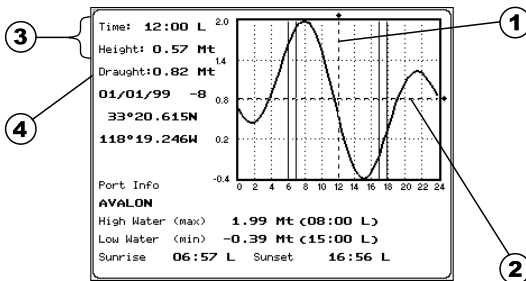


Figure 4.2.4b - Tide Graph

Using the *ShuttlePoint* knob, 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 *ShuttlePoint* knob up/down to insert the desired number and move it left/right to move cursor to left/right, press 'ENTER' to confirm).

NOTE

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

4.2.5 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 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 Figure 4.2.4b). Press 'CLEAR' to display the Tide Station chosen.

4.2.6 Finding Port Services

To locate and display the nearest available facilities (up to 10) of a particular type (i.e. the nearest Hospital, sailmaker, bank, etc.).

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

The icons list is shown of the available Port Services:

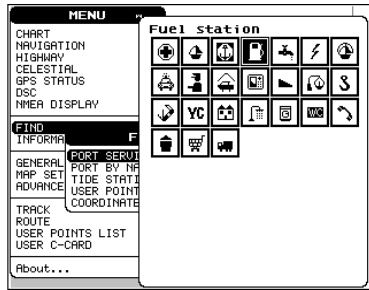


Figure 4.2.6 - Port Services

Use the *ShuttlePoint* knob to select any facility and press 'ENTER'. By selecting one of the facilities, the list of the nearest ports (up to 10) in which this port facility is present, will be shown on the screen.

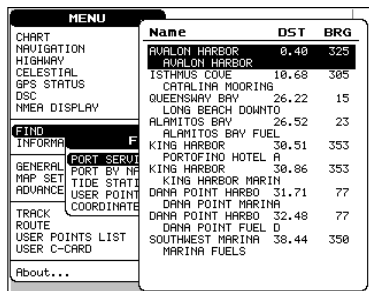


Figure 4.2.6a - List of the nearest ports

Then choose the facility you want and press 'ENTER':

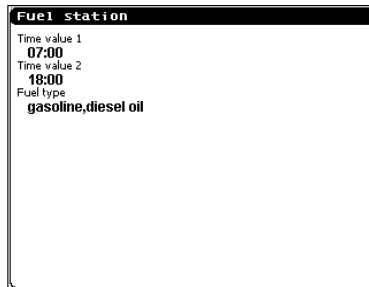


Figure 4.2.6b - Info on selected service

By pressing 'CLEAR' the window disappears and the cursor is located on the chosen facility.

4.2.7 Finding Port by Name

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

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

CHAR:	NAME	DST	BRG
NAVIC	FIDDLER'S COVE MARINA & RU	114.63	085°
HIGH	CALIFORNIA YACHT MARINA	116.13	085°
CELES	LOEMS CROWN ISLE MARINA	116.33	085°
GPS	CORONADO CAYS YACHT CLUB M	116.28	085°
DSC	SOUTH BAY BORTYARD	116.24	085°
NMEA	CHULA VISTA MARINA & RU RE	116.17	085°
FIND	KNIGHT & CARUER YACHT CENT	115.18	084°
INFOR	GLORIETTA BAY MARINA	112.33	084°
GENE	SHELTER POINTE HOTEL AND M	109.03	083°
NAP	PEARSON MARINE FUELS	109.26	083°
ADVAR	HALF MOON ANCHORAGE	109.40	083°
	SAN DIEGO YACHT CLUB	109.14	083°
TRAC	SOUTHWESTERN YACHT CLUB	108.94	083°
ROUTE	BAY CLUB MARINA	109.40	083°
USER	CAMPBELL INDUSTRIES MARINE	112.52	083°

About **MENU** to enter Port Name

Figure 4.2.7 - List by name of available ports

NOTE

A Warning message is shown if: there is no C-CARD inserted; there are no ports on the C-CARD.

Use the *ShuttlePoint* knob to select port; use 'ZOOM IN' and 'ZOOM OUT' to select the next/previous page. Press 'ENTER' to locate port on map.

4.2.7.1 Entering Port Name

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

Use the *ShuttlePoint* knob to insert port name (max 15 characters); press 'ENTER' to accept. If inserted name is found, the list with all ports containing the inserted name is shown. Repeat the operation to refine search or move through the list with *ShuttlePoint* knob.

4.3 USING MARKS

You may place a Mark on cursor position by pressing 'MARK'.

4.3.1 Marks

You may mark a location on the chart with a Mark symbol and number, which you can record for later use. Marks can be stand-alone or can be linked to a Route. Every time you place the cursor on a Mark the following functions are available: Deleting Mark (see 4.3.1.2 Section), Moving Mark (see 4.3.1.3 Section), Editing Mark (see 4.3.1.4 Section), Finding information on Marks (see 4.3.1.5 Section).

4.3.1.1 Adding Mark

➤ 'MARK'

The new Mark appears on your cursor position. An info window with icon, name, coordinates, Distance and Bearing from Fix to Mark is shown (see next Figure 4.3.1.3). If Mark belongs to a Route, the information window looks like the one for the Waypoint and the options applicable to the Mark are the same options applicable to a Waypoint.

4.3.1.2 Deleting Mark

► Place cursor on Mark

Press 'ENTER'. Select "**DELETE**" and press 'ENTER'.

4.3.1.3 Moving Mark

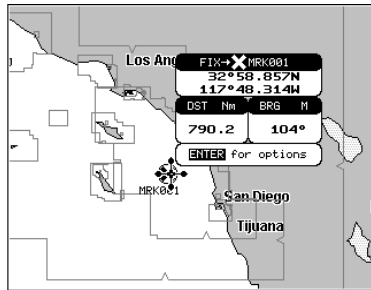


Figure 4.3.1.3 - Moving Mark (I)

Place cursor on Mark and press 'ENTER'. Select "**MOVE**" and press 'ENTER'. By moving the cursor with the *ShuttlePoint* knob, a dotted line connecting the Mark with the new position is shown:

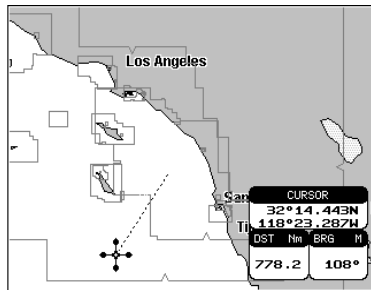


Figure 4.3.1.3a - Moving Mark (II)

Press 'ENTER':

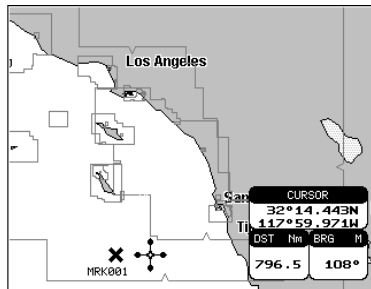


Figure 4.3.1.3b - Moving Mark (III)

The Mark is placed in the new position.

4.3.1.4 Editing Mark

► Place cursor on Mark

Press 'ENTER'. Select "EDIT" and press 'ENTER'. A window appears to modify name, symbol and coordinates of the existing Mark (see previous Figure 4.3.1.3)

Use the *ShuttlePoint* knob to select the field. If you have selected name field, press 'ENTER': use the *ShuttlePoint* knob to insert the character (10 characters max), then press 'ENTER'. If symbol field is selected press 'ENTER': a window with 16 different symbols appears. Use the *ShuttlePoint* knob to select the symbol and press 'ENTER'. If coordinates field is selected, press 'ENTER' and then use the *ShuttlePoint* knob to insert the value. Then press 'ENTER'.

4.3.1.5 Finding information on Marks: User Points List page

► Place cursor on Mark

Press 'ENTER'. Select "DIRECTORY" and press 'ENTER'. A full window is opened showing information about all stored User Points (Marks and Waypoints). Move up/down the *ShuttlePoint* knob to select the User Point you wish. If the page contains more than 7 User Points, the list continues in the next pages. See Section 4.4.1.9 for additional information.

4.4 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.

4.4.1 Waypoints

You may add Waypoints, delete Waypoints from a Route, move any Waypoint in the Route to another location, insert a Waypoint between two existing ones, find any Waypoint at anytime. Every time you place the cursor on a Waypoint the following functions (see from 4.4.1.3 to 4.4.1.9 Section) are available.

4.4.1.1 Adding Waypoint

► 'ROUTE'

When 'ROUTE' is pressed a Waypoint appears on cursor position. When the cursor is placed on a Waypoint a window is shown containing information on Waypoint:

- ① Route Name which Waypoint belongs
- ② Waypoint Identifier
- ③ Waypoint Coordinates
- ④ Distance from Ship to Waypoint
- ⑤ Bearing from Ship to Waypoint

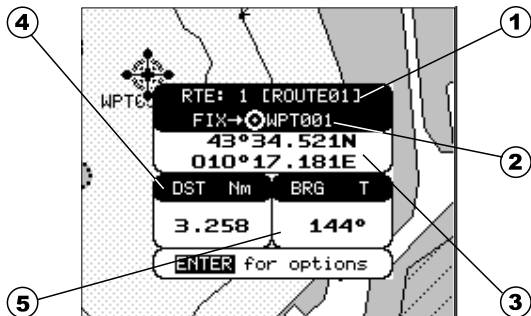


Figure 4.4.1.1 - Waypoint placing

4.4.1.2 Creating a Route

Repeat the "Adding Waypoint" procedure described in the previous Section 4.4.1.1 "Adding Waypoint". The sequence of moving the cursor and pressing 'ROUTE' 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:

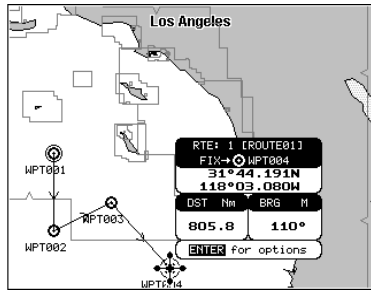


Figure 4.4.1.2 - Route planning

NOTE

To create another Route, press 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER' then select open position and press 'ENTER'.

4.4.1.3 Deleting Waypoint

➤ Place cursor on Waypoint

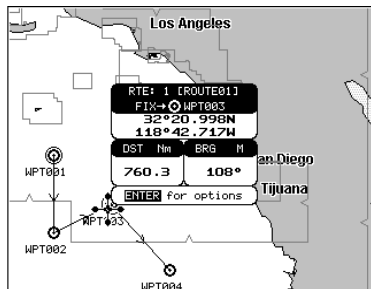


Figure 4.4.1.3 - Deleting Waypoint (I)

Press 'ENTER'. Select "**DELETE**" and press 'ENTER': select "**YES**" and press 'ENTER' (select "**NO**" and press 'ENTER' to abort operation). The Waypoint is deleted and a new line between previous and next Waypoint is shown:

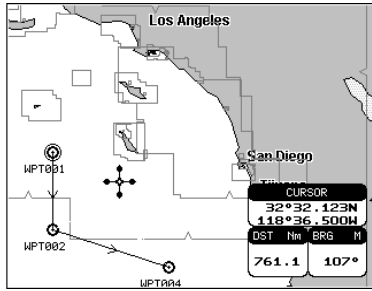


Figure 4.4.1.3a - Deleting Waypoint (II)

4.4.1.4 Deleting Route

► 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). To delete Route see also Section 4.4.1.8 and Section 4.4.2.2.

4.4.1.5 Moving Waypoint

► Place cursor on Waypoint

Press 'ENTER'. Select "**MOVE**" and press 'ENTER'. Use the *ShuttlePoint* knob to move the cursor. A dotted line, connecting the Waypoint to the new position, is shown:

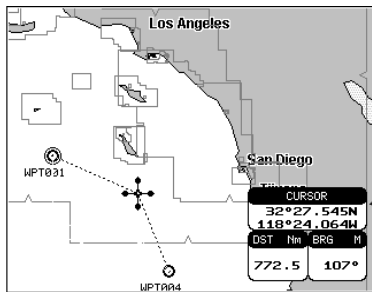


Figure 4.4.1.5 - Moving Waypoint (I)

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

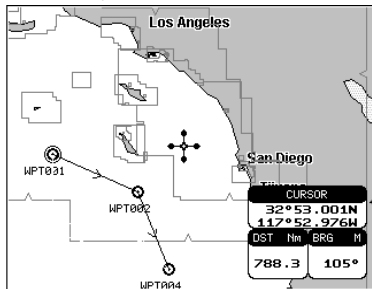


Figure 4.4.1.5a - Moving Waypoint (II)

4.4.1.6 Inserting Waypoint

Every time you place the cursor on the segment connecting two existing Waypoints of a Route the following functions are available: insert Waypoint, report, delete Route.

➤ **Place cursor on Route leg**

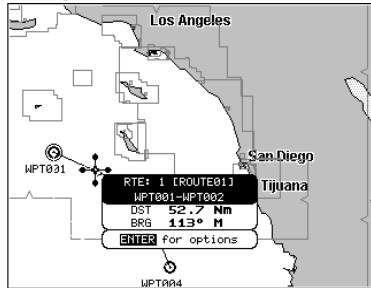


Figure 4.4.1.6 - Placing Waypoint between two existing ones (I)

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. 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:

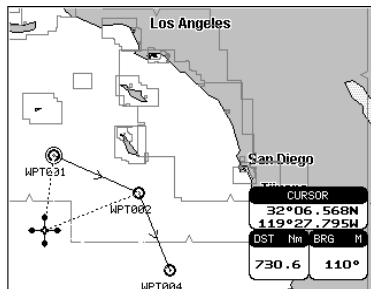


Figure 4.4.1.6a - Placing Waypoint between two existing ones (II)

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

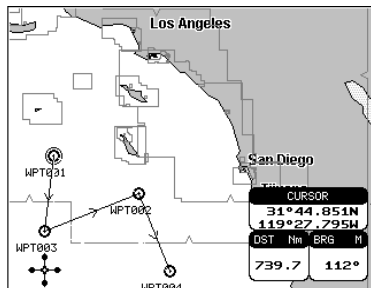


Figure 4.4.1.6b - Placing Waypoint between two existing ones (III)

4.4.1.7 Editing Waypoint

► 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:

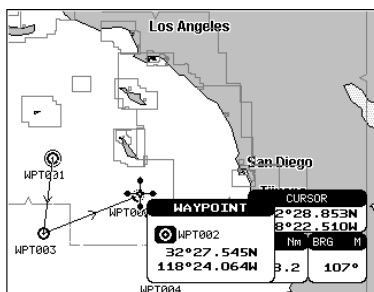


Figure 4.4.1.7 - Edit Waypoint (I)

Use the *ShuttlePoint* knob to select the field. If you have selected name field, press 'ENTER': use the *ShuttlePoint* knob to insert the character (10 characters max), then press 'ENTER'.

If symbol field is selected press 'ENTER': a window with 16 different symbols appears:

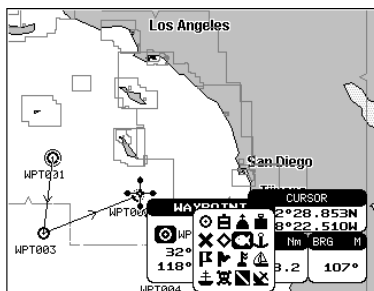


Figure 4.4.1.7a - Edit Waypoint (II): Waypoint symbols

Use the *ShuttlePoint* knob to select the symbol and press 'ENTER'. If selecting coordinates field, press 'ENTER' and then use the *ShuttlePoint* knob to insert the value, press 'ENTER' to store. Then press 'CLEAR' to exit and save the new information.

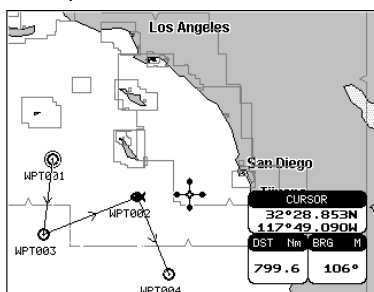


Figure 4.4.1.7b - Edit Waypoint (III)

4.4.1.8 Finding information on a Route: Route Report page

► Place cursor on Waypoint

Press 'ENTER'. Select "REPORT" and press 'ENTER':

- ① Navigation Time from the Waypoint and the previous one
- ② Fuel Consumption between the Waypoint and the previous one
- ③ Total Distance (Distance from the first Waypoint of the route)
- ④ Leg Distance (Distance between the Waypoint and the previous one)
- ⑤ Waypoint Number
- ⑥ Waypoint Position
- ⑦ Bearing

ROUTE REPORT							
ROUTE	1	NAME	ROUTED1	FUEL	10.0	/h	
SPEED	10.0	Kts					
WAYPOINT	LATITUDE	LONGITUDE	BRG	LDST	TOST	TIME	FUEL
			Nm	Nm	Nm		
WPT001	43°41.432N	005°54.397E					
WPT003	43°48.923N	005°57.834E	019°	7.899	7.899	000:47	7.89
WPT002	43°54.324N	005°55.561E	289°	16.93	24.83	002:28	24.8

SELECT NAME INVERT CLEAR SPEED FUEL

Figure 4.4.1.8 - Route Report page

If there are more than 8 Waypoints shown, use the *ShuttlePoint* knob to select another page.

Selecting Route

► Place cursor on Waypoint + 'ENTER' + "REPORT" + 'ENTER' + "SELECT" + 'ENTER'

Use the *ShuttlePoint* knob to select the Route identifier and press 'ENTER'. Data related to the selected Route are shown on the screen.

Naming Route

► Place cursor on Waypoint + 'ENTER' + "REPORT" + 'ENTER' + "NAME" + 'ENTER'

Use the *ShuttlePoint* knob to insert the Route name and press 'ENTER'.

Reversing Route

► Place cursor on Waypoint + 'ENTER' + "REPORT" + 'ENTER' + "INVERT" + 'ENTER'

Reversing a Route plan is most typically used to return to the point where the Route originally started. See also Section 4.4.2.3.

Deleting Route

► Place cursor on Waypoint + 'ENTER' + "REPORT" + 'ENTER' + "CLEAR" + 'ENTER'

A window is opened: select "YES" and press 'ENTER' to confirm (select "NO" and press 'ENTER' otherwise). See also Section 4.4.2.2.

Changing Speed & Fuel values

► Place cursor on Waypoint + 'ENTER' + "REPORT" + 'ENTER' + "SPEED/FUEL" + 'ENTER'

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

NOTE

Speed and fuel are made by the user to assist in estimating approximate travel time and fuel consumption for each Route.

4.4.1.9 Finding information on Waypoints: User Points List page

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

- ① Distance and Bearing from the Cursor or from the Ship's position
- ② User Point position
- ③ Graphic Symbol
- ④ Identifier
- ⑤ Type of user Point (Mark or Waypoint)

SYM	NAME	TYPE	LATITUDE LONGITUDE	DST [Nm] BRG [T]
MRK008		MARK	33°40.172N 118°25.246E	48.47 386°
MRK009		MARK	33°35.721N 118°35.645E	23.35 208°
MRK010		MARK	33°31.080N 118°24.720E	43.41 297°
MRK011		MARK	33°13.926N 118°04.825E	28.71 294°
MRK012		MARK	33°13.781N 117°51.697E	8.915 208°
MRK013		MARK	33°13.181N 117°50.128E	18.57 316°
MRK014		MARK	33°24.019N 117°44.298E	12.71 349°

ICON FIND LOCATE EDIT
DELETE DELETE ALL SEND RECEIVE

Figure 4.4.1.9 - User Points List page

If the page contains more than 7 User Points, the list continues in the next pages. Move up/down the *ShuttlePoint* knob to select the User Point you wish.

User Point Icon

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

This mode is used to display by icon type. A windows is shown with two options. Choose "**SELECT**" and press 'ENTER' to sort by icon type:

SYM	NAME	TYPE	LATITUDE LONGITUDE	DST [Nm] BRG [T]
MRK001		MARK	33°36.924N 118°19.763E	35.23 316°
MRK002		MARK	33°32.195N 118°05.150E	28.64 316°
MRK003		MARK	33°31.080N 117°55.060E	22.63 302°
MRK004		MARK	33°24.577N 118°04.029E	22.98 305°
MRK005		MARK	33°24.577N 117°56.151E	17.97 315°
MRK006		MARK	33°28.666N 118°14.343E	32.43 302°
MRK007		MARK	33°32.009N 118°18.154E	36.91 384°

ICON
SELECT ALL
ICON

LOCATE EDIT
DELETE DEL SEND RECEIVE

Figure 4.4.1.9a - User Point icon

Choose one of the 16 icons available, press 'ENTER': the first User Point with this icon is shown.

4.4.2 Routes

The following functions are used for the Route management. The chartplotter handles Routes from 1-20, which are permanently stored in the memory as they are created. Only one Route can be selected for work at any one time.

4.4.2.1 Selecting Route

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

Use the *ShuttlePoint* knob to select the Route name to work and press 'ENTER'.

4.4.2.2 Deleting Route

➤ 'MENU' + "ROUTE" + 'ENTER' + "DELETE" + '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. Note that the active Route (the Route with the Target) cannot be deleted. A warning message is shown when the user tries to delete it. To delete Route see also Section 4.4.1.8.

4.4.2.3 Reversing Route

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

Reverse current Route ends.

4.4.2.4 Report Route

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

Shows information about Route, Waypoint position and name, Distance and Bearing between Waypoint, Fuel consumption. Allows changing the current Route and locating the Route on the map. See Section 4.4.1.8.

4.4.2.5 Sending Route to a PC program

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

Transmits current Route information (NMEA sentences WPL, RTE) on the NMEA Output port (selectable by the user in the Input/Output menu, Send/Rec Rte & Marks Port item see Section 8).

4.4.2.6 Receiving Route from a PC program

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

Saves Route information (NMEA sentences WPT, RTE) received from the NMEA Input port (selectable by the user in the Input/Output menu, Send/Rec Rte & Marks Port item see Section 8). The received Route is saved on the current Route. If the current Route contains data the chartplotter shows a warning window and asks the user if he wants to overwrite the existing Route.

4.5 GOTO FUNCTION

Once you have positioned the cursor on the desired point press 'GOTO': a window is shown with three options, "CURSOR", "ROUTE" and "MARK".

Otherwise if the cursor is near an existing User Point (Mark or Waypoint), pressing 'GOTO' the Destination is placed on that User Point. A circle around the User Point identifies the Destination point. When the Destination point is placed on a Route, when reached the Destination point will move to the next Waypoint of the Route.

4.5.1 Goto Cursor

► 'GOTO' + "CURSOR" + 'ENTER'

Places a Direct Destination at the cursor coordinates. The Direct Destination is a temporary User Point that will be removed when the navigation is stopped. The Direct Destination is drawn as a Mark with the circle around and it is labeled "DEST".

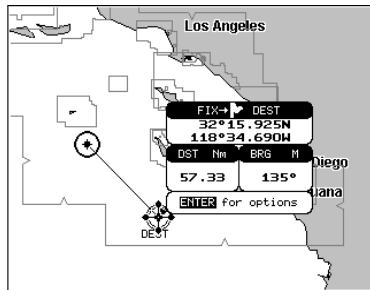


Figure 4.5.1 - Placing Destination on Cursor

4.5.2 Goto Route

► 'GOTO' + "ROUTE" + 'ENTER'

The Route selection window is shown. Select the Route you want and press 'ENTER' to activate the navigation on it. The Destination is always placed on the first Waypoint of the Route.

4.5.3 Goto Mark

► 'GOTO' + "MARK" + 'ENTER'

Shows the User Points List page. Select the desired User Point and press 'GOTO' to activate navigation toward the selected point. Press 'CLEAR' to exit from the User Points List page.

4.5.4 Stopping Goto navigation

If the Destination point is already present, when 'GOTO' is pressed a window is shown. Select "STOP" and press 'ENTER' to stop navigating to the current Destination.

Otherwise selecting "START" removes the current Destination and places a new one at the cursor position. If the cursor is near an existing User Point the Destination is set on it.

4.5.5 Placing Cursor on a Route

When the Target is set on a Route, placing cursor on it and pressing 'ENTER' shows an information window with the following options:

- 1) "**STOP**" to stop navigation and to remove the current Destination.
- 2) "**NEXT**" to move Destination to the next Waypoint of the Route. When the Destination is on the last Waypoint this option is not present.
- 3) "**PREVIOUS**" to move Destination to the previous Waypoint of the Route. When the Destination is on the first Waypoint this option is not present.
- 4) "**HIGHWAY**" to bring up the Highway page (see Section 3.2.3).

4.6 MOB FUNCTION

Is an important function useful in case someone or something falls overboard.

4.6.1 Inserting MOB

Press 'MOB' to place MOB symbol at ship's coordinates:

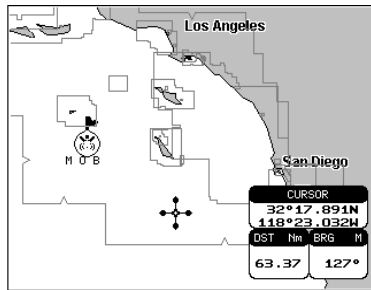


Figure 4.6.1 - Placing MOB

4.6.2 Deleting MOB

Place cursor on MOB, press 'ENTER', select "**DELETE**" and press 'ENTER' again.

4.7 USING THE TRACK FUNCTIONS

The chartplotter can be set up to record your Track as you move and for plotting on the chart.

4.7.1 Enabling Track storing

➤ 'MENU' + "TRACK" + 'ENTER' + "TRACKING" + '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.

4.7.2 Selecting active Track

► 'MENU' + "TRACK" + 'ENTER' + "ACTIVE TRK" + 'ENTER'

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

4.7.3 Displaying Track

► 'MENU' + "TRACK" + 'ENTER' + "VISIBLE" + 'ENTER'

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

4.7.4 Selecting Track line pattern

► 'MENU' + "TRACK" + 'ENTER' + "LINE PATTERN" + 'ENTER'

Selects the desired Line Pattern for the active Track.

4.7.5 Deleting Track

► 'MENU' + "TRACK" + 'ENTER' + "DELETE" + 'ENTER'

Deletes all Track. After pressing 'ENTER' a warning window appears: select "YES" and press 'ENTER' to confirm (select "NO" otherwise).

4.7.6 Selecting Track memorizing type

► 'MENU' + "TRACK" + 'ENTER' + "STEP UNIT" + 'ENTER'

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

4.7.7 Selecting distance

► 'MENU' + "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 of measure is selected by the user, see Section 8). The default setting is 0.01 Nm.

4.7.8 Selecting time

► 'MENU' + "TRACK" + 'ENTER' + "TIME" + 'ENTER'

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

4.8 USER C-CARD MENU

The chartplotter allows copying information to a User C-CARD. You can also return

the information to internal memory at a later time. This allows virtually unlimited storage.

➤ **'MENU' + "USER C-CARD" + 'ENTER'**

- ① Time of file creation
- ② Date of file creation
- ③ Type of data contained in the file (Mark file, Waypoint file...)
- ④ File name
- ⑤ Number of Selected file
- ⑥ Information on stored User Points on Internal Memory

	NAME	TYPE	DATE	TIME
FILE 1	JILE06	TRACKS	01/01/80	00:00:00
	FILE02	MARKS	01/01/80	00:00:00
MRKS 2	FILE07	TRACKS	01/01/80	00:00:00
	FILE04	MARKS	01/01/80	00:00:00
WPTS 5	JILE0710	TRACKS	01/01/80	00:00:00
	GJLE06	TRACKS	01/01/80	00:00:00
	GJLE07	TRACKS	01/01/80	00:00:00
RTES 1	FILE08	MARKS	07/02/98	17:17:00
	FILE09	ROUTES	07/02/98	17:17:00
	FILE01	TRACKS	01/01/80	00:00:00
TRKS 566	FILE03	MARKS	01/01/80	00:00:00
	FILE05	MARKS	01/01/80	00:00:00

SAVE LOAD DELETE FORMAT

Figure 4.8 - User C-CARD Menu

4.8.1 Saving File

➤ **'MENU' + "USER C-CARD" + 'ENTER' + "SAVE" + 'ENTER'**

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

	NAME	TYPE	DATE	TIME
FILE 1	JILE06	TRACKS	01/01/80	00:00:00
	FILE02	MARKS	01/01/80	00:00:00
MRKS 2	FILE07	TRACKS	01/01/80	00:00:00
	FILE04	MARKS	01/01/80	00:00:00
WPTS 5	JILE0710	TRACKS	01/01/80	00:00:00
	GJLE06	TRACKS	01/01/80	00:00:00
	GJLE07	TRACKS	01/01/80	00:00:00
RTES 1	FILE08	MARKS	07/02/98	17:17:00
	FILE09	ROUTES	07/02/98	17:17:00
	FILE01	TRACKS	01/01/80	00:00:00
TRKS 566	FILE03	MARKS	01/01/80	00:00:00
	FILE05	MARKS	01/01/80	00:00:00

SAVE FILE

NAME FILE06

TYPE WPTS

SAVE LOAD DELETE FORMAT

Figure 4.8.1 - Save File function (I)

Select the file name and press 'ENTER'. At first a default name is shown: use the *ShuttlePoint* knob to insert the name. Press 'ENTER'. Select the data type to save among **"MARK"**, **"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				
	NAME	TYPE	DATE	TIME
FILE 1	JILE06	TRACKS	01/01/80	00:00:00
	FILE02	MARKS	01/01/80	00:00:00
MRKS 2	FILE07	TRACKS	01/01/80	00:00:00
	FILE04	MARKS	01/01/80	00:00:00
WPTS 5	JILE01	INFORMATION	1/80	00:00:00
	GJLE01	SAVING	1/80	00:00:00
	GJLE01	..OK	1/80	00:00:00
RTES 1	FILE08	MARKS	07/02/98	17:17:00
	FILE09	ROUTES	07/02/98	17:17:00
TRKS 566	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 LOAD DELETE FORMAT

Figure 4.8.1a - Save File function (II)

4.8.2 Loading File

► 'MENU' + "USER C-CARD" + 'ENTER' + "LOAD" + 'ENTER'

Before pressing 'ENTER', choose file name in the list shown on the screen using the *ShuttlePoint* knob.

4.8.3 Deleting File

► 'MENU' + "USER C-CARD" + 'ENTER' + "DELETE" + 'ENTER'

Before pressing 'ENTER', choose file name in the list shown on the screen using the *ShuttlePoint* knob.

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

4.8.4 Formatting User C-CARD

► 'MENU' + "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.

WARNING

This operation permanently erases all files previously saved on the User C-CARD.

5. MAINTENANCE

For general troubleshooting, please refer to this TROUBLESHOOTING CHART.

TROUBLESHOOTING CHART

SYMPTOM	PROBABLE CAUSE	REMEDY
The chartplotter does not turn On.	The voltage or the polarity may not be correct.	Make sure that the correct voltage (10-18 volt dc) is present. Check also that the polarity is correct. Refer to the Section 4.1.3
The chartplotter does not get a valid fix.	The GPS Antenna may not be in an open sky position or the antenna cable may not be properly connected.	Make sure that no metal obstacle is placed around the GPS Antenna acting as a shield for the antenna and disconnect and connect again the antenna cable to the chartplotter. If, after 15 minutes, the chartplotter does not get the fix, turn it Off and On again.
The chartplotter does not turn Off.	The chartplotter may be in an unpredictable status.	If, after pressing 'PWR' (for at least 3 seconds) the chartplotter does not turn Off, turn Off the voltage.
The chartplotter screen becomes very dark after a long exposure to direct sunlight.	The internal temperature is very high.	Control the contrast. Refer to the Section 4.1.4. Protect the chartplotter from direct sunlight.
The chartplotter does not respond to any command.	The chartplotter may be in an unpredictable status.	Try to turn Off, and then turn On. If the problem persists, erase the memory or remove power from the battery. Refer to the Section 7.1.1.
External devices are not receiving data from the chartplotter.	The connections or the Software settings may not be right.	Check the connections (refer to Section 4.1.2) or the settings (refer to Section 8).

6. SPECIFICATIONS

6.1 GENERAL

Power consumption	: 400mA max @12V
Power supply	: 5,5 Watt max, 10 - 18 Volt dc
Interface	: Input/Output Interface NMEA-0183
Display	: Mono transfective LCD (<i>active area 4,9"</i>)
Display Resolution	: 320 x 240 pixels
Cartography	: C-MAP NT G-GARD
Operating temperature range:	0/+55 degrees Celsius
Memory	: Non volatile with battery backup
Keyboard	: Silicon rubber, backlight
Weight	: 700 gr. (1,5 pounds)

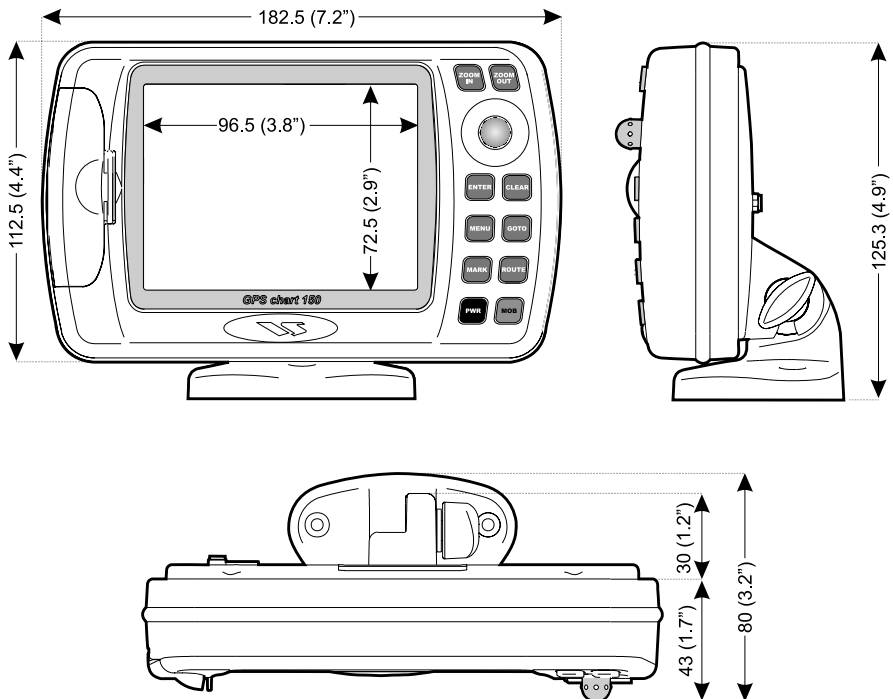


Figure 6.1 - Chartplotter Dimensions [mm/inch]

6.2 GPS RECEIVER SPECIFICATIONS

Receiver	: L1, C/A code
Channels	: 12
Max Solution Update Rate:	10/sec.
Cold Start (avg)	: < 45 sec.
Warm Start (avg)	: < 40 sec.
Hot Start (avg)	: 8 sec.

6.3 GPS ANTENNA SPECIFICATIONS



Figure 6.3 - GPS Antenna

6.3.1 Physical Constructions

Physical Constructions	: Polycarbonate radome, connector for easy mount, rubber-O-ring between top radome and base for water-proof.
Dimensions	: 60mm in diameter x 38mm in height.
Weight	: 65grams (w/o cable & connector).
Color	: Ivory white.
Mounting	: Roof-mount with double threaded bolt or flag-pole mount with plastic adapter tubing that converts its base into 1'-14 threaded cap.

6.3.2 Cable & Connector

RF cable	: 10 meter RG174/U
Pulling strength	: 6 Kg @ 5sec. molded plastic on connector end for strain relief.
Connector	: SMA

6.3.3 Overall Performance (antenna element, LNA & coax cable)

Center Frequency	: 1575.42 Mhz
Gain	: 25 dB typical.
Noise Figure	: 2.0 max.
Axial Ratio	: 3 dB max.
Bandwidth	: 2MHz min.
VSWR	: 2.0 max.
Output Impedance	: 50 Ohm

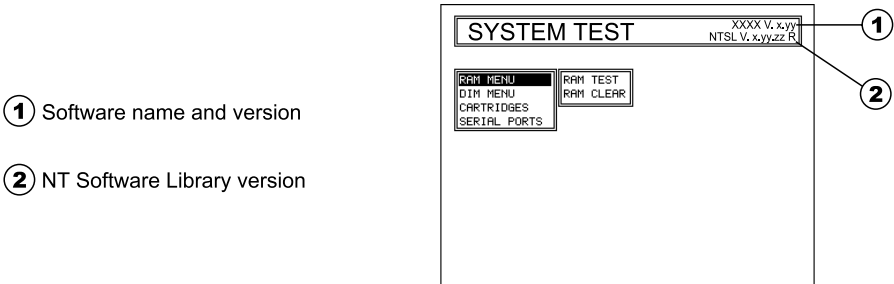
6.3.4 Enviromental

Operating Temperature	: -40° C~ +85° C.
Storage Temperature	: -50° C~ +90° C.
Relative Humidity	: 95% non-condensing.
Water Resistance	: 100% waterproof.

7. TECHNICAL

7.1 SYSTEM TEST

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



① Software name and version

② NT Software Library version

Figure 7.1 - System Test

Use the *ShuttlePoint* knob to select the desired test. Choose the test press 'ENTER'. To exit from any submenu press 'CLEAR'. To exit from the System Test turn Off the chartplotter.

7.1.1 RAM Menu

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

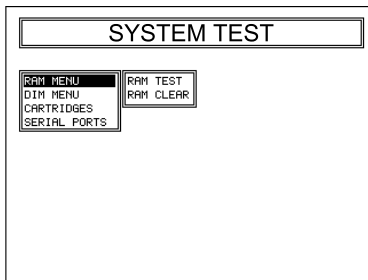


Figure 7.1.1 - RAM Menu

① RAM Test

To verify the integrity of the RAM. If on the screen the message "ERROR" appears,

the RAM is physically damaged. Contact your Dealer or STANDARD HORIZON.

② RAM Clear

To clear internal memory. If the chartplotter exhibits unusual operations, or appears to be malfunctioning, it may be possible to correct the problem by clearing RAM.

This operation will erase all Marks, Routes, stored Track plots and Destinations. It will also return all selections (Input Data Format, Autopilot selection, etc.) to original default values. To confirm clear RAM press 'ENTER' again (but if at this time you do not wish to clear RAM press 'CLEAR').

7.1.2 DIM Menu

To select the desired value for brightness and keypad light.

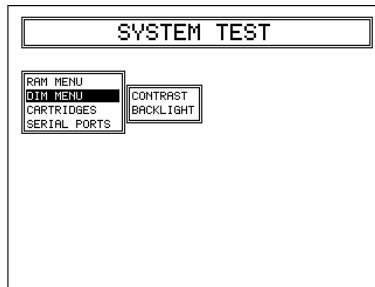


Figure 7.1.2 - DIM Menu

① Contrast

Each time you move the *ShuttlePoint* knob to right, the screen will decrease brightness, move it to the left to increase brightness.

② Backlight

The second option allows to set the backlight. Operates in similar mode as Contrast.

7.1.3 Cartridges

To check the C-CARD and its connector.

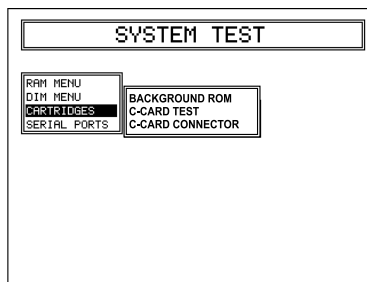


Figure 7.1.3 - C-CARD Menu

① Background ROM

To test the WorldWideBackground. If there is not a malfunction, the code of the Background and the message "OK" are shown, but if the Background is defective the message "Faulty" is shown.

② C-CARD Test

To test the C-CARD. There are three possible situations:

1. if there is a C-CARD inserted in the slot and there is not a malfunction, the name of the C-CARD zone and the message "OK" are shown.
2. if there is a C-CARD inserted in the slot, but it is a defective 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 a User C-CARD inserted in the slot, the message "USER C-CARD" is shown.

③ C-CARD Connector

Indicates if there is a malfunction in the connector.

7.1.4 Serial Ports

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

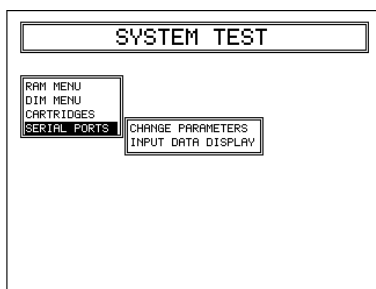


Figure 7.1.4 - Serial Ports Menu

① Change Parameters

To change the parameters of the serial interface. This menu allows to select the **Port** (Signal Source) between EXT.PORT or DIFF.INPUT, the **Baud Rate** between 300, 1200, 2400, 4800 or 9600, the **Data Bits** (Word Length) between 7 or 8, the **Parity** between even, odd or none, the **Stop Bits** between 1 or 2, the **Polarity** between "+" or "-". Default settings are: Port = EXT.PORT, Baud Rate = 4800, Data Bits = 8, Parity = none, Stop Bits = 1, Polarity = +.

② Input Data Display

To allow the chartplotter to act as a computer terminal and display the incoming data exactly as it is received.

If the data displayed on the screen is unrecognizable, you may have selected the wrong input parameters for your particular receiver, for example, Baud Rate 9600 instead of Baud Rate 4800. Check your receiver manual to be sure that you have selected the proper parameter. If the screen is blank, you may have a broken connection, and no data is being received or you may have connected the device to the other input port.

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.

8. TERMS & FUNCTIONS

This Section explains the terms that may be unfamiliar to the reader. The symbol ■ indicates that the term is followed only by an explanation, while the symbol ► indicates that the term is more widely explained; you will also find a brief description on how to select the related menu option, listing the operation a keys sequence with the menu names enclosed between double apices. For example 'MENU' + "USER POINTS LIST" + 'ENTER' means that you must press the 'MENU' key, using the *ShuttlePoint* knob to select the USER POINTS LIST item and then press the 'ENTER' key to display the User Points List page.

► About (page)

Selects a page that gives information on software and cartography version and general software specification (as User Points, Routes and so on). For more information see Section 1.3.

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

► Active Track

Selects the number of the active Track. The default setting is 1.

'MENU' + "TRACK" + 'ENTER' + "ACTIVE TRACK" + 'ENTER'

► Additional Second Factor (ASF)

Sets the ASF for the slave in the selected chain. The default setting is 0.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "NAVIGATE" + 'ENTER' + "COORDINATE SYSTEM" + 'ENTER' + "TD" + 'ENTER' + "ASF1/2" + 'ENTER'

► Advanced Setup (menu)

Selects the Fix, Navigate, Compass, Input/Output, Alarms, Simulation menus.

'MENU' + "ADVANCED SETUP" + 'ENTER'

► Alarms (menu)

Turns Off or sets the desired value for the Arrival Alarm, XTE Alarm, Depth Alarm, Anchor Alarm e Audible Alarm.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "ALARMS" + 'ENTER'

► Alter = Alternate Solution

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

'MENU' + "ADVANCED SETUP" + 'ENTER' + "NAVIGATE" + 'ENTER' + "COORDINATE SYSTEM" + 'ENTER' + "TD" + 'ENTER' + "Alter" + 'ENTER'

► Altitude (Unit)

Sets the altitude unit among Ft = Feet, FL = Flight Level and Mt = Meters. The default setting is Ft.

'MENU' + "GENERAL SETUP" + 'ENTER' + "UNITS OF MEASURE" + 'ENTER' + "ALTITUDE" + 'ENTER'

► Anchor Alarm

This function allows inserting of the limit of anchor dragging: beyond that, the alarm is activated. The chartplotter computes the distance between the current GPS position and the GPS position saved at the activation of the anchor alarm in the menu. If the computed distance exceeds the value set in the menu, the chartplotter shows the alarm message and starts the acoustic alarm. The default setting is Off.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "ALARMS" + 'ENTER' + "ANCHOR ALARM" + 'ENTER'

► 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 SETUP" + 'ENTER' + "ALARMS" + 'ENTER' + "ARRIVAL ALARM" + 'ENTER'

■ Arrival Time

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

► Attention Areas

Enables by filling area (On), enables only contour (Contour) or disables (Off) the displaying of the Attention Areas (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 or Contour options. 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. The default setting is Contour.
'MENU' + "MAP SETUP" + 'ENTER' + "NAV AIDS SETTINGS" + 'ENTER' + "ATTENTION AREAS" + 'ENTER'

➤ Audible Alarm

It is possible enable (On) or disable (Off) the Audible Alarm. The default setting is On.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "ALARMS" + 'ENTER' + "AUDIBLE ALARM" + 'ENTER'

➤ Autopilot Output

To select the desired NMEA sentences (GLL, VTG,BWC, WCV, APA, APB, HDG, BOD, XTE, RMA, RMB, RMC,GGA, HSC) to send from Autopilot Output Port. All sentences have default On.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "AUTOPILOT OUTPUT" + 'ENTER'

■ Azimuth

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

➤ Bath & Sndgs Min/Max = Bathymetr. & Soundings Min/Max

Sets the min/max value for Bathymetrics and Soundings. If the depth unit is Meters (Mt), the range is [0 - 12000], if Feet (Ft) is [0 - 39369], if Fathom (FM) is [0 - 6593]. The default setting is [0, 10] Mt.

'MENU' + "MAP SETUP" + 'ENTER' + "MARINE SETTINGS" + 'ENTER' + "BATH & SNDGS MIN/MAX" + 'ENTER'

➤ Bathymetric Lines

Turns On/Off the displaying of Bathymetric Lines (imaginary lines connecting points of equal water depth). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "MARINE SETTINGS" + 'ENTER' + "BATHYMETRIC LINES" + 'ENTER'

■ Beacon

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

➤ Bearings

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

'MENU' + "ADVANCED SETUP" + 'ENTER' + "COMPASS" + 'ENTER' + "BEARINGS" + 'ENTER'

➤ Bottom Type

Turns On/Off the displaying of Bottom Type (type, colour and other qualities of seabed). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "MARINE SETTINGS" + 'ENTER' + "BOTTOM TYPE" + 'ENTER'

■ BRG = Bearing

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

■ Buoy

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

➤ Buoys & Beacons

Turns On/Off the displaying of Buoys and Beacons (buoys and beacons are used to indicate to mariners recommended or established Routes, underwater dangers, restrictions and regulations. They can be lighted or not and - for the color chartplotter - are coloured according to their international code). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "NAV AIDS SETTINGS" + 'ENTER' + "BUOYS & BEACONS" + 'ENTER'

➤ Calibration

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

'MENU' + "ADVANCED SETUP" + 'ENTER' + "COMPASS" + 'ENTER' + "CALIBRATION" + 'ENTER'

➤ Cart(ographic) Objects

Turns On/Off the displaying of Cartographic Objects. The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "OTHER SETTINGS" + 'ENTER' + "CART. OBJECT" + 'ENTER'

► Celestial (page)

'MENU' + "CELESTIAL" + 'ENTER'

Shows the Moon phases, Sunrise/Sunset time and Low Water/High Water level refer to the current fix.

The selection can be moved in the calendar by using the *ShuttlePoint* knob left/right; use 'ZOOM IN'/'ZOOM OUT' to change the month.

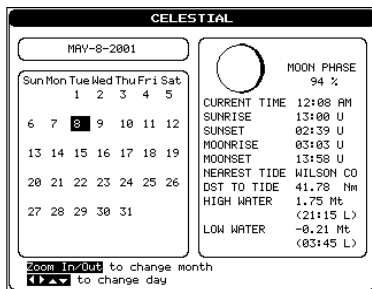


Figure 8 - Celestial page

► Chain

Selects the 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. The default setting is 9970.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "NAVIGATE" + 'ENTER' + "COORDINATE SYSTEM" + 'ENTER' + "TD" + 'ENTER' + "Chain" + 'ENTER'

► Chart (page)

Shows the chart display and data window (Text Area). It is possible to customize the data window layout.

'MENU' + "CHART" + 'ENTER'

► Chart Boundaries

Enables (On) or disables (Off) the displaying of the Chart Boundaries. Selecting Auto instead, if we are in background charts only the first charts level contained in the C-CARD are displayed, if we are in a charts level contained in the C-CARD the next four charts level are displayed. The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "CHART SETTINGS" + 'ENTER' + "CHART BOUNDARIES" + 'ENTER'

► Chart Generation

Turns On/Off the Chart Generation (the information relevant to the source chart display the full info window: issuing Hydrographic Office, catalog number, edition date, scale, datum, updating date, ...). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "OTHER SETTINGS" + 'ENTER' + "CHART GENERATION" + 'ENTER'

► Chart Settings (menu)

Selects the display of coordinates (Lat/Lon Grid), Chart Boundaries, Plotter Mode and Map Presentation.

'MENU' + "MAP SETUP" + 'ENTER' + "CHART SETTINGS" + 'ENTER'

■ COG = Course Over Ground

Direction of the path over ground actually followed by a vessel.

► Compass

Turns On/Off the displaying of the Compass (see Magnetic Variation). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "OTHER SETTINGS" + 'ENTER' + "COMPASS" + 'ENTER'

► Compass (menu)

Sets the desired value for Bearing and (Magnetic) Variation, and selects the Calibration page.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "COMPASS" + 'ENTER'

► **Complex Object**

Current official documentation S57 supports "Complex Object". Complex objects are nautical object not containing attributes, but grouping other (element) objects in one logical unit. For example, Navigation aid, float, is the name of one complex object that should group all the navigation aid objects floating in the sea: lights, buoys, radar reflector. Very often, navigational aid objects are grouped in complex objects. This does not mean that object usually belonging to complex objects can not exist even as simple instances. One buoy tower can exist both as stand alone object and it can exist as a part of one Navigational Aid, fixed or floating complex object. The decision of when one object will be encoded in one or another way is influenced by many rules on paper charts. Sometimes, it is better in one way, sometimes in another. Therefore, it can happen that one buoy on one scale level in one chart belongs to a complex object, and on the more detailed level in another chart the same object with the same coordinates can be a stand alone object. The default setting is Single.

'MENU' + "MAP SETUP" + 'ENTER' + "OTHER SETTINGS" + 'ENTER' + "COMPLEX OBJECT" + 'ENTER'

■ **Complex Object Icon Detailed**

If the complex object is composed by "BUOY, GENERIC", "BUOY, CARDINAL", "BUOY, SAFE WATER", "BUOY, ISOLATED DANGER", "BUOY INSTALLATION", "BUOY, LATERAL", "BUOY, SPECIAL PURPOSE", the symbol that appears on the screen is the complex object "BUOY".

If the complex object is composed by "TOWER", "LIGHT", "RADAR REFLECTOR", "FOG SIGNAL", "RADAR TRANSPONDER BEACON", "RADIO STATION_REFCO", "RADAR STATION", the displayed symbol is the complex object "NAVIGATIONAL MARK FIXED".

If the complex object is composed by "BUOY, GENERIC", "BUOY, CARDINAL", "BUOY, SAFE WATER", "BUOY, ISOLATED DANGER", "BUOY INSTALLATION", "BUOY, LATERAL", "BUOY, SPECIAL PURPOSE", "LIGHT", "RADAR REFLECTOR", "FOG SIGNAL", "RADAR TRANSPONDER BEACON", "RADIO STATION_REFCO", "RADAR STATION", the displayed symbol is the complex object "NAVIGATIONAL MARK FLOATING".

If the complex object is composed by "BEACON, CARDINAL", "BEACON, SAFE WATER", "BEACON, ISOLATED DANGER", "BEACON, GENERIC", "BEACON, LATERAL", "BEACON, SPECIAL PURPOSE", "LIGHT", "RADAR REFLECTOR", "FOG SIGNAL", "RADAR TRANSPONDER BEACON", "RADIO STATION_REFCO", "RADAR STATION", the displayed symbol is the complex object "LIGHT HOUSE".

► **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 SETUP" + 'ENTER' + "FIX" + 'ENTER' + "COMPUTE CORRECTION" + 'ENTER'

► **Coordinate System**

Sets your preferred Coordinate System among ddd mm ss, ddd mm.mm, ddd mm.mmm, ID. The default setting is ddd mm.mmm.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "NAVIGATE" + 'ENTER' + "COORDINATE SYSTEM" + 'ENTER'

► **Coordinates**

Centers the map at the coordinates entered manually using the *ShuttlePoint* knob.

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

■ **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.

► **Correction Offset**

Manual correction of fix position.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "FIX" + 'ENTER' + "CORRECTION OFFSET" + 'ENTER'

► **Course (Simulation)**

Sets the desired value for heading in Simulation mode. The default setting is 000° M.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "SIMULATION" + 'ENTER' + "COURSE" + 'ENTER'

■ **Cross Track error = XTE**

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

■ **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

Enables (On) or disables (Off) the displaying of the Cultural Features (any man-made topographic feature as built-up area, buildings, roads, ...). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "LAND SETTINGS" + 'ENTER' + "CULTURAL FEATURES" + 'ENTER'

■ Current

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

► Cursor Control

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

'MENU' + "ADVANCED SETUP" + 'ENTER' + "SIMULATION" + 'ENTER' + "CURSOR CONTROL" + 'ENTER'

► (NMEA) Data page

'MENU' + "NMEA DISPLAY" + 'ENTER' + "DATA" + 'ENTER'

Shows the stream of NMEA-0183 sentences read from the NMEA port. Pressing 'ENTER' stops/starts alternatively the page update.

```
NMEA DATA
#LCUTG,134,T,134,M,028.0,N,051.0,KM58
#GPGGA,075438,4343.869,N,01020.692,E,1,12,99.00,-15.0,M,49.50,M,1.012#66A
#LCGLL,4343.88,N,01020.68,E#7E.0,KM58
#GPRMC,075436,A,4343.880,N,01020.677,E,028.0,134.00,0900.00,M#5F
#LCUTG,134,T,134,M,028.0,N,051.0,KM58=
#GPGGA,075436,4343.880,N,01020.677,E,1,12,99.00,-15.0,M,49.50,M,1.012#64
#LCGLL,4343.87,N,01020.69,E#700,R#RUY
#GPRMC,075438,A,4343.869,N,01020.692,E,028.0,134.00,0900.00,M#50

ENTER TO STOP
```

Figure 8a - NMEA Data Page

► Data Window

It is possible to customize the data window layout among None (only charts), General (text area on the right side of the screen), 1 line small, 1 line large, 2 lines small. The default setting is General.

'MENU' + "GENERAL SETUP" + 'ENTER' + "DATA WINDOW" + 'ENTER'

► Date (Simulation)

Sets the date of the simulated fix. Inserts date using the *ShuttlePoint* knob.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "SIMULATION" + 'ENTER' + "DATE" + 'ENTER'

► Date Format

Sets the preferred date between MM-D-YY and DD-MM-YY. The default setting is MM-DD-YY.

'MENU' + "GENERAL SETUP" + 'ENTER' + "DATE FORMAT" + 'ENTER'

■ 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 (see Part A of "*C-MAP 177 Handbook*").

■ 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.

► Delete (File)

Deletes file from User C-CARD.

'MENU' + "USER C-CARD" + 'ENTER' + "DELETE" + 'ENTER'

► Delete (Route)

To delete the selected Route.

'MENU' + "ROUTE" + 'ENTER' + "DELETE" + 'ENTER' + "YES" + 'ENTER'

► Delete (Track)

To clear the stored Track.

'MENU' + "TRACK" + 'ENTER' + "DELETE" + 'ENTER' + "YES" + 'ENTER'

➤ Depth (Unit)

Sets the depth units among Ft = Feet, FM = Fathoms and Mt = Meters. The default setting is Mt. 'MENU' + "GENERAL SETUP" + 'ENTER' + "UNITS OF MEASURE" + 'ENTER' + "DEPTH" + 'ENTER'

➤ Depth Alarm

Sets the minimum depth limit for activating the acoustic alarm if any depth received from the NMEA input is below it. The default setting is Off.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "ALARMS" + 'ENTER' + "DEPTH ALARM"

➤ Depth Area Limit

Sets a reference depth value (in the range [0 - 30000]): the software fills all the bathymetric areas that have starting depth area lower than the reference value with grey. All other bathymetric areas are white. So, if the reference depth is 0, all areas are white, if it is 99.999 all areas are gray. The default setting is 10 Mt.

'MENU' + "MAP SETUP" + 'ENTER' + "MARINE SETTINGS" + 'ENTER' + "DEPTH AREA LIMITS" + 'ENTER'

To select the unit (Meters (Mt), Feet (Ft) or Fathom (FM)) see [Depth \(Unit\)](#).

■ Depth Contours

Imaginary lines connecting points of equal water depth (see also [Bathymetric Lines](#)).

➤ (NMEA) Depth Trend page

'MENU' + "NMEA DISPLAY" + 'ENTER' + "DEPTH TREND" + 'ENTER'

Shows the graph of the [Depth](#) received from the NMEA Port. Pressing 'ZOOM IN'/'ZOOM OUT' changes the time scale.

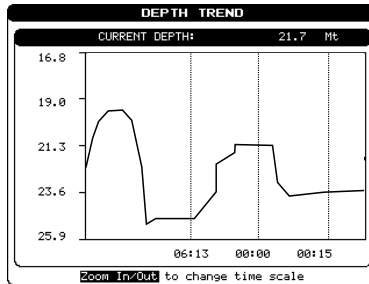


Figure 8b - Depth Trend page

■ Destination

It is the point where the vessel heads. It is also called [Target](#).

■ DGPS = Differential GPS

Provides even greater positioning accuracy than standard [GPS](#) (see Part B of "[C-MAP 77 Handbook](#)").

➤ Diff(erential) Corr(ection) Source

Allows the selection of the Differential Correction signal source among None, [WAAS](#) and External [RTCM](#). If the "NMEA2/RTCM INPUT" is set to NMEA the option External RTCM cannot be selected. The chartplotter shows a Warning message. The default setting is [WAAS](#).

'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "INTERNAL GPS SETUP" + 'ENTER' + "DIFF CORR SOURCE" + 'ENTER'

➤ (NMEA) Display

'MENU' + "NMEA DISPLAY" + 'ENTER' + "DISPLAY" + 'ENTER'

It is possible to choose the page layout (the number of fields in the page) and the type of data shown in each of the fields in the page. If the selected type of data is not received the field shows dashes.

① Speed Over Ground

② Depth

③ Time

④ Course Over Ground

⑤ Time To Go

⑥ Horizontal Dilution of Precision

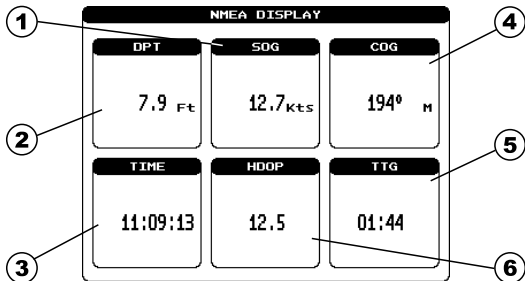


Figure 8c - NMEA DISPLAY Page

Data selectable are: SOG, COG, DST, BRG, XTE, TTG, ALTITUDE, HDOP, VDOP, BOAT SPEED, HEADING, DEPTH, TRIP LOG, WATER TEMP, TRUE WIND SPEED, TRUE WIND DIRECTION, APPARENT WIND SPEED, APPARENT WIND DIRECTION.

► (DSC) Directory page

Shows the Directory when a DSC Distress Call or Position Request is received to look up the name of the vessel and display it on the screen.

'MENU' + "DSC" + 'ENTER' + "DIRECTORY" + 'ENTER'

► Distance (Track)

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). The default setting is 0.01 Nm.

'MENU' + "TRACK" + 'ENTER' + "DISTANCE" + 'ENTER'

► Distance (Unit)

Sets the distance unit among Nm = nautical miles, Sm = status miles e Km = kilometers. The default setting is Nm.

'MENU' + "GENERAL SETUP" + 'ENTER' + "UNITS OF MEASURE" + 'ENTER' + "DISTANCE" + 'ENTER'

■ Distress Call

Distress Call and Position Request are functions performed by an external device (VHF DSC radio) connected to NMEA Input Port. The chartplotter allows seeing and recording up to 20 Distress Calls and Position Requests sent by the VHF radio for a total of 40.

When a Distress Call or a Position Request is received the chartplotter will automatically mark the position on the chart and add the information on the proper Log. A pop-up screen advise the user that a Distress Call or Position Request call has been received. Within the pop-up screen it asks the user if he would like to view the call on the chart ("VIEW ON CHART") or exit the pop-up screen. If the user selects the "VIEW ON CHART" another pop-up window appears that allows the user to Go to vessel ("GOTO VESSEL"), exit to the previous page selected or stay on this current view (remained on the selected map screen).

"GOTO VESSEL" activates the navigation to the Distress Call or Position Request icon. The chartplotter will change the chart scale to allow showing the Distress Call (or Position Request) icon and the vessel's icon simultaneously on the screen. The chartplotter will then verify if there are obstructions (land or low water) between the two positions. If there are found the chartplotter will show a pop-up screen saying that the navigation to the Distress Call cannot be set automatically and the user must define a Route to avoid the obstacles. If there are no obstacles between the Distress Call (or Position Request) icon and the ship icon, the chartplotter will navigate to the Distress Call or Position Request position.

■ DSC (Digital Selective Calling)

Digital Selective Calling is a semi-automated method of establishing a radio call, it has been designed by the International Maritime Organization (IMO) as an international standard for establishing VHF, MF and HF radio calls. It had also been designated part of the Global Maritime Distress and Safety System (GMDSS). It is planned that DSC will eventually replace aural watches on distress frequencies and will be used to announce routine and urgent maritime safety information broadcasts.

This new service will allow mariners to instantly send a distress call with GPS position (when connected to the transceiver) to the USA Coast Guard and other vessel within range of the

you have formatted the User C-CARD, and will help you identify its contents. A used User C-CARD can also be formatted; if a used User C-CARD is formatted, however, all previously stored data on the User C-CARD will be completely deleted.

'MENU' + "USER C-CARD" + 'ENTER' + "FORMAT" + 'ENTER'

➤ **General Setup (menu)**

Turns On/Off the Keypad Beep, chooses the Language, selects the desired setting for Time Reference, Zoom Type, Data Window, Time Line, Date Format, Time Format and User Points and select the Units of Measure menu.

'MENU' + "GENERAL SETUP" + 'ENTER'

➤ **Goto**

Sets a particular mark on the map, called Target or Destination.

'GOTO'

■ **GPS = Global Positioning System**

It is a satellite based navigation system operated by the US Department of Defense. It gives the navigator a position 24 hours a day, 365 days a year under any weather conditions (see Part B of "C-MAP 177 Handbook").

➤ **GPS Status (page)**

'MENU' + "GPS STATUS" + 'ENTER'

Shows GPS satellites information. This is the default page shown at power on. It is possible to choose the type of information to be shown in the four fields in the center of the page pressing 'ENTER' and select data to be shown. Default values of the selectable fields are HDOP, VDOP, DATE and TIME.

On the right side of the screen (see Figure 8e), 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 a example, the satellite with PRN=11 is used for solution with SNR=34, Azimuth=170 degrees and Elevation=30 degrees.

- ① Ship's Coordinates
- ② Horizontal Dilution of Precision
- ③ Vertical Dilution of Precision
- ④ WAAS/GPS Icon
- ⑤ Date and Time
- ⑥ Tracked, but not used, Satellite
- ⑦ Used Satellite
- ⑧ COG (Course Over Ground)

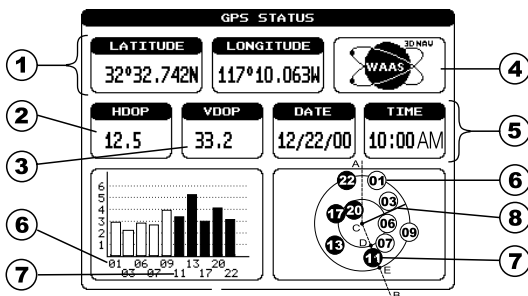


Figure 8e - GPS Status page

■ **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 (see Part B of "C-MAP 177 Handbook").

➤ **Highway (page)**

'MENU' + "HIGHWAY" + 'ENTER'

Shows the 3D Highway and the most relevant navigation information. It is possible to customize all four fields shown in the page. The scale of the Highway display can be changed by pressing 'ZOOM IN/' 'ZOOM OUT'; the ranges available are 0.2, 0.5, 1.0, 2.0, 4.0, 10.0 Nm.

① Distance

② Depth

③ Bearing

④ Time To Go

⑤ Cross Track Error

⑥ Speed Over Ground

⑦ Highway Display

⑧ Highway Scale

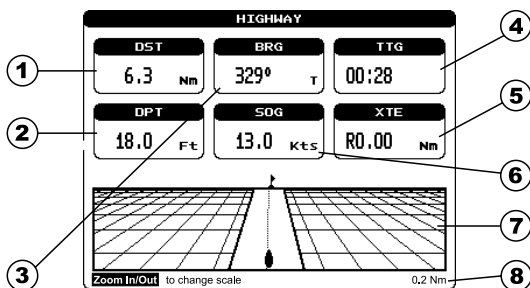


Figure 8f - Highway page

■ Home (mode)

When the cursor is moved to a position other than the vessel and 'CLEAR' is pressed, the cursor is moved over the ship icon and disappears. The map is centered on the ship's position and it scrolls when the ship moves: all operations refer to the ship's position.

Pressing 'CLEAR' from map display if a valid fix is received sets Home mode (also called Navigation mode), otherwise sounds 3 beeps error and shows a warning message saying "No valid position fix received. Home mode cannot be set". Move the cursor to deactivate Home mode (also activating any of the find functions exits from Home mode).

➤ Info Level

Sets information degree Detailed or Basic. Selecting Basic, information obtained by the Info function about an object is related on the particular characteristics of that object by selecting Detailed (Info Level Detailed) the information is enriched by further details. The default setting is Detailed.

'MENU' + 'MAP SETUP' + 'ENTER' + 'OTHER SETTINGS' + 'ENTER' + 'INFO LEVEL' + 'ENTER'

■ Info Level Detailed

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

➤ Information

Displays a whole screen page where a list of all objects (in a tree structure), found in the range of the cursor, is displayed; if there are complex objects (collection of objects logically related) there is also a list of the components.

'MENU' + 'INFORMATION' + 'ENTER'

➤ Input/Output (menu)

Selects the proper setting for the NMEA1 Output, NMEA2 Output, Autopilot Output, NMEA2/RTCM Input, Send/Rec RTE&MARKS Port, selects the Internal GPS Setup menu.

'MENU' + 'ADVANCED SETUP' + 'ENTER' + 'INPUT/OUTPUT' + 'ENTER'

➤ Internal GPS Setup (menu)

It is possible to Restart GPS, to enable or disable the Static Navigation and to set the proper setting for Diff. Correction Source.

'MENU' + 'ADVANCED SETUP' + 'ENTER' + 'INPUT/OUTPUT' + 'ENTER' + 'INTERNAL GPS SETUP' + 'ENTER'

➤ Keypad Beep

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

'MENU' + 'GENERAL SETUP' + 'ENTER' + 'KEYPAD BEEP' + 'ENTER'

➤ Land Settings (menu)

Turns On/Off the display of Natural Features, Rivers & Lakes, Cultural Features and Landmarks.

'MENU' + 'MAP SETUP' + 'ENTER' + 'LAND SETTINGS' + 'ENTER'

➤ Landmarks

Turns On/Off the displaying of the Landmarks (any prominent object such as monument, building, silo, tower, mast, ..., on land which can be used in determining a location or a direction). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "LAND SETTINGS" + 'ENTER' + "LANDMARKS" + 'ENTER'

► Language

Selects the language in which you wish information to be displayed (for screen labels, menus and options, but it is not affect the map information). The default setting is English.

'MENU' + "GENERAL SETUP" + 'ENTER' + "LANGUAGE" + 'ENTER'

■ LAT/LON

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

► Lat/Lon Grid

Turns On/Off the displaying of the Latitude and Longitude Grids. The default setting is Off.

'MENU' + "MAP SETUP" + 'ENTER' + "CHART SETTINGS" + 'ENTER' + "LAT/LON GRID" + 'ENTER'

■ 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°.

► Lights

Enables (On), enables without sectors (No Sector) or disables (Off) the displaying of Lights (a lighted aid to navigation, usually on land). When Lights are On, lights are shown on lighthouses and other lights that rotate, a light sector is displayed to show the range of coverage for the light. In the No Sector setting, the light is shown without sector. The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "NAV AIDS SETTINGS" + 'ENTER' + "LIGHTS" + 'ENTER'

► Line Pattern

Selects the desired line pattern for the Track.

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

► Load (file)

Loads file from User C-CARD:

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

► (DSC) LOG page

Shows the Distress Call LOG page or Position Request LOG page (it depends which of the two was selected). See DSC LOG page.

'MENU' + "DSC" + 'ENTER' + "LOG" + 'ENTER'

■ 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.

► Map Datum

Selects the Map Datum among 130 items (the list of all Map Datum available is shown in the Part A of "C-MP/NT Handbook"). WGS 1984 is the default Map Datum.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "NAVIGATE" + 'ENTER' + "MAP DATUM" + 'ENTER'

► Map Orientation

Selects the orientation of your chart according to: North Up (the map is shown with North upwards), Course Up (the map is displayed with the currently selected course leg upwards). The default setting is Course Up.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "NAVIGATE" + 'ENTER' + "MAP ORIENTATION" + 'ENTER'

► Map Orientation Res(olution)

It is the resolution angle for the Map Orientation, range [5, 30] degrees. The default setting is 15°.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "NAVIGATE" + 'ENTER' + "MAP ORIENTATION RES" + 'ENTER'

► Map Presentation

Selects the chart presentation between Marine and Terrestr. Changes the sea and land color to improve visibility of map details depending on the type of C-CARD inserted (Marine or Terrestrial). The default setting is Marine.

'MENU' + "MAP SETUP" + 'ENTER' + "CHART SETTINGS" + 'ENTER' + "MAP PRESENTATION" + 'ENTER'

➤ Map Setup (menu)

One of the many advantages of the C-MAP cartography is the ability to select the information you want to display. The user may choose either to display or not on the screen the selected objects, depending on his specific requirement (refer to the "**C-MAP**" Handbook" for an explanation of the objects.) . Use the Map menu to select the cartographic objects to display on the screen. The Map Setup menu is subdivided in the following settings menu: Land Settings, Marine Settings, Nav Aids Settings, Other Settings, Chart Settings.

'MENU' + "MAP SETUP" + 'ENTER'

➤ Marine Settings (menu)

Turns On/Off the display of Tides and Currents, Bathymetric Lines, Spot Soundings, Bottom Type and selects the value for Depth Areas Limit and Bath & Sndgs Min/Max.

'MENU' + "MAP SETUP" + 'ENTER' + "MARINE SETTINGS" + 'ENTER'

➤ Mark

Reference points defined by the user Mark is placed under the cursor position or entering its position manually (in Home mode is placed at the ship's coordinates).

Adding Mark: 'MARK'

Deleting Mark: Place cursor on existing Mark + 'ENTER' + "DELETE" + 'ENTER' + "YES" + 'ENTER'

Editing Mark: Place cursor on existing Mark + 'ENTER' + "EDIT" + 'ENTER' + **Modify Symbol, Name, Coordinates** + 'CLEAR'

Moving Mark: Place cursor on existing Mark + 'ENTER' + "MOVE" + 'ENTER' + move cursor + 'ENTER'

User Points List: Place cursor on existing Mark + 'ENTER' + "LIST" + 'ENTER'

➤ MOB = Man OverBoard

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

Inserting MOB: 'MOB' to place MOB symbol at ship's coordinates.

Deleting MOB: Place cursor on MOB + 'ENTER' + "CANCEL" + 'ENTER'.

➤ Names

Turns On/Off the displaying of the Names. The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "OTHER SETTINGS" + 'ENTER' + "NAMES" + 'ENTER'

➤ Natural Features

Turns On/Off the displaying of the Natural Features (any topographic feature formed by the action of natural processes: coastlines, relief, glaciers, ...). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "LAND SETTINGS" + 'ENTER' + "NATURAL FEATURES" + 'ENTER'

➤ Nav Aids Settings (menu)

Turns On/Off the display of Ports & Services, Attention Areas, Track & Routes, Lights, Buoys & Beacons, Signal and Underwater Objects.

'MENU' + "MAP SETUP" + 'ENTER' + "NAV AIDS SETTINGS" + 'ENTER'

➤ Navigate (menu)

Selects the desired setting for Map Orientation, Coordinate System, Map Datum, Fix Datum.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "NAVIGATE" + 'ENTER'

➤ Navigate (mode)

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

Enter Navigate: 'CLEAR'

Exit from Navigate: move the cursor

➤ Navigation (page)

'MENU' + "NAVIGATION" + 'ENTER'

Shows information compass display, fix position and the most relevant navigation information. Compass ruler ① and Lat/Lon ② field are fixed field and cannot be changed. The last six fields (③, ④, ⑤, ⑥, ⑦, ⑧) are selectable fields (default values are DST, BRG, TTG, XTE, SOG, COG).

- ① Compass Ruler
- ② Fix position
- ③ Distance
- ④ Depth
- ⑤ Bearing
- ⑥ Speed Over Ground
- ⑦ Time To Go
- ⑧ Cross Track Error

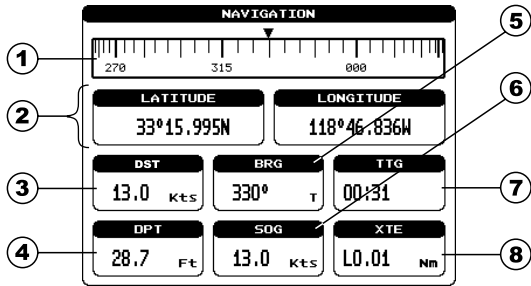


Figure 8g - Navigation page

► New Objects

Turns On/Off displaying of objects which will be introduced in the cartography in the future. The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "OTHER SETTINGS" + 'ENTER' + "NEW OBJECTS" + 'ENTER'

► NMEA Display

Selects the page you want among Display, Data, Depth Trend, Wind Speed Trend, Temp Trend, SOG Trend.

'MENU' + "NMEA DISPLAY" + 'ENTER'

■ 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 manufacturers to be connected together and to share information (see Part B of "**C-MAP 17** Handbook").

► NMEA1 Output

To select the Output NMEA sentences (GLL, VTG,BWC, WCV, APA, APB, HDG, BOD, XTE, RMA, RMB, RMC,GGA, HSC) to send from NMEA 1 port. All sentences have default On.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "NMEA1 OUTPUT" + 'ENTER'

► NMEA 2 Output

To select the Output NMEA sentences (GLL, VTG,BWC, WCV, APA, APB, HDG, BOD, XTE, RMA, RMB, RMC,GGA, HSC) to send from NMEA 2 port. All sentences have default On.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "NMEA2 OUTPUT" + 'ENTER'

► NMEA2/RTCM Input

Selects the input type among NMEA and RTCM 1200, 2400, 4800, 9600, 19200, 38400 (where the number means the Baud Rate of the RTCM signal). Selecting RTCM the Differential Correction Source is set to External RTCM automatically. If NMEA2/RTCM Input is different from NMEA or RTCM 4800, the NMEA2 Output is stopped and a warning message will be shown. The default setting is NMEA.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "NMEA2/RTCM INPUT" + 'ENTER'

► Other Settings (menu)

Turns On/Off the display of Names, Compass, Chart Generation, New Objects and Cartograph. Objects, set the desired setting for Complex Object Icon and Info Level .

'MENU' + "MAP SETUP" + 'ENTER' + "OTHER SETTINGS" + 'ENTER'

► Pair

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

'MENU' + "ADVANCED SETUP" + 'ENTER' + "NAVIGATE" + 'ENTER' + "COORDINATE SYSTEM" + 'ENTER' + "TD" + 'ENTER' + "Pair" + 'ENTER'

► Plotter Mode

Used to zoom-in and pan everywhere regardless the existence of data. While in "virtual cartography" (Plotter Mode On), by setting Plotter mode Off from menu, the chartplotter displays the previous scale

level with charts. Again while in Plotter mode Off, the chartplotter will work in the same way also when you exit from the charts coverage, panning with the cursor or because of a ship position change. When in Plotter Mode On, it is also possible to have virtual cartography between two subsequent scale levels with charts. The default setting is Off.

'MENU' + "MAP SETUP" + 'ENTER' + "CHART SETTINGS" + 'ENTER' + "PLOTTER MODE" + 'ENTER'

➤ Port By Name

To locate and display the port inserting the name. The icons list of the available services is shown on the screen.

'MENU' + "FIND" + 'ENTER' + "PORT BY NAME" + 'ENTER'

■ 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.

➤ Port Services

To locate and display the nearest available facilities of a particular type (i.e. the nearest Hospital, sailmaker, bank, etc.). The icons list of the available services is shown on the screen.

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

➤ Ports & Services

Turns On/Off the displaying of Ports and 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...). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "NAV AIDS SETTINGS" + 'ENTER' + "PORT & SERVICES" + 'ENTER'

➤ Position Filter

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

'MENU' + "ADVANCED SETUP" + 'ENTER' + "FIX" + 'ENTER' + "POSITION FILTER" + 'ENTER'

■ Position Request

Position Request and Distress Call are functions performed by an external device (VHF DSC radio) connected to NMEA Input Port. For more information see Distress Call.

➤ Receive (Route)

Saves Route information (NMEA sentences WPT, RTE) received from the NMEA Input port (selectable by the user in the Input/Output menu, Send/Rec Rte & Marks Port item). The received Route is saved on the current Route. If the current Route contains data the chartplotter shows a warning window and asks the user if he wants to overwrite the existing Route.

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

➤ (Route) Report

Gives information on the selected Route.

Selecting Route: 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + "SELECT" + 'ENTER'

Naming Route: 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + "NAME" + 'ENTER'

Inverting Route: 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + "INVERT" + 'ENTER'

Deleting Route: 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + "CLEAR" + 'ENTER'

Selecting Speed: 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + "SPEED" + 'ENTER' + insert value

Selecting Fuel: 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + "FUEL" + 'ENTER' + insert fuel

➤ Restart GPS

Restarts all GPS processes.

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

➤ Reverse (Route)

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

'MENU' + "ROUTE" + 'ENTER' + "REVERSE" + 'ENTER'

➤ Rivers & Lakes

Turns On/Off the displaying of Rivers and Lakes. The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "LAND SETTINGS" + 'ENTER' + "RIVERS & LAKES" + 'ENTER'

➤ Route

Sequence of Waypoints connected by segments. Among the available Routes, only one is the active Route, which is shown by a straight line and arrows to indicate the direction. The first Waypoint of the active Route is surrounded by a circle.

Selecting Route: 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER'
Deleting Route: 'MENU' + "ROUTE" + 'ENTER' + "DELETE" + 'ENTER'
Reversing Route: 'MENU' + "ROUTE" + 'ENTER' + "REVERSE" + 'ENTER'
Route Report: 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER'
Sending Route: 'MENU' + "ROUTE" + 'ENTER' + "SEND" + 'ENTER'
Receiving Route: 'MENU' + "ROUTE" + 'ENTER' + "RECEIVE" + 'ENTER'

➤ Route (menu)

Allows Route management

'MENU' + "ROUTE" + 'ENTER'

■ RTCM = Radio Technical Commission for Maritime Services

The data format created by the Radio Technical Commission Maritime to transmit differential GPS corrections.

➤ Save (file)

Saves file on User C-CARD:

'MENU' + "USER C-CARD" + 'ENTER' + "SAVE" + 'ENTER'

➤ Select (Route)

Selects active Route.

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

➤ Send (Route)

Transmits current Route information (NMEA sentences WPT, RTE) on the NMEA Output port (selectable by the user in the Input/Output menu, Send/Rec Rte & Marks Port item).

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

➤ Send/Rec RTE&MARKS Port

Allows selection from which port the NMEA RTE and WPL sentences are sent/received (to transfer Marks or Routes).

'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "SEND/REC RTE&MARKS PORT" + 'ENTER'

➤ Signals

Turns On/Off the displaying of Signals (a station on shore from which signals are sent to the ship. For example in order to transmit weather forecast, to indicate the opening of a bridge, ...). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "NAV AIDS SETTINGS" + 'ENTER' + "SIGNALS" + 'ENTER'

■ Simulation

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

➤ Simulation (menu)

Before activating Simulation Mode, insert the desired settings for Course, Speed, Data, Time and Cursor Control.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "SIMULATION" + 'ENTER'

➤ Simulation Mode

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

'MENU' + "ADVANCED SETUP" + 'ENTER' + "SIMULATION" + 'ENTER' + "SIMULATION MODE" + 'ENTER'

■ SNR = Signal to Noise Ratio

The ratio of the magnitude of a signal that of the noise (interference).

■ SOG = Speed Over Ground

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

➤ (NMEA) SOG Trend page

'MENU' + "NMEA DISPLAY" + 'ENTER' + "SOG TREND" + 'ENTER'

Shows the graph of the Vessel Speed received from the NMEA Port. Pressing 'ZOOM IN'/'ZOOM OUT' changes the time scale.

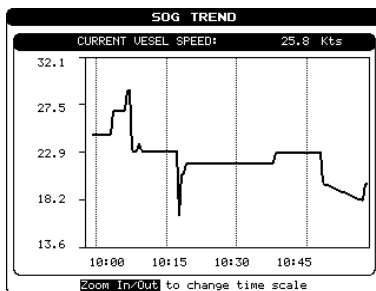


Figure 8h - SOG Graph page

■ **Speed**

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

➤ **Speed (Simulation)**

Sets the value for speed in the Simulation mode. The default setting is 01.0 Kts.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "SIMULATION" + 'ENTER' + "SPEED" + 'ENTER'

➤ **Speed (Unit)**

Sets the speed unit among Kts = knots, Mph = miles per hour e Kmh = kilometers per hour. The default setting is Kts.

'MENU' + "GENERAL SETUP" + 'ENTER' + "UNITS OF MEASURE" + 'ENTER' + "SPEED" + 'ENTER'

➤ **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 SETUP" + 'ENTER' + "FIX " + 'ENTER' + "SPEED FILTER" + 'ENTER'

➤ **Spot Soundings**

Turns On/Off the displaying of Spot Soundings (the depth of the water in a specific and charted position). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "MARINE SETTINGS" + 'ENTER' + "SPOT SOUNDINGS" + 'ENTER'

➤ **Static Navigation**

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

'MENU' + "ADVANCED SETUP" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "INTERNAL GPS SETUP" + 'ENTER' + "STATIC NAVIGATION" + 'ENTER'

➤ **Step Unit (Track)**

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

'MENU' + "TRACK" + 'ENTER' + "STEP UNIT" + 'ENTER'

■ **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.

Inserting Target : place cursor + 'GOTO'

Deleting Target: place cursor on Target + 'ENTER' + 'DELETE' + 'ENTER'

➤ **TD = Time Difference**

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

'MENU' + "ADVANCED SETUP" + 'ENTER' + "NAVIGATE" + 'ENTER' + "COORDINATE SYSTEM" + 'ENTER' + "TD" + 'ENTER'

► (NMEA) Temp Trend page

'MENU' + "NMEA DISPLAY" + 'ENTER' + "TEMP TREND" + 'ENTER'

Shows the graph of the Water Temperature received from the NMEA Port. Pressing 'ZOOM IN'/'ZOOM OUT' changes the time scale.

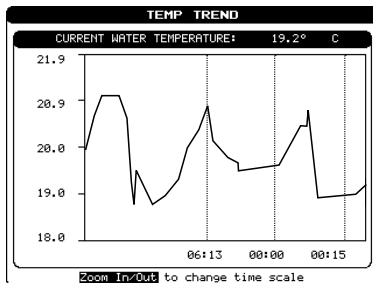


Figure 8i- Temp Graph page

■ 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 worldwide. This function can calculate the tide heights for any past or future date and as a by-product of this calculation will also display the Maximum and Minimum Tide height and time for the day selected plus the times of Sunrise and Sunset. At some chart levels, the chartplotter will display a new Tide Diamond Symbol for every Port or tide point in the database covered by that particular C-CARD.

► Tide 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 fix position is not good.

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

► Tides and Currents

Turns On/Off the displaying of Tides and Currents. The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "MARINE SETTINGS" + 'ENTER' + "TIDES & CURRENTS" + 'ENTER'

► Time (Simulation)

Sets the date of the simulated fix. Inserts time using the ShuttlePoint knob.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "SIMULATION" + 'ENTER' + "TIME" + 'ENTER'

► Time (Track)

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

'MENU' + "TRACK" + 'ENTER' + "TIME" + 'ENTER'

► Time Format

Sets the preferred time between 12 hour and 24 hour. The default setting is 12 hour.

'MENU' + "GENERAL SETUP" + 'ENTER' + "TIME FORMAT" + 'ENTER'

► Time Line

Disables (Off) or sets Time Line as 2, 10, 30 min, 1, 2 hours, Infinite.

The Time Line is the graphical indicating of the direction in which the vessel is heading toward. The Time Line starts from the vessel position icon. Its angle is given by the value of COG and its length is proportional to the SOG. When the Time Line is set to Infinite the line always reaches the screen frame. When the Destination is set on DSC position, if the current setting of Time line is Off, it must be automatically changed to Infinite.

The default setting is Infinite.

'MENU' + "GENERAL SETUP" + 'ENTER' + "TIME LINE" + 'ENTER'

► Time Reference

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

'MENU' + "GENERAL SETUP" + 'ENTER' + "TIME REFERENCE" + 'ENTER'

► Track (menu)

The chartplotter stores all points in its memory. The chartplotter can store a fix when the distance from

its last stored position is greater than a defined distance or after a defined time. A line connects such points and represents the past course, called the Track of the ship.

Active Track selecting: 'MENU' + "TRACK" + 'ENTER' + "ACTIVE TRK" + 'ENTER'

Track storing ON/OFF: 'MENU' + "TRACK" + 'ENTER' + "TRACKING" + 'ENTER'

Visible ON/OFF: 'MENU' + "TRACK" + 'ENTER' + "VISIBLE" + 'ENTER'

Step unit selection: 'MENU' + "TRACK" + 'ENTER' + "STEP UNIT" + 'ENTER'

Deleting Track : 'MENU' + "TRACK" + 'ENTER' + "CLEAR" + 'ENTER' + "YES" + 'ENTER'

Track line pattern selecting: 'MENU' + "TRACK" + 'ENTER' + "LINE PATTERN" + 'ENTER'

➤ Tracking

Turns On/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.

'MENU' + "TRACK" + 'ENTER' + "TRACKING" + 'ENTER'

➤ Tracks & Routes

Turns On/Off the displaying of Tracks and Routes (recommended and established Routes for ships at sea, including traffic separation schemes, deep water Routes, ...). The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "NAV AIDS SETTINGS" + 'ENTER' + "TRACKS & ROUTES" + 'ENTER'

■ 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.

➤ Underwater Objects

Turns On/Off the displaying of Underwater Objects. (Diffuser, Obstruction, Wreck, Cable - submarine, Cable area, Pipeline area, Pipeline - submarine/on land. The default setting is On.

'MENU' + "MAP SETUP" + 'ENTER' + "NAV AIDS SETTINGS" + 'ENTER' + "UNDERWATER OBJECTS" + 'ENTER'

➤ Unit of Measure (menu)

Sets the units for Distance, Speed, Depth and Altitude.

'MENU' + "GENERAL SETUP" + 'ENTER' + "UNITS OF MEASURE" + 'ENTER'

➤ User C-CARD

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

Select **USER C-CARD** menu: 'MENU' + "USER C-CARD" + 'ENTER'

■ User Point

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

➤ User Points

Finds Marks or Waypoints saved by the user.

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

➤ User Points

Turns Hidden/Visible/Icon the displaying of the User Point Name. The default setting is Visible.

'MENU' + "GENERAL SETUP" + 'ENTER' + "USER POINTS" + 'ENTER'

➤ User Points List

Displays the User Points List page on the screen.

'MENU' + "USER POINTS LIST" + 'ENTER'

■ UTC = Universal Time Coordinated

A time scale based on the rotation of the earth that is used by most broadcast time services.

➤ (Magnetic) Variation

It is possible to calculate the Magnetic Variation in an Auto(matic) or manual mode, by inserting the data for calculation of Magnetic Variation. The default setting is Auto.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "COMPASS" + 'ENTER' + "VARIATION" + 'ENTER'

➤ Visible (Track)

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

'MENU' + "TRACK" + 'ENTER' + "VISIBLE" + 'ENTER'

■ 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 Wide Area Augmentation System. 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.

Inserting Waypoint: 'ENTER' + "ROUTE" + 'ENTER'

Moving Waypoint: Place cursor on existing Waypoint + 'ENTER' + "MOVE" + 'ENTER' + move cursor + 'ENTER'

Deleting Waypoint: Place cursor on existing Waypoint + 'ENTER' + "DELETE" + 'ENTER'

Editing Waypoint: Place cursor on existing Waypoint + 'ENTER' + "EDIT" + 'ENTER' + Modify symbol, Cursor and coordinates + 'ENTER'

Inserting Waypoint: Place cursor on Route leg + 'ENTER' + "INSERT." + 'ENTER' + move cursor + 'ENTER'

Finding Waypoint: 'MENU' + "FIND" + 'ENTER' + "USER POINTS" + 'ENTER'

➤ (NMEA) Wind Speed Trend page

'MENU' + "NMEA DISPLAY" + 'ENTER' + "WIND SPEED TREND" + 'ENTER'

Shows the graph of the Apparent Wind Speed received from the NMEA Port. Pressing 'ZOOM IN/' 'ZOOM OUT' changes the time scale.

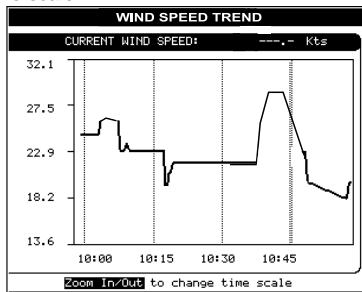


Figure 8I - Wind Speed Graph Page

■ WGS-84 = World Geodetic System 1984

Coordinate System or Datum developed by the Defense Mapping Agency (DMA) (see Part A of "C-MAP 117 Handbook").

➤ XTE Alarm

Disables the XTE Alarm (Off) or selects the desired value. The default setting is Off.

'MENU' + "ADVANCED SETUP" + 'ENTER' + "ALARMS" + 'ENTER' + "XTE ALARM" + 'ENTER'

■ 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.

➤ Zoom Type

There are two different modes to change chart scale By Zoom and By Scale. When By Zoom is selected, in cartography pressing '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. Pressing and holding 'ZOOM IN/' 'ZOOM OUT' allows the quick zoom, that is, the fast change of the chart scale where only the land areas are drawn. When 'ZOOM IN/' 'ZOOM OUT' is release all map details are shown. Otherwise when By Scale is selected if 'ZOOM IN' or 'ZOOM OUT' is pressed the chartplotter will show the Zoom Window: pressing the 'ZOOM IN/' 'ZOOM OUT' or moving the *ShuttlePoint* knob up/down moves the scale and bar graph, press 'ENTER' to zoom to the scale. Press 'CLEAR' to quit the Zoom Window and keep the selected chart scale.

The default setting is By Zoom.

'MENU' + "GENERAL SETUP" + 'ENTER' + "ZOOM TYPE" + 'ENTER'

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In the event of a defect, malfunction or failure of the Product during the warranty period, Standard Horizon's liability for any breach of contract or any breach of express or implied warranties in connection with the sale of Products shall be limited solely to repair or replacement, at its option, of the Product or part(s) therein which, upon examination by STANDARD HORIZON, appear to be defective or not up to factory specifications. STANDARD HORIZON may, at its option, repair or replace parts or subassemblies with new or reconditioned parts and subassemblies.

To receive warranty service, the purchaser must deliver the Product, transportation and Insurance prepaid, to STANDARD HORIZON (Marine Division of Vertex Standard), 115 North Wright Brothers Dr, Salt Lake City, UT 84116-2838, Include proof of purchase indicating model, serial number and date of purchase. STANDARD HORIZON will return the Product to the purchaser freight prepaid.

STANDARD HORIZON will not warrant installation, maintenance or service of the Products. In all instances, STANDARD HORIZON's liability for damages shall not exceed the purchase price of the defective Product. This warranty only extends to Products sold within the 50 States of the United States of America and the District of Columbia.

STANDARD HORIZON will pay all labor and replacement parts charges incurred in providing the warranty repair service except where purchaser abuse or other qualifying exceptions exist. The purchaser must pay any transportation expenses incurred in returning the Product to STANDARD HORIZON for service.

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