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***MARINE ELECTRONICS***

*One Touch To Choose Your World*

WORLD MAP Lcd 11

*Gray level* Chart plotter

CODE: XSegLZ11m 1000d818/170305

WORLD MAP Lcd 11 Color

*Color* Chartplotter

CODE: XSegLZ11c 1000d784/170305

WORLD MAP Lcd 11 Sun

*Sunlight Readable Display Color* Chartplotter

CODE: XSegLZ11c 1000d784/170305

WORLD MAP Lcd 11 Sun

*Sunlight Readable Display Color* Chartplotter with *Video Input*

CODE: XSegLZ11c 1000d784/170305

USER MANUAL

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Warning!

Electronic charts displayed by the chartplotter are believed to be accurate and reliable, but they are not

intended to substitute for the official charts which should remain your main reference for all the matters

related to the execution of a safe navigation.

For this reason we would like to remind you that you are required to carry on board and use the

officially published and approved nautical charts.

Caution

\_ Please read through this manual before the first operation. If you have any questions, please contact

the Company customer service or your local dealer.

\_ The chartplotter is not built water proof. Please give attention to avoid water intrusion into the

chartplotter. Water damage is not covered by the warranty.

\_ Extensive exposure to heat may result in damage to the chartplotter.

\_ Connection to the power source with reversed polarity will damage the chartplotter severely. This

damage may not be covered by the warranty.

\_ The chartplotter contains dangerous high voltage circuits which only experienced technicians can

handle.

\_ The C-MAP C-CARD are available from your local dealer.

\_ We will not be liable for errors contained herein, or for incidental or consequential damages in

connection with the performance or use of this material.

\_ Exposure of display to UV rays may shorten life of the liquid crystals used in your plotter. This

limitation is due to the current technology of the LCD displays.

Avoid overheating which may cause loss of contrast and, in extreme cases, a darkening of the screen.

Problems which occur from overheating are reversible when temperature decreases.

Cleaning procedure for the plotter screen

Cleaning of the plotter screen is a very important operation and must be done carefully. Since the

surface is covered by a antireflective coating, the procedure for cleaning all the surfaces can be performed

using the following procedure: You need a tissue or lens tissue and a cleaning spray containing

Isopropanol (a normal spray cleaner sold for the PC screen, for example PolaClear by Polaroid). Fold

the tissue or lens tissue into a triangular shape, moisten the tip and use the index finger behind a corner

to move the tissue across the surface, in overlapping side to side strokes. If the tissue is too wet, a

noticeable wet film will be left in its path and you will need to repeat the process. If too dry, the tissue

won’t glide easily, and may damage the surface.

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1

**Introduction**

Congratulations on your purchase of the chartplotter!

If you have not used a position-finding instrument before and intend to use

your chartplotter for navigating, we suggest you should read this User Manual and

make sure you are familiar with its contents.

The User Manual is divided into three main parts. Chapter "Before You

Begin" introduces you to the basic information to get you start using the chartplotter.

Chapter "For the New User" should be read first to become familiar with your new

instrument. Chapter "For the Experienced User" introduces the advanced features

of the chartplotter.

**1.1 CONVENTIONS**

Throughout this User Manual, the labelled keys are shown in capitals letters

enclosed between single inverted commas, for example 'MENU'.

Menu operations are in bold characters listed by keys sequence with the

menu names enclosed between inverted commas, for example 'MENU' + "BASIC

SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' means: press the

'MENU' key, using the cursor key select the Basic Settings menu and press 'ENTER',

using the cursor key select the Input/Output menu and press 'ENTER'.

Terms underlined, for example Mark, are explained in the Appendix "Terms".

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**1.2 FEATURES**

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

precisely, to ease and speed up all calculations, which so far have been done manually.

If connected to a positioning instrument, the chartplotter displays the current

position, the speed, and the heading of the boat and its Track. The user information

like Waypoints, Marks and Tracks can then be stored on a User C-CARD and can be

recalled at any time. On the screen are shown navigation data and cartographic information

obtained from electronic charts of C-MAP C-CARD.

When the package containing the chartplotter is first opened, please check it

for the following contents (if any parts are missing contact the dealer the chartplotter

was purchased from):

• External bracket and I/O cable 1,5 mt/5.9"

• Chartplotter's protective cover

• Flush mounting kit

• Smart DGPS WAAS Receiver GPH00 with cable 15 mt/45 feet

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**Note ONLY FOR COLOR CHARTPLOTTER**

*Fuse 2 Amp. + fuseholder.*

C-MAP C-CARD (cartography data cards) are available through your local

dealer. For additional information on C-MAP Cartography visit web site at www.cmap.

com.

**1.2.1 SPECIFICATIONS**

**1.2.1.1 Main Characteristics**

Recordable Individual points

• User Points : 1000

• Type of User Points : 16

Routes

• Routes : 25

• Max User Points per Route : 100

Tracking

• Tracks : 5

• Points per Track : 5000

• Step by Distance : 0.01, 0.05, 0.1, 0.5, 1, 2, 5, 10 Nm

• Step by Time : 1, 5, 10, 30 Sec, 1, 5, 10 Min

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Cartographic Functions

• Detailed Map by using C-MAP C-CARD

• Coordinates System (ddd mm ss, ddd mm.mm, ddd mm.mmm, UTM, OSGB, TD)

• Map Datum

• Display Mode (Full, Simple, Fishing, Low, Custom)

• Marine

Names, Buoys ID, Nav-Aids, Light Sectors, Attention Areas, Tides & Currents,

Seabed Type, Ports & Services, Tracks & Routes, Underwater Objects

• Depth

Depth Areas, Depth Areas Min/Max, Rocks Min/Max

• Land

Lan Elevation values, Roads, POIs

• Chart

Lat/Lon Grid, Chart Boundaries, Value-Added data

Map Menu

• Zoom Type

• Fonts & Symbols

• Perspective View

• Live Nav-Aids

• Map Orientation (North, Head, Course)

• Mixing Levels

• Safety Status Bar

• Palette ONLY FOR COLOR CHARTPLOTTER

• Currents Prediction

Fix Functions

• Fix Correction (manual and automatic)

• Position Filter

• Speed Filter

• Dead Reckoning

• Reset Total and Partial Trip

• Rolling Road Scale

• Fix Datum

• Compass Calibration

• Bearings True and Magnetic

• Variation user selectable

• Course Vector

• Static Navigation

• A-B-C-D Function

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Report Functions

• GPS Data Page

• Navigation Data Page

• Graphic Data Page

• Depth Graph Page (1/2 screen and 1/3 screen)

• About Page

Special Functions

• C-Link, C-Meteo and C-Staff

• Fish Finder capability if connected to Fish Finder Black Box

• Automatic Info

• Find (Nearest Service, Tide Stations, Wrecks, Obstructions, Port By Name)

• Navigation to Destination

• Speed Unit (Mph, Kts, Kph)

• Distance Unit (Km, Nm, Sm)

• Depth Unit (Ft, FM, Mt)

• Altitude Unit (Ft, FL, Mt)

• Temperature Unit (°C, °F)

• Alarms Handling

Arrival Alarm, XTE Alarm, Anchor Alarm, Depth Alarm, Grounding Alarm,

Grounding Alarm Range, Grounding Alarm Report

• MOB Function

• Simulation

Speed, Heading, Date, Time, Cursor Control, Activate Simulation

Auxiliary Memory

• User C-CARD 1/2/4 MB

Interface

• 5 I/O ports

**1.2.1.2 Phisical Characteristics**

Chartplotter size (inch/mm)

• Gray Level: 13" x 9.1" x 1.9" (329 mm x 230.5 mm x 47 mm)

• Color: 13" x 9.1" x 2" (329 mm x 230.5 mm x 53 mm)

Chartplotter weight

• Gray Level: 1,4 Kg

• Color: 1,6 Kg

Display

• Gray Level: mono transflective (active area 9.4")

• Color: colore TFT trasmissivo (active area 10.4")

• Color Sun: Sun Light Viewable (active area 10.4")

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• Resolution 320 x 240 pixels

Video Input (ONLY FOR CHARTPLOTTER with Video Input)

• PAL or NTSC video signals automatically selected

Power consumption

• Gray Level : 580mA max @12V

• Color : 1280mA max @ 12V

• Color with Camera connected: 1500mA max 12V

Power supply

• Gray Level : 10 - 35 Volt dc, 7 Watt

• Color : 10 - 35 Volt dc, 15 Watt max

• Color with Camera connected: 10 - 35 Volt dc, 18 Watt max

Operating Temperature Range

• da 0°C a 55°C (da 32°F a 131°F)

Memory

• Non volatile with battery back-up

Keyboard

• Backlighted, silicon rubber

**1.3 BASICS**

The chartplotter is controlled by using ten keys. There is also a cursor key to

move a cursor across the screen. As you press a key, a single audio beep confirms the

key action; every time the key pressed is not valid, three rapid beeps sound indicates

that no response is available.

*Fig. 1.3 - The chartplotter*

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2

**Before You Begin**

This chapter provides basic information to get you start using the chartplotter;

it will help you to become familiar with the chart display and the functions of the

controls before you start using the chartplotter.

**2.1 THE KEYBOARD**

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

Press and hold the right side of 'POWER' down for 1 second to turn the

chartplotter On. Press and hold the right side of 'POWER' down (once the

chartplotter has been turned On) for 3 seconds turns the chartplotter Off.

Press and immediately release the right side of 'POWER' to adjust the backlight,

press and immediately release the left side of 'POWER' to adjust the contrast

of the display.

The key

Press 'MENU' to select the Functions Menu.

The key

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

The key

Press 'PAGE' to select the configuration ou wish among cartography and

text area in two different modes (text area on the right side or on the bottom line of

the screen, full screen if Target has been inserted or with partial information on

SOG), only cartography, Depth Graph 1/2 screen and 1/3 screen pages, GPS Data

page, Navigation Data page, Graphic Data page.

**Note ONLY FOR CHARTPLOTTER WITH VIDEO INPUT**

*If in the Video Input menu the item Select Video Input is set to Video 1, Video 2 or Auto Switch,*

*then the Video Input image can be selected by pressing 'PAGE' . When Select Video Input is set*

*to Video 1, the image shown is the one from Video Input 1; when Select Video Input is set to Video*

*2, the image shown is the one from Video Input 2; when Select Video Input is set to Auto Switch,*

*the image will change alternatively between Video Input 1 and Video Input 2 (also it is possible*

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*to activate the Video Mode from menu, see Video Input menu in Par. 2.8). Once the Video Mode*

*is active use the following keys to adjust video settings: press the left side and the right side of*

*'POWER' to adjust contrast and backlight; move cursor up/down to adjust brightness and left/*

*right to adjust colors; press 'ZOOM IN'/ZOOM OUT' to adjust hue phase.*

The key

Press 'MODE' to set the Navigate mode (Home).

The key

Press 'MOB' to set MOB (Man OverBoard). Press 'MOB' when the MOB is

already present deletes it.

The key

Press 'CLEAR' to exit from menu or to leave a menu without making changes.

In Basic Mode deletes the A, B, C, D points, the User Point (Mark, Event, Waypoint),

the MOB, the Target identified by the cursor.

The key

Press 'ENTER' to select the desired option, to confirm selection; in Basic

Mode places A, B, C, D points on the cursor coordinates, in Advanced Mode creates

Objects (Mark,, Event, Waypoint, A-B-C-D).

**Note ONLY FOR CHARTPLOTTER WITH VIDEO INPUT**

*Pressing 'ENTER' for 1 second activates the Video 1 and pressing 'CLEAR' for 1 second activates*

*Video 2 (also it is possible to activate the Video Mode from menu, see Video Input menu in Par.*

*2.8). Once the Video Mode is active use the following keys to adjust video settings: press left and*

*right side of 'POWER' to adjust the contrast and backlight, move the cursor up/down to adjust*

*brightness and left/right to adjust colors, press 'ZOOM IN'/ZOMM OUT' to adjust hue phase.*

The cursor key

The cursor key moves the cursor about on the display screen, quickly and

accurately. It also scrolls the desired option in the menu page(s). If in Navigate (Home)

mode, it allows to exit from navigate mode.

The and keys

Press 'ZOOM IN' shows more details of a smaller area, by changing the

chart scale and zooming in on your display. Press 'ZOOM OUT' to operate similarly

to the 'ZOOM IN', except in reverse, changing the scale and showing a wider,

otherwise less detailed view.

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**2.2 TURNING THE CHARTPLOTTER ON AND OFF**

Before powering On the chartplotter, check for the correct voltage (10-35

volt dc) and the correct connections with the positioning instrument:

POWER & I/O CONNECTOR

1 BLACK GND/COMMON

2 RED o +10-35 Vdc

**PIN # CABLE WIRE COLOR FUNCTION**

*Fig. 2.2 - Power On*

**2.2.1 TURNING ON**

Press and hold the right side of 'POWER' for 1 second. The chartplotter

emits one rapid beep sound and a title page is opened.

After a few seconds, the first of the two Caution Notice pages is displayed,

reminding you that the chartplotter is only an aid to navigation, and should be used

with appropriate prudence. The electronic charts are not intended to substitute for

the official charts. Then the cartographic screen is displayed.

**2.2.2 TURNING OFF**

Press the right side of 'POWER' and hold for 3 seconds: a countdown timer

appears on the screen, if you release the key before the countdown timer reaches

zero, the chart plotter will remain On.

**2.3 CHANGING BACKLIGHT AND CONTRAST**

Press and immediately release the right side of 'POWER' (do not press and

hold the key, or the "power-off" message will be displayed!): the backlight increases.

Repeat this operation the backlight decreases.

Press and immediately release the left side of 'POWER': the contrast increases.

Press and immediately release the left side of 'POWER' the contrast decreases. In

other words, first pressure of the key will increase the value till you keep it pressed,

next pressure of the key will decrease the value till you keep it pressed.

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**WARNING !!!**

*At very low temperatures the CCFL backlight may not glow properly. Allow a few minutes for*

*it to warm up.*

**2.4 SELECTING THE LANGUAGE**

It is possible to select the language in which you wish information to be

displayed (for screen labels, menus and options, but it is not affect the map information).

The default setting is Italian.

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

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

**2.5 EXTERNAL CONNECTIONS**

**2.5.1 GPS CONNECTIONS**

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

*Fig. 2.5.1 - GPS Connection on Port 1*

To choose your preferred setting follow the procedure:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 1 INPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings

NMEA 1200-N81-N, NMEA 4800-N81-N, NMEA 4800-N82-N, NMEA 9600-O81-

N, NMEA 9600-N81-N (the default setting is 4800-N81-N) and press 'ENTER' to

confirm.

If you are connecting the model Smart DGPS WAAS Receiver GPH00, select:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 1 INPUT" + 'ENTER' + "NMEA-4800-N81-N" + 'ENTER'

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

*Fig. 2.5.1a - GPS Connection on Port 2*

To choose your preferred setting follow the procedure:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 2 INPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings

NMEA 1200-N81-N, NMEA 4800-N81-N, NMEA 4800-N82-N, NMEA 9600-O81-

N, NMEA 9600-N81-N (the default setting is 4800-N81-N) and press 'ENTER' to

confirm.

If you are connecting the model Smart DGPS WAAS Receiver GPH00, select:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 2 INPUT" + 'ENTER' + "NMEA-4800-N81-N" + 'ENTER'

To connect the GPS to the serial Port 3 see the following picture:

*Fig. 2.5.1b - GPS Connection on Port 3*

To choose your preferred setting follow the procedure:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 3 INPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings

NMEA 1200-N81-N, NMEA 4800-N81-N, NMEA 4800-N82-N, NMEA 9600-O81-

N, NMEA 9600-N81-N (the default setting is 4800-N81-N) and press 'ENTER' to

confirm.

If you are connecting the model Smart DGPS WAAS Receiver GPH00, select:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 3 INPUT" + 'ENTER' + "NMEA-4800-N81-N" + 'ENTER'

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**2.5.2 AUTOPILOT CONNECTIONS**

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

*Fig. 2.5.2 - Autopilot Connections on Port 1*

To choose your preferred setting follow the procedure:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 1 OUTPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings

NMEA 0183 4800-N81-N, NMEA 0180, NMEA 0180/CDX (the default setting is

NMEA 0183 4800-N81-N) and press 'ENTER' to confirm.

To connect the Autopilot to the serial Port 3 see the following picture:

*Fig. 2.5.2a - Autopilot Connections on Port 3*

To choose your preferred setting follow the procedure:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 3 OUTPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings

NMEA 0183 4800-N81-N, NMEA 0180, NMEA 0180/CDX (the default setting is

NMEA 0183 4800-N81-N) and press 'ENTER' to confirm.

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**2.5.3 EXTERNAL NMEA CONNECTIONS**

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

*Fig. 2.5.3 - External NMEA Connections on Port 1*

To choose your preferred setting follow the procedure:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 1 INPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings

NMEA 1200-N81-N, NMEA 4800-N81-N, NMEA 4800-N82-N, NMEA 9600-O81-

N, NMEA 9600-N81-N (the default setting is 4800-N81-N) and press 'ENTER' to

confirm.

To connect the External NMEA to the serial Port 3 see the following picture:

*Fig. 2.5.3b - External NMEA Connections on Port 3*

To choose your preferred setting follow the procedure:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 3 INPUT" + 'ENTER'

Then choose your preferred setting among the NMEA available settings

NMEA 1200-N81-N, NMEA 4800-N81-N, NMEA 4800-N82-N, NMEA 9600-O81-

N, NMEA 9600-N81-N (the default setting is 4800-N81-N) and press 'ENTER' to

confirm.

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**2.5.4 C-COM CONNECTIONS**

To connect the modem C-COM to the chart plotter follow the procedure:

1. Connect Power & I/O as follows:

POWER & I/O

**WIRE COLOR FUNCTION**

BLACK GND/COMMON

RED PWR+ (10-35 Vdc)

WHITE

GREEN

GREY OUTPUT3+

YELLOW USED BY C-COM

BROWN

USED BY C-COM

USED BY C-COM

INPUT3+

BLU OUTPUT EXTERNAL ALARM+

POWER & I/O CONNECTOR

**PIN#**

1

2

3

4

5

6

7

8

*Fig. 2.5.4 - C-COM Connection*

**Note**

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

2. Into the Input/Output menu, set the C-COM for Port 1 as follows:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 3 INPUT" + 'ENTER' + "C-COM" + 'ENTER'

Also the modem C-COM can be connected to the Port 2 and 3, in this case

set the format for the selected Port.

**2.5.5 EXTERNAL ALARM CONNECTION**

To connect the External Alarm device see the following picture:

*Fig. 2.5.5 - External Alarm Connection*

Once the connection is active, to enable the External Alarm follow the procedure:

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

ALARM" + 'ENTER' + "ON" + 'ENTER'

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**2.6 ADDITIONAL C-CARDS**

The chartplotter uses two types of C-MAP cartridges: either a chart cartridge

or a data storage cartridge. A chart cartridge, called C-CARD, contains detailed charts

of the area covered. A data storage cartridge, called User C-CARD can be used to

permanently store your Routes, Waypoints, Marks, Events and Tracks (see Par. 4.6).

**Note**

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

*up.*

**2.6.1 INSERTING C-CARD**

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

*Fig. 2.6.1 - Inserting C-CARD (I)*

Open the doors and gently push the C-CARD into one of the two slots;

push the C-CARD in as far as it will go to hold fixed into the slot (see left side of Fig.

2.6.1a).

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

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**2.6.2 REMOVING C-CARD**

Open the door and press lightly the C-CARD you wish to remove and move

it until you hear a click: the C-CARD will eject out of the slot (see right side of Fig.

2.6.1a).

**Note**

*C-MAP is continuously creating new charts and revising old ones. If you wish to receive*

*information on the newest availbale charts, you can write for the catalog of available*

C-MAP *C-CARD at your dealer.*

**2.7 VIDEO INPUT only for chartplotter WITH Video Input**

By accessing this menu it is possible to see images on the chartplotter display

captured from an external video signal source, if connected to the chartplotter. Not

all color chartplotters are connectable to the external video signal. Please make sure

that your chartplotter is equipped with a video input connection port.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"VIDEO INPUT" + 'ENTER'

**2.7.1 SELECT VIDEO INPUT**

Selects the preferred Video Input, among None, Video 1, Video 2 or Auto

Switch. If Auto Switch is selected, choose the switching time.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"VIDEO INPUT" + 'ENTER' + "SELECT VIDEO INPUT" + 'ENTER'

**2.7.2 ACTIVATE VIDEO INPUT**

Activates the Video Mode from the Video Input menu:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"VIDEO INPUT" + 'ENTER' + "ACTIVATE VIDEO INPUT" + 'ENTER'

At the activation of the Video Mode the following messages are shown on a

dedicated window: "Connnected Video Input Signal is XXXX. The Video Mode

will be activated". XXXX can be PAL or NTSC: the software automatically detects

the type of Video Input source connected.Once the Video Mode is active use the

following keys to adjust video settings: press the left side of 'POWER' to adjust the

contrast and the right side of 'POWER' to adjust backlight, move the cursor up/

down to adjust brightness and left/right to adjust colors, press 'ZOOM IN'/ZOMM

OUT' to adjust hue phase. Pressing any other key exits from Video Mode.

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**2.7.2.1 Quick Activation**

Pressing 'ENTER' for1 second enables the Video Input 1 and pressing

'CLEAR' for 1 second enables the Video Input 2.

**2.7.2.2 Activation from pages selection**

If in the Video Input menu the Select Video Input item is selected as Video

1, Video 2 or Auto Switch, it is possible by pressing 'PAGE' select the Video Input

image displayed from the Video Input 1, from the Video Input 2 or alternatively

between Video Input 1 and Video Input 2.

**2.7.3 SWITCHING TIMEOUT**

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

10 minutes.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"VIDEO INPUT" + 'ENTER' + "SWITCHING TIMEOUT" + 'ENTER'

**2.7.4 RESTORE DEFAULTS**

Restores default values of Contrast, Brightness, Backlight, color saturation

and Hue phase.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"VIDEO INPUT" + 'ENTER' + "RESTORE DEFAULTS" + 'ENTER'

After pressing 'ENTER' on the screen a window with three options appears:

Video 1, Video 2, All. If Video 1 o Video 2 is selected, their relative settings

will be set to the default values and the message “OK” will be shown next to the

selected item. If All is selected, both the settings for Video 1 and Video 2 will be

restored to the default values and the message “OK” will be shown next to Video 1,

Video 2 and All.

**2.8 MENU OPTIONS**

You may select how the chartplotter displays primary information (such as

how time is displayed) from the Functions Menu.

'MENU'

Refer to Chapter 5 for more information on Main Menu.

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**2.9 DATA ENTRY**

Information is keyed into the chartplotter when editing a Waypoint, entering

a Route or using the Fix Correction functions. When the field is highlighted:

- Enter or edit data by pressing up/down cursor key to step through the

available characters until the preferred character is displayed.

- Press right cursor key to move the cursor to the right.

- Use left cursor key to move the cursor to the left.

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3**For the New User**

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

1) Your chartplotter must have been installed properly according to the installation

instruction on Par. 6.2.

2) You must have performed the proper settings for use with your positioning

instrument (see Par. 2.5) and inserting the C-CARD for navigating in area you

wish (see Par. 2.6).

3) You must have turned on the chartplotter and adjust the brightness and

contrast of the display (see Par. 2.2 and 2.3).

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

**3.1 SCREEN DISPLAY CONFIGURATION**

The screen display can be shown in different modes (wrap around) among

cartography and text area in two different modes (text area on the right side or on

the bottom line of the screen, complete if Target has been inserted or with partial

information on SOG), only cartography, Depth Graph 1/2 screen and 1/3 screen

pages, GPS Data page, Navigation Data page, Graphic Data page. To select the configuration

you wish:

'PAGE' more times

**Note ONLY FOR CHARTPLOTTER WITH VIDEO INPUT**

*If in the Video Input menu the Select Video Input item is selected as Video 1, Video 2 or Auto*

*Switch, it is possible by pressing 'PAGE' select the Video Input image displayed from the Video*

*Input 1, from the Video Input 2 or alternatively between Video Input 1 and Video Input 2.*

**3.1.1 CHARTS AND TEXT AREA**

The charts and text area can be shown in two different modes. The first is

with text area on the right side of the screen:

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*Fig. 3.1.1 - Charts and text area*

The second is with text area on the bottom line of the screen (with partial

information on SOG):

*Fig. 3.1.1a - Charts and text windows*

If Target is set, in the previous Fig. 3.1.1a instead of the only SOG information

window, a text line with DST, BRG, XTE, SOG and TTG information appears.

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

*Fig. 3.1.1b - Full charts*

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**3.1.2 DEPTH GRAPH**

The depth graph can be shown in two different modes. Depth graph displayed

only on 1/3 of the screen:

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

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

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

**3.1.3 GPS DATA PAGE**

The GPS Data page shows in graphic mode GPS data.

*Fig. 3.1.3 - GPS Data Page*

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On the right side of the screen (see Fig. 3.1.3), there is a polar representation

of the azimuth and elevation of each satellites. The circle contains a number indicating

the PRN of the satellite and it is filled when it is used for the fix solution. On the

left side there are histograms indicating the S/N ratio (SNR). The bar is filled when

the satellite is used for solution. As example, the satellite with PRN=10 is used for

solution with S/N=44, Azimuth=127degree and Elevation=70degree. When a valid

fix is received, the Lat/Lon, Date, Time, Altitude, VDOP, HDOP, SOG and COG

are shown in the page.

**3.1.4 NAVIGATION DATA PAGE**

The Navigation Data page shows information about speed (SOG) and course

(COG) of the ship, status of the received signal, ship's coordinate and other general

information.

*Fig. 3.1.4 - Navigation Data Page*

**3.1.5 GRAPHIC DATA (ROLLING ROAD) PAGE**

The Graphic Data Page shows in graphic mode navigation data.

*Fig. 3.1.5 - Graphic Data Page*

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**3.2 BASIC SETTINGS**

The Basic Settings menu provides access to the set up functions. Here you

can choose the language you want (see Par. 2.4).

'MENU' + "BASIC SETTINGS" + 'ENTER'

**3.2.1 COURSE VECTOR**

Disables (Off) the Course Vector or selects the preferred time among: 2, 10,

30 Min, 1 hour, 2 hours, Infinite. The default setting is Infinite.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "COURSE VECTOR" + 'ENTER'

**3.2.2 SCREEN AMPLIFIER**

The Screen Amplifier function allows, when it is On and Home mode is set,

to place map on the screen related to the fix position and direction, so the map

shown is that before the ship. The default setting is On.

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

**3.2.3 ADVANCED FUNCTIONS**

When it is On the chartplotter works in Advanced Mode, otherwise when it

is Off the chartplotter works in Basic Mode. The default setting is Off.

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

'ENTER'

**3.2.4 USER POINTS**

Selects the User Point display among On, Off or Icon. The default setting is On.

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

**3.2.5 DEPTH WINDOW**

Enables/Disables the display on the Depth Window on the screen. The default

setting is Off.

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

**3.2.6 UNITS SELECTION**

Allows to select the preferred unit for Distance, Speed, Depth and Altitude

(altitude of GPS Antenna on the medium sea level).

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

is Kts.

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

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

is Nm.

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

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

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

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

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

Temperature: °C/°F. The default setting is °C.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "TEMPERATURE" + 'ENTER'

**3.2.7 NAV AIDS PRESENTATION**

Allows to set the Nav Aids presentation as US or INTERNATIONAL. The

default setting is INTERNATIONAL. When selected it affects Lights, Signals, Buoys

& Beacons display.

- INT(International): Draws Nav-Aids using international symbology. All

components of Complex Objects are shown.

- US: Draw Nav-Aids using NOAA symbology. All components of Complex

Objects are shown.

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

'ENTER'

**3.2.8 INPUT/OUTPUT MENU**

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

Disables (selecting Off) or sets the format for the navigation data input serial

Port1/2/3/4/5. For example to set the Port as NMEA-0183 (4800 Baud Rate, Parity

None, 8 Bits Number, 1 Stop Bit and Normal Polarity) you must select 4800-N81-N.

The available choice is among (1200-N81-N), NMEA (4800-N81-N), NMEA (4800-

N82-N), NMEA (9600-O81-N), NMEA (9600-N81-N), C-COM (\*). The default

setting is (4800-N81-N).

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 1/2/3/4/5 INPUT" + 'ENTER'

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

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**Note (\*)**

*The option C-COM defines on which Port the C-COM modem is connected. It is important to*

*remark that this setting affects the Input and the Output of the selected Port. The C-COM can only*

*be set on one Port at time. If the C-COM was already assigned to one Port and the user tries to*

*set the C-COM to another Port, the chart plotter will show a message that warns the user about*

*the current settings and asks if the new settings should overwrite the previous ones.*

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

Disables (Off) or sets the interface as NMEA 0183, NMEA 0180, NMEA

0180/CDX.. The default setting is 0183.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 1/2/3/4/5 OUTPUT" + 'ENTER'

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

The chart plotter allows customizing the NMEA-0183 sentence transmitted

on each port. Each port can transmit a different set of sentences among: GLL, VTG,

BOD, XTE, BWC, RMA, RMB, RMC, APB, WCV, GGA, HSL, HDG. The default

setting is GLL, VTG, XTE, RMB, RMC, APB On and BOD, BWC, RMA, WCV,

GGA, HSL , HDG Off.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"PORT 1/2/3/4/5 NMEA OUTPUT" + 'ENTER'

**3.2.8.4 GPS Setup Menu**

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

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"GPS SETUP" + 'ENTER'

**Note**

*This item is shown alternately to the selection of the output messages when to the related port is*

*connected a GPS identificable by the chart plotter.*

Restart GPS

Restars all GPS processes. Once executed, the message "Done" is shown.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"GPS SETUP" + 'ENTER' + "RESTART GPS" + 'ENTER'

Differential Correction Source

Allows setting what kind of Differential Correction will be used by the GPS between

WAAS-EGNOS and RTCM (beacon correction). The default setting is WAASEGNOS.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"GPS SETUP" + 'ENTER' + "DIFF CORRECTION SOURCE" + 'ENTER'

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Navigation Speed

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

Speed.

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"GPS SETUP" + 'ENTER' + "NAVIGATION SPEED" + 'ENTER'

**3.2.8.5 Send & Receive Marks/Routes**

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

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"SEND/REC ROUTES & MARKS" + 'ENTER' + "Port1/Port2" + 'ENTER'

**3.2.8.6 C-Link**

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

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"C-LINK" + 'ENTER' + "Secundary Station/Primary Station" + 'ENTER'

**3.2.8.7Cable Wiring Pages**

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

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"POWER I/O CABLE WIRING" + 'ENTER'

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"AUX IN I/O CABLE WIRING" + 'ENTER'

**3.2.9 C-VOICE MENU**

AVAIBLE ONLY IF THE CHARTPLOTTER IS CONNECTED TO VOICE NAVIGATION SYSTEM

The chartplotter has two different vocal modes, Navigation and Echosounder.

According to what mode is selected the messages spoken from the chartplotter are

different.

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

3.2.9.1 Navigation

Enables (On), disables (Off) or insert the time (2, 5, 10, 15 minutes) for the

Navigation Voice mode. If it is On, the message is always sent, as fast as possible.

Instead if it is one among the available values, for example 2 minutes, the message is

sent related to the selected time, in the previous example every two minutes.

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

"NAVIGATION" + 'ENTER'

3.2.9.2 Echosounder

Enables (On) or disables (Off) the Echosounder Voice mode. If it is On, the

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Depth message is spoken. The message is spoken if a valid depth data is received by

the chartplotter or if it is in Simulation mode. The default setting is Off.

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

"ECHOSOUNDER" + 'ENTER'

3.2.9.3 Output Port

Selects the Output Port for the Voice function. The default setting is Port 1.

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

PORT" + 'ENTER'

**3.3 A-B-C-D FUNCTION**

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

delete them.

**3.3.1 INSERTING THE A-B-C-D POINTS**

Place the cursor on the desired position and press 'ENTER': the A point and

an information window on A appear. Move the cursor and press 'ENTER' again: the

B point appears, connected to A with a straight segment; an information window on

A-B segment (distance (DST), bearing (BRG) and total distance from the first point)

appears. Moving the cursor and pressing 'ENTER' places the C and D points:

*Fig. 3.3.1 - A-B-C-D points*

**3.3.2 DELETING THE A-B-C-D POINTS**

Place the cursor on the desired point (A, B, C or D) and press 'CLEAR': the

point is deleted. When the point is deleted, the cursor is placed on the previous

point, if existed. The labels of the next points are renamed.

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

If fix received is good, place the cursor on the desired point A, B, C or D and

press 'GO-TO'. When the ship arrives to the Destination point, navigation follows

to the next point (if existed).

**3.4 NAVIGATING TO A SINGLE DESTINATION**

**3.4.1 DISTANCE AND BEARING TO TARGET**

Once you have positioned the cursor on your desired location (a generic

point on the map) press 'GO-TO'.

*Fig. 3.4.1 - Navigation to a single destination*

On the screen is shown a straight line connecting the Target (called DEST) with the

ship's position and an information window with Target position, that disappears

when the cursor is moved from the Target. When the Target is placed, all navigation

data are referred to this Target.

**Note**

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

**3.4.2 TIME TO GO**

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

'PAGE' more times to select the Graphic Data page

**Note**

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

*displayed.*

**3.4.3 DELETING TARGET**

Place cursor on Target icon, press 'CLEAR': the symbol identifies Target

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disappears from the screen.

Otherwise (when the cursor is placed in a generic position on the chart)

press 'GO-TO'. A window appears to advise that the Destination is present: select

the item "STOP" and press 'ENTER', the symbol identifies Target disappears from

the screen.

**Note**

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

*position.*

**3.5 C-MAP NT MAX INFORMATION**

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

**New Data Features**

- Tides and Currents (intuitive arrows show direction and strength)

- World Background Charts with terrestrial data

- Value Added Data (Pictures and Diagrams, Land Data)

- Enhanced Port Info

**New Presentation Features**

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

- Clear Info (sophisticated "Human Disctionary" to translate Nav-Aid abbreviations

found on paper cahrts)

- Dynamic Fonts and Symbols

- Dynamic Nav-Aids (an innovative and dynamic presentation mode)

- Flexi-Zoom (increased Under and Over Zoom between chart levels, resulting in

optimal scale display for any situation)

- Dynamic Elevation Data (optimised palettes for chart plotters with 256 or more

colors; inludes new NOAA palette for US market)

- Perspective View ("Real World" perspective view of the chart, updated realtime

during navigation)

**MAX and NT/NT+ C-CARD coexistence**

- When NT+ data and MAX data cover different areas, the chart plotter gets data

from both charts (depending on the current position).

- When NT+ data and MAX data cover the same area, the chart plotter gets data only

from MAX chart.

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**3.5.1 MAP MENU**

It is possible to select the Map Menu following the procedure:

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

**3.5.1.1 Perspective View**

'MENU' + "MAP SETTINGS" +'ENTER' + "Perspective View" + 'ENTER'

Chart data may be projected in perspective mode during navigation. This

function allows setting the panoramic View of the chart.

As the upper side of the map is more compressed than the lower side, a wider map

area is visible. The perspective view allows showing more chart information immediately

ahead and around the cursor.

*Fig. 3.5.1.1 - Perspective View*

**3.5.1.2 Palette ONLY FOR COLOR CHARTPLOTTER**

'MENU' + "MAP SETTINGS" +'ENTER' + "Palette" + 'ENTER'

It is possible to set the palette used to enhance the visibility of the screen

depending on the surrounding light condition. The possible choices are Normal,

Classic, NOAA, Night Vision and Sunlight. The default setting is Classic. Normal

is recommended when the chartplotter is not exposed to the direct sunlight. When

this mode is set the maps are displayed in order to use colors as similar as possible to

the ones used in the original paper charts. Classic uses more vivid colors. Night

Vision is recommended when the environment is dark in order to reduce the glare

of the display. The chartplotter displays maps and screen in darker colors. Sunlight

is designed to enhance the visibility of the screen when the chartplotter is exposed to

the sunlight. The maps are much brighter than in the other modes and the depth

areas are filled with white color so different depth areas are not easily distinguishable.

NOAA allows setting NOAA paper chart colors presentation.

**3.5.1.3 Map Orientation**

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

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Selects the orientation of your chart according to: North (the map is shown

with North upwards), Head (the map is shown with the ship's current heading upwards),

Course (the map is displayed with the currently selected course leg upwards).

The default setting is North

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

**3.5.1.4 Zoom Type**

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

This feature allows more expansions or compression of the chart scale while

zooming in or out. Zoom Mode has two options; STANDARD (default) or FLEXIZOOM.

When in FLEXI-ZOOM mode, a short 'ZOOM...' push causes a change of

chart, whilst a long 'ZOOM...' push (press and hold) causes a pop-up window to be

displayed on a corner of the screen. The window shows the current Zoom Factor.

By pressing 'ZOOM IN'/'ZOOM OUT' the map is expanded or compressed

according to the zoom factor selected.

The Window is automatically closed if 'ZOOM...' is not pressed for 2 seconds

and the selected zoom factor will be used at the next zoom in/out.

**3.5.1.5 Fonts & Symbols**

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

On MAX charts it is possible to set the size of all names and symbols drawn on

the charts, selecting between Normal size (the regular characters size) and Large size.

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

**3.5.1.6 Dynamic Nav-Aids**

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

This function allows settings blinking lights on Nav-Aids. The blink period

and color of each Nav-aid is read from the Nav-Aid attributes available on the data

cartridge. When the ship is inside the Nav-Aid nominal range, the light of the Nav-

Aid will start blinking.

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**3.5.1.7 Mixing Levels**

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

When the map coverage at the current zoom level does not fill the entire

screen, the chartplotter draws the rest of the map expanding the cartographic information

read from, at most, two zoom levels above the current zoom level. For this

reason the map is drawn three times: firstly it draws the two levels before the current

level and then the current level. The area covered by the cartographic data read from

the previous levels is identified by a dotted pattern. When the cursor is moved on an

area not covered by data of the current level the chartplotter zooms out to the first

level covered by cartographic data. The default setting is Off.

**Note**

*The Mixing Levels function works only with the new C-CARDs. It also affects the speed of the*

*redraw of the screen. If this function is not used it maybe disabled.*

**3.5.1.8 Safety Status Bar**

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

This feature displays a status bar with six boxes showing the status of certain

functions. Any warning or alarm condition is identified by the red colour to indicate

possible risk.

*Fig. 3.5.1.7 - Safety Status Bar*

Boxes definition is as follows:

Zoom

- Normal: when the chart is displayed at normal scale.

- U. Zoom: red when the chart is under-zoomed out more than twice normal

scale, gray otherwise.

- O. Zoom: red when the chart is over-zoomed in more than twice normal

scale, gray otherwise.

- Chart Lock: red when the chart is zoomed in more than twice normaln

scale, gray otherwise.

Best Scale

Red when a more detailed chart is available under the cursor position.

Data Off

Red when at least one of the following objects or layers is turned off (by the user):

Depths/soundings; Wrecks/obstructions; Tracks/routes; Attention areas; Nav-Aids.

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Clear View

Displays when Clear View function is On.

Dangers

Red when “Guardian Technology” detects one of the following objects: Land,

Intertidal, Depth Area, Rocks, Obstructions, Shoreline Constructions, Fishing

Facility, Wrecks, Dragged area, Diffusion area, Mooring facilities, Pingos

and Production installations.

Caution

Red when “Guardian Technology” detects cautionary or restricted area.

**3.5.1.9 Currents Prediction**

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

It is possible to see the variation of the Tidal arrows on the selected area at

any given time. A window is shown on the low-left side of the chart, press 'ENTER'

to set the date and time manually, 'MENU' to decrease time and 'GOTO' to increase

time.

**3.5.1.10 Other Map Configurations**

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

This function allows the user to customize the following selections and is

divided into the following setting: Marine Settings, Depth Settings, Land Settings

and Chart Settings.

Display Mode: To simplify the customization of the chart display, the map settings

are now re-organized in modes allowing the user to choose the preferred setting. Preprogrammed

settings are user selectable from Full, Medium, Low, Radar, Tides,

Custom. The default setting is Custom.

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

+ "Display Mode" + 'ENTER'

The table below shows the selections for each mode:

Setting Full Medium Low Radar Tides Custom

(Default values)

Names On On On On On On

Buoys Name On Off Off Off Off On

Nav-Aids On On On On Off On

Light Sectors On Off Off Off Off On

Attention Areas On On Off Off Off On

Tides & Currents On Off Off Off On On

Seabed Type On Off Off Off Off On

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Ports & Services On On Off On Off On

Tracks & Routes On Off Off Off Off On

Underwater Objects On On Off Off Off On

Depth Range On On On Off On On

Depth Range Min 3 Mt 3 Mt 3 Mt 3 Mt 3 Mt 3 Mt

Depth Range Max 10 Mt 10 Mt 10 Mt 10 Mt 10 Mt 10 Mt

Rocks > 0 Mt 0 Mt 0 Mt 0 Mt 0 Mt 0 Mt

Rocks < 9999Mt 5 Mt 5 Mt 5 Mt 5 Mt 9999Mt

Land Elevation Data On Off Off Off Off On

Roads On Off Off Off Off On

POIs On Off Off Off Off On

Lat/Lon Grid On Off Off Off Off On

Chart Boundaries On Auto Off Off Off Auto

Mixing Levels On Off Off Off Off Off

Value Added Data On Off Off Off Off On

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

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

+ "Names" + 'ENTER'

Buoys Name: On/Off. The default setting is On. To identify better the Buoys, the

name/number of the buoys is shown next to the icon on the chart.

*Fig. 3.5.1.10 - Buoy Name*

On the left side of the previous figure the two buoys have their name shown on the right

side. On the right side of the previous figure, the two buoys do not show the name.

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

+ "Buoys ID" + 'ENTER'

Nav-Aids:: On/Off. The default setting is On. When selected it affects Lights, Signals,

Buoys & Beacons display.

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

+ "Nav-Aids" + 'ENTER'

Light Sectors: On/Off. The default setting is On.

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

+"Light Sectors" + 'ENTER'

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Attention Areas: On/Off. The default setting is On. The Attention Areas will always

be contour only when On.

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

+ "Attention Areas" + 'ENTER'

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

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

+ "Tides & Currents" + 'ENTER'

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

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

+"Seabed Type" + 'ENTER'

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

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

+"Ports & Services" + 'ENTER'

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

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

+ "Tracks & Routes" + 'ENTER'

Underwater Objects: On/Off. The default setting is On.

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

+ "Underwater Objects" + 'ENTER'

Depth Range: On/Off. The default setting is On.

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

+"Depth Range" + 'ENTER'

Depth Range Min: Sets a min reference depth value. The default setting is 3 Mt.

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

+ "Depth Range Min" + 'ENTER'

Depth Range Max: Sets a max reference depth value. The default setting is 10 Mt.

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

+"Depth Range Max" + 'ENTER'

Rocks >: Sets a min reference rocks value.

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

+ "Rocks >" + 'ENTER'

Rocks <: Sets a max reference rocks value.

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

+ "Rocks <" + 'ENTER'

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Land Elevation Values: the Land Elevation areas are always shown, but it is possible

to set On/Off the Land Elevation display. The default setting is On.

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

+ "Lan Elevation Values" + 'ENTER'

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

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

+ "Roads" + 'ENTER'

POIs (Points Of Information): On/Off. The default setting is On.

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

+ "POIs" + 'ENTER'

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

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

+ "Lat/Lon Grid" + 'ENTER'

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

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

+ "Chart Boundaries" + 'ENTER'

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

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

+ "Value Added data" + 'ENTER'

**3.5.2 GETTING AUTOMATIC INFO**

The type of Automatic Info is user selectable.

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

INFO" + 'ENTER'

The possible settings are:

- Off: disabled, no automatic info shown at all.

- On Points: only on points. This is the default setting.

- On All: on all objects (points, lines and areas).

The Automatic Info On Points shows information when the cursor is placed

on points (as Port Services, Tides, lights, wrecks, rocks, buoys, beacons, obstructions,

land markers, etc.). The Automatic Info On All shows information when the

cursor is placed on points, on lines (as Depth contours, Traffic Separation, Territorial

Sea, Cartographic Lines etc.) on areas (Depth, Built-up, Sea, Attention, Restricted

etc.) and on names (on the beginning of the text -hot spot- or on any of the characters

of the name -name message box-).

The details on Land, Source of Data, Cartographic Area and Spot Soundings

are not shown.

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*Fig. 3.5.2 -Automatic Info on Points window*

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

**3.5.2.1 Info on objects with Pictures**

On the Quick Info, there will be the camera icon on the top bar of the window if at

least one of the objects found has one or more pictures associated.

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

On the Full Info, there will be the small camera icon on a corner of the square

containing the object icon or a big photo icon centered on the square for the object

without icon.

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

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

**Change Picture Size**

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

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**3.5.3 INFO TREE AND EXPANDED INFO PAGE**

This page combines the Info Tree and the Expanded Info pages; this gives the

advantage of showing the details of the object selected on the Info Tree while the

cursor is moving through the Info Tree’s items.

The upper side of the page contains the Info Tree and the Lower side contains

the expanded information. While moving the cursor through the Info Tree, all

the relevant information of the selected object is shown on the lower part of the

page.

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

is shown. Pressing 'CLEAR' the page is closed.

**3.5.4 INFO FUNCTION**

Place the cursor in any place you want and press:

'MENU' + 'INFO'

to show the Info Tree and Expanded Info page (see Par. 3.5.4).

**3.5.5 GETTING PORT INFO**

Upon viewing the chart of a port or harbour, you will see a Port Info icon

that can be clicked on to query the available information immediately displayed

with many details. The Port Info icon is visible only if the Ports & Services option is

On (default setting).

*Fig. 3.5.5 - Port Info icon*

The available information is shown in the Automatic Info window where

icons of the available services are shown:

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*Fig. 3.5.5a - Automatic Info window*

To expand information about that object press 'ENTER'.

**3.5.6 GETTING TIDE INFO**

When you will see a Tide Info icon you can click on it to query the available

information that will immediately be displayed.

*Fig. 3.5.6 - Tide Info icon*

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

*Fig. 3.5.6a - Automatic Info on Tide*

To display the Tide Graph page, press 'ENTER':

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*Fig. 3.5.6b - Tide Graph*

Using the cursor key, it is possible to move the cursor anywhere on the

graph and display the time, height (vertical cursor) and draught (horizontal cursor)

on a particular graph point. Also use 'ZOOM IN' or 'ZOOM OUT' to go to previous

or next day and 'ENTER' to set date (move the cursor key up/down to insert

the preferred number and use it left/right to move cursor to left/right).

**Note**

*Tide graphs are an approximation of the tide and they should be used in conjunction with*

*traditional tide tables and navigational methods.*

**3.5.7 FIND FUNCTION**

The chartplotter allows finding Nearest Services, Port By name, Tide Stations,

Wrecks, Obstructions.

**3.5.7.1 Finding Port Services**

To locate and display the nearest available facilities of a particular type (i.e.

the nearest Hospital, sailmaker, bank, etc.).

'MENU' + " FIND" + 'ENTER' + "NEAREST SERVICES" + 'ENTER'

The icons of the available services are shown. Use the cursor key to select

any facility and press 'ENTER'. The list of the nearest ports (up to 10) containing

the facility will be shown on the screen. Then choose the port you want and

press 'ENTER'.

**3.5.7.2Finding Nearest Ports**

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'

**Note**

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

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**Searching by name**

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

PORTS" + 'ENTER'

If the Range option is disabled (Off selected) the list of available ports ordered by

name is shown; otherwise the list of available ports in the range is shown. Press

'MENU' and then use the cursor key to insert port name (max 15 characters). Press

'ENTER' to accept (press 'CLEAR' to close menu). 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 cursor key. Press 'ENTER' to show port

on the map.

**Searching port in the range**

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

'ENTER'

Finds port in the range. Use the cursor key to insert preferred value. Press 'ENTER'

to accept.

**3.5.7.3 Finding Tide Stations**

Finds the nearest Tide Stations (up to 10) on the map, from the boat position

- if a valid fix is received - or from the cursor position - if the received fix position is

not good.

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

A new window will appear in few seconds. Choose the Tide Stations you

want and press 'ENTER' or 'FIND' to display the Tide Graph page (see Par. 3.5.4).

Press 'CLEAR' to display the Tide Station chosen.

**3.5.7.4 Finding Wrecks**

Searches for Nearest Wrecks:

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

Use the cursor key to select the port and 'ZOOM IN'/'ZOOM OUT' to

select next/previous page. Press 'ENTER' to locate the selected Wreck on the map.

**3.5.7.5 Finding Obstructions**

Searches for Nearest Obstructions:

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

Use the cursor key to select the port and 'ZOOM IN'/'ZOOM OUT' to

select next/previous page. Press 'ENTER' to locate the selected Obstruction.

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**3.6 MAN OVERBOARD (MOB)**

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

overboard.

**3.6.1 INSERTING MOB**

Press 'MOB' to place MOB symbol at ship's coordinates. On the screen the

MOB symbol and a window to advise tha the MOB is activated appear, press 'CLEAR'

to delete this window. Data displayed in Text Area are related to MOB. Placing the

cursor on the MOB symbol an information window appears:

*Fig. 3.6.1 - Man Overboard*

**Note**

*In the information window the bottom side "ENTER for Options" appears only if the "Advanced*

*Functions" item in the "Basic Settings" menu is activated (On).*

**3.6.2 DELETING MOB**

Press 'MOB', select 'CANCEL" and press 'ENTER' again. The MOB symbol

remains on the screen shaded until the next screen redraws.

**Note**

*If the "Advanced Settings" item in the menu "Basic Settings" is activated (On), placing the cursor*

*on MOB the information window appears as shown in the previous Fig. 5e. Press 'ENTER', select*

*"CANCEL" and press 'ENTER' again: the MOB symbol remains on the screen shaded until the*

*next screen redraws.*

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4**For the Experienced User**

Now you have had a chance to became familiar with your new chartplotter,

there are a great number of advanced features that you will find helpful. First of all

the use of the Advanced Mode.

The chartplotter can operate in two different modes: Basic Mode and Advanced

Mode. In the first mode there is a restricted number of functions, while in

Advanced Mode it is possible to have more available functions, for example it is

possible to handle Waypoints. To select the Advanced Mode:

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

'ENTER' + "ON" + 'ENTER'

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

**4.1 MORE ABOUT CREATING AND USING ROUTES**

At anytime, you may add or delete Waypoints, see a route summary, reverse

the direction of the route or erase the entire route.

**4.1.1 WAYPOINT**

You may add Waypoints, delete Waypoints from a route, move any Waypoint

in the route to another location, insert a Waypoint between two existing ones, find

any Waypoint at anytime. Every time you place the cursor on a Waypoint the following

functions are available.

**4.1.1.1 Adding Waypoint**

Select Advanced Mode + 'ENTER' + "WAYPOINT" + 'ENTER'

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

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

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*Fig. 4.1.1.1 - Waypoint placing*

**4.1.1.2 Creating a route**

Repeat the "Adding Waypoint" procedure described in the previous Par.

4.1.1.1. The sequence of moving the cursor and pressing 'ENTER' is continued to

create the route, until you have reached the last Waypoint, your final destination.

Segments connecting the Waypoints are shown, and the starting point is identified

by a circle surrounding the first Waypoint of the route:

*Fig. 4.1.1.2 - Route planning*

**4.1.1.3 Deleting Waypoint**

Select Advanced Mode + Place cursor on Waypoint

*Fig. 4.1.1.3 - Deleting Waypoint (I)*

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Press 'ENTER'. Select "DELETE" and press 'ENTER'. The Waypoint is

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

Waypoint remains shaded until the screen is redrawn.

*Fig. 4.1.1.3a - Deleting Waypoint (II)*

**4.1.1.4 Deleting route**

Select Advanced Mode + Place cursor on Waypoint

Press 'ENTER'. Select "DELETE ROUTE" and press 'ENTER'. A window

is opened: select "YES" and press 'ENTER' to confirm (select "NO" and press 'ENTER'

otherwise). The route remains on the screen shaded until the screen is redrawn.

To delete route see also Par. 4.1.2.2 and 4.1.2.4.

**4.1.1.5 Distance and Bearing to Target**

Once you have positioned the cursor on the desired starting Waypoint (it

could be the first Waypoint of the route or another one) press 'GO-TO'. A circle

surrounds the Waypoint symbol. A line is shown, connecting the Target with the

ship's position. When the Target is placed, all navigation data are referred to this

Target.

*Fig. 4.1.1.5 - Selecting destination (Target)*

The destination will automatically switch to the next Waypoint on the route

when you reach or pass the present destination.

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**Time To Go**

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

'PAGE' more times to select Graphic Data page

**Note**

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

*displayed.*

**Deleting Target**

If in Basic Mode place cursor on Target icon and press 'CLEAR': the symbol that

identifies Target disappears from the screen, but the Waypoint remains.

If in Advanced Mode (see Par. 3.4.3) place cursor on Target icon, press 'ENTER',

select "STOP NAV" and press 'ENTER': the symbol that identifies Target disappears

from the screen, but the Waypoint remains.

**Note**

*If you select "NEXT"/"PREV" and press 'ENTER', the Target icon is moved on the next/*

*previous Waypoint in the route.*

Otherwise in both Modes (when the cursor is placed in a generic position on the

chart) press 'GO-TO'. A window appears to advice that the Destinetion point is

present: select "STOP" and press 'ENTER', the symbol that identifies Target disappears

from the screen, but the Waypoint remains.

**Note**

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

**4.1.1.6 Moving Waypoint**

Select Advanced Mode + Place cursor on Waypoint

Press 'ENTER'. Select "MOVE" and press 'ENTER'. Use the cursor key to

move the cursor: a dotted line, connecting the Waypoint to the new position, is

shown:

*Fig. 4.1.1.6 - Moving Waypoint function (I)*

To place the Waypoint in the new position, choose the new place and press

'ENTER' ('CLEAR' otherwise), Waypoint appears in the new position:

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*Fig. 4.1.1.6a - Moving Waypoint function (II)*

**4.1.1.7 Inserting Waypoint**

Every time you place the cursor on the segment connecting two existing

Waypoints of a route the following function is available.

Place cursor on route leg

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

Press 'ENTER'. Select "INSERT" and press 'ENTER'. The line between the

two Waypoints is turned into a dotted line: move the cursor to the new position.

When the cursor is stationary for one second or two, the line will "rubber-band",

drawing a dotted line between the last Waypoint and the cursor, and another dotted

line between the cursor and the next Waypoint:

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

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Once you have positioned the cursor at new location, press 'ENTER' (press

'CLEAR' to abort operation):

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

**4.1.1.8 Editing Waypoint**

Select Advanced Mode + Place cursor on Waypoint

Press 'ENTER'. Select "EDIT" and press 'ENTER' to modify a Waypoint.

A window will be shown with Name, Symbol and Latitude/Longitude of the

Waypoint, advising about what Waypoint data are modifiable.

*Fig. 4.1.1.8 - Edit Waypoint (I)*

Use the cursor key to select the field. If you have selected Name field, press

'ENTER': use the cursor key to insert the character (8 characters max), then press

'ENTER'. If Symbol field is selected press 'ENTER': a window with 16 different

symbols appears:

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

Use the cursor key to select the symbol and press 'ENTER'. If select Coordinates

field, press 'ENTER' and then use the cursor key to insert the value. Then

press *'*CLEAR'.

**Note ONLY FOR COLOR CHARTPLOTTER**

*If Color field is selected press 'ENTER': a window with 8 different colors appears, use the cursor*

*key to select the desired color and press 'ENTER'.*

*Fig. 4.1.1.8b - Edit Waypoint (III)*

**4.1.1.9 Finding information about Waypoints: User Points List page**

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

Move up/down the cursor key to select the User Point you wish. If the page

contains more than 8 User Points, the list continues in the next pages.

**Finding User Points**

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

"FIND' + 'ENTER'

The chartplotter exits from the User Points List page and redraws the chart. The

selected point appears, with the cursor placed on it.

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**Deleting selected User Point**

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

"CLR-ONE' + 'ENTER'

Deletes the selected User Point. A warning message appears, select "YES" and press

'ENTER' ('CLEAR' otherwise).

**Deleting all User Points with the same symbol**

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

"CLR-SYM' + 'ENTER'

Deletes all User Points which have the same identifier of that shown in the selected row.

A warning message appears, select "YES" and press 'ENTER' ('CLEAR' otherwise).

**Deleting all User Points with the same type**

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

"CLR-TYP' + 'ENTER'

Deletes all User Points which have the same type of that shown in the selected row.

A warning message appears, select "YES" and press 'ENTER' ('CLEAR' otherwise).

**Deleting all stored User Points**

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

"CLR-ALL' + 'ENTER'

A warning message appears, select "YES" and press 'ENTER' ('CLEAR' otherwise)

to delete all stored User Points.

**Send/Receive User Points**

Sends all User Points to an external device using the serial port:

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

"SEND"

Reads all User Points from NMEA Input port:

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

"RECEIVE"

**4.1.2 ROUTES**

The following functions are used for the route management. The chartplotter

handles routes from 1-25, which are permanently stored in the memory as they are

created. Only one route can be selected for work at any one time.

**4.1.2.1 Selecting route**

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

"CURRENT ROUTE" + 'ENTER'

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A window appears with the route number list and the related route name.

Use the cursor key to scroll the list up/down. Pressing 'ENTER' the selected route

becames the current route.

**Note**

*If there is the Target in the current route, it is not possible to change the current route. So if the*

*"Current Route" item is selected, a Warning window appears because Target is placed in the*

*current route.*

**4.1.2.2 Deleting route**

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

"DELETE ROUTE" + 'ENTER'

A window is opened: select "YES" and press 'ENTER' to confirm (select

"NO" and press 'ENTER' otherwise). The route remains on the screen shaded until

the screen is redrawn. To delete route see also Par. 4.1.1.4 and 4.1.2.4).

**4.1.2.3 Reversing route**

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

"ROUTE REVERSE" + 'ENTER'

Reversing a route plan is most typically used to return to the point where the

route originally started.

**Note ONLY FOR COLOR CHARTPLOTTER**

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

"ROUTE COLOR" + 'ENTER'

*A window is opened: use the cursor keys to select the route color you want among the eight colors*

*available. Press 'ENTER' to confirm. The route appears on the screen colored by the selected color.*

*It is possible to select a different color for any route.*

**4.1.2.4 Finding information about a route: Route Report**

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

"ROUTE REPORT" + 'ENTER'

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

page.

*Fig. 4.1.2.4 - Route Data Report page*

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**Selecting route**

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

"ROUTE REPORT" + 'ENTER' + "ROUTE #" + 'ENTER'

Use the cursor key to select the route number and press 'ENTER'. The route, shown

by straight segments, is centered on the screen, with the cursor on the central

Waypoint. See also Par. 4.1.2.1.

**Note**

*If there is the Target in the current route, it is not possible to change the current route. So if the*

*"Route #" item is selected, the chart plotter emits three beeps.*

**Changing Speed & Fuel values**

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

"ROUTE REPORT" + 'ENTER'

It is possible to modify the Speed and Fuel consumption values, respectively by selecting

"SPEED" and "FUEL". Insert value by using the cursor key and pressing

'ENTER'.

**Reversing route**

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

"ROUTE REPORT" + 'ENTER' + "REVERSE" + 'ENTER'

Reversing a route plan is most typically used to return to the point where the route

originally started. See also Par. 4.1.2.3.

**Deleting route**

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

"ROUTE REPORT" + 'ENTER' + "CLEAR" + 'ENTER'

A window is opened: select "YES" and press 'ENTER' to confirm (select "NO" and

press 'ENTER' otherwise). The route remains on the screen shaded until the screen

is redrawn. To delete the route see also Par. 4.1.1.4 and 4.1.2.2.

**4.1.2.5 Route Name**

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

"ROUTE NAME" + 'ENTER'

Use the cursor key to insert the route name (max 16 alphanumeric char.).

**4.1.2.6 Send/Receive Route**

To transmit the Active Route information onto the NMEA output port.

'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "ROUTE" + 'ENTER' + "SEND"

The NMEA WPL & RTE messages are sent to the output port.

To save Route information received from the NMEA input port.

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

"RECEIVE"

The received route is saved on the Active route, overwriting it. The NMEA

WPL & RTE messages are sent to the input port.

**4.2 MARK & EVENT**

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

created at your vessel position.

**4.2.1 MARKS**

You may tag a location on the chart with a Mark symbol and number, which

you can record for later use. Every time you place the cursor on a Mark the following

functions are available.

**4.2.1.1Adding Mark**

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

The new Mark appears on your cursor position. An info window containing

Mark name, symbol and Latitude/Longitude is shown.

**4.2.1.2 Deleting Mark**

Select Advanced Mode + Place cursor on Mark

Press 'ENTER'. Select "DELETE" and press 'ENTER': the Mark remains

on the screen shaded until the next screen is redrawn.

**Note**

*If you try to delete a Mark that belongs to many routes, the chart plotter emits three beeps and on*

*the screen a Warning message appears. If you want to delete the Mark, press 'ENTER'.*

**4.2.1.3 Goto**

Place cursor on Mark

Press 'GO-TO': a circle encloses the Mark symbol. A straight line is shown

on the screen connecting the Target with the ship's position. When the Target is

placed, all navigation data are referred to this Target.

**4.2.1.4 Moving Mark**

Select Advanced Mode + Place cursor on Mark

Press 'ENTER'. Select "MOVE" and press 'ENTER'. Move the cursor by

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the cursor key, a dotted line connecting the Mark with the new position is shown:

*Fig. 4.2.1.4 - Moving Mark function (I)*

Press 'ENTER':

*Fig. 4.2.1.4a - Moving Mark function (II)*

The Mark is placed in the new position, the "old" Mark, remains on the

screen shaded until the screen is redrawn.

**Note**

*If you try to move a Mark that belongs to many routes, the chart plotter emits three beeps and on*

*the screen a Warning message appears. If you want to move the Mark, press 'ENTER'.*

**4.2.1.5 Editing Mark**

Select Advanced Mode + Place cursor on Mark

Press 'ENTER'. Select "EDIT" and press 'ENTER'. A window appears to

modify Name, Symbol and coordinates of the existing Mark.

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*Fig. 4.2.1.5 - Edit Mark*

Use the cursor key to select the field. If you have selected Name field, press

'ENTER': use the cursor key to insert the character (8 characters max), then press

'ENTER'. If Symbol field is selected press 'ENTER': a window with 16 different

symbols appears. Use the cursor key to select the symbol and press 'ENTER'. If

Coordinates field is selected, press 'ENTER' and then use the cursor key to insert the

value. Then press *'*CLEAR'.

**Note ONLY FOR COLOR CHARTPLOTTER**

*If Color field is selected press 'ENTER': a window with 8 different colors appears, use the cursor*

*key to select the desired color and press 'ENTER'.*

**4.2.1.6 Finding information about Marks: User Points List page**

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

A full window is opened showing information about all stored User Points

(Marks, Events and Waypoints). Move up/down the cursor key to select the User

Point you wish. If the page contains more than 8 User Points, the list continues in

the next pages. See Par. 4.1.1.9.

**4.2.1.7 Add to Route**

Select Advanced Mode + Place cursor on Mark

Press 'ENTER'. Select "ADD TO ROUTE" and press 'ENTER': the selected

Mark is connected to the current route. The same Mark can be added in many

routes.

**Note**

*An existing Mark can be connected to the current route in another mode too. Place cursor on*

*Mark, the information window related to the Mark appears, press 'CLEAR' to close the window*

*and then press 'ENTER', select the Waypoint option and press 'ENTER'. The Mark is connected*

*to the current route.*

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**4.2.2 EVENTS**

In Navigate mode you may place a location with an Event symbol and number,

directly on the ship's position. Move the cursor to exit from Navigate mode;

place the cursor on an Event to access the following functions.

**4.2.2.1 Adding Event**

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

An Event is placed directly on the ship's position.

**4.2.2.2 Deleting Event**

Place cursor on Event

Press 'ENTER'. Select "DELETE" and press 'ENTER': the Event remains

on the screen shaded until the next screen is redrawn.

**Note**

*If you try to delete a Event that belongs to many routes, the chart plotter emits three beeps and*

*on the screen a Warning message appears. If you want to delete the Event, press 'ENTER'.*

**4.2.2.3 Goto**

Place cursor on Event

Press 'GO-TO': a circle encloses the Event symbol. A straight line is shown

on the screen connecting the Target with the ship's position. When the Target is

placed, all navigation data are referred to this Target.

**4.2.2.4 Editing Event**

Place cursor on Event

Press 'ENTER'. Select "EDIT" and press 'ENTER'. A window appears to

modify Name, Symbol of the existing Event.

*Fig. 4.2.2.4 - Edit Event*

Use the cursor key to select the field. If you have selected Name field, press

'ENTER': use the cursor key to insert the character (8 characters max), then press

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'ENTER'. If Symbol field is selected press 'ENTER': a window with 16 different

symbols appears. Use the cursor key to select the symbol and press 'ENTER'. Then

press *'*CLEAR'.

**Note ONLY FOR COLOR CHARTPLOTTER**

*If Color field is selected press 'ENTER': a window with 8 different colors appears, use the cursor*

*key to select the desired color and press 'ENTER'.*

**4.2.2.5 Finding information about Events: User Points List page**

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

A full window is opened showing information about all stored User Points

(Marks, Events and Waypoints). Move up/down the cursor key to select the User

Point you wish. If the page contains more than 8 User Points, the list continues in

the next pages. See Par. 4.1.1.9.

**4.2.2.6 Add to Route**

Place cursor on Event

Press 'ENTER'. Select "ADD TO ROUTE" and press 'ENTER': the selected

Event is connected to the current route. The same Event can be added in

many routes.

**Note**

*An existing Event can be connected to the current route in another mode too. Place cursor on*

*Event, the information window related to the Event appears, press 'CLEAR' to close the window*

*and then press 'ENTER', select the Waypoint option and press 'ENTER'. The Event is connected*

*to the current route.*

**4.3 MORE ABOUT A-B-C-D FUNCTION**

The A-B-C-D function, explained in the previous paragraph 3.2, if Advanced

Mode is selected, allows you not only to create the A, B, C, D points and to delete

them, but also to modify and move them.

**4.3.1 INSERTING THE A-B-C-D POINTS**

Place the cursor on the desired position and press 'ENTER'. On the screen

the Create window appears, by using the cursor key select "A-B-C-D" and press

'ENTER': the A point and an information window on A appear. Move the cursor,

press 'ENTER', select "A-B-C-D" and press 'ENTER' again: the B point appears,

connected to A with a straight segment; an information window on A-B segment

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(distance (DST), bearing (BRG) and total distance from the first point) appears. Moving

the cursor, pressing 'ENTER', selecting "A-B-C-D" and pressing 'ENTER' places

the C and D points (see previous Fig. 3.3.1).

**4.3.2 DELETING THE A-B-C-D POINTS**

When placing the cursor on the desired point (A, B, C or D) the information

window appears. Press 'ENTER', select "DELETE" and press 'ENTER' again: the

point is deleted. When the point is deleted, the cursor is placed on the previous

point, if existed. The labels of the next points are renamed.

**4.3.3 DELETING THE A-B-C-D SEGMENT**

When placing the cursor on the desired point (A, B, C or D) or on segment

between two points the information window appears. Press 'ENTER', select "DELETE

ALL" and press 'ENTER' again: all points and connecting segments are deleted.

**4.3.4 MOVING THE A-B-C-D POINTS**

When placing the cursor on the desired point (A, B, C or D) the information

window appears. Press 'ENTER', select "MOVE" and press 'ENTER': by the cursor

key move the cursor, on the screen a dotted line connecting the point to move with the

new position appears. By pressing 'ENTER' the point is placing in the new position.

**4.3.5 INSERTING THE A-B-C-D POINTS**

Placing cursor on the segment connecting two points, the information window

appears. Select "INSERT" and press 'ENTER': by the cursor key move the

cursor, on the screen a dotted line appears. By pressing 'ENTER' the new point is

placing between the two existed points which are renamed.

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

If fix received is good, place the cursor on the desired point A, B, C or D and

press 'GO-TO'. When ship reaches the Destination point, navigation follows the

next point (if exists). When Target is set, three options are available: STOP NAV,

NEXT and PREV.

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**4.4 USING THE TRACK FUNCTIONS**

As long as the chartplotter is connected to a positioning instrument, it stores

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

last stored position is greater than a defined distance or after a defined time. A line

connects such points and represents the past course, called the track of the ship.

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

**4.4.1 SELECTING ACTIVE TRACK**

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

"ACTIVE TRK" + 'ENTER'

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

**4.4.2 ENABLING TRACK STORING**

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

"TRACCIA" + '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.

**4.4.3 DISPLAYING TRACK**

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

"VISIBILE" + 'ENTER'

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

On.

**4.4.4 SELECTING TRACK LINE PATTERN**

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

PATTERN" + 'ENTER'

Selects the desired line pattern for the selected track.

**Note ONLY FOR COLOR CHARTPLOTTER**

*"LINE PATTERN" item is substitued by the "COLOR" item, to select the desired color among*

*the eight colors available for the selected track.*

**4.4.5 DELETING TRACK**

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

"DELETE" + 'ENTER'

Deletes the all track storing. After pressing 'ENTER' a warning window

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appears: select "Yes" and press 'ENTER' to confirm (select "No" otherwise).

**4.4.6 DELETING SELECTED TRACK**

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

"DELETE SELECTION" + 'ENTER'

Deletes the track selected. After pressing 'ENTER' a window appears: press

'ENTER' to set the first point , then press 'ENTER' to set the second point. A

warning window appears: select "Yes" and press 'ENTER' to confirm the deletion

(select "No" otherwise).

**4.4.7 SELECTING TRACK MEMORIZING TYPE**

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

UNIT" + 'ENTER'

Choose Distance (Dist) - the chartplotter can store a fix when the distance

from its last stored position is greater than a defined distance; Time - the chartplotter

can store a fix after a defined time; Auto - the software decides when storing a position,

on the basis of the straight or curved track. The default setting is Time.

**4.4.8 SELECTING DISTANCE**

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

"DISTANCE" + 'ENTER'

When the tracking function is On and the type of track storing is Distance,

you can store a fix when the distance from its last stored position is greater than a

defined distance. Choose in the range 0.01, 0.05, 0.1, 0.5, 1.0, 2.0, 5.0, 10.0 Nm (the

distance unit is selected by the user, see Cap. 5). The default setting is 0.01 Nm.

**4.4.9 SELECTING TIME**

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

+ 'ENTER'

When the tracking function is On and the type of 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.

**4.5 USER C-CARD MENU**

The chartplotter allows to copy information to an User C-CARD. You can

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also return the information to internal memory at a later time. This allows virtually

unlimited storage.

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

*Fig. 4.5 -User C-CARD Menu*

**4.5.1 SAVING FILE**

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

+ "SAVE" + 'ENTER'

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

*Fig. 4.5.1 - Save File function (I)*

Select the file name. At first a default name is shown: use the cursor key to

insert the name. Press 'ENTER'. Select the data type to save among "MARK",

"EVENT", "ROUTE" or "TRACK".

**Note**

*When naming a file, you may have trouble finding a name that uniquely identifies the file's*

*contents. Dates, for example, are often used in filenames; however, they take up several characters,*

*leaving you with little flexibility. The secret is to find a compromise, a point where you can*

*combine a date with a word, creating a unique filename. The maximum length of the filename*

*is 8 characters. The characters may be numbers (0, ..., 9), letters (A, ..., Z) and spaces (for example*

*legal identifiers are "ABC", "AA", "12121212", "A B C", "1 A 1", and so on.*

Press 'CLEAR'. On the screen appears:

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*Fig. 4.5.1a - Save File function (II)*

**4.5.2 LOADING FILE**

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

+ "LOAD" + 'ENTER'

Before pressing 'ENTER', choose file name in the list shown on the screen

using the cursor key.

**4.5.3 DELETING FILE**

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

+ "DELETE" + 'ENTER'

A warning window is shown, select "YES" and press 'ENTER' to confirm

deletion (select "NO" otherwise). This operation remove old or unnecessary files to

clean up your User C-CARD. Remember that this option permanently erases the

file.

**4.5.4 FORMATTING USER C-CARD**

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

+ "FORMAT" + 'ENTER'

A warning window is shown, select "YES" and press 'ENTER' to confirm

the formatting (select "NO" otherwise). The format of User C-CARD must be done

before using a new User C-CARD: this operation prepares the User C-CARD to

receive and store information.

**4.5.5 CHANGING USER C-CARD**

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

+ "CHANGE" + 'ENTER'

Allows to change the User C-CARD.

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**4.6 C-LINK**

C-Link system is a feature which allows to sharing the same cartographic

data between two chart plotter units (CP) linked via serial I/O port.

In order to activate C-Link function, a “MAX data C-CARD” (called REGULAR

C-CARD) must be inserted into one of the two chart plotters and a special

MAX data C-CARD (called MIRROR C-CARD) must be inserted on the other

chart plotter.

The two MAX data C-CARDs must have the same code and revision. So, the

MIRROR C-CARD can be utilized only on a chart plotter linked to another chart

plotter provided with the equivalent REGULAR C-CARD.

It is important to point out that the two chart plotters must have the update

s/w versions that allow C-Link function.

**4.6.1 HOW C-LINK SYSTEM WORKS**

When the CP is powered up, it switches into the “Stand-Alone Mode”. In

this work mode, the CP unit periodically scans all the available C-CARD slots searching

for MIRROR C-CARDs.

When one or more MIRROR C-CARD is found (in one or both CPs) a

special connection is established between the CPs to abilitate the MIRROR C-CARDs.

If a regular C-CARD which has previously activated a MIRROR C-CARD is removed,

even the MIRROS card will be not read anymore on the other unit.

**4.7 C-LINK NAVIGATION DATA TRANSFER**

This function allows transferring C-Link navigation data (Route Name, Destination

ID & Position, Next Waypoint ID & Position, Total Route length, Fuel

Consumption Rate, ETA, TTG etc.) (Hereinafter “c-link navigation data”) between

two chart plotters linked through the C-Link system.

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

- MASTER mode (Primary Chart Plotter that sends data)

- SLAVE mode (Secondary Chart Plotter that receives data)

When the navigation is activated on the Master chart plotter, the C-Link

navigation data will be continuously sent to the Slave until the navigation is active.

If the Master is navigating to a Single Destination, the Slave will show the Destination

position and activate the navigation to it.

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If the Master is navigating to a Route, the Slave will show the Route Leg composed

by the Destination and the Waypoint after the Destination (Next Waypoint) and

activate the navigation to it. Any variation to the current C-Link navigation data

will be transferred from the Master to the Slave. The Slave will be provided with a

few dedicated pages to show the C-Link navigation data received from the Master.

**4.7.1 OPERATIONS**

**4.7.1.1 Introductive elements**

It is important remark, once more, that this function does not transfer the

whole route but just the information relative to the navigation. Such information

will be removed from the Slave Chart Plotter as soon as the navigation is terminated.

C-Link navigation data is exchanged by using two NMEA-0183 C-MAP proprietary

sentences: $PCMPN,1 and $PCMPN,2.

When the navigation is activated on the Master, it starts outputting the C-Link

navigation data. If the Slave is connected, all c-link navigation data received are stored

in its memory and the navigation is started.

The information sent by the Master consists of the following values:

- Navigation mode (To Single Destination / to a Route )

- Route Name (\*)

- Destination ID

- Destination Position

- Next Waypoint ID (\*)

- Range from Destination to next Waypoint (\*)

- Bearing from Destination to next Waypoint (\*)

- Route Length (\*)

- Distance from Destination to Last Route Waypoint (\*)

- Remaining Route Legs (\*)

- Planned Cruising Speed

- Average Fuel Consumption

- Initial Fuel Load

C-Link navigation datacan refer to:

- Single Destination navigation

- Route Following navigation.

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

The Destination Icon, Navigation leg (Fix Position to Destination), the Next

Waypoint Icon and all other relevant c-link navigation data will be shown on the

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Slave chart plotter. Any variation of the C-Link navigation data on the Master will

be communicated to the Slave so to keep data aligned on both devices.

**4.7.1.2 C-Link serial connection**

The two chart plotters should be connected via serial ports. Any of the available

ports can be used, the software will recognize automatically the serial ports

used. A typical connection is as follows:

CP1 CP2

TX —————> RX

RX <————— TX

GND <————> GND

**4.7.1.3 Master Chart Plotter**

**Operating mode**

To select the Master mode (Primary Station) follow the procedure:

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"C-LINK" + 'ENTER' + "Primary Station" + 'ENTER'

Master mode is the default factory setting. All regular chart plotters’ functions are

allowed. As soon as the Destination is placed, the master chart plotter will start

transmitting all C-Link navigation data,

In Master mode the C-Link navigation data received from the NMEA port is ignored.

So, if the two chart plotters are both operating in Master mode, the C-Link

navigation data sent by the other chart plotter never processed.

Under such condition if the navigation is activated on one of the two chart plotters,

a warning message will be shown to notify that the C-Link navigation data will be

ignored by the other chart plotter.

**4.7.1.4 Slave Chart Plotter**

**Operating mode**

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

'MENU' + "BASIC SETTINGS" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' +

"C-LINK" + 'ENTER' + "Secundary Station" + 'ENTER'

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

data anymore.

**Stop current navigation**

If the navigation was already active, it will be disabled as soon as Slave mode is set.

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An appropriate warning message will be shown to notify that the Navigation is

already active and to confirm whether Slave mode can be set.

**Inhibit Navigation operation**

As soon as Slave mode is set, the destination cannot be placed anymore either the

C-Link navigation data is received from the Master or not. Also, when the C-Link

navigation data is received from the Master, it will not be allowed to deactivate the

Navigation.

**Inhibit Route following**

While navigating to the route received from the Master the destination is reached

(either applying distance or perpendicular criteria), the destination will not be moved

to the next Waypoint on the route.

**MOB handling**

If the Navigation to the external destination is active and the the MOB key is pressed

on the Slave Chart Plotter, the MOB is placed but the navigation to the MOB is not

activated.

**Notes**

While navigating to the external destination the Operating Mode is switched to Master

mode, the navigation to the external destination will be terminated. An appropriate

warning message will be shown to notify that the Navigation to the external destination

is active and to confirm whether Slave mode can be set. Setting Slave mode,

the C-Link navigation data will be deleted.

The C-Link navigation data are deleted at Power Off.

**4.7.1.5 C-Link navigation data: Acquisition and Display**

As soon as the C-link navigation data is received, the Slave parses the information

received and executes the relative actions depending on its current working

status.

**Important**

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

*all relevant c-link navigation data exactly like when the destination is not the external one:*

*(Destination Name, DST and BRG to Destination, calculate XTE, calculate TTG etc). These*

*values will be displayed all places where required and they will be used to format NMEA-0183*

*output data.*

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**4.7.1.6 Graphical representation on Map Display**

*Fig. 4.7.1.6 - Graphical Displaying*

**4.7.1.7 Route Data Report**

When the Navigation to the External Route is received, it will be possible to

display the information related to the External Route by entering the Route Data

Report.

*Fig. 4.7.1.7 - External route on Route Data Report*

- External Route : Name of the External Route (from PCMPN,0)

- Cruising Speed : Planned Cruising Speed (from PCMPN,1)

- Fuel Consumption Rate : Planned Fuel Consumption Rate (from PCMPN,1)

- Total Route length Route: Length from First to Last Wpt. (from PCMPN,1)

- Initial Fuel Load : Volume of Fuel available before the navigation was

started (Liters)

- Total Fuel Consumption : Calculated Fuel consumption to navigate the whole

route.

- Waypoints in Route : No. of Wpts in the Route (from PCMPN,1)

- Remaining Waypoints : No. of Wpts from Dest to Last Wpt (from PCMPN,1)

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- Distance to Destination : Distance from Ship to Destination (Calculated)

- Distance to Next Wpt : Distance to travel from ship to the Wpt after the Destination

(calculated: Distance to Dest + Next

Route Leg length)

- Distance to Last Wpt : Distance to travel from ship to the End of the Route

(Calculated: Distance to Dest +Distance From Dest

to last Wpt received from PCMPN,1)

- TTG To Destination : Estimated Time to travel the “*Distance to Last Wptt*”.

Calculated using Cruising Speed.

- TTG To Next Wpt : Estimated Time to travel the “*Distance to Next*

*Waypoint*” Calculated using Cruising Speed.

- TTG to Last Wpt : Estimated Time to travel the “*Distance to Last Wpt*”.

Calculated using Cruising Speed

- ETA to Destination : Estimate Time of Arrival to the Destination Point.

Calculated: Current Time + “*TTG To Destination”*

- ETA to Next Waypoint : Estimate Time of Arrival to the Waypoint after the

Destination. Calculated: Current Time + “*TTG To*

*Next Waypoint”*

- ETA to Last Wpt : Estimate Time of Arrival to the End of the Route.

Calculated: Current Time + “*TTG To Last Wpt”*

**4.7.1.8 Quick Info**

**Route Navigation: Quick Info on the Destination**

*Fig. 4.7.1.8 - Quick Info on Destination*

**Quick info on Single Destination**

*Fig. 4.7.1.8a - Quick Info on Single Destination*

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**Advanced Settings**

The Advanced Settings menu allows to handle the chartplotter functions.

The menu options are arranged in sub-menus. For example, all options that relate to

the Fix functions are in Fix sub-menu. See Par. 3.5 for informations about Map

Setting menu, see Par. 4.4 about Track menu, see par. 4.1.2 about Route menu, see

Par. 4.1.1.9 about User Points menu and Par. 4.5 about User C-CARD menu.

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

Once you are in the Menu, use your cursor key to highlight the item and

press 'ENTER' to activate or to proceed to the next selection menu.

**5.1 SETUP**

The Setup menu allows to enable or disable general options in the chartplotter

handling. See Par. 3.5.3 about Auto Info option.

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

**5.1.1 TIME REFERENCE**

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

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

REFERENCE" + 'ENTER'

**5.1.2 TIME FORMAT**

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

24 hour.

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

FORMAT" + 'ENTER'

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**5.1.3 DATE FORMAT**

Sets you preferred date between MM-DD-YY (month-day-year) and DDMM-

YY (day-month-year). The default setting is MM-DD-YY.

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

FORMAT" + 'ENTER'

**5.1.4 WIND SPEED**

Selects the Wind Speed unit amang Kts = Knots, m/s and Kmh = kilometers

per hour. The default setting is Kts.

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

SPEED" + 'ENTER'

**5.1.5 BEEPER**

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

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

"BEEPER" + 'ENTER'

**5.1.6 EXTERNAL WPT**

The coordinates of a Waypoint, received from a GPS connected to the

chartplotter, can be stored into the chartplotter, if the GPS is NMEA-0183 protocol

compatible and support the $BWC sentence (this symbol remains on the screen for

30 seconds). You may save it by placing a Waypoint or a Mark onto that symbol. As

soon as the chartplotter receives another $BWC sentence with the coordinates of a

new Waypoint, the symbol moves to the new point. The default setting is Off.

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

"EXTERN WPT" + 'ENTER'

**5.1.7 BACKLIGHT TIMEOUT**

Disables (Off) or sets the desired value (among 1, 3, 5, 10 minutes) for the

backlight timeout of the chartplotter. The default setting is Off.

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

"B. LIGHT TIMEOUT" + 'ENTER'

**5.2 FIX**

The Fix menu handles functions related to the Fix.

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

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**5.2.1 FIX CORRECTION**

Turns On/Off the Correction from the positioning system. If the new Correction

is calculated, but the Correction is not enabled, the ship's position is not

changed. The default setting is Off.

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

+ 'ENTER'

**5.2.2 COMPUTE CORRECTION**

Corrects fixes from the positioning instrument. By placing the cursor on the

ship's real position and selecting this option, the error is calculated and internally

memorized for appropriate correction, but not applied.

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

"COMPUTE CORRECTION" + 'ENTER'

**5.2.3 CORRECTION OFFSET**

Manual correction of fix position.

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

"CORRECTION OFFSET" + 'ENTER'

Insert the preferred value and press 'ENTER'.

**5.2.4 POSITION FILTER**

Turns On/Off the Position Filter. In case of a jittering fix this option makes

the ship' position more stable and the track smoother. The default setting is Off.

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

FILTER" + 'ENTER'

**5.2.5 SPEED FILTER**

Turns On/Off the Speed Filter. When it is On, you can filter the speed of

the ship, to optimize it. The default setting is Off.

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

FILTER" + 'ENTER'

**5.2.6 FILTER DUMP**

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

is 500.

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

DUMP" + 'ENTER'

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**5.2.7 DEAD RECKONING**

Enables (On) or disables (Off0 the Dead Reckoning. The default setting is

Off.

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

RECKONING" + 'ENTER'

**5.2.8 STATIC NAVIGATION**

Sets up a threshold for the speed. When the speed received from the positioning

device is under that threshold, the chartplotter displays zero speed. The default

value is 0.0 Knots.

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

NAVIGATION" + 'ENTER'

**5.3 NAVIGATE**

The Navigate menu allows to handle functions related to navigation.

'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER'

**5.3.1 COORDINATE SYSTEM**

Sets your preferred Coordinate System among ddd mm ss, ddd mm.mm,

ddd mm.mmm, UTM, OSGB, TD. The default setting is ddd mm.mmm.

'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +

"COORDINATE SYSTEM" + 'ENTER'

If TD has been selected a new menu is shown on the screen:

'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +

"COORDINATE SYSTEM" + 'ENTER' + "TD" + 'ENTER'

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

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

ASF 1/2: Sets the ASF (Additional Second Factor) for the slave in the selected chain.

The default setting is 0.

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

**5.3.2 FIX DATUM**

Selects the Fix Datum among 130 items. WGS 1984 is the default Fix Datum.

'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +

"FIX DATUM" + 'ENTER'

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**5.3.3 MAP DATUM**

Selects the Map Datum among 130 items. WGS 1984 is the default Map Datum.

'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +

"MAP DATUM" + 'ENTER'

**5.3.4 MAP ORIENTATION AND ORIENTATION RESOLUTION**

Selects the orientation of your chart according to your personal needs (see

Par. 3.5.1.3 for more information). The Orientation Resolution is the resolution

angle for the Map Orientation, range [5, 60] degrees. The default setting is 30°.

'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +

"ORIENT. RESOLUTION" + 'ENTER'

**5.3.5 ROLL ROAD SCALE**

Sets you preferred Rolling Road Scale among 0.2, 0.5, 1.0, 2.0, 4.0, 10.0. The

default setting is 0.2.

'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +

"ROLL ROAD SCALE" + 'ENTER'

**5.3.6 RESET PARTIAL AND TOTAL TRIP**

Resets the partial and total distance traveled by the ship from the first activation

of the chartplotter or starting from the values reset. The partial and total trip

value is shown on the top of the Navigation Page.

'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +

"RESET PARTIAL TRIP" + 'ENTER'

'MENU' + "ADVANCED SETTINGS" + 'ENTER' + "NAVIGATE" + 'ENTER' +

"RESET TOTAL TRIP" + 'ENTER'

**5.4 COMPASS**

The Compass menu sets the desired value for Bearing and Magnetic Variation,

and selects the Calibration page.

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

**5.4.1 BEARINGS**

Selects either degrees Auto Magnetic or True. If magnetic readings are selected

the variation is computed automatically for every zone as soon as the chart is

displayed. The default setting is Mag.

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

"BEARINGS" + 'ENTER'

**5.4.2 VARIATION**

It is possible to calculate the Magnetic Variation in an Automatic or manual

mode, by inserting the step for calculation of Magnetic Variation. The default setting

is Auto.

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

"VARIATION" + 'ENTER'

**5.4.3 CALIBRATION**

The variation table is used to match magnetic value readout on the chartplotter

comparable with the value given by the compass of the boat. In other words, since

the compass of the boat must be compensated (due to the iron masses, ...), we use the

same values given by the chartplotter. This means that, for example, if the 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 SETTINGS" + 'ENTER' + "COMPASS" + 'ENTER' +

"CALIBRATION" + 'ENTER'

**5.5 ALARMS**

The chartplotter provides alarm settings for various functions. Here you can

set the system for your navigational requirements.

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

**5.5.1 ARRIVAL ALARM**

Disables (Off) or specifies the radius of a circle around the Waypoint of a

Route: when your vessel reaches this circle the alarm sounds. The default setting is

Off.

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

ALARM" + 'ENTER'

**5.5.2 XTE ALARM**

Disables (Off) or specifies the distance your Cross Track Error (XTE) can

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vary before the sound of an alarm or disables the XTE Alarm (Off). The default

setting is Off.

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

ALARM" + 'ENTER'

**5.5.3 ANCHOR ALARM**

This function allows inserting of the limit of anchor dragging: beyond that,

the alarm is activated. The 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 SETTINGS" + 'ENTER' + "ALARMS" + 'ENTER' + "ANCHOR

ALARM" + 'ENTER'

**5.5.4 DEPTH ALARM**

Specifies the depth or disables the Depth Alarm.The default setting is Off.

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

"DEPTH ALARM" + 'ENTER'

**5.5.5 GROUNDING ALARM (GUARDIAN TECHNOLOGY)**

The chartplotter is provided with a function that, by querying the map's

data, verifies potential danger to navigation due to shallow water, land, rocks, obstructions

and shoreline constructions. The maps are scanned periodically (every 10

seconds).

When the Grounding Alarm is active, the chartplotter scans an area in front

of the boat. This area is identified by a triangle drawn in front of the boat icon whose

direction is determined by the current boat heading. The length of the triangle is

user selectable and its angle is 30 degrees. If any of the above objects are found, the

chartplotter notifies the danger on a dedicated warning message box in the Grounding

Alarm Report page (see Par. 5.5.7).

The Grounding Alarm is switched Off by default after a Master Reset. Once

the Grounding Alarm has been activated, a warning message is shown.

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

"GROUNDING ALARM" + 'ENTER'

**Note**

*The Grounding Alarm function only operates with the new C-CARDs. It also affects the speed*

*of the redraw of the screen. If this function is not used it maybe disabled.*

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**5.5.6 GROUNDING ALARM RANGE**

Allows setting the length of the sector to be detected among 0.25, 0.5, 1.0

Nm. The default setting is 0.25 Nm. When any of the searched objects is found in the

scanned area, a tick marker is printed on the relative box in the Grounding Alarm

Report page (see Par. 5.5.7) to identify which dangerous objects have been currently

detected.

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

"GROUNDING ALARM RANGE" + 'ENTER'

**5.5.7 GROUNDING ALARM REPORT**

Allows displaying the report of the dangerous objects currently detected.

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

"GROUNDING ALARM REPORT" + 'ENTER'

**5.5.8 EXTERNAL ALARM**

Allows triggering an external alarm device. You can enable (On) or disable

(Off) the External Alarm. The default setting is On.

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

ALARM" + 'ENTER'

**5.6 SIMULATION**

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

of the chartplotter. No current position fix is required because the chartplotter simulates

position data internally.

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

**5.6.1 ACTIVATE SIMULATION**

Once the settings are selected, turn on the Simulator:

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

"ACTIVATE SIMULATION" + 'ENTER'

To turn On the Simulation select Off. The default setting is Off.

**5.6.2 SPEED**

To start the simulator you can insert the Speed value. Using the cursor key

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select the preferred Speed and press 'ENTER'. The default setting is 01.0 Kts.

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

"SPEED" + 'ENTER'

**5.6.3 HEADING**

To start the simulator you can insert the Heading value. Using the cursor

key select the preferred Heading and press 'ENTER'. The default setting is 000° M.

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

"HEADING" + 'ENTER'

**5.6.4 DATE AND TIME**

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

"DATE" + 'ENTER'

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

"TIME" + 'ENTER'

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

**5.6.5 CURSOR CONTROL**

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

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

"CURSOR CONTROL" + 'ENTER'

**5.7 C-METEO**

To set up the information relative to the display of the weather information

on the map.

'MENU' + "C-METEO" + 'ENTER'

For more information see the specific User Manual.

**5.8 C-STAFF**

The C-Staff functions are based on STAFF Concept ® (Satellite Tracking

Aided Fleet Fishing). The STAFF Concept ® is designed for professional fishing

purpose to allow monitoring the position of the vessels of a fleet from each vessel

(the fleet may have until 20 vessels max).

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'MENU' + "C-STAFF" + 'ENTER'

For more information see the specific User Manual.

**5.9 FISH FINDER MENU**

The chart plotter combined with the sonar performance of the Fish Finder is

one of the most advanced marine navigation system available.

'MENU' + "FISH FINDER" + 'ENTER'

For more information see the specific User Manual.

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6**For the Technician**

**6.1 DIMENSIONS**

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**6.2 INSTALLATION AND REMOVING**

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**6.3 EXTERNAL WIRING**

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

**6.4.1 GPS CONNECTIONS**

**6.4.2 AUTOPILOT CONNECTIONS**

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**6.4.3 EXTERNAL NMEA CONNECTIONS**

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**6.4.4 C-COM CONNECTION**

POWER & I/O

**WIRE COLOR FUNCTION**

BLACK GND/COMMON

RED PWR+ (10-35 Vdc)

WHITE

GREEN

GREY OUTPUT3+

YELLOW USED BY C-COM

BROWN

USED BY C-COM

USED BY C-COM

INPUT3+

BLU OUTPUT EXTERNAL ALARM+

POWER & I/O CONNECTOR

**PIN#**

1

2

3

4

5

6

7

8

**6.4.5 EXTERNAL ALARM CONNECTION**

**6.5 TROUBLESHOOTING**

The following is a brief guide to some of the problems you may experience

while using the chartplotter with common solutions.

**6.5.1 PROBLEMS AND SOLUTIONS**

The chartplotter does not turn On — Make sure that the correct voltage (10-35

volt dc) is present. Check also that the polarity is correct. Refer to the Par. 2.2.

The chartplotter does not turn Off — If, after a 'POWER' pressure (for at least 3

seconds) the chartplotter does not turn Off, then turn Off the voltage.

The chartplotter does not respond to any command — Try to turn Off, and then

turn On. If the problem persists, erase the memory (see Par. 6.6.1).

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The chartplotter does not get a valid fix — Make sure that no metal obstacle is

placed around the chartplotter acting as a shield for the antenna. If, after 15 minutes,

the chartplotter does not get the fix, turn it Off and On again.

The chartplotter screen becames very dark after a long exposure to direct sunlight

— Control the contrast (see Par. 2.3).

**6.5.2 QUICK REFERENCE GUIDE**

It is avaible an help on line to explain as the chartplotter works:

'MENU' + "HELP" + 'ENTER'

Using 'ZOOM IN' and 'ZOOM OUT' select previous and next page respectly.

**6.5.3 IF YOU NEED ASSISTANCE**

The list above should allow you to solve most of the operating problems you

are likely to encounter. Simply disconnecting the chartplotter from power for a

moment may solve your problem as well.

If this does not help, you can try one additional memory clear option. This

is a factory default RAM Clear that should only be tried after all other attempts have

been made. When using the RAM Clear feature, you will loose all user stored information

and the chartplotter will default to factory settings. Before this step, you

have the option of saving user Marks, Track history and Routes to a User C-CARD

(this is an optional purchase from your dealer). To perform a RAM Clear see Par.

6.6.1.

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

and Cartography information available in the About page.

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

**6.5.3.1 World Background Charts**

The internal background charts can be updated to include the MAX A and

B level charts which provide improved marine data, rivers, lakes, terrestrial data

(major streets , highways , railways, etc...), Nav-Aids, depth areas, territorial water

areas, etc... by reading them from a special data C-CARDs (contact your local dealer).

All units must have the WorldWide Background upload function that is activated

from the system.

**Worldwide Background Update**

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

the procedure:

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Plug the special data C-CARD + 'MENU' + "About..." + 'ENTER' + 'MENU' +

"UPDATE WORLDWIDE CHARTS" + 'ENTER'

**6.6 SYSTEM TEST**

If you have connected your position-finding device according to the instructions,

and chosen the proper menu selection for your device, and are still having

problems with your chartplotter, the extended auto-test should help determine the

problem. Make sure the chartplotter is turned Off. While pressing and holding any

other key, turn the chartplotter On. A new menu will appear on the display:

Software name and version

NT Software Library

version and date

SYSTEM TEST XXXX V. x.yy

NTSL V. x.yy.zz R [gg/mm/yyyy]

RAM menu

Dim menu

Cartridges

Serial ports

Modem Test

EXTERNAL ALARM

*Fig. 6.6 - System Test*

Use the cursor key to select the preferred test: this will display in reverse

video and with the relative menu window. To choice the test press 'ENTER'. To

exit from any submenu press 'CLEAR'. To exit from the System Test turn Off the

chartplotter.

**6.6.1 RAM MENU**

This test verifies the integrity of the memories and if preferred during this

test all the internal memory can be erased and the default setting restored.

\_ RAM Test

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

appears, the RAM is physically damaged.

\_ RAM Clear

To clear internal memory. If the chartplotter exhibits unusual behaviour, or appears

to be malfunctioning, it may be possible to correct the problem by clearing RAM.

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This operation will erase all Marks, Events, Routes, stored track plots and destinations.

It will also return all selections (Input Data Format, Autopilot selection,

etc.) to original default values. To confirm to clear RAM press 'ENTER' again

(but if at this time you do not wish to clear RAM press 'CLEAR').

**6.6.2 DIM MENU**

To select the preferred value for contrast and backlight.

\_ Contrast

Each time you pressed thecursor key to right, the screen will decrease brightness,

instead of to left it will increase brightness.

\_ Backlight

To set the backlight. Operates in similar mode as Contrast.

**6.6.3 CARTRIDGES**

To check the C-CARD and its connector.

\_ Background ROM

To test the WorldWideBackground. If there is not a malfunction, the code of the

Background and the message "OK" are shown.

\_ C-CARD Test

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

1. if there is a C-CARD inserted in the slot and there is not a malfunction, the

name of the C-CARD zone and the message "OK" are shown.

2. if there is a C-CARD inserted in the slot, but it is a damaged C-CARD, the

name of the C-CARD zone and the message "Faulty" are shown.

3. if there is not any C-CARD inserted in the slot, the message "not present" is

shown.

4. if there is an User C-CARD inserted in the slot, the message "USER C-CARD"

is shown.

\_ C-CARD Connector

Indicates if there is a malfunction in the connector. It is used only in production.

**6.6.4 SERIAL PORTS**

If you are having problems receiving data from the position-finding instru98

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ment, this test should help determine the problem.

\_ Change Parameters

To change the parameters of the serial interface. This menu allows to select the

Port 1, 2, 3, the Baud Rate between 4800 or 9600, the Data Bits (Word Length)

between 7 or 8, the Parity between even, odd or none, the Stop Bits between 1

or 2. Default settings are: Port = Port2, Baud Rate = 4800, Data Bits = 8, Parity

= none, Stop Bits = 1.

\_ Input Data Display

Allows the chartplotter to act as a computer terminal and display the incoming

data exactly as it received.

If the data displayed on the screen is unrecognizable, you may have selected the

wrong input parameters for your particular receiver. Check your receiver manual

to be sure that you have selected the proper interface format. If the screen is

blank, you may have a broken connection and no data is being received.

Use 'ZOOM IN' to stop (or continue after pause) data displaying, 'ENTER' to

show data in hex or ASCII mode (normal or small) and 'CLEAR' to exit.

**6.6.5 MODEM TEST**

To check the Modem connections. Press 'ENTER' to select the preferred

Port related to the connections made, to the Port that the Modem C-COM is connected.

**6.6.6 EXTERNAL ALARM**

To check if the External Alarm has been trasmetted.

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A

**Terms**

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

\_ Advanced Mode

The chartplotter can operate in two different modes: Basic Mode and Advanced Mode. In Advanced

Mode it is possible to have more available functions, for example it is possible to handle Waypoints.

\_ Altitude

Altitude of GPS Antenna on the medium sea level.

\_ Arrival Time

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

GPS.

\_ Attention Areas

Attention Areas are areas in which special attention by the mariner is required, because of natural or

man-made hazards, or sailing regulations and restrictions. Moreover a special symbol (!) is placed inside

the area selecting On option. This is valid also for the categories: FISHING FACILITY, MARINE

FARM/CULTURE, MILITARY PRACTICE AREA, RESTRICTED AREA, SEAPLANE LANDING

AREA. When the area is small, it is identified only by the boundary.

\_ Azimuth

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

\_ Basic Mode

The chartplotter can operate in two different modes: Basic Mode and Advanced Mode. In the first

mode there is a restricted number of functions, and it is not possible to handle Waypoints, Marks,

Events and A-B-C-D function.

\_ Beacon

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

\_ Buoy

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

\_ Buoys and Beacons

Buoys and Beacons are used to indicate to mariners recommended or established routes, underwater

dangers, restrictions and regulations. They can be lighted or not and - for the color chartplotter - are

coloured according to their international code.

\_ BRG = Bearing

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

follow.

\_ Chain

Selects the preferred chain. The Loran chains are groups of transmitting stations that use timed radio

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pulse transmissions. In each of these chains there is a master station and two or more slave or secondary

stations. Stations belonging to a same chain transmit pulses in timing groups: a different time base

identifies each chain. The time base of each chain is the Group Repetition Interval or GRI. This GRI

identifies the chain in unique mode. For example the GRI = 4990 identifies the chain of Central Pacific

zone.

\_ COG = Course Over Ground

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

\_ Correction

To compute fix error in automatic mode, place cursor on ship's real position and then follow the

procedure (compute correction). It is also possible to compute the fix error in manual mode (correction

offset). Once you computed the error, you can turn the fix correction On or Off.

\_ Course Vector

The Course Vector is a graphical indication of the direction in which the Vessel is heading. The Course

Vector origin is the vessel’s position so the time line movement is synchronized with the vessels Icon.

Course Vector course is given by the value of COG (Course Over Ground) and its length is proportional

to the SOG (Speed Over Ground).

\_ CTS = Course To Steer

The optimum direction the boat should be steered in order to efficiently make headway back to the

courseline while also proceeding toward the destination Waypoint.

\_ Cultural Features

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

\_ Datum

The Latitude and Longitude lines printed on any map are based on certain models of the shape of the

earth: these models are called Datum or Coordinate Systems. There are many different Datum in use,

each one gives different Lat/Lon positions for an identical point on the surface of the earth.

\_ Default

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

this value using the menu settings.

\_ Depth Lines

Imaginary lines connecting points of equal water depth.

\_ DGPS = Differential GPS

Provides even greater positioning accuracy than standard GPS.

\_ Event

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

\_ File

Collection of information (of the same type) stored on a User C-CARD. Each file must have a unique

name, ideally one that describes its contents. Filenames are kept in a directory on each User C-CARD.

\_ Goto

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

\_ GPS = Global Positioning System

It is a satellite based navigation system operated by the US Department of Defense. It gives the navigator

a position 24 hours a day, 365 days a year under any weather conditions .

\_ HDG = Heading

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

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\_ HDOP = Horizontal Dilution Of Precision

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

position can be fixed

\_ Home

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

\_ Latitude

The angular distance North or South of the equator measured by lines encircling the earth parallel to

the equator in degrees from 0° to 90°.

\_ LAT/LON

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

\_ LOG

Speed of the vessel relative to the water.

\_ Longitude

The angular distance East or West of the prime meridian (Greenwich meridian) as measured by lines

perpendicular to the parallels and coverging at the poles from 0° to 180°.

\_ Loran

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

\_ Magnetic Deviation

The angle between the Magnetic North and the Compass North.

\_ Magnetic Variation

The angle between the magnetic and geographic meridians at any place, expressed in degrees West or

East to indicate the direction of magnetic North from true North. It changes from point to point, and

(at the same point) with time.

\_ Mark

Reference points related to cursor position.

\_ Natural Features

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

\_ Navigate (mode)

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

\_ NMEA-0183

The NMEA-0183 Data Interface Standard was developed by the National Marine Electronics Association

of America. It is an international standard that enables equipment from many different manufactures

to be connected together and to share information.

Pictures and Diagrams

The MAX data format allows assigning one or more image to any cartographic object. These *Pictures*

are typically used to facilitate the identification of cartographic objects or places around the map: they

can be the landscape layout nearby a harbor, the shape of a bridge or of a buoy etc.

On some objects, such as bridges, the image associated can represent the *Diagram* representing the

shape of the objects and the various characteristics (length, heigh, type of bridge etc.).

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*Fig.A.1 - Pictures and Diagrams*

\_ OSGB = Ordnance Survey of Great Britain

A coordinate system describing only Great Britain. Generally used with GBR36 datum, which also

describes only Great Britain. This coordinate system cannot be used in any other part of the world.

\_ Port Info

The Port Info function is a combination of a new Port Info database containing all the relevant Safety

and Navigational information normally found in good pilot books and a new presentation software

which displays special Port Facility Symbols.

\_ Ports & Services

Areas along shore with facilities for mooring, downloading and uploading of ships, generally sheltered

from waves and winds. Port installations are piers, wharves, pontoons, dry docks, cranes... .

\_ Route

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

Route, which is shown by a straight line and arrows to indicate the direction.

\_ RTCM = Radio Technical Commission for Maritime Services

The data format created by the Radio Technical Commission Maritime to transmit Differential GPS

corrections.

\_ SOG = Speed Over Ground

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

\_ Speed

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

\_ Spot Sounding

Depth of the water in a specific and charted position

\_ STR = Steering

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

\_ Target

In order to tag on the chart the point, towards which the ship is Heading, you can use a special mark,

called Target. When the Target is placed, all navigation data are referred to this Target.

\_ TD = Time Difference

Loran positions are determined by precise timing of the intervals between reception of pulses transmitted

by pairs of stations in the selected chain. Between any two stations a ship must be located somewhere

along a line of possible positions where the measured Time Difference, TD, between arrival of

pulses from those stations would be observed. The TD is measured from the time of reception of the

master station signal to the time of reception of the slave station signal.

\_ Tide

The periodic rise and fall of the surface of oceans, bays, etc., due principally to the gravitational interactions

between the Moon and Earth.

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\_ Tide Info

The Tide Info feature is the combination of a new tide heights database that will be included within

new C-CARDs and new features which calculate the tide graph for all primary and secondary ports

world-wide. This function can calculate the tide heights for any past or future date and as a by-product

of this calculation will also display the Maximum and Minimum Tide height and time for the day

selected plus the times of Sunrise and Sunset. At some chart levels, the chartplotter will display a new

Tide Diamond Symbol for every Port or tide point in the database covered by that particular C-CARD.

Tide & Currents

The new worldwide database with tidal stream information is now available with MAX C-CARDs.

When data/time is available, Tidal stream arrows are shown on the charts, indicating the direction and

strength of the Tide.

*Fig. A.1a - Tides & Currents*

If no data/time is available from the GPS or the chart plotter is not in Simulation mode, the icon on the

map is generic one.

The colour of the arrow denotes the strength of the current as follows:

*Fig. A.1b - Tides & Currents table*

When the chart plotter receives a valid position fix, the Tide icons are shown on the charts on the basis

of the current date and time: the screen displays and changes arrows as date/time changes.

\_ Time Line

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

\_ Tracks & Routes

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

routes, ....

\_ TRN = Turning

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

\_ TTG = Time To Go

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

destination.

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\_ User Point

Place on the chart identified by its coordinates and displayed on the screen with a reference symbol (see

Mark, Waypoint and Event).

\_ UTC = Universal Time Coordinated

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

\_ UTM = Universal Transverse Mercator

Metric Grid system used on most large and intermediate scale land topographic charts and maps.

VAD = Value Added Data

The Value Added Data (VAD) is a collection of additional cartographic objects which are not present

on the original paper chart (from which the electronic chart derives). These objects have been obtained

from other sources (that C-MAP believes to be reliable) and then merged to the electronic charts in

order to provide more information useful for the navigation.

VAD object can be any cartographic objects and it can be distinguished from the official-chart-objects

from the Quick Info. A dedicated icon is shown on the Quick Info window to indicate that the object

queried is a VAD.

The same icon is also shown on the Full Info page and in addition the extended text Value Added Data

is shown on the details of the VAD object.

\_ WAAS = Wide Area Augumentation System

The Federal Aviation Administration (FAA), in cooperation with other DOT organizations and DOD,

is augmenting the GPS/SPS with a satellite-based augmentation system, the WAAS. It will provide a

signal-in-space to WAAS users to support en route through precision approach navigation. After achieving

initial operational capability, the WAAS will then be incrementally improved over the next years to

expand the area of coverage, increase the availability of precision approaches, increase signal redundancy

and reduce operational restrictions.

\_ Waypoint

Any point to which one intends to navigate. A sequence of Waypoints makes up a Route plan .

\_ WGS-84 = World Geodetic System 1984

Coordinates System or Datum developed by the Defense Mapping Agency (DMA).

\_ Zoom-In

Shows more detail in a smaller area.

\_ Zoom-Out

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

\_ XTE = Cross Track Error

The distance from the ship's present position to the closest point on a line between the origin and

destinations Waypoints of the navigation leg being traveled.

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B

**Smart DGPS WAAS Receiver**

The Smart DGPS WAAS receiver is based on a ultimate 12 channel GPS

engine that delivers accuracy better than three meters by decoding the GPS correction

signals from the satellite-based WAAS (*Wide Area Augmentation System*). The

GPS engine, interface electronics and the passive antenna are enclosed inside the

water-proof plastic housing. This provides advanced state of the art GPS performance

in an easy to use package.

**Note**

*The characteristics of your Receiver could not be the same as the following explained. Contact the*

*dealer the chartplotter was purchased from for more information.*

**B.1 TECHNICAL SPECIFICATIONS**

**B.1.1 PYSICAL CHARACTERISTICS**

Color : Ivory white

Dimensions : 97mm in diameter x 32mm in height (flush mounted) or

61,5mm on flag-pole mount

Weight : 160 grams (without cable)

Cable : white 15 meter 8x28AWG cable

**B.1.2 ELECTRICAL CHARACTERISTICS**

Input Voltage : 10 Vdc to 35 Vdc unregulated

Power Consumption : 1,2 Watt

**B.1.3 GPS PERFORMANCE**

Geodetic Datum : WGS84

Channels : 12 parallel Channels

Frequency : 1575.42MHz (L1, C/A code)

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Acquisition Time (Approximate)

Hot start : < 20 seconds

Warm start : < 45 seconds

Cold start : < 40 seconds

DGPS Capability : RTCM SC104 v. 2,WAAS (North America), EGNOS

(Europe), MSAS (Asia)

Output Format : NMEA 0183 Version 2.0, Baud Rate 4800, N81

Interfaces : Asynchronous serial output compatible with RS-232

(TTL voltage levels) RS-232 polarity

**B.1.4 ENVIRONMENTAL CHARACTERISTICS**

Operating Temperature: 0° C~ +60° C

Storage Temperature : -20° C~ +85° C

Relative Humidity : 95% non-condensing

Water Resistance : 100% waterproof

**B.2 WIRING**

See the following table for a functional description of each wire in the GPS

cable.

**B.2.1 DIAGRAM FOR GPH00**

*Fig. B.2.1 - GPS Connection for GPH00*

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**B.3 SOFTWARE INTERFACE**

The GPS products interface protocol design is based on the National Marine

Electronics Association's NMEA-0183 ASCII interface specification. These standards

are defined in "NMEA-0183 Version 2.0" (for more information see NMEA,

www..nmea.org).

**B.4 MECHANICAL CHARACTERISTICS & MOUNTING**

**B.4.1 INSTALLING**

Choose a location for the antenna that has a clear view of the sky. Ensure

there are no major obstructions or fixtures in the immediate proximity to the antenna.

The antenna relies on direct “line of sight” satellite reception. If you are unsure

that the chosen location is suitable it may be advisable to mount the antenna in

a temporary manner to verify correct operation. The thread used on the antenna (1

inch, 14 TPI) is an industry standard thread used on a wide range of mounting brackets,

including the swivel joints commonly used for angled surfaces. However due to

the manufacturing process of these mounting brackets you may see that there is

some slop when tightening down the antenna to the bracket. This is of no concern

however as the antenna must be tightened until the antenna stops rotating on the

antenna mounting bracket.

*Fig.B.4.1 - Installing GPS Antenna (I)*

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The antenna design also allows for easy flush mounting.

1. Apply the adhesive mounting template sheet in the area that was verified

to receive satellite signal well.

2. Then, following template instruction, drill a 0,95 inch (24 mm) hole and

three 0,155 inch (4 mm) holes.

*Fig.B.4.1a - Installing GPS Antenna (II)*

3. Remove the template and let the cable go through the central hole.

4. Apply a small coat of RTV to the underside of the antenna.

5. Place the antenna and then screw it with the three M3 screws.

*Fig.B.5.4.1b - Installing GPS Antenna (III)*

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**B.4.2 DIMENSIONS**

*Fig.B.4.2 - GPS Antenna Dimensions*

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