

NAVADD 1000 NT

USER MANUAL - Release A.343 -
Software: SW7LCDNT

NAVADD 1000NT PAGES INTENTIONALLY OMITTED

2,4,5,10,36,95,96,102,128,154

Warning!!!

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

For this reason we like to remind you that you are required to carry on board and use the officially published and approved nautical charts.

Caution!!!

- Please read through this manual before the first operation. If you have any questions, please contact the Company customer service or your local dealer.*
- The chart plotter is not built water proof. Please give attention to avoid water intrusion into the chart plotter. Water damage is not covered by the warranty.*
- Extensive exposure to heat may result in damage to the chart plotter.*
- Connection to the power source with reversed polarity will damage the chart plotter severely. This damage may not be covered by the warranty.*
- The chart plotter contains dangerous high voltage circuits which only experienced technicians can handle.*
- The C-MAP data cartridges are available from your local dealer.*



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INTRODUCTION

The *NAVADD1000 NT* 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 (in the following pages we refer to *NAVADD1000 NT* as the chart plotter).

The chart plotter is extremely easy to use. Your ship's position, courses and distances can be easily calculated through the use of a simple keyboard. This information can then be stored on an user cartridge, and can be recalled at any time.

This manual is structured as follows. Chapter 1 acquaints a new user with the chart plotter, its features and guides the first time user through basic set up. Chapter 2 contains information about the chart display to allow the user a personal setting of the chart plotter's display. Chapters 3 and 4 guides the user through using the chart plotter's charting and navigation capabilities. The user points management is described in Chapter 5, and Chapter 6 provides information about autopilot functions. Chapter 7 contains the user cartridge handling, and Chapter 8 is related to alarms and errors conditions.

Refer also to the appendixes for more detailed information.

The following pages must be read carefully in order to discover all the powerful capabilities and features of this chart plotter.



chapter 1 GETTING STARTED



1.1 - FEATURES

This chart plotter is extremely easy to use. Your ship's position, courses and distances can be easily calculated through the use of a simple keyboard.

This information can then be stored on a user cartridge, and be recalled at any time.

If connected to a positioning instrument (i.e. Loran-C, Satnav, Decca, GPS), the chart plotter displays the current position, speed, and the heading of the boat and its track. This data can be stored and recalled upon request.

The following items are shipped with the chart plotter:

- Complete chart plotter + N° 3 screws for external bracket
- On/Off warning sheet
- External mounting bracket
- Power supply and I/O cable "CONXALL 7F" 1,5 mt./5.9"
- External GPS with cable 6 mt./23.6" (*)
- User manual

Note

(*) Referred only to the unit with external GPS.

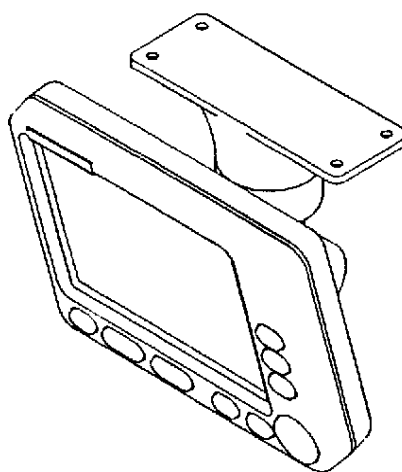
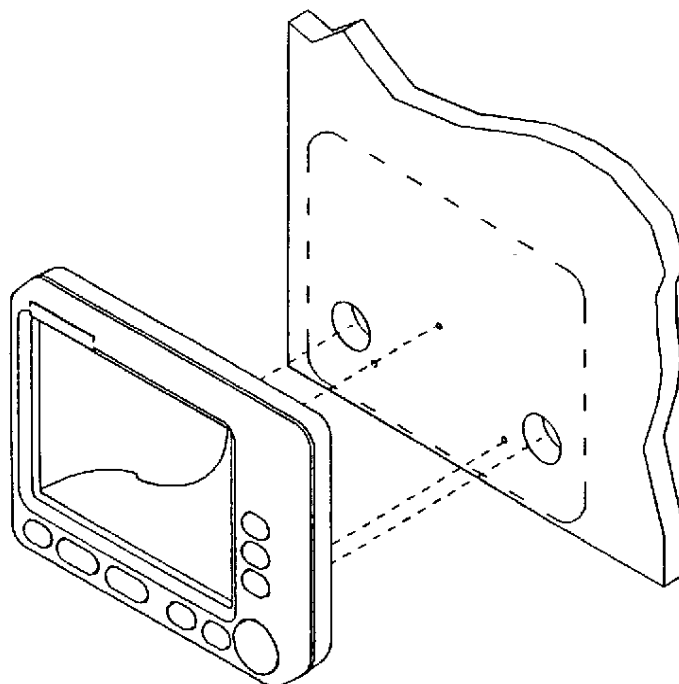


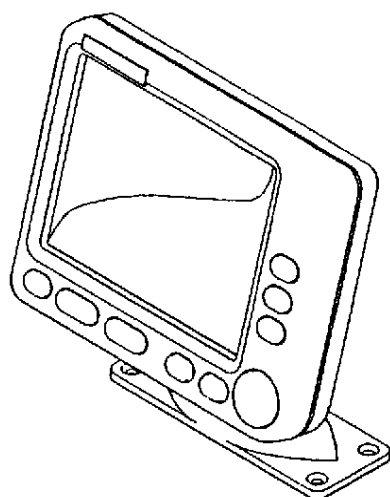
1.2 - INSTALLATION

The chart plotter is easily installed in most vessels.

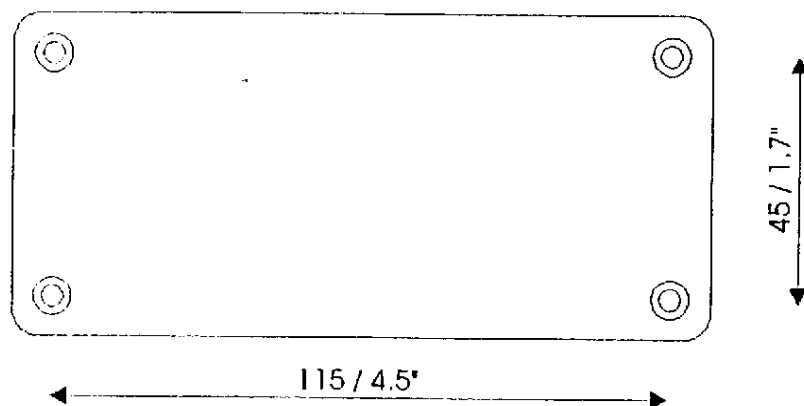
Bright sunlight on the screen can impair viewing. It is recommended that

the chart plotter be located so that the screen is shaded as much as possible.



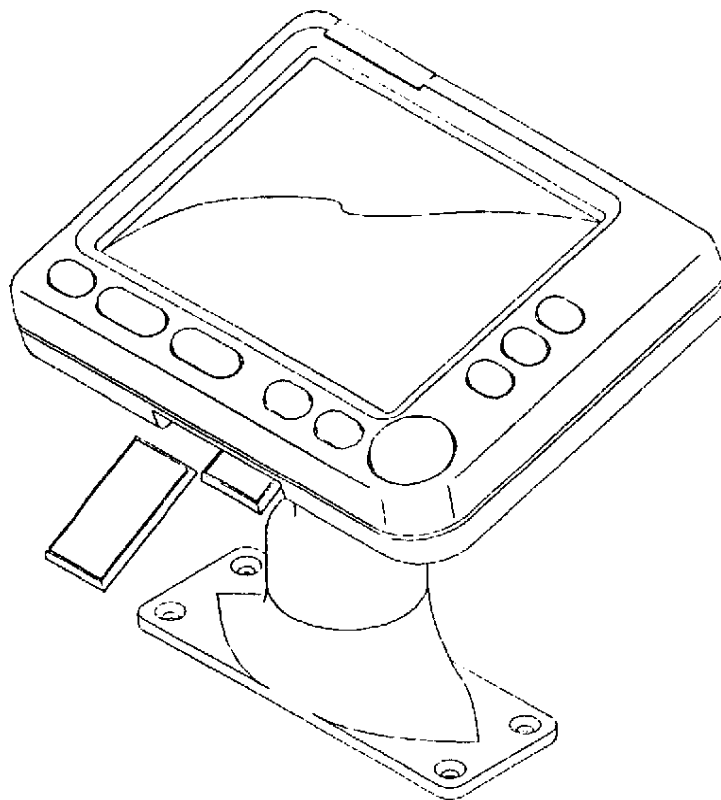


DESKTOP BRACKET FIXING TEMPLATE



❖ 1.3 - INITIAL SETTING

Before powering the chart plotter, connect the power cable, position the instrument and slide the cartridge into the slot.



The cartridges should be inserted into the slots with the code number not facing the screen.


The optional user cartridge to record all the desired information should be inserted into one of the two available slots.

❖ 1.4 - TURNING THE CHART PLOTTER ON/OFF

The chart plotter is turned On by pressing the **POWER** key.

Similarly the chart plotter can be turned Off by holding the **POWER** key for a few seconds.


1.4.1) Screen brightness

The screen brightness can be controlled by pressing the  key.

Note

Sometimes, in particularly poor light, the screen might appear blank, to regain the correct brightness simply press the 'LIGHT+' key. Go through the same procedure also when you are not sure if the 'POWER' key is working properly when the chart plotter is turned On.

The keyboard brightness is controlled the same way.

Contrast handling is made by the  key.

Note

After 5 minutes when no key is pressed, the screen and keyboard backlite is turned off. When a key is pressed again, the backlite is set to the previous value. This procedure suggested by the LCD's manufacturers and applied to all electronic devices (personal computers, echosounders, radars, ...) guarantees a long life of the LCD.

1.5 - AUTO-TESTING PROCEDURE

When powered On, the chart plotter starts a self-testing procedure which checks the internal memories (Eprom and Ram) and shows any failure (Passed or Not Passed) on the screen.

The cartridges are also examined and the following four abnormal situations are diagnosed:

- "NOT PRESENT OR FAULTY": this message appears in any of these three cases:

- "FAULTY"
- no cartridge is inserted into the slot;
- the cartridge has not been entirely inserted into the slot;
- the cartridge is broken.
- : it indicates that the program has found a reading error. The reason is generally a damaged cartridge.

When the self-test is completed, the screen will be as follows:

```

SYSTEM UNIT TEST v. Mx.yy (*)

- SYSTEM WORD: xxxx xxxx (**)
- EPROM TEST: PASSED
- RAM TEST: PASSED

- DATA: <MAP CARTRIDGE CODE>
- CODE: PN7LCDNT/95W01 V. x.yy (***)
  
```

where:

- (*) the number of version displayed in the top right corner indicates system program version;
- (**) the code displayed near the "SYSTEM WORD" indicates some system maintenance information which can change from a version to another but which do not represent any substantial change neither to the software nor to the manual;
- for "DATA" line, please see app. H;
- (***) the code displayed near the "CODE CARTRIDGE" indicates:

SW7LCDNT	/ 95W01	v. x.yy
software name	code of software background charts	software version release number

The software current version is the v. 1.00.


Note

The release number, in the system program version and in the software version is subject to change without notice. This manual is valid too.

Following the auto test procedure, the chart plotter will display the Caution Notice.

This unit's displays are based on geographical data that C-MAP believes to be accurate. However, you should not rely on these visual map displays as your primary source of navigation. This plotter is designed only to ease and speed up navigation calculations and must not be relied upon exclusively. Rather, this system should be used only as a backup to official government paper charts and traditional navigational methods. Displayed charts are only current on the date of issue shown on the chart cartridge.

Press 'ENT' to proceed

After pushing the  key to exit Caution page, the screen will show the boundaries of all Nautical Charts digitized in the cartridge (or the last chart used before turning off the chart plotter). The Cross-Hair is shown on the screen and can be moved by pressing the arrows on the keyboard.

❖ 1.6 - SCREEN DISPLAY DESCRIPTION

In the bottom right corner of the screen there is the "status window" of the chart plotter, where the name of the selected operative mode is shown (see also par. 1.7.1). This status window is active in either modes of map displaying.

Press the **MENU** key to select the desired function on the bottom of the screen. The "status line" is displayed showing the next available functions in order to come. Pressing the 'MENU' key repeatedly scrolls through the functions and the status line is shifted to the right, displaying a new active function in the status window with each press.

This chart plotter can operate in a split screen mode or in a full screen mode.

When you are in the split screen mode, the display is divided into two main parts, a left and a right window, with the right window being further divided into a top and bottom section.

The left window is the Electronic Chart Display. This is where you will see your charts, and under certain conditions, the menu items.

The right window is a Data Display window, which is divided into a top half, which is reserved for navigation or charting information, and a lower half, which is designed as a data window for general information, and under certain conditions, smaller menu selections.

In the full screen mode the charts are displayed in a full screen.

The right data display window will disappear and the top of the screen displays selected general information.

To switch between the two screen modes follow this procedure:

Selection of SCREEN MODE

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to scroll to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted this menu, press **ENTER** and the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. Press **ENTER** and the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Chart Settings Menu (N. 5).

8. Press **ENTER** and the Chart Settings Menu will appear.
9. Use up or down arrow keys to highlight full data On/Off option (N. 3).
10. Press **ENTER** and you can toggle between split screen or full screen. Highlight your choice.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

1.6.1) The display screen in the full screen mode

The full screen mode displays charts at full screen. At the top we display a line of data with information about the modes of operation, Latitude and Longitude of the Cross-Hair if you are in Charting mode, Latitude and Longitude of the received fix if you are in Navigation mode, in Navigation Area Amplifier mode or in Auto Zoom on Target mode, SOG and COG, and Distance and Bearing.

The Charting mode is indicated as the Cross-Hair symbol, the Navigation mode as the ship symbol, the Auto Zoom on Target mode as the Target symbol and the Navigation Area Amplifier as an arrow from bottom left to top right.

The follow picture shows the information in the text line:

+	43 49.910 N	SOG : 01 .0 knt	CURSOR	DST : --- . -- NM
a	b	c	d	e
	009 47.180 E	COG: 068°	M TO TGT	BRG: --- M

where:

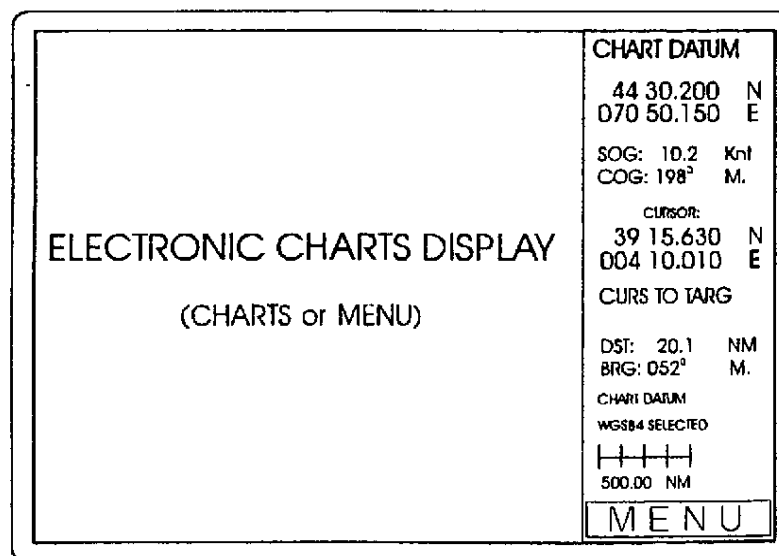
- a- the symbol "+" appears when you are in Charting mode (see par. 3.1), while the symbol "⊕" appears in Navigation mode (see par. 4.1). Here other two states are shown, the Target symbol that indicates the Auto Zoom on Target mode and an arrow from bottom left to the top right that indicates the Navigation Area Amplifier mode;
- b- current position of the Cross-Hair if in Charting mode or ship's current position if in Navigation mode, in Auto Zoom on Target mode or in Navigation Area Amplifier mode;

- Ⓒ - ship speed over ground and ship course over ground;
- Ⓓ - this message is shown in Charting mode if the Target has been inserted. Also in Charting, but with Target disabled, the message is substituted by "SHIP TO CURS", that appears in Navigation, in Auto Zoom on Target and in Navigation Area Amplifier too with Target disabled. In Navigation, in Auto Zoom on Target and in Navigation Area Amplifier with Target enabled, the message becomes "SHIP TO TARG";
- Ⓔ - in place of DST, it is possible to show TTG or XTE and bearing to Target.


1.6.2) The display in the split screen mode

The screen is divided into two windows:

- the left one (232 x 240 pixels) is used to show the Electronic Charts
- the right one (88 x 240 pixels) displays the main Navigational Data



The follow picture shows information contained in the text area:

(a)	CHART DATUM
(b)	44 30.200 N 070 50.150 E
(c)	SOG: 10.2 Knt COG: 198° M.
	CURSOR:
(d)	39 15.630 N 004 10.010 E
(e)	CURS TO TARG
(f)	DST: 20.1 NM BRG: 052° M.
	CHART DATUM
(g)	WGS84 SELECTED
(h)	 500.00 NM
	M E N U

where:

- (a) - It shows the actual FIX situation (**).
- (b) - Current position in deg. LAT/LONG (*) received by the positioning equipment in use (Loran-C, Decca, Satnav etc...).
- (c) - Ship Speed Over Ground and ship Course Over Ground that can be either true or magnetic (*).
- (d) - Current position in deg. LAT/LONG of the Cross-Hair.
- (e) - This message is shown in Charting mode if the Target has been inserted. Also in Charting, but with Target disabled, the message

is substituted by "SHIP TO CURS", that appears in Navigation, in Navigation Area Amplifier and in Auto Zoom on Target too with Target disabled. In Navigation, in Navigation Area Amplifier and in Auto Zoom on Target with Target enabled, the message becomes "SHIP TO TARG".

- ① - In place of DST, it is possible to show TTFG or XTE and bearing of the Target.
- ② - Official chart used.
- ③ - Scale of the chart on the screen (the number is the length in nautical miles of the segment on the screen).

Note

(*): If the positioning instrument is not connected or if its data is not properly received, then a series of diamonds will appear on the screen instead of decimals.

(**): The possible messages that might appear are the following:

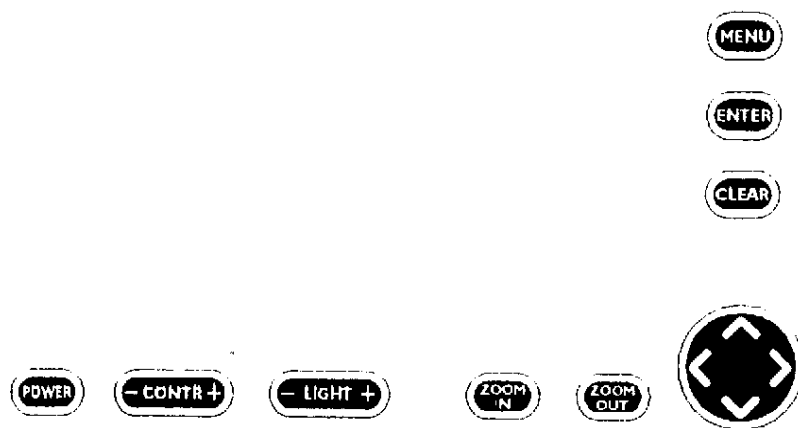
- "NOT RECEIVED" : no data is received;
- "WRONG FORMAT" : the received format does not correspond to the selected format or the data received does not have information on the ship's position;
- "NOT GOOD" : the received format is correct but the information is declared invalid by the positioning instrument;
- "CORRECTION ON" : the format is correct and understood and the fix correction is active;
- "CORRECTION OFF" : the format is correct and understood, but the fix correction function is not active. This message appears only in virtual cartography. In cartography on the chart plotter substitutes the message "CORRECTION OFF" with one of the following:
 - "CHART DATUM"
 - "WGS84"
 - "< DATUM NAME > "

The "WRONG FORMAT" and "NOT RECEIVED" messages appear after 15 seconds after the condition persists. The "NOT GOOD" message appears after 30 seconds. The received fix conditions appears immediately. The specific alarm is activated after a good fix is not received for 1 minute.

1.7 - KEYBOARD DESCRIPTION

All operational functions are accessed by using the keyboard. Most functions are performed with the press of single key, but some less frequently used functions, especially those performed in setting up the chart plotter are selected by using "menu" functions. The menu is a list of choices and will most often appear in the electronic chart display area, temporarily replacing the chart.

Three beeps will advise you when a wrong key is pressed.



Here is a brief description of the keys and their functions.

1.7.1) The keyboard keys and their functions

The  key

Pressing this key activates several types of functions, entirely dependent on the operating mode which has been selected (the active mode is always shown in the status window, in the bottom right corner of the screen - see par. 1.6) and holding down the menu key for 4 seconds enables the Man Overboard (MOB) function if it is receiving fix).

1. FR-TO (Range and Bearing)

This function is activated by pressing this key and will vary depending on whether you are operating in the Charting mode or in the Navigation mode (see par. 3.1 and par. 4.1).

Once you have selected the FR-TO function, press the 'ENTER' key and in the Charting mode the label "FR" (From) will be displayed at the Cross-Hair position; pressing the 'ENTER' key a second time, after moving the Cross-Hair, will display "TO" at the new Cross-Hair position, and will draw a line between the two locations. A window will open with range and bearing info (see par. 3.3).

In the Navigation mode, FR-TO is directly related to your boat's position and the cursor. Move the Cross-Hair until it is located on a location of interest and press 'ENTER'. This will cause a line to be drawn between the selected location and your boat's current position (see par. 4.7).

The 'CLEAR' key allows you to delete the "FR" and "TO" points and the line.

2. HOME

When you have selected this option, press the 'ENTER' key and the Home function is activated: The Cross-Hair is placed on the ship's position.

3. PAN

When you select this option, press the 'ENTER' key and the area around the Cross-Hair will shift to the center of the screen. By holding the 'ENTER' key for 1 second, the Cross-Hair disappears and you can insert the exact coordinates of the desired location (see par. 1.10).

4. GOTO

When you select this option and press 'ENTER' a Target appears on the screen, identified by a small circle. By pressing the 'ENTER' key for 1 second it is possible to enter the Target at your desired coordinates. Press the 'CLEAR' key and the Target is deleted (see par. 4.6).

5. EVENT

By pressing the 'ENTER' key after highlighting this option, an Event symbol is placed over the ship position. An event is basically a stored position with one key press. Press the 'ENTER' key for 1 second it is possible to place an Event identified by an alphanumeric name (see par. 5.3).

The 'CLEAR' key allows you to delete an Event point.

6. MARK

By pressing the 'ENTER' key after highlighting this option, a Mark

symbol is placed on the desired position (three different symbols of Mark are possible). By pressing the 'ENTER' key for 1 second it is possible to set a Mark at desired coordinates (see par. 5.2).

The 'CLEAR' key allows you to delete a Mark point.

7. ROUTE #n

By pressing the 'ENTER' key after highlighting this option, a Waypoint is added to a selected route ("n" indicates the number of the route in use).

By pressing the 'ENTER' key for 1 second it is possible to place a Waypoint at desired coordinates (see par. 3.2).

The 'CLEAR' key allows you to delete the Waypoint on which the Cross-Hair is placed.

8. MENU

By pressing the 'ENTER' key when this option is highlighted the Main Menu appears on the screen.

To pick from a vertical list of menu items, the up and down arrows are used to move up or down the list. For faster operation these keys allow you to "wrap around" (at the bottom of the menu list pressing the down arrow will cause a jump to the top, and while at the top, pressing the up arrow will cause it to jump to the bottom).

To select a menu item or to choose among several choices in a horizontal row press the 'ENTER' key.

Press 'MENU' to exit any menu or submenu and return to previous menu. Press 'CLEAR' to return to the chart display and any changes you made to selections will be noted and stored in memory.

9. INFO

By pressing the 'ENTER' key when this option is highlighted, it is possible to obtain all the available information about an object present on the chart.

The  key

This key is used to select the desired option or to activate a mode.

The  key

This key is used to exit into charts and to delete the user points.

The  key

Pressing this key will show more detail in a smaller area, by changing the chart scale and "zooming in" on your display. (See par. 1.9).

The  key

This key operates similarly to the 'ZOOM IN' key, except in the reverse, changing the scale and showing a wider, and less detailed view. For more information see par. 1.9.

The  key


This key allows you to increase or decrease the brightness of the display back light and keyboard. For more information see par. 1.4.1.

The  key

This key allows you to control the contrast. For more information see par. 1.4.1.

The  key

This key turns the chart plotter On or Off. For more information see par. 1.4.

The  key

This key operates as the four arrow keys (up, down, right, left). It is used in menus to select the desired option and also to move the Cross-Hair on the screen.

1.8 - CROSS-HAIR DESCRIPTION

The Cross-Hair, a small cross shown on the screen, is moved by pressing the arrow key. When you are in the split screen the cross hair position will appear in the data area of the screen:


	CURSOR:	
	39 15.630	N
	004 10.010	E


When you are in the full screen the Cross-Hair coordinates are shown in the text line at the top of the screen when you are in Charting mode:

+	43 49.910 N
	009 47.180 E

1.9 - ZOOM IN AND ZOOM OUT FUNCTIONS

The zoom functions allow the user to select the desired scale of the charts by "zooming in", to display larger scales (more detail), and by "zooming out", to display smaller scales (less detail).

By pressing the  key, you will see more details of a smaller area,

and with the , fewer details of a larger area.

While zooming in or out the chart plotter passes from the largest or smallest scale of any given chart to the next chart directly above or below it.

Please note that in the Navigation mode, the plotter will show the area around the ship's position, while in Charting mode it will show the area around the Cross-Hair.

Note

The chart plotter turns off the cartography automatically after you have selected a scale where electronic charts are not available. In this mode of operation, called "virtual cartography", all the functions remain active. The message "TRACK PLOT MODE" appears on the screen.

❖ 1.10 - PAN FUNCTION

Another way to home into parts of the screen while on the same map scale is done by activating the pan function.



The chart plotter features two different modes of operation: the Charting mode, in which all operations refer to the position of the Cross-Hair, and the Navigation mode, in which all operations refer to the ship's position (for more details refer to Chapt. 3 and 4).

In Charting mode when the Cross-Hair reaches one edge of the screen, the chart will move to show the part of the chart the cursor has been moved to. If the edge of the screen is also the edge of the chart, the chart plotter will choose a chart similar or at the closest scale available among the ones contained in the current cartridge.

When the pan function is activated, the Cross-Hair with the location you want see will shift to the center of the screen.

To activate the pan function follow the procedure:

Selection of PAN function

1. Press  until "PAN" appears in the status window.
2. Press  to select the pan function.

By pressing the 'PAN' key for more than one second it is possible to activate the pan function at preset coordinates:

Selection of PAN at COORDINATES

1. Press **MENU** until "PAN" appears in the status window.
2. Press **ENTER** for more than 1 second, the exact coordinates of the Cross-Hair position will appear on the screen.
Using the left and right arrows as a cursor, you can move the highlighted spaces and the coordinates can be changed by pressing the up and down arrows.
3. Press **ENTER** to confirm, and the the new location will instantly appear on the screen. If coordinates are entered and the 'ENT' key is pressed and the chart plotter beeps three times: it means that the coordinates are outside of the charts available in the current cartridge.
4. Press **CLEAR** to exit.

1.11 - **CE-95 TECHNOLOGY** OVERVIEW

1.11.1) Into the new technology

Second generation data

The first generation data was originally captured on large digitizing tables, subject to the limitation of accuracy, manual skills of the operator and speed. To achieve a reasonable production output, completeness and accuracy had to be somehow compromised.

This data also suffered from the problem of a simplified internal structure, which was impossible to change due to compatibility problems with the large number of installed plotters already in the market worldwide.

During the last two years, all C-MAP chart production were changed to

a new advanced proprietary raster-to-vector technology which has totally revolutionized the performance of the data capturing process. Together with this improvement a new industry data structure standard, S57/S52 compatible, was adopted. This new standard is now being distributed as part of the CM-93 database for SOLAS class cartographic plotters and supplied to Hydrographic Offices throughout the world.

Second generation format

A second generation format has been developed to fulfill the needs of the wide range of plotters for the light marine markets that are the target of this product. The result of this format is optimization of memory, ease of processing and the ability to use both monochrome and colour displays. This new format has been named **C-MAP₂**.

C-MAP₂ will be organized in seven scale ranges. Inside each range, data from different charts are clipped and merged together to obtain a seamless coverage.

Second generation hardware

The **C-MAP₂** database is available on a variety of media, but an innovative solid state cartridge, called the C-CARD, has been designed as the new standard. Its reduced size (24.0 x 44.2 x 2.4 mm) has been conceived to fit even in the smallest units, while its high-speed serializer reduces the connection pin count to a mere 6. This unique feature dramatically increases the reliability, reduces the insertion force and offers flexibility of design.

Closed area geometry

Depth, intertidal, and bathymetric areas are now complete objects, with defined closed area geometry, instead of just lines. This also improves the presentation of data, since it will allow the areas to be displayed with grayscale shading, or a wallpaper fill.

Restricted and regulated areas are categorized into specific objects and attributes. The data will be the same for any plotter, while the graphic display will be hardware-dependent. This means, for instance, that a caution area and restricted area will be two different objects in the database. It is available an 'info' function that will allow the user to access all information stored for each object.

Nav-Aids

Much more information is available for nav-aids (definition of composi-

te objects, more effective encoding of light sectors, light characteristics, structures, colours, shapes, radio and radar signals, fog signals, etc.) The presentation could range from a perfect IHO-compliant graphic display on the more advanced units. The nav-aid data will be the same independent of the plotter and are accessible to the user through the 'info' function.

Other improvements are:

- More detailed database.
- Better structured topology.
- Greater number of different objects.
- Spot soundings.

1.11.2) Cartographic Features

Horizontally seamless cartography

Provides continuous panning within each of 7 layers composed of similar scales and quality charts. The horizontally seamless technology resolves the conceptual flaw present in previous competing seamless databases.

Scale integrity preservation

The number of stored scale levels (7) largely exceeds that of competing products, increasing speed and cartographic accuracy. In each scale level, only charts of comparable scale are merged.

Chart source identification

C-MAP^{NT} is the only seamless cartography that provides source identification (chart number, etc.) as specified by the RTCM ECS standard.

Object oriented data structure

This advanced structure, besides incorporating the latest IMO concepts, is powerful enough to be applied to all GIS applications.

S57/DX90 Compatibility

This technology is compatible with the latest international IMO principles.

Enhanced chart data capture

Much more detail is extracted from the charts (spot soundings, depth

areas, etc.) to satisfy the most demanding applications, setting it apart from competitive products.

Enhanced navigational aid data

Additional information on navigation aids provides for sophisticated graphic display.

Supplemental information

Many 1996 cartridge updates will incorporate a variety of boating related information (restaurants, refueling services, etc.).

Tidal tables

All 1996 cartridge updates will incorporate tidal information.

1.11.3) C-MAP NT C-CARD Features

High capacity

Memory capacity has been expanded to 16 Mbit (4 times the current cartridge & 2 times a PCMCIA). Circuitry provides for 48 Mbit expansion.

Smallest form factor in the industry

Advances in manufacturing technology have produced a cartridge of minimal size (24.0 x 44.2 x 2.4 mm) which is 6 times smaller than a PCMCIA.

Lowest pin count in the industry

The number of contact points has dramatically reduced to 6 (10 times less than a PCMCIA), thus increasing reliability, minimizing insertion force and allowing for remote cartridge readers and easy integration into any mechanical design.

Highest reliability

The greater the number of contact points the greater the chance of failure. C-MAP's dramatic reduction in pin count has drastically reduced this problem.

❖ 1.12 - LANGUAGE SELECTION

The chart plotter can display messages in different languages. To activate such function please follow this procedure:

Selection of DESIRED LANGUAGE

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Setup Menu (N. 3).
6. When you have highlighted that menu, press **ENTER**: the Setup Menu will appear.
7. Use up or down arrow keys to highlight language selection option (N. 1).
8. When you have highlighted that option, press **ENTER** to select the desired language. Every time the 'ENTER' key is pressed, one among the available languages is highlighted: highlight your choice.
9. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

❖ 1.13 - DATA RETENTION

Even with the power Off, the chart plotter retains the following data

which will always be available for future use:

- Serial interface format selected (default: NMEA-0183)
- Last good position received from the positioning instrument with the last executed route
- Fix error and autocorrection status (enabled/disabled)
- Waypoints
- Marks and their identifier
- Compass calibration
- Percentage of memory still available for track recording
- Track recording status (enabled/disabled)
- Recorded distance and time between track point intervals
- Set autopilot alarm step
- Data regarding screen and cartography settings
- Keyboard and screen brightness
- Cartographic display

Note

Changing the software version or performing a ram clear and the stored data is lost.

1.14 - DEFAULT SETTING

After a memory loss, the default values of the main parameters return to the following:

LAND SETTINGS	Natural Features	ON
	Rivers & Lakes	ON
	Cultural Features	ON
	Landmarks	ON
MARINE SETTINGS	Water Turbulence	ON
	Depth Areas	ON
	Spot Soundings	ON
	Bottom Type	ON
NAVAL AIDS	Ports & Services	ON
	Attention Areas	ON
	Tracks & Routes	ON
	Lights	ON

	Buoys & Beacons	ON
	Signals	ON
	Cartographic Objects	ON
OTHER SETTINGS	: Names	ON
	Compass	ON
	Chart Generation	ON
	New Objects	ON
	Complex Object Icon	SINGLE
	Info Level	DETAILED
CHART SETTINGS	: Lat/Lon Grid	OFF
	Chart Boundaries	OFF
	Depth information	OFF
	Wind direction	ON
	Chart info display	ON
	Navigation data	DTG
	Smooth scroll	ON
SETUP	: Language	English
	External Waypoint	OFF
	Course line	OFF
	Distance Unit	NM
	Speed Unit	Knt
	Wind Speed Unit	Knt
	Depth Unit	MT
FIX & COMPASS	: Fix Correction	OFF
	Course & Bearing	Mag.
	Fix datum	OFF
	Chart datum	OFF
	Input format selection	GPS
	Special Navigator	GPS
	Port selection	GPS
	Magnetic variation	AUTO
FIX ALARM SETTING:	Audible Alarm	ON
	Auto Alarm Clear	OFF
TRACKING	: Automatic Replot	ON
	Tracking Store	DISTANCE
	Tracking Step	1 Mile
	Tracking	ON
AUTOPILOT	: Arrival Alarm	1 Mile
	Output format	NMEA-0183/CDX



chapter 2 CUSTOMIZING THE DISPLAY



2.1 - MAP SETTINGS

One of the many advantages of C-MAP cartography is the ability to select the information you want to display.

The user cannot switch on/off single objects on the screen, only sets of them. These sets are defined as (super-)sets of the **CE-95 TECHNOLOGY** display dictionary categories; so objects with the same visual appearance (i.e. for two objects belonging to the same display dictionary category, the same geometry is displayed in the same way) are toggled together.

For more information see par. 2.11.

The Map Settings Menu is subdivided in five settings menus: the Land Setting Menu (see par. 2.2), the Marine Setting Menu (see par. 2.3), the Naval Aids Menu (see par. 2.4), the Other Settings Menu (see par. 2.5) and the Chart Settings Menu (see par. 2.6).



2.2 - LAND SETTINGS

The Land Setting Menu allows the user to activate the display of Natural Features, Rivers and Lakes, Cultural Features and Landmarks.

2.2.1) Displaying of Natural Features

Natural Features (as coastline, dunes, hills, land elevation, land region, salt plan, slope topline, tree and vegetation area) can be displayed or not on the screen, depending on your needs.

Note that land area is always on and can never be switched Off.

Also you can switch On or Off Lake shore, belonging to the same

category of Natural Features, see par. 2.2.2.

This function can be performed as follows:

Selection of NATURAL FEATURES DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Land Setting Menu (N. 1).
8. When you have highlighted that menu, press **ENTER**: the Land Setting Menu will appear.
9. Use up or down arrows key to highlight the displaying of Natural Features on/off option (N. 1).
10. When you have highlighted that option, press **ENTER** to select the Natural Features on/off. Every time the 'ENTER' key is pressed, the selection of Natural features is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.2.2) Displaying of Rivers and Lakes

Rivers (see par. 2.11, Natural Features [RIVERS]) and Lakes (as Lake

shore belonging to Natural Features and Lake belonging to Depths 1) can be displayed or not on the screen, depending on your needs.

This function can be performed as follows:

Selection of RIVERS AND LAKES DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Land Setting Menu (N. 1).
8. When you have highlighted that menu, press **ENTER**: the Land Setting Menu will appear.
9. Use up or down arrows key to highlight the displaying of Rivers and Lakes on/off option (N. 2).
10. When you have highlighted that option, press **ENTER** to select the Rivers and Lakes on/off. Every time the 'ENTER' key is pressed, the selection of Rivers and Lakes is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

Note

Natural Features [ICE] are always on. Wrecks too.

2.2.3) *Displaying of Cultural Features*

Cultural Features (as airports, bridges, roads, railways, ...) and Cultural Dashed (as cable, fence, pipeline, ...), can be displayed or not on the screen, depending on your needs. This function can be performed as follows:

Selection of CULTURAL FEATURES DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Land Setting Menu (N. 1).
8. When you have highlighted that menu, press **ENTER**: the Land Setting Menu will appear.
9. Use up or down arrows key to highlight the displaying of Cultural Features on/off option (N. 3).
10. When you have highlighted that option, press **ENTER** to select the Cultural Features on/off. Every time the 'ENTER' key is pressed, the selection of Cultural Features is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.2.4) *Displaying of Landmarks*

Landmarks (subdivided in Landmarks1 as religious building, cemetery,..., and Landmarks2 as chimney, dish aerial, ...) can be displayed or not on the screen, depending on your needs.

This function can be performed as follows:

Selection of LANDMARKS DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Land Setting Menu (N. 1).
8. When you have highlighted that menu, press **ENTER**: the Land Setting Menu will appear.
9. Use up or down arrows key to highlight the displaying of Landmarks on/off option (N. 4).
10. When you have highlighted that option, press **ENTER** to select the Landmarks on/off. Every time the 'ENTER' key is pressed, the selection of Landmarks is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.3 - MARINE SETTINGS







The Marine Setting Menu allows the user to switch on/off the display of Depth Areas, Spot Soundings and Bottom Type.

2.3.1) Displaying of Water Turbulence

Water Turbulence can be displayed or not on the screen, depending on your needs.

This function can be performed as follows:

Selection of WATER TURBULENCE DISPLAY

1. Press  until "MENU" appears in the status window.
2. Press  to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press : the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press : the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Marine Settings Menu (N. 2).
8. When you have highlighted that menu, press : the Marine Setting Menu will appear.
9. Use up or down arrows key to highlight the displaying of Water Turbulence on/off option (N. 1).
10. When you have highlighted that option, press  to select

the Water Turbulence on/off. Every time the 'ENTER' key is pressed, the selection of Water Turbulence is toggled on or off.

11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.3.2) Displaying of Depth Areas

Depth lines are filled with different patterns of gray, to distinguish ranges in shallow, medium and deep water

Depth Areas (as depth contour, shallow water and tidal areas, see Depths 1, Depths 2 and Depths 3 in the par. 2.11) can be displayed or not on the screen, depending on your needs.

Note that some depth areas, dredged and intertidal are always on and can never be switched off.

Also to switch on or off Lake depths belonging to the category of Depths 1, see par. 2.2.2, and to switch on or off Spot Soundings, belonging to the category of Depths 2, see par. 2.3.3.

This function can be performed as follows:

Selection of DEPTH AREAS DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Marine Setting Menu (N. 2).

8. When you have highlighted that menu, press **ENTER**: the Marine Setting Menu will appear.
9. Use up or down arrows key to highlight the displaying of Depth Areas on/off option (N. 2).
10. When you have highlighted that option, press **ENTER** to select the Depth Areas on/off. Every time the 'ENTER' key is pressed, the selection of Depth Areas is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.3.3) Displaying of Spot Soundings

The information on the depth of the water is enriched by a number of spots displaying the local depth.

Spot Soundings (belonging to the category of Depths 2) can be displayed or not on the screen, by your choice.

This function can be performed as follows:

Selection of SPOT SOUNDINGS DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.

7. Use up or down arrow keys to highlight the Marine Setting Menu (N. 2).
8. When you have highlighted that menu, press **ENTER**: the Marine Setting Menu will appear.
9. Use up or down arrows key to highlight the displaying of Spot Soundings on/off option (N. 3).
10. When you have highlighted that option, press **ENTER** to select the Spot Soundings on/off. Every time the 'ENTER' key is pressed, the selection of Spot Soundings is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.3.4) Displaying of Bottom Type

Bottom Type (as Sand bars, Seabed area, Springs and Weed/Kelp) can be displayed or not on the screen, depending on your needs. This function can be performed as follows:

Selection of BOTTOM TYPE DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.

7. Use up or down arrow keys to highlight the Marine Setting Menu (N. 2).
8. When you have highlighted that menu, press **ENTER**: the Marine Setting Menu will appear.
9. Use up or down arrows key to highlight the displaying of Bottom Type on/off option (N. 4).
10. When you have highlighted that option, press **ENTER** to select the Bottom Type on/off. Every time the 'ENTER' key is pressed, the selection of Bottom Type is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.4 - NAVAL AIDS

The Naval Aids Menu allows the user to switch on/off the display of Ports and Services, Attention Areas, Tracks and Routes, Lights, Buoys and Beacons, Signals and Cartographic Objects.

2.4.1) Displaying of Ports and Services

Ports and Services (as berthing facility, causeway, checkpoint, ..., see par. 2.11) can be displayed or not on the screen, depending on your needs. Note that Mooring/Warping facility (belonging to the Ports) is always on and can never be switched off.

This function can be performed as follows:

Selection of PORTS AND SERVICES DISPLAY

1. Press **MENU** until "MENU" appears in the status window.

2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Naval Aids Menu (N. 3).
8. When you have highlighted that menu, press **ENTER**: the Naval Aids Menu will appear.
9. Use up or down arrows key to highlight the displaying of Ports and Services on/off option (N. 1).
10. When you have highlighted that option, press **ENTER** to select the Ports and Services on/off. Every time the 'ENTER' key is pressed, the selection of Ports and Services is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.4.2) Displaying of Attention Areas

Attention Areas (see par. 2.11: Areas-Limits, Caution Areas and Offshore Installation) can be displayed or not on the screen, depending on your needs. Note that no data area (belonging to the Areas-Limits), Fish haven (belonging to the Caution Areas) and Diffuser, Obstruction and Production installation (belonging to the Offshore Installation) are always on and can never be switched off.

This function can be performed as follows:

Selection of ATTENTION AREAS (Restrictions)

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Naval Aids Menu (N. 3).
8. When you have highlighted that menu, press **ENTER**: the Naval Aids Menu will appear.
9. Use up or down arrows key to highlight the displaying of Attention Areas on/off option (N. 2).
10. When you have highlighted that option, press **ENTER** to select the Attention Areas on/off. Every time the 'ENTER' key is pressed, the selection of Attention Areas is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.4.3) Displaying of Tracks and Routes

Tracks and Routes (as Deep water route , Fairway, Ferry route, ...) can be displayed or not on the screen, depending on your needs.

This function can be performed as follows:

Selection of TRACKS AND ROUTES DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Naval Aids Menu (N. 3).
8. When you have highlighted that menu, press **ENTER**: the Naval Aids Menu will appear.
9. Use up or down arrows key to highlight the displaying of Tracks and Routes on/off option (N. 3).
10. When you have highlighted that option, press **ENTER** to select the Tracks and Routes on/off. Every time the 'ENTER' key is pressed, the selection of Tracks and Routes is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.4.4) Displaying of Lights

Lights (as light, light-moire' effect, light float and light vessel) can be displayed or not on the screen, depending on your needs.

This function can be performed as follows:

Selection of LIGHTS DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Naval Aids Menu (N. 3).
8. When you have highlighted that menu, press **ENTER**: the Naval Aids Menu will appear.
9. Use up or down arrows key to highlight the displaying of Lights on/no sectors/off option (N. 4).
10. When you have highlighted that option, press **ENTER** to select the Lights on/no sectors/off. Every time the 'ENTER' key is pressed, the selection of Lights is toggled on, without sectors or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.4.5) Displaying of Buoys and Beacons

Buoys and Beacons (see par. 2.11) can be displayed or not on the screen, depending on your needs.

This function can be performed as follows:

Selection of BUOYS AND BEACONS DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Naval Aids Menu (N. 3).
8. When you have highlighted that menu, press **ENTER**: the Naval Aids Menu will appear.
9. Use up or down arrows key to highlight the displaying of Buoys and Beacons on/off option (N. 5).
10. When you have highlighted that option, press **ENTER** to select the Buoys and Beacons on/off. Every time the 'ENTER' key is pressed, the selection of Buoys and Beacons is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.4.6) Displaying of Signals

Signals (see par. 2.11: Signals and Radar, Radio Electronic Positioning Systems)), can be displayed or not on the screen, depending on your needs.

This function can be performed as follows:

Selection of SIGNALS DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Naval Aids Menu (N. 3).
8. When you have highlighted that menu, press **ENTER**: the Naval Aids Menu will appear.
9. Use up or down arrows key to highlight the displaying of Signals on/off option (N. 6).
10. When you have highlighted that option, press **ENTER** to select the Signals on/off. Every time the 'ENTER' key is pressed, the selection of Signals is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.4.7) Displaying of Cartographic Objects

Cartographic Objects as generic lines, areas and texts (see par. 2.11) can be displayed or not on the screen, depending on your needs.

Note that Incomplete survey area area is always on and can never be switched off.

Also to switch on or off Text, belonging to the same category of Cartographic Objects, see par. 2.5.1.

This function can be performed as follows:

Selection of CARTOGRAPHIC OBJECTS DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Naval Aids Menu (N. 3).
8. When you have highlighted that menu, press **ENTER**: the Naval Aids Menu will appear.
9. Use up or down arrows key to highlight the displaying of Cartographic Objects on/off option (N. 7).
10. When you have highlighted that option, press **ENTER** to select the Cartographic Objects on/off. Every time the 'ENTER' key is pressed, the selection of Cartographic Objects is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.







2.5. OTHER SETTINGS

The Other Settings Menu allows the user to switch on/off the display of Names, Compass, Chart Generation, New Objects and to set the Complex Object Icon and the Info Level.

2.5.1) *Displaying of Names*

Location Names (Text belonging to Cartographic Objects), can be displayed or not on the screen, depending on your needs.
This function can be performed as follows:

Selection of NAMES DISPLAY

1. Press  until "MENU" appears in the status window.
2. Press  to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press : the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press : the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Other Settings Menu (N. 4).
8. When you have highlighted that menu, press : the Other Settings Menu will appear.
9. Use up or down arrows key to highlight the displaying of Names on/off option (N. 1).
10. When you have highlighted that option, press  to select

the Names on/off. Every time the 'ENTER' key is pressed, the selection of Names is toggled on or off.

11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.5.2) Displaying of Compass

Compass as control point, local magnetic anomaly and compass can be displayed or not on the screen, depending on your needs.

This function can be performed as follows:

Selection of COMPASS DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Other Settings Menu (N. 4).
8. When you have highlighted that menu, press **ENTER**: the Other Settings Menu will appear.
9. Use up or down arrows key to highlight the displaying of Compass on/off option (N. 2).
10. When you have highlighted that option, press **ENTER** to select

the Compass on/off. Every time the 'ENTER' key is pressed, the selection of Compass is toggled on or off.

11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.5.3) Displaying of Chart Generation

Chart Generation and nautical publication information (see Meta Objects in par. 2.11) can be displayed or not on the screen, depending on your needs. Note that Production Information and Source of data are always off and can never be switched on.

This function can be performed as follows:

Selection of CHART GENERATION DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Other Settings Menu (N. 4).
8. When you have highlighted that menu, press **ENTER**: the Other Settings Menu will appear.
9. Use up or down arrows key to highlight the displaying of Chart Generation on/off option (N. 3).

10. When you have highlighted that option, press **ENTER** to select the Chart Generation on/off. Every time the 'ENTER' key is pressed, the selection of Chart Generation is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.5.4) Displaying of New objects

New objects, objects defined after the software release, can be displayed or not on the screen, depending on your needs.

This function can be performed as follows:

Selection of NEW OBJECTS DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Setting Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Setting Menu will appear.
7. Use up or down arrow keys to highlight the Other Settings Menu (N. 4).
8. When you have highlighted that menu, press **ENTER**: the Other Settings Menu will appear.
9. Use up or down arrows key to highlight the displaying of New objects on/off option (N. 4).

10. When you have highlighted that option, press **ENTER** to select the New objects on/off. Every time the 'ENTER' key is pressed, the selection of New objects is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.5.5) Selecting Complex Object Icon

The Complex Object Icon can be set single (default value) or multiple.

This function can be performed as follows:

Selection of COMPLEX OBJECT ICON

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Settings Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Settings Menu will appear.
7. Use up or down arrow keys to highlight the Other Settings Menu (N. 4).
8. When you have highlighted that menu, press **ENTER**: the Other Settings Menu will appear.
9. Use up or down arrows key to highlight the selection of Complex Object Icon option (N. 5).

10. When you have highlighted that option, press **ENTER** to select the Icon. Every time the 'ENTER' key is pressed, the selection of Icon, single or multiple is set to desired value.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.5.6) Displaying of Info Level

The Info Level can be set Detailed (default value) or Basic.

This function can be performed as follows:

Selection of INFO LEVEL

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Settings Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Settings Menu will appear.
7. Use up or down arrow keys to highlight the Other Settings Menu (N. 4).
8. When you have highlighted that menu, press **ENTER**: the Other Settings Menu will appear.
9. Use up or down arrows key to highlight the selection of Info Level option (N. 6).

10. When you have highlighted that option, press **ENTER** to select the Info Level Detailed or Basic. Every time the 'ENTER' key is pressed, the selection of Info Level is set to desired value.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.6 - CHART SETTINGS

The Chart Settings Menu allows the user to switch on/off the display of coordinates, chart boundaries and other information on depth, chart ...

2.6.1) Displaying of Lat/Lon Grid

Latitude and Longitude grids can be displayed on the screen through the following procedure:

Selection of LAT/LON GRID DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**; the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Settings Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**; the Map Settings Menu will appear.

7. Use up or down arrow keys to highlight the Chart Settings Menu (N. 5).
8. When you have highlighted that menu, press **ENTER**; the Chart Settings Menu will appear.
9. Use up or down arrows key to highlight the displaying of Coordinates on/off option (N. 1).
10. When you have highlighted that option, press **ENTER** to select the Coordinates on/off. Every time the 'ENTER' key is pressed, the selection of Lat/Lon Grid is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.6.2) Displaying of Chart Boundaries

The boundaries of the charts contained in the data cartridge can be displayed by pressing the following keys:

Selection of CHART BOUNDARIES DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**; the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Settings Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**; the Map Settings Menu will appear.
7. Use up or down arrow keys to highlight the Chart Settings Menu (N. 5).

8. When you have highlighted that menu, press **ENTER**: the Chart Settings Menu will appear.
9. Use up or down arrows key to highlight the displaying of Chart Boundaries on/off option (N. 2).
10. When you have highlighted that option, press **ENTER** to select the Chart Boundaries on/off. Every time the 'ENTER' key is pressed, the selection of maps boundaries is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.6.3) *Displaying Chart Info*

When in full screen mode, the chart plotter allows you to display or not the information related to the chart. When this option is set on, a small window containing the scale of the chart is shown in the bottom right of the screen (the number is the length in nautical miles of the segment on the screen). Note that in split screen mode this information is always shown on the screen (see par. 1.6.2, ⑨ note).

The following keys must be pressed to activate this function:

Selection of CHART INFO DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Settings Menu (N. 2).

6. When you have highlighted that menu, press **ENTER**: the Map Settings Menu will appear.
7. Use up or down arrow keys to highlight the Chart Settings Menu (N. 5).
8. When you have highlighted that menu, press **ENTER**: the Chart Settings Menu will appear.
9. Use up or down arrows key to highlight the displaying of Chart Info on/off/timeout option (N. 4).
10. When you have highlighted that option, press **ENTER** to select the Chart Info on/off/timeout. Every time the 'ENTER' key is pressed, the selection of Chart Info is toggled on, off or timeout. When timeout is selected, the chart information remains on screen for 5 seconds and then disappears.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.6.4) Displaying of Depth Info Display

The plotter can display Depth Information on the screen, in either modes, split and full screen. When this option is set on, a small window containing depth unit (meters, feet or fathoms - see par. 2.7.3 to select the desired unit) and depth value is opened in the top of the screen. Note that when the selected unit is fathom, the decimal digits are expressed in feet and not in 1/10 of fathom.

The Depth Info may be displayed on the screen by pressing the following keys:

Selection of DEPTH INFO DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.

3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Settings Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Settings Menu will appear.
7. Use up or down arrow keys to highlight the Chart Settings Menu (N. 5).
8. When you have highlighted that menu, press **ENTER**: the Chart Settings Menu will appear.
9. Use up or down arrows key to highlight the displaying of Depth Info option (N. 5).
10. When you have highlighted that option, press **ENTER** to select the Depth Info. Every time the 'ENTER' key is pressed, the selection of Depth Info Display is toggled on or off.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.6.5) *Displaying of Navigation Info*

The chart plotter can display the Distance (Distance To Go = DTG), the Time to the Target (Time To Go = TTG), time is based on boat's current speed, or Cross Track (XTE = Cross Track error). See par. 1.6.1, ⑨ note, and par. 1.6.2, ⑩ note).

This Navigation Info may be set following the procedure:

Selection of NAVIGATION INFO DISPLAY

1. Press **MENU** until "MENU" appears in the status window.

2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Map Settings Menu (N. 2).
6. When you have highlighted that menu, press **ENTER**: the Map Settings Menu will appear.
7. Use up or down arrow keys to highlight the Chart Settings Menu (N. 5).
8. When you have highlighted that menu, press **ENTER**: the Chart Settings Menu will appear.
9. Use up or down arrows key to highlight the displaying of Navigation Info option (N. 6).
10. When you have highlighted that option, press **ENTER** to select the Nav Info. Every time the 'ENTER' key is pressed, the DTG, TTG or XTE indication is shown on the screen.
11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.7 • SETUP FUNCTIONS

The Setup Functions Menu allows the user to select the desired language (see par. 1.12), to enable or disable the External Waypoint option (see par. 3.2.7), to set on or off the Course Line, to choose the unit for distance and speed.

2.7.1) *Course Line*

The plotter can display on the screen the "Course Line". The origin of this line is the ship's position and the direction is the direction of the boat. To show the Course Line follow the procedure:

Selection of COURSE LINE DISPLAY

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Setup Menu (N. 3).
6. When you have highlighted that menu, press **ENTER**: the Setup Menu will appear.
7. Use up or down arrow keys to highlight the displaying of course line (Cog line at boat) on/off option (N. 3).
8. When you have highlighted that option, press **ENTER** to select the course line on/off. Every time the 'ENTER' key is pressed, the selection of course line is toggled on or off.
9. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.7.2) *Distance and Speed Unit selection*

It is possible to choose the desired measuring unit for distance and speed. The following keys must be pressed to select the unit:

Selection of DISTANCE AND SPEED UNIT

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Setup Menu (N. 3).
6. When you have highlighted that menu, press **ENTER**: the Setup Menu will appear.
7. Use up or down arrow keys to highlight the unit option (N. 4).
8. When you have highlighted that option, press **ENTER** to select the unit. Every time the 'ENTER' key is pressed, the selected unit is shown on the screen, among km/kph, nm/kts, sm/mph. Highlight your choice.
9. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.7.3) Depth Unit selection

It is possible to choose one of the different depth units [meters (MT), feet (FT) or fathoms (FM)].

The following keys must be pressed to select the unit:

Selection of DEPTH UNIT

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.

3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Setup Menu (N. 3).
6. When you have highlighted that menu, press **ENTER**: the Setup Menu will appear.
7. Use up or down arrow keys to highlight the depth unit option (N. 5).
8. When you have highlighted that option, press **ENTER** to select the depth unit. Every time the 'ENTER' key is pressed, the selected unit, MT, FT, FM, is shown on the screen. Highlight your choice.
9. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.8 - TRACKING FUNCTIONS

As long as the chart plotter is connected to a positioning instrument, the chart plotter will not only display the past course, but will store all points in its memory. A line connects such points and represents the past course.

When the memory is filled, the chart plotter will continue to record new positions, but the oldest part of the track will be lost as new points are added.

You may:

- turn the track function On or Off (See par. 2.8.1);
- choose the track memorizing type (See par. 2.8.2);
- choose the track recording set up (See par. 2.8.3);

- plot the memorized track (See par. 2.8.4);
- delete the stored track points (See par. 2.8.5).

2.8.1) Turning the track memorizing function ON or OFF

This function can simply be turned On or Off by following the procedure:

Selection of TRACKING ON/OFF

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Tracking Menu (N. 5).
6. When you have highlighted that menu, press **ENTER**: the Tracking Menu will appear.
7. Use up or down arrow keys to highlight the track on/off option (N. 1).
8. When you have highlighted that option, press **ENTER** to select the track on/off. Every time the 'ENTER' key is pressed, the selection of track storing is toggled on or off.
9. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

Note

It is not possible to use the track storing if you are not receiving a valid fix.

If the tracking function is On, the chart plotter can store a fix when the distance from its last stored position is greater than a defined distance or after a defined time (See par. 2.8.3).

2.8.2) Choosing the track type (Time or Distance)

The track memorizing type can be selected by following this procedure:

Selection of TRACK TYPE

1. Press **MENU** a few time until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Tracking Menu (N. 5).
6. When you have highlighted that menu, press **ENTER**: the Tracking Menu will appear.
7. Use up or down arrow keys to highlight the track storing option (N. 3).
8. When you have highlighted that option, press **ENTER** to select the plotting interval, distance or time. Every time the 'ENTER' key is pressed, the selection of track storing type is toggled between distance or time.
9. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

The chart plotter can store a fix when the distance from its last stored position is greater than a defined distance (if distance has been selected) or after a defined time (if time has been selected).

2.8.3) Choosing the track recording setup

When the tracking function is On and the plotting interval type is Distance, you can store a fix when the distance from its last stored position is greater than a defined distance (1, 0.5, 0.1, and 0.05 nm/km/sm - related to the selected unit, see par. 2.7.2).

The tracking step can be selected by pressing the following keys:

Selection of TRACK DISTANCE STEP

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Tracking Menu (N. 5).
6. When you have highlighted that menu, press **ENTER**: the Tracking Menu will appear.
7. Use up or down arrow keys to highlight the track step option (N. 4).
8. When you have highlighted that option, press **ENTER** to select the track step. Every time the 'ENTER' key is pressed, the desired track step is shown on the screen. Highlight your choice.
9. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

On the opposite, when the function of track memorizing is On and the type of memorizing of the track is Time, the chart plotter can store a fix after a defined time (5, 3, 1 minutes and 30, 10, 5 seconds).

The time step can be selected by pressing the following keys:

Selection of TRACK TIME STEP

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**; the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Tracking Menu (N. 5).
6. When you have highlighted that menu, press **ENTER**; the Tracking Menu will appear.
7. Use up or down arrow keys to highlight the time interval option (N. 5).
8. When you have highlighted that option, press **ENTER** to select the time interval. Every time the 'ENTER' key is pressed, the time interval is shown on the screen. Highlight your choice.
9. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.8.4) Plotting track

The past course is automatically displayed on the screen if the auto replot function is selected. The full track will be plotted gradually. Plotting starts at your present position and works backwards to fill the entire track.

To activate the automatic course replot function, follow these steps:

Selection of AUTOREPLOT

1. Press **MENU** until "MENU" appears in the status window.

2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Tracking Menu (N. 5).
6. When you have highlighted that menu, press **ENTER**: the Tracking Menu will appear.
7. Use up or down arrow keys to highlight the autoreplot option (N. 2).
8. When you have highlighted that option, press **ENTER** to select the autoreplot. Every time the 'ENTER' key is pressed, the selection of autoreplot is toggled on/off.
9. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.8.5) Deleting the track memory

All the stored tracks can be deleted by pressing:

Selection of DELETING TRACK

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.

5. Use up or down arrow keys to highlight the Tracking Menu (N. 5).
6. When you have highlighted that menu, press **ENTER**: the Tracking Menu will appear.
7. Use up or down arrow keys to highlight the clear track option (N. 6).
8. When you have highlighted that option, press **ENTER** to clear track.
9. Press the **ENTER** key again to confirm the deletion of track. Any other key aborts operation.
10. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.9 - COMPASS FUNCTIONS

The user can insert data referring to compass deviation, or selecting magnetic or true headings, or setting the magnetic variation.

2.9.1) Compass Calibration

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

The following keys must be pressed to select this option:

Selection of COMPASS CALIBRATION

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrows key to highlight the Fix and Compass Functions Menu (N. 4).
6. When you have highlighted that menu, press **ENTER**: the Fix and Compass Functions Menu will appear.
7. Use up or down arrow keys to highlight the Compass Functions Menu (N. 8).
8. When you have highlighted that menu, press **ENTER**: the Compass Functions Menu will appear.
9. Use up or down arrow keys to highlight the Calibrate Compass Menu (N. 2).
10. When you have highlighted that menu, press **ENTER**: the Calibrate Compass Menu will appear. After pressing the 'ENTER' key, the following table is shown on the screen:

DEVIATION TABLE

N	N/E	E	S/E	S	S/W	W	N/W
00	00	00	00	00	00	00	00

11. The deviation table can be updated by following this procedure for every section of the above display:
 - to move the cursor into the chosen square, the left and right arrows key must be pressed;

- to change the number in the square, the up and down arrows key must be pressed (compass deviation at the angle).
12. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.9.2) True or Magnetic headings and bearings

The chart plotter can compute either magnetic or true (geographic) headings. If magnetic readings are selected the variation is computed automatically for every zone as soon the chart is displayed. You can toggle between the Magnetic Heading display mode and the True Heading display mode by pressing the following keys:

Selection of TRUE OR MAGNETIC

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Fix and Compass Functions Menu (N. 4).
6. When you have highlighted that menu, press **ENTER**: the Fix and Compass Functions Menu will appear.
7. Use up or down arrows key to highlight the Compass Menu (N. 8).
8. When you have highlighted that menu, press **ENTER**: the Compass Menu will appear.
9. Use up or down arrow keys to highlight the true or magnetic heading display option (N. 1).
10. When you have highlighted that option, press **ENTER**: to select

the desired heading display. Every time the 'ENTER' key is pressed it is possible to select true or magnetic headings.

11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.9.3) Magnetic Variation

It is possible to calculate the Magnetic Variation in an automatic or manual mode.

To select one of the two methods press the following keys:

Selection of MAGNETIC VARIATION AUTO/MANUAL

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Fix and Compass Functions Menu (N. 4).
6. When you have highlighted that menu, press **ENTER**: the Fix and Compass Functions Menu will appear.
7. Use up or down arrow keys to highlight the Compass Functions Menu (N. 8).
8. When you have highlighted that menu, press **ENTER**: the Functions Compass Menu will appear.
9. Use up or down arrow keys to highlight the automatic or manual magnetic variation option (N. 3).
10. When you have highlighted that option, press **ENTER** to select

the desired heading display. Every time the 'ENTER' key is pressed it is possible to choose if the calculation of magnetic variation is automatic or manual.

11. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

To select the step for calculation of magnetic variation pressing the following keys:

Selection of MAGNETIC VARIATION STEP

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**; the Auxiliary Function Menu will appear.
5. Use up or down arrow keys to highlight the Fix and Compass Functions Menu (N. 4).
6. When you have highlighted that menu, press **ENTER**; the Fix and Compass Functions Menu will appear.
7. Use up or down arrow keys to highlight the Compass Functions Menu (N. 8).
8. When you have highlighted that menu, press **ENTER**; the Compass Functions Menu will appear.
9. Use up or down arrow keys to highlight the magnetic variation step option (N. 4).
10. When you have highlighted that option, press **ENTER** to select the magnetic variation step procedure.

11. After pressing the 'ENTER' key, press the **ZOOM IN** and **ZOOM OUT** keys to insert the desired value, and then the **ENTER** key to confirm the input or the **CLEAR** key to abort the function.
12. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

2.10 - WGS84 COORDINATE SYSTEM

The coordinate system, or datum, used to establish Lat/Lon position often differs from chart to chart.

A single point on the earth may have slightly different coordinates on two (or more) different charts. Wherever possible, C-MAP electronic charts are enabled with conversion factors for Latitude/Longitude, to shift from the local/original datum of the chart to the internationally recognized standard datum: WGS84.

Thus the user may select to have charts expressed in their local/original coordinates or in WGS84.

When the plotter is turned On the default datum is local.

To set the datum to WGS84:

Selection of FIX DATUM AS WGS84

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Aux-



- liary Function Menu will appear.
5. Use up or down arrow keys to highlight the Fix and Compass Functions Menu (N. 4).
6. When you have highlighted that menu, press **ENTER**: the Fix and Compass Functions Menu will appear.
7. Use up or down arrow keys to highlight the Fix Datum as WGS84 option (N. 6)
8. When you have highlighted that option, press **ENTER** to select the Fix Datum On/Off. Every time the 'ENTER' key is pressed, the Fix Datum as WGS84 is enabled or disabled.
9. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

To set the datum to the original chart datum press the following keys:

Selection of CHART DATUM AS WGS84

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the Auxiliary Functions Menu (N. 2).
4. When you have highlighted that menu, press **ENTER**: the Auxiliary Functions Menu will appear.
5. Use up or down arrow keys to highlight the Fix and Compass Functions Menu (N. 4).
6. When you have highlighted that menu, press **ENTER**: the Fix and Compass Functions Menu will appear.
7. Use up or down arrow keys to highlight the Chart Datum as WGS84 option (N. 7)
8. When you have highlighted that option, press **ENTER** to select

the Chart Datum On/Off. Every time the 'ENTER' key is pressed, the Chart Datum as WGS84 is enabled or disabled.

9. Press  to return to previous menu or  to exit to charts.

The plotter software is enabled with a series of messages which indicate to the user:





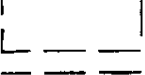





- the local chart datum
- the availability of conversion into WGS84
- and which datum is currently being used for chart positions.

See the following figure.

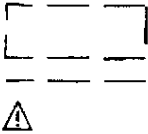
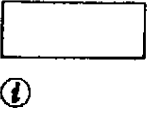
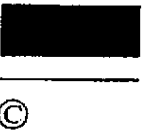
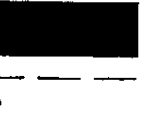


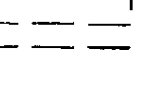


DEPENDS ON ORIGINAL CHART DATA		USER SELECTABLE		CHART DATA INFORMATION	FIX STATUS INFORMATION (in CORRECTION OFF)
CHART DATUM UNKNOWN		WGS 84 CORRECTION NOT PRESENT		CHART DATUM = WGS 84 set OFF	FIX DATUM = WGS84 NO "CHART DATUM UNKNOWN" "FIX: CHART DATUM"
				CHART DATUM = WGS 84 set OFF	FIX DATUM = WGS84 YES "CHART DATUM UNKNOWN" "FIX: WGS84"
				CHART DATUM = WGS 84 set YES	FIX DATUM = WGS84 NO "WGS84 NOT AVAILABLE" "FIX: CHART DATUM"
				CHART DATUM = WGS 84 set YES	FIX DATUM = WGS84 YES "WGS84 NOT AVAILABLE" "FIX: WGS84"
		WGS 84 CORRECTION PRESENT		CHART DATUM = WGS 84 set ON	FIX DATUM = WGS84 NO "CHART DATUM UNKNOWN" "FIX: CHART DATUM"
				CHART DATUM = WGS 84 set ON	FIX DATUM = WGS84 YES "CHART DATUM UNKNOWN" "FIX: CHART DATUM"
				CHART DATUM = WGS 84 set YES	FIX DATUM = WGS84 NO "WGS84 DATUM SELECTED" "FIX: WGS84"
				CHART DATUM = WGS 84 set YES	FIX DATUM = WGS84 YES "WGS84 DATUM SELECTED" "FIX: WGS84"
CHART DATUM KNOWN		WGS 84 CORRECTION PRESENT		CHART DATUM = WGS 84 set OFF	FIX DATUM = WGS84 NO "CHART DATUM <nome datum>" "FIX <nome datum>"
				CHART DATUM = WGS 84 set OFF	FIX DATUM = WGS84 YES "CHART DATUM <nome datum>" "FIX <nome datum>"
				CHART DATUM = WGS 84 set ON	FIX DATUM = WGS84 NO "WGS84 DATUM SELECTED" "FIX: WGS84"
				CHART DATUM = WGS 84 set ON	FIX DATUM = WGS84 YES "WGS84 DATUM SELECTED" "FIX: WGS84"
				CHART DATUM = WGS 84 set OFF	FIX DATUM = WGS84 NO "CHART DATUM <nome datum>" "FIX <nome datum>"
				CHART DATUM = WGS 84 set OFF	FIX DATUM = WGS84 YES "CHART DATUM <nome datum>" "FIX <nome datum>"

❖ 2.11 - SYMBOLS AND ABBREVIATIONS







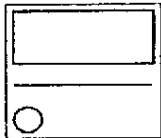
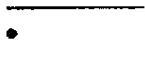


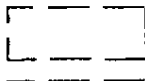

CF-95 TECHNOLOGY

Symbols	Category Objects
  	Areas, Limits Anchor berth; Anchorage area; Cargo transshipment area; Contiguous zone; Continental shelf area; Custom zone; Dumping ground; Exclusive economic zone; Fishery zone; Fishing ground; Free port area; Harbour area (administrative); Incineration area; Log pond; Military practice area; National territorial area; Restricted area; Sea area; Sea-plane landing area; Spoil ground; Straight territorial sea baseline; Submarine transit lane; Territorial sea area; No data area.
	Beacon Beacon, cardinal; Beacon, isolated danger; Beacon, lateral; Beacon, safe water; Beacon, special purpose; Beacon, generic.
 	Bottom type Sand waves; Seabed area; Spring; Weed/Kelp.
	Buoys Buoy, cardinal; Buoy, installation; Buoy, isolated danger; Buoy, lateral; Buoy, safe water; Buoy, special purpose; Buoy, generic.
  	Cartographic objects Closing line; Cartographic symbol; Cartographic line; Cartographic area; TEXT; Line, generic Text; Area, generic; National Character Set Text; Incomplete survey area.



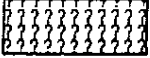













Cont.

	Caution Areas Caution area; Fish haven; Fishing facility; Marine farm/culture
	Compass, Distance Control Point; Local magnetic anomaly; Compass.
	Composite objects Airport; Anchorage; Channel edge; Deep water route; Defined water; Harbour; Range system; Lighthouse; Mooring trot; Navigation mark, afloat; Navigation mark, fixed; Traffic Separation Scheme System.
	Cultural Dashed Cable, overhead; Fence; Pipeline, overhead; Pylon; Telepheric; Tunnel entrance.
	Cultural Features Airport area; Bridge; Built-up area; Railway; Road crossing; Road part; Runway; Sloping ground; Square.
	Depths 1 Depth area; Depth contour; Lake.
	Depths 2 Dredged area; Spot Soundings; Shallow water blue.
	Depths 3 Intertidal area; Zero meter contour.
	Landmarks1 Building, religious; Building, single; Cementery; Fortified structure; Silo; Tank.

Cont.

	Landmarks2 Chimney; Disb aerial; Flagstaff/Flagpole; Flare stack; Mast; Monument; Radar dome; Tower; Windmill; Windmotor.
	
	Lights Light; Light, moiré effect; Light float; Light vessel.
	Lights House(*) Light House.
	Meta objects Accuracy of data; Compilation scale of data; Horizontal datum of data; Nautical publication information; Production information; Sounding datum of data; Survey reliability; Survey source; Units of measurement of data; Vertical datum of data; Source of data.
	Natural Features Coastline; Dune; Hill; Lake shore; Land area; Land elevation; Land region; Salt Pan; Slope Topline; Tree; Vegetation area.
	Natural Features [ICE] Ice area; Pingo.
	Natural Features [RIVERS] Canal; Canal bank; Rapids; River; River bank; Waterfall.
	Navigational mark fixed(*) Navigational mark fixed
	Navigational mark floating(*) Navigational mark floating
	Offshore Installation Cable, submarine; Cable area; Diffuser; Obstruction; Offshore platform; Offshore production area; Pipeline, submarine/on land; Pipeline area; Production installation.
	Pile Pile

Cont.

	Ports Berthing facility; Causeway; Checkpoint; Crane; Dam; Distance mark; Dock area; Dry dock; Dyke area; Dyke crown; Floating dock; Gate; Gridiron; Harbour facility; Hulk; Landing place; Landing stairs; Lock basin; Mooring/Warping facility; Oil barrier; Pontoon; Ramp; Shoreline construction; Slipway; Weir; Small craft facility.
	
	Production Objects Correction marker
	
	Radar, Radio, Electronic Positioning System Radar station; Radar transponder beacon; Radio station_refco
	Rocks Underwater rock.
	Services Coastguard station; Pilot boarding place; Rescue station; Signal station, traffic; Signal station, warning.
	
	Signals Anchor; Cairn; Chain/Wire; Fog signal; Radar reflector; Top mark; Navigational aid, generic; Extended navigational aid, generic.
	
	Tracks, Routes Deep water route part; Deep water route centreline; Fairway; Ferry route; Navigation line; Precautionary area; Radar line; Radar range; Radio calling-in point; Recommended route centreline; Recommended track; Recommended traffic lane part; Traffic separation line; Traffic separation scheme boundary; Traffic separation scheme crossing; Traffic separation scheme lane part; Traffic separation scheme round about; Traffic separation zone; Two-way route part.
	
	Water Turbulence Tideway; Water turbulence
	
	Wrecks Wreck
	







Note

Buoy, Tower, Light, Fog signal can be displayed in two different modes: as single object or as composition of various single icon objects.





2.11.1) How to obtain information about cartographic objects

Detailed information is available for any object present on the chart. To obtain information about an object follow the procedure:

Selection of INFORMATION PAGE

1. Press  until "INFO" appears in the status window.
2. Press  to select the Info option. If in the range of the Cross-Hair there is present a cartographic object, the expanded information is displayed at whole screen in one or more pages.
3. To select the next object press the  key, to return to the previous one press the  key. If the information about the object is contained in several pages, press the  key to select the next pages.
4. Press the  key to exit from extended information page.

Note

If the selected object is "complex" (i.e. it is a collection of objects logically related), pressing the  key expands the information on each component object. Press the  or  key to select the next or previous single object of the complex object. Press the  key to exit from the complex object information pages.

Note that for some objects an automatic info option is available. After 1 second of the last Cross-Hair moving, if in the range of the Cross-Hair (a square of 7 pixels side) there are any objects, an information window is opened on the screen. In the first row, near the "OBJECTS" indication, the total number of objects (max 20) is shown; in the following five rows are displayed the only first five objects (the first 13 characters for each object). To obtain all information press the **ENTER** key and then follow the previous procedure at the 3. step.



chapter 3 CHARTING MODE



3.1 - INTRODUCTION

The chart plotter features two different modes of operation: the Charting mode, in which all operations refer to the position of the Cross-Hair. It is used to prepare the navigation, and the Navigation mode, in which all operations refer to the ship's position. It is used to monitor the status of the navigation, provided that a positioning instrument is connected and working properly.

Charting and Navigation modes are entered by pressing the following keys:

Selection of OPERATION MODE

1. Press **MENU** until "MENU" appears in the status window.
2. Press **ENTER** to select the Main Menu.
3. Use up or down arrow keys to highlight the operation mode option (N. 1).
4. When you have highlighted that option, press **ENTER** to select the desired operation mode. Every time the 'ENTER' key is pressed, the plotter will operate in Charting or Navigation mode, alternately.
5. Press **CLEAR** to exit to charts.

Note

It is not possible to enter Navigation mode if you are not receiving a valid fix.

The actual operating status of the plotter is shown on the display: if you are in full screen it is represented by a symbol in the left top side of the screen (the Charting Mode as the Cross-Hair symbol, the Navigation Mode as the ship symbol).

The Charting mode allows you to plan your course. You do not need to have a position finding device connected to your chart plotter in order to use this mode of operation.

When in Charting mode the Cross-Hair will eventually reach one edge of the screen, the chart will move in order to show the part of the chart the cursor has been moved to. If the edge of the screen is also the edge of the chart, the chart plotter will chose a chart similar or at the closest scale available among the ones contained in the current cartridge.




3.2 - PLANNING COURSES

10 routes are available. Of these routes, only one is the active route: this is called the route "in edit" and it is drawn with a line with the last waypoint shown as a full dot.

3.2.1) *Selecting route*

You may use the following procedure to select the desired route number (1 - 10):

Selection of SELECT ROUTE function

1. Press  until "MENU" appears in the status window.
2. Press  to select the Main Menu.
3. Use up or down arrow keys to highlight the Route Menu (N. 5).
4. When you have highlighted that menu, press  to select the Route Menu.
5. Use up or down arrow keys to highlight the Select Route option (N. 1).

6. When you have highlighted that option, press **ENTER** to select the desired route. Every time the 'ENTER' key is pressed on the screen it is shown the number of route (1 - 10).
7. Press **MENU** to return to previous menu or **CLEAR** to exit to charts.

3.2.2) Adding waypoints

In navigational terms, a "waypoint" is any point to which one intends to navigate at some time. A sequence of waypoints makes up a route plan, sometimes called a planned route.

A route plan can may easily create by follow the procedure:

Selection of ROUTE PLAN function

1. Press **MENU** until "ROUTE#n" appears in the status window (where "#n" indicates the number of active route).
2. Place the Cross-Hair on the planned Waypoint location.
3. Press **ENTER** to place a Waypoint. After pressing the 'ENTER' key, the waypoint will appear on the screen on the position identified by the Cross-Hair.
4. The sequence of moving the Cross-Hair and pressing the 'ENTER' key is continued to create the route. Segments connecting the new waypoint and the last one in the route will be shown. The symbol, a full dot indicating the last waypoint of the route, will be moved to the new last waypoint.
4. Press **MENU** to exit to charts.

The user may also create waypoints at specific points of latitude and longitude:

Selection of WAYPOINT AT L/L COORDINATES

1. Press **MENU** until "ROUTE#n" appears in the status window