

STARFISH

USER MANUAL

Software name: SW14LCDNT - Issue 133_R340

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.

This chart plotter is not built to be submerged. It is built to a standard that allows it to be subjected to light rain and spray without causing permanent damage. Units that are subjected to submersion will be considered to have been abused and therefore not covered under the warranty program.

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.



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INTRODUCTION

The **STARFISH** 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 **STARFISH** as the chart plotter or simply 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 manual is structured as follows. Chapter 1 acquaints a new user with the plotter and its features, guides the first time user through basic set up. Chapter 2 contains information about chart display, to allow the user a personal setting of the plotter's display. Chapters 3 and 4 guides the user through using the 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 the plotter.

chapter 1 GETTING STARTED

❖ 1.1 - FEATURES

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

The user can choose to receive information from an external positioning instrument connected to the plotter.

The following items are shipped with the chart plotter:

- On/Off warning sheet;
- Glomex external bracket + 3 screws M4 x 8;
- (CBC0FS0702) Power supply and I/O cable "Conxall 7F" (1.5 mt./5.8");
- Flush mounting template;
- 1 Ampère fuse + fuseholder;
- Instructions manual.

Note

The chart plotter with external GPS will be shipped with GPS Receiver Antenna and 15 mt. cable assembly.

❖ 1.2 - INSTALLATION

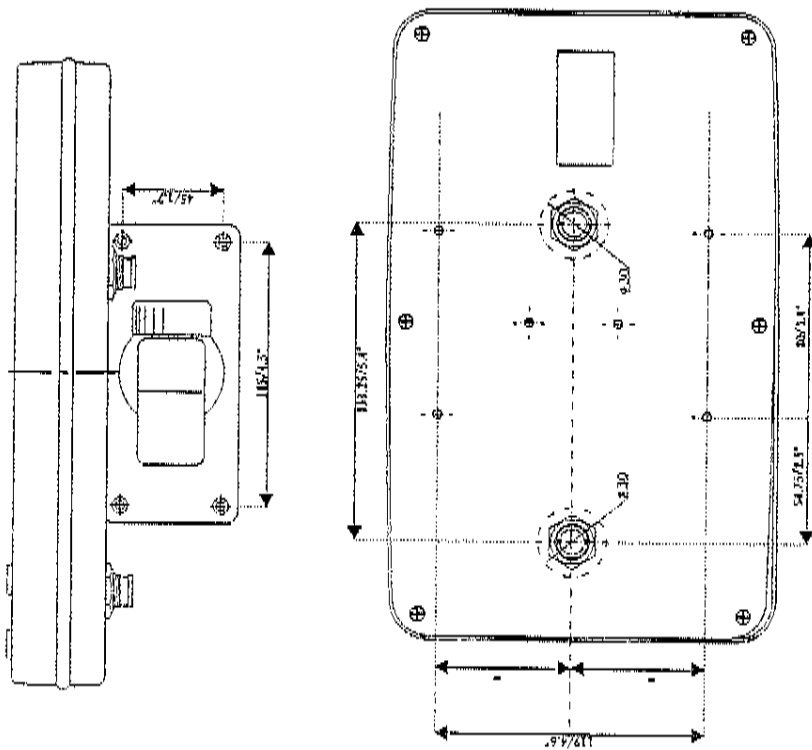
The chart plotter is easily installed on most vessels.

It can be mounted above or below the mounting bracket.

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.

For the plotter with external GPS, the antenna should be mounted as high as possible. It should have the clearest line of sight to the horizon possible.

Adjacent antennas or other metallic objects can cause a degradation in GPS receiver performance. Remember to mount the antenna at least 70 cm./27.5" from VHF/HF/MF transmitter antennas.

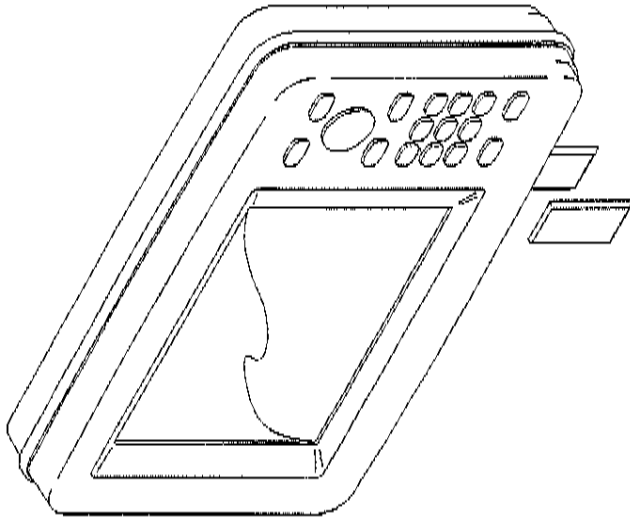


❖ 1.3. INITIAL SETTING

Before turning on the chart plotter check for the correct voltage (10-35 volts dc) and the correct connection with the positioning instrument, and the correct insertion of the map cartridge into its slot as you see in the following figure (see also "EXTERNAL WIRING" appendix).

The cartridge should be inserted with the code numbers facing you.

The optional user cartridge to record all the desired information should be inserted in the same slot.



❖ 1.4. TURNING THE CHART PLOTTER ON/OFF

The chart plotter is turned on by pressing the **POWER** key. Similarly the plotter can be turned off by holding down the **POWER** key for a few seconds.

Note

Sometimes, in particular bright sunlight, the screen might appear black, to regain the correct brightness simply press the 'DIM' and 'A' keys. Go through the same procedure also when you are not sure if the 'POWER' key is working properly when the plotter is turned on.

1.4.1) SCREEN BRIGHTNESS

As mentioned before, the screen brightness can be controlled by pressing the **DIM** key: the **A** key increases the contrast, the **UP** key decreases it. Pressing the **MARK** key steps through four levels of backlight.

Note

After 5 minutes that any key has been pressed, the screen and keyboard backlight is turned off. When any key is pressed again, the backlight is set to the previous value. This procedure suggested by the LCD's manufacturers and applied to all electronic devices (personal computers, echosounders, radars, etc. ...) guarantee a long life of LCD.

❖ 1.5. AUTO-TESTING PROCEDURE

When powered On, the chart plotter starts a self-testing procedure which checks the internal memories (Eeprom 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:
 - no cartridge is inserted into the slot;
 - the cartridge has not been entirely inserted into the slot;
 - the cartridge is broken.
- "FAULTY" : 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

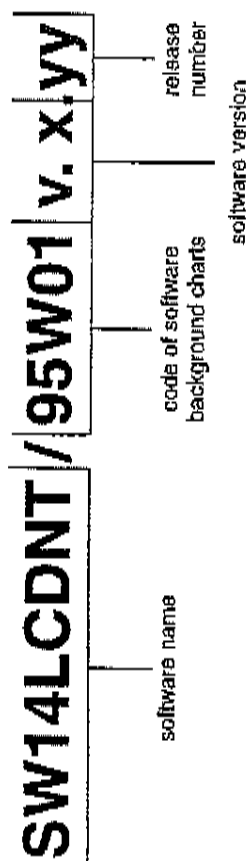
C-CARD 1: XX-YYYY.yy(****)
<NAME OF CARTRIDGE>

C-CARD 2: XX-YYYY.yy(****)
<NAME OF CARTRIDGE>

CODE CARTRIDGE: SW14LCDNT/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" line indicates some system maintenance information which can change from a version to another but which do not represent any substantial change either to the software or to the manual;
- (****) for "C-CARD 1 and 2" lines, please see app. H;
- (#) the code displayed near the "CODE" line indicates:



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.

The user can freeze the System Test page pressing and holding down any key after the page is shown: when release the key the chart plotter go on and the chart plotter displays the Caution Notice.

CAUTION

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.

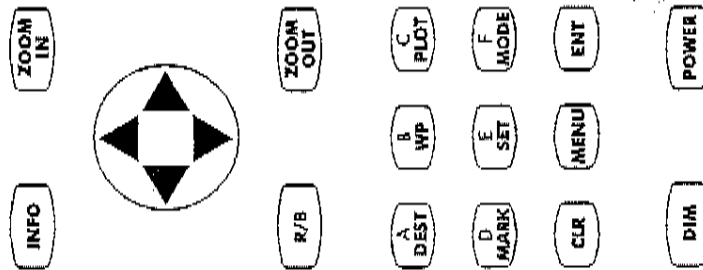
Operating System and Chart Software
Copyright 1987 - 1996 (C) C-MAP s.r.l.

Press ENTER to proceed

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

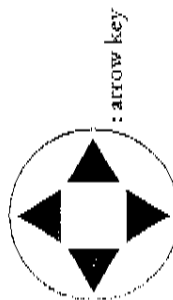
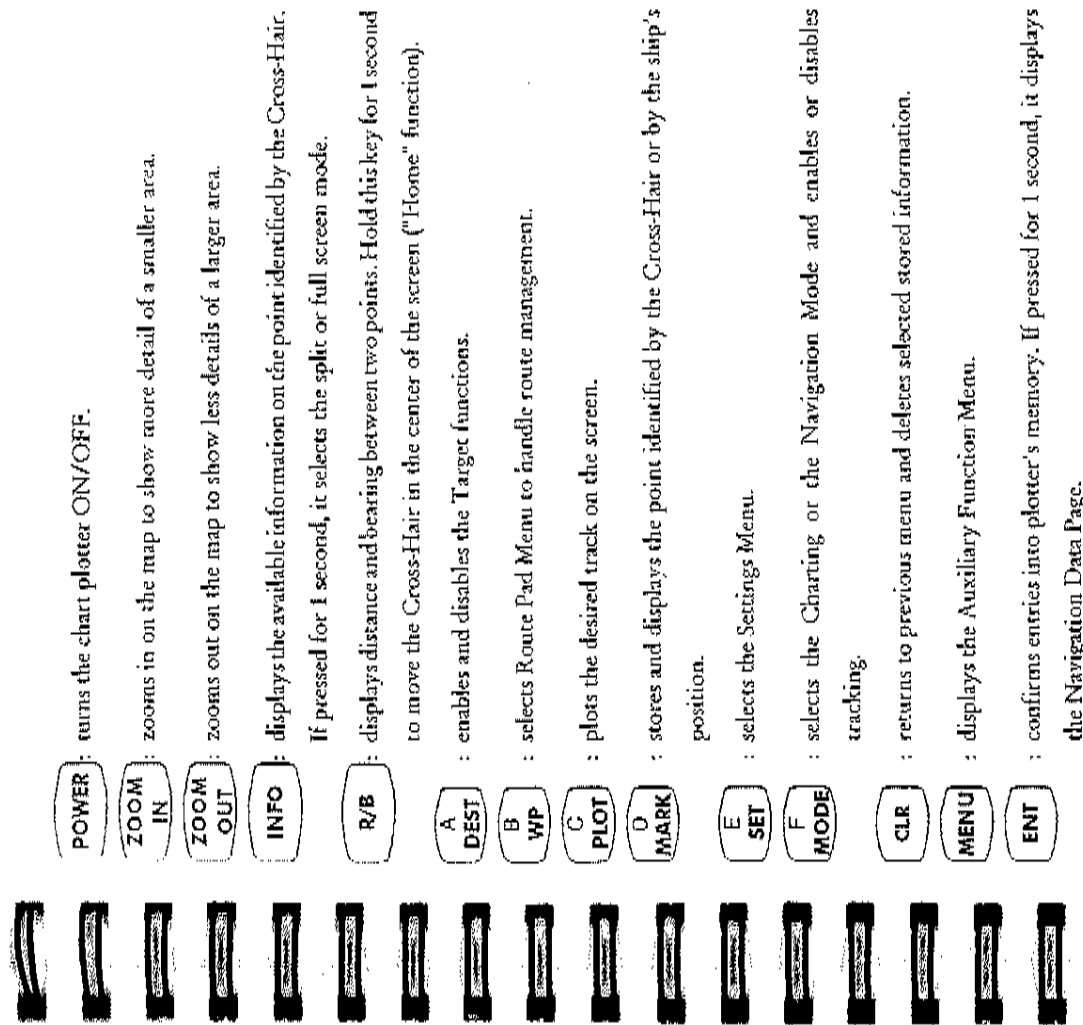
❖ 1.6 - KEYBOARD DESCRIPTION

All the functions of the chart plotter can be performed by using the keyboard. Three beeps will advise you when a wrong key is pressed.



1.6.1) THE KEYBOARD KEYS AND THEIR FUNCTIONS

DIM : decreases or increases screen brightness.

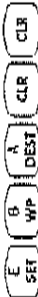


Note

Chart plotter operations are made by pressing some keys. A key sequence can select a menu, an item in a menu or enable an option. In the following pages we use a simplified method to describe a key sequence

Example: to select the desired language, you must press the 'E' key, the 'B' key and then the 'A' key repeatedly to choose one among the five available languages. When the choice is made, press the 'CLR' key twice to return to charts. The key sequence is as follows:

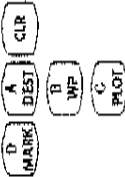
Selection of DESIRED LANGUAGE



On certain occasions, if it is necessary to select specific keys within a sequence there is a different selection procedure.

Example: to select the desired Mark, you must press the 'D' key and then one among the 'A', 'B' or 'C' key to set one among the three available Mark types. When the choice is made, press the 'CLR' key to exit. The key sequence is as follows:

Selection of INSERT MARK



❖ 1.7 - CROSS-HAIR DESCRIPTION

The Cross-Hair, a small cross shown on the screen, can be moved by pressing the arrows on the keyboard. When you are in split screen and if the Cross-Hair is not moved for at least one second, the geographical coordinates of that position will appear in the data area of the screen:

```

CROSS-HAIR :
| 41 51.971 N
| 070 42.652 W

```

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



+	LAT: 41 48.346 N
	LON: 070 15.811 W

❖ 1.8 - SCREEN DISPLAY DESCRIPTION

The chart plotter can operate in the split screen mode or in the 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 an information window for general information, and under certain conditions, smaller menu selections.

In the full screen mode the maps are displayed in full screen. The right window will disappear and in the top of the screen will display single data with general information. In this screen mode it is possible to select the Main Menu and any Pad Menu.

To switch between the two screen modes, press the **INFO** key for more than 1 second.

If you are in full screen, hold down for 1 second the **INFO** and the screen will return to split screen, and if you are in split screen, 1 second hold down the **INFO** key will display maps in full screen.



1.8.1) THE DISPLAY SCREEN IN THE FULL SCREEN MODE

The full screen mode displays maps at full screen. The top of the screen will display a line of data with information about Charting or Navigation Mode of operation, Latitude and Longitude of the Cross-Hair if you are in Charting Mode, and Latitude and Longitude of the received fix if you are in Navigation Mode, SOG and COG, Distance and Bearing. The Charting mode is displayed as a Cross-Hair symbol, and the Navigation mode as the ship symbol.

The following picture shows the information in the text line:

+	LAT: 41 48.346 N	SOG: 04.0 KNOT	DSI: 37.34 NM
	LON: 070 15.811 W	COG: 102.0 DEG	BRG: 268.1 DEG

where:

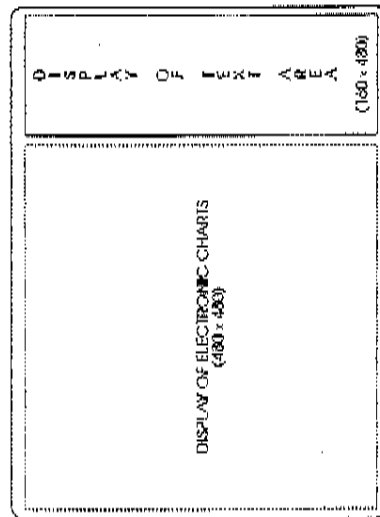
- The symbol  appears when you are in Charting mode and the symbol  appears in Navigation mode.
- LAT/LON: current position of the Cross-Hair if in Charting Mode or ship's current position if in Navigation Mode;
- SOG : ship speed over ground;
- COG : ship course over ground;
- DST : distance to Target (in place of DST, it is possible to show TTG or XTE);
- BRG : bearing to target.

In full screen mode, when selecting a pad menu or for information about nav aids or user points, the top right corner of the screen shows a window with options or information.

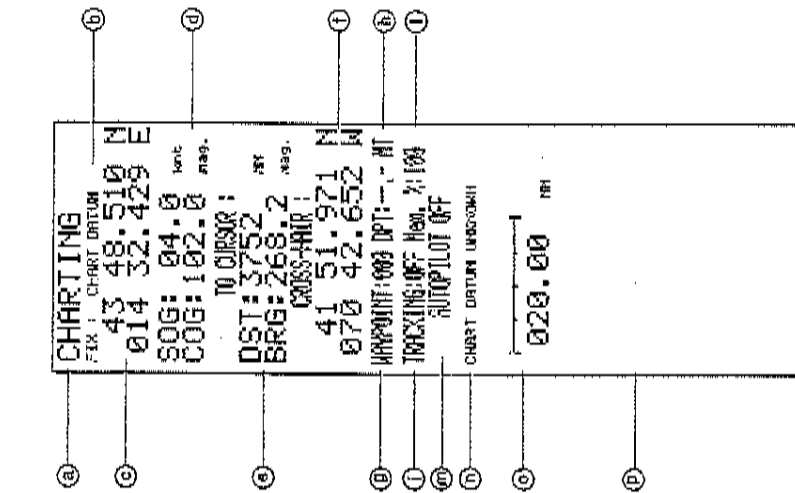
1.8.2) THE DISPLAY SCREEN IN THE SPLIT SCREEN MODE

The display screen has 640 x 480 pixels of resolution and it is divided into two windows:

- the left one (480 x 480 pixels) is used to show the Charts.
- the right one (160 x 480 pixels) displays the main Navigational Data.



The following picture shows the information displayed in the text area:



- a - This is the current status in use and can be either CHARTING or NAVIGATION.
- b - Shows the actual FIX situation (**).
- c - Current position in deg. LAT/LONG (°) received by the positioning equipment in use (Loran-C, Dectra, etc...).
- d - Ship Speed Over Ground and ship Course Over Ground that can be either true or magnetic (°).
- e - Distance to target in nautical miles (°).
- f - Bearing of the target that can be either true or magnetic (°).
- g - Current position in deg. LAT/LONG of the Cross-Hair (positioned by arrow keys).
- h - Number of stored Waypoints.
- i - Shows current depth selection unit that can be meters, feet or fathoms and depth value.
- j - Shows the tracking status ON/OFF.
- k - Percentage of memory still available.

(m) - Current Autopilot status.

(n) - This message is replaced by one of the following messages:

"CHART DATUM UNKNOWN"

"WGS84 NOT AVAILABLE"

"WGS84 DATUM SELECTED"

"DATUM <datum name>".

(o) - Scale of the chart on the screen (the number is the length in nautical miles of the segment on the screen).

(p) - This portion of the screen is to display menu options or auxiliary information.

Note

(*) - If the positioning instrument is not connected or if its message 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 cartography OFF. In cartography ON the unit replaces the message "CORRECTION OFF" by one of the following : "CHART DATUM"
- "WGS84"
- "<DATUM NAME>"

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

❖ 1.9. ZOOM IN AND ZOOM OUT FUNCTIONS

The zoom functions allow the user to select the desired display 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 **Zoom In** key, you will see more detail in a smaller area, and with the **Zoom Out** less detail in a larger area.

Remember that, in 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 excludes actual cartography after maximum "zoom in" levels of the electronic charts are reached. In this mode of operation, called "simplified cartography", all the functions remain active. The message "TRACK PLOT MODE" appears on the screen. This function is available only if the Plotter Mode option is enabled, in the par. 2.6.1.

❖ 1.10. PAN FUNCTION

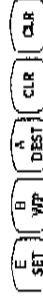
The chart plotter features two different modes of operation: the Charting mode, in which all operations refer to the position of the Cross-Hair, and the Navigation mode, in which all operations refer to the ship's position (see Chapters 3 and 4 for more details).

In Charting mode, when the Cross-Hair eventually reaches one edge of the screen the chart will shift in order to make visible the part of the chart in which the Cross-Hair is moving into. This operation is called an automatic pan. Note that if the edge of the screen is also the edge of the electronic chart, the chart plotter will look for the neighboring chart, in the current cartridge, with a similar scale or as close as possible.

❖ 1.11. LANGUAGE SELECTION

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

Selection of DESIRED LANGUAGE



By pressing the 'A' key repeatedly it is possible to select the desired language.

❖ 1.12. DATA RETENTION

Even with the power OFF, the chart plotter retains in memory the following data which will be available for future use:

- Serial interface format selected (default: NMEA-0183);
- Last good position received from the positioning instrument;
- 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 the screen and cartography setting;
- Screen brightness;
- Cartographic display.

❖ 1.13 - DEFAULT SETTING

After a memory clear, the default values of the main parameters are reset to the following:

LAND SETTINGS		
: Natural Features	_____	ON
: Rivers and Lakes	_____	ON
: Cultural Features	_____	ON
: Landmarks	_____	ON
MARINE SETTINGS		
: Water Turbulence	_____	ON
: Bathymetric Lines	_____	ON
: Depth Areas Limit	_____	5MT
: Spot Soundings	_____	ON
: Bottom Type	_____	ON
: Bathym. & Sound. Range	_____	12000MT
NAVAL AIDS		
: Ports & Services	_____	ON
: Attention Areas	_____	OFF
: Tracks and Routes	_____	ON
: Lights	_____	ON
: Buoys and Beacons	_____	ON
: Signals	_____	ON
OTHER SETTINGS		
: Names	_____	ON
: Compass	_____	ON
: Chart Generation	_____	ON
: New Objects	_____	ON
: Complex Object Icon	_____	SINGLE
: Info Level	_____	DETAILED
CHART SETTINGS		
: Coordinates	_____	ON
: Chart Boundaries	_____	ON
: Smooth Scroll	_____	ON
: Cartographic Objects	_____	ON



SETUP		
: Plotter Mode	_____	OFF
: Language	_____	ENGLISH
: User Point Identifier	_____	ON
: User Point Autounumber	_____	ON
: External Waypoint	_____	OFF
: COG Line at Boat	_____	OFF
: Depth Unit	_____	MT
FILTERS		
: Position Filter	_____	OFF
: Speed Filter	_____	OFF
: Filter step	_____	0'05"
COMPASS		
: Heading	_____	MAG
: Magnetic Variation	_____	AUTO
FIX/COMPASS		
: Fix Correction	_____	OFF
: Data Format	_____	NMEA-0183
: Input Source	_____	EXT 1
: Audible Alarm	_____	ON
: Auto Alarm Clear	_____	OFF
: Fix datum WGS84	_____	ON
: Chart datum WGS84	_____	ON
TRACKING		
: Automatic Replot	_____	ON
: Tracking Step Unit	_____	TIME
: Distance Step	_____	1.0 NM
: Time Step	_____	1 MIN
: Track	_____	OFF
AUTOPILOT		
: Arrival Range	_____	1.0 NM
: Output format	_____	NMEA-0183

❖ 1.14 - INTO THE NEW CARTOGRAPHY

1.14.1) **CE-95 TECHNOLOGY OVERVIEW**

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 was changed to a new advanced proprietary raster-to-vector technology which has totally revolutionized the performan-

ce of the data capturing process. Together with this improvement a new industry data structure standard, S57/S52 compatible, has been adopted. This new data is now being distributed as part of the CIM-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-MAPENT**.

C-MAPENT 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-MAPENT** database is available on a variety of media, but an innovative solid state cartridge, called the **C-MAPENT G-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 composite 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.

1.14.2) 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-MAPENT, 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

Most 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.

1.14.3) C-MAPENT G-CARD FEATURE

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.






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 may choose to display or not on the screen the selected *objects*, depending on his specific requirements. These objects may be, for example, a Landing place, a Light float, a Lighthouse, a Lake and so on.

Considering the multitude of represented objects, these are grouped together in sets called *categories*. Each category is represented in cartography by one *symbol*, which changes on the basis on details included in the representation. For example, the Landing place indicated above, which belongs to the "Ports" category, is represented by  or  depending on zoom level. The Light float, which belongs to the "Lights" category, is always represented by the  symbol, independently of detail. See table on par. 6 for more information about categories, objects and symbols.

Use the Map Settings Menu to select the objects to display on the screen. Note that there are objects which are always displayed on the screen, and the user cannot have the possibility to switch these off. These objects are the following:

OBJECT	CATEGORY
No data area	Areas, Limits
Incomplete survey area	Cartographic objects
Fish haven	Caution areas
Airport	Composite objects
Anchorage	Composite objects
Channel edge	Composite objects
Deep water route	Composite objects
Defined water	Composite objects
Harbour	Composite objects
Mooring trail	Composite objects
Range system	Composite objects
Traffic Separation Scheme System	Composite objects
Deep area	Depths 1 (Shallow)
Dredged area	Depths 2
Intertidal area	Depths 3
Lighthouse	Lighthouse
Lund area	Natural Features
Ice area	Natural Features (Ice)
Strung	Natural Features (Ice)
Navigational mark (FIXED)	Navigational mark (FIXED)
Navigational mark (FLOATING)	Navigational mark (FLOATING)
Diffuser	Offshore installation
Obstruction	Offshore installation
Production installation	Offshore installation
Mooring/Warqing facility	Ports

Cont.

Underwater rock Rocks
Wrecks Wrecks

The Map Settings Menu is subdivided in the following settings menu:

- Land Setting Menu
- Marine Setting Menu
- Naval Aids Menu
- Other Settings Menu

❖ 2.2. LAND SETTINGS

The Land Setting Menu allows the user to switch On/Off the display of Natural Features, Rivers and Lakes, Cultural Features and Landmarks.

2.2.1) DISPLAYING OF NATURAL FEATURES

"Natural Features On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Coastline	Natural Features
Dune	Natural Features
Hill	Natural Features
Land elevation	Natural Features
Land region	Natural Features
Salt plan	Natural Features
Slope Topline	Natural Features
Tide	Natural Features
Vegetation area	Natural Features

This function can be performed as follows:

Selection of NATURAL FEATURES DISPLAY



Every time the 'A'(*) key is pressed, the selection of Natural features is toggled On or Off.

2.2.2) DISPLAYING OF RIVERS AND LAKES

"Rivers and Lakes On/Off" allows the user to switch On or Off the following:

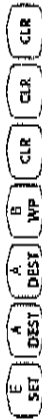
OBJECT	CATEGORY
Canal	Natural Features [RIVERS]
Canal bank	Natural Features [RIVERS]
Rapids	Natural Features [RIVERS]

Cont.

River Natural Features [RIVERS]
River bank Natural Features [RIVERS]
Watersfall Natural Features [RIVERS]
Lake shore Natural Features
Lake Lake

This function can be performed as follows:

Selection of RIVERS AND LAKES DISPLAY



Every time the 'B' key is pressed, the selection of Rivers and Lakes is toggled On or Off.

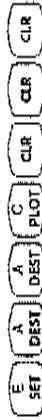
2.2.3) DISPLAYING OF CULTURAL FEATURES

"Cultural Features On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Cable, overhead	Cultural Dashed
Fence	Cultural Dashed
Pipeline, overhead	Cultural Dashed
Pylon	Cultural Dashed
Telephonic	Cultural Dashed
Tunnel entrance	Cultural Dashed
Airport area	Cultural Features
Bridge	Cultural Features
Build-up area	Cultural Features
Railway	Cultural Features
Road crossing	Cultural Features
Road part	Cultural Features
Runway	Cultural Features
Sloping ground	Cultural Features
Square	Cultural Features

This function can be performed as follows:

Selection of CULTURAL FEATURES DISPLAY



Every time the 'C' key is pressed, the selection of Cultural Features is toggled On or Off.

2.2.4) DISPLAYING OF LANDMARKS

"Landmarks On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Building, religious	Landmark

Cont.

Building, single	Landmarks1
Cemetery	Landmarks1
Fixed structure	Landmarks1
Highway route port	Landmarks1
Park	Landmarks1
Quarry	Landmarks2
Dish aerial	Landmarks2
Flagged/turbulence	Landmarks2
Flare stack	Landmarks2
Mast	Landmarks2
Monument	Landmarks2
Radar dome plane landing area	Landmarks2
Tower	Landmarks2
Windmill	Landmarks2
Windrose	Landmarks2

This function can be performed as follows:

Selection of LANDMARKS DISPLAY

Every time the 'D' key is pressed, the selection of Landmarks is toggled On or Off.

❖ 2.3. MARINE SETTINGS

The Marine Setting Menu allows the user to switch On/Off the display of Water Turbulence, Depth Areas, Spot Soundings and Bottom Type.

2.3.1) DISPLAYING OF WATER TURBULENCE

"Water Turbulence On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Tide-way	Water Turbulence
Water Turbulence	Water Turbulence

This function can be performed as follows:

Selection of WATER TURBULENCE DISPLAY

Every time the 'A' key is pressed, the selection of Water Turbulence is toggled On or Off.

2.3.2) DISPLAYING OF BATHYMETRIC LINES

"Bathymetric Lines On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Depth contour	Depths 1
Shallow water line	Depths 2
Zero meter contour	Depths 3

This function can be performed as follows:

Selection of BATHYMETRIC LINES DISPLAY

Every time the 'B' key is pressed, the selection of Bathymetric Lines is toggled On or Off.

2.3.3) SELECTION OF DEPTHS AREAS LIMIT

User sets a reference depth value and software fills with grey all the bathymetric areas that have starting depth area lower than the reference value. All other bathymetric areas are white. So, if the reference depth is 0, all areas are white, if it is 99.999 all areas are grey. This function can be performed as follows:

Selection of DEPTHS AREAS LIMIT

After pressing the 'C' key, use the and keys to change the depth value in the [0, 30000] range (the depth unit, MT, FT or FM has been selected in the par. 2.7.3); when the desired value has been inserted, press to confirm (or to abort operation).

2.3.4) DISPLAYING OF SPOT SOUNDINGS

"Spot Soundings On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Spot Soundings	Depths 2

This function can be performed as follows:

Selection of SPOT SOUNDINGS DISPLAY

Every time the 'D' key is pressed, the selection of Spot Soundings is toggled On or Off.

2.3.5) DISPLAYING OF BOTTOM TYPE

"Bottom Type On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Sand waves	Bottom Type
Seabed area	Bottom Type
Spilling	Bottom Type
West/Kelp	Bottom Type

This function can be performed as follows:

Selection of BOTTOM TYPE DISPLAY

[E] [SET] [A] [DEST] [B] [WP] [E] [SET] [CLR] [CLR] [CLR]

Every time the 'E' key is pressed, the selection of Bottom Type is toggled On or Off.

2.3.6) SELECTION OF BATHYMETRICS & SOUNDINGS RANGE

It is possible to select the range for the Bathymetrics and Soundings in the interval [0, 12000]MT, if you have selected meters in the par. 2.7.4 (if you have selected feet, the range is [0, 39369] FT or if you have selected fathoms, the range is [0, 6593] FM). To select the range, follow this procedure:

Selection of BATHYMETRICS & SOUNDINGS RANGE

[E] [SET] [A] [DEST] [B] [WP] [F] [MODE] [CLR] [CLR] [CLR]

After pressing the 'F' key, use the **[A] [DEST]** and **[B] [WP]** keys to change depth limit, then press **[ENT]** to confirm or **[CLR]** to abort.

❖ 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 and Signals.

2.4.1) DISPLAYING OF PORTS AND SERVICES

"Ports and Services On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Pile	Ports
Beaching facility-up area	Ports
Canalway	Ports
Crane	Ports
Dam	Ports
Distance mark	Ports
Dock area	Ports
Dry dock	Ports
Dyke area	Ports
Dyke crown	Ports
Floating dock	Ports
Gate	Ports
Gridiron	Ports
Harbour facility	Ports
Hulk	Ports
Landing place	Ports
Landing stairs	Ports
Lock basin	Ports
Oil barrier	Ports
Pier	Ports
Pier	Ports
Port	Ports
Shoreline construction	Ports
Slipway	Ports
Wier	Ports
Small craft facility	Ports
Coastguard station	Services
Pilot boarding place	Services
Rescue station	Services
Signal station, traffic	Services
Signal station, warning	Services

This function can be performed as follows:

Selection of PORTS AND SERVICES DISPLAY

[E] [SET] [A] [DEST] [C] [PLOT] [A] [DEST] [CLR] [CLR] [CLR]

Every time the 'A' (*) key is pressed, the selection of Ports and Services is toggled On or Off.

2.4.2) DISPLAYING OF ATTENTION AREAS

"Attention Areas On/Off" allows the user to switch On or Off the following:

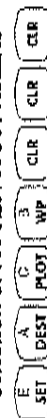
OBJECT	CATEGORY
Anchor berth	Areas, Limits
Anchorage area	Areas, Limits
Cargo transshipment area	Areas, Limits
Contiguous zone	Areas, Limits

Over

Continental shelf area	Areas, Limits
Custom zone	Areas, Limits
Dumping ground	Areas, Limits
Exclusive economic zone	Areas, Limits
Fishery zone	Areas, Limits
Fishing ground	Areas, Limits
Free port area	Areas, Limits
Harbour area (individual strait etc)	Areas, Limits
Industrialization area	Areas, Limits
Log pond	Areas, Limits
Military practice area	Areas, Limits
National territorial area	Areas, Limits
Restricted area	Areas, Limits
Sea area	Areas, Limits
Sea-plane landing area	Areas, Limits
Spill ground	Areas, Limits
Straight territorial sea baseline	Areas, Limits
Submarine transit lane	Areas, Limits
Territorial sea area	Areas, Limits
Caution area	Caution areas
Fishing facility	Caution areas
Machine barrier/culture	Caution areas
Cable, submarine	Offshore Installation
Offshore platform	Offshore Installation
Offshore production area	Offshore Installation
Pipeline, submarine/cable/hard	Offshore Installation
Pipeline area	Offshore Installation

This function can be performed as follows:

Selection of ATTENTION AREAS



Every time the 'B' key is pressed, the selection of Attention Areas is toggled On or Off.

2.4.3) DISPLAYING OF TRACKS AND ROUTES

Tracks and Routes On/Off allows the user to switch On or Off the following:

OBJECT	CATEGORY
Deep water route part	Tracks, Routes
Deep water route centreline	Tracks, Routes
Fairway	Tracks, Routes
Ferry route	Tracks, Routes
Navigation line	Tracks, Routes
Precautionary area	Tracks, Routes
Radar line	Tracks, Routes
Radar range	Tracks, Routes
Radio calling	Tracks, Routes
Recommended route centreline	Tracks, Routes
Recommended track	Tracks, Routes
Recommended traffic line part	Tracks, Routes
Traffic separation line	Tracks, Routes
Traffic separation scheme boundary	Tracks, Routes

Cont.

Traffic separation scheme crossing	Tracks, Routes
Traffic separation scheme lane part	Tracks, Routes
Traffic separation scheme roundabout	Tracks, Routes
Traffic separation zone	Tracks, Routes
Two-way route part	Tracks, Routes

This function can be performed as follows:

Selection of TRACKS AND ROUTES DISPLAY



Every time the 'C' (*) key is pressed, the selection of Tracks and Routes is toggled On or Off.

2.4.4) DISPLAYING OF LIGHTS

Lights On/Off allows the user to switch On or Off the following:

OBJECT	CATEGORY
Light	Lights
Light, moored effect	Lights
Light float	Lights
Light vessel	Lights

This function can be performed as follows:

Selection of LIGHTS DISPLAY



Every time the 'D' key is pressed, the selection of Lights is toggled On, without sectors or Off.

2.4.5) DISPLAYING OF BUOYS AND BEACONS

Buoys and Beacons On/Off allows the user to switch On or Off the following:

OBJECT	CATEGORY
Beacon, cardinal	Beacons
Beacon, isolated danger	Beacons
Beacon, lateral	Beacons
Beacon, safe water	Beacons
Beacon, special purpose	Beacons
Beacon, generic	Beacons
Buoy, cardinal	Buoys
Buoy, installation	Buoys
Buoy, isolated danger	Buoys
Buoy, lateral	Buoys

Cont.



Buoy, safe water Buoy
Buoy, special purpose Buoy
Buoy, generic Buoy

This function can be performed as follows:

Selection of BUOYS AND BEACONS DISPLAY



Every time the 'E' (°) key is pressed, the selection of Buoys and Beacons is toggled On or Off.

2.4.6) DISPLAYING OF SIGNALS

"Signals On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Radar station	Radar, Radio, Electronic Positioning System
Radar transponder beacon	Radar, Radio, Electronic Positioning System
Radio station, radio	Radar, Radio, Electronic Positioning System
Anchor	Signals
Chart	Signals
Chart/Wire	Signals
Fog signal	Signals
Radar reflector	Signals
Tow mark	Signals
Navigational aid, generic	Signals
Extended navigational aid, generic	Signals

This function can be performed as follows:

Selection of SIGNALS DISPLAY



Every time the 'F' key is pressed, the selection of Signals is toggled On or Off.

❖ 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.

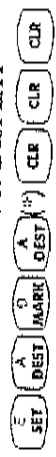
2.5.1) DISPLAYING OF NAMES

"Names On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Text	Cartographic Objects

This function can be performed as follows:

Selection of NAMES DISPLAY



Every time the 'A' (°) key is pressed, the selection of Names is toggled On or Off.

2.5.2) DISPLAYING OF COMPASS

"Compass On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Control Point	Compass, Distance
Local magnetic anomaly	Compass, Distance
Compass	Compass, Distance

This function can be performed as follows:

Selection of COMPASS DISPLAY



Every time the 'B' key is pressed, the selection of Compass is toggled On or Off.







2.5.3) DISPLAYING OF CHART GENERATION

"Chart Generation On/Off" allows the user to switch On or Off the following:

OBJECT	CATEGORY
Accuracy of data	MetaObjects
Compilation scale of data	MetaObjects
Horizontal datum of data	MetaObjects
Nautical publication information	MetaObjects
Sounding datum of data	MetaObjects
Survey reliability	MetaObjects
Survey source	MetaObjects
Units of measurement of data	MetaObjects
Vertical datum of data	MetaObjects

This function can be performed as follows:

2.5.5) SELECTION OF CHART GENERATION DISPLAY

Every time the 'C' key is pressed, the selection of Chart Generation is toggled On or Off.

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








Every time the 'D' (*) key is pressed, the selection of New objects is toggled On or Off.

2.5.5) SELECTING COMPLEX OBJECT ICON

Current official documentation S-57 supports "Complex Object". Complex objects are nautical object not containing attributes, but grouping other (element) objects in one logical unit. They have name that should describe the group. For example, Navigation aid, float, is the name of one complex object that should group all the navigation aid objects floating in the sea: lights, buoys, radar reflector. Very often, navigational aid objects are grouped in complex objects. This does not mean that object usually belonging to complex objects can not exist even as simple instances. One buoy of tower can exist both as stand alone object as it can exist as a part of one Navigational Aid, fixed or floating complex object. The decision when one object will be encoded in one or another way is influenced by many rules on paper charts. Sometimes, it is better to in one way, sometimes in another. Therefore, there can happen that one buoy on one scale level in one chart belong to a complex object, and on the more detailed level in another chart the same object with the same coordinates can be stand alone object.

By selecting the "Complex Object Icon" as "Multiple", the object is shown by a single icon which represented the component symbols. Instead by selecting "Single" (that is the default value) the object is represented by its all component symbols. This function can be performed as follows:

Selection of COMPLEX OBJECT ICON








      

Every time the 'E' (*) key is pressed, the selection of icon, single or multiple is set to desired value.

2.5.6) SELECTING OF INFO LEVEL

The user can select information about displayed objects. This information can have different detail levels depending on user needs. There are two information levels: "Detailed" (default value) or "Basic". By selecting the "Basic" level, information obtained by the info function about an object is related on the particular characteristics of that object. Selecting the "Detailed" level gives increased information, for example the digitizing date. This function can be performed as follows:

Selection of INFO LEVEL

Every time the 'F' key is pressed, the selection of Info Level is set to desired value.

❖ 2.6. CHART SETTINGS

The Chart Settings Menu allows the user to switch On or Off the display of coordinates, chart boundaries, smooth scroll and cartographic objects.

2.6.1) DISPLAYING OF COORDINATES

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

Selection of COORDINATES DISPLAY







      

Every time the 'A' (*) key is pressed, the selection of Lat/Lon Grid is toggled On or Off.

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

Every time the 'B' key is pressed, the selection of maps boundaries is toggled On, Off or Auto. When "Auto" has been selected, if we are in background charts only the first charts

level contained in the are displayed, if we are in a charts level contained in the the next four charts levels are displayed.

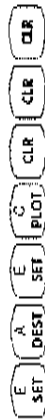
Note

All boundaries have indent (small arrow) which point to the inner area of the chart.

2.6.3) SELECTION OF SMOOTH SCROLL

It is possible to set the Smooth Scroll On/Off. If this option is set Off, when the Cross-Hair bumps one edge of the screen, the map redraws.
The following keys must be pressed to activate this function:

Selection of SMOOTH SCROLL



Every time the 'C' key is pressed, the selection of Smooth Scroll is toggled On or Off

2.6.4) DISPLAYING OF CARTOGRAPHIC OBJECTS

*Cartographic Objects On/Off[®] allows the user to switch On or Off the following:

OBJECT	CATEGORY
Closing line	Cartographic Objects
Cartographic symbol	Cartographic Objects
Cartographic line	Cartographic Objects
Cartographic area	Cartographic Objects
Line graphic Text	Cartographic Objects
Area graphic	Cartographic Objects
Rational Character Set Text	Cartographic Objects

This function can be performed as follows:

Selection of CARTOGRAPHIC OBJECTS DISPLAY



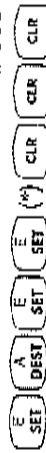
Every time the 'D' key is pressed, the selection of Cartographic Objects is toggled On or Off.

2.6.5) SELECTION OF PLOTTER MODE

The user can select "Plotter Mode" On which allows zoom-in and panning everywhere

regardless the existence of data. Follow the procedure:

Selection of PLOTTER MODE ON/OFF



Every time the 'E' key is pressed, the selection of Plotter Mode is toggled On or Off.

Note

While in virtual cartography (Plotter Mode On) setting Plotter Mode Off from menu, the chart plotter displays the previous scale level with charts. The same behaviour existing from charts coverage panning with the Cross-Hair (in Charting) or due to a ship movement (in Navigation) while in Plotter Mode Off.

When Plotter Mode On, it is also possible to have virtual cartography between two subsequent scale levels with charts.

❖ 2.7 - SETUP FUNCTIONS

The Setup Functions Menu allows the user to select the desired language (see par. 1.1.1), to enable or disable the display of user point identifier, to enable or disable the External Waypoint option (see par. 3.2.7), to set On or Off the Course Line and to choose the unit for depth.

2.7.1) COG LINE AT BOAT

The plotter can display on the screen the Course Line or COG Line at Boat. The origin of this line is the ship' position and the direction is the direction of the boat. To select the Course Line follow the procedure:

Selection of COG LINE AT BOAT DISPLAY



Every time the 'E' key is pressed, the selection of course line is toggled On or Off.

2.7.2) 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: