



TRAWL PLOT 12SD

User Manual

code: S5egSW12c1100bB22-240107e

User Manual

User Manual

Warning!

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

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

Caution

- ⑩ Please read through this manual before the first operation. If you have any questions, please contact the Company customer service or your local dealer.
- ⑩ The chartplotter is not built water proof. Please give attention to avoid water intrusion into the chartplotter. Water damage is not covered by the warranty.
- ⑩ Extensive exposure to heat may result in damage to the chart plotter.
- ⑩ Connection to the power source with reversed polarity will damage the chartplotter severely. This damage may not be covered by the warranty.
- ⑩ The chartplotter contains dangerous high voltage circuits which only experienced technicians can handle.
- ⑩ The **C-MAP C-CARD** are available from your local dealer.
- ⑩ We will not be liable for errors contained herein, or for incidental or consequential damages in connection with the performance or use of this material.
- ⑩ Exposure of display to UV rays may shorten life of the liquid crystals used in your plotter. This limitation is due to the current technology of the LCD displays.
Avoid overheating which may cause loss of contrast and, in extreme cases, a darkening of the screen.
Problems which occur from overheating are reversible when temperature decreases.

Cleaning procedure for the plotter screen

Cleaning of the plotter screen is a very important operation and must be done carefully. Since the surface is covered by a antireflective coating, the procedure for cleaning all the surfaces can be performed using the following procedure: You need a tissue or lens tissue and a cleaning spray containing Isopropanol (a normal spray cleaner sold for the PC screen, for example PolaClear by Polaroid). Fold the tissue or lens tissue into a triangular shape, moisten the tip and use the index finger behind a corner to move the tissue across the surface, in overlapping side to side strokes. If the tissue is too wet, a noticeable wet film will be left in its path and you will need to repeat the process. If too dry, the tissue won't glide easily, and may damage the surface.

Seabed Type	45	Time Step	75
Selecting Active Track	74	Time To Go	120
Selecting Distance Step	75	Timer Alarm	94
Selecting Route	57	Timer Alarm Menu	94
Selecting Time Step	75	Timer Direction	94
Selecting Track memorizing type	75	Timer Value	94
Selezione Traccia Attiva	76	Track	74, 75
Send Events	72	Track memorizing type	75
Send Marks	71, 72	Track Setting Menu	74
Send route	59	Track Storing	74
Send Routes and Marks	90	Track To Route	75
Send User Points	68, 71, 72	Tracks & Routes	45
Serial Ports	114	TRN	88
SET	88	Trouble shooting	111
Show Route	58	Turn Off	17, 21
Simulation	88, 92, 93	Turn On	17, 20
Simulation Mode	93	Turning	120
SOA	88	Type of Data	102
SOG	88	U	
Specifications	12	Underwater Object Limit	46
Speed	35, 58, 92	Units Selection	35
Speed Filter	91	User Point	87
Speed Over Ground	118	User Points List page	67, 71, 72
Static Navigation	91	UTC	35
Steering	118	UTM	86
Structure	43	V	
Surface Clutter	43	VAD	120
Symbol Size	87	Value Added Data	46, 120
System Test	112	Variable Range Marker	73
System Update	112	VDOP	34
T		Video Input	26, 29
Talker ID	89	Viewing Waypoint	67
Target	37, 39, 103	VMG	88
TD	86	voltage	20
TEMP	88	VRM	73, 120
Temperature	15	W	
Temperature Unit	35	Waypoint	37, 59
Terms	115	WGS-84	86
Tide	119	World Background Charts	112
Tide & Currents	45, 119	Wrecks	46, 54
Tide Graph	52	X	
Tide Info	51, 119	XTE	88, 93, 94
Tide Stations	54	XTE Alarm	93, 94
Time Difference	118	Z	
Time Format	35	Zoom Type	40
Time Reference	35		

Interface	14
K	
key	15, 17
Keyboard	17
keypad beep	16
L	
Lakes By Names	55
Lakes Information	54
Land Elevation Values	45
Land Elevations	45
Landmarks	45
language	21
Lat/Lon Grid	46
Light Sectors	45
Loading File	77
Local Time	35
Log page	103
LON	117
M	
Magnetic Variation	91
Man OverBoard	18, 56
Map Datum	86
Map Orientation	42, 85
Map Presentation	46
Mark	68
MAX	39
Menu Options	26
Mixing Levels	42
MOB	18, 56
Modem Test	114
Moving Mark	68
Moving Waypoint	60
N	
Names	44, 45
Natural Features	117
Nav Aids Presentation	36
Nav Display Menu	87
Nav-Aids	41, 45
Nav-Aids & Light Sectors	45
Navigate	19
Navigation Data	33
Navigation Page	88
NMEA	22, 23
NMEA Output	90
NMEA WPL & RTE	59
NMEA-0183 Output Talker ID	89
O	
Obstructions	46, 54, 55
OSGB	86
Other Map Configurations	44
Outdoor Recreational Area	54
P	
Palette	43
pan	76
Perspective View	41
Physical	15
Pictures	117
POIs	46
Port 1 - GPS Sensor	90
PORT 1 connector	110
Port 1/2/3/4/5 Input	89
Port 1/2/3/4/5 NMEA Output	89
Port 1/2/3/4/5 Output	89
Port 2 - GPS Sensor	90
PORT 2 connector	110
Port Info	50
Port Services	53
Ports & Services	45, 50
Ports By Distance	54
Ports By Name	53
Position Filter	91
Position Request	102, 116
Position Symbol	87
POWER & I/O	22
POWER & I/O connector	110
Power consumption	15
Power I/O	90
Power On	20
Power supply	15
Q	
Quick Info	48, 105
Quick Info on Lakes	48
R	
Radar	106
RAM Clear	113
RAM Menu	112
RAM Test	112
Range and Bearing	73
Receive Events	72
Receive Marks	71, 72
Receive route	59
Receive Routes and Marks	90
Receive User Points	68, 71, 72
Removing	109
Removing C-CARD	25
Reversing Route	59
Rivers & Lakes	45
Road page	33
Roads	46
Rocks	46
Route	37, 57, 75
Route Report	58
S	
Safety Status Bar	42
Saving File	77
Screen Amplifier	85

Table of Content

1	Introduction	11
	1.1 CONVENTIONS	11
	1.2 FEATURES	12
	1.2.1 Specifications	12
	1.2.1.1 Main Characteristics	12
	1.2.1.2 Physical Characteristics	15
	1.3 BASICS	15
2	Before You Begin	17
	2.1 THE KEYBOARD	17
	2.1.1 Function Keys	19
	2.2 TURNING THE CHART PLOTTER ON AND OFF	20
	2.2.1 Turning On	20
	2.2.2 Turning Off	21
	2.3 CHANGING BACKLIGHT AND CONTRAST	21
	2.4 SELECTING THE LANGUAGE	21
	2.5 EXTERNAL CONNECTIONS	22
	2.5.1 GPS Connections	22
	2.5.2 Autopilot Connections	22
	2.5.3 External NMEA Connections	23
	2.5.4 C-COM Connections	23
	2.5.5 External Alarm Connection	24
	2.6 ADDITIONAL C-CARDS	24
	2.6.1 Inserting C-CARD	24
	2.6.2 Removing C-CARD	25
	2.7 VIDEO INPUT	26
	2.8 MENU OPTIONS	26
	2.9 DATA ENTRY	27
3	For the New User	29
	3.1 SCREEN DISPLAY CONFIGURATION	29
	3.1.1 Function Keys Customization	29
	3.1.1.1 Chart Display	30
	3.1.1.2 Depth Graph pages	32
	3.1.1.3 Navigation Data page	33
	3.1.1.4 Road page	33
	3.1.1.5 GPS Status page	34
	3.1.1.6 GPS Data page	34
	3.2 GENERAL MENU	35
	3.2.1 Units Selection	35
	3.2.2 Time & Date setting	35
	3.2.3 Cursor Speed	36
	3.2.4 Nav Aids Presentation	36
	3.3 NAVIGATING TO A SINGLE DESTINATION	36
	3.3.1 Distance and Bearing to Target	36
	3.3.2 Time To Go	37

3.3.3	Deleting Target	37
3.4	NAVIGATION ON A ROUTE	37
3.4.1	Adding Waypoint	37
3.4.2	Creating a Route	37
3.4.3	Deleting Waypoint	38
3.4.4	Distance and Bearing to Target	39
3.4.5	Time To Go	39
3.4.6	Deleting Target	39
3.5	C-MAP NT MAX INFORMATION	39
3.5.1	MAP MENU	40
3.5.1.1	Zoom Type	40
3.5.1.2	Fonts & Symbols	40
3.5.1.3	Perspective View	41
3.5.1.4	Dynamic Nav-Aids	41
3.5.1.5	Map Orientation	42
3.5.1.6	Mixing Levels	42
3.5.1.7	Safety Status Bar	42
3.5.1.8	Palette	43
3.5.1.9	Currents Prediction	44
3.5.1.10	Other Map Configurations	44
3.5.2	Getting Automatic Info	47
3.5.2.1	Info on objects with Pictures	48
	Change Picture Size	48
3.5.2.2	Quick Info on Lakes	48
3.5.2.3	Full Info on Lakes	49
3.5.3	Info Tree and Expanded Info Page	50
3.5.4	Info Function	50
3.5.5	Getting Port Info	50
3.5.6	Getting Tide Info	51
3.5.7	Find Function	53
3.5.7.1	Finding Port Services	53
3.5.7.2	Finding Ports By Name	53
3.5.7.3	Finding Ports By Distance	54
3.5.7.4	Finding Tide Stations	54
3.5.7.5	Finding Wrecks	54
3.5.7.6	Finding Obstructions	54
3.5.7.7	Finding Cursor	54
3.5.7.8	Finding Lakes Information	54
3.5.7.9	Finding Lakes By Names	55
3.5.7.10	Finding POIs	55
3.5.7.11	Finding Coordinates	55
3.5.7.12	Finding User Points	56
3.6	MAN OVERBOARD (MOB)	56
3.6.1	Inserting MOB	56
3.6.2	Deleting MOB	56
4	For the Experienced User	57
4.1	MORE ABOUT CREATING AND USING ROUTES	57
4.1.1	Routes	57
4.1.1.1	Selecting Route	57
	Displaying Route	57
	Editing notes	57
	Hide/Show Route	58
	Route Color	58

Deleting Mark	70
Deleting MOB	56
Deleting R/B	73
Deleting Route	58, 59
Deleting Target	39
Deleting Track	74
Deleting Waypoint	38, 48, 61, 67
Depth Alarm	94
Depth Areas	45
Depth Graph	32
Depth Unit	35
Diagrams	117
Differential GPS	116
Diffusers	46
Digital Selective Calling	102
DIM Menu	113
Dimensions	109
Display Mode	40, 44, 46
Displaying Route	57
Displaying Track	75
Distance	35, 39, 73
Distance Step	75
Distance To Go	116
Distress Call	102, 116
DPT	88
DRF	88
DSC	102, 116
DSC Directory	104
DSC menu	103
DTG	88
Dynamic Nav-Aids	41
E	
EBL	73, 116, 120
Editing EBL/VRM	74
Editing Event	72
Editing Mark	70
Editing notes	57
Editing Waypoint	62
Electronic Bearing Line	73
Event	71, 87
Event Handler Type	87
External Alarm	24, 95, 114
External Alarm Connection	24
External Connectors	110
External NMEA Connections	23
External NMEA-0183	89
External Signal	90
External Wiring	110
F	
Features	39
File	77
Filter	91
Find Function	53

Find Route	58
Finding Event	72
Finding info on Events	72
Finding info on Marks	71
Finding info on Route	58
Finding info on Waypoints	67
Finding Lakes By Names	55
Finding Lakes Information	54
Finding Mark	71
Finding Nearest Ports	53
Finding Obstructions	54, 55
Finding Port Services	30, 32, 33, 34, 53, 112
Finding Tide Stations	54
Finding Waypoint	65, 67
Finding Wrecks & Obstructions	54, 55, 56
Fish Finder	106
Fishes	43
Fix & Compass Menu	90
Fix Correction	90
Fix Datum	86
Fuel	58
Full Info	49
Full Info on Lakes	49
Function Keys	19, 29
Functions Menu	18
G	
General Menu	35
Goto	18, 64, 71, 72
GPS	22, 34
GPS Connections	22
GPS Data	34
GPS Status	34
Grounding Alarm	94, 95
Grounding Alarm Menu	94, 95
Grounding Depth Limit	95
H	
HDOP	34
Heading	92, 116
Heading Alarm	94
Hide Route	58
Home	19
I	
Info	50
Info on Lakes	48
Input Data Display	114
Input/Output	88
Inserting AB	73
Inserting C-CARD	24
Inserting EBL/VRM	73
Inserting MOB	56
Inserting Waypoint	64
Installation	109

Analytical Index

3D Road	33
A	
A-Scope	39, 43
AB function	73
About page	112
Adding Event	71
Adding Mark	68
Adding Waypoint	37, 59
Additional Second Factor	86
Advanced	88
AIS	116
Alarm	24, 93
Alarms (menu)	116
Alternate Solution	86
Altitude	35
Anchor Alarm	93
Arrival Alarm	93
assistance	111
Attention Areas	45
Auto Info	85
Auto Off	93, 95
Automatic Info	47, 85
Autopilot	22
Autopilot Connections	22
B	
Background ROM	113
backlight	17, 113
Bearing	39, 73, 91, 115
beep	16
Bottom Echo Profile	43
boundary	25
BRG	88
C	
C-CARD	24, 113
C-CARD Connector	113
C-CARD Test	113
C-COM	23
C-COM Connections	23
C-Link	78
C-Staff	106
Cable Wiring Pages	90
Calibrate Compass	92
Cartographic Functions	12

Cartography	25
Cartridges	113
Caution Notice	21
CDI Scale	88
Chain	86
Change Parameters	114
Changing Speed & Fuel	58
Chart Boundaries	46
chart plotter	15
clearing RAM	113
COG	88
Color	15
Compute Correction	90
connector	113
contrast	113
Coordinate System	86
Correction	90
Correction Offset	91
Course Line	85, 86
Course Over Ground	115
Course To Steer	116
Creating a Route	37
Cross Track Error	93, 121
CTS	88
Cultural Features	45
Currents Prediction	44
Cursor Control	92
cursor on coordinates	77
Cursor Speed	36
Cursor to Screen center	76
Cursor Window	87, 88
Customize Text Area	30
D	
Danger	70
Data Entry	27
Data Window Mode	87
Date and Time	92
Date Format	35
Deleting AB	73
Deleting all User Points	67
Deleting EBL/VRM	73
Deleting Event	71
Deleting File	77

Find Route	58
4.1.1.2 Deleting Route	58
4.1.1.3 Finding information on Route: Route Report	58
Changing Speed & Fuel values	58
Reversing Route	59
4.1.1.4 Selecting Route Color	59
4.1.1.5 Send and Receive Route	59
4.1.2 Waypoints	59
4.1.2.1 Adding Waypoint	59
4.1.2.2 Moving Waypoint	60
4.1.2.3 Deleting Waypoint	61
4.1.2.4 Editing Waypoint	62
4.1.2.5 Goto	64
4.1.2.6 Inserting Waypoint	64
4.1.2.7 Finding Waypoint	65
4.1.2.8 Finding info on Waypoints: User Points List page	67
Viewing Waypoint in map display	67
Finding Waypoint in the User Points List page	67
Deleting Waypoint	67
Deleting all stored User Points	67
Send and Receive Waypoints	68
4.1.2.9	68
4.2 USING MARKS & EVENTS	68
4.2.1 Marks	68
4.2.1.1 Adding Mark	68
4.2.1.2 Moving Mark	68
4.2.1.3 Deleting Mark	70
4.2.1.4 Editing Mark	70
4.2.1.5 Goto	71
4.2.1.6 Finding Mark	71
4.2.1.7 Finding info on Marks: User Points List page	71
4.2.1.8 Send and Receive Marks	71
4.2.2 Events	71
4.2.2.1 Adding Event	71
4.2.2.2 Deleting Event	71
4.2.2.3 Editing Event	72
4.2.2.4 Goto	72
4.2.2.5 Finding Event	72
4.2.2.6 Finding info on Events: User Points List page	72
4.2.2.7 Send and Receive Events	72
4.3 AB FUNCTION	73
4.3.1 Inserting AB	73
4.3.2 Deleting AB	73
4.4 EBL/VRM FUNCTION	73
4.4.1 Inserting EBL/VRM	73
4.4.2 Deleting EBL/VRM	73
4.4.3 Editing EBL/VRM	74
4.5 USING THE TRACK FUNCTION	74
4.5.1 Enabling Track Storing	74
4.5.2 Deleting Track	74
4.5.3 Track Setting Menu	74
4.5.3.1 Selecting Active Track	74
4.5.3.2 Displaying Track	75
4.5.3.3 Selecting Color	75

4.5.3.4	Selecting Track memorizing type	75
4.5.3.5	Selecting Time Step	75
4.5.3.6	Selecting Distance Step	75
4.5.3.7	Delete all Tracks	75
4.5.4	Track To Route Menu	75
4.5.4.1	Track To Route	76
4.5.4.2	Advanced Menu	76
	Select Track	76
	Select Route	76
	Select Off Course	76
	Select Waypoints Distance	76
4.6	PAN FUNCTION	76
4.6.1	Moving cursor to the Screen center	76
4.6.2	Placing cursor on coordinates	77
4.7	SD CARD MENU	77
4.7.1	Saving File	77
4.7.2	Loading File	77
4.7.3	Deleting File	77
4.7.4	SD CARD handling	78
4.7.4.1	Displaying SD Card contents	78
4.7.4.2	Formatting SD Card	78
4.7.4.3	Ordering the SD Card Directory	78
4.8	C-LINK	78
4.8.1	How C-Link system works	79
4.9	C-Link Navigation data transfer	79
4.9.1	Operations	79
4.9.1.1	Introductory elements	79
4.9.1.2	C-Link serial connection	80
4.9.1.3	Master Chart Plotter	80
	Operating mode	80
4.9.1.4	Slave Chart Plotter	81
	Operating mode	81
	Stop current navigation	81
	Inhibit Navigation operation	81
	Inhibit Route following	81
	MOB handling	81
	Notes	81
4.9.1.5	C-link navigation data: Acquisition and Display	82
4.9.1.6	Graphical representation on Map Display	82
4.9.1.7	Route Data Report	82
4.9.1.8	Quick Info	83
	Route Navigation: Quick Info on the Destination	83
	Quick info on Single Destination	84
5	Menu Settings	85
5.1	DISPLAY MENU	85
5.1.1	Auto Info	85
5.1.2	Screen Amplifier	85
5.1.3	Course Line	86
5.1.4	Ship Icon Mode	86
5.1.5	Coordinate System	86
5.1.6	Map Datum	86
5.1.7	Fix Datum	86
5.1.8	User Points	87

■ **Waypoint**

Any point to which one intends to navigate. A sequence of Waypoints makes up a Route plan (see Par. 4.1.2).

■ **WGS 1984 = World Geodetic System 1984**

Coordinates System or Datum developed by the Defense Mapping Agency (DMA).

■ **Zoom-In**

Shows more detail in a smaller area.

■ **Zoom-Out**

Operates similarly to zoom -in, but in the reverse, showing a wider but less detailed view.

■ **XTE = Cross Track error**

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

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. A line connects such points and represents the past course, called the Track of the ship (see Par. 4.4).

■ **Tracks & Routes**

Recommended and established routes for ships at sea, including traffic separation schemes, deep water routes,

■ **TRN = Turning**

The difference between COG and BRG. If COG is 80° and BRG is 75°, TRN is 5° Left.

■ **TTG = Time To Go**

The estimated time needed to reach your destination, based on your current speed and the distance to destination.

■ **TWA = True Wind Angle**

Direction of the air relative to fixed point on the heart.

■ **TWS = True Wind Speed**

Speed of the air relative to fixed point on the heart.

■ **User Point**

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

■ **UTC = Universal Time Coordinated**

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

■ **UTM = Universal Transverse Mercator**

Metric Grid system used on most large and intermediate scale land topographic charts and maps.

■ **VAD = Value Added Data**

The Value Added Data (VAD) is a collection of additional cartographic objects which are not present on the original paper chart (from which the electronic chart derives). These objects have been obtained from other sources (that C-MAP believes to be reliable) and then merged to the electronic charts in order to provide more information useful for the navigation.

VAD object can be any cartographic objects and it can be distinguished from the official-chart-objects from the Quick Info. A dedicated icon is shown on the Quick Info window to indicate that the object queried is a VAD.

The same icon is also shown on the Full Info page and in addition the extended text Value Added Data is shown on the details of the VAD object.

■ **VRM = Variable Range Marker**

Circle with radius set by the user and center as cursor position.

■ **VDOP = Vertical Dilution Of Precision**

It is the index for position-fixing accuracy.

■ **VMG = Velocity May Good**

The Velocity May Good is the component of the velocity that is in the direction of the destination.

■ **WAAS = Wide Area Augmentation System**

The Federal Aviation Administration (FAA), in cooperation with other DOT organizations and DOD, is augmenting the GPS/SPS with a satellite-based augmentation system, the WAAS. It will provide a signal-in-space to WAAS users to support en route through precision approach navigation. After achieving initial operational capability, the WAAS will then be incrementally improved over the next years to expand the area of coverage, increase the availability of precision approaches, increase signal redundancy and reduce operational restrictions.

5.1.9	Symbol Size	87
5.1.10	Event Handler Type	87
5.1.11	Data Window Mode	87
5.1.12	Cursor Window	87
5.1.13	Position Symbol	87
5.2	NAV DISPLAY MENU	87
5.2.1	CDI Scale	88
5.2.2	Navigation Page	88
5.3	ADVANCED MENU	88
5.3.1	Input/Output Menu	88
5.3.1.1	Port 1/Port 2/Port 3/Port 4/Port 5 Input	89
5.3.1.2	Port 1/Port 2/Port 3/Port 4/Port 5 Output	89
5.3.1.3	Port 1/Port 2/Port 3/Port 4/Port 5 NMEA Output	89
5.3.1.4	NMEA-0183 Output Talker ID	89
5.3.1.5	Cable Wiring Pages	90
5.3.1.6	Send/Receive Routes and Marks	90
5.3.1.7	External Signal	90
5.3.2	Fix & Compass Menu	90
5.3.2.1	Fix Correction	90
5.3.2.2	Compute Correction	90
5.3.2.3	Correction Offset	91
5.3.2.4	Static Navigation	91
5.3.2.5	Position Filter	91
5.3.2.6	Speed Filter	91
5.3.2.7	Bearing	91
5.3.2.8	Magnetic Variation	91
5.3.2.9	Calibrate Compass	92
5.3.3	Simulation Menu	92
5.3.3.1	Speed	92
5.3.3.2	Heading	92
5.3.3.3	Date and Time	92
5.3.3.4	Cursor Control	92
5.3.3.5	Simulation Mode	93
5.3.4	Alarms Menu	93
5.3.4.1	Auto Off	93
5.3.4.2	Arrival Alarm	93
5.3.4.3	XTE Alarm	93
5.3.4.4	Anchor Alarm	93
5.3.4.5	Depth Alarm	94
5.3.4.6	Heading Alarm	94
5.3.4.7	Timer Alarm	94
5.3.4.8	Timer Value	94
5.3.4.9	Timer Direction	94
5.3.4.10	Grounding Alarm	94
5.3.4.11	Grounding Depth Limit	95
5.3.4.12	Grounding Alarm Range	95
5.3.4.13	Grounding Alarm Report	95
5.3.4.14	External Alarm	95
5.4	AIS MENU	95
5.4.1	AIS System Definitions	96
5.4.2	AIS Menu	98
5.4.2.1	Display	98
5.4.2.2	Activation range	98

5.4.2.3	CPA Alarm	98
5.4.2.4	CPA Limit	98
5.4.2.5	TCPA Alarm	98
5.4.2.6	TCPA Limit	98
5.4.3	To Set the Chart Plotter for Receiving AIS	99
5.4.4	Quick Info on AIS Target	99
5.5	C-WEATHER SERVICE	99
5.5.1	C-WEATHER SERVICE MENU	100
5.5.1.1	Download	100
	Select Country to Call	100
	SIM PIN	100
	Download Area	100
5.5.1.2	Copy from SD CARD	101
5.5.1.3	Weather Forecast	101
5.5.1.4	Real Time View	101
5.5.1.5	Type of Data	102
5.6	DSC	102
5.6.1	Distress Call and Position Request	103
5.6.2	DSC Menu	103
5.6.2.1	DSC LOG	103
	Locate	104
	Delete	104
	Delete All	104
	Hide/Show	104
	Position Request/Distress Call	104
5.6.2.2	DSC DIRECTORY	104
	Edit	105
	Add	105
	Delete	105
	Delete All	105
5.6.3	Quick Info on DSC Icons	105
5.7	C-STAFF MENU	106
5.8	FISH FINDER MENU	106
5.9	RADAR SETUP MENU	106
6	For the Technician	109
6.1	DIMENSIONS	109
6.2	INSTALLATION AND REMOVING	109
6.3	EXTERNAL CONNECTORS	110
6.4	TROUBLESHOOTING	111
6.4.1	Problems and Solutions	111
6.4.2	When Nothing Else Works	111
6.4.3	If you need assistance	111
6.4.3.1	World Background Charts	112
	Worldwide Background Update	112
6.5	SYSTEM TEST	112
6.5.1	RAM menu	112
6.5.2	DIM menu	113
6.5.3	Cartridges	113
6.5.4	Modem Test	114
6.5.5	Serial Ports	114
6.5.6	External Alarm	114
6.5.7	SD CARD	114
A	Terms	115
	Analytical Index	122

rival of pulses from those stations would be observed. The TD is measured from the time of reception of the master station signal to the time of reception of the slave station signal.

■ Tide

The periodic rise and fall of the surface of oceans, bays, etc., due principally to the gravitational interactions between the Moon and Earth.

■ Tide & Currents

The new worldwide database with tidal stream information is now available with MAX C-CARDS. When data/time is available, Tidal stream arrows are shown on the charts, indicating the direction and strength of the Tide.

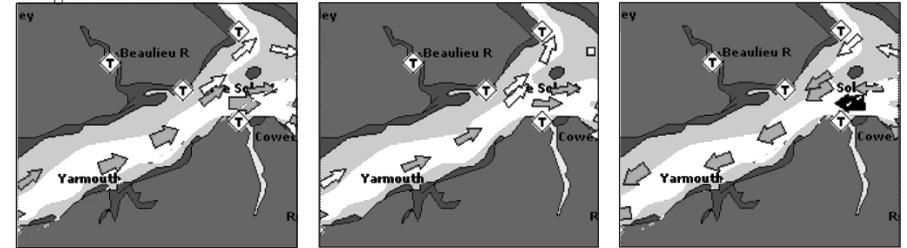


Fig. A.1a - Tides & Currents

If no data/time is available from the GPS or the chart plotter is not in Simulation mode, the icon on the map is generic one.

The colour of the arrow denotes the strength of the current as follows:

0 to 0.1 kn	-	□	← Yellow
0.2 to 1.0 kn	-	◁	← Yellow
1.1 to 2.0 kn	-	◄	← Orange
2.1 to 3.0 kn	-	◈	← Orange
3.1 to 9.9 kn	-	◉	← Red

Fig. A.1b - Tides & Currents table

When the chart plotter receives a valid position fix, the Tide icons are shown on the charts on the basis of the current date and time: the screen displays and changes arrows as date/time changes.

■ Tide Info

The Tide Info feature is the combination of a new tide heights database that will be included within new C-CARDS and new features which calculate the tide graph for all primary and secondary ports world-wide. This function can calculate the tide heights for any past or future date and as a by-product of this calculation will also display the Maximum and Minimum Tide height and time for the day selected plus the times of Sunrise and Sunset. At some chart levels, the chart plotter will display a new Tide Diamond Symbol for every Port or tide point in the database covered by that particular C-CARD (see Par. 3.4.4).

■ Time Line

The location where the ship will be after the time set by the user.

■ Track

As long as the chart plotter is connected to a positioning instrument, it stores all points in its memory.

On some objects, such as bridges, the image associated can represent the *Diagram* representing the shape of the objects and the various characteristics (length, height, type of bridge etc.).

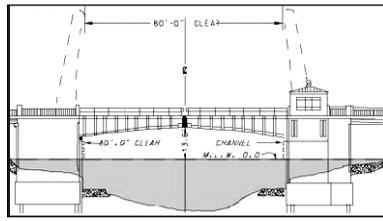


Fig.A.1 - Pictures and Diagrams

■ Port Info

The Port Info function is a combination of a new Port Info database containing all the relevant Safety and Navigational information normally found in good pilot books and a new presentation software which displays special Port Facility Symbols.

■ Ports & Services

Areas along shore with facilities for mooring, downloading and uploading of ships, generally sheltered from waves and winds. Port installations are piers, wharves, pontoons, dry docks, cranes... .

■ Route

Sequence of Waypoints connected by segments. Among the available Routes, only one is the active Route, which is shown by a straight line and arrows to indicate the direction. The first Waypoint of the active Route is surrounded by a circle (see Par. 4.1.1).

■ RTCM = Radio Technical Commission for Maritime Services

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

■ SET

Direction of drift.

■ Simulation

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

■ SNR = Signal to Noise Ratio

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

■ SOG = Speed Over Ground

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

■ Speed

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

■ SPS = Standard Positioning Service

The civilian-access signal broadcast by the GPS satellites.

■ STR = Steering

The difference between COG and CTS. If COG is 25° and CTS is 30°, then STR is 5° Right.

■ TD = Time Difference

Loran-C positions are determined by precise timing of the intervals between reception of pulses transmitted by pairs of stations in the selected chain. Between any two stations a ship must be located somewhere along a line of possible positions where the measured Time Difference, TD, between ar-

1 Introduction

Congratulations on your purchase of the chart plotter!

If you have not used a position-finding instrument before and intend to use your chart plotter for navigating, we suggest you should read this User Manual and make sure you are familiar with its contents.

The User Manual is divided into three main parts. Chapter "Before You Begin" introduces you to the basic information to get you start using the chart plotter. Chapter "For the New User" should be read first to become familiar with your new instrument. Chapter "For the Experienced User" introduces the advanced features of the chart plotter.

1.1 CONVENTIONS

Throughout this User Manual, the labelled keys are shown in capitals letters enclosed between single inverted commas, for example 'MENU'; the software keys are shown in small capitals letters enclosed between single inverted commas, for example 'EDIT'.

Menu operations are in bold characters listed by keys sequence with the menu names enclosed between inverted commas, for example 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' means: press the 'MENU' key for two times, using the *Joystick* to select the ADVANCED menu and press 'ENTER' to go in it; then using the *Joystick* to select the FIX & COMPASS menu and press 'ENTER' to go in it.

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

1.2 FEATURES

The chart plotter is a computer specifically designed for nautical use but, more precisely, to ease and speed up all calculations, which so far have been done manually. If connected to a positioning instrument, the chart plotter displays the current position, the speed, and the heading of the boat and its Track. The user information like Waypoints, Marks and Tracks can then be stored on a SD Card and can be recalled at any time. On the screen are shown navigation data and carto- graphic information obtained from electronic charts of **C-MAP C-CARD**.

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

- Power supply and I/O 8 pins cable 1,5 mt./5.9"; cable code CBC0FS0804
- Desktop brackets kit
- Two I/O 6 pins cables 1 mt./3.9"; cable code CBC0FS0603
- Fuse 2A + Fuse holder (2pcs)
- External packaging
- User Manual

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

1.2.1 SPECIFICATIONS

1.2.1.1 MAIN CHARACTERISTICS

Recordable Individual points

- User Points : 5000
- Type of User Points : 16

Routes

- Routes : 3000
- Max User Points per Route: 3000

Tracking

- Tracks : 5
- Points per Track : 10000
- Step by Distance : 0.01, 0.05, 0.1, 0.5, 1, 2, 5, 10 Nm
- Step by Time : 1, 5, 10, 30 Sec, 1, 3, 5 Min

Cartographic Functions

- Worldwide Background

■ HDOP = Horizontal Dilution Of Precision

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

■ Home

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

■ Landmarks

Any prominent object such as monument, building, silo, tower, mast, ..., on land which can be used in determining a location or a direction.

■ Latitude

The angular distance North or South of the equator measured by lines encircling the earth parallel to the equator in degrees from 0° to 90°.

■ LAT/LON

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

■ LOG

Speed of the vessel relative to the water.

■ Longitude

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

■ Loran

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

■ Magnetic Deviation

The angle between the Magnetic North and the Compass North.

■ Magnetic Variation

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

■ Mark

Reference points related to cursor position (see Par. 4.2).

■ Natural Features

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

■ Navigate

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

■ NMEA-0183

The NMEA-0183 Data Interface Standard was developed by the National Marine Electronics Association of America. It is an international standard that enables equipment from many different manufacturers to be connected together and to share information.

■ OSGB = Ordnance Survey of Great Britain

A coordinate system describing only Great Britain. Generally used with GBR36 datum, which also describes only Great Britain. This coordinate system cannot be used in any other part of the world.

■ Pictures and Diagrams

The MAX data format allows assigning one or more image to any cartographic object. These Pictures are typically used to facilitate the identification of cartographic objects or places around the map: they can be the landscape layout nearby a harbor, the shape of a bridge or of a buoy etc.

■ Correction

To compute fix error in automatic mode, place cursor on ship's real position and then follow the procedure (compute correction). It is also possible to compute the fix error in manual mode (correction offset). Once you computed the error, you can turn the fix correction On or Off.

■ CTS = Course To Steer

The optimum direction the boat should be steered in order to efficiently make headway back to the course line while also proceeding toward the destination Waypoint.

■ Cultural Features

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

■ Current

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

■ Datum

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

■ Default

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

■ Depth Contours

Imaginary lines connecting points of equal water depth.

■ DGPS = Differential GPS

Provides even greater positioning accuracy than standard GPS.

■ Drift

Horizontal velocity of the water surface.

■ DSC

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

■ DTG = Distance To Go

The actual distance to reach the Target.

■ EBL = Electronic Bearing Line

A dot line with direction set by the user and origin as cursor position.

■ Event

User Point that refers to the ship's position. It is simply a way of marking where the boat is (see Par. 4.2).

■ File

Collection of information (of the same type) stored on a SD Card. Each file must have a unique name, ideally one that describes its contents. Filenames are kept in a directory on each SD Card (see Par. 4.7).

■ GPS = Global Positioning System

It is a satellite based navigation system operated by the US Department of Defense. It gives the navigator a position 24 hours a day, 365 days a year under any weather conditions.

■ HDG/HEAD = Heading

The horizontal direction in which a ship actually points or heads in any moment (see also COG).

• Detailed Map by using **C-MAP C-CARD**

- Coordinates System (ddd mm ss, ddd mm.mm, ddd mm.mmm, UTM, OSGB, TD)
- Map Datum
- Data Window mode
- Display Mode (Full, Simple, Fishing, Low, Custom)
- Marine
 - Place Names, Name Tags, Nav-Aids & Light Sectors, Attention Areas, Tides & Currents, Seabed Type, Ports & Services, Tracks & Route
- Depth
 - Depth Range Min/Max
- Land
 - Land Elevation, Land Elevation Values, Roads, Points Of Interest
- Chart
 - Lat/Lon Grid, Chart Boundaries, Value-Added data, Chart Lock
- Underwater Objects
 - Underwater Objects Limit, Obstructions, Diffusers, Rocks, Wrecks

Map Menu

- Zoom Type
- Fonts & Symbols
- Perspective View
- Live Nav-Aids
- Map Orientation (North, Course)
- Mixing Levels
- Safety Status Bar
- Palette
- Currents Prediction

Fix Functions

- WAAS
- Fix Correction (manual and automatic)
- Position Filter
- Speed Filter
- Fix Datum
- Compass Calibration
- Bearings True and Magnetic
- Variation user selectable
- Static Navigation

Report Functions

- Depth Graph page

- Depth Graph Full page
- Navigation Data page (change the fields)
- 3D Road page (change the fields)
- GPS Status page
- GPS Data page
- User Points List page
- About page

Special Functions

- C-Link, C-Weather Service and C-Staff
- AIS Menu
- DSC Menu
- Fish Finder capability if connected to Fish Finder Black Box
- Radar functions display if connected to Radar scanner
- Auto Info
- Find (Nearest Service, Tide Stations, Wrecks, Obstructions, Port By Name, Port By Distance, Lakes By Name, Lakes Information, POIs)
- A/B Function
- EBL/VRM Function
- Navigation to Destination
- Speed Unit (Mph, Kts, Kph)
- Distance Unit (Km, Nm, Sm)
- Depth Unit (Ft, FM, Mt)
- Altitude Unit (Ft, FL, Mt)
- Temperature Unit (°C, °F)
- Date & Time Setup (Local, UTC)
- Keypad Beep selection
- Alarms Handling
 - Arrival Alarm, XTE Alarm, Anchor Alarm, Depth Alarm, Heading Alarm, Grounding Alarm, Grounding Depth Limit, Grounding Alarm Range, Grounding Alarm Report, External Alarm
- MOB Function
- Simulation
 - Speed, Heading, Date, Time, Cursor Control, Simulation On/Off

Auxiliary Memory

- SD Card

Interface

- 5 I/O ports

A

Terms

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

■ Arrival Time

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

■ Attention Areas

Attention Areas are areas in which special attention by the mariner is required, because of natural or man-made hazards, or sailing regulations and restrictions. Moreover a special symbol (!) is placed inside the area selecting On option. This is valid also for the categories: FISHING FACILITY, MARINE FARM/CULTURE, MILITARY PRACTICE AREA, RESTRICTED AREA, SEAPLANE LANDING AREA. When the area is small, it is identified only by the boundary.

■ AWA = Apparent Wind Angle

Direction of the air relative to the moving ship.

■ AWS = Apparent Wind Speed

Speed of the air relative to the moving ship.

■ Azimuth

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

■ Beacon

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

■ BRG = Bearing

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

■ Buoy

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

■ Chain

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

■ COG = Course Over Ground

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

6.5.4 MODEM TEST

To check the Modem connections.

6.5.5 SERIAL PORTS

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

⑩ Change Parameters

Allows to change the parameters of the serial interface. This menu allows to select the **Port** (Signal Source) between Port 1, Port 2 or Port 3, the **Baud Rate** between 4800 or 9600, the **Data Bits** (Word Length) between 7 or 8, the **Parity** between even, odd or none, the **Stop Bits** between 1 or 2. Default settings are: Port = Port 2, Baud Rate = 4800, Data Bits = 8, Parity = odd, Stop Bits = 1.

⑩ Input Data Display

Allows the chart plotter to act as a computer terminal and display the incoming data exactly as it received. If the data displayed on the screen is unrecognizable, you may have selected the wrong input parameters for your particular receiver. Check your receiver manual to be sure that you have selected the proper interface format. If the screen is blank, you may have a broken connection and no data is being received. Use 'ZOOM IN' to stop (or continue after pause) data displaying, 'ENTER' to show data in hex or ASCII mode (normal or small) and 'CLEAR' to exit.

6.5.6 EXTERNAL ALARM

To check the External Alarm signal.

6.5.7 SD CARD

To check the SD Card handling.

1.2.1.2 PHYSICAL CHARACTERISTICS

Chart plotter size (inch/mm)

- 15"x 13.5"x 8.9" (381.5mm x 342mm x 221mm)

Chart plotter weight

- 4,5 Kg

SD Card

- 16 MB or more

LCD display

- Color : LCD 12.1" TFT Color, polarized
- Resolution : 800 x 600 pixels

Video Input

- PAL or NTSC video signals automatically selected

Power consumption

- 1.6A @10V

Power supply

- 10 - 35 Volt dc, 16 Watt

Operating Temperature Range

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

Memory

- Non volatile with battery back-up

Keyboard

- Backlighted, silicon rubber

1.3 BASICS

The chart plotter is controlled by using 24 keys. There is also a *Joystick* to move a cursor across the screen.

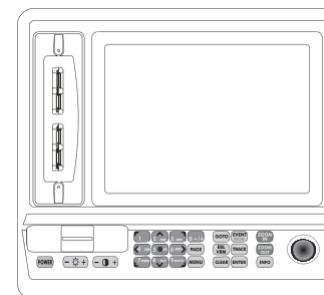


Fig. 1.3 - The chart plotter

As you press a key, a single audio beep confirms the key action; every time the key pressed is not valid, three rapid beeps sound indicates that no response is available. Note that it is possible to enable (On) or disable (Off) the keypad beep following the procedure:

- 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Keypad Beep" + 'ENTER'

appears, the RAM is physically damaged.

⑩ **RAM Clear**

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

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

6.5.2 DIM menu

To select the preferred value for contrast and backlight.

⑩ **Contrast**

Each time you pressed the *Joystick* to right, the screen will decrease brightness, instead of to left it will increase brightness.

⑩ **Backlight**

To set the backlight. Operates in similar mode as Contrast.

6.5.3 CARTRIDGES

To check the C-CARD and its connector.

⑩ **Background ROM**

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

⑩ **C-CARD Test**

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

1. if there is a C-CARD inserted in the slot and there is not a malfunction, the name of the C-CARD zone and the message "OK" are shown.
2. if there is a C-CARD inserted in the slot, but it is a damaged C-CARD, the name of the C-CARD zone and the message "Faulty" are shown.
3. if there is not any C-CARD inserted in the slot, the message "not present" is shown.

⑩ **C-CARD Connector**

Indicates if there is a malfunction in the connector. It is used only in production.

lease and Cartography information available in the About page.

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

Note

The information shown on this page depends on the software running on the chart plotter and on the C-CARDS inserted.

6.4.3.1 World Background Charts

The internal background charts can be updated to include the MAX A and B level charts which provide improved marine data, rivers, lakes, terrestrial data (major streets, highways, railways, etc...), Nav-Aids, depth areas, territorial water areas, etc... by reading them from a special data C-CARDS (contact your local dealer). All units must have the WorldWide Background upload function that is activated from the system.

Worldwide Background Update

The System Update menu is entered from the About page. To select this menu follow the procedure:

- Plug the special data C-CARD + 'MENU' + 'MENU' + "About..." + 'ENTER' + 'MENU' + "UPDATE WORLDWIDE CHARTS" + 'ENTER'

6.5 SYSTEM TEST

If you have connected your position-finding device according to the instructions, and chosen the proper menu selection for your device, and are still having problems with your chart plotter, the extended auto-test should help determine the problem. Make sure the chart plotter is turned Off. While pressing and holding any other key, turn the chart plotter On. A new menu will appear on the display. Use the Joystick to select the preferred test: this will display in reverse video and with the relative menu window. To choose the test press 'ENTER'. To exit from any submenu press 'CLEAR'. To exit from the System Test turn Off the chart plotter.

6.5.1 RAM menu

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

⑩ RAM Test

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

2

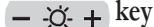
Before You Begin

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

2.1 THE KEYBOARD

The  key

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

The  key

Press 'DISPLAY +/-' to adjust the LCD and keypad backlight.

The  key

Press 'CONTRAST +/-' to adjust the LCD contrast.

The  key

Numeric key or moves cursor top left corner.

The  key

Numeric/letter key or moves cursor top.

The  key

Numeric/letter key or moves cursor top right corner.

The  key

Numeric/letter key or moves cursor left.

The  key

Numeric/letter key or centers the map at the current cursor position. If

Navigate (Home) mode is set the map is already centered on the map display.

The **6 MIND** key

Numeric/letter key or moves cursor right.

The **7 POPS** key

Numeric/letter key or moves cursor bottom left corner.

The **8 TUV** key

Numeric/letter key or moves cursor bottom.

The **9 WXYZ** key

Numeric/letter key or moves cursor bottom right corner.

The **0 -/+** key

Numeric key.

The **PAGE** key

Press 'PAGE' to select the configuration you wish among cartography and text area, Depth Graph pages, GPS Data page, GPS Status Page, Navigation Data page, 3D Road Data page.

The **MENU** key

Press 'MENU' one time to select the MAP Menu; press 'MENU' two times to select the FUNCTIONS Menu. When into a Menu, moving the *Joystick* to the right enters a selection, moving the *Joystick* to the left clears the function.

If pressing 'MENU' for 3 seconds from chart and data page allows to customize all data fields shown in the selected page.

The **GOTO** key

Press 'GOTO' to select the Goto function.

The **EVENT MOB** key

Press and release 'EVENT/MOB' to place Event marker. Long press 'EVENT/MOB' to insert the MOB (Man OverBoard); long press 'EVENT/MOB' when the MOB is already present deletes it.

The **EBL VRM** key

Places EBL and VRM.

The **TRACK** key

Opens Track menu to select Track, switches Track On/Off, delete Track, change Track color/pattern, change Track recording step, switches Track display On/Off.

6.4 TROUBLESHOOTING

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

6.4.1 PROBLEMS AND SOLUTIONS

The chart plotter does not turn On — Make sure that the correct voltage (10-35 volt dc) is present. Check also that the polarity is correct. Refer to the Par. 2.2.

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

The chart plotter does not respond to any command — Try to turn Off, and then turn On. If the problem persists, erase the memory (see Par. 6.5.1).

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

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

6.4.2 WHEN NOTHING ELSE WORKS

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

If this does not help, you can try one additional memory clear option. This is a factory default RAM Clear that should only be tried after all other attempts have been made. When using the RAM Clear feature, you will lose all user stored information and the chart plotter will default to factory settings. Before this step, you have the option of saving user Marks, Track history and Routes to a SD Card (this is an optional purchase from your dealer). To perform a RAM Clear see Par. 6.5.1.

6.4.3 IF YOU NEED ASSISTANCE

If you still need assistance, call your local dealer, reporting the Software Re-

6.3 EXTERNAL CONNECTORS

POWER & I/O		
PIN	WIRE COLOR	FUNCTION
1	BLACK	GND COMMON
2	RED	POWER INPUT+ (10-35 Vdc)
3	WHITE	INPUT 1+
4	GREEN	GND
5	GRAY	OUTPUT 2+
6	YELLOW	OUTPUT 1+
7	BROWN	INPUT 2+
8	BLUE	EXTERNAL ALARM OUTPUT+

Fig. 6.3 - POWER & I/O connector

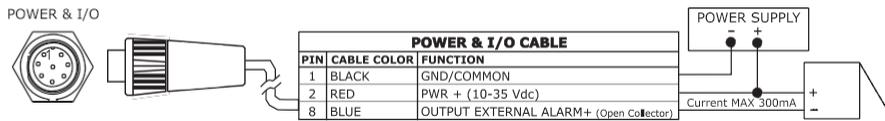


Fig. 6.3a - External Alarm connector

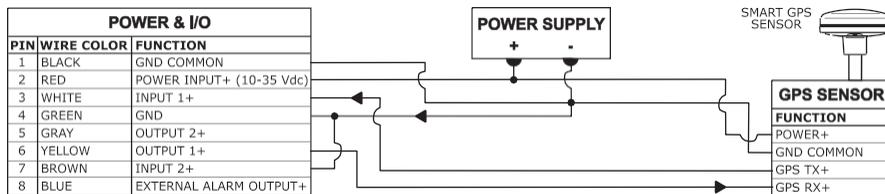


Fig. 6.3b - GPSconnector

AUX-IN I/O CABLE		
PIN	WIRE COLOR	FUNCTION
1	BLACK	GND COMMON
2	RED	POWER OUTPUT+ (10-35 Vdc)
3	WHITE	INPUT 4+
4	GREEN	GND
5	GRAY	OUTPUT 5+
6	YELLOW	OUTPUT 4+
7	BROWN	INPUT 5+
8	BLUE	EXTERNAL ALARM OUTPUT+

Fig. 6.3c - AUX IN I/O connector

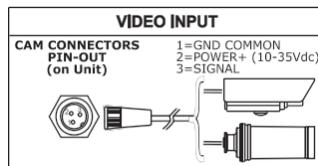


Fig. 6.3d - Video Input connector

VIDEO OUTPUT	
PIN	FUNCTION
1	GND
2	VCC
3	R
4	G
5	B
6	HSYNC
7	VSYNC
8	N.C.
9	BRIGHTNESS CONTROL

Fig. 6.3e - Video Output connector

The **CLEAR** key

Press 'CLEAR' to exit from menu or to leave a menu without making changes. If you are not into a menu, sets the Navigate mode (Home).

The **ENTER** key

Press 'ENTER' to select the preferred option, to confirm selection, to create Objects (Mark, Waypoint, A-B).

The **ZOOM IN** and **ZOOM OUT** keys

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

The **INFO** key

Press 'INFO' to select Info function.

The  **Joystick**

The *Joystick* moves the cursor about on the display screen, quickly and accurately. It also scrolls the preferred option in the menu page(s).

If in Navigate (Home) mode, it allows to exit from Navigate mode.

2.1.1 FUNCTION KEYS

When the cursor is placed over any User Point or any cartographic object, a window containing the information about the selected object is shown on a variable location of the screen (not covering the cursor icon). At the same time some Function Keys (up to five) are shown on the bottom of the page. The Function Keys are associated to the function that can be applied to the selected object. Each Function Key shows a number and the name of the function.

For example when the cursor is placed over a Mark, the information window with Coordinates, Name, Icon and all other Mark information is shown. The following Functions Keys are shown on the bottom of the map display (see the following Fig 2.1.1).

Pressing any numerical keys from '1' to '5', the function associated to the selected number is executed. Otherwise pressing any numerical key not active (not associated to any function) 3 beeps will be sounded and the Function Keys are kept shown. Pressing 'CLEAR' the Functions Keys are removed from the screen, pressing any other key the Functions Keys will be closed and the function associated to the pressed key will be executed.

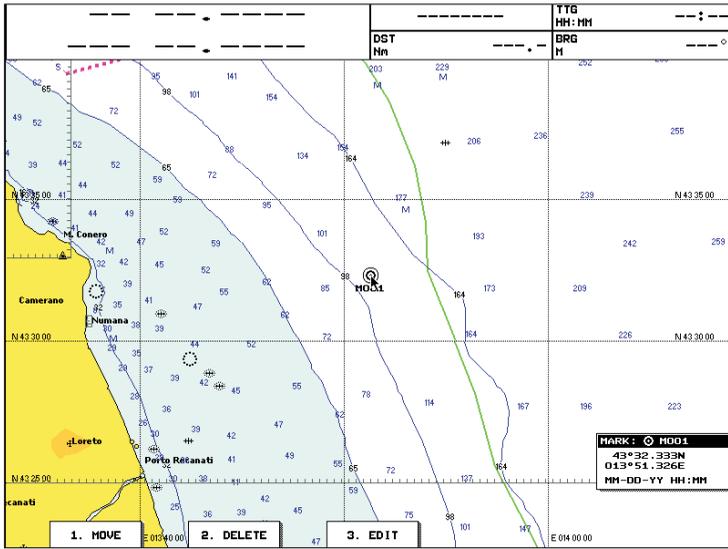


Fig. 2.1.1 - The Function Keys

2.2 TURNING THE CHART PLOTTER ON AND OFF

Before powering On the chart plotter, check for the correct voltage (10-35 volt dc) and the correct connections with the positioning instrument:

POWER & I/O CONNECTOR		
PIN #	CABLE WIRE COLOR	FUNCTION
1	BLACK	GND/COMMON
2	RED	+10-35 Vdc

Fig. 2.2 - Power On

2.2.1 TURNING ON

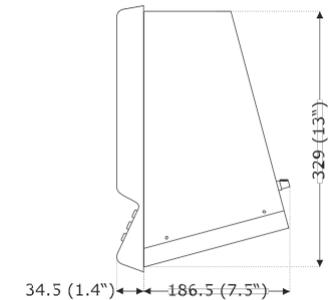
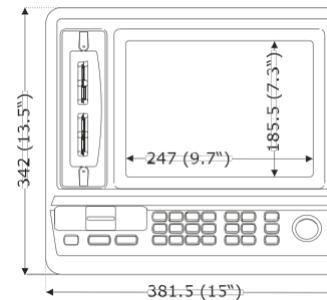
Press and hold 'POWER' for 1 second. The chart plotter emits one rapid beep sound, and a title page is opened: the software name and version (*), the World- wide Cartography database version and the code and version of the C-CARDS inserted are shown.

Note (*)

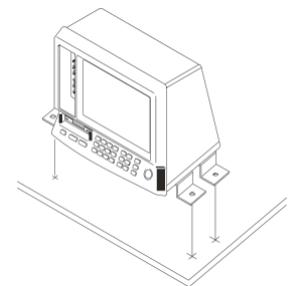
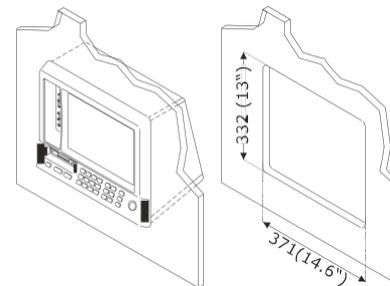
The software version is subject to change without notice. This User Manual is valid anyway.

6 For the Technician

6.1 DIMENSIONS



6.2 INSTALLATION AND REMOVING



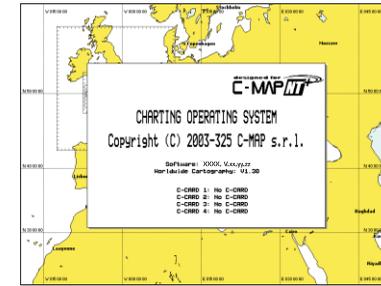


Fig. 2.2.1 - Title page

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

2.2.2 TURNING OFF

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

2.3 CHANGING BACKLIGHT AND CONTRAST

You can modify the intensity of the backlight and contrast to make reading easy and comfortable. By 'DISPLAY +/-' and 'CONTRAST +/-' it is possible to increase or decrease the brightness: each time you press the key "+", the light value is increased to the max value, if you press the "-", light value is decreased to the min value.

WARNING

At very low temperatures the CCFL backlight may not glow properly. Allow a few minutes for it to warm up. !!!

2.4 SELECTING THE LANGUAGE

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

- 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Language" + 'ENTER'
Choose the language you prefer and press 'ENTER' to confirm.

2.5 EXTERNAL CONNECTIONS

2.5.1 GPS CONNECTIONS

Select one of the available Ports and connect the GPS wires to the selected port signals. For example to connect the GPS to POWER & I/O connector (serial Port 1) see the following picture:

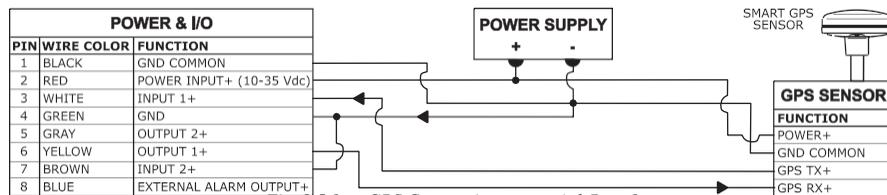


Fig. 2.5.1 - GPS Connection on serial Port 1

- Then choose your preferred setting following the procedure:
'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Port 1 Input" + 'ENTER'

Select your preferred setting among the NMEA available settings NMEA 1200-N81-N, NMEA 4800-N81-N, NMEA 4800-N82-N, NMEA 9600-O81-N, NMEA 9600-N81-N (the default setting is 4800-N81-N) and press 'ENTER' to confirm.

2.5.2 AUTOPILOT CONNECTIONS

Select one of the available Ports and connect the AUTOPILOT wires to selected port signals. For example to connect the AUTOPILOT to PORT 1 connector (serial Port 2) see the following picture:

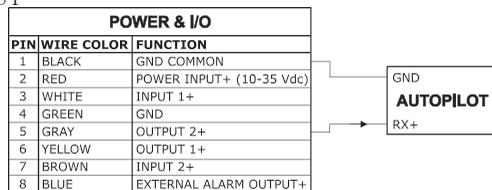


Fig. 2.5.2 - Autopilot Connections on serial Port 2

- Then choose your preferred setting following the procedure:
'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Port 2 Output" + 'ENTER'

the Radar functions.

To select the Radar menu, first select one of the pages related to the Radar and then once the Radar page is selected, access the Radar menu by pressing:

- 'MENU'

For more information see the specific User Manual.

Note

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

- **Date and Time**

- **Distance and Bearing from current vessel's position**

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

5.7 C-STAFF MENU

The C-Staff functions are based on STAFF Concept ® (Satellite Tracking Aided Fleet Fishing). The STAFF Concept ® is designed for professional fishing purpose to allow monitoring the position of the vessels of a fleet from each vessel (the fleet may have until 20 vessels max).

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "C-STAFF" + 'ENTER'

For more information see the specific User Manual.

5.8 FISH FINDER MENU

The chart plotter combined with the sonar performance of the Fish Finder is one of the most advanced marine navigation system available.

To select the Fish Finder menu, first select one of the pages related to the Fish Finder and then once the Fish Finder page is selected, access the Fish Finder menu by pressing:

- 'MENU'

For more information see the specific User Manual.

Note

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

5.9 RADAR SETUP MENU

The Radar consists of a scanner unit which illuminates targets with micro-wave energy and then collects the echoes from those targets. The scanner unit includes the Radar antenna, transmitter, receiver and necessary electronics. The scanner unit is connected to a chart plotter equipped with software capable of displaying

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

2.5.3 EXTERNAL NMEA CONNECTIONS

Select one of the available Ports and connect the EXTERNAL NMEA wires to selected port signals. For example to connect the EXTERNAL NMEA to PORT 2 connector (serial Port 3) see the following picture:

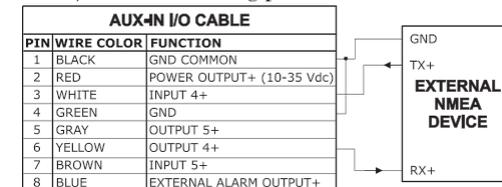


Fig. 2.5.3 - External NMEA Connections on serial Port 3

- Then choose your preferred setting for input format following the procedure:
'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Port 3 Input" + 'ENTER'

Select your setting among the NMEA available settings NMEA 1200-N81-N, NMEA 4800-N81-N, NMEA 4800-N82-N, NMEA 9600-O81-N, NMEA 9600-N81-N (the default setting is 4800-N81-N) and press 'ENTER' to confirm.

- Now set the output format to the same input format following the procedure:
'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Port 3 Output" + 'ENTER'

2.5.4 C-COM CONNECTIONS

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

1. Connect Power & I/O as follows:

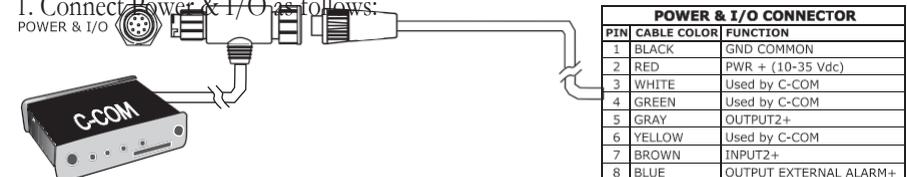


Fig. 2.5.4 - C-COM Connection

Note

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

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

2.7 VIDEO INPUT

By accessing this menu it is possible to see images on the chartplotter display captured from an external video signal source, if connected to the chartplotter. Allows the "picture-in-picture" functionality, so a Video Input image can be shown on a window and placed over the other Video Input image at full screen.

- 'PAGE' + "VIDEO INPUT" + 'ENTER'

Note

If the Video Input signal is not detected (E.g. the video Camera is not connected to the Video Input connector), the VIDEO INPUT menu item must be grayed out.

It is possible to select one of the following pages:

- ① **Full Screen Video 1**
Shows the image from the video camera 1 at full screen.
- ② **Full Screen Video 2**
Shows the image from the video camera 2 at full screen.
- ③ **Full Screen Video 1 + Video 2**
Shows the image from the video camera 1 at full screen with the image from the video camera 2 on a rectangular window placed on the upper-left corner of the screen.
- ④ **Full Screen Video 2 + Video 1**
Shows the image from the video camera 2 at full screen with the image from the video camera 1 on a rectangular window placed on the upper-left corner of the screen.

2.8 MENU OPTIONS

You may select how the chart plotter displays primary information (such as how time is displayed) from the Functions Menu.

- 'MENU' + 'MENU'

5.6.1 DISTRESS CALL AND POSITION REQUEST

During a distress situation, a vessel that is equipped with a DSC VHF radio and connected to a GPS, has the capability to transmit a DSC Distress Call with GPS Position.

When the VHF radio receives a DSC Distress Call, the position information of the vessel in distress is transferred to the chart plotter. The chart plotter logs the Distress Call into the DSC Log and also marks the position of the vessel in distress on the Chart page. A pop-up screen advises the user that a Distress Call has been received. Within the pop-up screen it asks the user if he would like to view the call on the Chart page or exit the pop-up screen. By selecting the item "VIEW ON CHART" and press 'ENTER' two options are shown:

- **GoTo Vessel**

Activates the navigation to the Distress Call or Position Request icon. The chart plotter changes the map scale to allow showing the Distress Call (or Position Request) icon and the vessel's icon simultaneously on the screen. The chart plotter then verifies if there are obstructions (land or low water) between the two positions. If obstructions are found the chart plotter shows a pop-up screen saying that the navigation to the Distress Call cannot be set automatically and the user must define a route to avoid the obstacles.

- **Stay on View**

Exits the pop-up screen and remains on the selected map screen.

5.6.2 DSC MENU

To select the DSC menu:

- 'MENU' + 'MENU' + "DSC" + 'ENTER'

The DSC menu is shown on the screen, the items are described in the following paragraphs.

5.6.2.1 DSC LOG

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

Selecting Log shows the Distress Call Log page or Position Request Log page (it depends which of the two was selected):

The following selections are available:

- **Real Time View On**

The data is shown (the area of the download) at the current date and time (received from the GPS)

- **Real Time View Off**

The Weather data is not displayed.

The layer displayed is the one selected into the previous menu item.

5.5.1.5 Type of Data

- 'MENU' + 'MENU' + "C-WEATHER" + 'ENTER' + "TYPE OF DATA" + 'ENTER'

Allows selecting the type of data, see the previous Fig. 5.5.

5.6 DSC

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

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

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

DESCRIPTION	
Position Request icon	
Distress Call icon	

Fig. 5.6 - Distress Call and Position Request icons

Note

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

2.9 DATA ENTRY

Information is keyed into the chart plotter when editing a Waypoint, entering a Route or using the Fix Correction functions. When the field is highlighted:

- Enter or edit data by pressing up/down *Joystick* to step through the available characters until the preferred character is displayed.

- Press right *Joystick* to move the cursor to the right.

- Use left *Joystick* to move the cursor to the left.

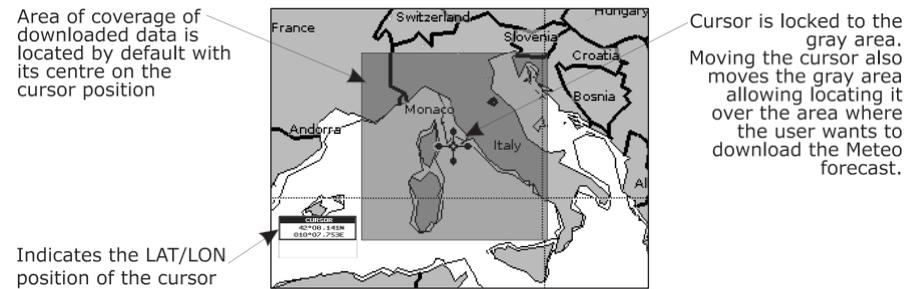


Fig.5.5.1.1 - Download Area

Press 'ENTER' to activate the C-Weather Download: the whole data package (see the previous "Weather data package" table) are downloaded. 'CLEAR' allows to interrupt the data download. At the end of the operation press 'CLEAR' to close the window.

5.5.1.2 Copy from SD CARD

- 'MENU' + 'MENU' + "C-WEATHER" + 'ENTER' + "LOAD FROM FILE" + 'ENTER'

Allows the C-MAP WEATHER DATA loading from the SD CARD.

5.5.1.3 Weather Forecast

- 'MENU' + 'MENU' + "C-WEATHER" + 'ENTER' + "FORECAST" + 'ENTER'

Allows selecting the Layer of specific weather data to be displayed on the screen and to change date and time of the forecast preview.

The following functions are available:

- **Panning**
Default usage of the cursor key is the normal panning function.
- **Zoom In/Out**
Zoom in/out functions are allowed as usual by using 'ZOOM IN'/'ZOOM OUT'.
- **Set Date and Time**
'ENTER' to modify date and time values.
- **Layer Selection**
'PAGE' to cycle the weather layers.
- **Exit**
'CLEAR' to close the weather prediction page.

5.5.1.4 Real Time View

- 'MENU' + 'MENU' + "C-WEATHER" + 'ENTER' + "REAL TIME VIEW" + 'ENTER'

Data Type	Display
WIND (Speed & Dir)	- 0 →
WAVE (Height & Dir)	- 1 →
TEMPERATURE (C°)	18°
HUMIDITY (%)	30
VISIBILITY (m)	20
WEATHER TYPE: Sun	
WEATHER TYPE: Rain	
WEATHER TYPE: Fog	
WEATHER TYPE: Snow	
WEATHER TYPE: Clouds	
WEATHER TYPE: Partly Cloudy	
WEATHER TYPE: Thunderstorm	

Fig. 5.5 - Weather data package

Note

Please check with Local C-MAP Office for the actual C-WEATHER coverage of your area.

5.5.1 C-WEATHER SERVICE MENU

To select the menu:

- ▶ 'MENU' + 'MENU' + "C-WEATHER" + 'ENTER'

The C-Weather menu is shown on the screen, the items are described in the following paragraphs.

5.5.1.1 Download

- ▶ 'MENU' + 'MENU' + "C-WEATHER" + 'ENTER' + "DOWNLOAD" + 'ENTER'

Allows to connect the software to the C-MAP weather server and to download C-MAP weather data directly via C-COM.

Select Country to Call

Allows the selection of the country to call. The whole telephone number set is automatically updated after every download.

SIM PIN

Allows inserting of the PIN of the SIM.

Download Area

Allows the weather download: a squared grey area, where the weather data will be downloaded, is centered on cursor position. See the following picture.

3

For the New User

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

- 1) Your chart plotter must have been installed properly according to the installation instruction on Par. 6.2.
- 2) You must have performed the proper settings for use with your positioning instrument (see Par. 2.5) and inserting the C-CARD for navigating in area you wish (see Par. 2.6).
- 3) You must have turned on the chart plotter and adjust the brightness and contrast of the display (see Par. 2.2 and 2.3).

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

3.1 SCREEN DISPLAY CONFIGURATION

All pages (Chart page, Depth Graph pages, Navigation Data page, 3D Road Data page, GPS Data page, GPS Status page) are shown on full screen window. In all data pages (Navigation Data page, 3D Road Data page, GPS Data page, GPS Status page) five Functions Keys are always shown on the bottom of the page in order to allow a quick way to select the other pages.

Note

If the Fish Finder or Radar is connected, other pages are available. See the Fish Finder or Radar User Manual for more information. If you have selected a Video Input (see Par. 2.7), in the Chart page a window with the picture captured from the video signal source is shown.

3.1.1 FUNCTION KEYS CUSTOMIZATION

In all data pages the user can customize the Function Keys. Pressing and holding down for 1 second the numeric key '1', '2', '3', '4', '5' it will be possible to

assign a different selection to the relative Function Key.

Move the *Joystick* up/down to place the selector on the preferred item; move the *Joystick* to the right or press 'ENTER' to set the selected item; move the *Joystick* to the left or press 'CLEAR' to close the pop-up window.

The possible choices are:

CHART	(Chart and data page, see Par. 3.1.1.1)
NAV(IGATION)	(Navigation Data page, see Par. 3.1.1.3)
ROAD	(3D Road page, see Par. 3.1.1.4)
STATUS	(GPS Status page, see Par. 3.1.1.5)
GPS	(GPS Data page, see Par. 3.1.1.6)
DEPTH 1	(Depth graph -small- page, see Par. 3.1.1.2)
DEPTH 2	(Depth graph Full page, see Par. 3.1.1.2)
VIDEO 1	(Full screen video image 1, see Par. 2.7)
VIDEO 2	(Full screen video image 2, see Par. 2.7)
MARK	(allows to insert Mark, see Par.4.2.1)
EVENT	(allows to insert Event, see Par.4.2.2)
WPT	(allows to insert Waypoint, see Par.4.1.2)
TRACK ON/OFF	(allows Track On/Off, see Par.4.5)

The default settings for the function keys labels are: '1. CHART', '2. NAV', '3. ROAD', '4. STATUS', '5. Gps'.

Note

When the Fish Finder or Radar is connected, any soft key can be assigned any of the Fish Finder or Radar pages. See the Fish Finder or Radar User Manual for more information.

3.1.1.1 Chart Display

It is very important to access the information you need as you need it and understand what is displayed on the screen.

- 'PAGE' + "CHART DISPLAY" + 'ENTER'

or

- '#. CHART' (if it is present, where # is 1, 2, 3, 4 or 5)

Shows the chart display and Text Area (if selected).

With the following procedure:

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Data Window Mode" + 'ENTER'

it is possible to customize the Text Area layout among Full Screen, Vertical, Text Area with 5 boxes and Text Area with 8 boxes (for Text Area with 5 boxes and Text Area with 8 boxes you can select between Small or Large boxes size).

5.4.3 TO SET THE CHART PLOTTER FOR RECEIVING AIS

Make sure that the AIS receiver is properly connected to the chart plotter. The chart plotter reads the AIS NMEA message VMD, type 1, 2, 3 and 5.

Select the used serial port and transmission speed by following the procedure:

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

Where: n = Port 1/Port 2/Port 3/Port 4/Port 5

m = NMEA-0183 4800-N81-N

NMEA-0183 38400-N81-N

according to the transmission speed of your AIS receiver.

5.4.4 QUICK INFO ON AIS TARGET

By placing the cursor over a AIS target icon, the following information is displayed:

- Vessel Name
- MMSI number
- Radio Call Sign
- SOG
- COG
- CPA and TCPA values

Note

The selected AIS target icon is surrounded by a square frame when user places the cursor over the icon.

5.5 C-WEATHER SERVICE

C-Weather Service is an innovative meteorological forecasting system with the ability to visualize the weather forecast, overlaying it on cartography. The weather data is held on C-MAP's weather server, which can be accessed via a C-COM modem connected to the chart plotter or by using the C-MAP personal Suite (or the DPS - Dealer Programming System) saving the weather data on a SD CARD. The weather data are overlaid on a map page as layers. The Weather format data available are:

5.4.2 AIS MENU

To configure the chart plotter to receive AIS data, follow the procedure:

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "AIS" + 'ENTER'

The AIS menu is shown on the screen, the items are described in the following paragraphs.

5.4.2.1 Display

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "AIS" + 'ENTER' + "DISPLAY" + 'ENTER'

Turns the display of AIS targets overlay on the cartography ON or OFF.

The default setting is ON.

5.4.2.2 Activation range

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "AIS" + 'ENTER' + "ACTIVATION RANGE" + 'ENTER'

Defines the range from the fix within which the AIS Target becomes active.

The values allowed are from 0.1 to 20 Nm. The default setting is 5 Nm.

5.4.2.3 CPA Alarm

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

Turns ON or OFF the alarm. The default setting is ON.

5.4.2.4 CPA Limit

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "AIS" + 'ENTER' + "CPALIMIT" + 'ENTER'

The values allowed are from 0.1 to 10 Nm. The default setting is 0.5 Nm.

5.4.2.5 TCPA Alarm

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "AIS" + 'ENTER' + "TCPA ALARM" + 'ENTER'

Turns ON or OFF the alarm. The default setting is ON.

5.4.2.6 TCPA Limit

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "AIS" + 'ENTER' + "TCPA LIMIT" + 'ENTER'

The values allowed are from 1 to 30 min. The default setting is 10 min.

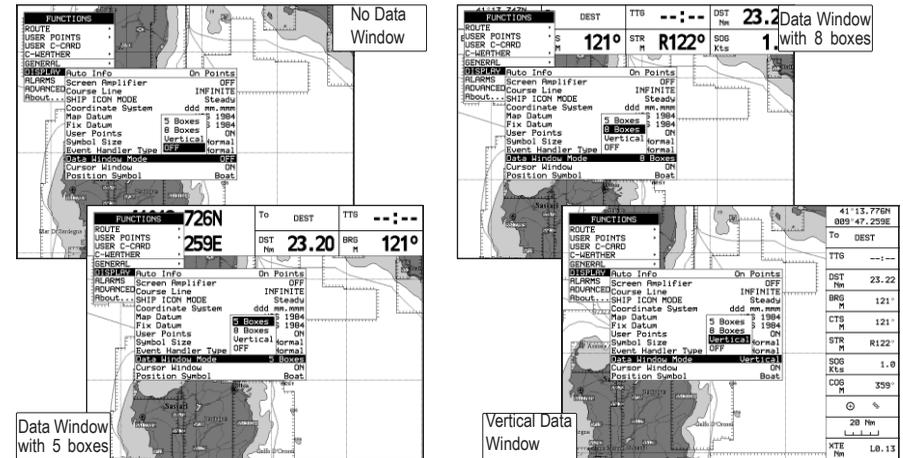


Fig. 3.1.1.1 - Text Area layout

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

Once the Edit mode is active, the first box with the label turns in reverse video screen. The user can choose the active box by moving the *Joystick* left or right.

Pressing 'ENTER' the user can choose the data to be shown on the selected field by moving through the selections and pressing 'ENTER' again.

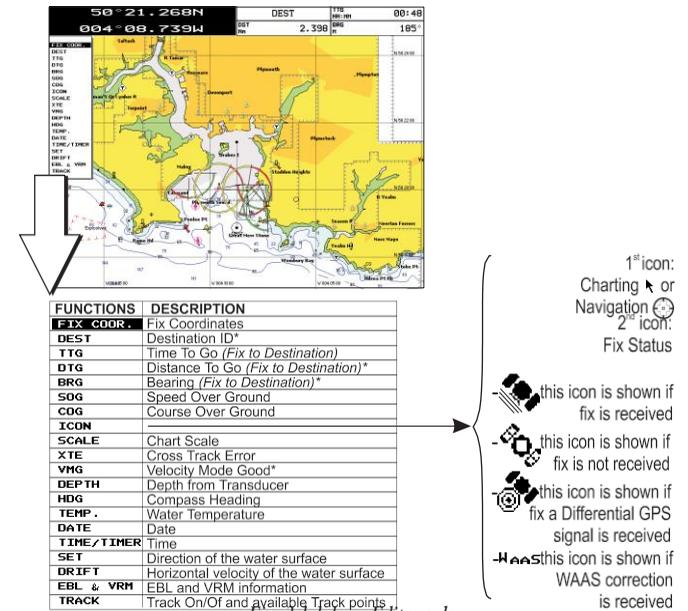


Fig. 3.1.1.1a - Edit mode

Note

(* It will be shown only if the Destination is present.

Once 'ENTER' is pressed the data type is set. The selection window is closed and the Text Area changes according to the selected data type. Press 'CLEAR' to exit the Edit mode.

Note

The Display Menu can be selected only from the Chart Display page and the Depth Graph page in split mode.

3.1.1.2 Depth Graph pages

The Depth graph can be shown in two different modes. To select the Depth Graph in split mode:

➤ 'PAGE' + "DEPTH GRAPH" + 'ENTER'

or

➤ '#. DEPTH 1' (if it is present, where # is 1, 2, 3, 4 or 5)

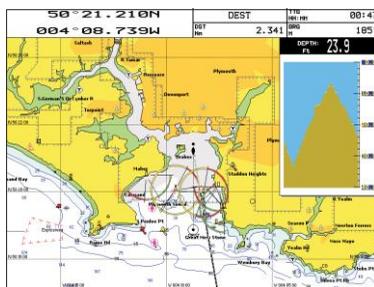


Fig. 3.1.1.2 - The Depth Graph in split mode

Otherwise selecting the Depth graph displayed at full screen:

➤ 'PAGE' + "DEPTH GRAPH FULL" + 'ENTER'

or

➤ '#. DEPTH 2' (if it is present, where # is 1, 2, 3, 4 or 5)

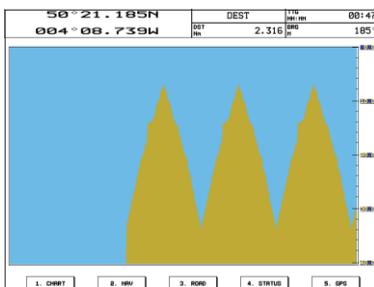


Fig. 3.1.1.2a - The Depth Graph Full

- **Name**
Name of ship, 20 characters.
- **MMSI**
Maritime Mobile Service Identity.
- **MMSI number**
A unique 9 digit number that is assigned to a DSC radio station. It primarily registers the boat information in the U.S. Coast Guard's national distress database for use in emergency situations.
- **Active Target**
Target located within the Activation Range. Active target is represented by oriented triangle with COG and Heading vectors. Rate of turn may also be displayed.
- **Dangerous Target**
Target detected by CPA or TCPA Alarm. Dangerous target is Active Target by definition. For better visibility Dangerous Target symbol is flashing.
- **Sleeping Target**
Target located outside the Activation Range. Sleeping target is represented by a small oriented triangle.
- **Lost Target**
When the AIS info is not received from that vessel for 3.5 minutes. The presentation will be a flashing black triangle with a cross through.
- **Activation Range**
Range around your boat where targets become active. AIS target become active within this range. Activation Range should be greater than CPA Limit by definition.

Note

A target is removed from the screen if data is not received for 10 minutes. The maximum number of tracked targets is 100. Depending on the scale the presentation of the targets change to remove clutter on the screen. This information is updated every 3 seconds to 6 minutes depending on speed and rate of turn, enabling the track of the vessels in range to be plotted.

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

Fig. 5.4.1 - AIS Symbols

information from the ship automatically, requiring a minimum of involvement of ship's personnel, and should have a high level of availability. AIS transponders installed on IMO vessels use VHF frequencies to:

- Transmit details of their own vessel
- Receive details from other vessels or navigation aids within VHF range.

Information being transmitted from vessels over 300 tons that, due to recent worldwide legislation, are required to fit Class "A" AIS transponders.

Connecting to the chart plotter an AIS receiver (please contact your local dealer), vessels with AIS transponder within VHF range are displayed on screen giving the skipper or navigator a visual interpretation of the data of nearby vessels. This improves safety, and specifically for collision avoidance reasons.

5.4.1 AIS SYSTEM DEFINITIONS

- **Target**
It is a vessel equipped with AIS. Information about the targets is being received by AIS Receiver and displayed on the screen.
- **CPA**
Closest Point of Approach is the closest distance that will be achieved between your vessel and the tracked target, based on your vessel's speed and direction and the target's speed and direction.
- **CPA Limit**
This is the distance from your vessel that a target may reach before a target is deemed a threat.
- **CPA Alarm**
Occurs if CPA is less or equal to CPA Limit. This test is done for active targets only.
- **TCPA**
Time to closest Point of Approach is the time remaining until the CPA will occur.
- **TCPA Limit**
This is the time remaining before the CPA is reached.
- **TCPA Alarm**
Occurs if T CPA is less or equal to T CPA Limit. This test is done for active targets only and if CPA value is less or equal to CPA Limit.
- **Radio Call Sign**
International call sign assigned to vessel, often used on voice radio.

3.1.1.3 Navigation Data page

The Navigation Data page shows information about the most relevant navigation information, the status of the received signal and ship's coordinates. It is possible to customize the information contained in the page selecting the Nav Display menu (see Par. 5.2).

- 'PAGE' + "NAVIGATION DATA" + 'ENTER'

or

- '#. NAV' (if it is present, where # is 1, 2, 3, 4 or 5)

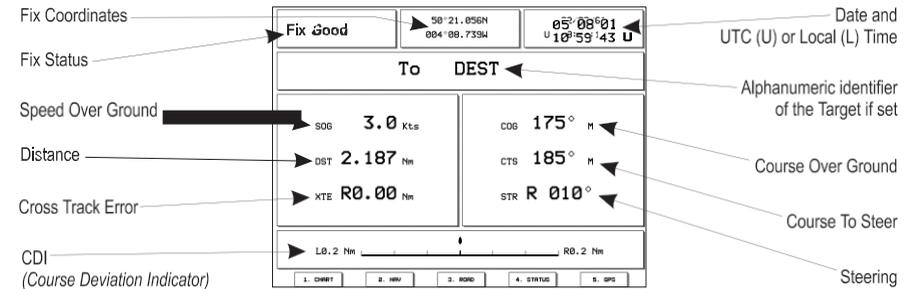


Fig. 3.1.1.3 - Navigation Data Page

3.1.1.4 Road page

The 3D Road Data Page shows in graphic mode navigation data. It is possible to customize the information contained in the page selecting the Nav Display menu (see Par. 5.2).

- 'PAGE' + "3D ROAD" + 'ENTER'

or

- '#. ROAD' (if it is present, where # is 1, 2, 3, 4 or 5)

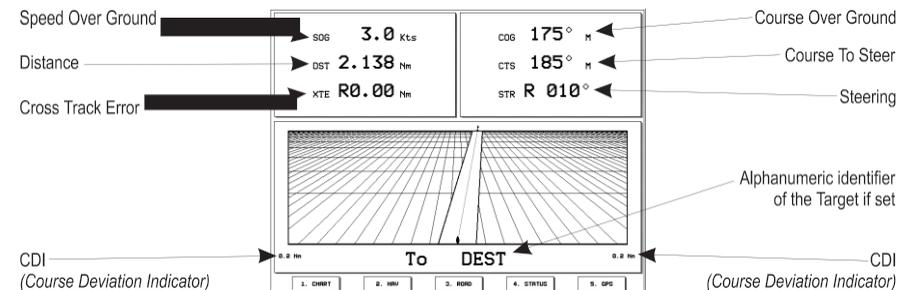


Fig. 3.1.1.4 - 3D Road Data Page

3.1.1.5 GPS Status page

The GPS Status page shows in graphic mode GPS data.

- 'PAGE' + "GPS STATUS" + 'ENTER'

Or

- '#. STATUS' (if it is present, where # is 1, 2, 3, 4 or 5)

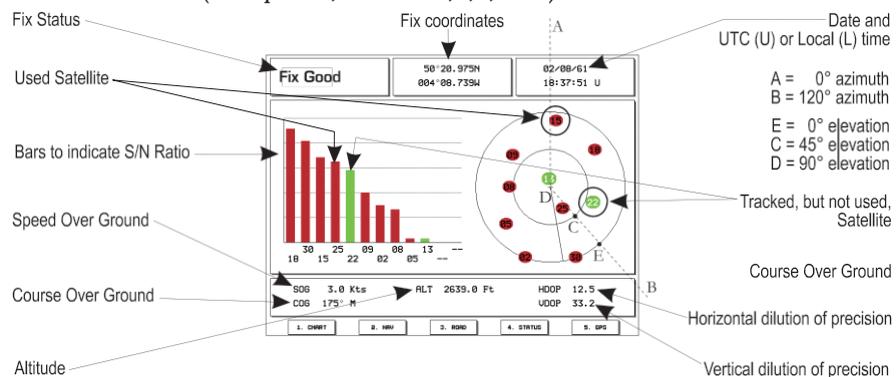


Fig. 3.1.1.5 - GPS Status Page

On the right side of the screen (see Fig. 3.1.1.5), there is a polar representation of the azimuth and elevation of each satellites. The circles contain a number indicating the PRN of the satellite and they are filled when they are used for the fix solution. On the left side there are histograms indicating the S/N ratio (SNR). The bar is filled when the satellite is used for fix solution. When a valid fix is received, the Lat/Lon, Date, Time, HDOP, VDOP, ALT, COG, SOG are shown in the page.

3.1.1.6 GPS Data page

The GPS Data page shows the GPS data.

- 'PAGE' + "GPS DATA" + 'ENTER'

Or

- '#. Gps' (if it is present, where # is 1, 2, 3, 4 or 5)

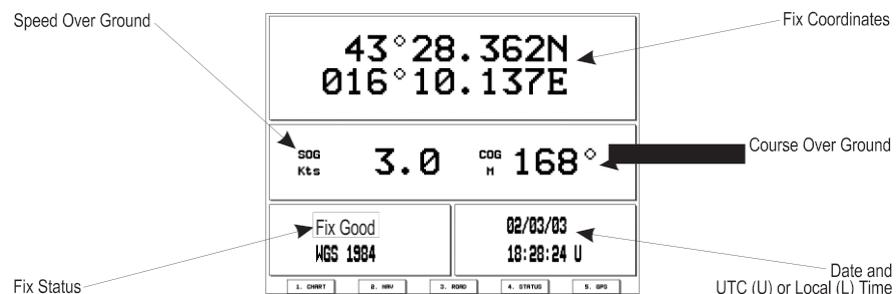


Fig. 3.1.1.6 - GPS Data Page

You can select the length and its angle is 30 degrees. The Grounding Alarm is switched Off by default after a Master Reset.

5.3.4.11 Grounding Depth Limit

- 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Grounding Depth Limit" + 'ENTER'
- The user can enter the minimum depth.

5.3.4.12 Grounding Alarm Range

- 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Grounding Alarm Range" + 'ENTER'

Allows setting the length of the sector to be detected among 0.25, 0.5, 1.0 Nm. The default setting is 0.25 Nm. When any of the searched objects is found in the scanned area, a tick marker is printed on the relative box in the Grounding Alarm Report page (see Par. 5.2.8) to identify which dangerous objects have been currently detected.

5.3.4.13 Grounding Alarm Report

- 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Grounding Alarm Report" + 'ENTER'

To display the report of the dangerous objects currently detected. When any of the searched objects is found in the scanned area, a tick marker is printed on the relative box to identify which dangerous objects have been currently detected. Once the alarm condition is no longer present, the relative tick marker is removed.

Note

The alarm "No data available" is shown when no specific cartographic data are found on the C-CARD or when no C-CARD is inserted.

5.3.4.14 External Alarm

- 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "External Alarm" + 'ENTER'

When any alarm condition occurs the pin is switched from High Impedance to ground. This signal can be used by an external device (as a hooter or buzzer). You can enable (On) or disable (Off) the External Alarm. The default setting is On.

5.4 AIS MENU

AIS is an Automatic Identification System. It has been introduced to improve the safety of navigation by assisting in the efficient operation of ship-to-ship, ship reporting and VTS applications. The system should enable operators to obtain

box will appear with 00. Using the *Joystick* select the number preferred and press 'ENTER'. The default setting is Off (00).

5.3.4.5 Depth Alarm

➤ 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Depth Alarm" + 'ENTER'
Specifies the depth or disables the Depth Alarm. After pressing 'ENTER' a box will appear with 00. Using the *Joystick* select the number preferred and press 'ENTER'. The default setting is Off (00).

5.3.4.6 Heading Alarm

➤ 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Heading Alarm" + 'ENTER'
You can enable (On) or disable (Off) the Heading Alarm. The default setting is Off.

5.3.4.7 Timer Alarm

➤ 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Timer Alarm" + 'ENTER'
Starts (On) or Stops (Off) the Timer Alarm counter. The Timer Alarm is activated when the defined time is expired.

5.3.4.8 Timer Value

➤ 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Timer Value" + 'ENTER'
Enter the Timer Value (Hours Minutes Seconds Range 00:00:01 - 23:59:59).

5.3.4.9 Timer Direction

➤ 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Timer Direction" + 'ENTER'
Set the Timer Direction UP or DOWN: when Timer Direction is set UP, the timer start from zero and increases it's value; the alarm is activated when the timer reaches the Timer Value entered by the user. When Timer Direction is set DOWN, the count-down starts from the value set by the user and decreases it's value. The Alarm is activated when the Timer value goes to zero.

5.3.4.10 Grounding Alarm

➤ 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Grounding Alarm" + 'ENTER'
To verify potential danger to navigation such as shallow water (depth areas), intertidal areas, land, rocks, obstructions and shoreline constructions. The maps are scanned every 10 seconds. If any of the above objects are found, the chart plotter notifies the danger on a dedicated warning message box. The active "Grounding Alarms" are shown in the Grounding Alarm Report page. The chart plotter scans a sector in front of the boat. The direction is determined by the current boat heading.

3.2 GENERAL MENU

The General Menu provides access to the set up functions. Here you can choose the language you want (see Par. 2.4), the measure units, the date and time settings, enable or disable the Keypad Beep (see Par. 1.2) and select the Cursor Speed.

➤ 'MENU' + 'MENU' + "GENERAL" + 'ENTER'

3.2.1 UNITS SELECTION

Allows to select the preferred unit for Distance, Speed, Depth and Altitude (altitude of GPS Antenna on the medium sea level).

Distance & Speed Units: Nm(Nautical Miles) & Kts(knots) / Sm(statute miles) & Mph(miles per hour) /Km(chilometres) & Kph(chilometres per hour). The default setting is Nm & Kts.

➤ 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Dist&Speed Units" + 'ENTER'

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

➤ 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Depth Unit" + 'ENTER'

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

➤ 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Altitude Unit" + 'ENTER'

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

➤ 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Temperature Unit" + 'ENTER'

3.2.2 TIME & DATE SETTING

Allows to select the preferred time and date.

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

➤ 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Time Reference" + 'ENTER'

Time Format: Sets you preferred time between 12 hour and 24 hour. The default setting is 24 hour.

➤ 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Time Format" + 'ENTER'

Date Format: Sets you preferred date between MM-DD-YY (month-day-year) and DD-MM-YY (day-month-year). The default setting is MM-DD-YY.

➤ 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Date Format" + 'ENTER'

3.2.3 CURSOR SPEED

Allows to select the preferred Cursor Speed among Low, Medium and High in Chart or into a Menu:

- 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Cursor Speed" + 'ENTER'

3.2.4 NAV AIDS PRESENTATION

Allows to set the Nav Aids presentation as US or INTERNATIONAL. The default setting is INTERNATIONAL. When selected it affects Lights, Signals, Buoys & Beacons display.

- **INT(International)**: Draws Nav-Aids using international symbology. All components of Complex Objects are shown.

- **US**: Draw Nav-Aids using NOAA symbology. All components of Complex Objects are shown.

- 'MENU' + 'MENU' + "GENERAL" + 'ENTER' + "Nav Aids Presentation" + 'ENTER'

3.3 NAVIGATING TO A SINGLE DESTINATION

3.3.1 DISTANCE AND BEARING TO TARGET

Once you have positioned the cursor on your preferred location press 'GOTO'.

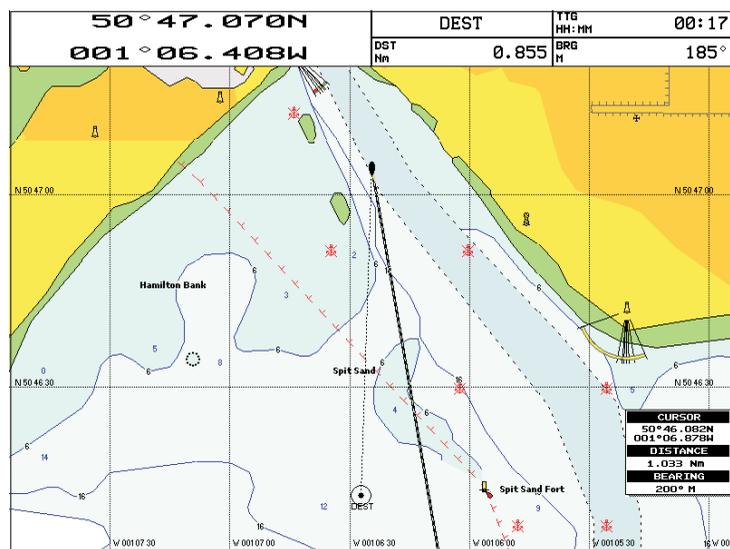


Fig. 3.3.1 - Navigation to a single destination

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

5.3.3.5 Simulation Mode

Once the settings are selected, turn on the Simulator:

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Simulation Mode" + 'ENTER' + "On" + 'ENTER'

To turn On the Simulation select Off. The default setting is Off.

5.3.4 ALARMS MENU

The chart plotter provides alarm settings for various functions. Here you can set the system for your navigational requirements.

- 'MENU' + 'MENU' + "ALARMS" + 'ENTER'

5.3.4.1 Auto Off

- 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Auto Off" + 'ENTER'

You can enable (On) or disable (Off) the automatic shutdown of the alarms when the alarm condition disappears. The default setting is On.

5.3.4.2 Arrival Alarm

- 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Arrival Alarm" + 'ENTER'

Specifies the radius of a circle around the Waypoint of a Route: when your vessel reaches this circle the alarm sounds. After pressing 'ENTER' a box will appear with Off (00). Using the *Joystick* select the number preferred and press 'ENTER'. The default setting is 1.00 Nm.

5.3.4.3 XTE Alarm

- 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "XTE Alarm" + 'ENTER'

Specifies the distance your Cross Track Error (XTE) can vary before the sound of an alarm or disables the XTE Alarm (Off). After pressing 'ENTER' a box will appear with 00. Using the *Joystick* select the number preferred and press 'ENTER'. The default setting is Off (00).

5.3.4.4 Anchor Alarm

- 'MENU' + 'MENU' + "ALARMS" + 'ENTER' + "Anchor Alarm" + 'ENTER'

This function allows inserting of the limit of anchor dragging: beyond that, the alarm is activated. The chart plotter computes the distance between the current GPS position and the GPS position saved at the activation of the anchor alarm in the menu. If the computed distance exceeds the value set in the menu, the chart plotter shows the alarm message and starts the acoustic alarm. After pressing 'ENTER' a

5.3.2.9 Calibrate Compass

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "CALIBRATE COMPASS" + 'ENTER'

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

5.3.3 SIMULATION MENU

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

The built-in Simulator function allows you to become proficient in the use of the chart plotter. No current position fix is required because the chart plotter simulates position data internally.

5.3.3.1 Speed

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Speed" + 'ENTER'

To start the simulator you can insert the Speed value. Using the *Joystick* select the preferred Speed and press 'ENTER'. The default setting is 01.0 Kts.

5.3.3.2 Heading

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Heading" + 'ENTER'

To start the simulator you can insert the Heading value. Using the *Joystick* select the preferred Heading and press 'ENTER'. The default setting is 000° M.

5.3.3.3 Date and Time

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Date" + 'ENTER'
- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Time" + 'ENTER'

Using the *Joystick* insert the preferred Date and Time and press 'ENTER'.

5.3.3.4 Cursor Control

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "SIMULATION MODE" + 'ENTER' + "Cursor Control" + 'ENTER'

On the screen is shown a dotted line connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.

3.3.2 TIME TO GO

When the Target is set the TIG value can be displayed in the Text Area (see Par. 3.1.1). Otherwise select the 3D Road Page (see Par. 3.1.1.4) where you can read TIG value (if it is selected):

- 'PAGE' + "3D ROAD" + 'ENTER'

or

- '#. ROAD' (if it is present, where # is 1, 2, 3, 4 or 5)

3.3.3 DELETING TARGET

Place cursor on Target icon then press '1. STOP'. A window appears to confirm the stop of the navigation: press '1. CONFIRM' and the symbol identifies Target disappears from the screen.

3.4 NAVIGATION ON A ROUTE

Sometimes it is preferable to define a series of locations, called Waypoints, in a sequence called a Route and navigate following a Route towards its end point.

3.4.1 ADDING WAYPOINT

To create a Waypoint place the cursor on position you want and then:

- 'ENTER' + "WAYPOINT" + 'ENTER'

or

- '#. WPT' (if it is present, where # is 1, 2, 3, 4 or 5)

The Waypoint appears on the screen and this becomes the first point on your first Route. An info window containing Route number, data and time, Waypoint name, symbol and Latitude/Longitude is shown.

3.4.2 CREATING A ROUTE

Repeat the "Adding Waypoint" procedure described in the previous Par. 3.4.1. The sequence of moving the cursor and pressing 'ENTER' is continued to create the Route, until you have reached the last Waypoint, your final destination. Segments connecting the Waypoints are shown and the starting point is identified

by a circle surrounding the first Waypoint of the Route:

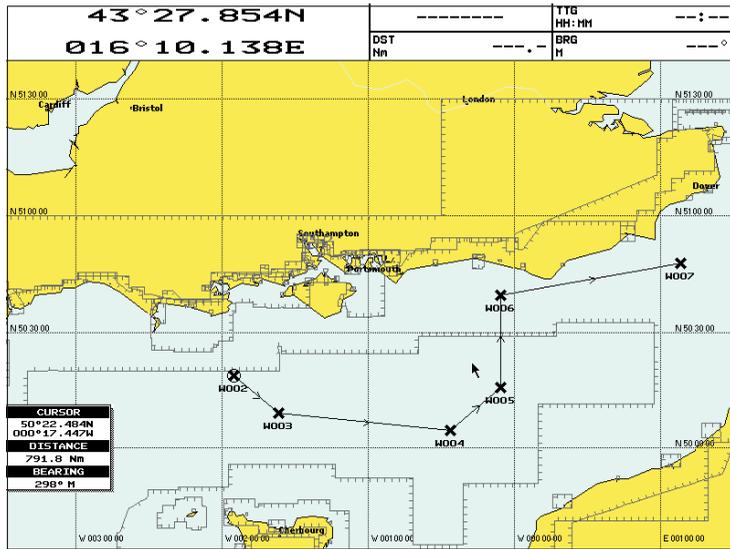


Fig. 3.4.2 - Route planning

3.4.3 DELETING WAYPOINT

Place the cursor on the Waypoint to be deleted:

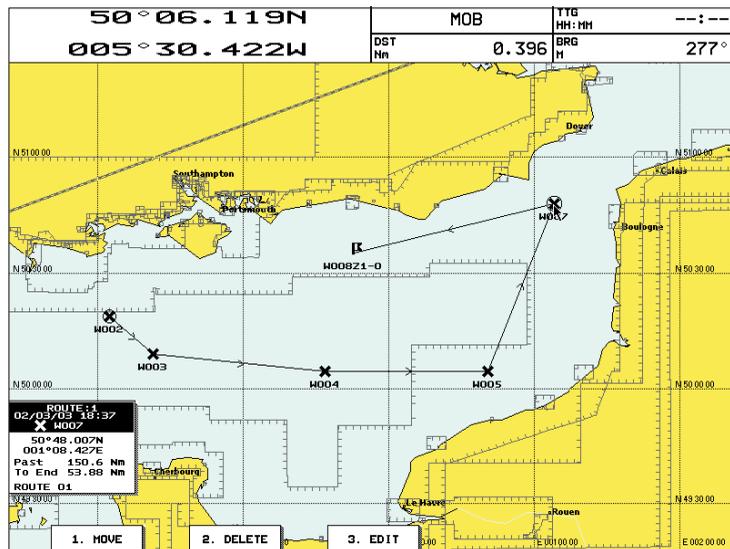


Fig. 3.4.3 - Deleting Waypoint

Corrects fixes from the positioning instrument. By placing the cursor on the ship's real position and selecting this option, the error is calculated and internally memorized for appropriate correction, but not applied.

5.3.2.3 Correction Offset

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Correction Offset" + 'ENTER'

Manual correction of fix position.

5.3.2.4 Static Navigation

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Static Navigation" + 'ENTER'

Sets up a threshold for the speed. When the speed received from the positioning device is under that threshold, the chart plotter displays zero speed. The default value is 0.1 Knots.

5.3.2.5 Position Filter

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Position Filter" + 'ENTER'

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

5.3.2.6 Speed Filter

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Speed Filter" + 'ENTER'

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

5.3.2.7 Bearing

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Bearing" + 'ENTER'

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

5.3.2.8 Magnetic Variation

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Magnetic Variation" + 'ENTER'

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

or Radar Plotting); SD (Sounder Depth). The selected Talker ID is applied to all sentences sent by the chart plotter from all Ports.

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "NMEA-0183 Output Talker ID" + 'ENTER'

5.3.1.5 Cable Wiring Pages

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

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Cable Wiring" + 'ENTER' + "Power I/O" + 'ENTER'
- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Cable Wiring" + 'ENTER' + "Port 1 - GPS Sensor" + 'ENTER'
- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Cable Wiring" + 'ENTER' + "Port 2 - GPS Sensor" + 'ENTER'

5.3.1.6 Send/Receive Routes and Marks

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

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "SEND/RECEIVE ROUTES AND MARKS" + 'ENTER'

5.3.1.7 External Signal

Sets the External Output. Then choose your preferred setting among External Alarm (when activated, this pin goes to GND level. It is used to command an external buzzer), Radar Power On (it is command switch for the Radar. It must be used in conjunction with the Radar Junction box device) and Off.

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "EXTERNAL SIGNAL" + 'ENTER'

5.3.2 FIX & COMPASS MENU

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER'

The Fix & Comapss sub-menu contains options relating to GPS data input and display.

5.3.2.1 Fix Correction

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Fix correction" + 'ENTER'

Turns On/Off the Correction from the positioning system. If the new Correction is calculated, but the Correction is not enabled, the ship's position is not changed. The default setting is Off.

5.3.2.2 Compute Correction

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "FIX & COMPASS" + 'ENTER' + "Compute correction" + 'ENTER'

Press '2. DELETE'. A window is opened to advise that Waypoint is being used in a Route: press '1. CONFIRM' ('2. CANCEL' otherwise). The Waypoint is deleted and a new line between previous and next Waypoint is shown. The deleted Waypoint remains shaded until the screen is redrawn.

3.4.4 DISTANCE AND BEARING TO TARGET

Once you have positioned the cursor on the preferred starting Waypoint (it could be the first Waypoint of the Route or another one) press 'GOTO'. A circle surrounds the Waypoint symbol. A dotted line is shown, connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target. The destination will automatically switch to the next Waypoint on the Route when you reach or pass the present destination.

3.4.5 TIME TO GO

When the Target is set the TTG value can be displayed in the Text Area (see Par. 3.1.1). Otherwise select the 3D Road Page (see Par. 3.1.1.4) where you can read TTG value (if it is selected):

- 'PAGE' + "3D ROAD" + 'ENTER'

or

- '#. ROAD' (if it is present, where # is 1, 2, 3, 4 or 5)

3.4.6 DELETING TARGET

Place cursor on Target icon then press '1. STOP'. A window appears to confirm the stop of the navigation: press '1. CONFIRM' and the symbol identifies Target disappears from the screen.

3.5 C-MAP NT MAX INFORMATION

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

New Data Features

- Tides and Currents (intuitive arrows show direction and strength)
- World Background Charts with terrestrial data
- Value Added Data (Pictures and Diagrams, Land Data)
- Enhanced Port Info

New Presentation Features

- Clear View (advanced legibility techniques providing more chart data on the screen)
- Clear Info (sophisticated "Human Dictionary" to translate Nav-Aid abbreviations found on paper charts)
- Dynamic Fonts and Symbols
- Dynamic Nav-Aids (an innovative and dynamic presentation mode)
- Flexi-Zoom (increased Under and Over Zoom between chart levels, resulting in optimal scale display for any situation)
- Dynamic Elevation Data (optimised palettes for chart plotters with 256 or more colors; includes new NOAA palette for US market)
- Perspective View ("Real World" perspective view of the chart, updated realtime during navigation)

MAX and NT/NT+ C-CARD coexistence

- When NT+ data and MAX data cover different areas, the chart plotter gets data from both charts (depending on the current position).
 - When NT+ data and MAX data cover the same area, the chart plotter gets data only from MAX chart.
- This is for the WorldWide Background as well.

3.5.1 MAP MENU

3.5.1.1 Zoom Type

- 'MENU' + "Zoom Type" + 'ENTER'

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

Zoom Mode has two options; STANDARD (default) or FLEXI-ZOOM. When in FLEXI-ZOOM mode, a short 'ZOOM...' push causes a change of chart, whilst a long 'ZOOM...' push (press and hold) causes a pop-up window to be displayed on a corner of the screen. The window shows the current Zoom Factor.

By pressing 'ZOOM IN'/'ZOOM OUT' the map is expanded or compressed according to the zoom factor selected.

The Window is automatically closed if 'ZOOM...' is not pressed for 2 seconds and the selected zoom factor will be used at the next zoom in/out.

3.5.1.2 Fonts & Symbols

- 'MENU' + "Fonts & Symbols" + 'ENTER'

WARNING

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

5.3.1.1 Port 1/Port 2/Port 3/Port 4/Port 5 Input

Disables (selecting Off) or sets the format for the navigation data input serial Port1/2/3/4/5. For example to set the Port as NMEA-0183 (4800 Baud Rate, Parity None, 8 Bits Number, 1 Stop Bit and Normal Polarity) you must select 4800-N81-N. The available choice is among (1200-N81-N), (4800-N81-N), (4800-N82-N), (9600- O81-N), (9600-N81-N), C-COM (*). The default setting is (4800-N81-N).

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Port 1/Port 2/ Port 3/Port 4/Port 5 Input" + 'ENTER'

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

Note

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

5.3.1.2 Port 1/Port 2/Port 3/Port 4/Port 5 Output

Disables (Off) or sets the interface as NMEA 0183, NMEA 0180, NMEA 0180/CDX.. The default setting is 0183.

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Port 1/Port 2/ Port 3/Port 4/Port 5 Output" + 'ENTER'

5.3.1.3 Port 1/Port 2/Port 3/Port 4/Port 5 NMEA Output

The chart plotter allows customizing the NMEA-0183 sentence transmitted on each port. Each port can transmit a different set of sentences among: GLL, VTG, BOD, XTE, BWC, RMA, RMB, RMC, APB, WCV, GGA, HSC, HDG, MWV. The default setting is GLL, VTG, XTE, RMB, RMC, APB, MWV On and BOD, BWC, RMA, WCV, GGA, HSC, HDG Off.

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER' + "Port 1/Port 2/Port 3/Port 4/Port 5 NMEA Output" + 'ENTER'

5.3.1.4 NMEA-0183 Output Talker ID

The Talker Id is the 2 characters following the "\$" char (Start of sentence) in a NMEA-0183 sentence that identifies the type of instrument that sends the string. The chart plotter allows selecting one of the following Talker identifier: II (Integrated Instrument); GP (GPS); EC (Electronic Chart System-ECS); RA (Radar and/

possible to display this menu only if the Navigation Data page or the 3D Road page has been selected; so firstly select one of this pages, for example Navigation Data page:

- 'PAGE' + "NAVIGATION DATA" + 'ENTER'

or

- '#. NAV' (if it is present, where # is 1, 2, 3, 4 or 5)

and then:

- 'MENU' + 'MENU' + "NAV DISPLAY" + 'ENTER'

5.2.1 CDI SCALE

- 'PAGE' + "NAVIGATION DATA" + 'ENTER' then:
- 'MENU' + 'MENU' + "NAV DISPLAY" + 'ENTER' + "CDI Scale" + 'ENTER'

Select your preferred CDI (Course Deviation Indicator) Scale among 0.2, 0.5, 1.0, 2.0, 4.0, 10.0 Nm by using the *Joystick* and then press 'ENTER'. The default setting is 0.2 Nm.

5.2.2 NAVIGATION PAGE

- 'PAGE' + "NAVIGATION DATA" + 'ENTER' then:
- 'MENU' + 'MENU' + "NAV DISPLAY" + 'ENTER' + "Navigation Page" + 'ENTER'

A new window appears with six items. Using the *Joystick* select the item you want to change and press 'ENTER': another window appears, use the *Joystick* to select the preferred data to display in the Navigation Data page and in 3D Road page among BRG (Bearing), SOG (Speed Over Ground), COG (Course Over Ground), STR (Steering), CTS (Course To Steer), TRN (Turning), DTG (Distance To Go), VMG (Velocity Made Good), SOA (Speed Of Advance), XTE (Cross Track Error), DRF (Drift), SET, DPT (Depth), TEMP (Water Temperature). When finished press 'ENTER'. The default setting is SOG, COG, DTG, CTS, XTE, STR.

5.3 ADVANCED MENU

The Advanced options are arranged in sub-menus. For example, all options that relate to the Fix functions are in Fix & Compass sub-menu.

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

5.3.1 INPUT/OUTPUT MENU

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "INPUT/OUTPUT" + 'ENTER'

On MAX charts it is possible to set the size of all names and symbols drawn on the charts, selecting between Normal size (the regular characters size) and Large size.

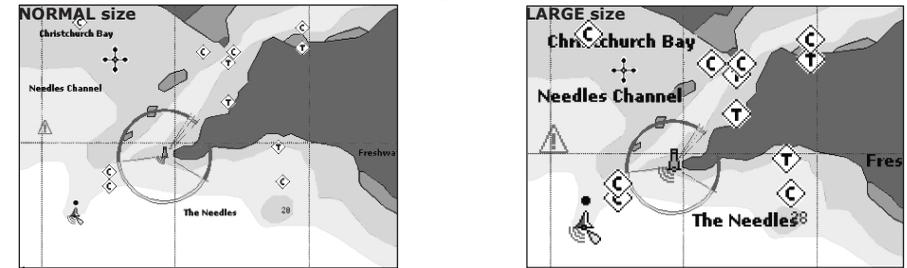


Fig. 3.5.1.2 - Example of Normal size (on the left side) and Large size (on the right side) settings

3.5.1.3 Perspective View

- 'MENU' + "Perspective View" + 'ENTER'

Chart data may be projected in perspective mode during navigation. This function allows setting the panoramic View of the chart.

As the upper side of the map is more compressed than the lower side, a wider map area is visible. The perspective view allows showing more chart information immediately ahead and around the cursor.

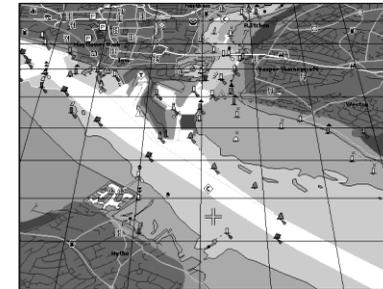


Fig. 3.5.1.3 - Perspective View

3.5.1.4 Dynamic Nav-Aids

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

This function allows settings blinking lights on Nav-Aids. The blink period and color of each Nav-aid is read from the Nav-Aid attributes available on the data cartridge. When the ship is inside the Nav-Aid nominal range, the light of the Nav- Aid will start blinking.

When Dynamic Nav-Aids option is set to On, when the flashing light is Off, or when fix position is out of the sector, the light color is displayed by using a faint light color.

3.5.1.5 Map Orientation

- 'MENU' + "Map Orientation" + 'ENTER'

Selects orientation of your chart according to. The default setting is North Up.

- North Up: the map is shown with North upwards.
- Track Up: the map is shown with the ship's current heading upwards. If

Track Up is selected, insert the Map Orientation Resolution angle by using the *Joy-stick* up and down in the range [5, 60] degrees (the default setting is 30°).

3.5.1.6 Mixing Levels

- 'MENU' + "Mixing Levels" + 'ENTER'

When the map coverage at the current zoom level does not fill the entire screen, the chart plotter draws the rest of the map expanding the cartographic information read from, at most, two zoom levels above the current zoom level. For this reason the map is drawn three times: firstly it draws the two levels before the current level and then the current level. The area covered by the cartographic data read from the previous levels is identified by a dotted pattern. When the cursor is moved on an area not covered by data of the current level the chart plotter zooms out to the first level covered by cartographic data. The default setting is Off.

Note

The Mixing Levels function works only with the new C-CARDS. It also affects the speed of the redraw of the screen. If this function is not used it maybe disabled.

3.5.1.7 Safety Status Bar

- 'MENU' + "Safety Status Bar" + 'ENTER'

It is possible to choose between the three following options:

- ON : the Safety Status Bar is shown
- OFF : the Safety Status Bar is not shown
- ICON : the Safety Status Bar is not shown, but a warning alarm icon is shown on the corner of the map screen as soon as any item controlled by the DSI function returns an alarm condition. The Warning Icon remains displayed until the alarm condition persists. Placing the cursor over it, a quick help message is shown next to the DSI icon, allowing to show the DSI bar. In this case - when the DSI bar is opened via DSI alarm icon - it is allowed to obtain information about each "active" DSI box (the red ones): it is possible to select them by cursor movement left/right, and a list of active alarms is shown underneath the selected box. By pressing 'CLEAR', the DSI bar is removed from the screen.

5.1.8 USER POINTS

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "User Points" + 'ENTER'

Sets On (icon + label), Off or Icon (only icon) the displaying of User Point.

The default setting is On.

5.1.9 SYMBOL SIZE

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Symbol Size" + 'ENTER'

Sets Normal or Small the icon of User Point. The default setting is Normal.

5.1.10 EVENT HANDLER TYPE

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Event Handler Type" + 'ENTER'

Selects the type as Normal or By Key: if By Key is selected it is possible to set

the desired number for the Event. The default setting is Normal.

5.1.11 DATA WINDOW MODE

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Data Window Mode" + 'ENTER'

Customizes the Text Area layout among Full Screen, Vertical, Text Area with 5 boxes and Text Area with 8 boxes (see Par. 3.1.1). The default setting is 5 Boxes.

5.1.12 CURSOR WINDOW

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Cursor Window" + 'ENTER'

Enables (On) or disables (Off) the display of the cursor window on the screen.

The default setting is On.

5.1.13 POSITION SYMBOL

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Position Symbol" + 'ENTER'

Selects the icon of the fix position displayed on the screen between Boat and Standard. The default setting is Boat.

5.2 NAV DISPLAY MENU

The Nav Display menu allows to select CDI Scale and Navigation Page. It is

5.1.3 COURSE LINE

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Course Line" + 'ENTER'

The chart plotter will display a line with a circle at the end to indicate the position your ship will reach at the set time based on current direction of travel and speed. This is continuously updated to account for changes. Disables (Off) or sets time as : 2, 10, 30 min, 1, 2 hours, Infinite. The default setting is Infinite.

5.1.4 SHIP ICON MODE

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Ship Icon Mode" + 'ENTER'

Sets the Ship Icon Mode between Steady or Blinking. When Ship Icon Mode is Blinking, the ship icon (and the heading line) blinks every 1 second, otherwise when it is Steady the Ship Icon (and the heading line) does not blink. The default setting is Steady.

5.1.5 COORDINATE SYSTEM

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Coordinate System" + 'ENTER'

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

If TD is selected a new TD Settings menu will be open on the screen:

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "COORDINATE SYSTEM" + 'ENTER' + 'TD' + 'ENTER'

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

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

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

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

5.1.6 MAP DATUM

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Map Datum" + 'ENTER'

Selects the Map Datum. WGS 1984 is the default Map Datum.

5.1.7 FIX DATUM

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Fix Datum" + 'ENTER'

Selects the Fix Datum. WGS 1984 is the default Fix Datum.

When Safety Status Bar is On, this feature displays a status bar with six boxes showing the status of certain functions. Any warning or alarm condition is identified by the red color to indicate possible risk.



Fig.3.5.1.7 - Safety Status Bar

Boxes definition is as follows:

① Zoom

- Normal: when the chart is displayed at normal scale.
- U. Zoom: red when the chart is under-zoomed out more than twice normal scale, gray otherwise.
- O. Zoom: red when the chart is over-zoomed in more than twice normal scale, gray otherwise.
- Chart Lock: red when the chart is zoomed in more than twice normal scale, gray otherwise.

② Best Map

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

③ Data Off

Red when at least one of the following objects or layers is turned off (by the user): Depths/soundings; Wrecks/obstructions; Tracks/routes; Attention areas; Nav-Aids.

④ Clear View

Displays when Clear View function is On.

⑤ Dangers

Red when “Guardian Technology” detects one of the following objects: Land, Intertidal, Depth Area, Rocks, Obstructions, Shoreline Constructions, Fishing Facility, Wrecks, Dragged area, Diffusion area, Mooring facilities, Pingos and Production installations.

⑥ Caution

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

3.5.1.8 Palette

- 'MENU' + "Palette" + 'ENTER'

It is possible to set the palette used to enhance the visibility of the screen depending on the surrounding light condition. The possible choices are Normal, NOAA, Night Vision and Sunlight. The default setting is Normal. **Normal** is recommended when the chart plotter is not exposed to the direct sunlight. When this mode is set the maps are displayed in order to use colors as similar as possible to the ones used in the original paper charts. **Night Vision** is recommended when the environment is dark in order to reduce the glare of the display. The chart plotter displays maps and screen in darker colors. **Sunlight** is designed to enhance the visibility of the screen when the chart plotter is exposed to the sunlight. The maps are much brighter than in the other modes and the depth areas are filled with white color so different depth areas are not easily distinguishable. **NOAA** Allows setting **NOAA** paper chart colors presentation.

3.5.1.9 Currents Prediction

- 'MENU' + "Currents Prediction" + 'ENTER'

It is possible to see the variation of the Tidal arrows on the selected area at any given time. A window is shown on the low-left side of the chart, press '1. SET' to set the date and time manually, '2. DECR' to decrease time and '3. INCR' to increase time, '4. EXIT' to exit.

3.5.1.10 Other Map Configurations

- 'MENU' + "Other Map Configurations" + 'ENTER'

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

Display Mode: To simplify the customization of the chart display, the map settings are now re-organized in modes allowing the user to choose the preferred setting. Pre-programmed settings are user selectable from Full, Medium, Low, Radar, Tides, Custom. The default setting is Custom. The table below shows the selections for each mode:

Setting	Full	Medium	Low	Radar	Tides	Custom (Default values)
Place Names	On	On	On	On	On	On
Name Tags	On	Off	Off	Off	Off	Off
Nav-Aids & Light Sectors	On	No Sector	No Sector	No Sector	Off	On
Attention Areas	On	On	Off	Off	Off	On
Tides & Currents	On	Off	Off	Off	On	On
Seabed Type	On	Off	Off	Off	Off	On
Ports & Services	On	On	Off	On	Off	On
Tracks & Routes	On	Off	Off	Off	Off	On
Depth Range Min	3 Mt	3 Mt	3 Mt	3 Mt	3 Mt	3 Mt

5 Menu Settings

There are other three menus, Display, Navigation Display and Advanced, to handle the chart plotter information. Once you are in the Menu, use your *Joystick* to highlight the item and press 'ENTER' to activate or to proceed to the next selection menu.

5.1 DISPLAY MENU

Display Menu allows you to change how the chart plotter displays information. It is possible to select this menu only when the active page is the Chart Display or the Depth Graph (in split mode); so firstly select one of these pages, for example Chart Display mode.

- 'PAGE' + "CHART DISPLAY" + 'ENTER'

or

- '#. CHART' (if it is present, where # is 1, 2, 3, 4 or 5)

5.1.1 AUTO INFO

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Auto Info" + 'ENTER'

The type of Automatic Info is user selectable (see Par. 3.5.2).

5.1.2 SCREEN AMPLIFIER

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Screen Amplifier" + 'ENTER'

The Screen Amplifier function allows, when it is On and Home mode is set, to place map on the screen related to the fix position and direction, so the map shown is that before the ship. The default setting is Off.

Quick info on Single Destination

EXTERNAL DESTINATION WPT002	
DST 7.41 Nm	BRG 082° M

Fig. 4.9.1.8a - Quick Info on Single Destination

Note

The window layout depends on the project.

Depth Range Max	10 Mt	10 Mt	10 Mt	10 Mt	10 Mt	10 Mt
Land Elevations	On	Off	Off	Off	Off	On
Land Elevation Data	On	Off	Off	Off	Off	On
Roads	On	Off	Off	Off	Off	On
POIs	On	Off	Off	Off	Off	On
Lat/Lon Grid	On	Off	Off	Off	Off	On
Chart Boundaries	On	Auto	Off	Off	Off	Auto
Mixing Levels	On	Off	Off	Off	Off	Off
Value Added Data	On	Off	Off	Off	Off	On
Chart Lock	On	On	On	On	On	On
Und. Objects Limit	9999Mt	10Mt	10Mt	10Mt	10Mt	10Mt
Rocks	Icon+Depth	Icon	Icon	Icon	Icon	Icon
Obstructions	Icon+Depth	Icon	Icon	Icon	Icon	Icon
Diffusers	Icon+Depth	Icon	Icon	Icon	Icon	Icon
Wrecks	Icon+Depth	Icon	Icon	Icon	Icon	Icon

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Place Names" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Name Tags" + 'ENTER'

Nav-Aids & Light Sectors : On (Nav-Aids & Light Sectors are shown)/Off (Nav- Aids & Light Sectors are not shown)/No Sector (Nav-Aids are shown, Light Sectors are hidden). The default setting is On.

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Nav-Aids & Light Sectors" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Attention Areas" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Tides & Currents" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Seabed Type" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Ports & Services" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Tracks & Routes" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Depth Range Min" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Depth Range Max" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Land Elevations" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Lan Elevation Values" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Roads" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "POIs" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Lat/Lon Grid" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Chart Boundaries" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Value Added data" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Chart Lock" + 'ENTER'

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

The default setting is 10 Mt.

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Underwater Object Limit" + 'ENTER'
 - If value is set to 0 Mt, the Underwater Objects are not shown on the charts. Menu options are grayed out.
 - If value is more than 0 Mt (i.e. 10 Mt), in the Range from 0 Mt to the selected value the Underwater Objects are displayed according to their setting below.

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Rocks" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Obstructions" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Diffusers" + 'ENTER'

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

- 'MENU' + "Other Map Configurations" + 'ENTER' + "Wrecks" + 'ENTER'

Note (*)

Choose the option:

- OFF : the object is not visible independently of the selected "Underwater Object Depth Value"
- ICON : the object icon is visible without tags, in the range selected from "Underwater Object Depth Value" option
- ICON+DEPTH : the object icon and tag is visible, in the range selected from "Underwater Object Depth Value" option

- External Route : Name of the External Route (from PCMPN,0)
- Cruising Speed : Planned Cruising Speed (from PCMPN,1)
- Fuel Consumption Rate : Planned Fuel Consumption Rate (from PCMPN,1)
- Total Route length Route: Length from First to Last Wpt. (from PCMPN,1)
- Initial Fuel Load : Volume of Fuel available before the navigation was started (Liters)
- Total Fuel Consumption : Calculated Fuel consumption to navigate the whole route.
- Waypoints in Route : No. of Wpts in the Route (from PCMPN,1)
- Remaining Waypoints : No. of Wpts from Dest to Last Wpt (from PCMPN,1)
- Distance to Destination : Distance from Ship to Destination (Calculated)
- Distance to Next Wpt : Distance to travel from ship to the Wpt after the Destination (calculated: Distance to Dest + Next Route Leg length)
- Distance to Last Wpt : Distance to travel from ship to the End of the Route (Calculated: Distance to Dest +Distance From Dest to last Wpt received from PCMPN,1)
- TTG To Destination : Estimated Time to travel the "Distance to Last Wpt". Calculated using Cruising Speed.
- TTG To Next Wpt : Estimated Time to travel the "Distance to Next Waypoint" Calculated using Cruising Speed.
- TTG to Last Wpt : Estimated Time to travel the "Distance to Last Wpt". Calculated using Cruising Speed
- ETA to Destination : Estimate Time of Arrival to the Destination Point. Calculated: Current Time + "TTG To Destination"
- ETA to Next Waypoint : Estimate Time of Arrival to the Waypoint after the Destination. Calculated: Current Time + "TTG To Next Waypoint"
- ETA to Last Wpt : Estimate Time of Arrival to the End of the Route. Calculated: Current Time + "TTG To Last Wpt"

4.9.1.8 Quick Info

Route Navigation: Quick Info on the Destination

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

Route Name, DESTINATION ID Wpt1/4

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

Fig. 4.9.1.8 - Quick Info on Destination

mode, the navigation to the external destination will be terminated. An appropriate warning message will be shown to notify that the Navigation to the external destination is active and to confirm whether Slave mode can be set. Setting Slave mode, the C-link navigation data will be deleted.

The C-link navigation data are deleted at Power Off.

4.9.1.5 C-link navigation data: Acquisition and Display

As soon as the C-link navigation data is received, the Slave parses the information received and executes the relative actions depending on its current working status.

Important

When the Navigation to the external Destination is activated, the Slave Chart Plotter will show all relevant c-link navigation data exactly like when the destination is not the external one: (Destination Name, DST and BRG to Destination, calculate XTE, calculate TTG etc). These values will be displayed all places where required and they will be used to format NMEA-0183 output data.

4.9.1.6 Graphical representation on Map Display

DESCRIPTION	
External Destination - RED Icon	 WPT002
Next Waypoint - GREEN Icon	 WPT003
Navigation Leg - RED Line	

Fig. 4.9.1.6 - Graphical Displaying

4.9.1.7 Route Data Report

When the Navigation to the External Route is received, it will be possible to display the information related to the External Route by entering the Route Data Report.

External Route: ROUTE001				
Cruising Speed:	12.5 kn	Fuel Consumption Rate:	8.0 l/h	
Total Route length:	71.19 Nm	Total Fuel Consumption:	45.5 l	
Waypoints in Route:	4	Initial Fuel Load:	255 l	
Remaining Waypoints:	4	Remaining Fuel:	209 l	
	DST (nm)	TTG: (hh:mm)	ETA: (hh:mm)	Cons Lit
To Dest	11.93	00:57	11:54 AM	7.4
To Next Wpt	15.97	01:16	1:10 PM	12.3
To Last Wpt	83.12	05:41	6:54 PM	54.4

Fig. 4.9.1.7 - External route on Route Data Report

3.5.2 GETTING AUTOMATIC INFO

The type of Automatic Info is user selectable.

- 'MENU' + 'MENU' + "DISPLAY" + 'ENTER' + "Auto Info" + 'ENTER'

The possible settings are:

- **Off:** disabled, no automatic info shown at all.
- **On Points:** only on points. This is the default setting.
- **On All:** on all objects (points, lines, areas and text).

The Automatic Info On Points shows information when the cursor is placed on points (as Port Services, Tides, lights, wrecks, rocks, buoys, beacons, obstructions, land markers, etc.).

The Automatic Info On All shows information when the cursor is placed on points, on lines (as Depth contours, Traffic Separation, Territorial Sea, Cartographic Lines etc.) on areas (Depth, Built-up, Sea, Attention, Restricted etc.) and on names (on the beginning of the text -hot spot- or on any of the characters of the name -name message box-).

The details on Land, Source of Data, Cartographic Area and Spot Soundings are not shown.

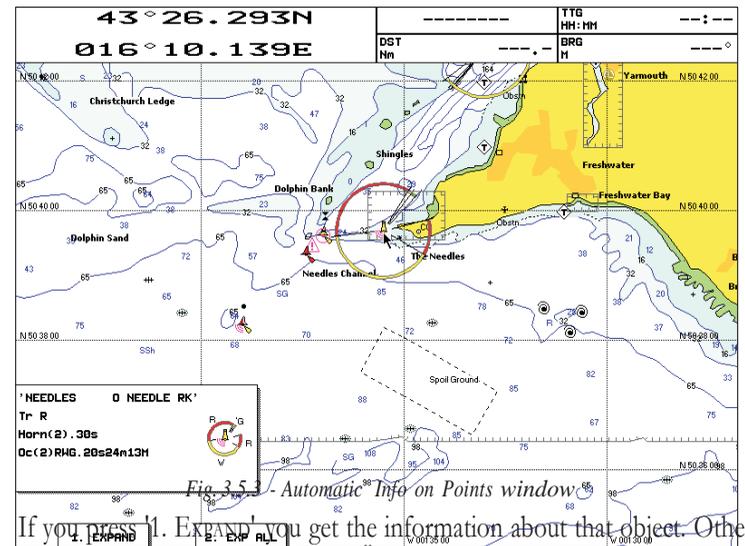


Fig. 3.5.3 - Automatic Info on Points window

If you press '1. EXPAND' you get the information about that object. Otherwise if you press '2. EXP ALL' all available information about the cartographic point under the cursor will be shown (see Par. 3.5.4).

3.5.2.1 Info on objects with Pictures

On the Quick Info, there will be the camera icon on the top bar of the window if at least one of the objects found has one or more pictures associated.



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

On the Full Info, there will be the small camera icon on a corner of the square containing the object icon or a big photo icon centered on the square for the object without icon.

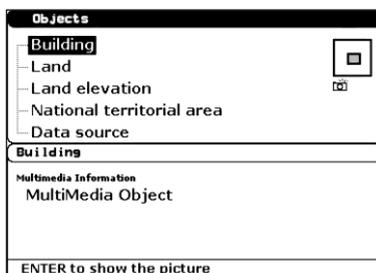


Fig. 3.5.2.1a - Example of Full Info on objects with picture

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

Change Picture Size

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

3.5.2.2 Quick Info on Lakes

Upon viewing the chart of a lake, you will click on to query the available information immediately displayed with many details. For example, see the following picture:

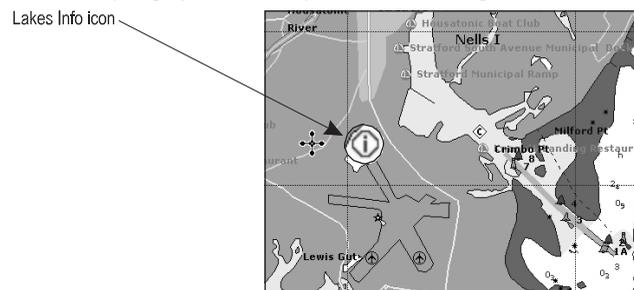


Fig. 3.5.2.2 - Example of Lakes info

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "C-LINK" + 'ENTER' + "Primary Station" + 'ENTER'

Master mode is the default factory setting. All regular chart plotters functions are allowed. As soon as the Destination is placed, the master chart plotter will start transmitting all C-Link navigation data. In Master mode the C-Link navigation data received from the NMEA port is ignored. So, if the two chart plotters are both operating in Master mode, the C-Link navigation data sent by the other chart plotter never processed. Under such condition if the navigation is activated on one of the two chart plotters, a warning message will be shown to notify that the C-Link navigation data will be ignored by the other chart plotter.

4.9.1.4 Slave Chart Plotter

Operating mode

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

- 'MENU' + 'MENU' + "ADVANCED" + 'ENTER' + "C-LINK" + 'ENTER' + "Secondary Station" + 'ENTER'

When Slave mode is set, the chart plotter cannot manipulate the C-Link navigation data anymore.

Stop current navigation

If the navigation was already active, it will be disabled as soon as Slave mode is set. An appropriate warning message will be shown to notify that the Navigation is already active and to confirm whether Slave mode can be set.

Inhibit Navigation operation

As soon as Slave mode is set, the destination cannot be placed anymore either the C-link navigation data is received from the Master or not. Also, when the C-link navigation data is received from the Master, it will not be allowed to deactivate the Navigation.

Inhibit Route following

While navigating to the route received from the Master the destination is reached (either applying distance or perpendicular criteria), the destination will not be moved to the next waypoint on the route.

MOB handling

If the Navigation to the external destination is active and the the MOB key is pressed on the Slave Chart Plotter, the MOB is placed but the navigation to the MOB is not activated.

Notes

While navigating to the external destination the Operating Mode is switched to Master

proprietary sentences: \$PCMPN,1 and \$PCMPN,2. When the navigation is activated on the Master, it starts outputting the C-Link navigation data. If the Slave is connected, all c-link navigation data received are stored in its memory and the navigation is started. The information sent by the Master consists of the following values:

- Navigation mode (To Single Destination / to a Route)
- Route Name (*)
- Destination ID
- Destination Position
- Next Waypoint ID (*)
- Range from Destination to next Waypoint (*)
- Bearing from Destination to next Waypoint (*)
- Route Length (*)
- Distance from Destination to Last Route Waypoint (*)
- Remaining Route Legs (*)
- Planned Cruising Speed
- Average Fuel Consumption
- Initial Fuel Load

C-Link navigation data can refer to:

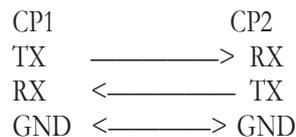
- Single Destination navigation
- Route Following navigation.

Values identified by (*) are sent only for Route Following navigation.

The Destination Icon, Navigation leg (Fix Position to Destination), the Next Waypoint Icon and all other relevant C-Link navigation data will be shown on the Slave chart plotter. Any variation of the C-Link navigation data on the Master will be communicated to the Slave so to keep data aligned on both devices.

4.9.1.2 C-Link serial connection

The two chart plotters should be connected via serial ports. Any of the available ports can be used, the software will recognize automatically the serial ports used. A typical connection is as follows:



4.9.1.3 Master Chart Plotter

Operating mode

To select the Master mode (Primary Station) follow the procedure:

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

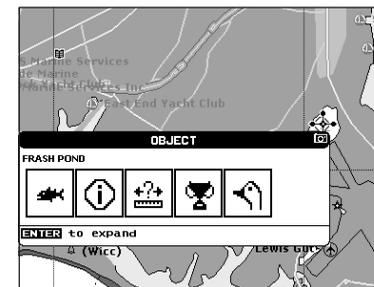


Fig. 3.5.2.2a - Quick Info: available services

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

3.5.2.3 Full Info on Lakes

The following is an example of Full Info on Lakes:

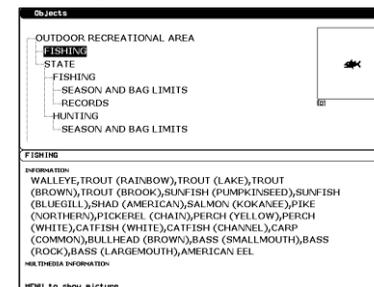


Fig. 3.5.2.3 - Example of Full Info page

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

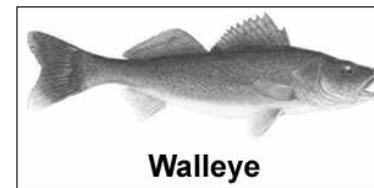


Fig. 3.5.2.3a - Example of picture associated to the Fishing object

3.5.3 INFO TREE AND EXPANDED INFO PAGE

This page combines the Info Tree and the Expanded Info pages; this gives the advantage of showing the details of the object selected on the Info Tree while the cursor is moving through the Info Tree's items. The upper side of the page contains the Info Tree and the Lower side contains the expanded information. While moving the cursor through the Info Tree, all the relevant information of the selected object is shown on the lower part of the page. When the selected object is a Tide Height, pressing 'ENTER' the Tide page is shown. Pressing 'CLEAR' the page is closed. If the information shown exceeds the page size, the user may scroll the page down pressing '2. PAGE DN'. The '1. HOME' restart the Expanded Info.

3.5.4 INFO FUNCTION

Place the cursor in any place you want and press:

- ▶ 'INFO'
to show the Info Tree and Expanded Info page (see Par. 3.5.4).

3.5.5 GETTING PORT INFO

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

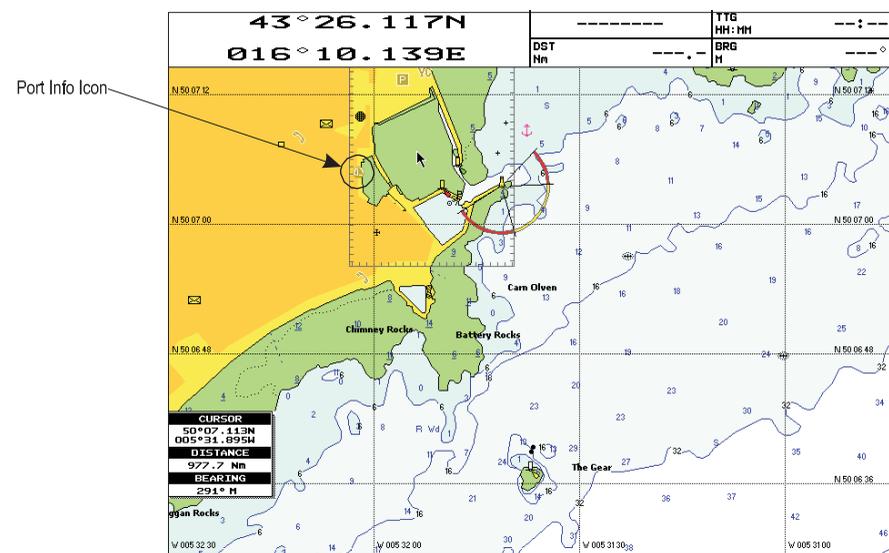


Fig. 3.5.5 - Port Info icon

4.8.1 HOW C-LINK SYSTEM WORKS

When the CP is powered up, it switches into the "Stand-Alone Mode". In this work mode, the CP unit periodically scans all the available C-CARD slots searching for MIRROR C-CARDS.

When one or more MIRROR C-CARD is found (in one or both CPs) a special connection is established between the CPs to abilitate the MIRROR C-CARDS. If a regular C-CARD which has previously activated a MIRROR C-CARD is removed, even the MIRROR card will be not read anymore on the other unit.

4.9 C-LINK NAVIGATION DATA TRANSFER

This function allows transferring C-Link navigation data (Route Name, Destination ID & Position, Next Waypoint ID & Position, Total Route length, Fuel Consumption Rate, ETA, TTG etc.) (Hereinafter "C-Link navigation data") between two chart plotters linked through the C-Link system.

The chart plotters can be set to operate in two modes:

- MASTER mode (Primary Chart Plotter that sends data)
- SLAVE mode (Secondary Chart Plotter that receives data)

When the navigation is activated on the Master chart plotter, the C-Link navigation data will be continuously sent to the Slave until the navigation is active.

If the Master is navigating to a Single Destination, the Slave will show the Destination position and activate the navigation to it. If the Master is navigating to a Route, the Slave will show the Route Leg composed by the Destination and the Waypoint after the Destination (Next Waypoint) and activate the navigation to it. Any variation to the current C-Link navigation data will be transferred from the Master to the Slave. The Slave will be provided with a few dedicated pages to show the C-Link navigation data received from the Master.

4.9.1 OPERATIONS

4.9.1.1 Introductive elements

It is important remark, once more, that this function does not transfer the whole route but just the information relative to the navigation. Such information will be removed from the Slave Chart Plotter as soon as the navigation is terminated.

C-Link navigation data is exchanged by using two NMEA-0183 C-MAP pro-

Remove old or unnecessary files to clean up your SD Card. Remember that this option permanently erases the file.

4.7.4 SD CARD HANDLING

- 'MENU' + 'MENU' + "SD CARD" + 'ENTER' + '4. SD CARD'

4.7.4.1 Displaying SD Card contents

- 'MENU' + 'MENU' + "SD CARD" + 'ENTER' + '4. SD CARD' + '1. SD CARD'

It is possible to read the contents of the SD Card. If the SD Card is not present in the slot, a warning message appears.

4.7.4.2 Formatting SD Card

- 'MENU' + 'MENU' + "SD-CARD" + 'ENTER' + '4. SD CARD' + '2. FORMAT'

In order to be able to use a new SD Card you must format it first: this operation prepares the SD Card to receive and store information.

4.7.4.3 Ordering the SD Card Directory

- 'MENU' + 'MENU' + "SD CARD" + 'ENTER' + '4. SD CARD' + '3. SORT BY'

It is possible to order the file directory in three different modes:

- Press '1. NAME' to order by the filename;
- Press '2. TYPE' to order by the type of data;
- Press '3. TIME' to order by the time of file creation.

4.8 C-LINK

C-Link system is a feature which allows to sharing the same cartographic data between two chart plotter units (CP) linked via serial I/O port.

In order to activate C-Link function, a "MAX data C-CARD" (called REGULAR C-CARD) must be inserted into one of the two chart plotters and a special MAX data C-CARD (called MIRROR C-CARD) must be inserted on the other chart plotter.

The two MAX data C-CARDS must have the same code and revision. So, the MIRROR C-CARD can be utilized only on a chart plotter linked to another chart plotter provided with the equivalent REGULAR C-CARD.

It is important to point out that the two chart plotters must have the update s/w versions that allow C-Link function.

The available information is shown in the Automatic Info window where icons of the available services are shown. To expand information about that object press '1. EXPAND' and to expand all available information for that cartographic point press '2. EXP ALL'.

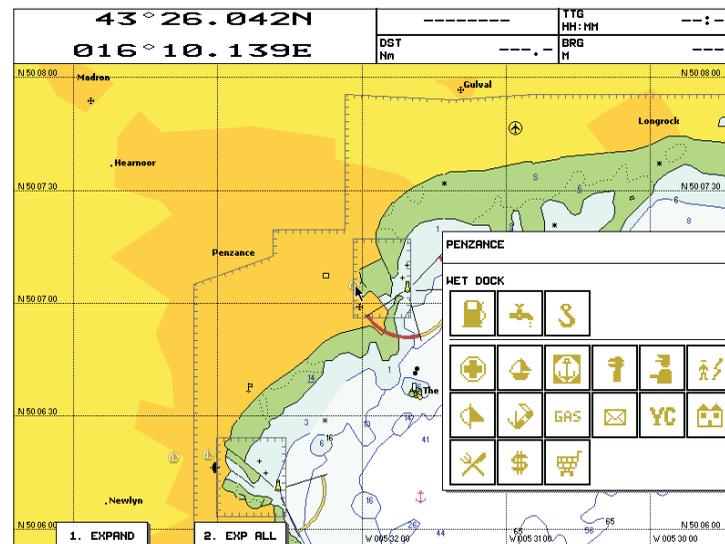


Fig. 3.5.5a - Automatic Info window

3.5.6 GETTING TIDE INFO

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

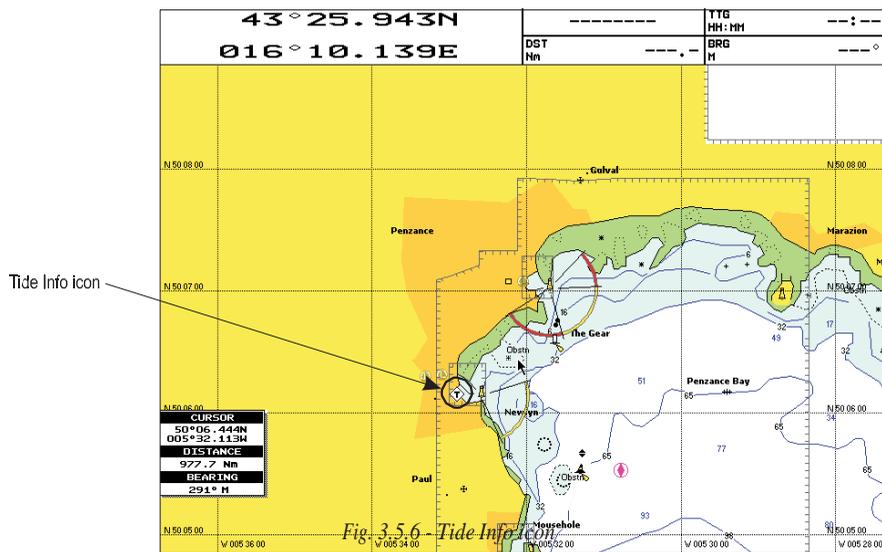


Fig. 3.5.6 - Tide Info icon

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

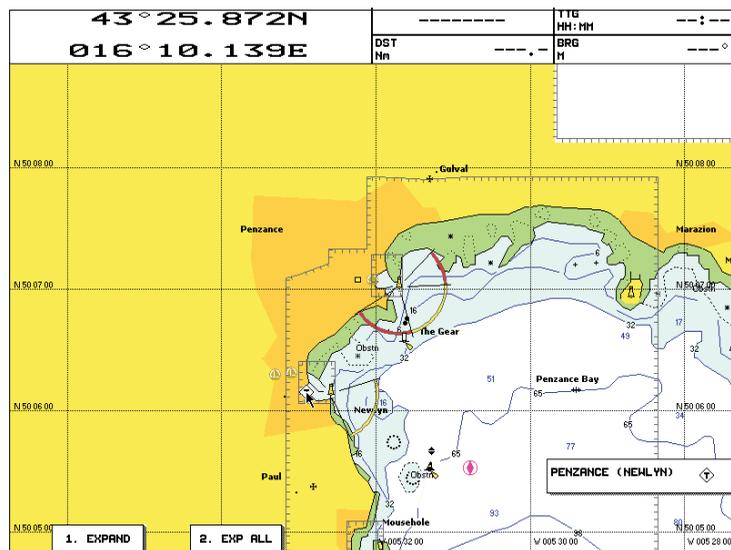


Fig. 3.5.6a - Automatic Info on Tide

To display the Tide Graph page, press '1. EXPAND' (otherwise, press '2. EXP ALL' to select all available information).

4.6.2 PLACING CURSOR ON COORDINATES

- 'MENU' + 'FIND' + 'ENTER' + 'COORDINATES' + 'ENTER'
Press the *Joystick* up/down to modify coordinates and the *Joystick* left/right to move cursor to left/right. Press '1. CONFIRM' ('2. CANCEL' otherwise).

4.7 SD CARD MENU

The chart plotter allows to copy information to a SD Card. You can also return the information to internal memory at a later time. This allows virtually unlimited storage.

- 'MENU' + 'MENU' + 'SD-CARD' + 'ENTER'

Note

It is possible to save and load the content of the SD Card used with previous versions of chart plotter based on C-MAP technology. The vice versa is not possible anyway.

4.7.1 SAVING FILE

- 'MENU' + 'MENU' + 'SD-CARD' + 'ENTER' + '1. SAVE'

A window is opened to insert the file name and the type of data to save. Choose the type of data to save by pressing the related '1. MARKS', '2. EVENTS', '3. ROUTES' or '4. TRACKS'. Select the file name. At first a default name is shown: use the *Joystick* to insert the name. Press 'ENTER'.

Note

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

4.7.2 LOADING FILE

- 'MENU' + 'MENU' + 'SD-CARD' + 'ENTER' + '2. LOAD'

Before pressing '2. LOAD', choose the file name in the list shown, using the *Joystick*.

4.7.3 DELETING FILE

- 'MENU' + 'MENU' + 'SD-CARD' + 'ENTER' + '3. DELETE'

4.5.4.1 Track To Route

- ▶ 'TRACK' + "TRACK TO ROUTE" + 'ENTER' + "TRACK TO ROUTE" + 'ENTER'
Executes the function that converts the given Track into a Route.

4.5.4.2 Advanced Menu

- ▶ 'TRACK' + "TRACK TO ROUTE" + 'ENTER' + "ADVANCED" + 'ENTER'
Allows setting the parameters used by the function Track To Route.

Select Track

- ▶ 'TRACK' + "TRACK TO ROUTE" + 'ENTER' + "ADVANCED" + 'ENTER' + "SELECT TRACK NO." + 'ENTER'

Selects the Track input number.

Select Route

- ▶ 'TRACK' + "TRACK TO ROUTE" + 'ENTER' + "ADVANCED" + 'ENTER' + "SELECT ROUTE NO." + 'ENTER'

Selects the Route output number.

Select Off Course

- ▶ 'TRACK' + "TRACK TO ROUTE" + 'ENTER' + "ADVANCED" + 'ENTER' + "OFF COURSE" + 'ENTER'

Sets the conversion accuracy.

Select Waypoints Distance

- ▶ 'TRACK' + "TRACK TO ROUTE" + 'ENTER' + "ADVANCED" + 'ENTER' + "DIST WPTS" + 'ENTER'

Sets the minimum distance between Waypoints.

4.6 PAN FUNCTION

It is possible to select the pan function; pan allows you to shift area around the cursor or a remote position to the centre of the screen.

4.6.1 MOVING CURSOR TO THE SCREEN CENTER

- ▶ 'MENU' + "FIND" + 'ENTER' + "CURSOR" + 'ENTER'

The screen is redrawn and the cursor with the location you want to see will shift to the center of the screen.

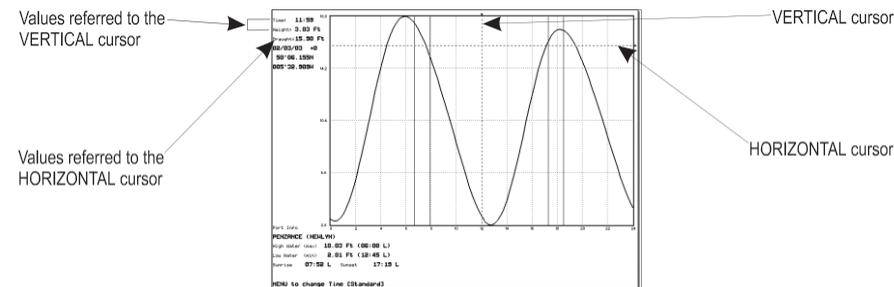


Fig. 3.5.6b - Tide Graph

Using the *Joystick*, it is possible to move the cursor anywhere on the graph and display the time, height (vertical cursor) and draught (horizontal cursor) on a particular graph point. Also use 'ZOOM IN' or 'ZOOM OUT' to go to previous or next day and 'ENTER' to set date (move the *Joystick* up/down to insert the preferred number and use it left/right to move cursor to left/right).

Note

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

3.5.7 FIND FUNCTION

The chart plotter allows finding Port Services, Port By name, Port By Distance, Tide Stations, Wrecks, Obstructions, Points Of Interest, Lakes By Name, Lakes Information, Cursor, Coordinates and User Points.

3.5.7.1 Finding Port Services

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

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

The icons of the available services are shown.

Use the *Joystick* to select any facility and press 'ENTER' or '1. FIND'. The list of the nearest ports (up to 10) containing the facility, will be shown on the screen.

Then choose the port you want and press 'ENTER' or '1. FIND'.

3.5.7.2 Finding Ports By Name

To select the Ports By Name function following the procedure:

- ▶ 'MENU' + "FIND" + 'ENTER' + "PORTS BY NAME" + 'ENTER'

Shows the list of all ports stored on the C-CARD in alphabetical order and allows to search ports by name to locate the ports on the map.

3.5.7.3 Finding Ports By Distance

To select the Ports By Distance function following the procedure:

- 'MENU' + "FIND" + 'ENTER' + "PORTS BY DISTANCE" + 'ENTER'

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

3.5.7.4 Finding Tide Stations

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

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

A new window will appear in few seconds. Choose the Tide Stations you want and press 'ENTER' or '1. FIND' to display the Tide Graph page (see Par. 3.5.7b). Press 'CLEAR' to display the Tide Station chosen.

3.5.7.5 Finding Wrecks

Searches for Nearest Wrecks:

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

Use the *Joystick* to select the port and 'ZOOM IN'/'ZOOM OUT' to select next/previous page. Press 'ENTER' or '1. FIND' to locate the selected Wreck on the map.

3.5.7.6 Finding Obstructions

Searches for Nearest Obstructions:

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

Use the *Joystick* to select the port and 'ZOOM IN'/'ZOOM OUT' to select next/previous page. Press 'ENTER' or '1. FIND' to locate the selected Obstruction.

3.5.7.7 Finding Cursor

Centers the cursor on the screen:

- 'MENU' + "FIND" + 'ENTER' + "CURSOR" + 'ENTER'

3.5.7.8 Finding Lakes Information

Searches for Nearest Lakes Info:

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

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

4.5.3.2 Displaying Track

- 'TRACK' + "CONFIG" + 'ENTER' + "DISPLAY MODE" + 'ENTER'

Selects the displaying of the past course Visible or Hidden. The default setting is Visible.

4.5.3.3 Selecting Color

- 'TRACK' + "CONFIG" + 'ENTER' + "COLOR" + 'ENTER'

Press 'ENTER' as many times as needed to select the color for the selected Track.

4.5.3.4 Selecting Track memorizing type

- 'TRACK' + "CONFIG" + 'ENTER' + "RECORDING MODE" + 'ENTER'

Choose Distance (the chart plotter can store a fix when the distance from its last stored position is greater than a defined distance) or Time (the chart plotter can store a fix after a defined time). The default setting is Time.

4.5.3.5 Selecting Time Step

- 'TRACK' + "CONFIG" + 'ENTER' + "TIME STEP" + 'ENTER'

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

4.5.3.6 Selecting Distance Step

- 'TRACK' + "CONFIG" + 'ENTER' + "DISTANCE STEP" + 'ENTER'

When the tracking function is On and the type of Track storing is Distance, you can store a fix when the distance from its last stored position is greater than a defined distance. Choose in the range 0.01, 0.05, 0.1, 0.5, 1.0, 2.0, 5.0, 10.0 Nm (the distance unit is selected by the user, see Par. 3.2.1). The default setting is 0.01 Nm.

4.5.3.7 Delete all Tracks

- 'TRACK' + "CONFIG" + 'ENTER' + "DELETE ALL TRACKS" + 'ENTER'

Deletes all the stored tracks. After pressing 'ENTER' a Warning window appears: press '1. CONFIRM' (or '2. CANCEL' to abort operation).

4.5.4 TRACK TO ROUTE MENU

- 'TRACK' + "TRACK TO ROUTE" + 'ENTER'

This function creates a Route from a pre-recorded Track. After pressing 'ENTER' a new window appears on the screen with the following options.

4.4.3 EDITING EBL/VRM

- 'EBL/VRM' + '1. ACCEPT'

Press '2. EDIT' to modify the line direction and the circle' radius. Use the *Joystick* to move the dotted line in any direction you choose; in the same time the radius changes. Press '1. ACCEPT' to confirm ('2. CANCEL' otherwise).

4.5 USING THE TRACK FUNCTION

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

4.5.1 ENABLING TRACK STORING

- 'TRACK' + "ACTIVATE" + 'ENTER'

or

- '#. TRACK ON' (if it is present, where # is 1, 2, 3, 4 or 5)

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

When Track storing is activated, to disable:

- 'TRACK' + "DEACTIVATE" + 'ENTER'

or

- '#. TRACK OFF' (if it is present, where # is 1, 2, 3, 4 or 5)

4.5.2 DELETING TRACK

- 'TRACK' + "DELETE" + 'ENTER'

Deletes all the Track or part of it. '1. BEGIN', '2. END' and '3. WHOLE' allow to identify the start or the end point of the segment to delete.

4.5.3 TRACK SETTING MENU

- 'TRACK' + "CONFIG" + 'ENTER'

On the screen a menu window is opened.

4.5.3.1 Selecting Active Track

- 'TRACK' + "CONFIG" + 'ENTER' + "ACTIVE TRACK" + 'ENTER'

Pressing 'ENTER' more times selects the number of the active Track. The default setting is 1.

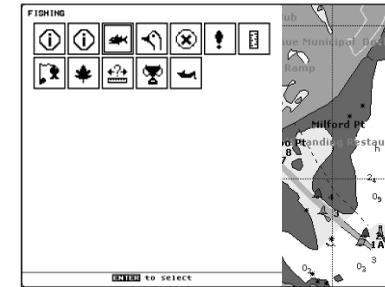


Fig. 3.5.7.8 - Outdoor Recreational Area objects

Use the cursor key to select any objects and press 'ENTER'. The list of the nearest lakes containing the facility will be shown on the screen.

Name	DIST	DRG
BRASH POINT	0.46	01
FRASH POINT	0.46	01
LAKE HILUSATONIC	9.66	7
LAKE HILUSATONIC	9.66	7
SALGATUCK RESERVOIR	11.71	299
SALGATUCK RESERVOIR	11.71	299
MANANASCO LAKE	19.58	297
MANANASCO LAKE	19.58	297
LAKE KENDZIA	20.74	308

Fig. 3.5.7.8a - Nearest Lakes list

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

3.5.7.9 Finding Lakes By Names

Selects the Lakes By Names function:

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

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

3.5.7.10 Finding POIs

Searches for Nearest Points Of Interest:

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

A sub-menu is opened to find different categories of POIs.

3.5.7.11 Finding Coordinates

Allows to enter LAT/LON to locate a cartographic point:

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

3.5.7.12 Finding User Points

Searches the User Points by name:

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

3.6 MAN OVERBOARD (MOB)

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

3.6.1 INSERTING MOB

Press 'EVENT/MOB' for 1 second to place MOB symbol at ship's coordinates: the message "MOB Activate" is shown for a few second, then disappears. Data displayed in Text Area are related to MOB.

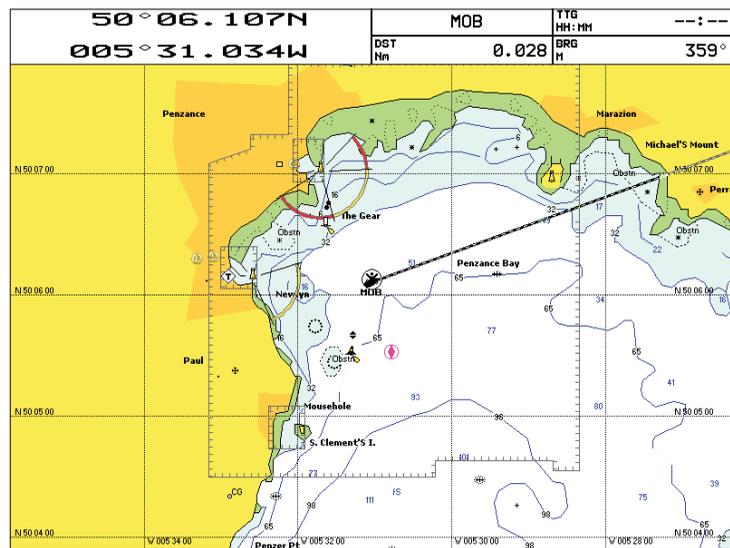


Fig. 3.6.1 - Man Overboard

3.6.2 DELETING MOB

Press 'EVENT/MOB' for 1 second: a window to confirm the MOB deletion is shown, press '1. CONFIRM' (or '2. CANCEL' to abort operation). The MOB symbol remains on the screen shaded until the next screen redraws.

4.3 AB FUNCTION

Selects the Range and Bearing, AB function which allows you fast and easy measurements of distance and bearing between two points.

4.3.1 INSERTING AB

- 'ENTER' + "AB" + 'ENTER'

The "A" point is positioned on the cursor position. Use the *Joystick* to move the cursor in the desired place and then to place the "B" point press:

- 'ENTER' + "AB" + 'ENTER'

A straight line connects the two points "A" and "B": a cross identifies the beginning and the end of the "A-B" line. A window appears with the distance (DST) and bearing (BRG) values.

4.3.2 DELETING AB

To delete the "A" and "B" points and the line press '2. CLEAR'.

4.4 EBL/VRM FUNCTION

The EBL option, "Electronic Bearing Line" is a dot line: the origin of the line is cursor position.

The VRM option, "Variable Range Marker" is a circle and its radius is determined by the user. The circle's center is the cursor position.

4.4.1 INSERTING EBL/VRM

- 'EBL/VRM'

A dotted line and a circle appears on the screen. A window with the DST and BRG values is shown. The origin of the line and the circle's centre is the cursor position: use the *Joystick* to move the dotted line in any direction you choose; in the same time the radius changes. Press '1. ACCEPT' to confirm ('2. CANCEL' otherwise).

4.4.2 DELETING EBL/VRM

- 'EBL/VRM' + '1. ACCEPT'

Press '1. DELETE' to delete the line and the circle.

A window to confirm the deletion is shown. Press '1. CONFIRM' ('2. CANCEL' otherwise): the Event remains on the screen shaded until the next screen is redrawn.

Note

If you try to delete any User Point used as GOTO a Warning window will appear, advising that the User Point belongs to an active Route and cannot be deleted.

4.2.2.3 Editing Event

- Place cursor on existing Event + '3. EDIT'

A window appears to modify Name, Color and Symbol the existing Event.

Use the *Joystick* to select the field. If you have selected Name field, press 'ENTER': use the *Joystick* to insert the character (8 characters max), press 'ENTER'. If you have selected Color field, press 'ENTER': a window with 8 different colors appears. Use the Joystick to select the color and press 'ENTER'. If Symbol field is selected press 'ENTER': a window with 16 different symbols appears. Use the *Joystick* to select the Symbol and press 'ENTER'. The Notes field is used to insert an alphanumeric text (max 15 characters). Then press '1. ACCEPT' to confirm the data entered.

4.2.2.4 Goto

- Place cursor on existing Event + 'GOTO'

A circle encloses the Event symbol. A straight line is shown connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.

4.2.2.5 Finding Event

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

A window is opened to find a stored Event by entering its label. Use the *Joystick* to insert the name and press '1. CONFIRM' ('2. CANCEL' otherwise).

4.2.2.6 Finding information on Events: User Points List page

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

A full window is opened showing information about all stored User Points (Marks, Events and Waypoints). Move up/down the *Joystick* to select the User Point you wish. If the page contains more than 11 User Points, the list continues in the next pages. See Par. 4.1.2.8.

4.2.2.7 Send and Receive Events

- 'MENU' + 'MENU' + "USER POINTS" + 'ENTER' + 'SEND' + 'ENTER'
To send all User Points to an external device through the serial port.
- 'MENU' + 'MENU' + "USER POINTS" + 'ENTER' + 'RECEIVE' + 'ENTER'
To read User Points from the NMEA input port.

4

For the Experienced User

Now that you are familiar with your new chart plotter, it is time to found about a large number of advanced features that you will find helpful.

4.1 MORE ABOUT CREATING AND USING ROUTES

At anytime, you may add or delete Waypoints, see a Route summary, reverse the direction of the Route or erase the entire Route.

4.1.1 ROUTES

The following functions are used for the Route management.

- 'MENU' + 'MENU' + "ROUTE" + 'ENTER'

4.1.1.1 Selecting Route

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

Use the *Joystick* or the numeric keys to select the preferred Route number.

The following functions are available.

Displaying Route

- 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER' + '1. SELECT'

The Route, shown by straight segments, is centered on the screen, with the cursor on the central Waypoint.

Editing notes

- 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER' + '2. NOTES'

Another window is shown: use the *Joystick* to insert the notes (this is possible only if you have already created a Route). Press 'ENTER' to confirm ('CANCEL' otherwise).

Hide/Show Route

- 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER' + '3. HIDE/SHOW'

Allows to hide or show the selected Route on the screen.

Route Color

- 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER' + '4. COLOR' It is possible to change color. After pressing '4.COLOR' another window is shown: use the Joystick to choose the preferred color (among 8 colors) for the Route. Press '1. ACCEPT' to confirm ('2. CANCEL' otherwise).

Find Route

- 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "SELECT" + 'ENTER' + '5. FIND' Allows to find the Route in the Select Route page inserting the desired number (then to display the selected Route on the screen press '1. SELECT').

4.1.1.2 Deleting Route

- 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "DELETE" + 'ENTER' A window is opened: press '1. CONFIRM' to delete ('2. CANCEL' otherwise).

The Route remains on the screen shaded until the screen is redrawn.

4.1.1.3 Finding information on Route: Route Report

- 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER'

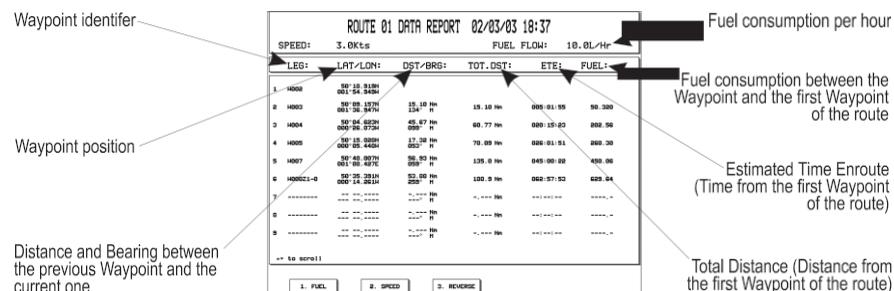


Fig. 4.1.1.3 - Route Data Report page

If there are more than 9 Waypoint shown, use the Joystick to select another page.

Changing Speed & Fuel values

- 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + '1. FUEL'
- 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + '2. SPEED'

Insert value by using the Joystick and pressing 'ENTER' ('CLEAR' abort operation).

4.2.1.5 Goto

- Add Mark ('ENTER' + "MARK" + 'ENTER') or Place cursor on existing Mark Press 'GOTO': a circle encloses the Mark symbol. A straight line is shown on the screen connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.

4.2.1.6 Finding Mark

- 'MENU' + "FIND" + 'ENTER' + "USER POINTS" + 'ENTER' A window is opened to find a stored Mark by entering its label. Use the Joystick to insert the name and press '1. CONFIRM' ('1. CANCEL' otherwise).

4.2.1.7 Finding information on Marks: User Points List page

- 'MENU' + 'MENU' + "USER POINTS" + 'ENTER' + "LIST" + 'ENTER' A full window is opened showing information about all stored User Points (Marks, Events and Waypoints). Move up/down the Joystick to select the User Point you wish. If the page contains more than 11 User Points, the list continues in the next pages. See Par. 4.1.2.8.

4.1.2.8 Send and Receive Marks

- 'MENU' + 'MENU' + "USER POINTS" + 'ENTER' + 'SEND' + 'ENTER' To send all User Points to an external device through the serial port.
- 'MENU' + 'MENU' + "USER POINTS" + 'ENTER' + 'RECEIVE' + 'ENTER' To read User Points from the NMEA input port.

4.2.2 EVENTS

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

4.2.2.1 Adding Event

- 'EVENT/MOB'
- or
- '#. EVENT' (if it is present, where # is 1, 2, 3, 4 or 5) An Event is placed directly on the ship's position.

Note

It is possible to place an Event only if the chart plotter is making a valid position fix.

4.2.2.2 Deleting Event

- Place cursor on existing Event + '2. DELETE'

4.2.1.3 Deleting Mark

► Add Mark ('ENTER' + "MARK" + 'ENTER') or Place cursor on existing Mark Press '2. DELETE': a window to confirm the deletion is shown. Press '1. CONFIRM' (2. CANCEL' otherwise): the Mark remains on the screen shaded until the next screen is redrawn.

4.2.1.4 Editing Mark

► Add Mark ('ENTER' + "MARK" + 'ENTER') or Place cursor on existing Mark Press '3. EDIT'. A window appears to modify Name, Symbol, Color, coordinates, Dangerous status and notes of the existing Mark. Use the *Joystick* to select the field. If you have selected Name field, press 'ENTER': use the *Joystick* to insert the character (8 characters max), then press 'ENTER'. If Symbol field is selected press 'ENTER': a window with 16 different symbols appears. Use the *Joystick* to select the symbol and press 'ENTER'. If you have selected Color field, press 'ENTER': a window with 8 different colors appears. Use the Joystick to select the color and press 'ENTER'. If Coordinates field is selected, press 'ENTER' and then use the *Joystick* to insert the value. The Danger field is used to switch Yes/No the Danger status. If Danger status is Yes and the Guard Zone Alarm (see also Par. 5.3.4.4) is set to any value from 0.01 to 9.99 NM and the distance between the fix position and the selected Mark is less than Guard Zone Alarm value, a warning message is shown. The Notes field is used to insert an alphanumeric text (max 15 characters). Then press '1. ACCEPT' to confirm the data entered.

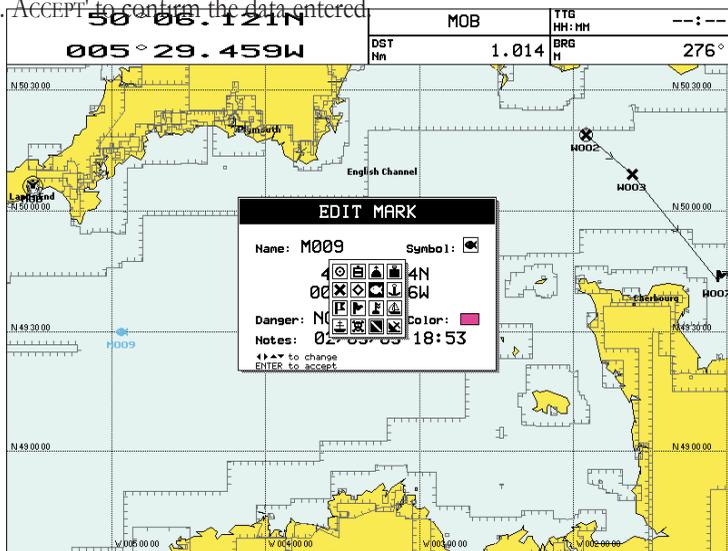


Fig. 4.2.1.3 - Graphic symbol setting

Reversing Route

► 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "REPORT" + 'ENTER' + '3. REVERSE' Reversing a Route plan is most typically used to return to the point where the Route originally started.

4.1.1.4 Selecting Route Color

► 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "COLOR" + 'ENTER' It is possible to change Route color. After pressing 'ENTER' a window with 8 different colors appears. Use the Joystick to select the Route legs color and press '1. ACCEPT' (2. CANCEL' otherwise).

4.1.1.5 Send and Receive Route

► 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "SEND" + 'ENTER' To transmit the Active Route information onto the NMEA output port. The NMEA WPL & RTE messages are sent to the output port.

► 'MENU' + 'MENU' + "ROUTE" + 'ENTER' + "RECEIVE" + 'ENTER' To save Route information received from the NMEA input port. The received route is saved on the Active Route, overwriting it. The NMEA WPL & RTE messages are sent to the input port.

4.1.2 WAYPOINTS

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

4.1.2.1 Adding Waypoint

Place the cursor on position you want and then:
► 'ENTER' + "WAYPOINT" + 'ENTER'
or
► '#. Wpt' (if it is present, where # is 1, 2, 3, 4 or 5)

The Waypoint appears on the screen on the cursor position. An info window is shown containing Route number, data and time, Waypoint name, symbol and Latitude/Longitude, information on previous and - if the Waypoint is not the last of the Route - also on the next Waypoint. To create a Route inserting additional Waypoints repeat the above described sequence.

4.1.2.2 Moving Waypoint

- Add Waypoint ('ENTER' + "WAYPOINT" + 'ENTER') or Place cursor on existing Waypoint

Press '1. MOVE'. Use the *Joystick* to move the cursor: a dotted line, connecting the Waypoint to the new position, is shown:

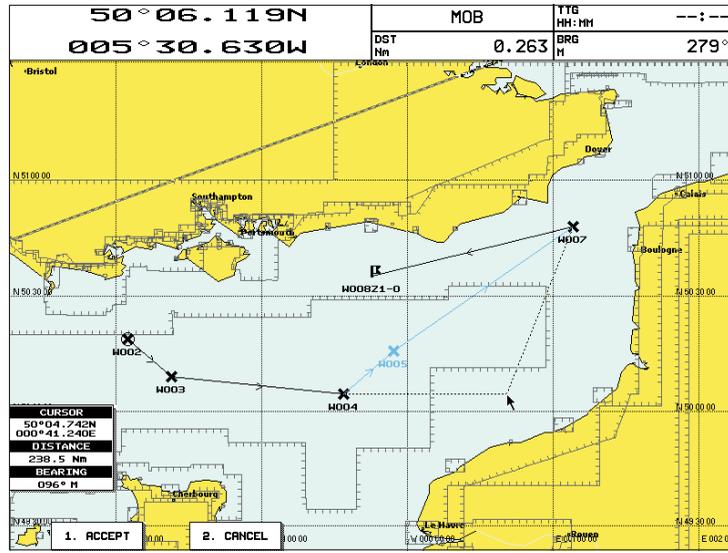


Fig. 4.1.2.2 - Moving Waypoint function (I)

To place the Waypoint in the new position, choose the new place and press '1. ACCEPT' (or '2. CANCEL' otherwise).

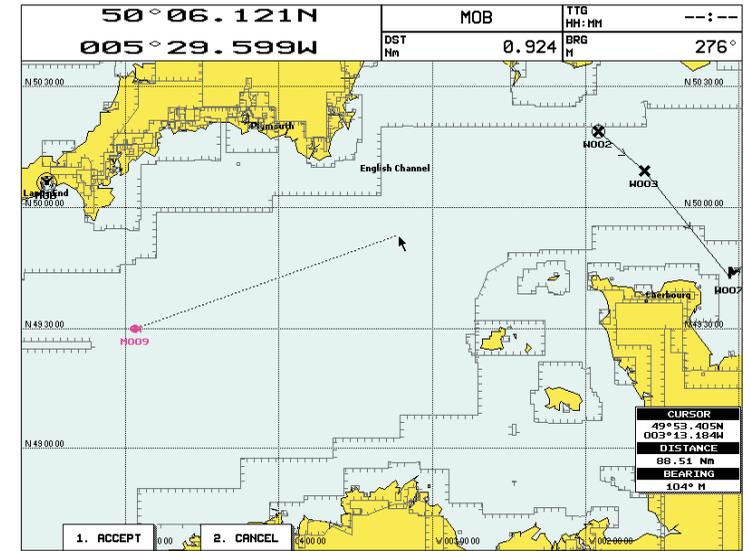


Fig. 4.2.1.2 - Moving Mark function (I)

Press '1. ACCEPT':

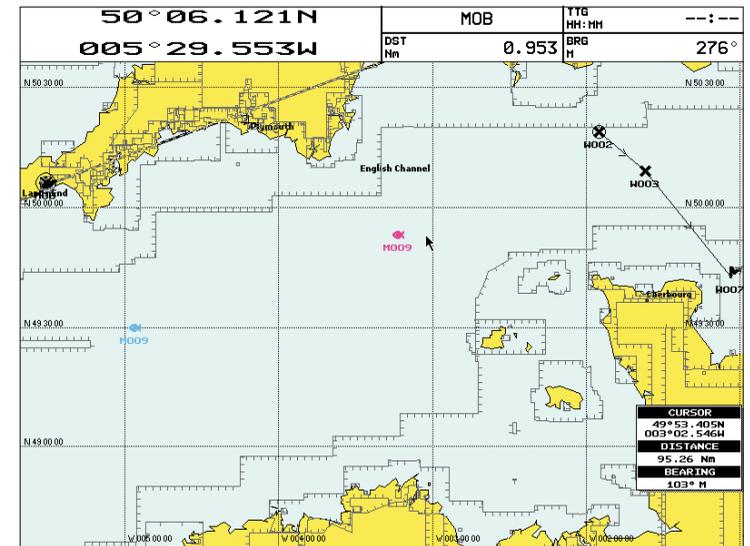


Fig. 4.2.1.2a - Moving Mark function (II)

The Mark is placed in the new position, the "old" Mark, remains on the screen shaded until the screen is redrawn.

4.1.2.9 Send and Receive Waypoints

- 'MENU' + 'MENU' + "USER POINTS" + 'ENTER' + 'SEND' + 'ENTER'
To send all User Points to an external device through the serial port.
- 'MENU' + 'MENU' + "USER POINTS" + 'ENTER' + 'RECEIVE' + 'ENTER'
To read User Points from the NMEA input port.

4.2 USING MARKS & EVENTS

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

4.2.1 MARKS

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

4.2.1.1 Adding Mark

Place the cursor on position you want and then:

- 'ENTER' + "MARK" + 'ENTER'

or

- '#. MARK' (if it is present, where # is 1, 2, 3, 4 or 5)

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

4.2.1.2 Moving Mark

- Add Mark ('ENTER' + "MARK" + 'ENTER') or Place cursor on existing Mark

Press '1. MOVE'. By moving the cursor with the *Joystick*, a dotted line connecting the Mark with the new position is shown:

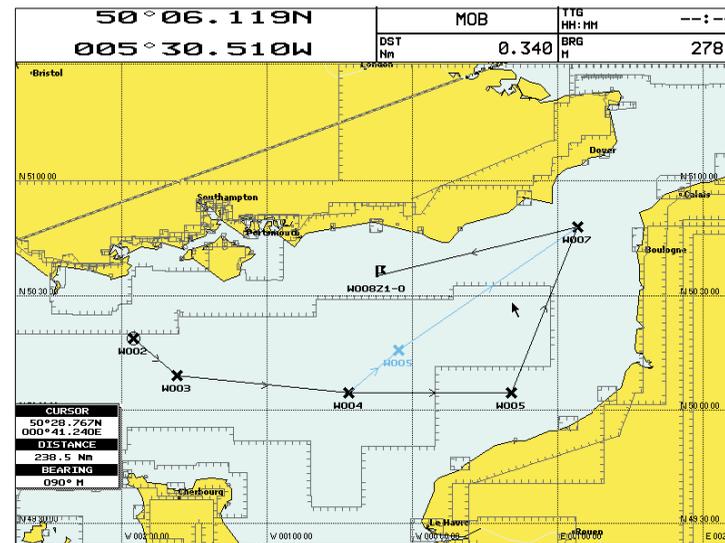


Fig. 4.1.2.2a - Moving Waypoint function (II)

4.1.2.3 Deleting Waypoint

- Add Waypoint ('ENTER' + "WAYPOINT" + 'ENTER') or Place cursor on existing Waypoint

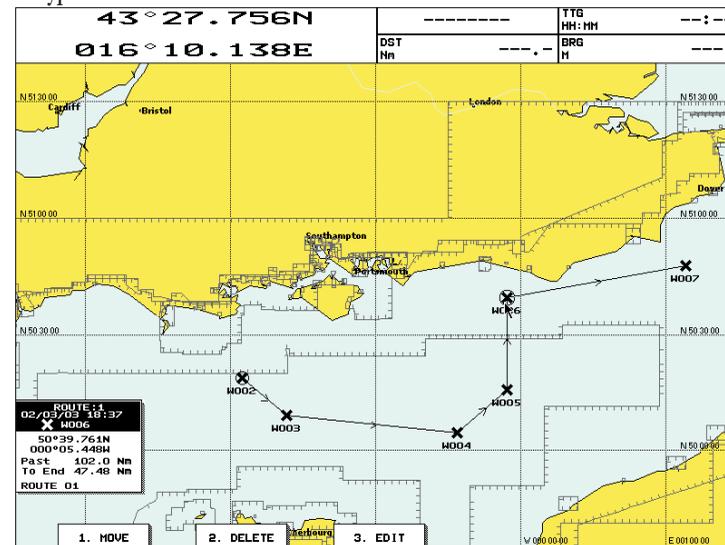


Fig. 4.1.2.3 - Deleting Waypoint (I)

Press '2. DELETE'. A Warning message is shown to advise that Waypoint is currently used in a Route; press '1. CONFIRM' to confirm deletion ('2. CANCEL' other-wise). The Waypoint is deleted and a new line between previous and next Waypoint is shown. The deleted Waypoint remains shaded until the screen is redrawn.

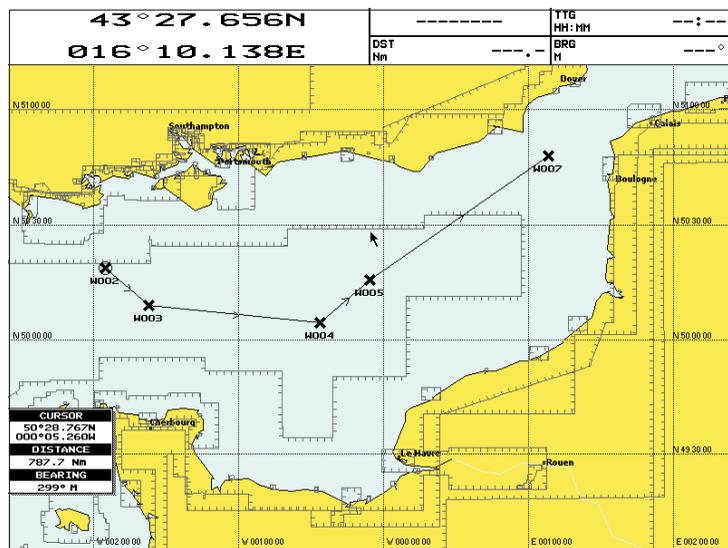


Fig. 4.1.2.3a - Deleting Waypoint (II)

4.1.2.4 Editing Waypoint

➤ Add Waypoint ('ENTER' + "WAYPOINT" + 'ENTER') or Place cursor on existing Waypoint
 Press '3. EDIT' to modify a Waypoint. A window will be shown with Name, Symbol, Color and Latitude/Longitude of the Waypoint, advising about what Waypoint data are modifiable:

4.1.2.8 Finding information on Waypoints: User Points List page

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

A full window is opened showing information about all stored User Points. Move up/down the Joystick to select the User Point you wish. If the page contains more than 11 User Points, the list continues in the next pages.

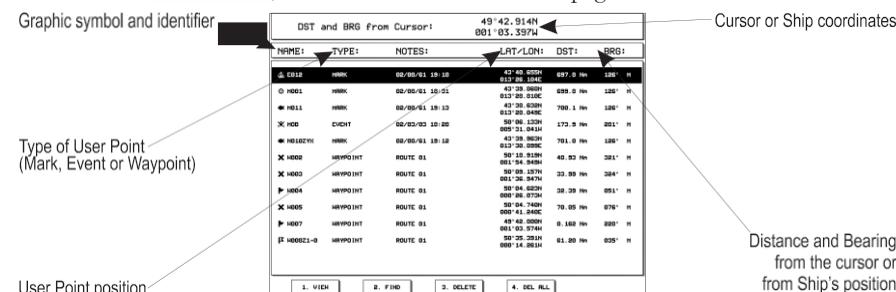


Fig. 4.1.2.8 - User Points page

Note

In the list to identify the current Target a circle encloses the User Point symbol.

Viewing Waypoint in map display

➤ 'MENU' + 'MENU' + "USER POINTS" + 'ENTER' + "LIST" + 'ENTER' + '1. VIEW'
 The chart plotter exits from the User Points List page and redraws the chart. The selected point appears, with the cursor placed on it. Press 'CLEAR' to exit and re- turn to User Point List page.

Finding Waypoint in the User Points List page

➤ 'MENU' + 'MENU' + "USER POINTS" + "LIST" + 'ENTER' + 'ENTER' + '2. FIND'
 A window appears: insert the name by using the Joystick. Press 'ENTER': in the User Points List page the chart plotter shows the Waypoint in reverse video screen.

Deleting Waypoint

➤ 'MENU' + 'MENU' + "USER POINTS" + "LIST" + 'ENTER' + 'ENTER' + '3. DELETE'
 A warning message is shown; press '1. CONFIRM' ('2. CANCEL' otherwise).

Deleting all stored User Points

➤ 'MENU' + 'MENU' + "USER POINTS" + "LIST" + 'ENTER' + 'ENTER' + '4. DEL ALL'
 A warning message is shown, press '1. CONFIRM' ('2. CANCEL' otherwise).

Note

If you try to delete any User Point used as GOTO a Warning window will appear, advising that the User Point belongs to an active Route and cannot be deleted.

A window is opened to find a stored Waypoint by entering its label:

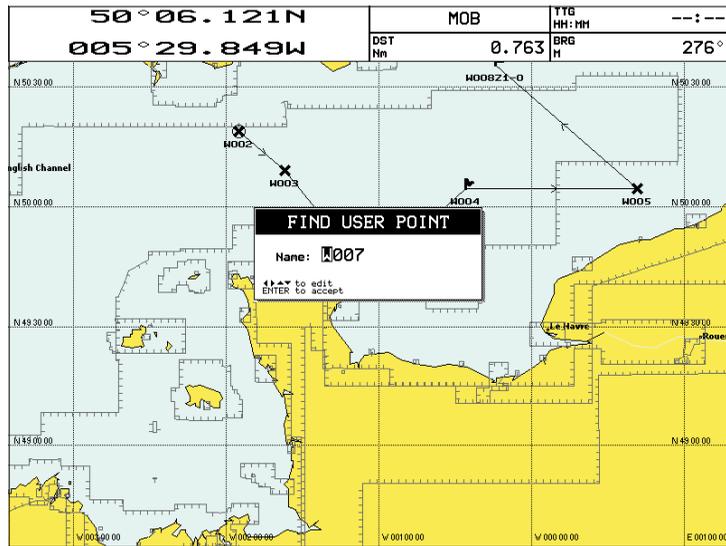


Fig. 4.1.2.7 - Finding Waypoint function (I)

Use the *Joystick* to insert the name and press '1. CONFIRM' ('2. CANCEL' otherwise). For example, if the inserted name is W007, the cursor is placed on this Waypoint and the info window is shown:

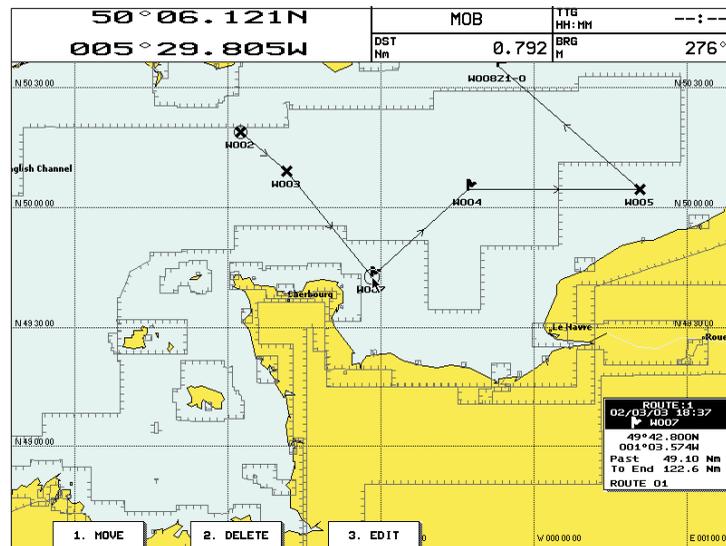


Fig. 4.1.2.7a - Finding Waypoint function (II)

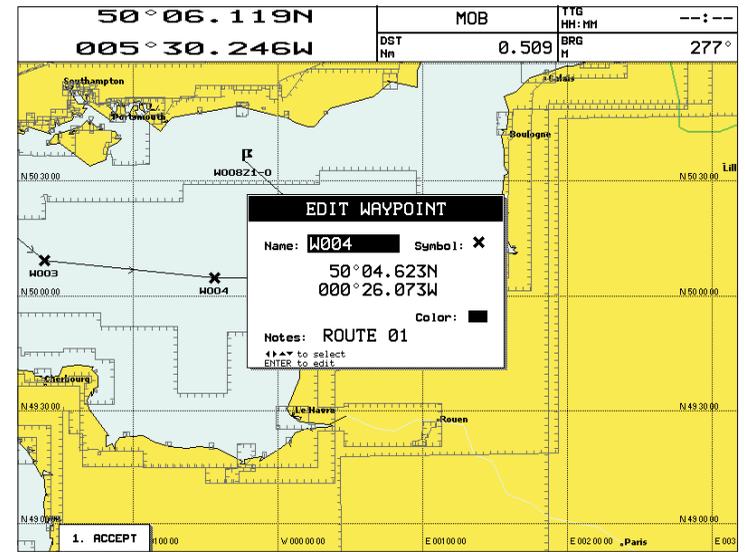


Fig. 4.1.2.4 - Edit Waypoint

Use the *Joystick* to select the field. If you have selected Name field, press 'ENTER': use the *Joystick* to insert the character (8 characters max), press 'ENTER'. If Symbol field is selected press 'ENTER', a window with 16 different symbols appears:

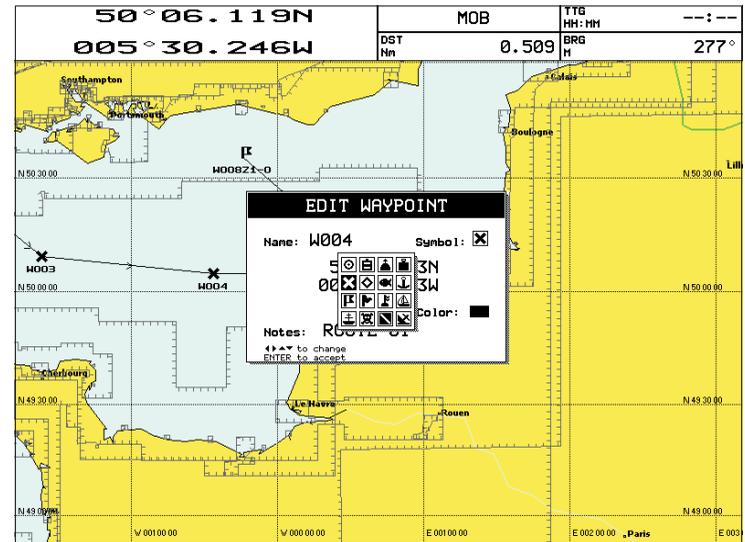


Fig. 4.1.2.4a - Waypoint symbols

Use the *Joystick* to select the Symbol and press 'ENTER'. If you have se-

lected Color field, press 'ENTER': a window with 8 different colors appears. Use the Joystick to select the color and press 'ENTER'. If Coordinates field is selected, press 'ENTER' and then use the Joystick to insert the value. The Notes field is used to insert an alphanumeric text (max 15 characters). Then press '1. ACCEPT' to confirm the data entered.

4.1.2.5 Goto

- Add Waypoint ('ENTER' + "WAYPOINT" + 'ENTER') or Place cursor on existing Waypoint

Press 'GOTO': a circle encloses the Waypoint symbol. On the screen a straight line is shown, connecting the Target with the ship's position. When the Target is placed, all navigation data are referred to this Target.

4.1.2.6 Inserting Waypoint

Every time you place the cursor on the segment connecting two existing Waypoints of a Route the following function is available.

- Place cursor on Route leg

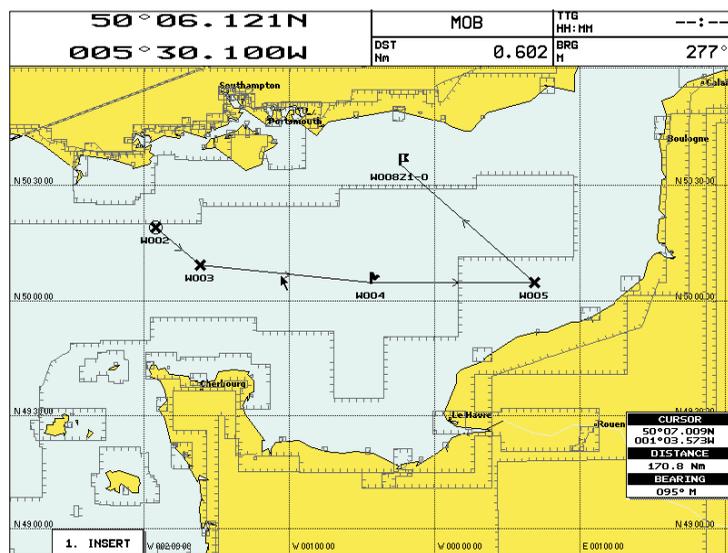


Fig. 4.1.2.6 - Placing Waypoint between two existing ones (I)

Press '1. INSERT'. The line between the two Waypoints is turned into a dotted line: move the cursor to the new position. When the cursor is stationary for 1 second or 2, the line will "rubber-band", drawing a dotted line between the last Waypoint and the cursor, and another dotted line between the cursor and the next Waypoint.

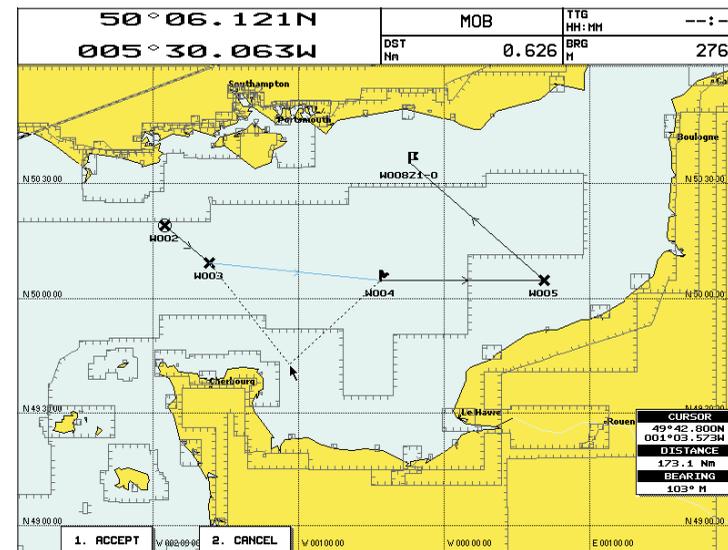


Fig. 4.1.2.6a - Placing Waypoint between two existing ones (II)

Once you have positioned the cursor at new location, press '1. ACCEPT':

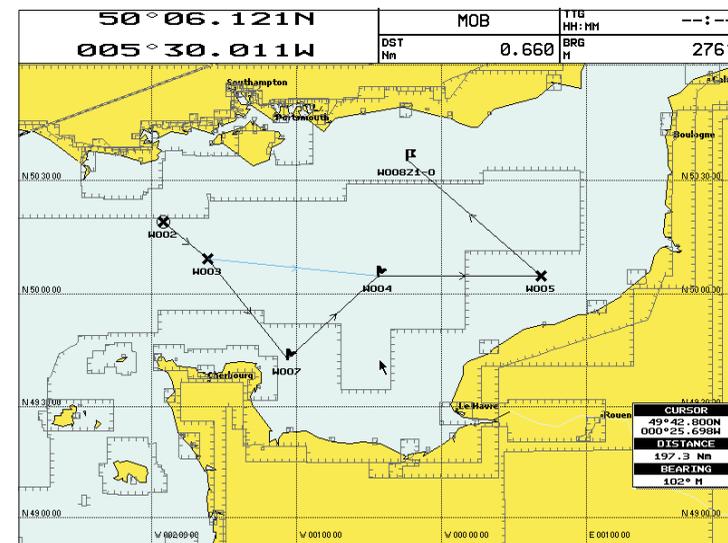


Fig. 4.1.2.6b - Placing Waypoint between two existing ones (III)

4.1.2.7 Finding Waypoint

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



Customer Service

If you encounter problems during the installation or operation of this product, or cannot find the information you need, please contact Sitex Customer Service.

The contact numbers and e-mail address for Sitex Customer Service are:

Sitex Main Office.....+1-631-996-2690

Sitex Fax.....+1-631-996-2693

Sitex Service E-mail address: service@si-tex.com

Sitex Customer Support E-mail address: customerservice@si-tex.com

Sitex Main Office Address:

25 Enterprise Zone Drive, Ste 2

Riverhead, NY 11901

Technical Support is available from 9:00 AM to 5:00 PM Eastern Standard Time, Monday through Friday.