



A Simrad Company

# MANUAL

## h1000 CND

### Chartplotter

*HB-1000C-02 English*

## **WARNING!**

**Use of solvent based or chemical cleaners on displays will result in damage and invalidate your warranty.**



Congratulations on your purchase of the Central Navigation Display (CND) from B&G. The CND is the latest in chart plotting and navigation displays from B&G and represents B&G's commitment to providing customers the finest marine navigation systems. The CND is a state-of-the-art computerised electronic chart system designed as a sophisticated navigation aid. Your CND provides many useful features and is easy to use.

Before you begin using your new CND, please take the time to read this manual to help you achieve the full potential from your new system.

## features

All calculations and information necessary for navigation are performed and displayed on the screen quickly and accurately providing all of the facilities of a conventional GPS but with the added benefit of a powerful electronic chart display.

### Features

The Central Navigation Display (CND) is a fully functioned colour Chart Plotter which can be used either as a stand-alone system or integrated into an instrument system.

- Daylight viewable transfective ¼ VGA colour screen gives excellent clarity even in bright sunlight
- Latest presentation of C-Map NT Cartography, hot-swap cartridges
- Highest specification C-Map NT feature implementation
- Utilises C-Map User-Card technology to enable backup of waypoints, tracks, routes and marks. Also can be used for home route planning (with optional C-Map PC-Planner Kit)

**Instrumentation data repeater** - any NMEA instrument source (see "Interfacing" for details), custom pages provide easy to use presentation of instrument data.

User information like Waypoints, Marks and tracks can be stored on a User **G-CARD**, and can be recalled at any time. The CND will also display available instrument data in dedicated display formats. On the screen are shown navigation data and cartographic information obtained from **C-MAP NT** electronic charts.

## certification



## warnings &amp; precautions

**WARNING:**

The GPS system is operated by the United States government, which is solely responsible for its accuracy & maintenance. The system is subject to changes that could affect the accuracy and performance of all GPS equipment. Although the B&G *CND* is a precision electronic NAVigation AID (NAVAID), any NAVAID can be misused or misinterpreted and, therefore, become unsafe.

Use the *CND* at your own risk. To reduce the risk of unsafe operation, carefully review and understand all aspects of this Owner's Manual – and thoroughly practice operation using the simulator mode prior to actual use. When in actual use, carefully compare indications from the *CND* to all available navigation resources, including the information from other NAVAIDs, visual sightings, charts, etc. For safety, always resolve any discrepancies before continuing navigation.

**CAUTION:**

**The unit meets the requirements of IP67 sealing, only when the door is closed.**

**Do not use an alcohol based cleaner on this display.**

**Note:**

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference, the user is encouraged to try to correct the interference by relocating the equipment or connecting the equipment to a different circuit. Consult an authorised dealer or other qualified technician for additional help if these remedies do not correct the problem.

This device meets requirements for CFR47 Part 15 of the FCC limits for Class B equipment.

The *CND* meets the standards set out in European Standard EN 60945: 1997 IEC 945: 1996 for maritime navigation and radiocommunication equipment and systems .

The *CND* contains no user-serviceable parts. Repairs should only be made by an authorised service centre. Unauthorised repairs or modifications will void your warranty.

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## trademarks

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C-MAP, C-MAPNT and CF-95 are all trademarks of C-MAP Italy srl and may not be used without the express permission of C-MAP.

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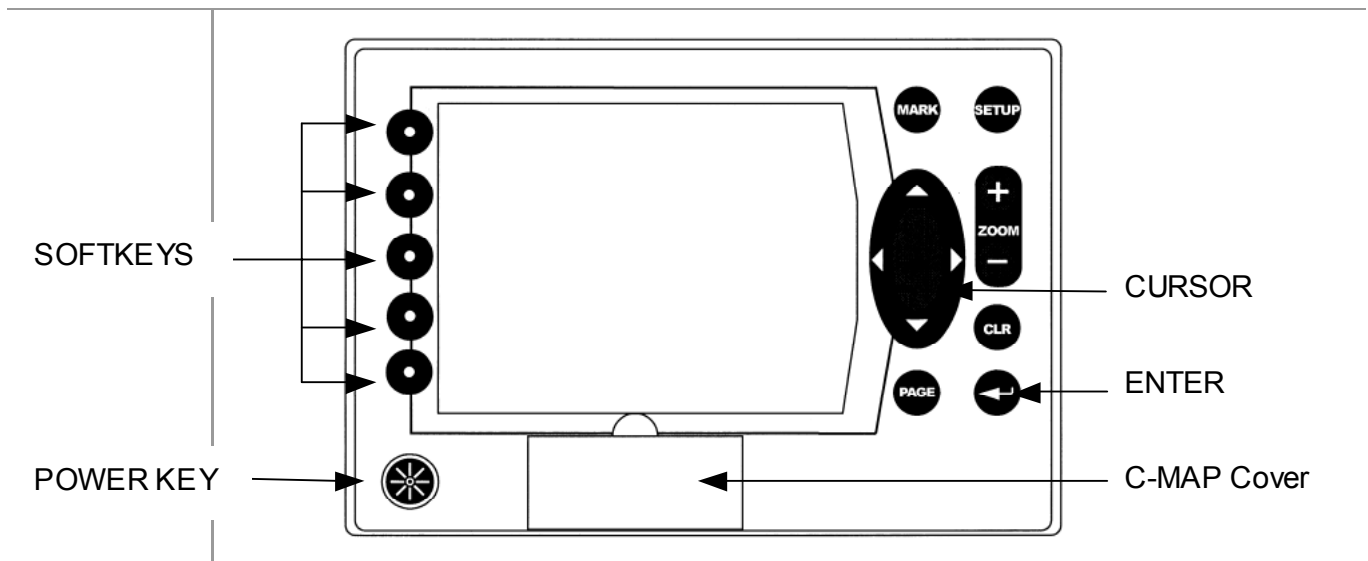
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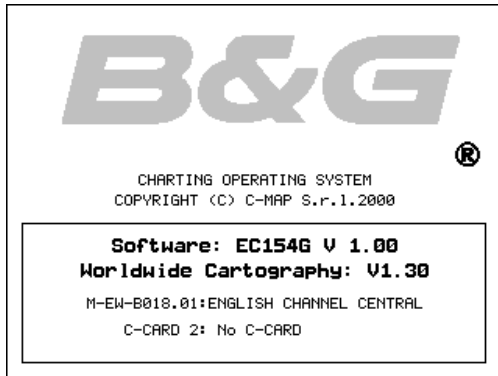
## display overview



	Press the <b>PWR</b> key to turn the CND On
	There are 5 Softkeys, which have different functions when you select different modes of operation, the labels for the current functions are shown on the screen immediately adjacent to the keys.
	Press the <b>MARK</b> key to place a Mark at your boat's current position.
	Press the <b>SETUP</b> key to enter the Setup pages.
	Press the <b>ZOOM +</b> key to display more details of a smaller area, by changing the chart scale and zooming in on your display. Press the <b>ZOOM -</b> key to change the scale and display a wider view.
	The <b>CURSOR</b> keypad moves the cursor about on the display screen, quickly and accurately. It also scrolls the desired option in the menu page(s).
	Press the <b>CLR</b> key to exit from menu or to leave a menu without making changes.
	Press the <b>ENTER</b> key to select a function or enter a waypoint.
	Press the <b>PAGE</b> key to scroll through the three different sets of pages: Data (Speed & Depth, Nav, Wind, Multi)GPS (Status, Position, Road, XTE), and Chart Plotter.

## switching on and off

Before turning the *CND* on, check that the installation instructions in Appendix B have been correctly followed.

**Switching On**

Pressing the **PWR** key for one second switches on the *CND*, you will first be presented with the B&G logo screen and software version information.

The *CND* will then perform a short self test procedure that checks internal memory and displays any failure detected on the screen.

If installed, the C-CARD will also be tested.

After a few seconds, a Caution page is displayed, reminding you that the chart plotter is only an aid to navigation, and should be used in conjunction with normal navigational practices.

Pressing any key will then display the cartographic screen with a position if an external GPS is connected.

The display can be customised for your personal preferences using the System Settings section.

**Switching Off**

Press the **PWR** key and hold for three seconds, a countdown timer appears on the screen, when this reaches zero it will power off.

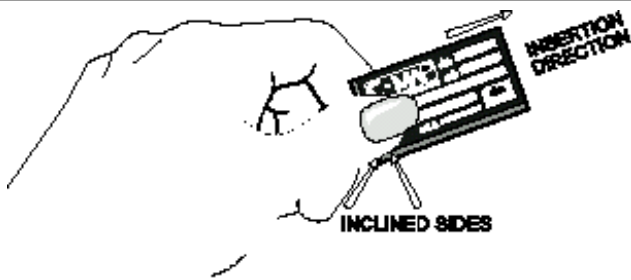
If you release the key before the countdown timer reaches zero, the *CND* will remain on.

## backlight



There are three levels of backlighting. To alter the level of backlighting, press and release the **PWR** key until the desired level.

c-card



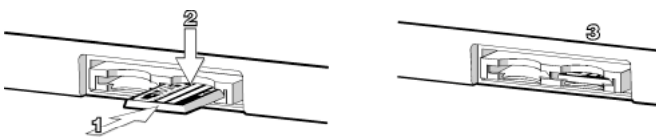
The *CND* uses two types of C-MAPNT cartridges,

The C-CARD, contains detailed charts of the area covered.

The User C-CARD can be used to permanently store your routes, Waypoints, Marks and tracks.

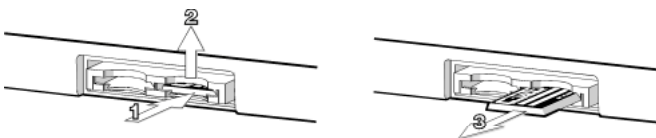
Hold the C-CARD by the short inclined side so that you can see the C-MAP label.

**WARNING:** To prevent ingress of water, ensure C-Card door area is dry. Failure to comply may result in invalidation of warranty.



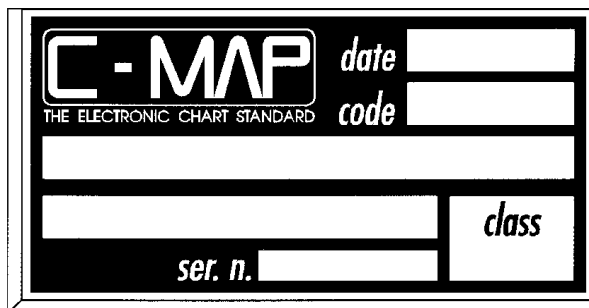
**Inserting the Card**

Gently push the C-CARD into one of the slots (1), push the C-CARD in as far as it will go, then gently move it to the bottom position (2) to hold it in the slot (3).



**Removing the card**

Press the C-CARD gently inward (1) and move it upwards (2) until you hear a click, the C-CARD will then eject out of the slot (3).



**C-MAP** is continuously creating new charts and revising old ones. If you wish to receive information on the newest available charts, you can write for a catalogue of available charts or ask at your dealer.

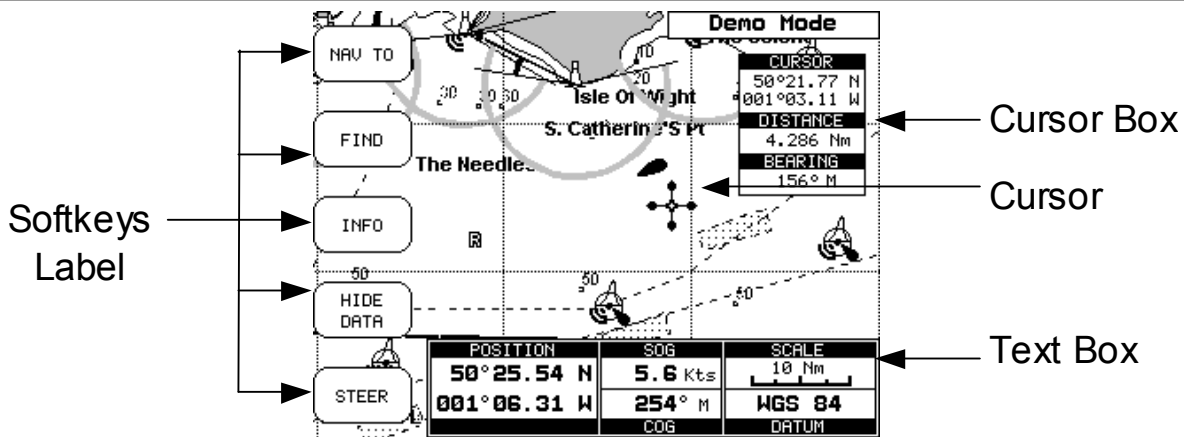
system settings

Keypad Beep: On  
 Language: English  
 Speed/Distance Units: Nautical Miles  
 Depth Units: Metres  
 Wind Speed Units: Knots

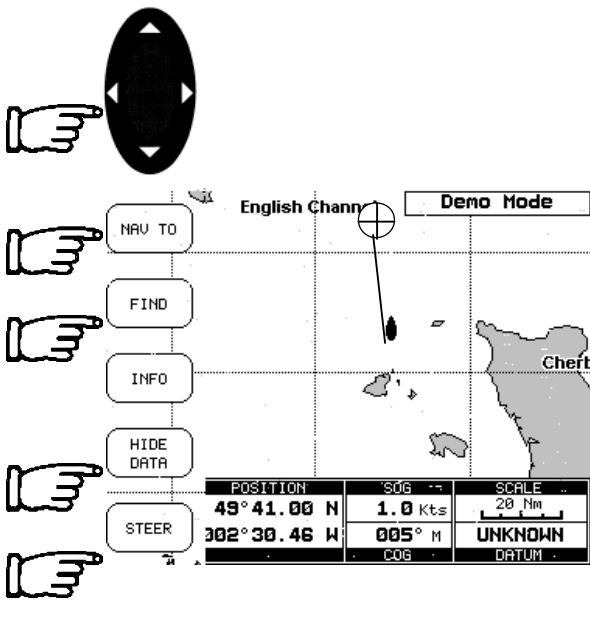
Bearing Reference: Magnetic  
 Date Format: Day-Month-Year  
 Time Reference: UTC  
 Coordinate System: degrees and minutes (2 dec. places)

To change any of these settings, please refer to the System Settings section.

overview of the display



navigate to a single destination



Using the **CURSOR** keypad move the cursor to your desired destination then press the **NAV TO** softkey, this softkey will then change to the **START** softkey, pressing the **START** softkey will then create the Direct Target.

A line is drawn connecting the Direct Target symbol with the boat's position, all navigation data is now referred to this Target.

**Distance to bearing**

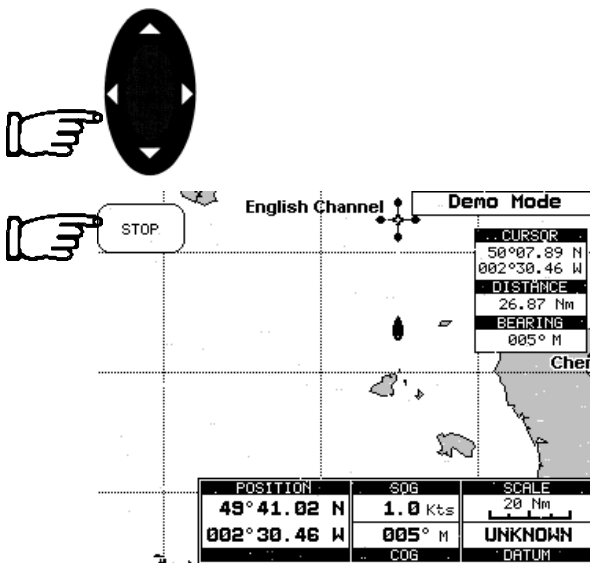
Position the cursor on the Direct Target symbol and the Cursor information box will contain the Latitude/Longitude, the distance and the bearing from your boat's position.

**Steer**

Pressing the **STEER** Softkey will display the Destination text box in place of the Position text box.

**Hide Data**

Pressing the **HIDE DATA** Softkey will remove the information box and display a full screen chart and the softkeys.

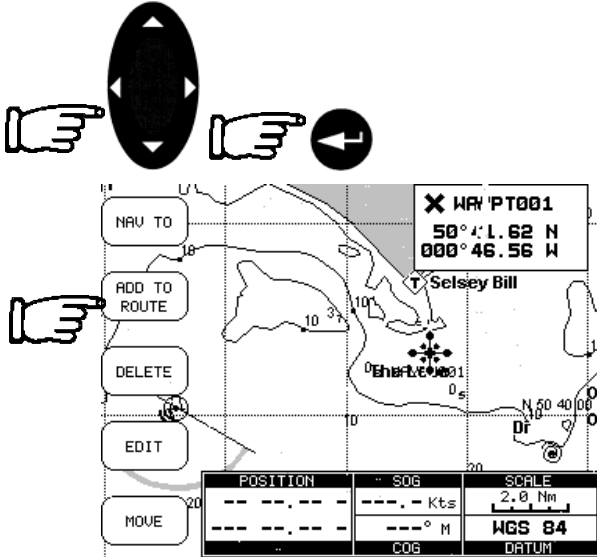


**Deleting a Destination**

Using the **CURSOR** keypad to place the cursor on the Direct Target symbol, the softkey will then change to the **STOP** softkey, press the **STOP** softkey and the Direct Target symbol disappears from the screen.

navigating on a route

If you prefer to navigate following a route towards its end point, you can define a series of locations (Waypoints) in sequence to make a route.



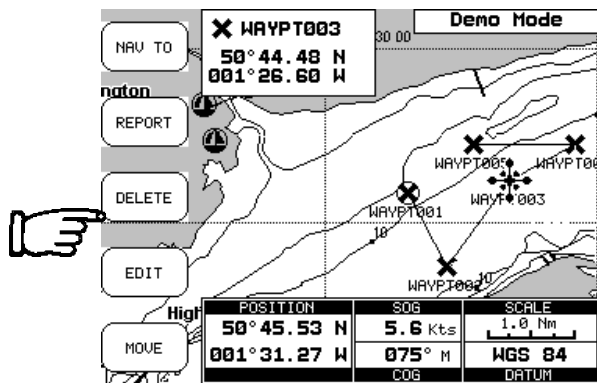
**Adding a Waypoint**

Using the **CURSOR** keypad place the cursor on the desired position, pressing the **ENTER** key will insert a Waypoint symbol on the chart, press the **ADD TO ROUTE** Softkey to make it the first point on your route.

**Viewing Information on Waypoints**

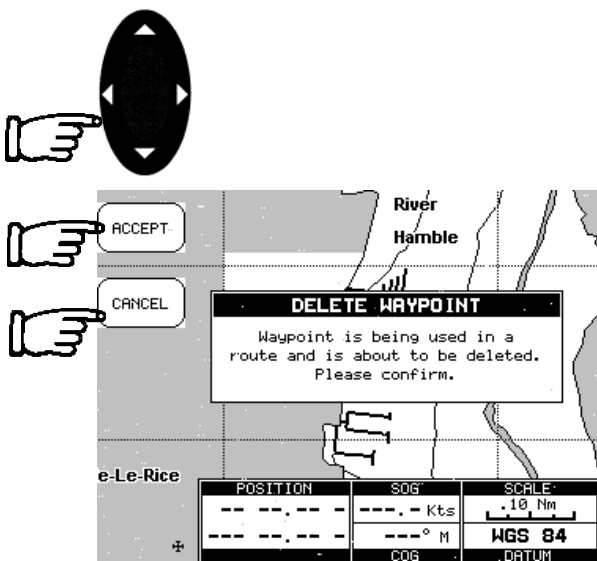
Position the cursor on the Waypoint and the Cursor information box will change to the Waypoint information box displaying the Waypoint name and Latitude/Longitude.

**Note:** Waypoints may be added by uploading data from a PC, refer to Page 27 – Advanced Features – Uploading waypoints from a PC.



**Creating a route**

Repeat the “Adding a Waypoint” procedure as shown above until you reach your final destination. The lines connecting the Waypoints are known as a leg, a circle surrounding the first Waypoint of the route identifies the starting point.

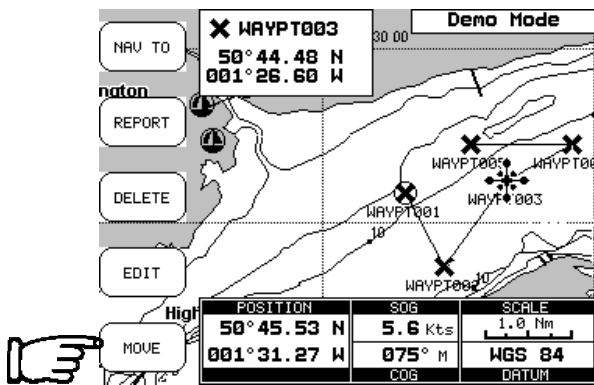


**Deleting a waypoint**

Using the **CURSOR** keypad place the cursor on the Waypoint to be deleted and press the **DELETE** Softkey, a window opens to advise that the Waypoint is being used in a route, press the **ACCEPT** Softkey to delete it, the Waypoint is deleted and a new line between previous and next Waypoint is shown.

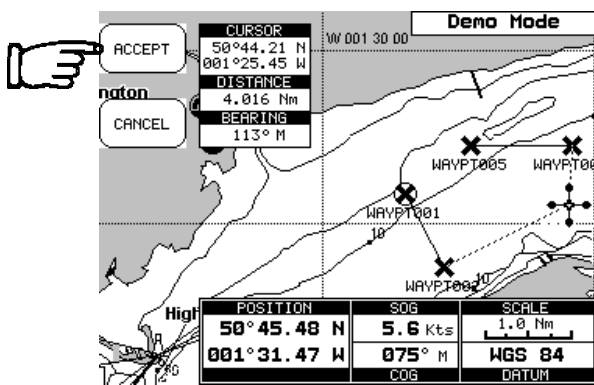
Pressing the **CANCEL** Softkey returns to the chart.

navigating on a route

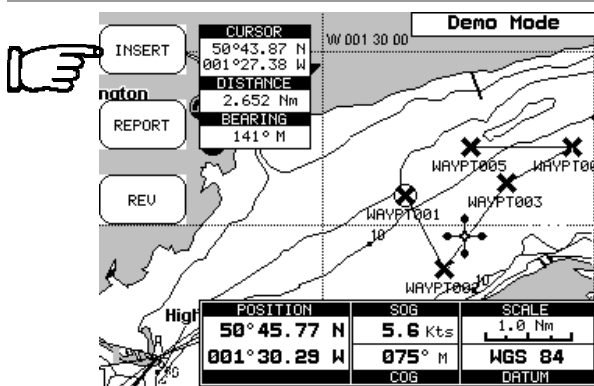


**Moving Waypoint**

Place the cursor on the Waypoint and press the **MOVE** Softkey, using the **CURSOR** keypad move the Waypoint, a dotted line connecting the Waypoint to the new position, is shown.

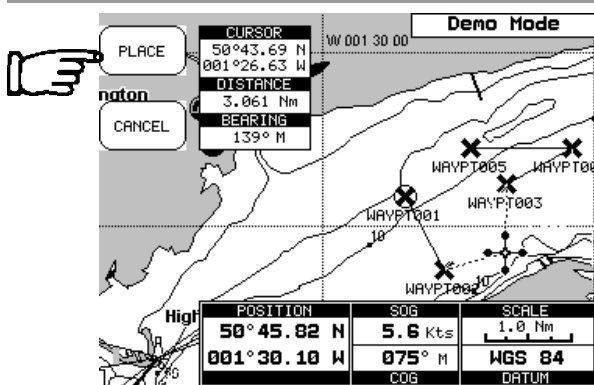


To place the Waypoint in the new position, press the **ACCEPT** Softkey.



**Inserting a Waypoint**

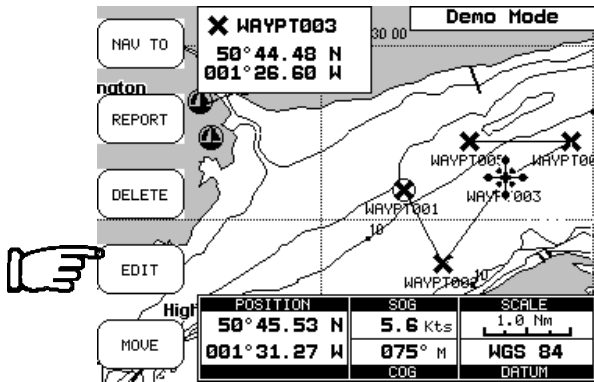
Place the cursor on the route leg and press the **INSERT** Softkey.



The line between the two Waypoints is turned into a dotted line (rubber-band), now move the cursor to the new position.

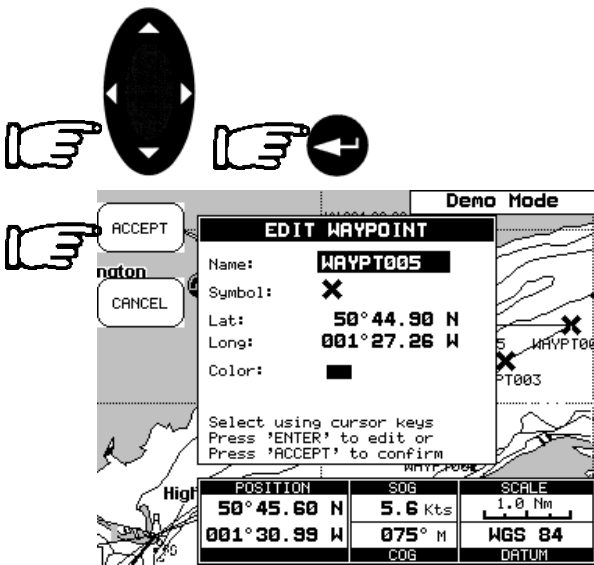
Once you have positioned the cursor at new location, press the **PLACE** Softkey.

navigating on a route



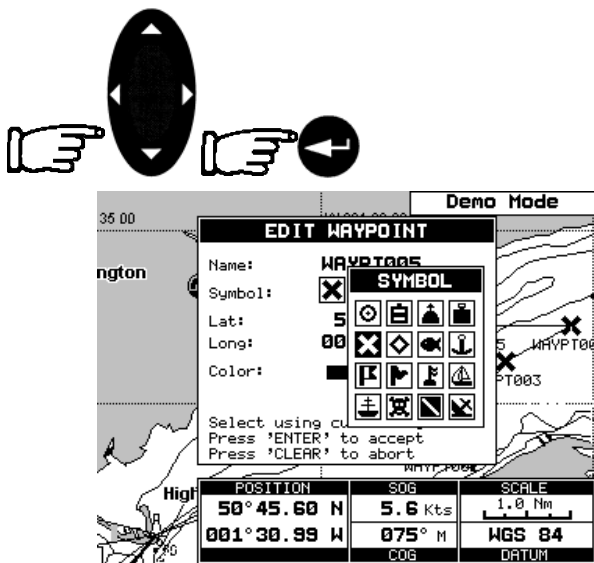
Editing Waypoints

Move the cursor onto the Waypoint and press the **EDIT** Softkey



Use the **CURSOR** keypad to select the field and press the **ENTER** key.

To enter a name use the **CURSOR** keypad to insert the characters, then press the **ACCEPT** Softkey.



To change the Symbol, use the **CURSOR** keypad to select the Icon and press the **ENTER** key.

If the Coordinates field is selected, press the **ENTER** key and then use the **CURSOR** keypad to insert the value.

If the Colour field is selected, pressing the **ENTER** key will display a window with 8 different colour, use the **CURSOR** keypad to select the desired colour and press the **ENTER** key.

Then press the **ACCEPT** Softkey.

finding information



**Time To Go**

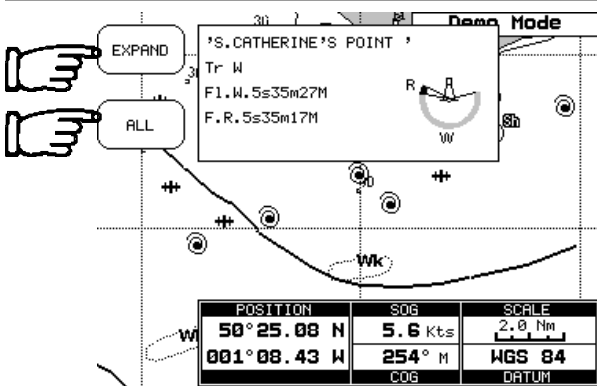
TTG value is displayed on the Display Page, available by pressing the **PAGE** key twice and the **XTE** Softkey.

43P		. Control point.
44P		. Dish Aerial.
45P		. Flagstaff/Flagpole.
46P		. Flare Stack.
47P		. Fortified Structure.
48P		. Fishing Facility.
49P		. Fish Haven.
50P		. Marine Farm/Culture.
51P		. Monument.
52P		. Mooring/Warping Facility.

**C-MAPNT Information**

On the display you will see a variety of icons and symbols.

Refer to the **C-MAPNT** Handbook for their explanation (example shown).

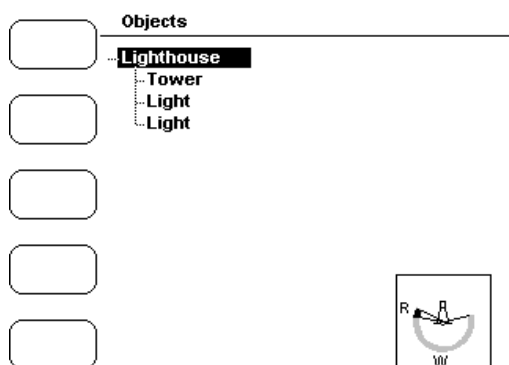
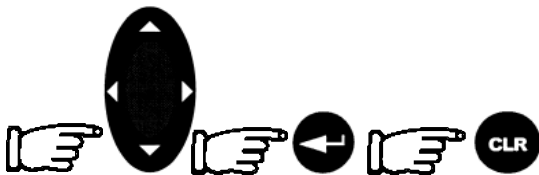


**Getting Quick Information**

Place the cursor on a chart symbol such as a Nav-Aid, Wreck, etc. and a special pop-up window is displayed. This feature called "Quick Info" identifies the symbol and displays the information about Nav-Aids.

To expand information about that object press the **EXPAND** Softkey.

Pressing the **ALL** Softkey displays all available information about that cartographic point.

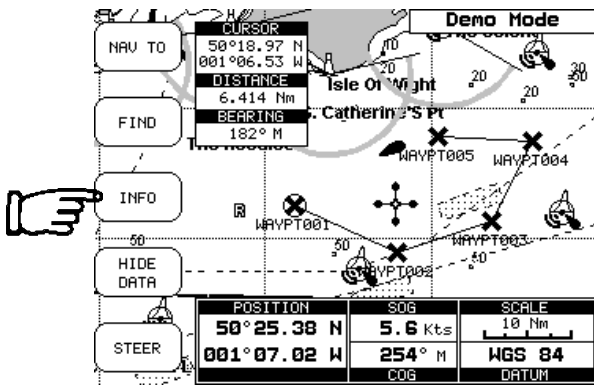


Use the **CURSOR** keypad to scroll through the list, press the **ENTER** key to expand, If the information is in several pages use the **CURSOR** keypad to scroll through the following pages.

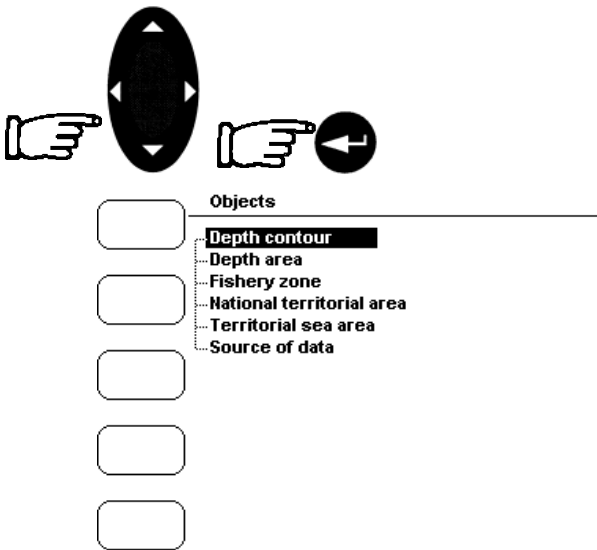
To return to the previous page and to exit press the **CLR** key.

At the bottom right hand corner a window displays the selected objects icon.

finding information

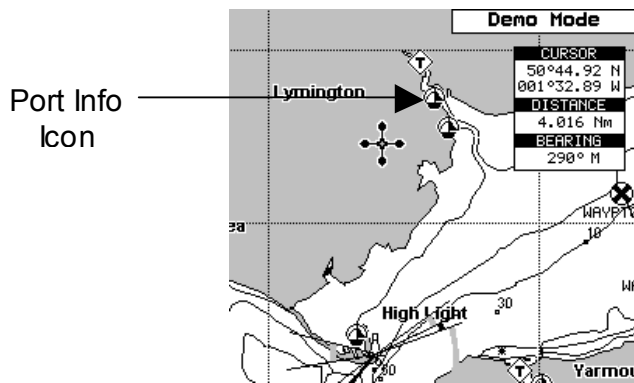


By pressing the **INFO** softkey while the chart is displayed will display a list of all objects found in the range of the cursor.



If there are complex objects you will also find a list of the components.

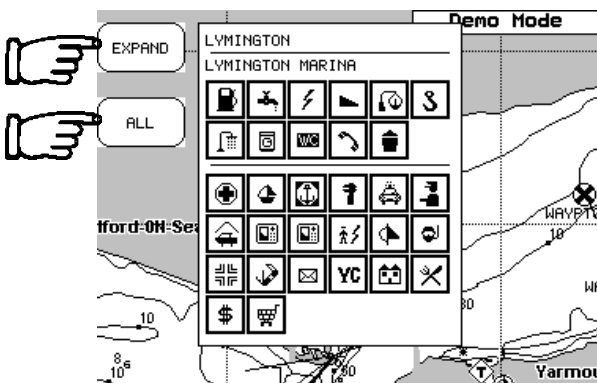
Use the **CURSOR** keypad to scroll through the list, press the **ENTER** key to expand.



**Getting Port Information**

When viewing the chart of a port or harbour, you will see a Port Info icon, placing the cursor on the symbol will display the available information.

The Port Info symbol is visible only if the Ports + Services option is On (default setting).

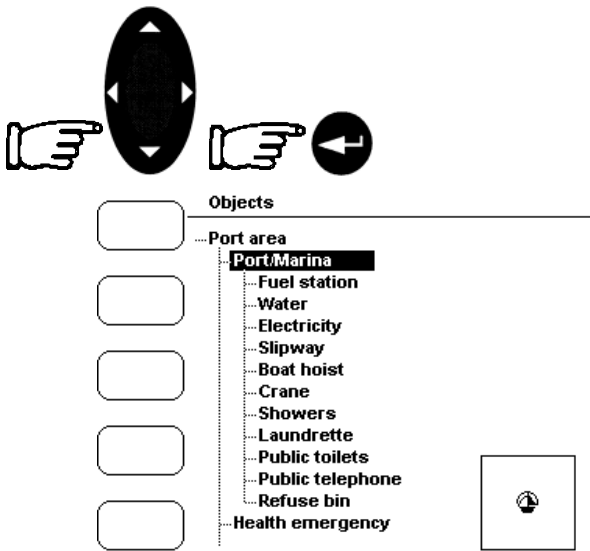


Information is displayed with icons of the available services.

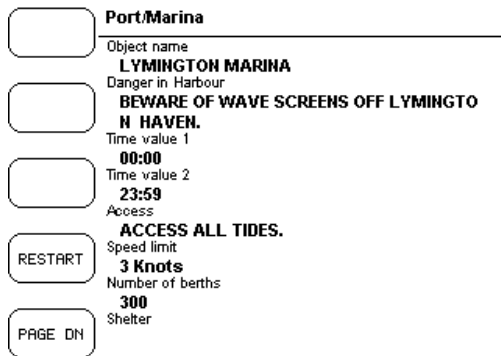
Ensure the Info Level setting is detailed (default setting).

To expand the information about the port press the **EXPAND** Softkey, to display all available information for that cartographic point press the **ALL** Softkey.

finding information

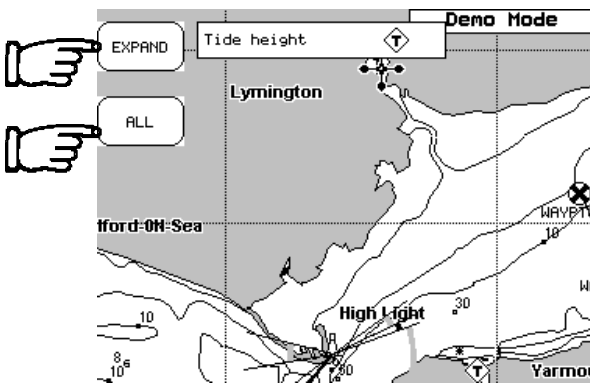


Select the service using the **CURSOR** keypad and then press the **ENTER** key.



Detailed information on the services (opening and closing time of the Fuel station, telephone number of local amenities, etc) are displayed.

This is available for all countries, where such information exists on the paper chart. You will also see accurately positioned symbols that show where many useful facilities are located.



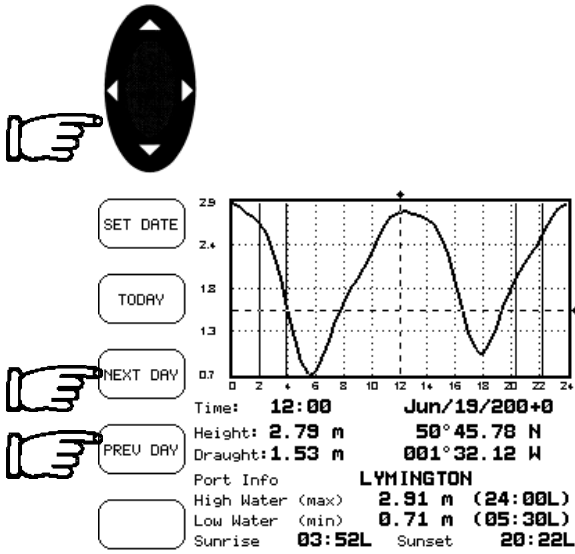
**Getting Tidal Information**

Some charts display a Tidal Diamond symbol "T", placing the cursor on the Tide symbol displays the available information in the Quick Information window.

To display the Tide Graph page press the **EXPAND** Softkey.

Pressing the **ALL** Softkey selects all available information.

finding information

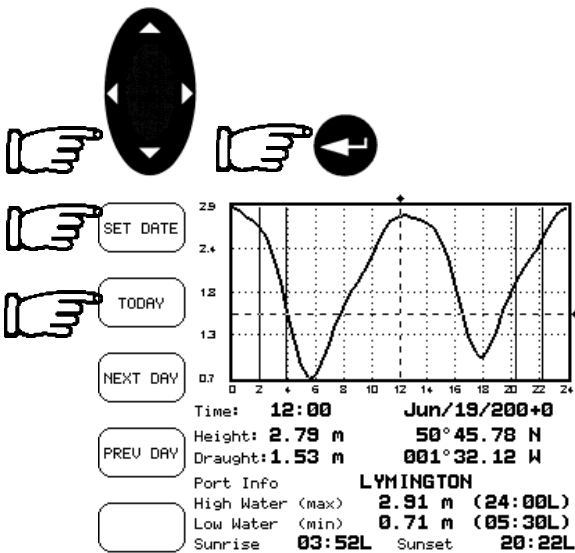


The screen will display today's Tide Height graph for the area where the Tidal symbol was located.

The *CND* displays a moveable Vertical and Horizontal slider. Using the **CURSOR** keypad, move the horizontal slider to correspond with the draft of your boat.

Using the Vertical slider you can then read the times at which the graph dips below the horizontal line i.e. the times when you will be in danger of grounding.

Pressing the **NEXT DAY** or **PREV DAY** Softkeys displays future or past tides.

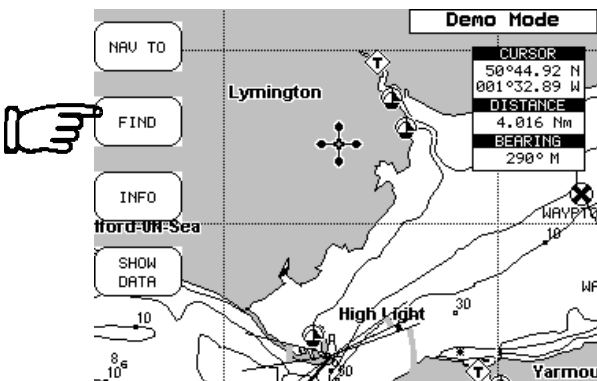


Pressing the **SETDATE** softkey and entering the required date using the **CURSOR** keypad, followed by the **ENTER** key displays the tide for that date.

Pressing the **TODAY** softkey returns to the current day's tide graph

**Note**

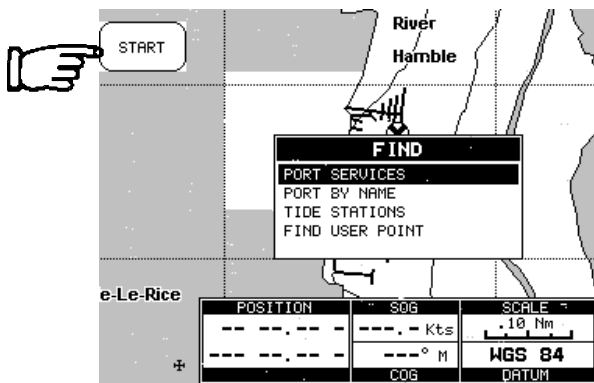
Tide graphs are an approximation of the tide and they should be used in conjunction with traditional tide tables and navigational methods.



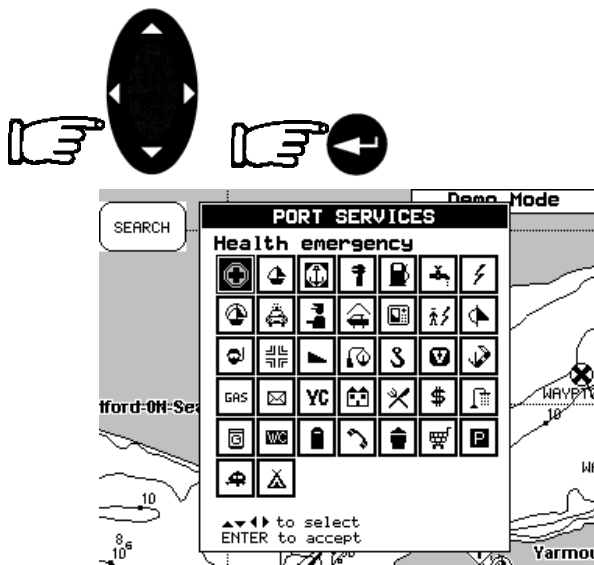
**Finding Port Services.**

Press the **FIND** Softkey.

finding information

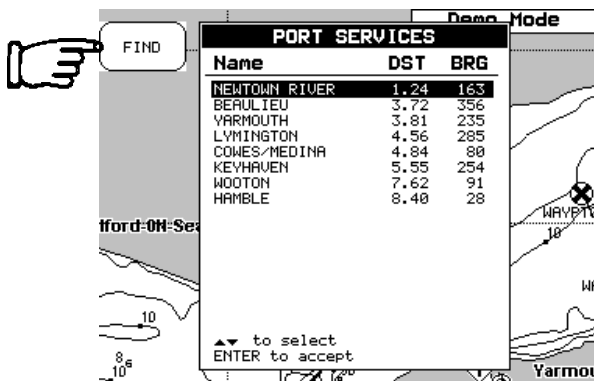


When the find display appears press the **START** Softkey to displays the nearest available facilities (i.e. the nearest Hospital, sail maker, bank, etc.).

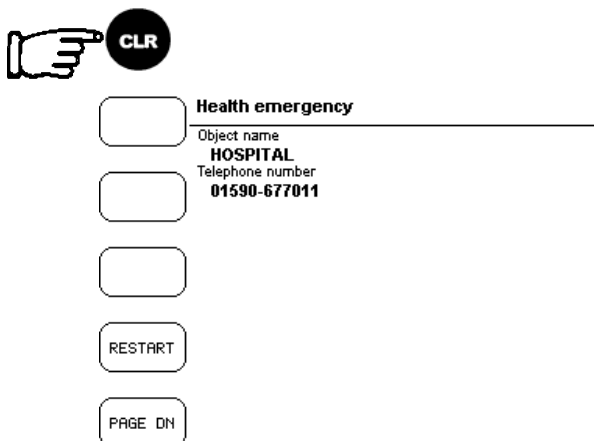


The icons list is shown of the available services.

Select the facility using the **CURSOR** keypad and then press the **ENTER** key. Displayed is a list of ports nearest (up to 10) in which this facility is present.



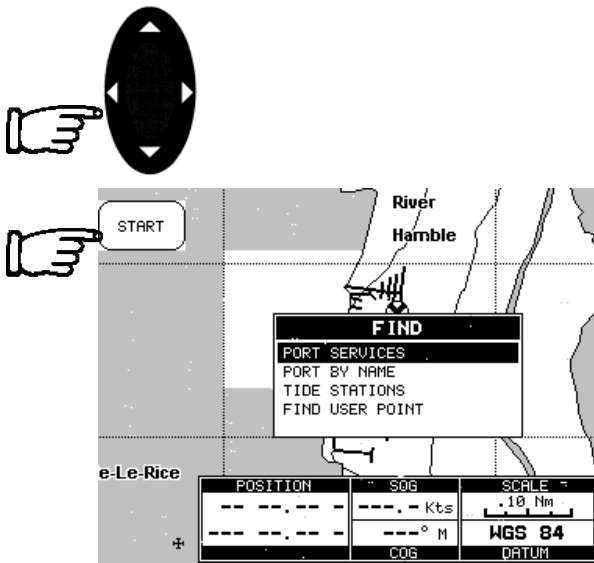
Choose the port you want and press the **FIND** Softkey.



A list of that particular facility at the port is displayed.

Pressing the **CLR** key returns to the chart with the cursor located on the chosen facility.

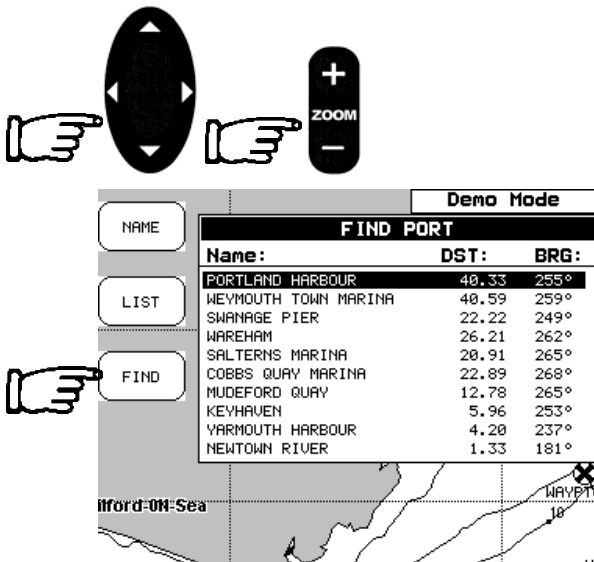
finding information



Finding Port by Name

Pressing the **FIND** Softkey displays the find screen.

Using the **CURSOR** keypad select “Find Port by Name” and press the **START** Softkey to display a list of all ports stored on the C-CARD.

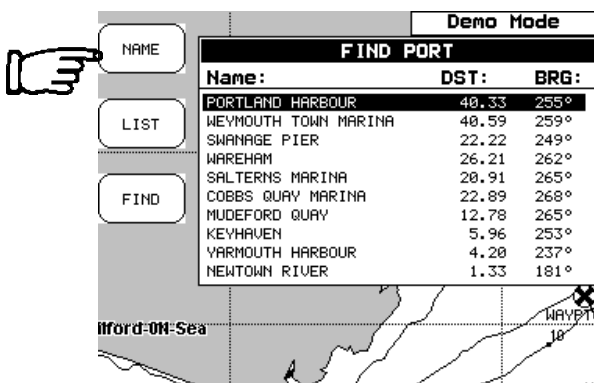


Use the **CURSOR** keypad to select the port and the **ZOOM +/-** key to select next/previous page.

Pressing the **FIND** Softkey to locate the selected port on the chart.

Note

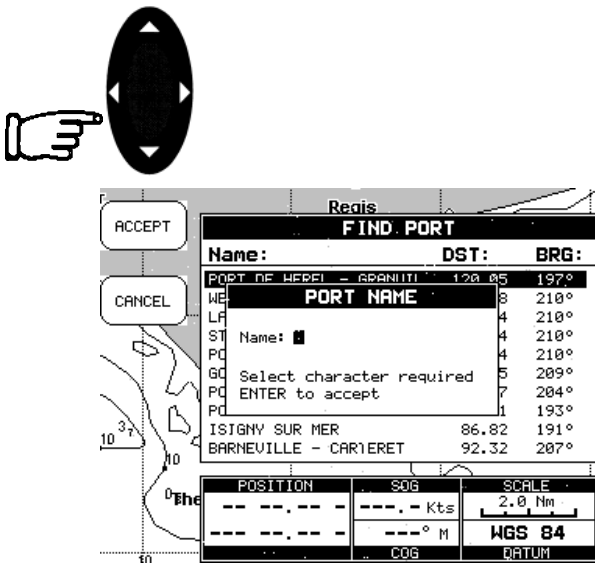
A Warning message is shown if there is no C-CARD inserted or there are no ports on the C-CARD.



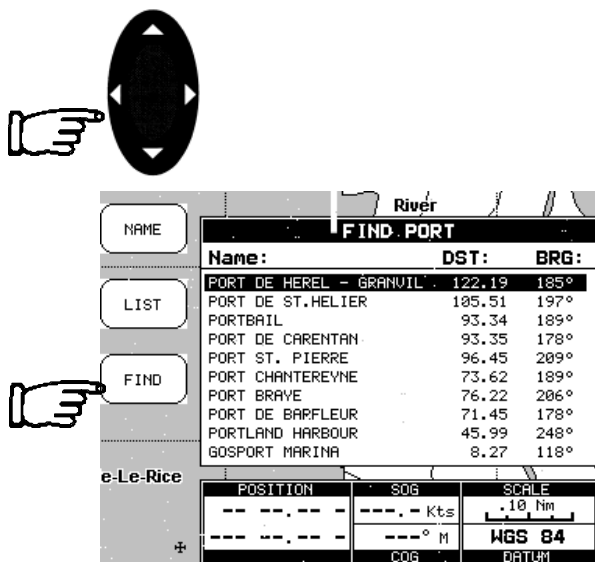
Searching by name

Go to the “Find Port by Name” screen as above, and press the **NAME** Softkey

finding information



Insert the port name (max 15 characters) using the Up and Down **CURSOR** keypad to scroll through the letters, pressing the right arrow **CURSOR** keypad to move to the following space.

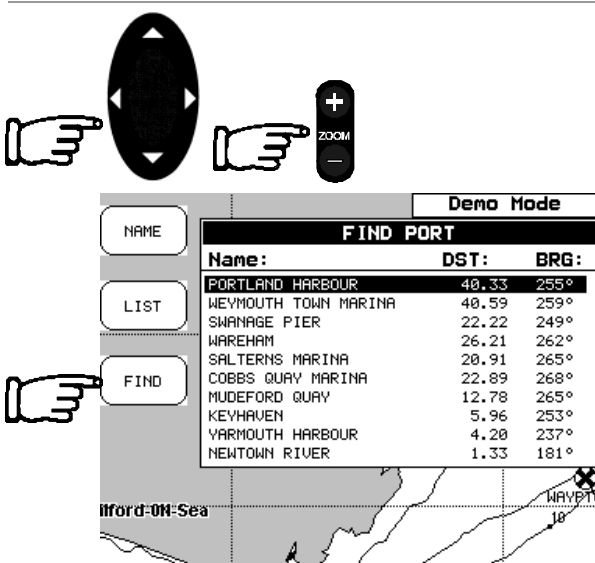


A list of all ports containing the inserted name is displayed. Repeat the operation to refine the search or move through the list with the **CURSOR** keypad.

Pressing the **FIND** Softkey locates the selected port on the chart.

**Note**

A Warning message is shown when the inserted name is not in the ports list.



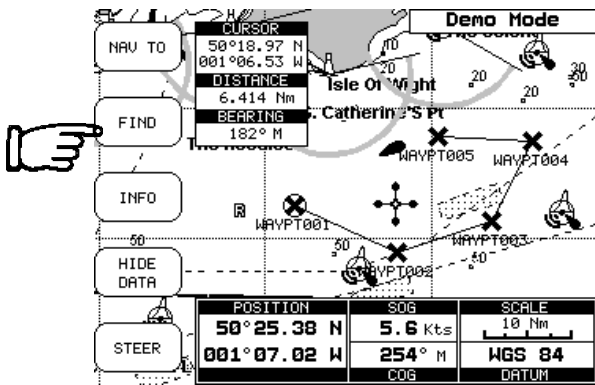
**Searching by list**

Go to the “Find Port by Name” screen as above.

Use the **CURSOR** keypad to select the port, and using the **ZOOM +/-** key to select next/previous pages.

Press the **FIND** Softkey to locate the selected port on the chart.

finding information

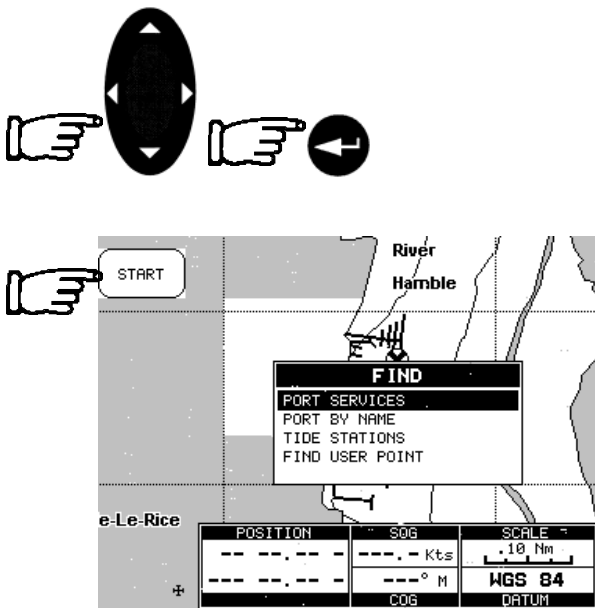


Finding Tide Stations

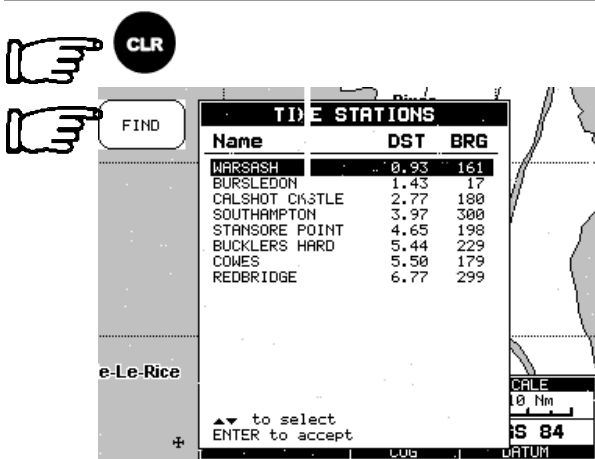
To find the nearest Tide Stations on the chart press the **FIND** Softkey to display the find screen.

Note

The find will be from the cursor position if the fix position is not suitable.



Using the **CURSOR** keypad select Tide Stations and press the **START** Softkey to display a list of nearest Tide Stations (up to 10).



Choose the Tide Station you want and press the **FIND** Softkey to display the Tide Graph page.

Pressing the **CLR** key returns to the chart to display the Tide Station chosen.



The Data Pages display the information obtained from the other instruments on your system. Using the information available, various other parameters can be calculated and displayed.

Press the **PAGE** key to enter the Data Pages.



SPD/DEP

NAV

WIND

MULTI

DATA LOGS

BOAT SPEED

5.60 Kts

DEPTH

21.1 m

### Speed/Depth

The Speed and Depth displays are divided into three pages, accessed by repeatedly pressing the **SPD/DEP** Softkey.



SPD/DEP

NAV

WIND

MULTI

DATA LOGS

BOAT SPEED

5.60 Kts

SPEED OVER GROUND

5.60 Kts



SPD/DEP

NAV

WIND

MULTI

DATA LOGS

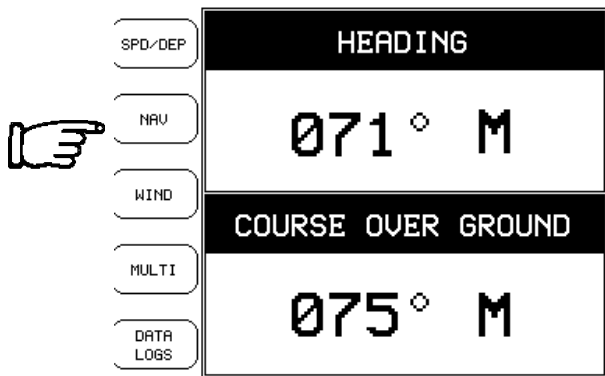
BOAT SPEED

5.60 Kts

APPARENT WIND ANGLE

- 054°

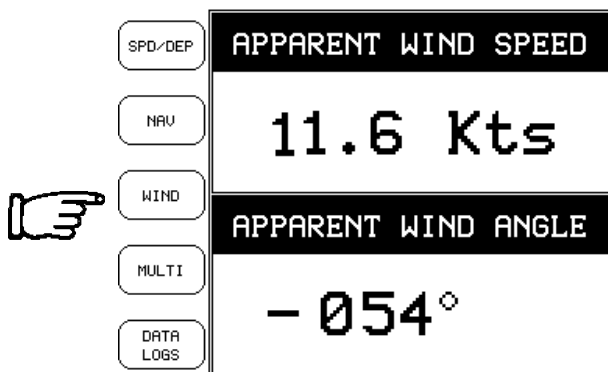
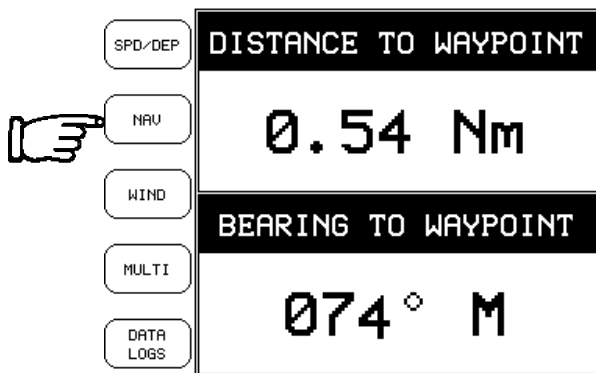
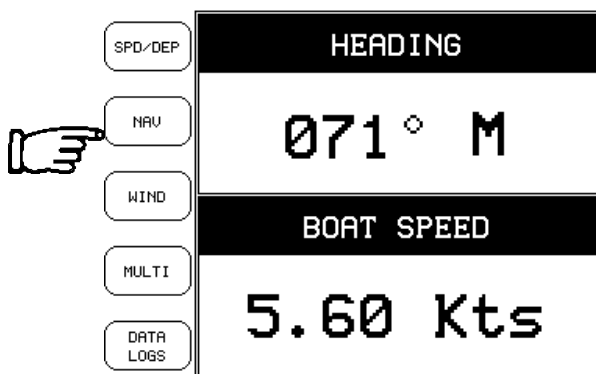
data pages



**Navigation**

The Navigation displays are divided into three pages, accessed by repeatedly pressing the **NAV** Softkey.


To scroll between pages press the **NAV** Softkey.




**Wind**

The Wind displays are divided into three pages, accessed by repeatedly pressing the **WIND** Softkey

To scroll between pages press the **WIND** Softkey



SPD/DEP	<b>TRUE WIND SPEED</b>	
NAV	07.6 Kts	
WIND	<b>TRUE WIND DIRECTION</b>	
MULTI	001° M	
DATA LOGS		




SPD/DEP	<b>VELOCITY MADE GOOD</b>	
NAV	06.1 Kts	
WIND	<b>TRUE WIND ANGLE</b>	
MULTI	070°	
DATA LOGS		



SPD/DEP	<b>BOAT SPEED</b>	<b>DEPTH</b>
NAV	5.60 Kts	21.0 m
WIND	<b>SPEED OVER GROUND</b>	<b>COURSE OVER GROUND</b>
MULTI	5.60 Kts	075° M
DATA LOGS	<b>HEADING</b>	<b>POSITION</b>
	071° M	50°45.78 N 001°30.17 W

**Multi Function**

The Multifunction displays are divided into two pages, accessed by repeatedly pressing the **MULTI** Softkey.



SPD/DEP	<b>BOAT</b>	<b>SEA</b>	<b>WIND</b>
NAV	<b>BOAT SPEED</b>	<b>DEPTH</b>	<b>AWS</b>
WIND	5.60 Kts	18.7 m	11.6 Kts
MULTI	071° M		-054°
DATA LOGS	<b>HEADING</b>	<b>TIDE DRIFT</b>	<b>AWA</b>
	SOG	01.1 Kts	TWS
	5.60 Kts		07.6 Kts
	075° M	275° M	001° M
	COG	TIDE SET	TWD
	<b>SATS</b>	<b>HOOP</b>	
	12	12.5	



**GPS Mode**

The GPS mode displays positional information received from an external GPS antenna or unit.

**Initialisation**

When the *CND* is first switched on, it will start acquiring satellites to obtain a position fix.

Pressing the **PAGE** key twice will display the GPS page.



**Status Page**

The Status page displays information about the satellites in use and the quality of the position provided.

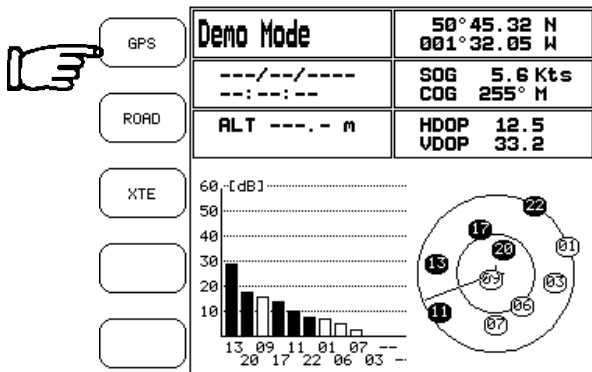
The bar graph displays the strength of the signal being received from each satellite. The circular display shows the satellites currently in view with their identification numbers. These numbers correspond to the bar graph.

Where a satellite is blacked, it is being used by the *CND* for positional information.

The data boxes are updated when the *CND* has obtained a lock on sufficient satellites for navigation.

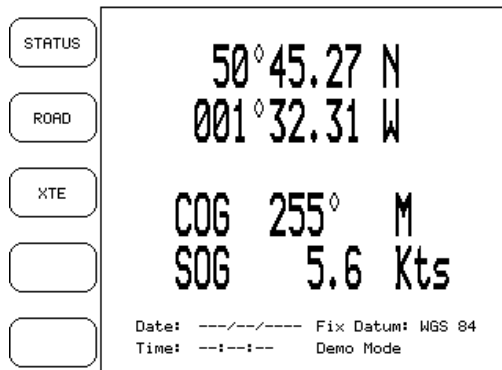
The HDOP (Horizontal Dilution of Precision) and VDOP (Vertical Dilution of Precision) figures give an indication of the accuracy of the position being calculated. A low figure indicates increased accuracy.

Pressing the **GPS** Softkey displays the GPS Page.

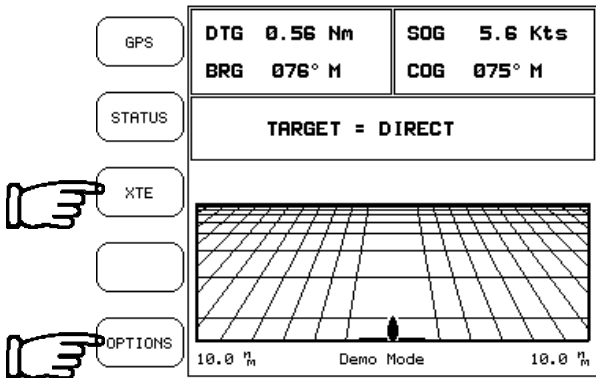


**GPS Page**

The GPS page displays the current position with Course Over the Ground (COG) and Speed Over the Ground (SOG). Also shown are the Datum on which the position is based and the system date and time.



gps mode



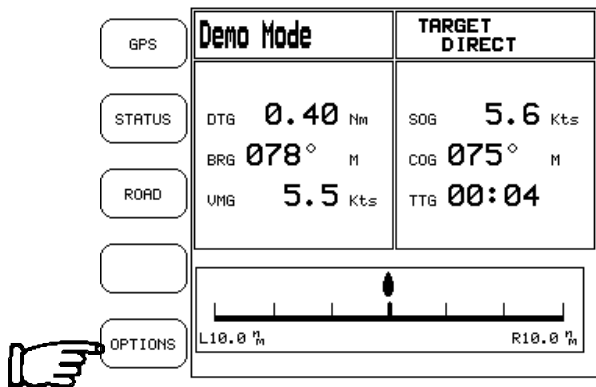
Road Page

Pressing the **ROAD** Softkey on the Status page displays the Road Page.

The Road Page shows the current course displayed on a rolling road with the current heading up the page. The target waypoint is also displayed.

Pressing the **OPTIONS** Softkey displays the Road Page Options.

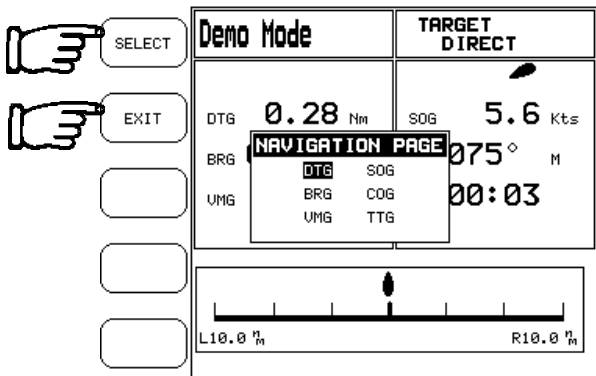
Pressing the **XTE** Softkey displays the XTE Page.



XTE Page

The XTE (Cross Track Error) page displays the distance from the current position to the closest position on a line between the last waypoint and the next waypoint on the leg being travelled.

Pressing the **OPTIONS** Softkey displays the XTE Options.



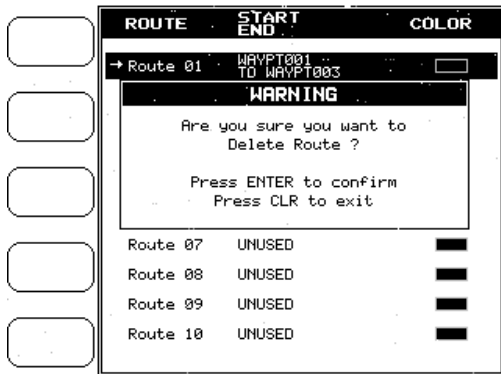
XTE Options

The Options menu is used for setting the display fields.

Press the **SELECT** Softkey to change then Pressing the **EXIT** Softkey.

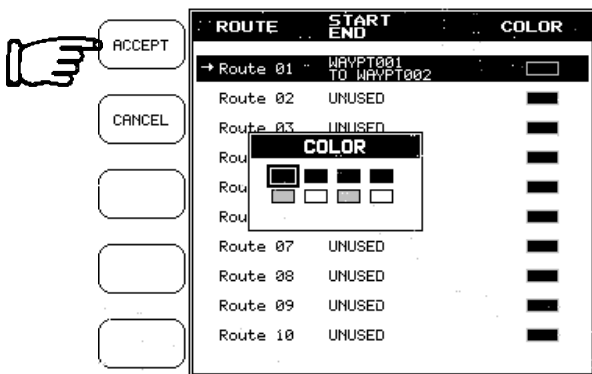


routes



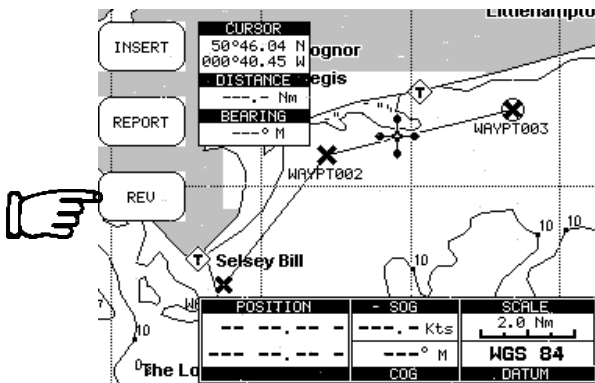
Deleting a Route

From the main Route screen select the Route to be deleted and press the **DELETE** Softkey. A warning appears confirming the delete.



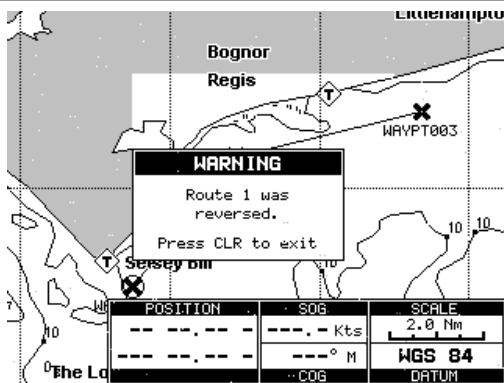
Route Colour selection

From the main Route screen select the Route and press the **COLOUR** Softkey to display the eight colour select window, use the **CURSOR** keypad to select the colour, press the **ACCEPT** Softkey to confirm. The route appears on the screen in the selected colour. You can select a different colour for each route.



Reversing a route

To navigate to the point where the route originally started. Put the cursor over one of the lines on the route and press the **REV** Softkey. This option is only available when the route has been selected as the active route.



A warning screen will appear to tell you that the route has been reversed.

SELECT

VIEW

REPORT

DELETE

COLOR

ROUTE	START END	COLOR
→ Route 01	WAVPT001 TO WAVPT004	
Route 02	UNUSED	■
Route 03	UNUSED	■
Route 04	UNUSED	■
Route 05	UNUSED	■
Route 06	UNUSED	■
Route 07	UNUSED	■
Route 08	UNUSED	■
Route 09	UNUSED	■
Route 10	UNUSED	■

### Route Report

Pressing the **REPORT** Softkey from the main Route screen will display information about the Waypoints/Marks in that route.

INSERT POINT

FUEL

SPEED

ROUTE 01 DATA REPORT

SPEED: 5.6 Kts FUEL FLOW: 10.0 L/Hr

LEG	LAT LON	DST BRG	ETE FUEL
WAVPT001	50°19.88 N 001°22.44 W		
WAVPT002	50°16.26 N 001°01.13 W	14.08 Nm 109° M	002:30:53 25.147
WAVPT004	50°27.28 N 000°43.52 W	15.74 Nm 050° M	005:19:32 53.256
-----	-----	-----Nm -----° M	---:--:-- -----
-----	-----	-----Nm -----° M	---:--:-- -----
-----	-----	-----Nm -----° M	---:--:-- -----
-----	-----	-----Nm -----° M	---:--:-- -----

If more than six Waypoints are shown, use the up and down **CURSOR** keypad to select another page.

Press the **CLR** key to exit from Route Data Report page.

### Changing Speed & Fuel values

In the Route Report screen pressing the **SPEED** Softkey displays the boats average speed in Kts, pressing the **FUEL** Softkey displays the boats average fuel consumption in L/Hr

ACCEPT

CANCEL

ROUTE 01 DATA REPORT

SPEED: 10.0 Kts FUEL FLOW: 10.0 L/Hr

LEG	LAT LON	DST BRG	ETE FUEL
WAVPT001	50°51.74 N 001°18.68 W		
WAVPT002	50°16.26 N 001°01.13 W	14.08 Nm 109° M	002:30:53 25.147
WAVPT004	50°27.28 N 000°43.52 W	15.74 Nm 050° M	005:19:32 53.256
-----	-----	-----Nm -----° M	---:--:-- -----
-----	-----	-----Nm -----° M	---:--:-- -----
-----	-----	-----Nm -----° M	---:--:-- -----
-----	-----	-----Nm -----° M	---:--:-- -----

**FUEL**

10.0L/Hr

to edit

With the Fuel box displayed, use the **CURSOR** keypad to change the value.

Press **ENTER** key to confirm the change

routes

**ROUTE 01 DATA REPORT**  
 SPEED: 10.0 Kts FUEL FLOW: 10.0 L/Hr

LEG	LAT	DST	ETE
	LN	BRG	FUEL
WAYPT001	50°42.92 N		
WAY			Nm 000:20:53
			M 3.4818
WAY			Nm 000:45:09
			M 7.5271

**SPEED**  
 10.0 Kts  
 ←→ to edit

With the Speed box displayed, use the **CURSOR** keypad to change the value.

Press the **ENTER** key to confirm the change.

Once the estimated Speed and Fuel are entered, the *CND* will calculate the estimated time of arrival at each of the Waypoints/Marks in the route and the fuel required.

**CURSOR**  
 50°46.04 N  
 000°40.45 W

**DISTANCE**  
 --- Nm

**BEARING**  
 ---° M

**POSITION**  
 ---° ---' N  
 ---° ---' M

**SCALE**  
 2.0 Nm  
 WGS 84  
 DATUM

**Route Report from the chart.**

Place the cursor on an existing Waypoint or route leg and press the **REPORT** Softkey to display the same Route Data Report page.

DST and BRG from Boat: 50°45.90 N  
 001°29.75 W

NAME	TYPE	LAT	DST	BRG
WAYPT001	WAYPOINT	50°44.34 N	1.765 Nm	157° M
WAYPT002	WAYPOINT	50°43.49 N	2.727 Nm	157° M
WAYPT003	WAYPOINT	50°44.48 N	2.450 Nm	130° M
WAYPT004	WAYPOINT	50°44.90 N	2.937 Nm	115° M
WAYPT005	WAYPOINT	50°44.90 N	1.872 Nm	127° M
WAYPT006	WAYPOINT	50°43.69 N	2.969 Nm	143° M

**Finding information on Waypoints**

A window is opened, that gives information about all stored Waypoints.

If there are more than 10 Waypoints shown, use the up and down **CURSOR** keypad to select another page.

Pressing the **CLR** key will exit from Waypoints page.

The screen displays the following data:

DST and BRG from Cursor: 50°46.06 N  
000°40.43 W

NAME	LAT	LO	DST	BRG
WAVPT001	50°42.92 N	000°46.23 W	4.833	Nm
WAVPT002	50°45.64 N	000°42.79 W	1.556	Nm
WAVPT003	50°46.60 N	000°36.58 W	2.491	Nm

Buttons on the left: CREATE, EDIT, R/B, DELETE, NAV TO.

### Deleting a Waypoint from the list

Use the **CURSOR** key to select the Waypoint to delete then press the **DELETE** Softkey.

The screen displays the same waypoints list as above. A dialog box is overlaid with the following text:

**DELETE**

Delete Selected Point  
Delete All Points

▲▼ to select  
Press 'ENTER' to accept

Buttons on the left: A vertical column of seven empty rectangular buttons.

When the delete box appears press the **ENTER** key to Delete Selected Point, or using the **CURSOR** keypad to select Delete All Points, then press the **ENTER** key.

The screen displays the following route list:

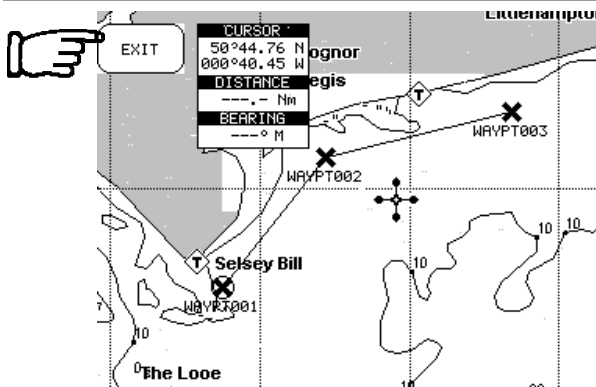
ROUTE	START	END	COLOR
→ Route 01	WAVPT001	TO WAVPT004	<input type="checkbox"/>
Route 02	UNUSED		■
Route 03	UNUSED		■
Route 04	UNUSED		■
Route 05	UNUSED		■
Route 06	UNUSED		■
Route 07	UNUSED		■
Route 08	UNUSED		■
Route 09	UNUSED		■
Route 10	UNUSED		■

Buttons on the left: SELECT, VIEW, REPORT, DELETE, COLOR.

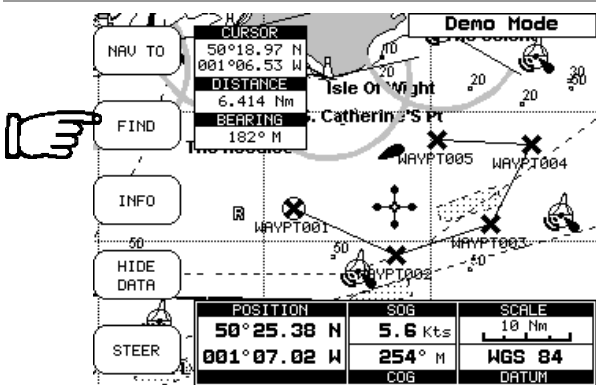
### Viewing Waypoint/Marks in a Route list

Select the route and press the **VIEW** Softkey will display the selected route with the waypoints listed.

routes

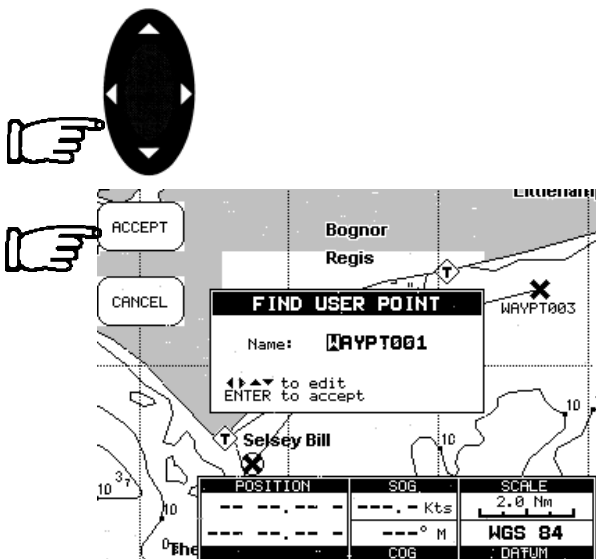


Press the **EXIT** Softkey to return to the Route page.

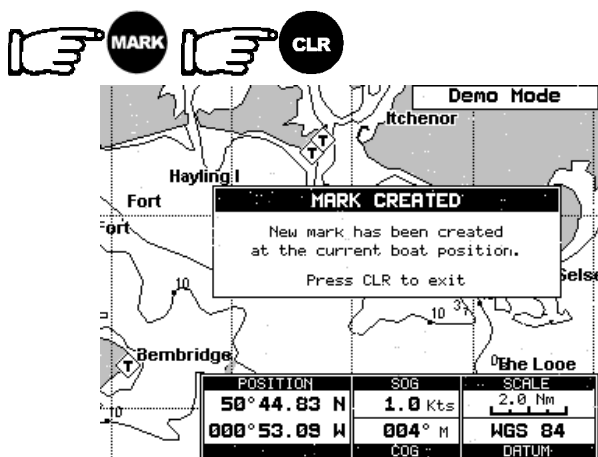


**Finding a Waypoint/Mark on the chart**

Press the **FIND** Softkey. Select Find User Point and press **ENTER**.

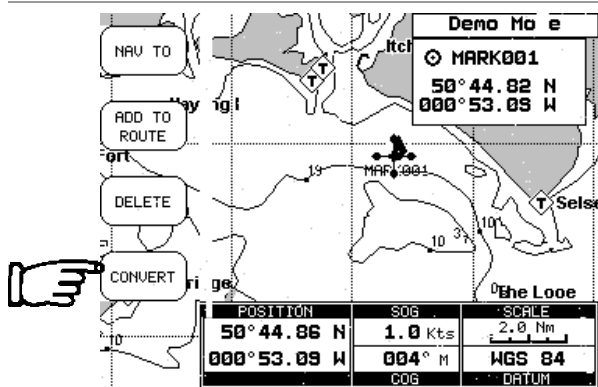


A window appears to insert the Name by using the **CURSOR** keypad. Press the **ACCEPT** Softkey to accept, the **CND** will display the selected point.



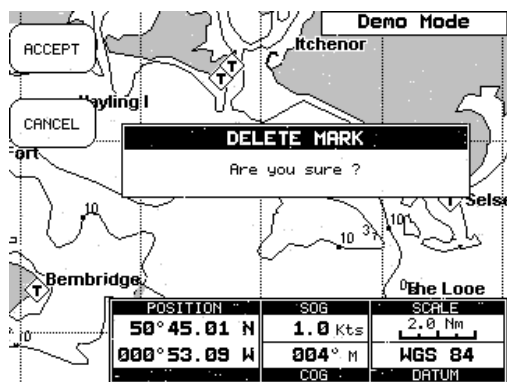
### Adding a Mark

Pressing the **MARK** key inserts a Mark on your boat's position. In the Text Area information on Mark name, symbol and Latitude/Longitude is shown. Press the **CLR** key to clear the message.



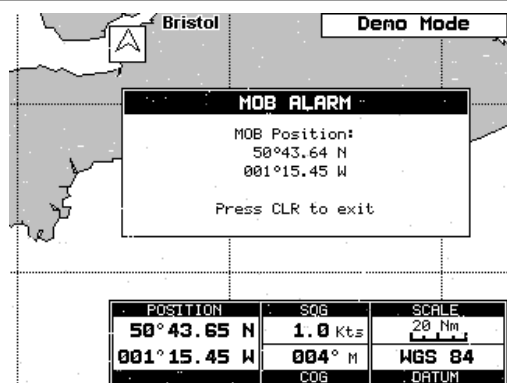
### Converting a MARK to a Waypoint

Place the cursor on the Mark and press the **CONVERT** Softkey, a window to confirm the conversion is displayed.



### Deleting a Mark

Place the cursor on an existing Mark, press the **DELETE** Softkey, a window to confirm the deletion is displayed.



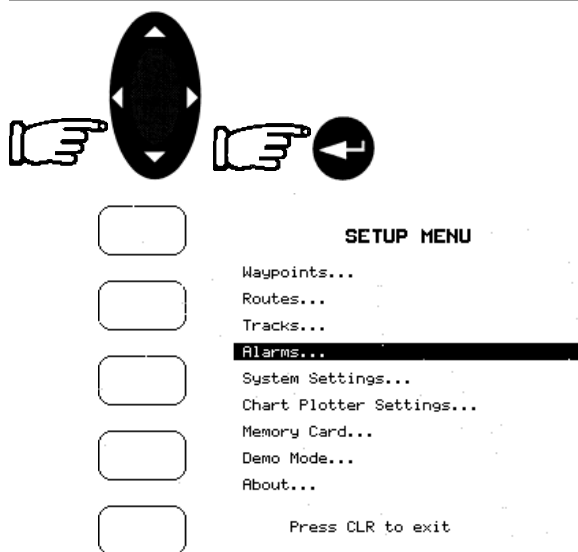
### Man Over Board

Press and hold the **MARK** key for two seconds to place a MOB symbol at the boat's current position. As soon as 'MOB' is selected an Alarm window appears on the screen giving the position that the MOB occurred.

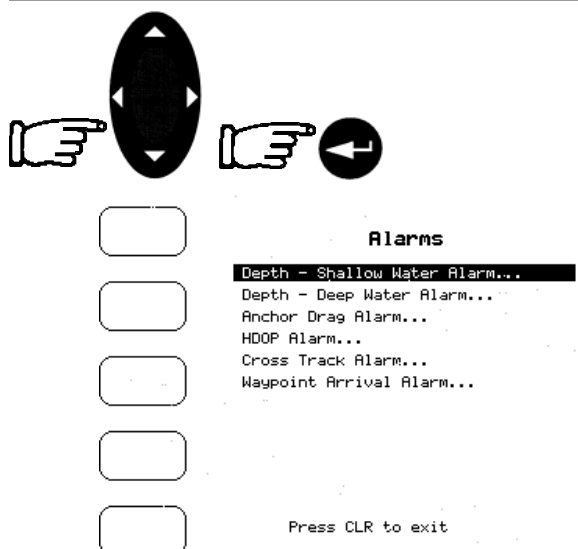
Pressing the **CLR** key removes the Alarm window.

Press and hold the **MARK** key for two seconds displays the **DISABLE** Softkey.

## setup menu

**Selecting Alarms**

Use the **CURSOR** keypad to scroll to the Alarms menu and pressing the **ENTER** key to select.



Use the **CURSOR** keypad to enable the alarm, then use the **CURSOR** keypad to select and change the value of a setting, and press the **ENTER** key to set.

When an alarm is activated the *CND* emits a beep and a pop-up window is opened.

**Anchor Drag Alarm**

Triggers when the boat exits from the anchor circle. The radius is set in the Alarm Value.

**HDOP Alarm**

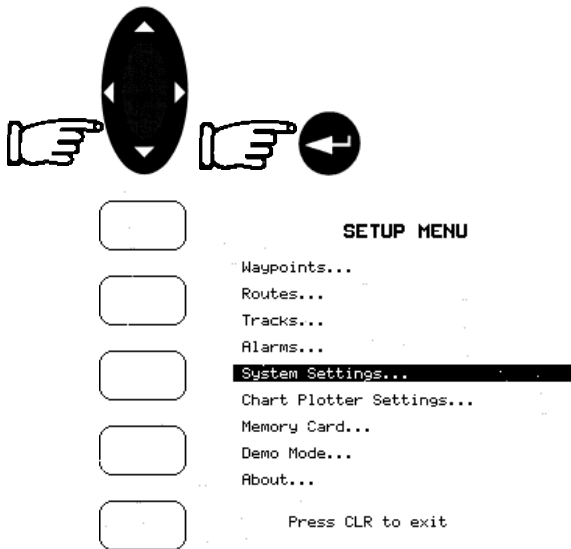
This specifies the minimum quality of satellite signal to receive an accurate position fix. The higher the value, the less accurate the fix. Above the set number, the alarm sounds.

**Cross Track Alarm**

This specifies the distance perpendicular to the rhumb line, exceeding this value triggers the alarm.

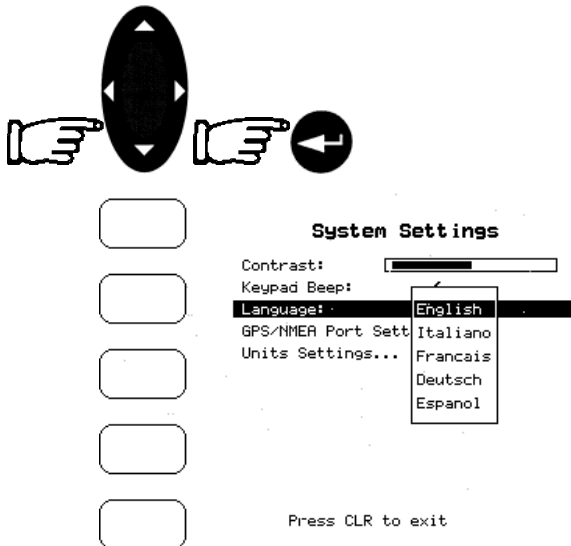
**Waypoint Arrival Alarm**

Specifies the radius of a circle around the Waypoint/Mark of a route. When your boat reaches this circle the alarm sounds.



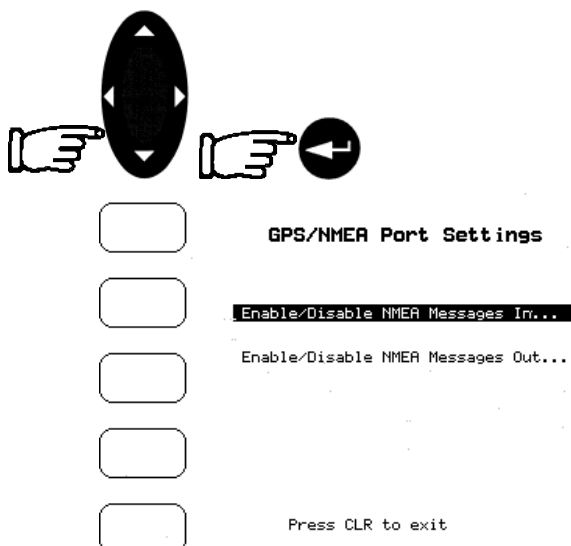
### Selecting System Settings

Use the **CURSOR** keypad to scroll to the System Settings menu and press the **ENTER** key to select.



### To set the Language

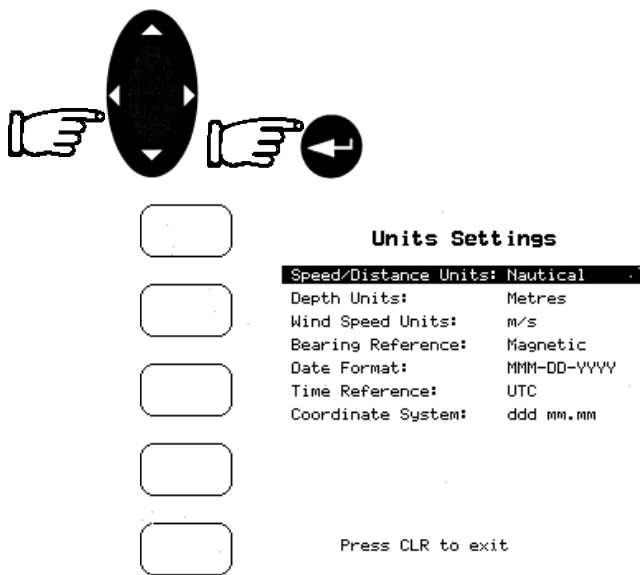
Use the **CURSOR** keypad to select language and press **ENTER** to reveal the sub menu. Highlight the desired language and then press the **ENTER** key.



### To set the GPS/NMEA

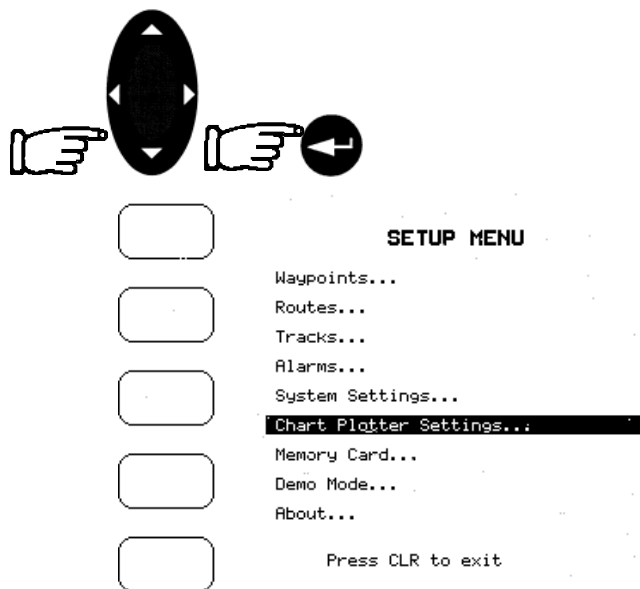
Use the **CURSOR** keypad to select the NMEA sub menu and use the **ENTER** key to confirm the settings.

setup menu



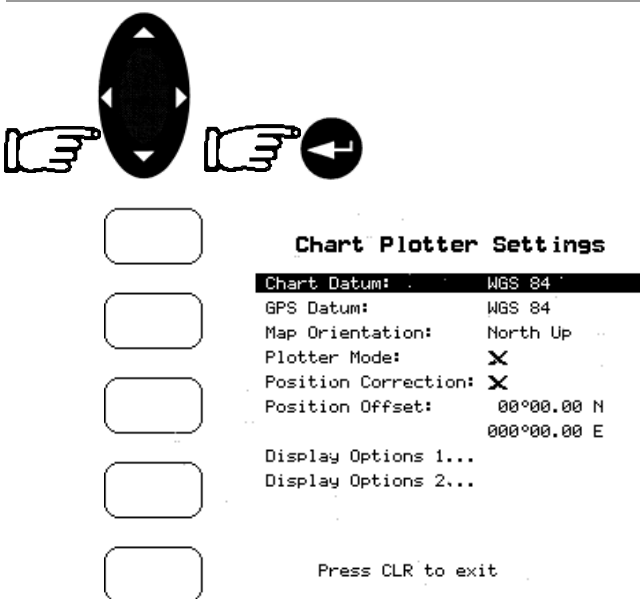
**To set the Units**

Use the **CURSOR** keypad to select the units settings menu and press the ENTER key to confirm changes.

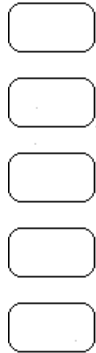
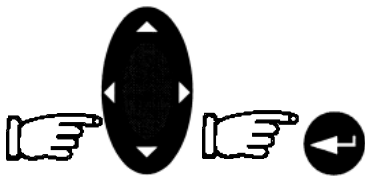


**Selecting Chart Plotter settings**

Use the **CURSOR** keypad to scroll to the Chart Plotter Settings menu and press the **ENTER** key to select.



Use the **CURSOR** keypad to select the sub menus or to change the value of a setting. Press the **ENTER** key to select.



**Display Options 1**

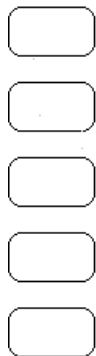
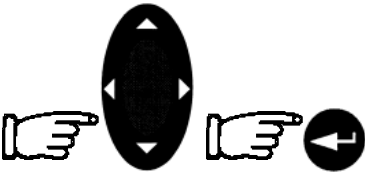
- Names:** ✓
- Bathymetric Lines: ✓
- Bathymetrics & Soundings Range:  
00000 m - 00010 m
- Spot Depths: ✓
- Ports + Services: ✓
- Attention Areas: Contour
- Nav-Rids: ✓
- Light Sectors: Sector

Press CLR to exit

**To set the Display Options 1**

Use the **CURSOR** keypad to select a sub menu or to change the value of a setting, and press the **ENTER** key to select.

It should be noted that these Display Option settings are stored when the *CND* is turned off.



**Display Options 2**

- Lat/Lon Grid:** ✓
- Chart Boundaries: X
- Track: ✓
- Marks: ✓
- Turbulence: ✓
- Bottom Type: ✓
- Land Features: ✓
- Underwater Objects: ✓

Press CLR to exit

**To set the Display Options 2**

Use the **CURSOR** keypad to select a sub menu or to change the value of a setting, and press the **ENTER** key to select.

It should be noted that these Display Option settings are stored when the *CND* is turned off.

setup menu

```

 CHARTING OPERATING SYSTEM
Copyright (C) C-MAP s.r.l. 2000

 Software: EC154G U1.00 A [19/06/2000]
NTLS U3.1.3.6 R [14/06/2000]
KERNEL U1.1.11 B [14/04/2000]
FILE SYSTEM U1.1.5 R [14/04/2000]
BIOS U3.1.5 R [21/03/2000]

 Worldwide Cartography: U1.30
C-CARD 1: EW-B127.03 THE SOLENT A...
C-CARD 2: No C-CARD

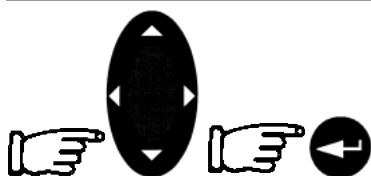
 User Points 501
Routes 10
Track Points 1000
Tracks 5
User Points shapes 16
Track Points on C-CARD 7710
User Points on C-CARD 3542

 Press CLR to exit
    
```

Selecting About

This page displays the software and C\_CARD information.

position correction



```

 Chart Plotter Settings

 Chart Datum: WGS 84
 GPS Datum: WGS 84
 Map Orientation: North Up
 Plotter Mode: X
 Position Correct: Position Offset
 Position Offset: 00°00.00 N
                   000°00.00 E
 Display Options 1...
 Display Options 2...

 Press CLR to exit
    
```

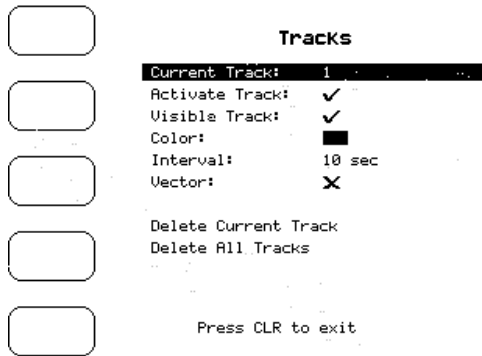
Position Correction

Position Correction applies an offset to your GPS position fix which will then place your boat exactly on the chart where it should be. From the Plotter Setup menu, select Position Offset and press the **ENTER** key. Manually adjust the offset by the amount required to place your boat accurately on the chart.

Note

The position correction feature should be used with care. Datum shifts and poor survey data are not always consistent and can be very localised. In areas where these errors occur the traditional methods of navigation should be used.

track functions



**Track functions**

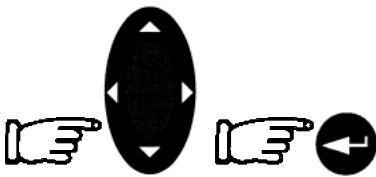
A very useful feature of the *CND* is the ability to store and display exactly where the boat has been. This feature, referred to as Tracking, can provide invaluable information about the effect of tide and wind influence on the boat's progress as well as giving an indication of the helmsman's performance.

**Enabling Track Storing**

To switch on/off the track storing, select Tracks from the Setup menu, use the **CURSOR** keypad to scroll down to Activate Track and press the **ENTER** key to toggle between on and off.

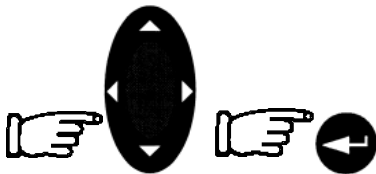
**Note**

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



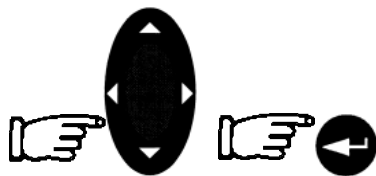
**Selecting Active Track**

Use the **CURSOR** keypad to scroll to Current Track, and pressing the **ENTER** key repeatedly to select the desired number of the active track. The default setting is 1.



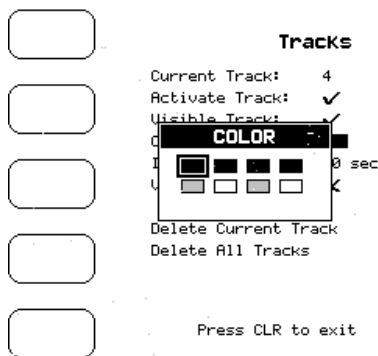
**Displaying Track**

Use the **CURSOR** keypad to scroll to Visible Track, press the **ENTER** key to make the track visible (On) or hidden (Off). The default setting is On.

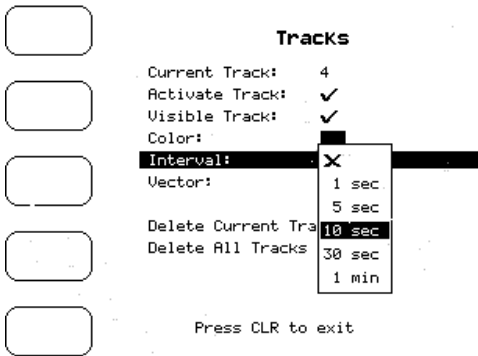


**Selecting Track Colour**

Using the **CURSOR** keypad to scroll to Colour, press the **ENTER** key and use the **CURSOR** keypad to select the desired colour from the eight colours available for the selected track. Press the **ENTER** key to select the colour. The default colour is black.

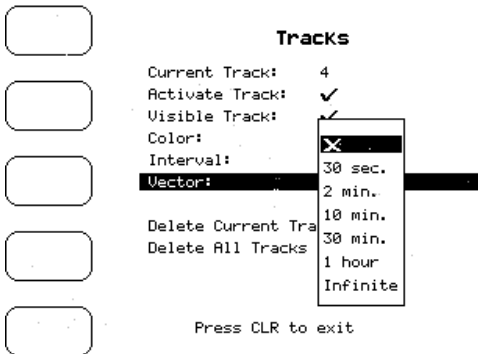


track functions



**Selecting Time Interval**

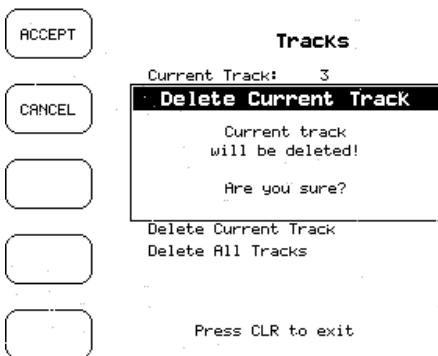
It is possible to change the frequency that the *CND* records the boat's position in memory. It is important to match the frequency of recording to the distance that your boat will be travelling in order that the whole passage can be tracked. To change the frequency, select the "Interval" option using the up/down **CURSOR** key and change the time between recording by pressing the **ENTER** key. The maximum interval available is 1 minute which gives a total maximum Tracking period of over 11 hours. The default setting is 10 sec.



**Selecting Vector**

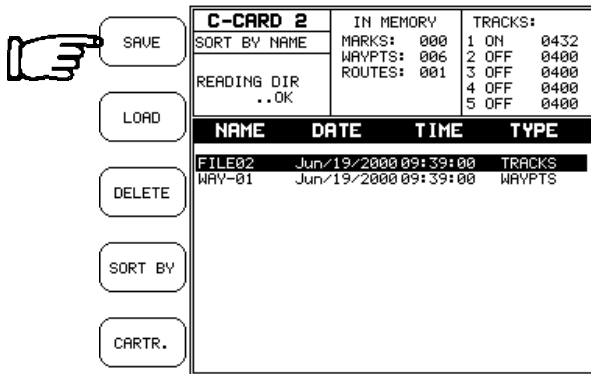
Vector feature displays a vector line protruding from the boat showing where the boat will be in a set period of time. This line is based on the boat's current speed and course and is useful for indicating at any given time where the boat is heading. Various lengths of vector are available, also Off to disable the Vector line display. Use the up/down **CURSOR** key and change the time between recording, press the **ENTER** key to confirm.

The default setting is Off.



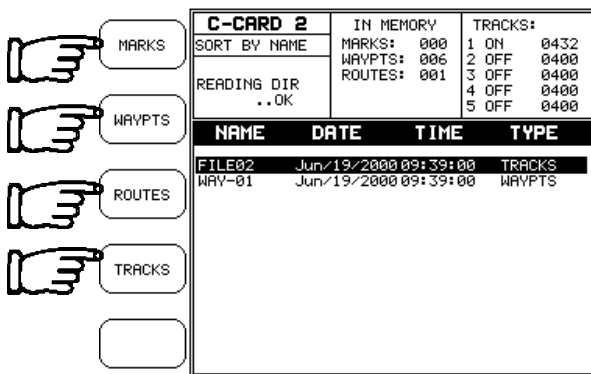
**Delete Current Track**

Deletes all the track memory. A warning message appears, press the **ENTER** key to confirm deletion.



### Memory Menu

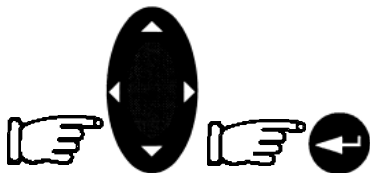
The *CND* allows you to copy information to and from User C-CARD's, returning the information to internal memory at a later time. This allows virtually unlimited storage.



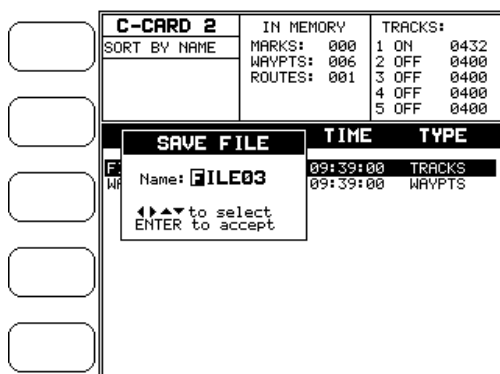
### Saving a File

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 Softkey,



Use the **CURSOR** keypad to choose the file name. At first a default name is shown, use the **CURSOR** keypad to insert the name, then press the **ENTER** key.



### Note

The maximum length of the filename is 8 characters. The characters may be numbers (0, ..., 9), letters (A, ..., Z) and spaces.



user c-card menu



SAVE	<b>C-CARD 2</b>		IN MEMORY	TRACKS:
	SORT BY NAME	MARKS: 000	1 ON 0432	2 OFF 0400
LOAD	READING DIR	WAYPTS: 006	3 OFF 0400	4 OFF 0400
	..OK	ROUTES: 001	5 OFF 0400	
DELETE	<b>NAME</b>	<b>DATE</b>	<b>TIME</b>	<b>TYPE</b>
	FILE02	Jun/19/2000	09:39:00	TRACKS
SORT BY	WAY-01	Jun/19/2000	09:39:00	WAYPTS
CARTR.				

### Loading a File

Choose the file name in the list using the **CURSOR** keypad, then press the **LOAD** Softkey to return the information to internal memory.

### Deleting a File

Use the **CURSOR** keypad to select the item, press the **DELETE** Softkey to delete the file from the C-CARD.

This option permanently erases the selected file.



NAME	<b>C-CARD 2</b>		IN MEMORY	TRACKS:
	SORT BY TYPE	MARKS: 000	1 OFF 0983	2 OFF 0900
TIME	READING DIR	WAYPTS: 003	3 OFF 0900	4 ON 0900
	..OK	ROUTES: 001	5 OFF 0900	
TYPE	<b>NAME</b>	<b>DATE</b>	<b>TIME</b>	<b>TYPE</b>
	HAX-02	Jan/01/1980	00:00:00	MARKS
	HAX-04	Jan/01/1980	00:00:00	ROUTES
	CHA-X-	Jul/31/2000	08:45:00	WAYPTS
	HAX-03	Jan/01/1980	00:00:00	WAYPTS
	ZCHERB	Jul/17/2000	16:03:00	TRACKS
	ALDGUY	Jan/01/1980	00:00:00	TRACKS
	HAX-01	Jan/01/1980	00:00:00	TRACKS
	HAX-05	Jan/01/1980	00:00:00	TRACKS

### Sort the User C-CARD Directory

The contents of the C-CARD is displayed when you enter this mode.

It is possible to sort the file directory. This is possible in three different modes, select the **SORT BY** Softkey then select one of the options.

Press the **NAME** Softkey to order by the filename;

Press the **TIME** Softkey to order by the time of file creation;

Press the **TYPE** Softkey to order by the type of data.



READ	<b>C-CARD 2</b>		IN MEMORY	TRACKS:
	SORT BY TYPE	MARKS: 000	1 OFF 0983	2 OFF 0900
SLOT	READING DIR	WAYPTS: 003	3 OFF 0900	4 ON 0900
	..OK	ROUTES: 001	5 OFF 0900	
FORMAT	<b>NAME</b>	<b>DATE</b>	<b>TIME</b>	<b>TYPE</b>
	HAX-02	Jan/01/1980	00:00:00	MARKS
	HAX-04	Jan/01/1980	00:00:00	ROUTES
	CHA-X-	Jul/31/2000	08:45:00	WAYPTS
	HAX-03	Jan/01/1980	00:00:00	WAYPTS
	ZCHERB	Jul/17/2000	16:03:00	TRACKS
	ALDGUY	Jan/01/1980	00:00:00	TRACKS
	HAX-01	Jan/01/1980	00:00:00	TRACKS
	HAX-05	Jan/01/1980	00:00:00	TRACKS

### Reading the User C-CARD

Pressing the **READ** Softkey lists the files present on the User C-CARD inserted.

### Selecting slot

Select the desired slot where to insert the User C-CARD.

user c-card menu

	<b>C-CARD 1</b>	IN MEMORY	TRACKS:
	SORT BY TYPE	MARKS: 000	1 OFF 0983
		WAYPTS: 003	2 OFF 0900
		ROUTES: 001	3 OFF 0900
			4 ON 0900
			5 OFF 0900
	<b>NAME</b>	<b>DATE</b>	<b>TIME</b>
	<b>FILE SYSTEM ERROR</b>		
	HAX		MARKS
	HAX	DEVICE NOT PRESENT	ROUTES
	HAX		WAYPTS
	CHA	Press CLR to exit	WAYPTS
	HAX		TRACKS
	HAX	Jan/01/1980 00:00:00	TRACKS
	2CHERB	Jul/17/2000 16:03:00	TRACKS
	ALDGUY	Jan/01/1980 00:00:00	TRACKS

If the User C-CARD is not present in the selected slot, a warning message appears.

READ	<b>C-CARD 2</b>	IN MEMORY	TRACKS:
	SORT BY TYPE	MARKS: 000	1 OFF 0983
		WAYPTS: 003	2 OFF 0900
		ROUTES: 001	3 OFF 0900
			4 ON 0900
			5 OFF 0900
	<b>NAME</b>	<b>DATE</b>	<b>TIME</b>
	<b>HAX-02</b>	Jan/01/1980 00:00:00	MARKS
	HAX-04	Jan/01/1980 00:00:00	ROUTES
	CHA-X-	Jul/31/2000 08:45:00	WAYPTS
	HAX-03	Jan/01/1980 00:00:00	WAYPTS
	2CHERB	Jul/17/2000 16:03:00	TRACKS
	ALDGUY	Jan/01/1980 00:00:00	TRACKS
	HAX-01	Jan/01/1980 00:00:00	TRACKS
	HAX-05	Jan/01/1980 00:00:00	TRACKS

**Formatting User C-CARD**

A User C-CARD must be formatted before use. This operation prepares the User C-CARD to receive and store information.

Pressing the **FORMAT** Softkey will display a box to advise that all data will be lost.

ACCEPT	<b>C-CARD 1</b>	IN MEMORY	TRACKS:
	SORT BY TYPE	MARKS: 000	1 OFF 0983
		WAYPTS: 003	2 OFF 0900
		ROUTES: 001	3 OFF 0900
			4 ON 0900
			5 OFF 0900
	<b>FORMAT DISK</b>		
	All data will be lost. Are you sure ?		

Pressing the **ACCEPT** Softkey will format the C-CARD.

If a used User C-CARD is formatted, all previously stored data on the User C-CARD will be completely deleted.

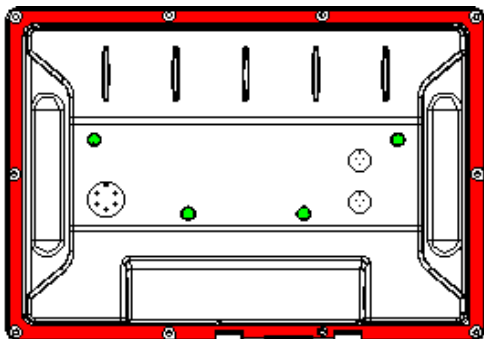
## technical specifications

- **Dimensions** mm (inch): 220 x 155 x 70.6 (8.66 x 6.10 x 2.78)
- **Power consumption:** 12 Watt max, 10 - 16 Volt dc
- **GPS Interface:** NMEA 0183 ver 2.3
- **Autopilot Interface:** NMEA 0183 ver 2.3
- **Instrument Interface:** NMEA 0183 ver 2.3
- **Display** mm (inch): LCD colour TFT transfective  
*active area 142mm (5.6")*
- **Display Resolution:** 320 x 240 pixels
- **Cartography:** C-MAPNT
- **Temperature range:** -10/+60 degrees Celsius
- **Memory:** Non volatile with battery back-up
- **Keyboard:** Silicon rubber, backlit
- **Weight:** 950g
- **Sealing:** IP67 (With door closed)
- **Accessories:** Bracket  
Flush mounting kit + mounting template  
Power supply and I/O cable  
Protective cover  
User manual

**Precautions**

To avoid electromagnetic interference, it is recommended that the *CND* be installed no less than 0.3 metres from a compass and 1 metre from the GPS.

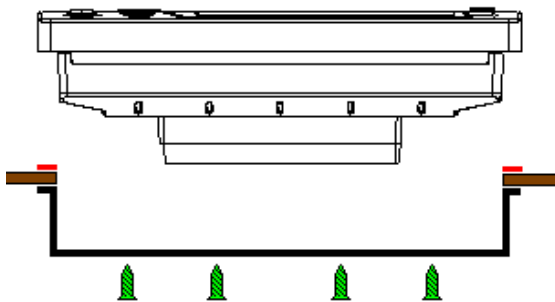
The *CND* is water resistant, but not waterproof. Use the cover when not in use. The C-MAP Cover must be properly closed and only opened to insert or remove cartridges. In either situation, this process must be performed in a totally dry environment. The rear connectors that are not connected to cables must remain protected by their appropriate caps.



**Panel mounting**

Screw the bolts supplied into the fittings on the back of the *CND*. A hole must be cut in the panel using the template supplied. Fit the *CND* into the hole you have cut and place the mounting bracket so that the panel is sandwiched between it and the *CND*. Fit the knobs onto the bolts and tighten.

The rubber sealing gasket should be placed between the plotter and bulkhead to prevent moisture penetration and reduce the effects of any vibration transmitted through the instrument panel.



electrical connections

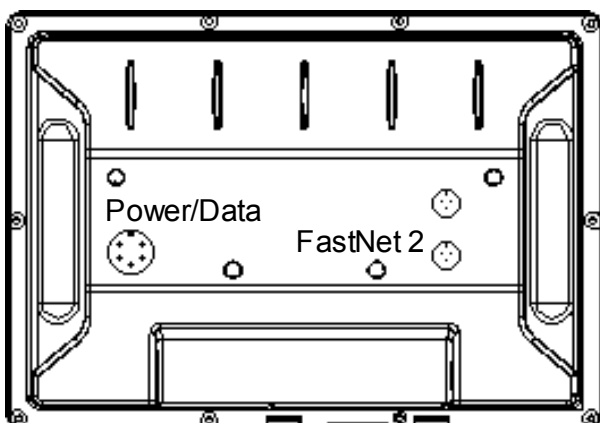
**Electrical Connection**

Connections on the back of the *CND*

NMEA – Data from non B&G instruments.

Power/Data – Data from GPS antenna.

Fastnet<sup>2</sup> – Connects CND to h1000 system.



electrical connections

Use cable Part No. BGM-023005

With this connector



**Power/Data**

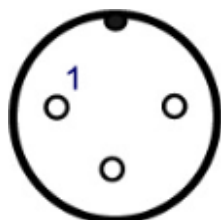
This is the main Power and Navigation NMEA port. The *CND* receives data from the GPS receiver and sends data to the instrument system using this port. Sentences decoded: DBT, DPT, GGA, GLL, GSA, GSV, HDG, HDM, HDT, MWV, RMC, VHW, VTG, VWR, VWT, WPL, ZDA and DTM (B&G special). Sentences Transmitted: APA, APB, BOD, BWC, BWR, DBT, GGA, GLL, HDG, HSC, RMA, RMB, RMC, VTG, WCV, XTE, ZDA and ZTG.

**Pin Colour      Signal**

Red 1	+12 Vdc
Black	0 Vdc /NMEA OUTPUT (GND)
Blue	NMEA OUTPUT +
Green	NMEA INPUT +
White	UNUSED
Yellow	NMEA INPUT –
Screen	SCREEN

Use cable Part No. BGM-023006

With this connector

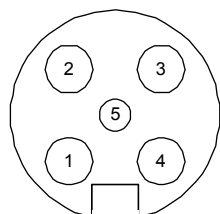


**NMEA In (Instrument Interface)**

Auxiliary NMEA input port for NMEA messages transmitted by the instrument system. Sentences decoded: DBT, DPT, HDG, HDM, HDT, MWV, VHW, VWR, VWT and WPL.

**Pin Colour      Signal**

RED 1	NMEA INPUT+
Blue	NMEA INPUT-
Green	SCREEN



Front view of male connector pins

**Fastnet<sup>2</sup>**

One FastNet<sup>2</sup> connector is provided at the rear of the unit. For connection to the h1000 system.

**Pin Number      Signal**

1	12V
2	Busy
3	FastNet <sup>2</sup> -
4	FastNet <sup>2</sup> +
5	0V

## terms and functions

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

Some terms are followed by a brief description on how to select the related menu option, listing the key sequence.

<b>About</b> (page)	Selects a page that gives information on software and cartography version and general software specification.
<b>Anchor Alarm</b>	Specifies the radius of an anchor circle around the boat, when exiting from the circle, the <i>CND</i> emits an alarm and a pop-up window is opened.  The default setting is Off.
<b>Arrival Alarm</b>	Specifies the radius of a circle around the Waypoint/Mark of a route: when your boat reaches this circle the alarm sounds.  The default setting is Off.
<b>Arrival Time</b>	The estimated time of day you will reach your destination, based on your current speed and track from GPS.
<b>Attention Areas</b>	Enables by filling area (On), enables only contour (Contour) or disables (Off) the display of Attention Areas. A special symbol (!) is placed inside the area selecting On or Contour options. This is valid also for the categories: FISHING FACILITY, MARINE FARM/CULTURE, MILITARY PRACTICE AREA, RESTRICTED AREA, and SEAPLANE LANDING AREA. When the area is small, it is identified only by the boundary. The default setting is Contour.
<b>Azimuth</b>	The angular measurement from the horizon to a satellite or another object.
<b>Bathymetric Lines</b>	Imaginary lines connecting points of equal water depth.  The default setting is On.

## terms and functions

<b>Bathymetrics &amp; Soundings Range</b>	Sets the min/max value for Bathymetrics and Soundings. If the depth unit is Metres (Mt), the range is [0 - 15000], if Feet (Ft) is [0 - 49212], if Fathom (FM) is [0 - 8202].  The default setting is [0, 33] Ft.
<b>Beacon</b>	A prominent, specially constructed object forming a conspicuous vertical mark as a fixed aid to navigation.
<b>Bearing</b>	Selects either degrees magnetic, (Magnetic), or degrees true, (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 Magnetic.
<b>BRG = Bearing</b>	It is the angle between the North (True or Magnetic) and a destination. It represents the direction to follow.
<b>Bottom Type</b>	Turns On/Off the displaying of Bottom Type (type, colour and other qualities of seabed).  The default setting is On.
<b>Buoy</b>	A floating object moored to the sea bottom in a particular (charted) place, as an aid to navigation.
<b>Chart Boundaries</b>	Enables/Disables the displaying of the Chart Boundaries. Selecting Auto instead, if we are in background charts only the first charts level contained in the C-CARD are displayed, if we are in a charts level contained in the C-CARD the next four charts level are displayed. The default setting is On.
<b>Chart Datum</b>	Sets the datum that the electronic chart is set to. This value should be the same as the paper chart that is being used. In some instances, it may be beneficial to set this value to WGS 84 so that two charts of different original datum can be shown together on the <i>CND</i> .  WGS 1984 is the default Chart Datum.

## terms and functions

<b>COG</b> = Course Over Ground	Direction of the path over ground actually followed by a boat.
<b>Coordinate System</b>	Sets your preferred Coordinate System among ddd mm ss, ddd mm.mm, ddd mm.mmm
<b>XTE</b> = Cross Track error	The distance from the boat's present position to the closest point on a line between the origin and destinations Waypoints of the navigation leg being travelled.
<b>CTS</b> = 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.
<b>Current</b>	Non-periodical movement of seawater, generally horizontal, due to many causes such as different temperatures and prevalent winds.
<b>Date Format</b>	Sets your preferred date between MMMM-DD-YYYY (month-day-year) and DD-MMMM-YYYY (day-month-year).
<b>Datum</b>	The Latitude and Longitude lines printed on any map are based on certain models of the shape of the earth.
<b>Dedicated Key</b>	A key with permanently defined function. These keys are labelled on the front panel of the <i>CND</i> .
<b>Default</b>	Indicates a value or a setting that is used if the user has not defined a particular value.
<b>Depth Contours</b>	Imaginary lines connecting points of equal water depth (see also Bathymetric Lines).
<b>Depth Units</b>	Sets the depth units among Ft = Feet, FM = Fathoms and m = Metres. The default setting is m.
<b>DGPS</b> = Differential GPS	Provides even greater positioning accuracy than standard GPS.
<b>Distance</b>	Sets the distance at which the previous three alarms (Arrival Alarm, Anchor Alarm, and XTE Alarm) are triggered. The default setting is 0.01 Nm.

## terms and functions

<b>Distance Units</b>	Sets the distance unit among Nm = nautical miles, Mi = miles and Km = kilometres. The default setting is Nm.
<b>DTG = Distance To Go</b>	The actual distance to reach the Target.
<b>File</b>	File is a collection of information stored on a User C-CARD. Each file must have a unique name.
<b>Find User Point</b>	Finds the desired User Point on the chart, after inserting the name.
<b>Formatting</b>	The formatting of a User C-CARD must be done before using a new User C-CARD.
<b>Full Map Display</b>	The <i>CND</i> will remove the information box and display a full screen chart and the softkeys.
<b>GPS = Global Positioning System</b>	GPS is a satellite based navigation system operated by the US Department of Defence. It gives the navigator a position 24 hours a day, 365 days a year under any weather conditions.
<b>GPS Datum</b>	Sets the datum that the GPS unit is set to. If the internal GPS is being used this value should be set to WGS 1984. If an external GPS is used, find out what datum the external GPS is set to and set the same datum value for this option. The default value is WGS 1984.
<b>GPS Position</b> (page in GPS Mode)	The GPS Position Page shows the position and COG/SOG.
<b>GPS Signal Status</b> (page in GPS Mode)	The GPS Signal Status page provides the satellite fix status.
<b>HDG = Heading</b>	The horizontal direction in which a boat actually points or heads in any moment.

## terms and functions

<b>HDOP</b> = 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.
<b>Keypad Beep</b>	Enables/Disables the keypad beep. The default setting is On.
<b>Info</b>	Displays a screen with a list of all objects found in the range of the cursor.
<b>Land Features</b>	Turns On/Off the displaying of Landmarks (any prominent object such as monument, building, etc, on land that can be used in determining a location or a direction). The default setting is On.
<b>Language</b>	Selects the language in which you wish screen labels, menus and options information to be displayed. This does not affect the map information. The default setting is English.
<b>Latitude</b>	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°.
<b>LAT/LONG</b>	Coordinate system using Latitude and Longitude coordinates to define a position on earth.
<b>Lat/Long Grid</b>	Turns On/Off the displaying of the Latitude and Longitude Grids. The default setting is On.
<b>Light Sectors</b>	Turns On or Off of all the Fixed Lights, Buoys and lighthouses. When Lights are on, lights are shown on lighthouses and other lights that rotate, a light sector is displayed to show the range of coverage for the light. In the No sector setting, the light is shown without sector. The default setting is Sector.

## terms and functions

<b>LOG</b>	Speed of the boat relative to the water.
<b>Longitude</b>	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°.
<b>Magnetic Deviation</b>	The angle between the Magnetic North and the Compass North.
<b>Magnetic Variation</b>	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.
<b>Map Orientation</b>	Selects the orientation of your chart, North Up: the map is shown with North upwards. Track Up: the map is shown with the boat's current heading upwards.  The default setting is North Up.  If Track Up is selected, a window is opened to insert the Resolution angle.
<b>Mark</b>	Reference points related to cursor position.
<b>Marks</b>	Turns on or off the user entered Marks.  The default setting is On.
<b>Memory CARD</b>	The <i>CND</i> uses the optional User C-CARD to save user data.
<b>Minimum Depth</b>	Sets the minimum depth that the navigator wants the boat to go into. This value sets the depth area shading i.e. all depth areas less than this value are shaded (not an alarm)  The default setting is 10m.
<b>MOB = Man OverBoard</b>	It is an important function useful in the case someone or something falls overboard.
<b>Inserting MOB</b>	As soon as 'MOB' is pressed, then an Alarm window appears in the screen giving the position that the MOB occurred.

## terms and functions

<b>Deleting MOB</b>	To cancel the MOB mode, press and hold the 'MARK' key for two seconds.
<b>Names</b>	Turns On/Off the displaying of the local area names.  The default setting is On.
<b>Nav-Aids</b>	Turns On/Off the Buoys and Beacons.  The default setting is On.
<b>NMEA-0183</b>	The NMEA-0183 Data Interface Standard was developed by the National Marine Electronics Association of America. It is an international standard that enables equipment from many different manufactures to be connected together and to share information.
<b>Output Format</b>	Disables (Off) or sets the interface among 0183, 0180, 0180/CDX. The default setting is 0183.
<b>Plotter Mode</b>	Selects whether areas not covered by the electronic charts on the C-CARD can be viewed. If set to On, then the user can zoom in to view Marks, routes, tracks and boat's position anywhere in the world down to a zoom level of 0.008 Nm (Screen width = 15 metres), regardless of what charts are on the C-CARD. If set to Off then the <i>CND</i> will only display the areas covered by the chart. When the edge of chart coverage is reached, the <i>CND</i> will automatically zoom out to the next available smaller scale chart.  The default setting is Off.
<b>Plotter Setup (menu)</b>	Enables/Disables the Plotter Mode and the Position Correction, selects the desired value for Position Offset, GPS Datum, Chart Datum. Press the <b>CLR</b> key to return to the previous menu.
<b>Port By Name</b>	To locate and display the port inserting the name.  The icon list of the available services is shown on the screen.

## terms and functions

<b>Port Info</b>	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.
<b>Ports and Services</b>	Turns On/Off the displaying of Ports and Services.  The default setting is On.
<b>Port Services</b>	To locate and display the nearest available facilities of a particular type (i.e. the nearest Hospital, sailmaker, bank, etc.).  The icon list of the available services is shown on the screen.
<b>Position Correction</b>	Allows the user to correct for any position inaccuracy due to datum shifts or poor survey data. This can sometimes occur in areas where the original paper charts are produced from very old survey data or where the chart has an unknown datum or datum that is not listed on the <i>CND</i> list of datums.
<b>R/B</b>	Allows the range and bearing between two positions on the chart to be calculated
<b>Resolution</b>	It is the resolution angle for the Map Orientation, range [5, 30] degrees. The default setting is 15°.
<b>Rolling Road</b> (page in GPS Mode)	From this page it is possible to display the next targets bearing (BRG) and distance (DTG), go on to the previous or next Target, or display the Route Data Report.

## terms and functions

<b>Route</b>	Sequence of Waypoints connected by legs. Only the currently selected/displayed route can be navigated to or edited.
<b>Setup (menu)</b>	The Setup menu is where all the settings and adjustments are made.
<b>SNR = Signal to Noise Ratio</b>	The ratio of the magnitude of a signal that of the noise (interference).
<b>SOG = Speed Over Ground</b>	A calculation of the rate of movement of the boat over the ground.
<b>Soft key</b>	There are 5 Softkeys, which have different functions when you select different modes of operation; the labels for the current functions are shown on the screen immediately adjacent to the keys.
<b>Speed</b>	The current velocity at which you are travelling, relative to a ground location.
<b>Speed Units</b>	Sets the speed unit among Kts = knots, Mph = miles per hour, Kph = kilometres per hour. The default setting is Kts.
<b>Split Map Display</b>	In Split Map Display the screen is split between showing the chart on the top of the screen and a useful information text box on bottom of the screen.
<b>Spot Depths</b>	Turns On/Off the displaying of Spot Depths (the depth of the water in a specific and charted position). The default setting is On.
<b>STR = Steering</b>	The difference between COG and CTS. If COG is 25° and CTS is 30°, then STR is 5° Right.
<b>Tide</b>	The periodic rise and fall of the surface of oceans, bays, etc., due principally to the gravitational interactions between the Moon and Earth.

## terms and functions

<b>Tide Info</b>	The Tide Info feature is the combination of a tide heights database that is included within new C-CARDS and features which calculate the tide graph for all primary and secondary ports world-wide, plus the times of Sunrise and Sunset. At some chart levels, the <i>CND</i> will display a Tide Diamond Symbol for every Port or tide point in the database covered by that particular C-CARD.
<b>Tide Stations</b>	Finds the nearest Tide Stations (up to 10) on the map, from the boat position - if a valid fix is received - or from the cursor position - if the fix position is not good.
<b>Time/Date Setup (menu)</b>	Selects the desired value for Time Reference, Time Format, and Date Format. Press 'CLEAR' to return to the previous menu.
<b>Time Reference</b>	Sets UTC or Local Time.  The default setting is UTC.
<b>Track</b>	A very useful feature of the <i>CND</i> , is the ability to store and display exactly where the boat has been. This feature is referred to as Tracking.
<b>TRN = Turning</b>	The difference between COG and BRG. If COG is 80° and BRG is 75°, TRN is 5° Left.
<b>TTG = Time To Go</b>	The estimated time needed to reach your destination, based on your current speed and the distance to destination.
<b>Turbulence</b>	Turns On/Off the displaying of water turbulence symbols. The default setting is On.
<b>Underwater Objects</b>	Turns On/Off the displaying of Underwater Objects. (Diffuser, Obstruction, Wreck, Cable - submarine, Cable area, Pipeline area, Pipeline - submarine/on land. The default setting is On.
<b>Units Setup (menu)</b>	When the Units Setup option is selected from the Setup menu, a sub-menu is displayed that allows the various units that the <i>CND</i> uses to be selected and adjusted.

## terms and functions

<b>User C-CARD</b>	The <i>CND</i> uses the optional user C-CARD to save user data. Before a new user C-CARD can be used, it must be formatted.
<b>User Point</b>	Place on the chart identified by its coordinates and displayed on the screen with a reference symbol (see Mark, Waypoint).
<b>User Points List</b>	Gives information about all stored User Points (Mark and Waypoint).
<b>Waypoint</b>	Any point to which one intends to navigate. A sequence of Waypoints makes up a route.
<b>WGS-84 = World Geodetic System 1984</b>	Coordinate System or Datum developed by the Defence Mapping Agency (DMA).
<b>Zoom-In</b>	Shows more detail in a smaller area.
<b>Zoom-Out</b>	Shows a wider but less detailed view.
<b>UTC = Universal Time Coordinated</b>	A time scale based on the rotation of the earth that is used by most broadcast time services.
<b>XTE Alarm</b>	You can enable/disable the XTE Alarm, if it is set On, insert the desired value selecting Distance. The default setting is Off.
<b>XTE Display (page in GPS Mode)</b>	From this page it is possible to display the next targets bearing (BRG) and distance (DTG), go on to the previous or next Target, or display the Route Data Report.

## troubleshooting

<b>The chartplotter does not turn On</b>	Make sure that the correct voltage (10-35V dc) is present. Check also that the polarity is correct.
<b>The chartplotter does not get a valid fix</b>	Make sure that no metal obstacles are placed around the GPS antenna and that the <i>CND</i> has been correctly wired. If, after 15 minutes, the <i>CND</i> does not get a fix, turn it Off and On again.
<b>The chartplotter does not turn Off</b>	If, after a 'PWR' pressure (for at least 3 seconds) the <i>CND</i> does not turn Off, then turn Off the supply.
<b>The chartplotter screen becomes very dark after a long exposure to direct sunlight.</b>	Adjust the contrast. 'SETUP' + "System Settings" + 'ENTER' + "Contrast" + 'ENTER'
<b>The chartplotter does not respond to any command</b>	Try to turn Off, and then turn On.

## 1. Warranty

Brookes & Gatehouse Limited (“B&G”) guarantees this product against defects in materials or workmanship on the terms and conditions set out below (the “Warranty”).

## 2. Warranty Period

The Warranty continues for 24 months from the date of purchase by the user (excluding mechanical items, including but not limited to, autopilot drive units which are subject to 12 months warranty). It is the users responsibility to demonstrate the date of purchase by showing a valid warranty card or proof of purchase. If the user cannot do this the date of purchase shall be deemed to be the date of manufacture as evidenced by the serial number of the product.

## 3. Repair and Replacement

During the Warranty period and subject to the terms and conditions set out below B&G will repair or, if it so chooses, replace the product. It is the user’s responsibility to arrange and pay for transport of the product to the nearest authorized B&G representative and any re-installation required following repair. B&G shall not be responsible for any such costs, including (but not limited to):

- 3.1. Boat slipping or lifting;
- 3.2. Freight shipping charge;
- 3.3. Engineer’s travelling time and expenses;
- 3.4. Installation labour costs associated with the Warranty claims; and
- 3.5. Loss or damage of products or boats in transit.

## 4. Conditions

The Warranty will not apply in the following circumstances:

- 4.1. Where the product has been installed in a manner or location other than the that specified in the installation instructions;
- 4.2. Where the product has been serviced or repaired by anyone other than an authorized representative;
- 4.3. Where the product has been used for purposes for which it is not intended;
- 4.4. Where the product has been used in a manner other than that described in the manual supplied; or
- 4.5. Where the damage is caused by exceptional events such as (but not limited to):
  - Abnormal levels of magnetic, electrical or acoustic interference;
  - Lightning strikes;
  - Accidents;
  - Intentional damage; or
  - Negligent use.

## 5. Wear and Tear

The warranty is limited to defects in materials or workmanship and does not cover normal wear and tear such as (but not limited to) corrosion and damage caused through the day to day running of the boat.

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## Warranty

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### **6. Software**

B&G shall not be liable under this Warranty or otherwise for any defect in software incorporated within the product.

### **7. Further Warranties**

The warranty set out in this document is the only warranty offered by B&G. B&G makes no further promises in relation to this product such as (but not limited to):

- 7.1. That it is suitable for any particular use; or
- 7.2. That it conforms to any particular quality standards.

### **8. Transfer**

This Warranty is not transferable.

### **9. Consequential Loss**

B&G shall not be liable for any damage to persons, yachts, equipment or any other property or for any other kind of consequential loss.

### **10. Governing Law**

This document is governed by and shall be construed in accordance with English law.

### **11. Statutory Rights**

This Warranty is offered as an extra benefit and does not affect your statutory rights against the party who sold you the product.

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