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.

overview

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 transflective 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 C-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

$$C\,E$$

warnings & 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.

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.
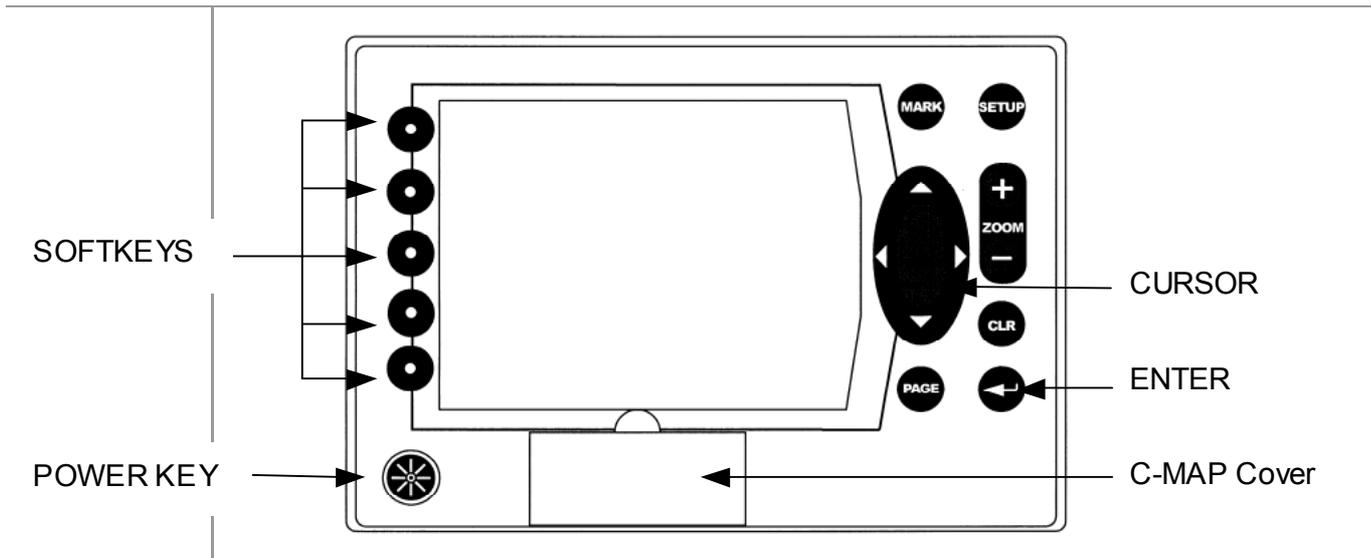
contents

contents

cnd

display overview

	Press the **PWR** 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 **MARK** key to place a Mark at your boat's current position.
	Press the **SETUP** key to enter the Setup pages.
	Press the **ZOOM +** key to display more details of a smaller area, by changing the chart scale and zooming in on your display. Press the **ZOOM –** key to change the scale and display a wider view.
	The **CURSOR** 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 **CLR** key to exit from menu or to leave a menu without making changes.
	Press the **ENTER** key to select a function or enter a waypoint.
	Press the **PAGE** 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
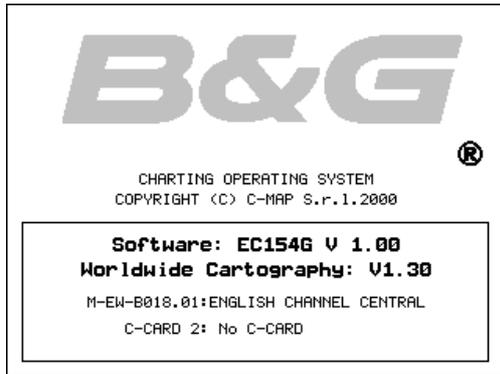
Before turning the *CND* on, check that the installation instructions in Appendix B have been correctly followed.

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.

```
CHARTING OPERATING SYSTEM
COPYRIGHT (C) C-MAP S.r.1.2000

Software: EC154G V 1.00
Worldwide Cartography: V1.30

M-EW-B018.01:ENGLISH CHANNEL CENTRAL

C-CARD 2: No C-CARD
```

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
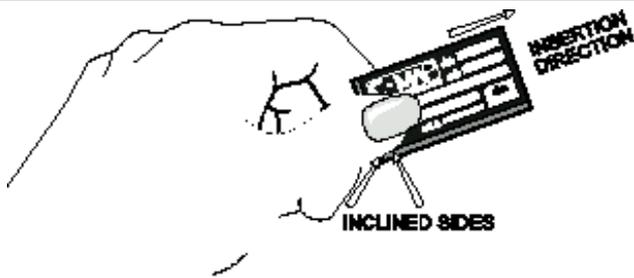
The *CND* uses two types of C-MAP*NT* cartridges,

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).
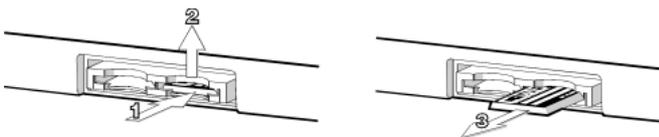
Removing the card

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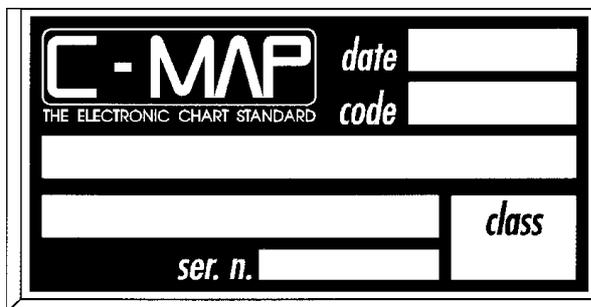
C-MAP is continuously creating new charts and revising old ones. If you wish to receive information on the newest available charts, you can write for a catalogue of available charts or ask at your dealer.

system settings

Keypad Beep:	On	Bearing Reference:	Magnetic
Language:	English	Date Format:	Day-Month-Year
Speed/Distance Units:	Nautical Miles	Time Reference:	UTC
Depth Units:	Metres	Coordinate System:	degrees and
Wind Speed Units:	Knots		minutes (2 dec. places)

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

overview of the display

Softkeys Label

Cursor Box

Cursor

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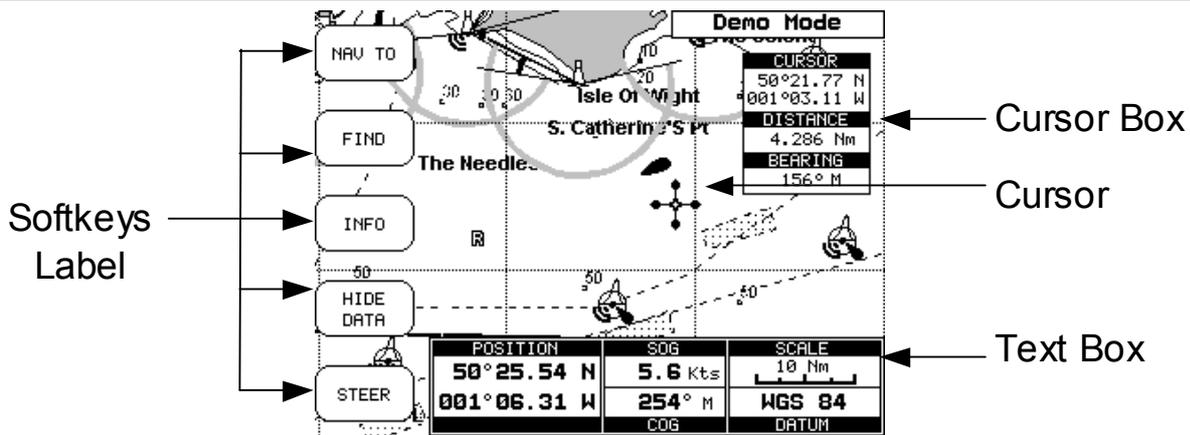
navigate to a single destination
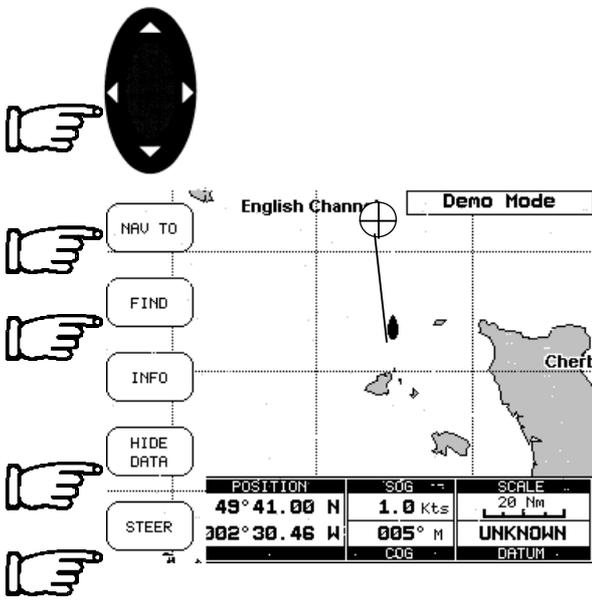
Using the **CURSOR** keypad move the cursor to your desired destination then press the *NAV TO* softkey, this softkey will then change to the *START* softkey, pressing the *START* softkey will then create the Direct Target.

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.
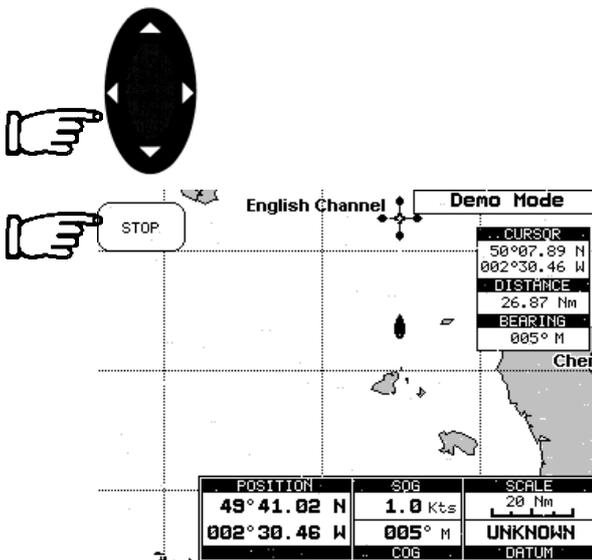
Deleting a Destination

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.
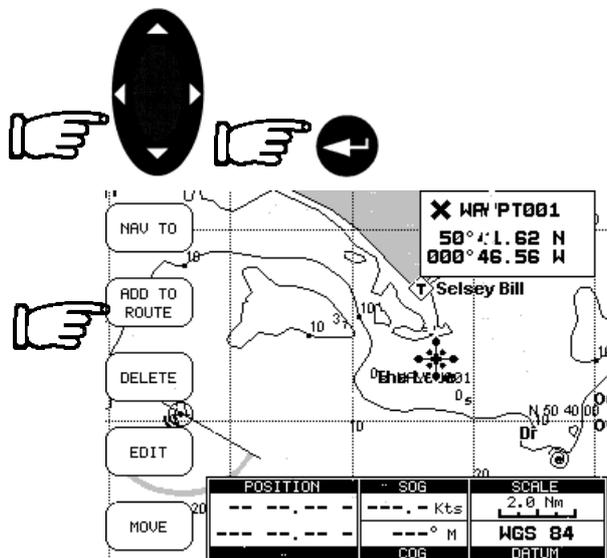
Adding a Waypoint

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.
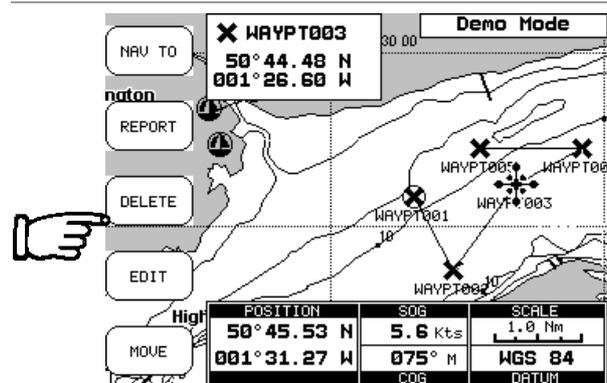
Creating a route

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.
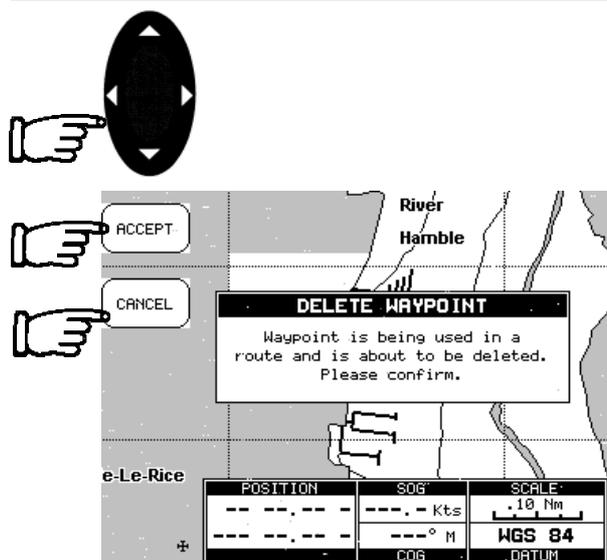
Deleting a waypoint

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
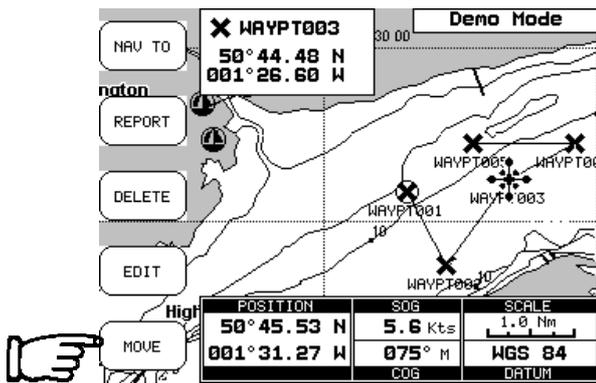
Moving Waypoint

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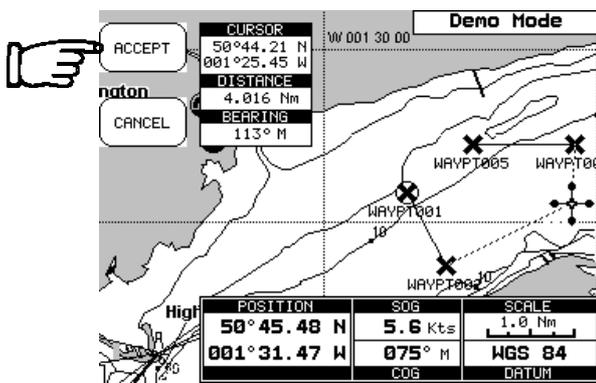
To place the Waypoint in the new position, press the *ACCEPT* Softkey.
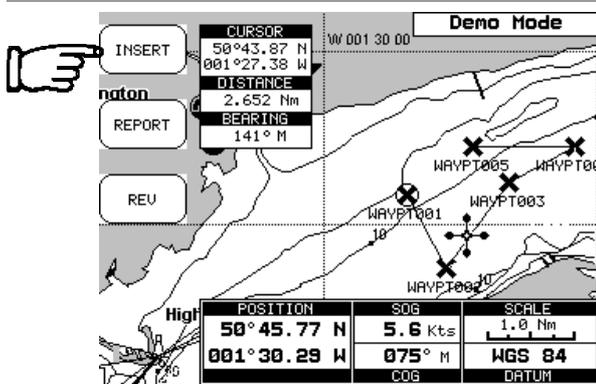
Inserting a Waypoint

Place the cursor on the route leg and press the *INSERT* Softkey.
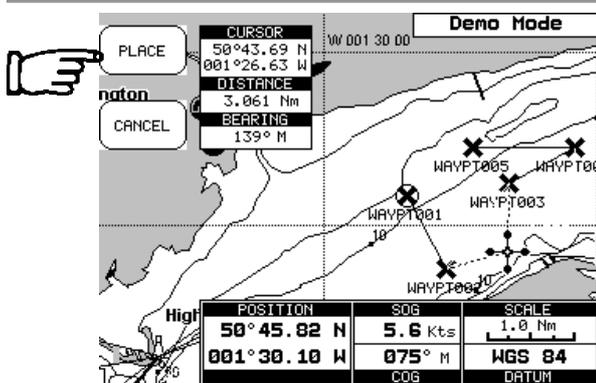
The line between the two Waypoints is turned into a dotted line (rubber-band), now move the cursor to the new position.

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

navigating on a route
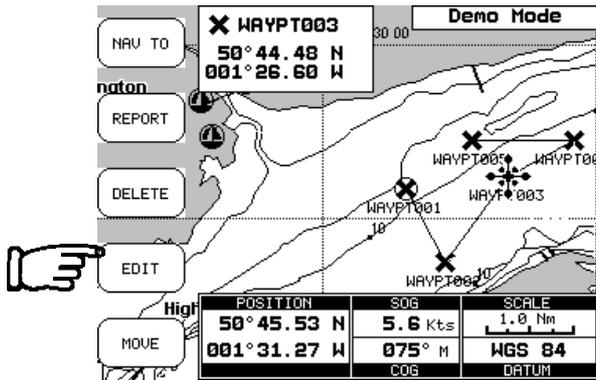
Editing Waypoints

Move the cursor onto the Waypoint and press the *EDIT* Softkey
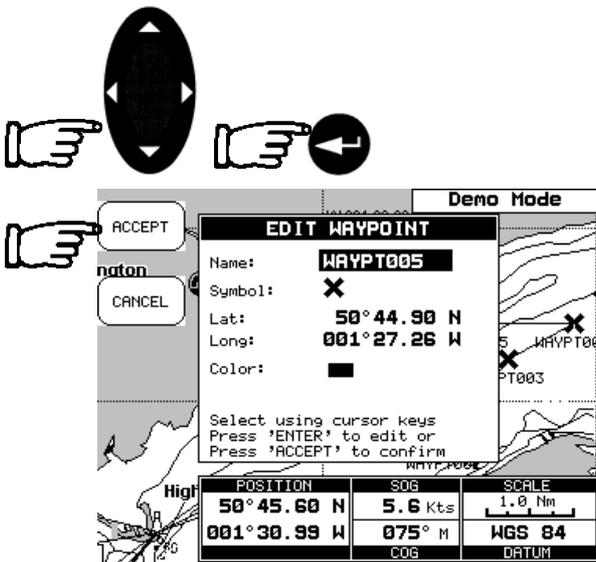
Use the **CURSOR** keypad to select the field and press the **ENTER** key.

To enter a name use the **CURSOR** keypad to insert the characters, then press the *ACCEPT* Softkey.
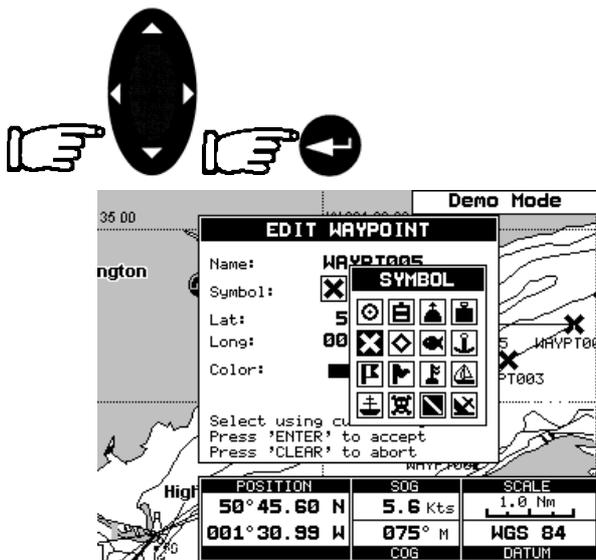
To change the Symbol, use the **CURSOR** keypad to select the Icon and press the **ENTER** key.

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-MAP NT** Handbook for their explanation (example shown).
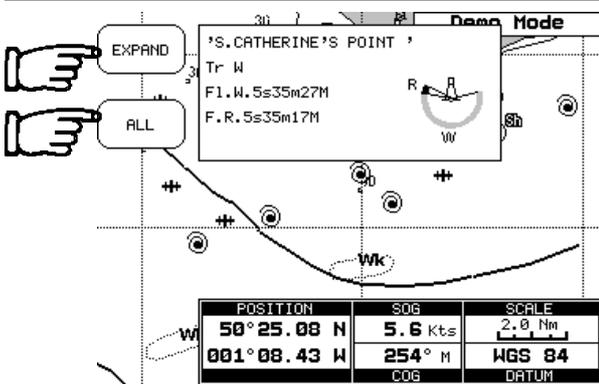
Getting Quick Information

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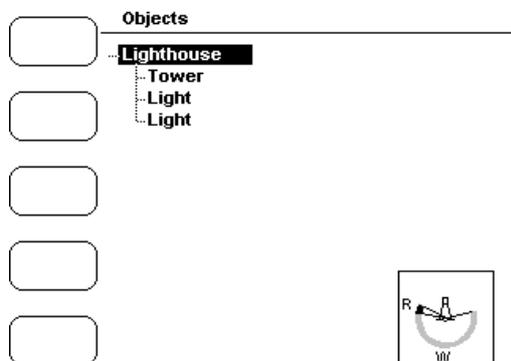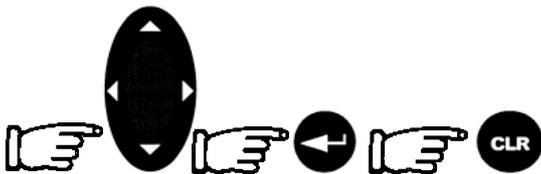
Use the **CURSOR** keypad to scroll through the list, press the **ENTER** key to expand, If the information is in several pages use the **CURSOR** keypad to scroll through the following pages.

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
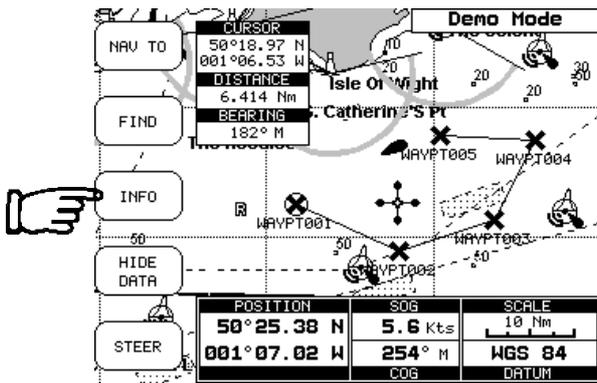
By pressing the *INFO* softkey while the chart is displayed will display a list of all objects found in the range of the cursor.
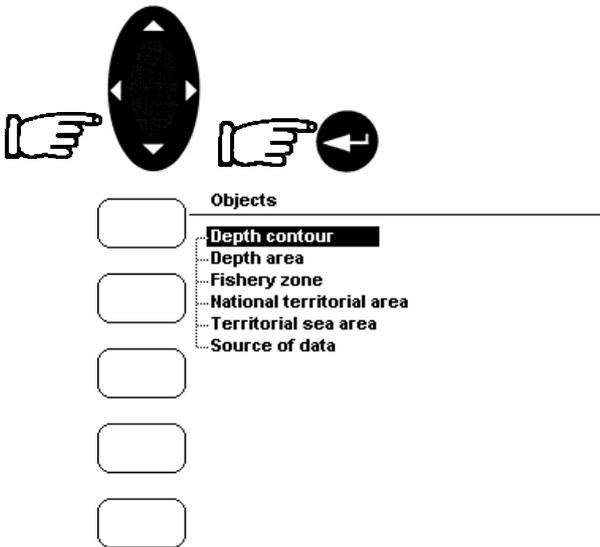
If there are complex objects you will also find a list of the components.

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

Objects

- Depth contour
- Depth area
- Fishery zone
- National territorial area
- Territorial sea area
- Source of data
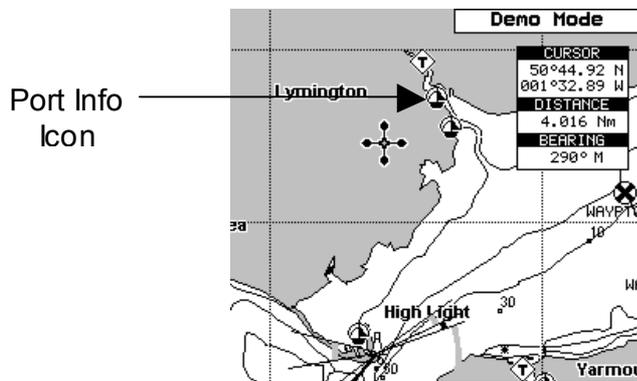
Port Info Icon

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).
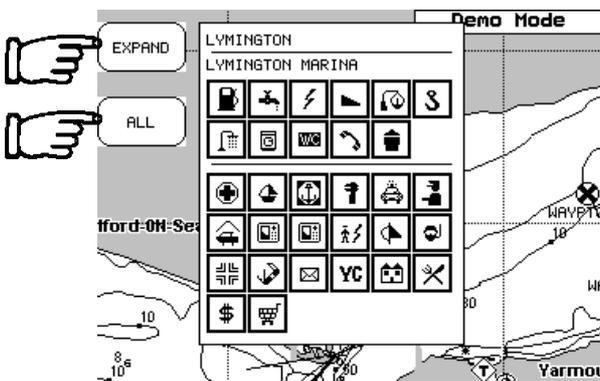
Information is displayed with icons of the available services.

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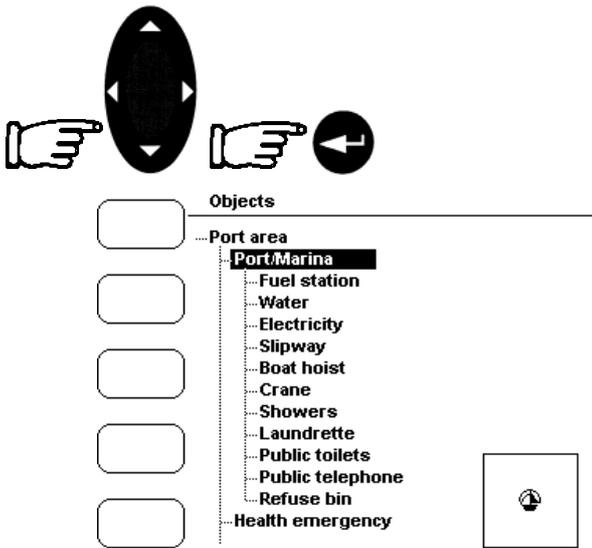
Select the service using the **CURSOR** keypad and then press the **ENTER** key.

Objects

....Port area
    Port/Marina
    ····Fuel station
    ····Water
    ····Electricity
    ····Slipway
    ····Boat hoist
    ····Crane
    ····Showers
    ····Laundrette
    ····Public toilets
    ····Public telephone
    ····Refuse bin
  ····Health emergency

Port/Marina

Object name
  LYMINGTON MARINA
Danger in Harbour
  BEWARE OF WAVE SCREENS OFF LYMINGTO N HAVEN.
Time value 1
  00:00
Time value 2
  23:59
Access
  ACCESS ALL TIDES.
Speed limit
  3 Knots
Number of berths
  300
Shelter

RESTART

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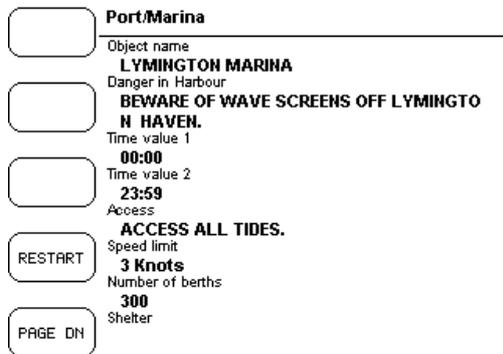
Detailed information on the services (opening and closing time of the Fuel station, telephone number of local amenities, etc) are displayed.

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.

EXPAND

ALL

Demo Mode

Tide height

Lymington

fford-ON-Sea

WAYPT

High Light

Yarmou
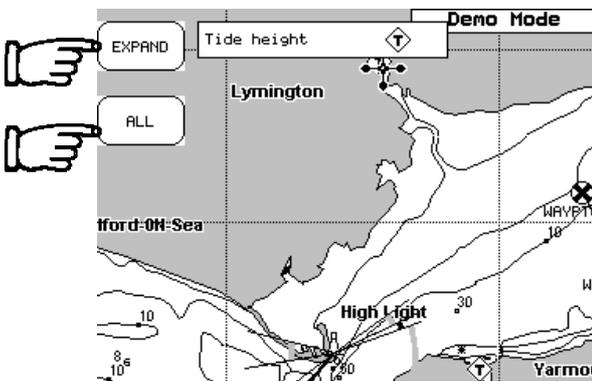
Getting Tidal Information

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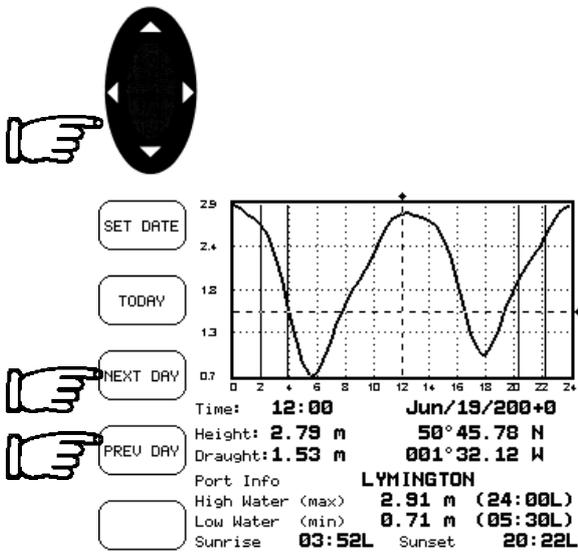
The screen will display today's Tide Height graph for the area where the Tidal symbol was located.

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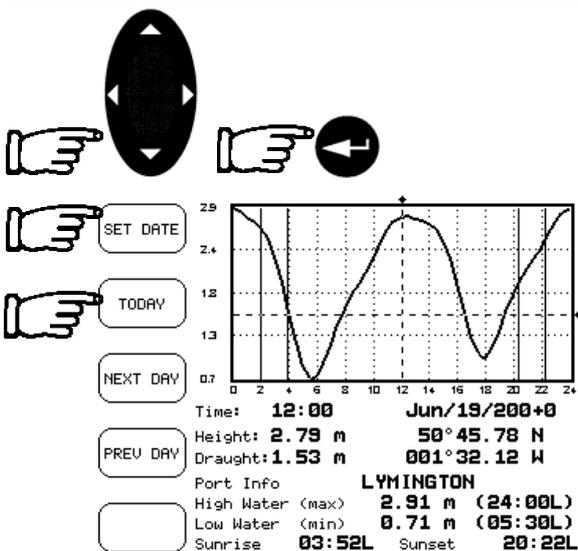
Pressing the *SETDATE* softkey and entering the required date using the **CURSOR** keypad, followed by the **ENTER** key displays the tide for that date.

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.
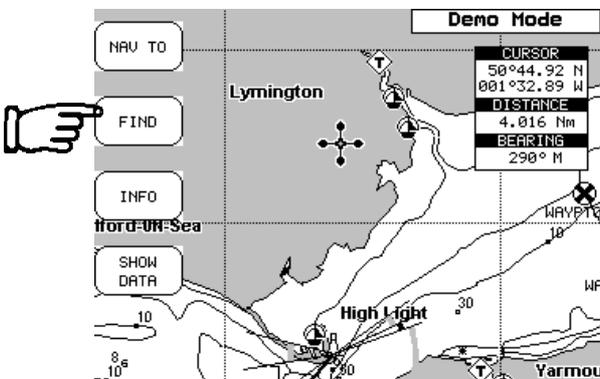
Finding Port Services.

Press the *FIND* Softkey.

finding information
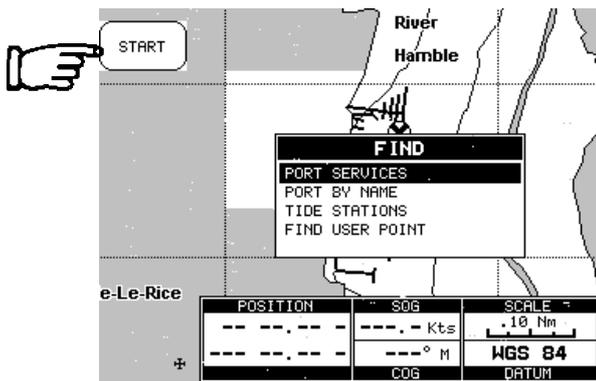
When the find display appears press the *START* Softkey to displays the nearest available facilities (i.e. the nearest Hospital, sail maker, bank, etc.).
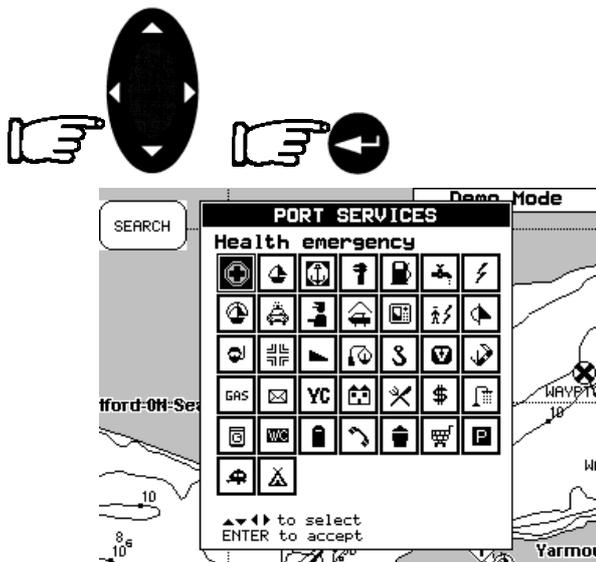
The icons list is shown of the available services.

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.
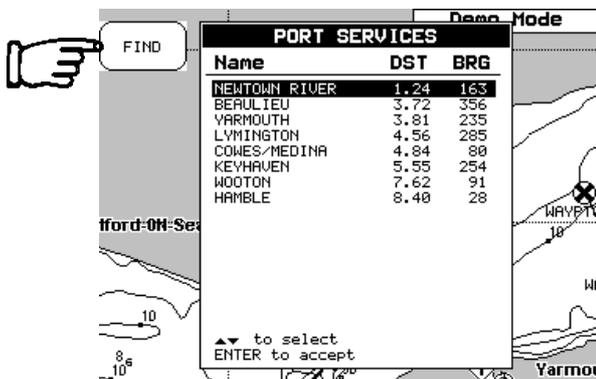
Choose the port you want and press the *FIND* Softkey.
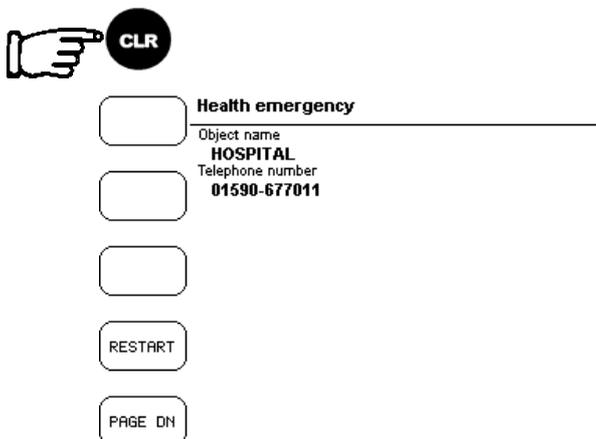
A list of that particular facility at the port is displayed.

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

finding information
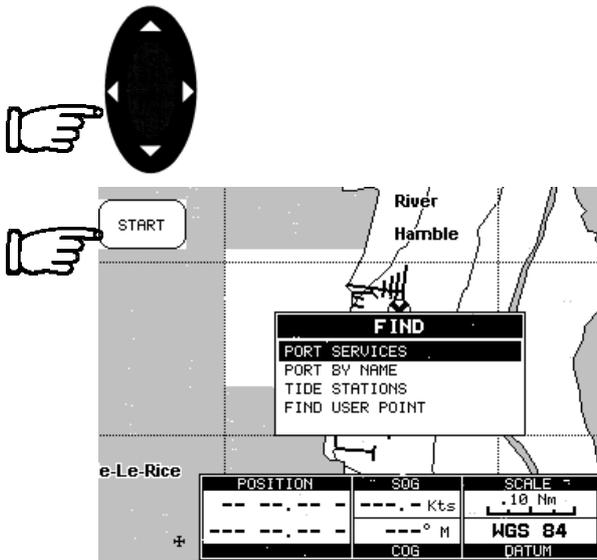
Finding Port by Name

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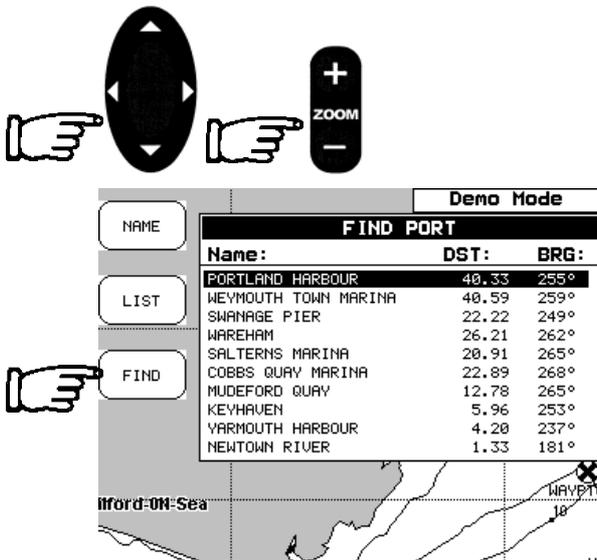
Use the **CURSOR** keypad to select the port and the **ZOOM +/-** key to select next/previous page.

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.
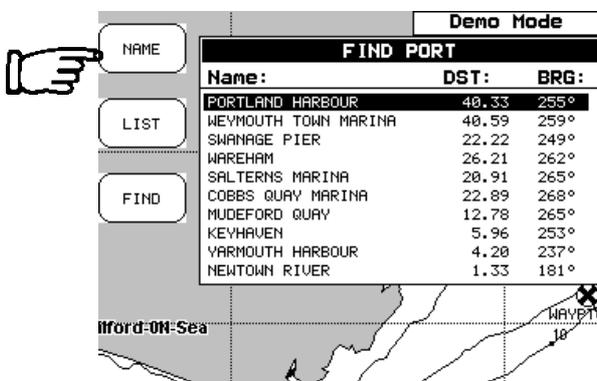
Searching by name

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

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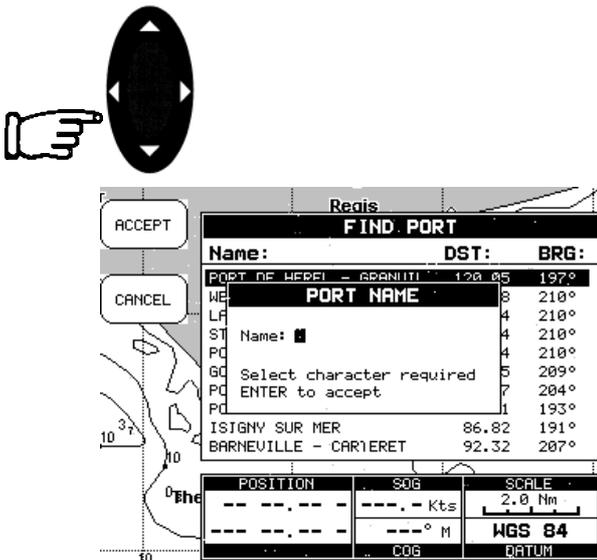
Insert the port name (max 15 characters) using the Up and Down **CURSOR** keypad to scroll through the letters, pressing the right arrow **CURSOR** keypad to move to the following space.

```
                        Regis
ACCEPT         FIND·PORT
         Name:            DST:    BRG:
         PORT DE HEREL - GRANUIL  120.05  197°
CANCEL   WE    PORT NAME       8  210°
         LA                    4  210°
         ST  Name: █          4  210°
         PO                   4  210°
         GO  Select character required 5  209°
         PO  ENTER to accept   7  204°
         PO                   1  193°
         ISIGNY SUR MER       86.82  191°
         BARNEVILLE - CARTERET 92.32  207°
         
         POSITION   SOG      SCALE
         -- --.--  ---.-Kts  2.0 Nm
         --- --.-- ---° M   WGS 84
                    COG      DATUM
```
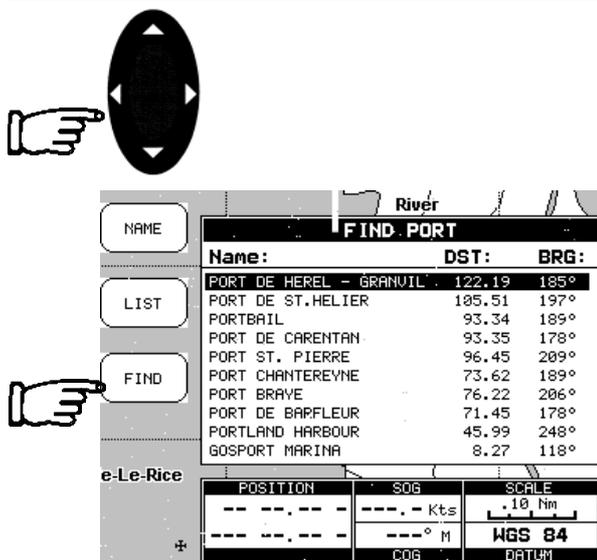
A list of all ports containing the inserted name is displayed. Repeat the operation to refine the search or move through the list with the **CURSOR** keypad.

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.

```
                   River
NAME          FIND·PORT
         Name:            DST:    BRG:
         PORT DE HEREL - GRANVIL  122.19  185°
LIST     PORT DE ST.HELIER   105.51  197°
         PORTBAIL            93.34  189°
         PORT DE CARENTAN    93.35  178°
         PORT ST. PIERRE     96.45  209°
FIND     PORT CHANTEREYNE    73.62  189°
         PORT BRAYE          76.22  206°
         PORT DE BARFLEUR    71.45  178°
         PORTLAND HARBOUR    45.99  248°
         GOSPORT MARINA       8.27  118°
e-Le-Rice
         POSITION   SOG      SCALE
         -- --.--  ---.-Kts  .10 Nm
         --- --.-- ---° M   WGS 84
                    COG      DATUM
```
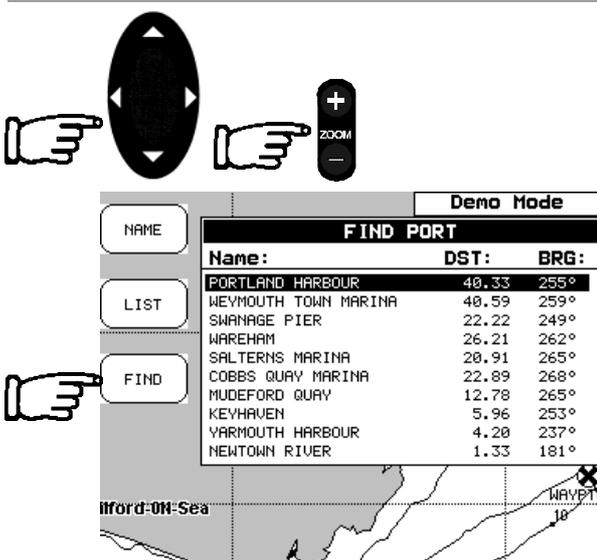
Searching by list

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.

```
                        Demo Mode
NAME          FIND PORT
         Name:            DST:    BRG:
         PORTLAND HARBOUR    40.33  255°
LIST     WEYMOUTH TOWN MARINA 40.59  259°
         SWANAGE PIER        22.22  249°
         WAREHAM             26.21  262°
         SALTERNS MARINA     20.91  265°
FIND     COBBS QUAY MARINA   22.89  268°
         MUDEFORD QUAY       12.78  265°
         KEYHAVEN             5.96  253°
         YARMOUTH HARBOUR     4.20  237°
         NEWTOWN RIVER        1.33  181°
ilford-ON-Sea
```

finding information

CURSOR 50°18.97 N 001°06.53 W **DISTANCE** 6.414 Nm **BEARING** 182° M Demo Mode Isle Of Wight Catherine's Pt WAYPT005 WAYPT004 WAYPT001 WAYPT003 WAYPT002 NAV TO / FIND / INFO / HIDE DATA / STEER POSITION 50°25.38 N 001°07.02 W · SOG 5.6 Kts 254° M · SCALE 10 Nm WGS 84	**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.
START River Hamble **FIND** PORT SERVICES PORT BY NAME TIDE STATIONS FIND USER POINT e-Le-Rice POSITION -- --.-- -- -- --.-- -- · SOG ----.- Kts ---° M · SCALE .10 Nm WGS 84	Using the **CURSOR** keypad select Tide Stations and press the *START* Softkey to display a list of nearest Tide Stations (up to 10).
CLR / FIND **TIDE STATIONS** 	Name	DST	BRG
---	---	---
WARSASH	0.93	161
BURSLEDON	1.43	17
CALSHOT CASTLE	2.77	180
SOUTHAMPTON	3.97	300
STANSORE POINT	4.65	198
BUCKLERS HARD	5.44	229
COWES	5.50	179
REDBRIDGE	6.77	299 | e-Le-Rice ▲▼ to select ENTER to accept	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.
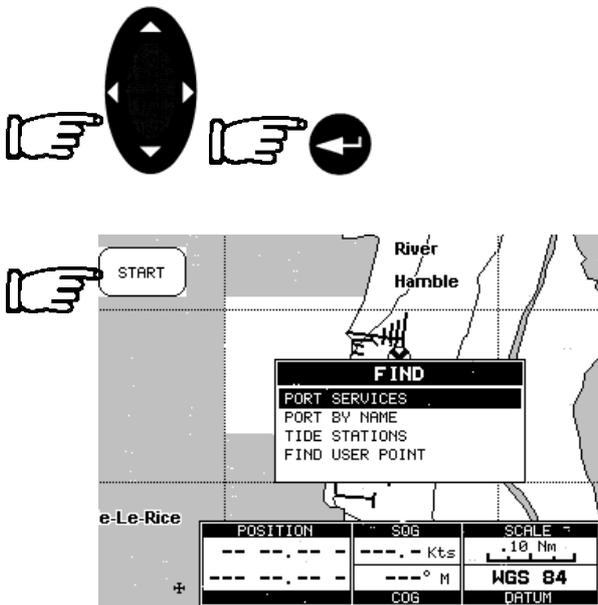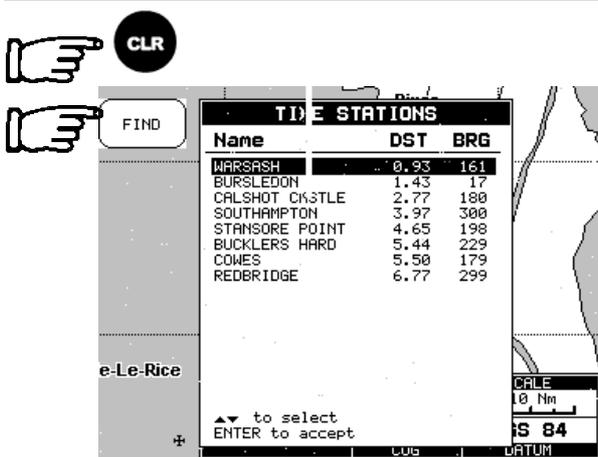
data pages

☞ **PAGE**

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°
```

cnd

data pages
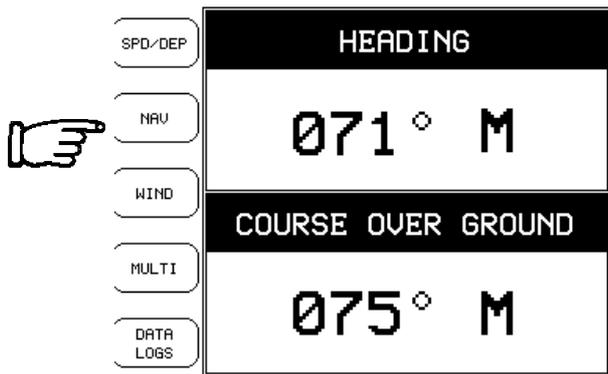
SPD/DEP NAV WIND MULTI DATA LOGS **HEADING** 071° M **COURSE OVER GROUND** 075° M	**Navigation** The Navigation displays are divided into three pages, accessed by repeatedly pressing the *NAV* Softkey. To scroll between pages press the *NAV* Softkey.
SPD/DEP NAV WIND MULTI DATA LOGS **HEADING** 071° M **BOAT SPEED** 5.60 Kts	
SPD/DEP NAV WIND MULTI DATA LOGS **DISTANCE TO WAYPOINT** 0.54 Nm **BEARING TO WAYPOINT** 074° M	
SPD/DEP NAV WIND MULTI DATA LOGS **APPARENT WIND SPEED** 11.6 Kts **APPARENT WIND ANGLE** − 054°	**Wind** The Wind displays are divided into three pages, accessed by repeatedly pressing the *WIND* Softkey To scroll between pages press the *WIND* Softkey
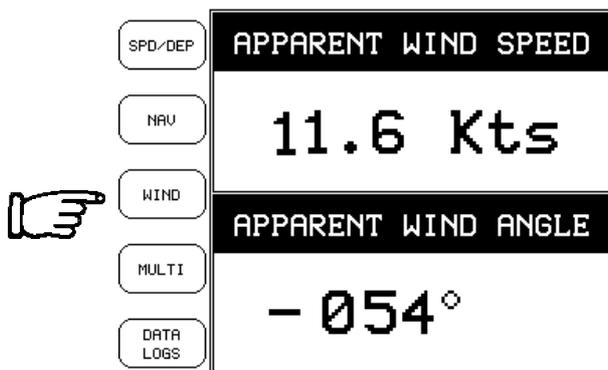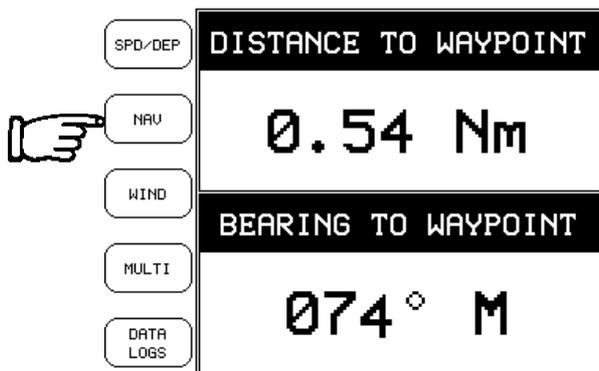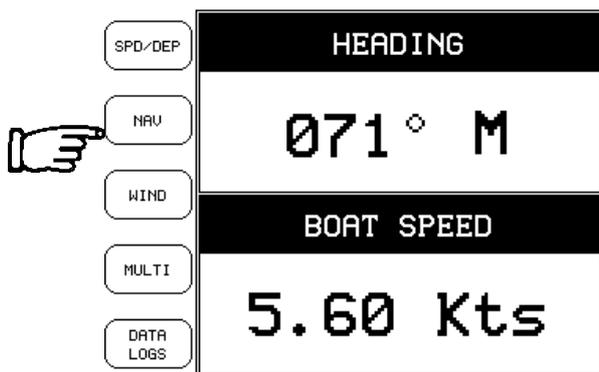
cnd

data pages

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

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

SPD/DEP NAV WIND MULTI DATA LOGS	BOAT SPEED 5.60 Kts / DEPTH 21.0 m / SPEED OVER GROUND 5.60 Kts / COURSE OVER GROUND 075° M / HEADING 071° M / POSITION 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 NAV WIND MULTI DATA LOGS	**BOAT** / **SEA** / **WIND** BOAT SPEED 5.60 Kts 071° M / DEPTH 18.7 m / AWS 11.6 Kts -054° HEADING / / AWA SOG 5.60 Kts 075° M / TIDE DRIFT 01.1 Kts 275° M / TWS 07.6 Kts 001° M COG / TIDE SET / TWD SATS 12 / HDOP 12.5

data pages

	POSITION LOG		
SPD/DEP	DATE/TIME	LAT/LONG	SOG/COG
	Jun/22/2000 17:36:05 L	52°39.37 N 006°04.55 W	19.0 Kts 190° M
NAV	Jun/22/2000 17:36:00 L	52°39.39 N 006°04.54 W	19.0 Kts 190° M
	Jun/22/2000 17:35:55 L	52°39.42 N 006°04.54 W	19.0 Kts 190° M
WIND	Jun/22/2000 17:35:49 L	52°39.44 N 006°04.53 W	19.0 Kts 190° M
	Jun/22/2000 17:35:44 L	52°39.47 N 006°04.52 W	19.0 Kts 190° M
MULTI	Jun/22/2000 17:35:39 L	52°39.50 N 006°04.52 W	19.0 Kts 190° M
	Jun/22/2000 17:35:34 L	52°39.52 N 006°04.51 W	19.0 Kts 190° M
DATA LOGS	Jun/22/2000 17:35:29 L	52°39.55 N 006°04.50 W	19.0 Kts 190° M
	SCROLL FOR MORE ENTRIES		

Data Logs

The Data Logging pages are divided into four pages, accessed by repeatedly pressing the **DATA LOGS** Softkey.

BOAT SPEED

SPD/DEP NAV WIND MULTI DATA LOGS

08:00   16:00   00:00

TIME	BOAT SPEED
00:00:00 U	

DEPTH

SPD/DEP NAV WIND MULTI DATA LOGS

08:00   16:00   00:00

TIME	DEPTH
00:00:00 U	21.8 m

APPARENT WIND

SPD/DEP NAV WIND MULTI DATA LOGS

08:00   16:00   00:00

TIME	AWS	AWA
00:00:00 U		

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.
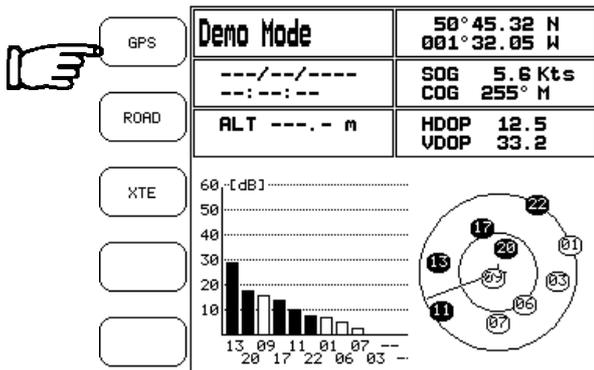
GPS Page

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
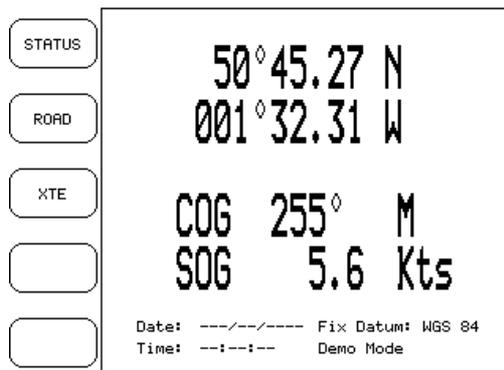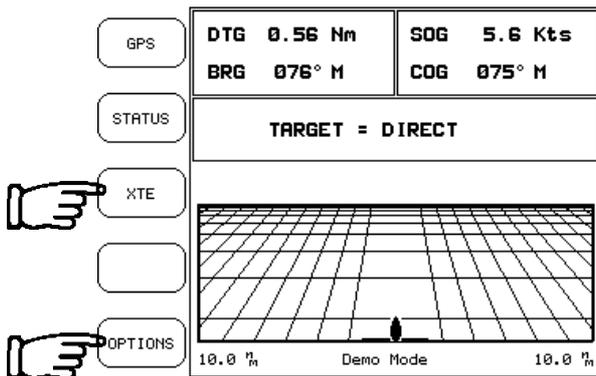
GPS — STATUS — XTE — OPTIONS DTG 0.56 Nm SOG 5.6 Kts BRG 076° M COG 075° M TARGET = DIRECT 10.0 Nm Demo Mode 10.0 Nm	**Road Page** Pressing the *ROAD* Softkey on the Status page displays the Road Page. The Road Page shows the current course displayed on a rolling road with the current heading up the page. The target waypoint is also displayed. Pressing the *OPTIONS* Softkey displays the Road Page Options. Pressing the *XTE* Softkey displays the XTE Page.
GPS — STATUS — ROAD — OPTIONS Demo Mode TARGET DIRECT DTG 0.40 Nm SOG 5.6 Kts BRG 078° M COG 075° M VMG 5.5 Kts TTG 00:04 L10.0 Nm R10.0 Nm	**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.
SELECT — EXIT Demo Mode TARGET DIRECT DTG 0.28 Nm SOG 5.6 Kts BRG 075° M VMG 00:03 NAVIGATION PAGE DTG SOG BRG COG VMG TTG L10.0 Nm R10.0 Nm	**XTE Options** The Options menu is used for setting the display fields. Press the *SELECT* Softkey to change then Pressing the *EXIT* Softkey.
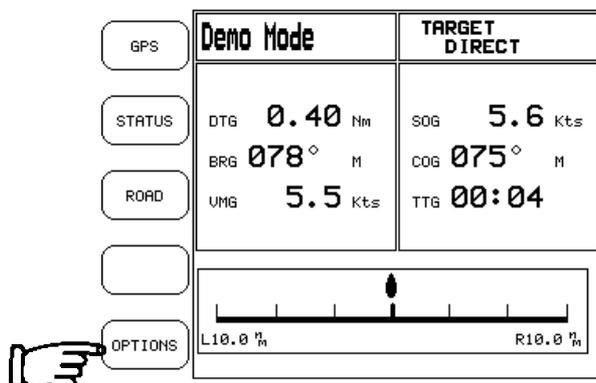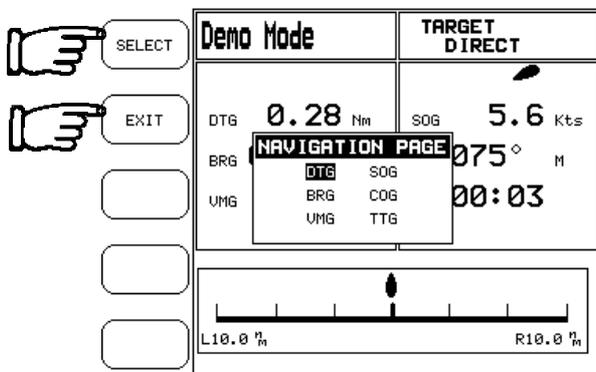
Uploading waypoints from a PC

When uploading a series of pre-set waypoints from a PC via the NMEA interface (WPL), first press the 'Setup' button and select 'Waypoints' from the menu. Then upload your data from the PC, the information on your chosen waypoints will appear on the screen. Once the data has been transferred, press the 'Clear' button twice to view the waypoints on the chart.

Main Setup Screen

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

The *CND* can store up to 10 individual routes, only one can be selected as the current route. Only the currently selected route can be navigated to or edited.

Press the **SETUP** key

SETUP MENU

Waypoints...
Routes....
Tracks...
Alarms...
System Settings...
Chart Plotter Settings...
Memory Card...
Demo Mode...
About...

Press CLR to exit
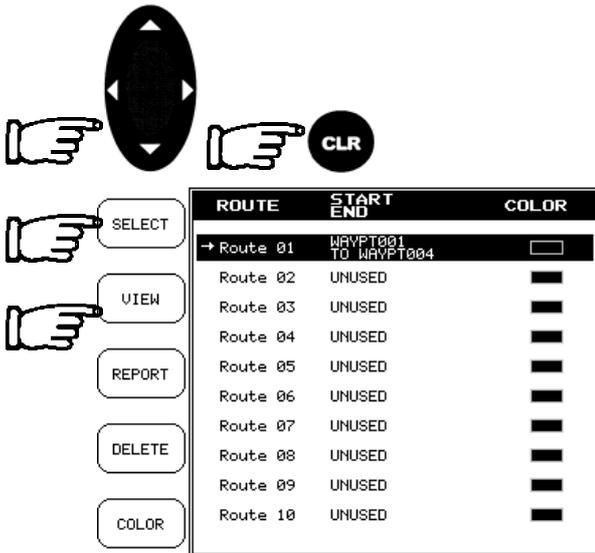
Selecting a route

Using the **CURSOR** keypad select Routes from the Setup screen.

From the Main Route screen, the *CND* displays a list of available routes.

Routes are permanently stored in the memory as they are created.

Selecting a route to work

Scroll through the routes using the up/down **CURSOR** keypad, pressing the *SELECT* Softkey selects the route.

When an existing route is selected pressing the *VIEW* Softkey will automatically zoom and pan the chart display to show the route on screen.

ROUTE	START END	COLOR
→ Route 01	WAYPT001 TO WAYPT004	
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	

SELECT, VIEW, REPORT, DELETE, COLOR
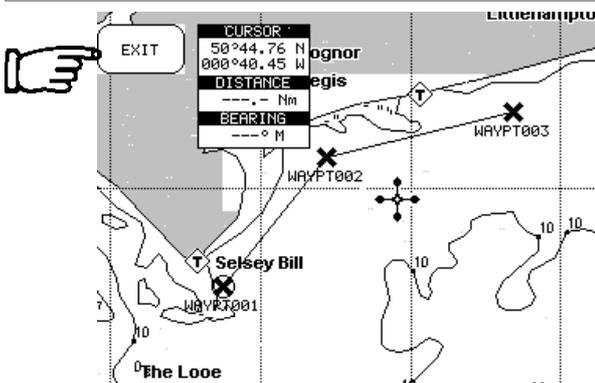
The route, shown by straight segments, is centred on the screen.

The *EXIT* Softkey returns to the previous screen.

routes
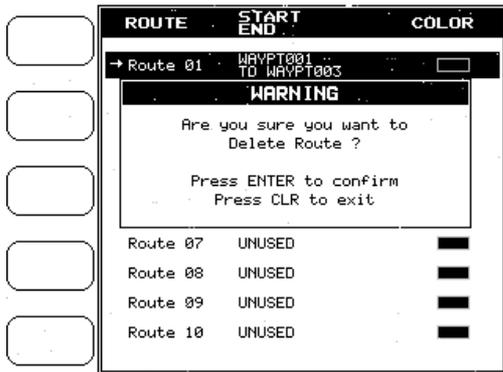
Deleting a Route

From the main Route screen select the Route to be deleted and press the *DELETE* Softkey.

A warning appears confirming the delete.
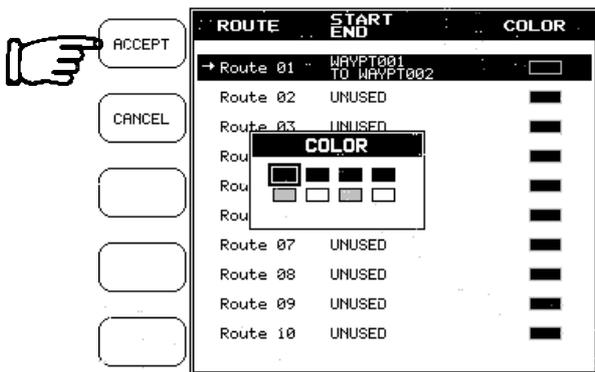
Route Colour selection

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.
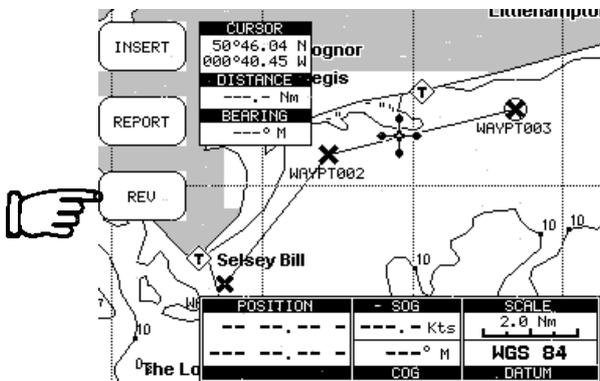
Reversing a route

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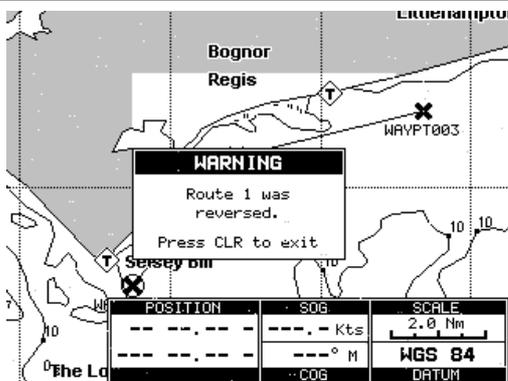
A warning screen will appear to tell you that the route has been reversed.

ROUTE	START END	COLOR
→ Route 01	WAYPT001 TO WAYPT004	
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	▬

Softkeys: SELECT, VIEW, REPORT, DELETE, COLOR

Route Report

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

ROUTE 01 DATA REPORT
SPEED: 5.6 Kts   FUEL FLOW: 10.0 L/Hr

LEG	LAT LON	DST BRG	ETE FUEL
WAYPT001	50°19.88 N 001°22.44 W		
WAYPT002	50°16.26 N 001°01.13 W	14.08 Nm 109° M	002:30:53 25.147
WAYPT004	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		--:--:-- ----.-

Softkeys: INSERT POINT, FUEL, SPEED

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

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

LEG	LAT LON	DST BRG	ETE FUEL
WAYPT001	50°51.74 N 001°18.68 W		
WA	FUEL	Nm M	000:00:12 0.0341
--	⑤10.0L/Hr	Nm M	--:--:-- ----.-
--	◄►▲▼ to edit	Nm M	--:--:-- ----.-
_____	-- --.-- - -.--- Nm --- --.-- - ---° M		--:--:-- ----.-
_____	-- --.-- - -.--- Nm --- --.-- - ---° M		--:--:-- ----.-
_____	-- --.-- - -.--- Nm --- --.-- - ---° M		--:--:-- ----.-

Softkeys: ACCEPT, CANCEL

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

Press **ENTER** key to confirm the change

cnd

routes

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.

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.

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.
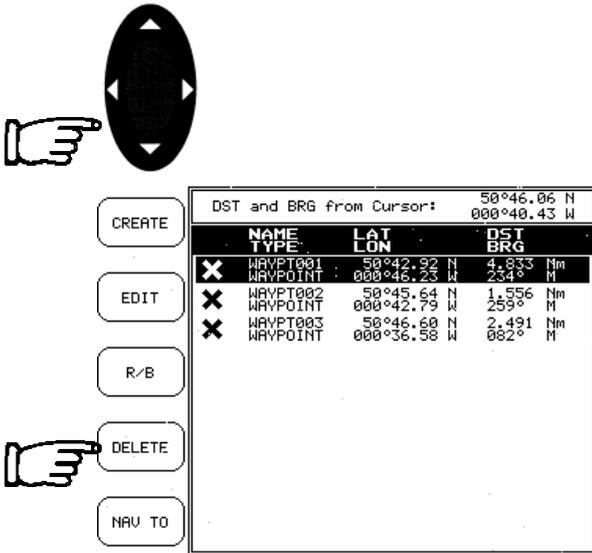
Deleting a Waypoint from the list

Use the **CURSOR** key to select the Waypoint to delete then press the *DELETE* Softkey.
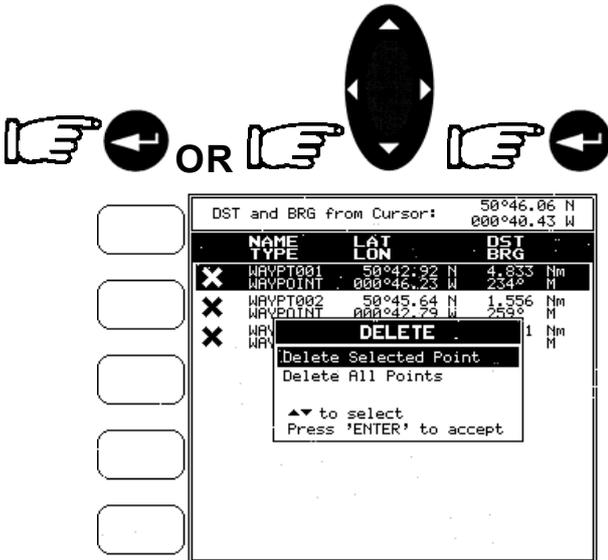
When the delete box appears press the **ENTER** key to Delete Selected Point, or using the **CURSOR** keypad to select Delete All Points, then press the **ENTER** key.
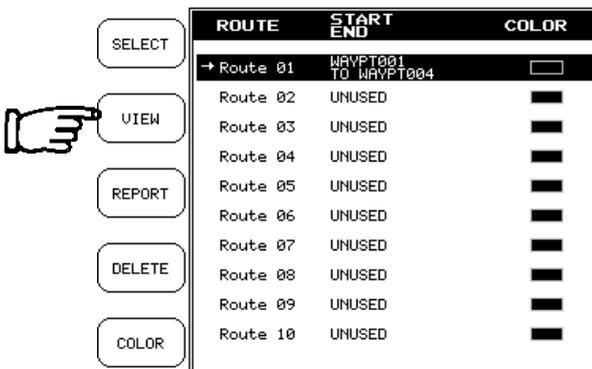
Viewing Waypoint/Marks in a Route list

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

routes
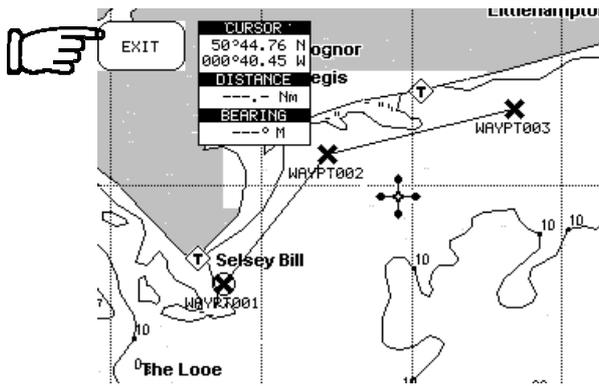
Press the *EXIT* Softkey to return to the Route page.
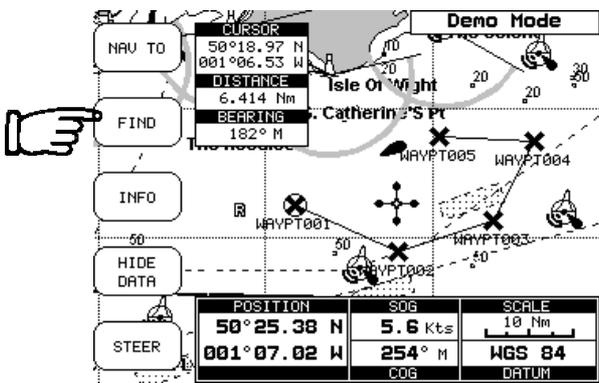
Finding a Waypoint/Mark on the chart

Press the *FIND* Softkey. Select Find User Point and press **ENTER.**
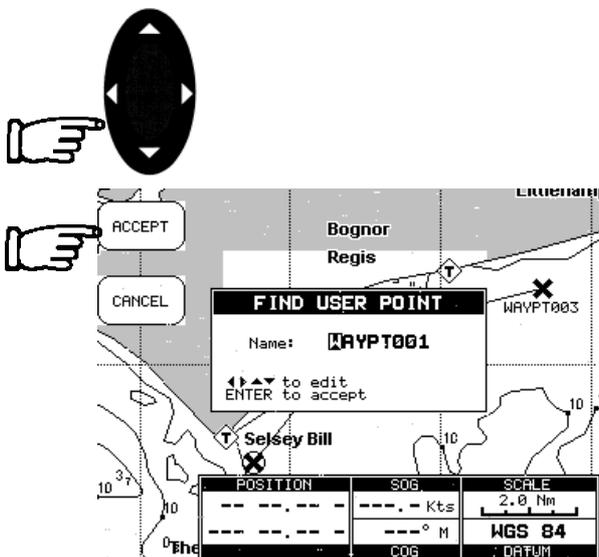
A window appears to insert the Name by using the **CURSOR** keypad. Press the *ACCEPT* Softkey to accept, the *CND* will display the selected point.
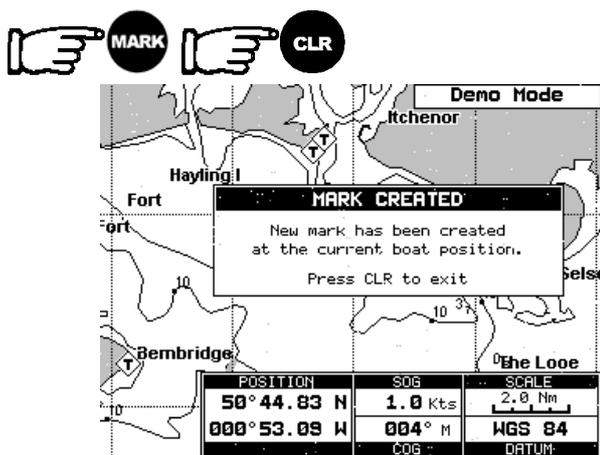
Adding a Mark

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.
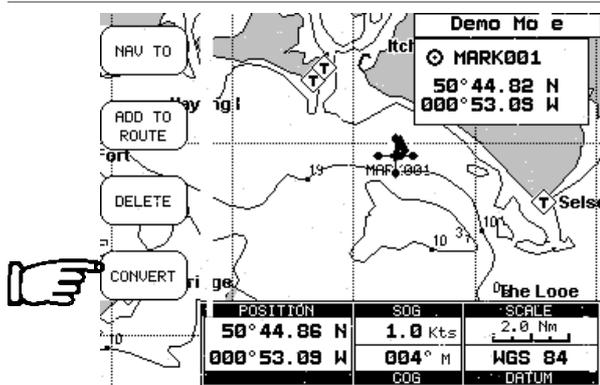
Converting a MARK to a Waypoint

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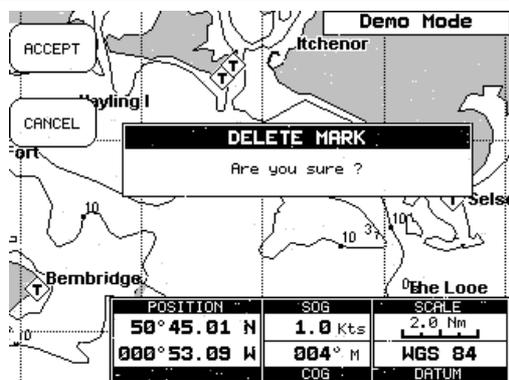
Deleting a Mark

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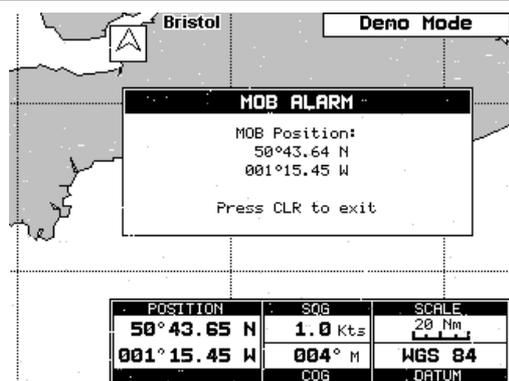
Man Over Board

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

SETUP MENU

Waypoints...
Routes...
Tracks...
Alarms...
System Settings...
Chart Plotter Settings...
Memory Card...
Demo Mode...
About...

Press CLR to exit
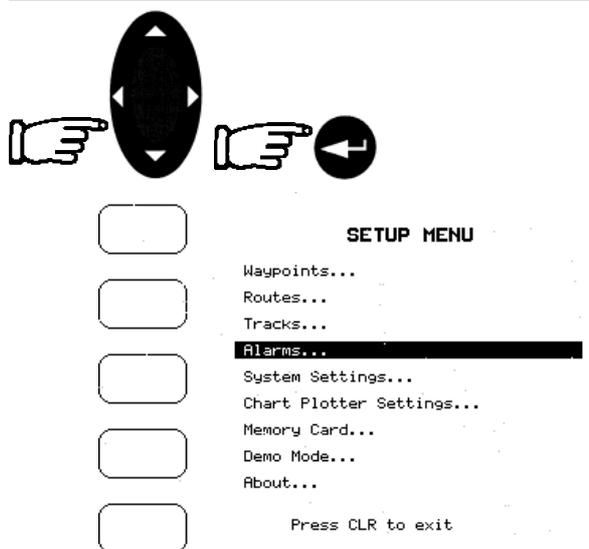
Selecting Alarms

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

Alarms

Depth - Shallow Water Alarm...
Depth - Deep Water Alarm...
Anchor Drag Alarm...
HDOP Alarm...
Cross Track Alarm...
Waypoint Arrival Alarm...

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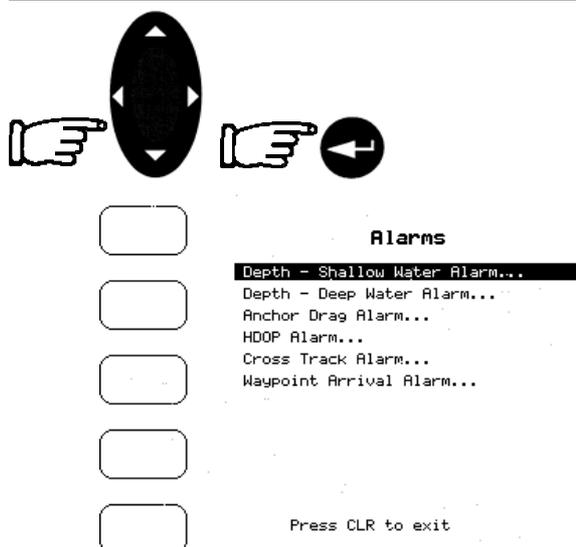
Use the **CURSOR** keypad to enable the alarm, then use the **CURSOR** keypad to select and change the value of a setting, and press the **ENTER** key to set.

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.
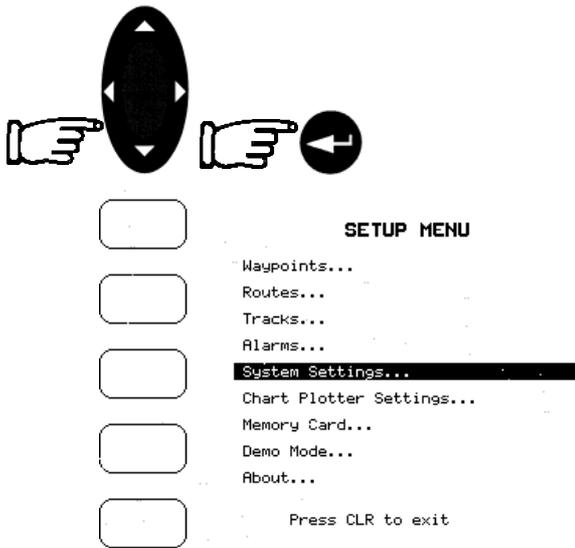
Selecting System Settings

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

```
              SETUP MENU

Waypoints...
Routes...
Tracks...
Alarms...
System Settings...
Chart Plotter Settings...
Memory Card...
Demo Mode...
About...

        Press CLR to exit
```
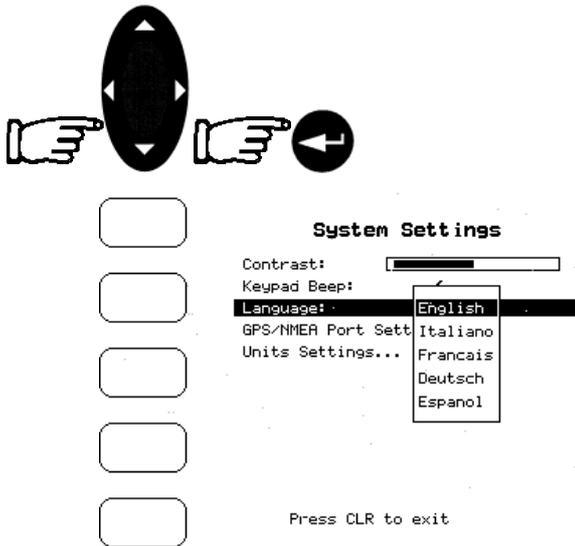
To set the Language

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.

```
            System Settings

Contrast:        [████████      ]
Keypad Beep:
Language:         English
GPS/NMEA Port Sett Italiano
Units Settings... Francais
                  Deutsch
                  Espanol


        Press CLR to exit
```
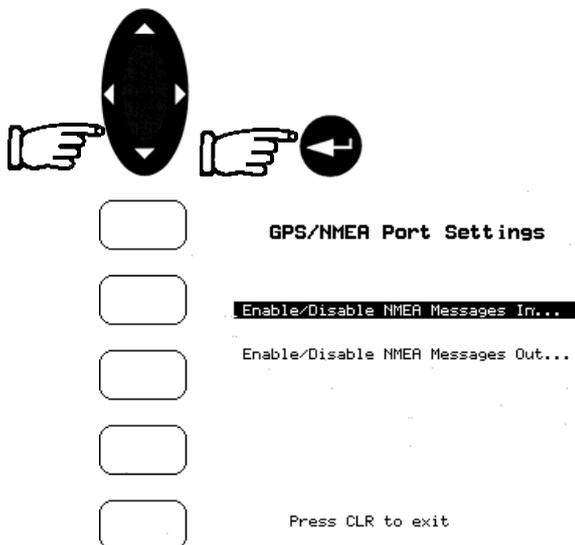
To set the GPS/NMEA

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

```
        GPS/NMEA Port Settings


   Enable/Disable NMEA Messages In...

   Enable/Disable NMEA Messages Out...




        Press CLR to exit
```

setup menu
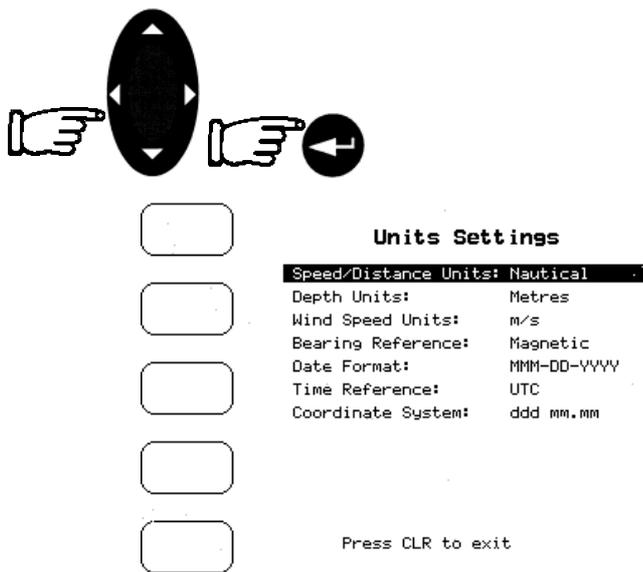
To set the Units

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

```
              Units Settings
  ┌─────────────────────────────────────┐
  │ Speed/Distance Units: Nautical      │
  └─────────────────────────────────────┘
   Depth Units:          Metres
   Wind Speed Units:     m/s
   Bearing Reference:    Magnetic
   Date Format:          MMM-DD-YYYY
   Time Reference:       UTC
   Coordinate System:    ddd mm.mm



              Press CLR to exit
```
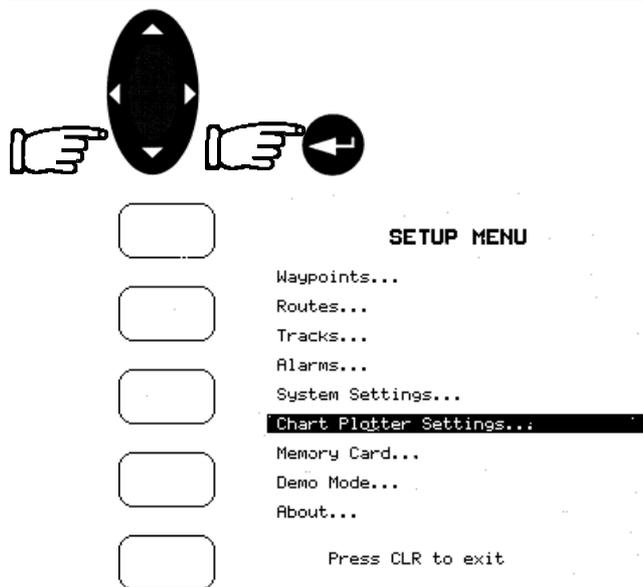
Selecting Chart Plotter settings

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

```
              SETUP MENU

   Waypoints...
   Routes...
   Tracks...
   Alarms...
   System Settings...
  ┌─────────────────────────────────────┐
  │ Chart Plotter Settings...           │
  └─────────────────────────────────────┘
   Memory Card...
   Demo Mode...
   About...

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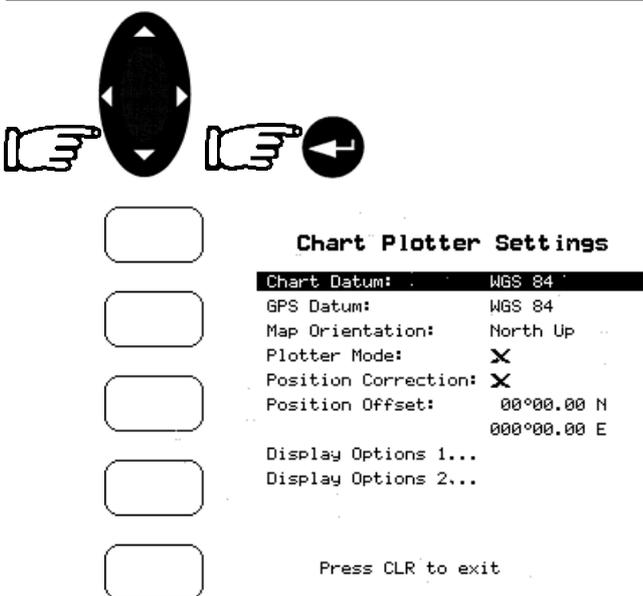
Use the **CURSOR** keypad to select the sub menus or to change the value of a setting. Press the **ENTER** key to select.

```
          Chart Plotter Settings
  ┌─────────────────────────────────────┐
  │ Chart Datum:         WGS 84         │
  └─────────────────────────────────────┘
   GPS Datum:           WGS 84
   Map Orientation:     North Up
   Plotter Mode:        ✘
   Position Correction: ✘
   Position Offset:        00°00.00 N
                          000°00.00 E
   Display Options 1...
   Display Options 2...


              Press CLR to exit
```
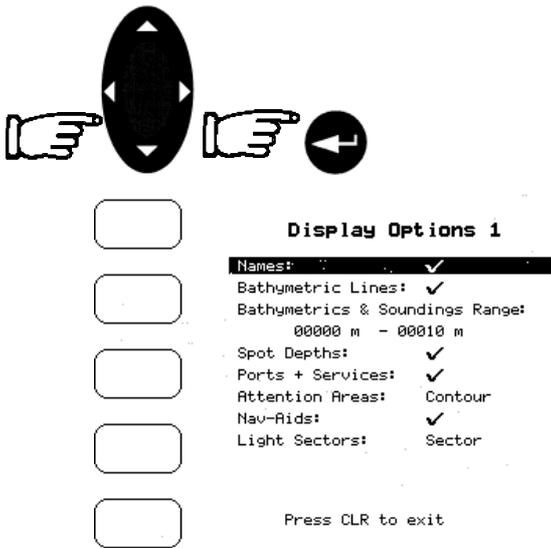
To set the Display Options 1

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 1
 Names:              ✓
 Bathymetric Lines:  ✓
 Bathymetrics & Soundings Range:
      00000 m  -  00010 m
 Spot Depths:        ✓
 Ports + Services:   ✓
 Attention Areas:    Contour
 Nav-Aids:           ✓
 Light Sectors:      Sector


        Press CLR to exit
```
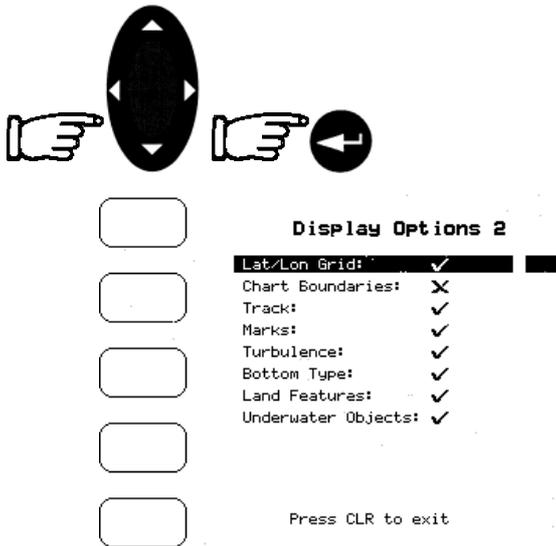
To set the Display Options 2

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.

```
        Display Options 2
 Lat/Lon Grid:       ✓
 Chart Boundaries:   ✗
 Track:              ✓
 Marks:              ✓
 Turbulence:         ✓
 Bottom Type:        ✓
 Land Features:      ✓
 Underwater Objects: ✓


        Press CLR to exit
```

setup menu

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

        Software:    EC154G V1.00 A [19/06/2000]
        NTLS         V3.1.3.6 R [14/06/2000]
        KERNEL       V1.1.11 B [14/04/2000]
        FILE SYSTEM  V1.1.5 R [14/04/2000]
        BIOS         V3.1.5 R [21/03/2000]
        Worldwide Cartography: V1.30
        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
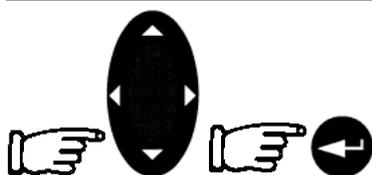
```
            Chart Plotter Settings

        Chart Datum:        WGS 84
        GPS Datum:          WGS 84
        Map Orientation:    North Up
        Plotter Mode:       ✗
        Position Correcti┌ 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

```
              Tracks
 Current Track:    1  .    .    ...
 Activate Track:   ✓
 Visible Track:    ✓
 Color:            ■
 Interval:         10 sec
 Vector:           ✗

 Delete Current Track
 Delete All Tracks


       Press CLR to exit
```
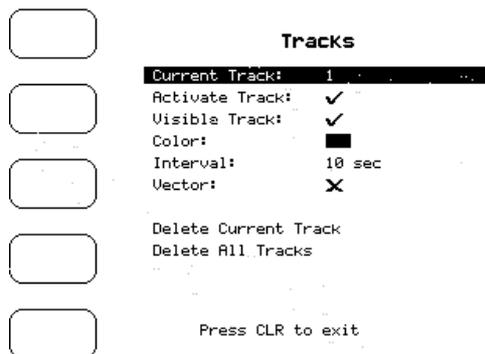
Track functions

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.
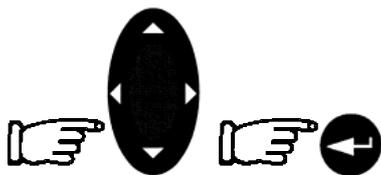
Selecting Active Track

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.
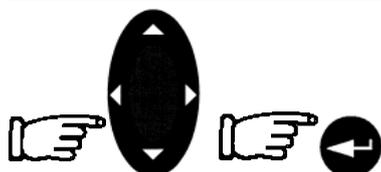
Displaying Track

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.
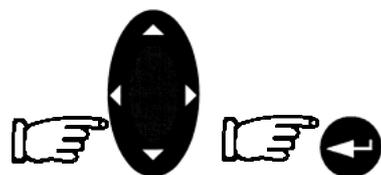
Selecting Track Colour

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.

```
              Tracks
 Current Track:    4
 Activate Track:   ✓
 Visible Track:    ✓
      ┌─ COLOR ─ ─┐
      │ ■ ■ ■ ■   │ 0 sec
      │ ▢ □ ▢ □   │ k
      └───────────┘
 Delete Current Track
 Delete All Tracks


       Press CLR to exit
```
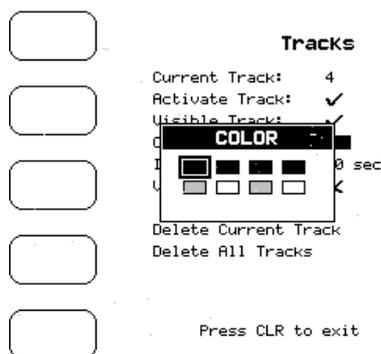
track functions
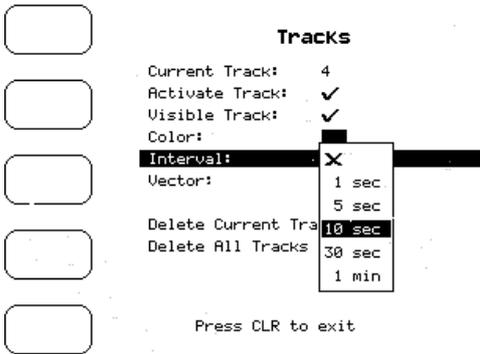
Selecting Time Interval

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.

```
                Tracks
Current Track:    4
Activate Track:   ✓
Visible Track:    ✓
Color:
Interval:          ✕
Vector:           1 sec
                  5 sec
Delete Current Tra 10 sec
Delete All Tracks  30 sec
                  1 min

        Press CLR to exit
```
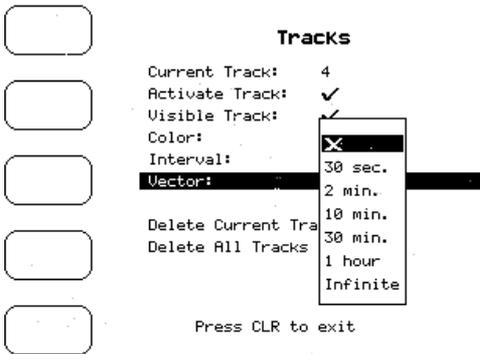
Selecting Vector

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.

```
                Tracks
Current Track:    4
Activate Track:   ✓
Visible Track:    ✓
Color:
Interval:          ✕
Vector:           30 sec.
                  2 min.
                  10 min.
Delete Current Tra 30 min.
Delete All Tracks  1 hour
                  Infinite

        Press CLR to exit
```
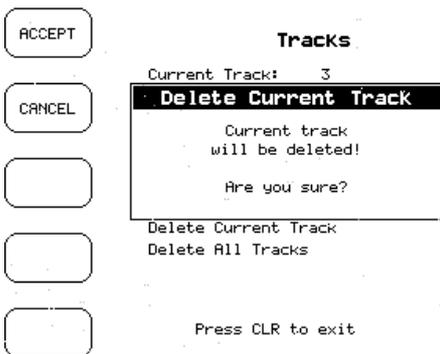
Delete Current Track

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

```
ACCEPT          Tracks
Current Track:    3
CANCEL    ▌Delete Current Track
             Current track
             will be deleted!

             Are you sure?

Delete Current Track
Delete All Tracks

        Press CLR to exit
```

cnd

memory menu

```
         ┌──────────┬──────────────┬──────────┐
  SAVE   │ C-CARD 2 │ IN MEMORY    │ TRACKS:  │
         │SORT BY NAME│ MARKS:  000 │1 ON  0432│
         │          │ WAYPTS: 006  │2 OFF 0400│
         │          │ ROUTES: 001  │3 OFF 0400│
  LOAD   │READING DIR│             │4 OFF 0400│
         │   ..OK   │              │5 OFF 0400│
         ├──────────┴──────┬───────┴──────────┤
         │ NAME    DATE     TIME      TYPE     │
  DELETE │                                     │
         │FILE02  Jun/19/2000 09:39:00  TRACKS │
         │WAY-01  Jun/19/2000 09:39:00  WAYPTS │
         │                                     │
 SORT BY │                                     │
         │                                     │
         │                                     │
         │                                     │
  CARTR. │                                     │
         └─────────────────────────────────────┘
```

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.

```
         ┌──────────┬──────────────┬──────────┐
  MARKS  │ C-CARD 2 │ IN MEMORY    │ TRACKS:  │
         │SORT BY NAME│ MARKS:  000 │1 ON  0432│
         │          │ WAYPTS: 006  │2 OFF 0400│
         │          │ ROUTES: 001  │3 OFF 0400│
 WAYPTS  │READING DIR│             │4 OFF 0400│
         │   ..OK   │              │5 OFF 0400│
         ├──────────┴──────┬───────┴──────────┤
         │ NAME    DATE     TIME      TYPE     │
 ROUTES  │                                     │
         │FILE02  Jun/19/2000 09:39:00  TRACKS │
         │WAY-01  Jun/19/2000 09:39:00  WAYPTS │
         │                                     │
 TRACKS  │                                     │
         │                                     │
         │                                     │
         └─────────────────────────────────────┘
```
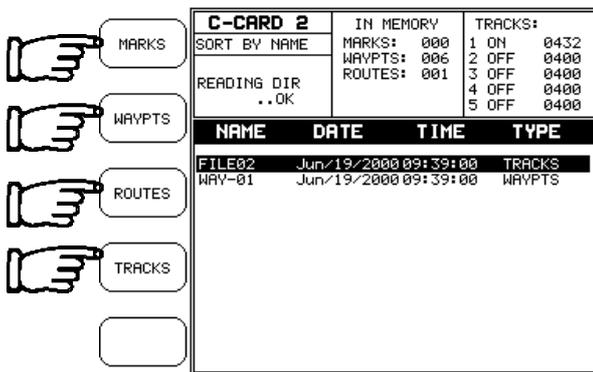
Saving a File

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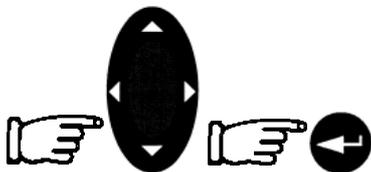
Use the **CURSOR** keypad to choose the file name. At first a default name is shown, use the **CURSOR** keypad to insert the name, then press the **ENTER** key.
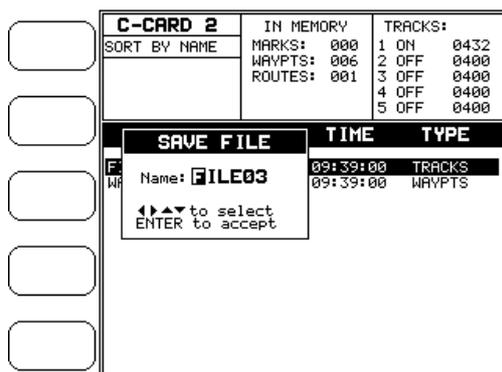
Note

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

```
         ┌──────────┬──────────────┬──────────┐
         │ C-CARD 2 │ IN MEMORY    │ TRACKS:  │
         │SORT BY NAME│ MARKS:  000 │1 ON  0432│
         │          │ WAYPTS: 006  │2 OFF 0400│
         │          │ ROUTES: 001  │3 OFF 0400│
         │          │              │4 OFF 0400│
         │          │              │5 OFF 0400│
         │    ┌─────────────┬──── TIME    TYPE│
         │    │  SAVE FILE  │                 │
         │F:  │             │  09:39:00  TRACKS│
         │WA  │ Name: █ILE03│  09:39:00  WAYPTS│
         │    │             │                 │
         │    │◀▶▲▼to select│                 │
         │    │ENTER to accept│               │
         │    └─────────────┘                 │
         └─────────────────────────────────────┘
```

user c-card menu

SAVE
LOAD
DELETE
SORT BY
CARTR.

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

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
TIME
TYPE

```
C-CARD 2      IN MEMORY   TRACKS:
SORT BY TYPE  MARKS:   000  1 OFF  0983
              WAYPTS:  003  2 OFF  0900
READING DIR   ROUTES:  001  3 OFF  0900
    ..OK                    4 ON   0900
                           5 OFF  0900
 NAME    DATE      TIME      TYPE
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
2CHERB  Jul/17/2000 16:03:00  TRACKS
ALDGUY  Jun/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
SLOT
FORMAT

```
C-CARD 2      IN MEMORY   TRACKS:
SORT BY TYPE  MARKS:   000  1 OFF  0983
              WAYPTS:  003  2 OFF  0900
READING DIR   ROUTES:  001  3 OFF  0900
    ..OK                    4 ON   0900
                           5 OFF  0900
 NAME    DATE      TIME      TYPE
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
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
```

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

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

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.

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 transflective
  active area 142mm (5.6")

- **Display Resolution**: 320 x 240 pixels

- **Cartography**: C-MAP*NT*

- **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

cnd

installation

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.
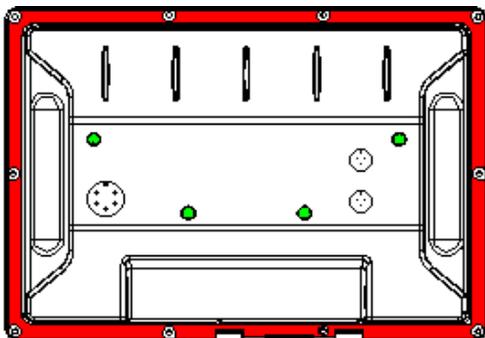
Panel mounting

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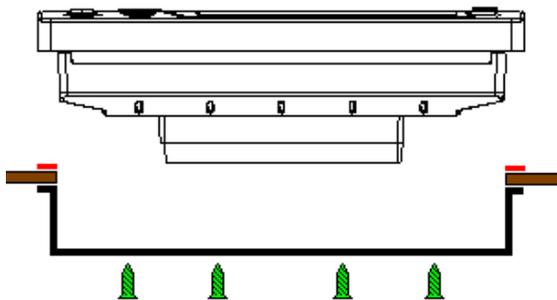
The rubber sealing gasket should be placed between the plotter and bulkhead to prevent moisture penetration and reduce the effects of any vibration transmitted through the instrument panel.

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[2] – Connects CND to h1000 system.

cnd
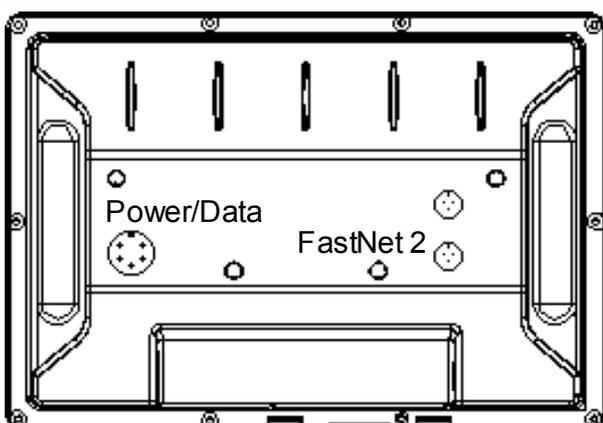
electrical connections

Use cable Part No. BGM-023005

With this connector
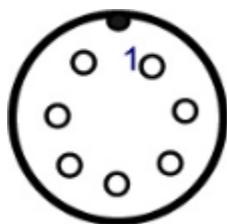
Power/Data

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
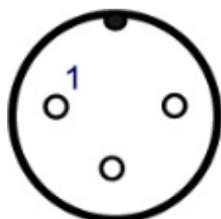
NMEA In (Instrument Interface)

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
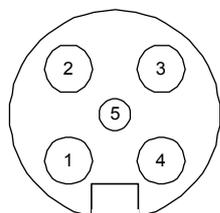
Front view of
male connector pins

Fastnet^2

One FastNet² connector is provided at the rear of the unit. For connection to the h1000 system.

Pin Number	Signal
1	12V
2	Busy
3	FastNet²-
4	FastNet²+
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.

About (page)	Selects a page that gives information on software and cartography version and general software specification.
Anchor Alarm	Specifies the radius of an anchor circle around the boat, when exiting from the circle, the *CND* emits an alarm and a pop-up window is opened. The default setting is Off.
Arrival Alarm	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.
Arrival Time	The estimated time of day you will reach your destination, based on your current speed and track from GPS.
Attention Areas	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.
Azimuth	The angular measurement from the horizon to a satellite or another object.
Bathymetric Lines	Imaginary lines connecting points of equal water depth. The default setting is On.

terms and functions

Bathymetrics & Soundings Range	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.
Beacon	A prominent, specially constructed object forming a conspicuous vertical mark as a fixed aid to navigation.
Bearing	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.
BRG = Bearing	It is the angle between the North (True or Magnetic) and a destination. It represents the direction to follow.
Bottom Type	Turns On/Off the displaying of Bottom Type (type, colour and other qualities of seabed). The default setting is On.
Buoy	A floating object moored to the sea bottom in a particular (charted) place, as an aid to navigation.
Chart Boundaries	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.
Chart Datum	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 *CND*. WGS 1984 is the default Chart Datum.

terms and functions

COG = Course Over Ground	Direction of the path over ground actually followed by a boat.
Coordinate System	Sets your preferred Coordinate System among ddd mm ss, ddd mm.mm, ddd mm.mmm
XTE = 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.
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.
Current	Non-periodical movement of seawater, generally horizontal, due to many causes such as different temperatures and prevalent winds.
Date Format	Sets your preferred date between MMMM-DD-YYYY (month-day-year) and DD-MMMM-YYYY (day-month-year).
Datum	The Latitude and Longitude lines printed on any map are based on certain models of the shape of the earth.
Dedicated Key	A key with permanently defined function. These keys are labelled on the front panel of the *CND*.
Default	Indicates a value or a setting that is used if the user has not defined a particular value.
Depth Contours	Imaginary lines connecting points of equal water depth (see also Bathymetric Lines).
Depth Units	Sets the depth units among Ft = Feet, FM = Fathoms and m = Metres. The default setting is m.
DGPS = Differential GPS	Provides even greater positioning accuracy than standard GPS.
Distance	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

Distance Units	Sets the distance unit among Nm = nautical miles, Mi = miles and Km = kilometres. The default setting is Nm.
DTG = Distance To Go	The actual distance to reach the Target.
File	File is a collection of information stored on a User C-CARD. Each file must have a unique name.
Find User Point	Finds the desired User Point on the chart, after inserting the name.
Formatting	The formatting of a User C-CARD must be done before using a new User C-CARD.
Full Map Display	The *CND* will remove the information box and display a full screen chart and the softkeys.
GPS = Global Positioning System	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.
GPS Datum	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.
GPS Position (page in GPS Mode)	The GPS Position Page shows the position and COG/SOG.
GPS Signal Status (page in GPS Mode)	The GPS Signal Status page provides the satellite fix status.
HDG = Heading	The horizontal direction in which a boat actually points or heads in any moment.

terms and functions

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.
Keypad Beep	Enables/Disables the keypad beep. The default setting is On.
Info	Displays a screen with a list of all objects found in the range of the cursor.
Land Features	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.
Language	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.
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/LONG	Coordinate system using Latitude and Longitude coordinates to define a position on earth.
Lat/Long Grid	Turns On/Off the displaying of the Latitude and Longitude Grids. The default setting is On.
Light Sectors	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

LOG	Speed of the boat 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°.
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.
Map Orientation	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.
Mark	Reference points related to cursor position.
Marks	Turns on or off the user entered Marks. The default setting is On.
Memory CARD	The *CND* uses the optional User C-CARD to save user data.
Minimum Depth	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.
MOB = Man OverBoard	It is an important function useful in the case someone or something falls overboard.
Inserting MOB	As soon as 'MOB' is pressed, then an Alarm window appears in the screen giving the position that the MOB occurred.

terms and functions

Deleting MOB	To cancel the MOB mode, press and hold the 'MARK' key for two seconds.
Names	Turns On/Off the displaying of the local area names. The default setting is On.
Nav-Aids	Turns On/Off the Buoys and Beacons. The default setting is On.
NMEA-0183	The NMEA-0183 Data Interface Standard was developed by the National Marine Electronics Association of America. It is an international standard that enables equipment from many different manufactures to be connected together and to share information.
Output Format	Disables (Off) or sets the interface among 0183, 0180, 0180/CDX. The default setting is 0183.
Plotter Mode	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 *CND* will only display the areas covered by the chart. When the edge of chart coverage is reached, the *CND* will automatically zoom out to the next available smaller scale chart. The default setting is Off.
Plotter Setup (menu)	Enables/Disables the Plotter Mode and the Position Correction, selects the desired value for Position Offset, GPS Datum, Chart Datum. Press the **CLR** key to return to the previous menu.
Port By Name	To locate and display the port inserting the name. The icon list of the available services is shown on the screen.

terms and functions

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 and Services	Turns On/Off the displaying of Ports and Services. The default setting is On.
Port Services	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.
Position Correction	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 *CND* list of datums.
R/B	Allows the range and bearing between two positions on the chart to be calculated
Resolution	It is the resolution angle for the Map Orientation, range [5, 30] degrees. The default setting is 15°.
Rolling Road (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

Route	Sequence of Waypoints connected by legs. Only the currently selected/displayed route can be navigated to or edited.
Setup (menu)	The Setup menu is where all the settings and adjustments are made.
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 boat over the ground.
Soft key	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.
Speed	The current velocity at which you are travelling, relative to a ground location.
Speed Units	Sets the speed unit among Kts = knots, Mph = miles per hour, Kph = kilometres per hour. The default setting is Kts.
Split Map Display	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.
Spot Depths	Turns On/Off the displaying of Spot Depths (the depth of the water in a specific and charted position). The default setting is On.
STR = Steering	The difference between COG and CTS. If COG is 25° and CTS is 30°, then STR is 5° Right.
Tide	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

Tide Info	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 *CND* will display a Tide Diamond Symbol for every Port or tide point in the database covered by that particular C-CARD.
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 fix position is not good.
Time/Date Setup (menu)	Selects the desired value for Time Reference, Time Format, and Date Format. Press 'CLEAR' to return to the previous menu.
Time Reference	Sets UTC or Local Time. The default setting is UTC.
Track	A very useful feature of the *CND*, is the ability to store and display exactly where the boat has been. This feature is referred to as Tracking.
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.
Turbulence	Turns On/Off the displaying of water turbulence symbols. The default setting is On.
Underwater Objects	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.
Units Setup (menu)	When the Units Setup option is selected from the Setup menu, a sub-menu is displayed that allows the various units that the *CND* uses to be selected and adjusted.

cnd

terms and functions

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

troubleshooting

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

        o   Abnormal levels of magnetic, electrical or acoustic interference;

        o   Lightning strikes;

        o   Accidents;

        o   Intentional damage; or

        o   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.

Warranty

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.