GEONAV 4ᶜ

User and Installation Guide

READ THIS WARNING BEFORE USING THE GEONAV

WARNING

THE ELECTRONIC CHART IS AN AID TO NAVIGATION DESIGNED TO FACILITATE THE USE OF AUTHORIZED GOVERNMENT CHARTS, NOT TO REPLACE THEM. ONLY OFFICIAL GOVERNMENT CHARTS AND NOTICES TO MARINERS CONTAIN ALL INFORMATION NEEDED FOR THE SAFETY OF NAVIGATION AND, AS ALWAYS, THE CAPTAIN IS RESPONSIBLE FOR THEIR PROPER USE.

The use of the GEONAV implies knowledge and acceptance of this warning by the user.

NOTE: This guide applies to the GEONAV 4C and GEONAV 4C XS models. The functions peculiar to each model are highlighted in the text. Unless otherwise specified, functions are intended as common to the two models.
The technical characteristics and functions described in this manual are subject to change as a result of improvements or changes to the product.

INTRODUCTION

The GEONAV is a handheld chartplotter that displays the boat's current position with respect to an electronic chart.

The unit is equipped with a built-in GPS receiver that can track up to 12 satellites simultaneously and be interfaced with:

- An external GPS
- A depth sounder
- An autopilot

The unit can be installed onboard, interfaced with the NMEA instruments and - at the same time - work as a portable instrument, thanks to four AA alkaline cells or rechargeable batteries.

The unit is also equipped with a built-in battery charger that starts operating automatically when the unit is powered. Totally waterproof (IPX7), the unit is equipped with a daylight visible, color TFT display.

Thanks to the GEONAV and a NAVIONICS Platinum™ or Gold™ electronic chart, you will never get lost even in case of fog, bad weather or dark.

The ROUTE function will allow you to plan a trip, MARKERS will allow you to mark points of interest whereas the TRACK function will allow you to record your actual route. Thanks to the unlimited capacity of the new CompactFlash™ cartridges - that can also be used on PCs as personal hard disks - the instrument can store a large amount of route, track and marker data.

NAVIONICS Platinum™ charts provide a detailed coverage of all the most popular boating areas, offer new functions - such as 3D display, satellite photographs, etc. - and can be used in

addition to official paper charts to obtain further information such as the availability of port services, as well as tides and currents data. NAVIONICS Platinum™ or Gold™ electronic charts are available worldwide from authorized NAVIONICS dealers.

XS The GEONAV 4C XS (X-Screen) is a special version of the GEONAV 4C. Equipped with a 12-pin connector, the unit can repeat the display of Navionics Platinum™ or Gold™ marine charts on any SVGA-standard monitor for PC (multisync type, 800x600 pixels minimum resolution). By using an external monitor, the area displayed will result much larger that that displayed on the handheld unit, as well as easier to read. Thanks to the use of a VGA splitter (not included), the image can also be repeated on multiple screens. The GEONAV 4C XS is supplied with one VGA cable to connect to the external monitor and one 12-to-10-pin adapter cable that allows keep on using all the accessories of the standard GEONAV 4C unit.

CHARACTERISTICS

General characteristics
- Portable chart plotter with built-in GPS receiver and antenna
- 12-channel internal GPS supporting WAAS/EGNOS
- Video output for connection to external monitor
- Satellite acquisition time:
  2 minutes (cold)
  15 minutes (first fix)
- GOTO function (Port, Nearest Service, Marker, Lat/Lon)
- External GPS or depth sounder interface via NMEA 0183
- Display of depth and water temperature data (if interfaced with an echosounder)
- Autopilot interface via NMEA 0183
- Chart Rotation (head-up display)
- Screen Amplifier™ function
- Autozoom™ function
- Overzoom™ function
- Easy View™ function
- X-Plain™ function
- 8 marker shapes, 8-character name
- Reverse route function
- Selectable depth units (meters, feet and fathoms)
- Platinum™ electronic charts
- 16 zoom levels
- Heading vector
- CompactFlash™ cartridge
- Storage of routes, tracks and markers in separate files on CompactFlash™ cartridges
- Built-in world map
- Waterproof (IPX7)
- Weight: 450 g., batteries included

Electrical characteristics
- Input voltage: 9.8 VDC to 18 VDC with protection against reverse polarity and overvoltage

English

- Battery pack: 4 alkaline or rechargeable batteries (AA)
- Built-in battery charger (for rechargeable batteries only; see par. *Battery Pack*)
- Power consumption: 2.2 W
- Operating temperature: -20° to +70° C, with 12Vdc external power supply. **The range is reduced with battery supply, depending on the type of battery used.** Humidity 93%
- Storage temperature: -20°C to +70°C, with 12Vdc external power supply. **The range is reduced with battery supply, depending on the type of battery used.** Humidity 93%
- Color LCD, transflective, TFT 4", sunlight visible
- Adjustable backlight and contrast
- Backlit keypad
- Pixel resolution: 240 x 320
- ARM9 RISC processor

Memory characteristics
- Up to 20 waypoints per route
- Up to 500 trackpoints
- Up to 99 markers per group
- Number of routes, tracks and markers: unlimited, depending on the size of the CompactFlash™ utilised

**Interface characteristics**
- Standard NMEA 0183 sentences
  - from the position sensor:
    GLL, VTG, GGA, RMC, GSV, ZDA, RMA, GSA
  - from the depth sounder:
    DBT, MTW
  - to the autopilot:
    APA, APB, XTE, RMB, BWC, GLL, VTG

If received from the GPS, the following sentences are transmitted:
GGA, RMC, ZDA

Accessories
- Bracket for fixed installation
- Power supply cable with car lighter plug
- User and Installation Guide
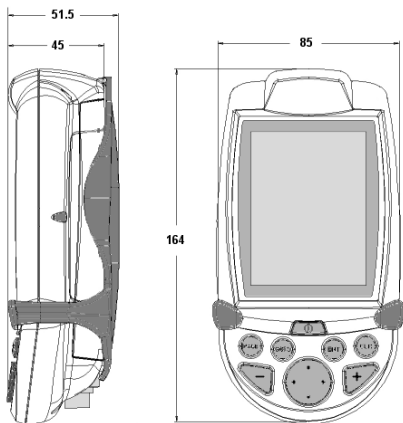
INSTALLATION AND PRECAUTIONS

Precautions
To avoid electromagnetic interference, the GEONAV must be positioned at least 0.35 meters away from magnetic compasses or flux-gate sensors, such as those used on autopilots and remote electronic compasses.

The GEONAV is totally waterproof (IPX7) and weatherproof. It is essential that the battery pack on the unit's rear side is firmly inserted and tightly screwed and that the battery pack is removed only when the CompactFlash™ or batteries need replacing. Always make sure that, during the replacement operations, the unit is perfectly dry.

NOTE: Any damage caused by the presence of water inside the unit, due to the lack or incorrect installation of the battery pack, is specifically excluded from the warranty.

Cleaning
It is recommended that you use a nonalcoholic product to clean the glass, since alcoholic products may damage the glass surface or make it opaque.

Installation
The GEONAV allows using either the built-in antenna for outdoor installation or an external GPS antenna for indoor use.

NOTE: At start-up, the plotter will select the internal GPS by default.

- **Internal GPS**: For the best reception of satellites, mount your unit in an open area to allow the built-in antenna to have the best sky visibility. If the instrument is installed so as to allow full horizon visibility, the best performance will be ensured.

- **External GPS**: Instead of a built-in antenna, you can use an external GPS. To connect the GEONAV to an external an-

tenna, use the optional NMEA data cable (see the *Connections* Section).

- **Autopilot**: To connect the GEONAV to an autopilot, use the optional NMEA data cable (see the *Connections* Section).

- **Depth sounder**: To connect the GEONAV to a depth sounder, use the optional NMEA data cable (see the *Connections* Section).

Fixed mounting
The plotter can be mounted on any surface using the mounting bracket provided with the unit (see figure).

Use 4 countersunk head screws (4mm) to fix the bracket to the desired mounting surface. Since the bracket does not allow any left or right rotation, make sure that the unit is properly installed for the best view angle.
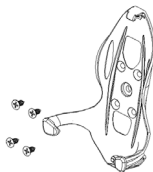
Returning used electrical and electronic devices in EU countries
Users of electrical and electronic devices are obligated to collect used devices separately. Electrical (electronic) used devices may not be disposed of together with unsorted household refuse. The separate collection is a condition for reuse, recycling and utilisation of used electrical (electronic) devices, which ensures the protection of resources. Electrical (electronic) used devices from private household can be returned free of charge. To return your used device, please use the country-specific return and collection systems available to you. Electrical (electronic) devices which are marked with one of the symbols shown may not be disposed of with household refuse in accordance with the EU directive.

CONNECTIONS

Power supply
The GEONAV can be powered by using the appropriate power supply cable with car lighter plug or the built-in battery pack.

Install the power supply cable with the connector in the position shown in the figure, then exert a light pressure until clicking.

To remove the cable, extract the ring nut without rotating it.
When the cable is disconnected, make sure that the connector is protected by the appropriate rubber cap.
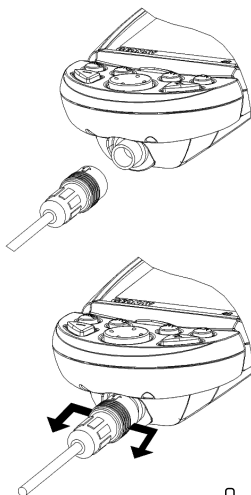
External power supply
The car lighter adapter has a little lamp (LED) that goes on if the car is correctly providing power to the bracket.
If the lamp is off:
• check that the 12V voltage is available from the lighter plug;
• open the adapter and check the fuse.

If the fuse is broken, replace it with a fuse having the same electrical characteristics. DO NOT USE ANY BYPASS CIRCUIT.

The fuse ensures that the special protection circuit inside the plotter works properly in case of accidental short-circuit, polarity inversion and overvoltage.

fuse

LED
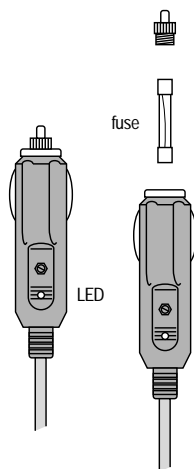
When removing the lighter adapter, connections are the following:

red (or white)	+(+12V)
black	- (ground)

Battery pack

The battery pack of the GEONAV allows you to use it as a portable unit. Use 4 alkaline cells or rechargeable batteries, AA size (if possible, high-capacity batteries, 2000mAh or higher).

Make sure that the unit is off and dry when replacing the batteries.

To access the battery slot, loosen the locking screws by means of a coin or the round side of a key, as shown in the figure.

Extract the battery pack, flip it over and loosen the cover locking screws.

Remove the cover and insert the batteries according to the polarity indicated.

Make sure that the "Battery type" selector located in the cartridge slot is positioned correctly, according to the type of battery used ("Rechargeable" position, for rechargeable batteries; "Alkaline" position, for alkaline batteries).

To change the selection, move the small lever by means of a sharp object.

WARNING: All the units are supplied with the battery selector set to "Alkaline". When using alkaline batteries, the selector has to be set to "Alkaline". You are warned NEVER to use alkaline-type batteries if the selector is set to "Rechargeable". In this case the unit can be seriously damaged. This kind of damage is not covered by the warranty. When using rechargeable
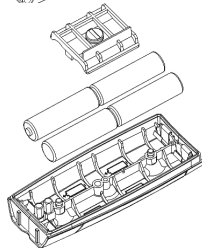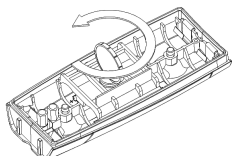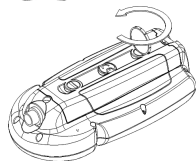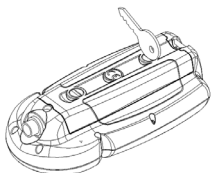
batteries, the selector can be set either to
"Rechargeable" or to "Alkaline". However
the battery charge function is active on con-
dition that the selector is set to "Recharge-
able". The misplacement of the selector may
cause the batteries to break, the corrosive
liquid to leak out and, consequently, the unit
to be damaged. This kind of damage is not
covered by the warranty.
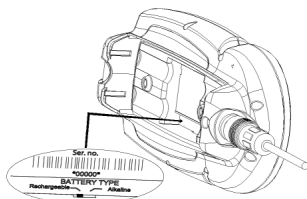
Check that the contacts in the battery
pack are clean and dry.
Before reassembling the battery pack,
make sure that the rubber gasket in the
slot and the rubber O-rings tightening
the locking screws are clean and in the
correct position.
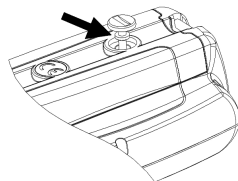
The misplacement of the gaskets, together with any presence
of sand, saline residues or dirt, may be detrimental to the
tightness of the battery slot since it allows moisture to pen-
etrate into the unit and damage the electronic inner compo-
nents. This kind of damage is not covered by the warranty.
Reassemble the battery pack carrying out the disassembly op-
erations in reverse order.
Should the battery pack not fit, or fit with difficulty in its
seat, check that the CompactFlash™ is correctly inserted.
The partial extraction of the CompactFlash™ blocks the in-
sertion of the battery pack.

The unit can be powered by the batteries only or connected to
an external power supply. When the unit is powered by the
power supply cable, the inner batteries - if they are of re-
chargeable type - are fully recharged, after which the inner
battery charger is automatically disabled and the batteries dis-
connected in order to keep their charge.

The full charge cycle of a battery set totally discharged re-
quires at least two hours, depending on the battery type and
status.

4C **Connections of power supply and data cable**
Power supply
  1   +VDC
  2   GND
Data input ext. GPS
  3   ext. GPS in +
  4   ext. GPS in -
Data output
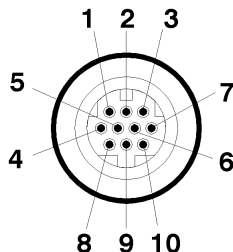 5   Autopilot out +
  6   Autopilot out -
Audio output
  7   Audio out +
  8   Audio out -
USB
  9   USB D +
  10   USB D -

If sent by the autopilot, the following NMEA messages are
transmitted to external devices: GGA - RMC - ZDA
The GEONAV will add the following messages: APA - APB -
XTE - RMB - BWC - GLL - VTG

The data cable is optional.

WARNING: Once the installation is completed, always make sure that all wires are
properly connected since wrong connections may damage the unit.

XS **Connections of power supply and data cable**
Use the Y-shaped cable supplied to connect the unit to the
external monitor and to other NMEA0183 instruments such
as GPS devices, depth sounders and autopilots. Insert the
end of the Y-shaped cable with the circular plug into the unit's
socket, then plug the VGA 15-pin male connector into the

xs | **external monitor – if present. If necessary, connect the NMEA0183 instruments using the cable end with bare wires, according to the table below.**
To employ the external monitor connected, it is necessary to enable the video output. Press the GOTO key to display the menu, then select SETUP and the EXTERNAL SCREEN/ON option.

NOTE: The 10-pole standard cable equipped with the adapter can still be used, provided that only the connection to the NMEA0183 external devices is requested.

Power supply		
1	+VDC	red wire
2	GND	black wire
Data input ext. GPS		
3	GPS ext. in +	brown wire
4	GPS ext. in -	yellow wire
Data output		
5	Autopilot out +	violet wire
6	Autopilot out -	white wire
SHIELD		GND (earth)

USB cable
The GEONAV can be connected to a Personal Computer by using the optional USB cable. In this case, the unit can use the internal batteries only, and cannot be powered by the external power.

CARTRIDGE INSTALLATION

Installing the CompactFlash™
Remove the battery pack (see par. "Battery Pack").

Insert the cartridge into the appropriate slot, with the label side backwards and push it.

Replace the battery pack as described in the paragraph "Battery Pack" and check that it is perfectly closed, in order to avoid any water infiltration.

Removing the CompactFlash™
Make sure that the plotter is switched off and perfectly dry. Remove the battery pack, then extract the cartridge.

WARNING: Always use CompactFlash™ cartridges certified by Navionics. The use of non-certified cartridges may result in improper operation of the unit.

The CompactFlash™ cartridges can be used as a mass-storage with any PC computer, so can be the cartridge used by the plotter. However, the plotter needs to find some free space in the cartridge in order to work properly. Prior to use a new cartridge, always make sure that there are at least 2.5MB of free space.

WARNING: Be careful when handling the cartridge files by using the PC. Windows allows deleting and moving files easily, therefore pay attention when using Windows Explorer not to erase the content of the \NAVIONIC and \GEONAV folders. Damaging the files stored in such directories may result in loss of data or improper operation of the unit.

KEYBOARD

ZOOM+/ZOOM-
Increases/decreases the
the chart range.
The **ZOOM+** key enables the
Autozoom function.
It can be enabled whenever
an electronic chart is dis-
played.

ENT (ENTER)
Enters a waypoint or a
marker, or confirms a selec-
tion from the menu.

PAGE
• Navigation mode:
  Turns navigation data
  pages.
• Cursor mode:
  Allows switching from
  Cursor mode to Naviga-
  tion mode.

GOTO
Allows plotting a route to-
wards a manual cursor po-
sition, desired marker, port,
nearest port service or
specified position (lat/lon)
and accessing the main
menu.

CLR
• Navigation mode:
  Deletes the current
  route.
• Cursor mode:
  Deletes the last
  waypoint or the marker
  pointed by the cursor.

CURSOR
• Moves the manual cur-
  sor across the screen.
• Allows switching from
  Navigation mode to Cur-
  sor mode.
• Allows selecting from
  the options in the menu
  /submenu.
• At start-up, allows ad-
  justing the screen con-
  trast.

PWR
• Switches the GEONAV
  on/off.
• Allows adjusting the
  screen backlight.

GPS
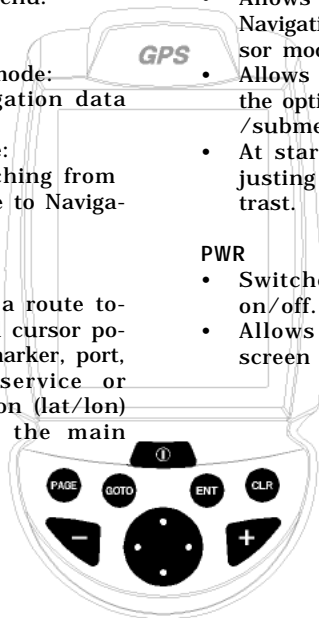
DIAGNOSTIC

The GEONAV features a diagnostic program to verify its correct performance, once installed, and detect problems that may occur during the use of the unit.
To access the diagnostic program, hold the ENTER key pressed, while pressing the PWR key.

The GEONAV will switch on and carry out automatically a test of the whole system; as soon as the memory test is completed, the program will allow checking the correct operation of the unit's parts.
Press ENTER to run one test or CLR to skip it and pass to the following test.

WARNING: The unit's internal memory can be cleared by holding the **CLR** key pressed when switching the unit on. This operation will delete all the settings stored in the GEONAV and restore factory settings. Moreover, the routes, tracks and markers not saved on the CompactFlash™ cartridge will be deleted.

NOTE: In case of damaged cartridge or abnormal power spikes, the unit might lock, requiring a power shutdown to restart. In that case, the unit can be turned off without the need of detaching the power or the batteries, but by simply holding the **PWR** key pressed for more than 9 seconds.

NAVIONICS ELECTRONIC CHARTS

The GEONAV includes a built-in world map. Additional cartography details relative to a specific area of navigation are available from the CompactFlash™ cartridges storing NAVIONICS Platinum™ or Gold™ electronic charts.

To display chart boundaries, press the GOTO key to display the menu, select SETUP, SET CHART DETAIL and then, by the CURSOR key, select the USER or ALL mode. A small square will locate the area covered by the cartridge installed.

Increasing/decreasing the chart range
Press the -ZOOM+ key. The current chart range is indicated in a small window located in the upper left-hand side of the screen. Chart ranges can go from 4096 NM down to 1/8 NM in Overzoom mode. The range units are shown in the range window.
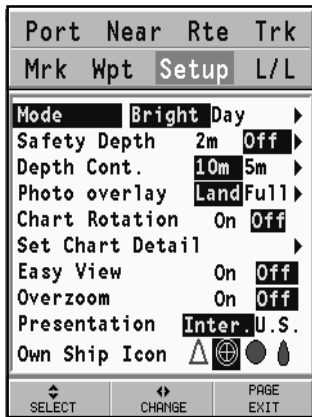
Displaying depth and safety contours, geographical names, spot soundings and light sectors
Press GOTO to display the menu, select SETUP, DEPTH UNITS and enable the option desired (Depth Cont., Safety Cont., Spot Soundings, Names or Light Sectors) by using the CURSOR key.

Converting depth values into the units set
Press GOTO to display the menu, select SETUP, DEPTH UNITS and then set the unit desired to meters, feet or fathoms.
The GEONAV will convert all the
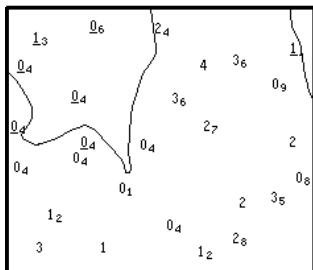
depth values in the unit selected, making them appear like those reported in the official nautical charts (see the figure).

Displaying abbreviated navaid characteristics
Position the manual cursor on the navaid symbol. A window will show the abbreviated characteristics of the navaid selected.

Description of abbreviated navaid characteristics:

ABBREVIATIONS FOR LIGHT		ABBREVIATIONS FOR COLOR	
AL	alternating	AM	amber
F	fixed	B	black
FLL	fixed and flashing	BL	blue
FL (...)	group flashing	G	green
FL	single flashing	OR	orange
IQ	interrupted quick	R	red
OC	single-occulting	VL	violet
OC (...)	composite group occulting	W	white
Q	continuous group	Y	yellow
ABBREVIATION FOR PERIOD		ABBREVIATION FOR RANGE	
x x S	xx seconds	x x M	xx nautical miles

Displaying object attributes
Move the manual cursor on top of an object on the chart, then press GOTO and select INFO. A window will show the description of all the objects present on the chart at the cursor position. Select one object from this window and press ENTER to show all of the object attributes.
The objects that can be queried include depth contours, depth areas, point objects (lights, navaids, landmarks, etc.), land areas, spot soundings, coastlines, rocks, wrecks and in general any symbol present on the chart.

By querying the lights and navaids, the X-Plain™ function will give the description of the object in natural language, thus avoiding the use of abbreviations and symbols that are difficult to understand.

By querying the symbols for wrecks or obstructions, NAVIONICS Platinum™ or Gold™ charts will provide the most detailed information available. For example, as far as a boat is concerned, the chart will show its name, the wreck year, the hull length, the depth, etc.

Chart presentation mode
The symbols used to represent the objects on the chart (buoys, lights, landmarks, etc.), as well as chart colors, can be selected between paper-chart International or US styles.
Press GOTO to display the menu, select SETUP, then PRESENTATION (INTER. or US).

Displaying port services

NOTE: This function is available only with the NAVIONICS cartridges containing the Port Services features. If NAVIONICS Gold™ cartridges are used, the supported functions will be those provided by the chart plotters employing only Gold™ charts.

Position the cursor on the port icon and press ENTER. A menu will show the options PORTS, PHOTOS, PILOTS and INFO. Select PORTS to display the list of the possible marinas present in the current port: choose the desired marina and press ENTER to display the information available.

Select PHOTOS, choose one item from the list to display one of the photographs available for the marina, then use the ZOOM key to enlarge or reduce the image, and CURSOR to pan it.

Select PILOTS to gain access to the main information on the marina. To display the detailed information available, select the INDEX option from the submenu.

Select INFO to display the list of the services available; a window will show the list of the port services available in the port selected. Choose the service desired by CURSOR. The number and the type of icon differ from one port to another.

Port services are identified by the following icons:

 Info marina

 Fuel

 Repairs

 Customer services

 Provisions

 Information

Once displayed the list of the services available, those shown in light blue offer further information; select one of them by the CURSOR key and press ENTER to display the additional data available, such as the address, telephone number, business hours, etc. Press ENTER again to carry out a GOTO operation to the service selected.

Displaying Tides and Currents data

NOTE: This function is available only with the NAVIONICS cartridges containing Tides and Currents data.

Position the cursor on the icon of a Tide or Current station, then press **ENTER**.

If the zoom level is adequate, the present tide or current value will show in the vicinity of the cursor position, together with the curve estimated in the subsequent hours. Press **ENTER** to display the whole graph.

A graph will show the tide rate or the tidal stream relevant to the station selected, as measured during the current day.
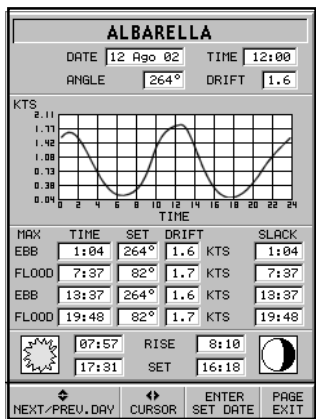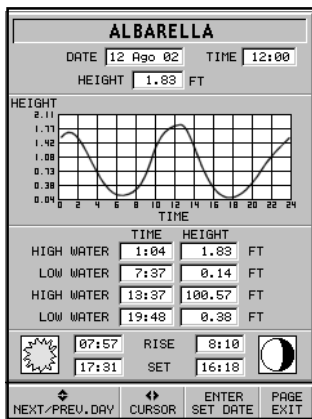
Displaying aerial / satellite charts

NOTE: This function is available only with the NAVIONICS Platinum™ cartridges storing aerial and satellite photographs.

Press GOTO to display the menu, select SETUP, PHOTO OVER-LAY and then LAND or FULL.

From a given zoom level on-wards, where available, aerial or satellite photographs will over-lay the traditional chart items, only in land areas (LAND) or both in land and sea areas (FULL).
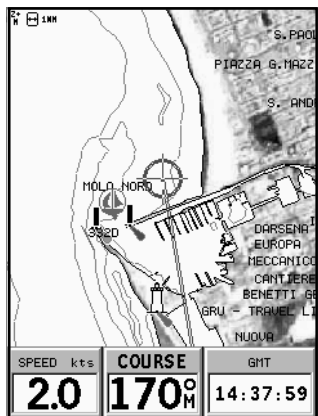
GRAPHIC ITEMS

Besides chart data, the GEONAV displays some graphic items useful during navigation. The figure below shows some of these items.
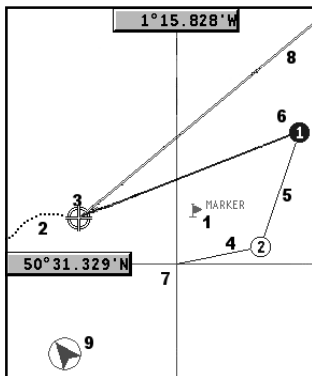
1 - Marker
Indicates a point of interest associated with a symbol and a name.

2 - Track segment
Recording of the track actually followed by the boat; the track is displayed as a dashed line.

3 - Boat's position
Boat's position according to the data received from the GPS receiver.

4 - Rubber band
Line joining the last waypoint entered to the manual cursor, or the boat's position to the manual cursor when no waypoint has been entered.

To delete this band, press the PAGE key and switch to Navigation mode.

5 - Route leg
Part of route between two waypoints.

6 - Waypoint
Waypoints are identified by a circle and a number. The route starting point is marked by the "X" symbol. The target waypoint is identified by a filled circle, whereas the route leg currently followed is identified by a thicker line.

7 - Cursor
Indicates the position expressed in geographical coordinates (latitude and longitude).
It is displayed when the plotter is in Cursor mode.

8 - Heading vector
Indicates graphically the boat's current route.

9 – North indicator
Indicates the north direction when the Chart Rotation function is enabled.

FUNCTIONAL CHARACTERISTICS

This chapter describes some of the most important functions of the GEONAV, as well as the terms most commonly used in this document.

Switching on/Switching off the unit
To switch the GEONAV on, press the PWR key. To switch it off, keep the PWR key pressed for more than 1 second.

Internal or external GPS
To make the installation easy, the GEONAV can use either its own internal GPS receiver or an external receiver, depending on where the unit is to be installed (indoor or outdoor).
To select the internal or external GPS, press GOTO to display the menu, select SETUP, then GPS INT/EXT. Press ENTER to confirm the operation.

Depth sounder
When in depth sounder mode, the GEONAV displays, at the same time, navigation and sea depth data in graphic form, as well as water temperature values.
The depth value can be expressed in meters (selected by default), feet and fathoms; press GOTO to display the menu, select SETUP and then DEPTH UNITS (M/FT/FA).

Navigation mode (Automatic)
The GEONAV enters the Navigation mode as soon as the internal or external GPS receiver transmits a valid fix; when in Navigation mode:
- The manual cursor is not displayed
- The depth sounder window can be accessed

This mode is also called automatic because the unit automatically selects the chart scale and updates the boat's position on the screen.

Cursor mode (Manual)
When in Cursor mode, the manual cursor is displayed. It is possible to edit a route, insert or delete markers, display navaid information etc., but it is not possible to gain access to the depth sounder window. By pressing one of the four arrows in the CURSOR key, the unit switches from Navigation to Cursor mode, and the screen is centered in relation to the manual cursor. To return to Navigation mode press PAGE.

Chart rotation
Charts are traditionally displayed in north-up mode. This, however, does not correspond to reality. For example, when traveling southwards, the chart shows, on the right side of the boat, what is actually located on the left side, and vice versa.

The Chart Rotation function allows rotating the electronic chart displayed according to the plotted route (COG - Course Over Ground) as detected by the GPS receiver. Since the COG value varies continuously, a filter has been inserted to prevent the chart from bouncing.

To activate the Chart Rotation function, press GOTO to display the menu, select SETUP, then CHART ROTATION and ON. A message will prompt the user to select the requested maximum range before activating the chart rotation.
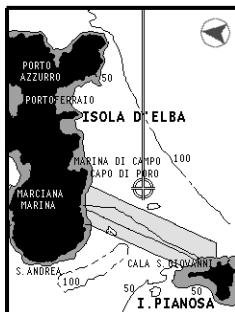
The northern direction will be indicated by the symbol ◐ .

Without rotation

With rotation

Autozoom
With the Autozoom function the GEONAV will always display automati-

cally the boat's position and the target waypoint at the best

available chart range. As the boat approaches the target waypoint, the unit will automatically zoom in. Once the waypoint is passed, the unit will select the best range to display the boat's position and the following waypoint.
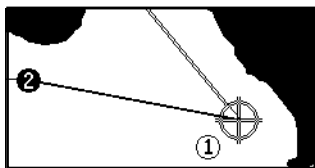
To activate the Autozoom function, press **ZOOM+** until the "AUTOZOOM ? ENTER = YES" message is displayed, then press **ENTER** to confirm the operation.

To deactivate the Autozoom function, press the **ZOOM** key once. When the GEONAV is turned on, and if at least one waypoint has been previously entered, the Autozoom function is automatically activated.

Screen Amplifier
This function automatically redraws the chart according to the boat's course, to maintain 2/3rds of the screen ahead of the boat, provided that the boat's speed is greater than 3 knots. This function will be activated only if no waypoint has been previously inserted.

Without screen amplifier
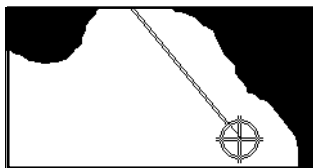
Overzoom
The Overzoom function allows the chart scale to expand anywhere up to 1/4 NM. The Overzoom does not provide any additional chart detail, but improves only the readability of the existing information, thus acting as a magnifying glass.

With screen amplifier

When the Overzoom is activated, the unit will warn the user by replacing RANGE with OVZ (blinking) within the navigation window.

To activate or deactivate the Overzoom function, press GOTO to display the menu bar, then select SETUP, OVERZOOM and ON/OFF.

Position calibration
All position sensors have intrinsic errors that make the boat's position incorrect (from few meters to several hundred meters) with respect to the background display of the chart.
This error is caused by the principle at the root of the satellite-derived position system. The position calibration function allows correcting manually the position error present in all GPS devices, provided that this error is not greater than 2 nautical miles.

To carry out the calibration, press GOTO to display the menu bar and then, by the CURSOR key, select SETUP, CALIBRA-TION and then ON. A message will prompt the user to move the cursor to the boat's true position, appropriately enlarged by the ZOOM+ key.
Press ENTER to move the boat's position to the point indicated by the cursor. This operation will save the calibration for use in future calculations.

NOTE: When the calibration is activated, the coordinates will be marked by (*).

To cancel the calibration, press GOTO to display the menu bar, select SETUP, CALIBRATION and then OFF.

Local time
By this function the user can enter local time instead of the Greenwich time (GMT) supplied by the GPS receiver.
To enter local time, press GOTO to display the menu bar, select SETUP, SET TIME and then LOCAL.

A window will allow entering local time by using the CURSOR key. Press ENTER to confirm the operation.
To cancel local time, press GOTO to display the menu bar, select SETUP, SET TIME and then GMT.

Chart presentation

This function allows the user to select the symbols and colors of chart presentation between International mode and US mode. To change the chart presentation mode, press GOTO to display the menu, select SETUP, PRESENTATION and then choose the option desired.

Display mode

The chart color can be selected among three predefined modes: BRIGHT (bright light), DAY (normal light) and NIGHT (poor light).
Press GOTO to display the menu, select SETUP, MODE and then choose the option desired.

Depth contours

This function allows the user to select the display of depth contours; the options available are:
5m: display of contours only with depths up to 5 meters
10m: display of contours only with depths up to 10 meters
20m: display of contours only with depths up to 20 meters
ALL: all depth contours are displayed

Safety contours

This function allows the user to display the depth areas corresponding to the safety contour desired. The options available are:
OFF: no depth area displayed
Other values: the areas with depths up to the value selected are displayed in shades going from darker blue (for lower depths) to lighter blue (for higher depths). The areas whose depths are over the limit set, and therefore navigable under safety conditions, will be displayed in white.
Dryline areas are always displayed in green.

NOTE: In NIGHT mode, the areas with depths over the limit set, and therefore navigable under safety conditions, are displayed in black.

Chart loading
At start-up, all the NAVIONICS electronic charts stored in the cartridge are automatically loaded, provided that a CompactFlash™ cartridge has been inserted.

Brightness
Press the **PWR** key to display the LIGHT window. To adjust the brightness level, press **CURSOR**. Press **PAGE** to exit.

Easy View mode
The GEONAV allows doubling the visibility of the electronic chart. Once the Easy View mode has been enabled, the chart will be magnified.

Battery management
When the unit is powered by the batteries, a battery-shaped icon shown in the upper left corner of the screen displays their charge status. The icon shows when the batteries are being recharged, provided that the unit is on.

To increase the life of the battery charge, it is possible to set the automatic switching off of the backlight and screen by selecting SETUP, and then BATTERY SAVING.
If no unit's key is pressed during the time interval set, the backlight and the screen will switch off automatically. As soon as any key is pressed, the unit will automatically switch on again.

Keyboard lock
To lock the keyboard, press the "+" and "-" keys simultaneously. To restore the keyboard operation, press again the "+" and "-" keys.

Anchor alarm
This function allows generating an anchor alarm message that warns the user when the ship moves farther than the selected distance from its anchoring position, that is the ship's position when the alarm is enabled.

The reference distance value for the alarm can also be set. After the alarm is issued, press any key to reset it by using the current ship's position as the new anchor position. To set this function, press GOTO, select SETUP and then ANCHOR ALARM.

GETTING STARTED

We recommend that you use the GEONAV intuitively, since
no damage will be caused by pressing an incorrect button.

Make sure that the unit is powered,
insert a CompactFlash™ cartridge and
then press PWR.
At start-up, all the NAVIONICS charts
stored in the Compact Flash™ will be
automatically loaded.

LOAD CHART		
CHART NAME		▲
LAGHI ITALIANI		
ADRIATIC SEA		
TYRRENIAN SEA		
CEN. MEDITERRANEAN		
		▼
◄		►
⬍	ZOOM +/-	ENTER
SELECT	CHANGE PAGE	INFO

A message will warn the user that elec-
tronic nautical charts do not replace
official government charts.
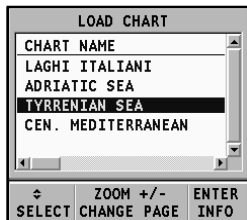
Press the PWR key to turn the display backlight on and adjust
brightness by the CURSOR key; press PAGE to continue. The
Satellite window will show the configuration of the satellites
in use. As soon as the GPS receiver has obtained a valid fix (it
can take a few minutes), the boat's position and the relevant
area will be displayed at the best scale available.

The default language is English. To change the language, press
GOTO to display the menu, then select SETUP, LANGUAGE
and the desired language by the CURSOR key.

The line, or vector, starting from the boat indicates the boat's
direction, to be ignored if the boat is stationary.
The window situated in the lower part of the screen will
display the boat's speed, route and chart scale.
The GEONAV is in Navigation mode; by pressing the CURSOR
key, it is possible to switch to Cursor mode (editing mode).
The cursor geographical position is shown by two windows.

To plot a route starting from the boat's position, move the cur-
sor to the position desired, and press ENTER to insert a waypoint

at the cursor's position. A circle containing the number 1 will show. The info windows show the distance, bearing, time to reach the target waypoint and time of arrival.

Press the **PAGE** key to go back to Navigation mode. To add more waypoints, press **CURSOR** and repeat the operations described above.

As new waypoints are added, the numbering will increase progressively.

In case of error, waypoints can be deleted by pressing the **CLR** key (Cursor mode), starting from the last entered. To go back to Navigation mode, press **PAGE**.

If an autopilot is connected to the GEONAV, the plotted route is automatically followed as soon as the Navigation mode is enabled.

NOTE: The cursor can be moved to the desired position by using the GOTO function as well. See the relevant sections for more details.
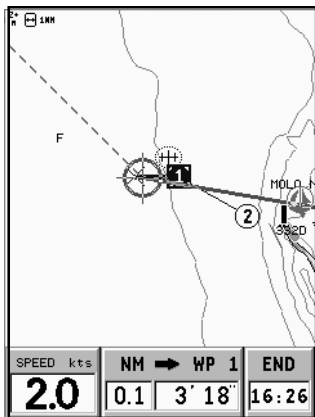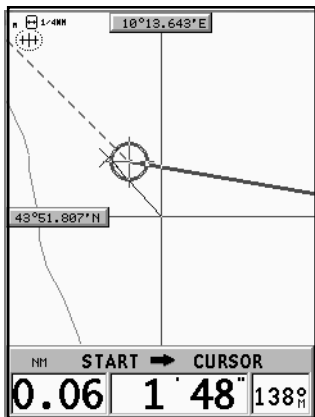
OPERATING MODES

The GEONAV can operate in two different modes, Cursor and Navigation, each giving access to different functions.

CURSOR MODE

When the GEONAV is in Cursor mode, the crosshair cursor is displayed. The CURSOR key allow browsing through the electronic chart, as well as editing or creating the route. See the *Route* Section for more details.
To enter the Cursor mode, press the CURSOR key.

NAVIGATION MODE

In Navigation mode, the boat's position icon replaces the crosshair cursor and several data windows can be accessed. To enter the Navigation mode, press the PAGE key repeatedly. As the fix is valid, the windows sequence is the following:

NAVIGATION > DEPTH SOUNDER > TRIP > SATELLITE > INFO > TIDE INFO > RUNWAY > 3D

The Depth Sounder window is displayed provided that data is received from a depth sounder.

The Tide Info window is displayed provided that a NAVIONICS cartridge featuring Tides and Currents data is active (see the *Tide Info Window* Section).

RANGE WINDOW

This window, always present, shows the
following information:

Z+ ⟷ 1NM
m
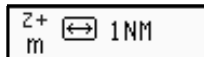
- Zoom status (top left corner):
  - **Z+** means the chart can be further enlarged by pressing **ZOOM+**;
  - no indication means the chart is shown at the best possible level;
  - OVZ means the chart is shown in Overzoom mode, i.e., it is overzoomed without adding any further graphic detail.
- Chart range (right hand side), ranging between 4096 NM and 1/8 NM. The icon aside means that the range matches the overall screen width.
- Units of measurement for depth and heights (left hand side):
  - meters (m)
  - feet (ft)
  - fathoms (fa)

To change the units, press the **GOTO** key, then select SETUP, DEPTH UNITS and choose the units desired.

NAVIGATION WINDOW

This window is activated automatically as soon as the GPS receiver has obtained the boat's position (FIX OK).
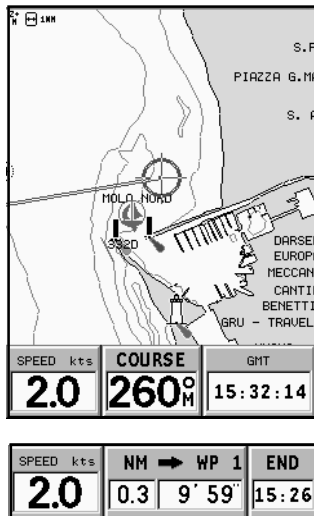
If no route is present, speed, course and chart range are displayed at the bottom of the screen.

By using the ZOOM key, the chart range can be changed, thus accessing NAVIONICS chart data.

If a route has been inserted, the screen will display the following data:

- Boat's speed
- Distance from the target waypoint
- Estimated time of arrival at the target waypoint

DEPTH SOUNDER WINDOW

A depth sensor can be interfaced with the GEONAV via NMEA.

In this case, the GEONAV auto-
matically enables the depth
sounder function, displaying a
graph of sea depth.

The depth scale, whose unit can
be selected from the menu in
meters, feet or fathoms, will
change automatically to show
deeper or shallower water.

In Navigation mode, press PAGE
until the depth sounder window
appears.

The window will display the fol-
lowing data:
• Water depth
• Depth scale
• Water temperature (if available)
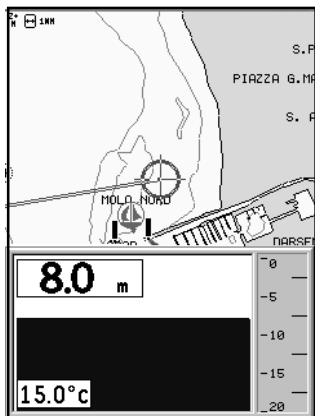
When navigating in waters deeper than sounder access range or if
the boat's speed is too high for depth sounding, data acquisi-
tion will be interrupted and the number replaced by "—".

To deactivate the depth sounder window, press PAGE.

TRIP WINDOW
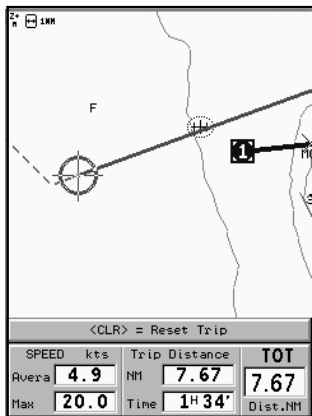
The trip window shows the data relating to the route followed and, in particular:

• Average speed
• Time elapsed from departure
• Partial distance covered
• Total distance covered

To reset partial counters before starting a new journey, press CLR.

SATELLITE WINDOW

At start-up the satellite window displays how many and which satellites are tracked by the GPS receiver.

The outer circle represents the horizon, the inner one identifies a 45° elevation with respect to the horizon, and the central circle points to the zenith.
The small squares with numbers show the satellites available. The numbers of differential satellites, if any, are displayed from bottom to top.

As soon as the satellite is tracked by the GPS receiver, the square turns red. The bars displayed on the left identify the signal quality; the longer the bar, the higher the signal quality.
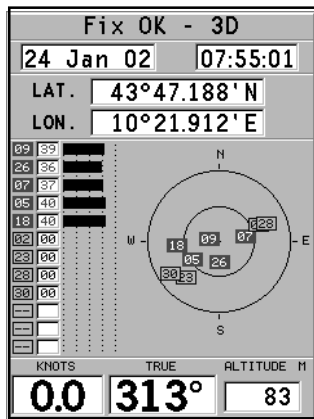
On the left of each bar, two digits indicate numerically the signal/noise ratio.

Additional information:

- Day, month, year, local or Greenwich time (at the first start-up the GEONAV is initialized to Greenwich Time).
- Boat's position (lat/lon) (or the latest valid fix if the GPS receiver is still searching for satellites).
- Data on the current satellite situation (number and fix).
- SOG, COG and altitude.

The latitude and longitude values relevant to the boat's posi-

tion are displayed as soon as three satellites are tracked and a 2D fix (two dimensions) is available.

The altitude value is available only if four satellites are tracked and a 3D fix is obtained.

As soon as a valid fix is available, the GEONAV will automatically switch to Navigation mode and display the boat's position at the best chart range available; the window at the bottom of the screen will indicate the boat's course and speed.

To recall the Satellite window, press the PAGE key repeatedly until it appears.

INFO WINDOW

This window displays the following information on the boat's current position:

- Geographical coordinates (latitude/longitude)
- The position correction applied to the latitude and longitude (option SETUP, CALIBRATION)
- Magnetic variation value received by the GPS
- Course (COG)
- Speed (SOG)

NOTE: This window is available in Navigation mode only.

SHIP POSITION
LATITUDE
45°15.000N*
LONGITUDE
179°50.000W*
CALIBRATION
dLAT — dLONG
1°15.000N — 2°15.000W
COG — SOG KM/H
145°M — 51.0
MAG.VAR. 15.0W

TIDE INFO WINDOW

When a NAVIONICS cartridge featuring Tides and Currents data is present, this window displays further information, besides the forecast data supplied by selecting the Tides and Currents station.

The following data is displayed:

- Latitude and longitude at the current boat's position
- Current time and date
- Value of magnetic variation received by the GPS
- Dawn and sunset time
- Moonrise and moonset time
- Moon phase
- Graph of estimated tide level with respect to the current position

LAT.	51°48.700'N
LON.	179°29.800'W

DATE	LOCAL TIME	M.VAR.
27May03	23:59:59	15.0W

TIDE

High — Now

Low — 0 2 4 6 8 10 12 14 16 18 20 22 24
Time

15:25 RISE 15:25
15:25 SET 15:25
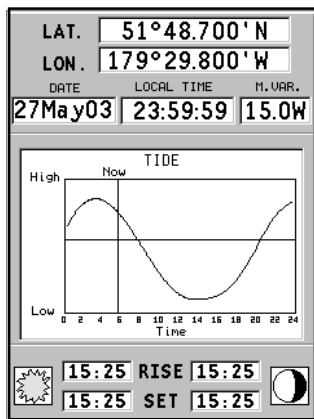
WARNING: Unlike the graph displayed at a T&C station position (accessible through the GOTO function, or by positioning the cursor on the Tides and Currents station symbol) which is as accurate as supplied by hydrographic offices, this graph shows estimated data, being the result of interpolation between the two Tides and Currents stations nearest to the point of interest. The accuracy of the estimate may vary, depending on the coast type, the distance to the nearest stations, and other geographical features.

RUNWAY WINDOW

This window displays the following information on the target waypoint:

- Name of the target waypoint
- Distance from the target waypoint
- Estimated time of arrival to the target waypoint
- Bearing
- Course
- Steering angle
- XTD (right/left distance from the planned route)

The graph shows the boat's position with respect to the route. When the XTD goes up to the limit of 2 NM, the boat symbol will reach the right or left side of the runway.
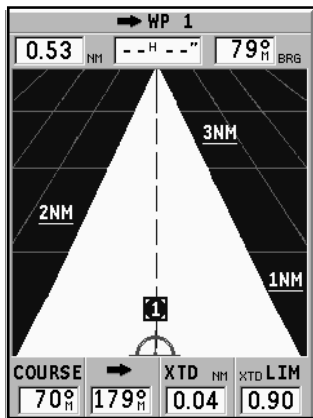
NOTE: This window is available in Navigation mode only.

3D WINDOW

NOTE: This function is available only with the NAVIONICS Platinum™ cartridges.
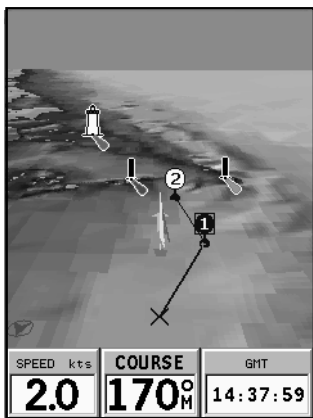
This window allows displaying a 3D chart image of the area surrounding the current boat's position.

Press the **PAGE** key repeatedly to display the 3D navigation window, then use the **CURSOR** key to move the viewing angle and the **ZOOM** key to enlarge or reduce the image.

The **ENTER** key allows to raise the view point and rotate the view. Press **ENTER** once or twice to switch from one function to another.

To choose the level of detail of the items to display, as well as the quality of the picture, press **GOTO** to display the menu, select SETUP, then 3D WINDOW and edit the options as desired.

MAIN MENU

The menu bar, displayed at the top of the screen, allows selecting from the following options:

```
Port  Near  Rte  Trk
Mrk  Wpt  Setup  L/L
```
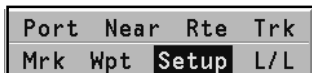
TRACK: To activate/deactivate the track function and to save, recall and delete the track saved.

ROUTE: To delete, reverse, store, recall a route and display route information.

MARK: To delete, store and recall markers.

SETUP: To activate/deactivate the plotter's setup.

GOTO PORT: To plan a route to a selected port.

GOTO NEAREST: To plan a route to the nearest port service.

GOTO LAT/LON: To plan a route to a known geographical position.

GOTO WPT: To plan a route to a specific waypoint (function available in Navigation mode only).

INFO: To display the information relative to the waypoint pointed to by the manual cursor (function available in Cursor mode only).

NOTE: The majority of menu items, once selected, show a series of submenus. Use the **CURSOR** key to move from one menu to another and press **ENTER** to choose one of the items.

ROUTE

EDITING A ROUTE (CURSOR MODE)
Creating a waypoint
Using the **CURSOR** key, move the cursor on the position de-
sired and press **ENTER** to insert a waypoint.
To enter further waypoints, move the cursor and press **ENTER**.
The new waypoint will be appended to the existing route.

Up to 20 waypoints per route can be entered by using the
GOTO function as well (see the *Route to a waypoint* Section).

Deleting the last waypoint
Press **CLR**. If the last waypoint is out of screen, the "DELETE
WP? ENTER = YES" message will be displayed.
Press **ENTER** to confirm the deletion.

Deleting a waypoint
Use the **CURSOR** key to position the cursor on the waypoint to
delete and press **CLR**.

Deleting all waypoints in a route
Press the **CLR** key repeatedly until the "NO WP PRESENT"
message is displayed.

Moving a waypoint
Position the cursor exactly on the waypoint to be moved; press
ENTER to capture the waypoint, then move the waypoint to the
position desired and confirm the operation by pressing **ENTER**.

Inserting a new waypoint in a route
Position the cursor exactly on the route leg to edit and press
ENTER to capture the leg.
Once captured, the leg will show a thicker line to distinguish
it more easily from the other route legs. A window will also
show the leg captured. Move the manual cursor to the posi-
tion desired, insert the new waypoint and confirm by press-
ing **ENTER**.

English

EDITING A ROUTE (NAVIGATION MODE)
If the manual cursor is displayed, press the **PAGE** key to enter Navigation mode.

Changing the target waypoint
Use the "Route to a waypoint" function.

WARNING: The route will be modified and the new target waypoint selected will be the first waypoint in the route.

Deleting all waypoints
Press the **CLR** key to show the "DELETE ROUTE? ENTER = YES" message. Press the **ENTER** key to confirm the deletion or another key to exit.

FUNCTIONS IN THE ROUTE MENU
Route info
Route information is displayed in two pages; the first shows general route information, whereas the second contains the geographical coordinates of all waypoints. Press the **GOTO** key to display the menu bar, select ROUTE, CURRENT, GOTO WP and then confirm by **ENTER**.

A window will show the following information:

WP NO.: Waypoint ID

DISTANCE: Distance from START to current waypoint

TIME: Estimated time from START to current waypoint
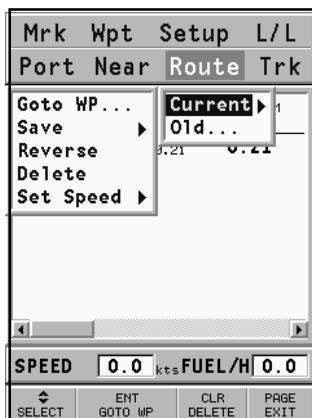
FUEL: Estimated fuel consumption (liters)

BRG: Bearing from previous waypoint to current waypoint

The arrival time at the waypoint and the fuel consumption will be displayed provided that estimated speed and fuel consumption values have been inserted previously (see the *Entering speed and fuel consumption data* Section).
Use the **CURSOR** key to switch to the next page showing the geographical coordinates of each waypoint:

WP NO.: Waypoint ID

POSITION: Waypoint latitude and longitude

Use the **CURSOR** key to go back to the previous page or press the **PAGE** key to exit.

To access the waypoint data, move the manual cursor on the waypoint of interest, press the **GOTO** key and select the INFO option.

Entering speed and fuel consumption data
The data are used to calculate the values displayed in the ROUTE window.

Press the **GOTO** key to display the menu, select ROUTE, CURRENT, SET SPEED and press **ENTER** to access the windows for data insertion. Use **CURSOR** to enter the data required and to confirm the operation.

Storing a route in the CompactFlash™
Press the **GOTO** key to display the menu, select ROUTE, CURRENT, SAVE and press **ENTER**. Use the **CURSOR** key to change the default name and press **ENTER** to confirm the operation.

A message will confirm that the route has been stored correctly. Once stored, the route will disappear from the screen.

Recalling a route from the CompactFlash™
Press the GOTO key to display the menu, select ROUTE, OLD and press ENTER to open the route catalog; select the route by the CURSOR key and then press ENTER to confirm, or PAGE to exit.
The route recalled will be displayed, the Autozoom function automatically enabled and a window will allow selecting the target waypoint.

Deleting a route
To delete the route displayed, press the GOTO key to show the menu, select ROUTE, CURRENT, DELETE and press ENTER to confirm.

To delete a route stored in the CompactFlash™, press the GOTO key to show the menu, then select ROUTE, OLD.
Select the route from the list of the routes stored in the CompactFlash™, then press CLR to delete it and ENTER to confirm the operation.

Reversing a route
Press the GOTO key to display the menu, then select ROUTE, CURRENT, REVERSE.
The waypoint order will be automatically reversed allowing navigation in the opposite direction.

Route to a waypoint
Press the GOTO key, select ROUTE, CURRENT, GOTO WP and move the cursor within the waypoint list by using the CURSOR key. Press ENTER and select the target waypoint by CURSOR. Press ENTER to confirm the selection, or PAGE to exit.

As the GEONAV plots a new route, the waypoint selected becomes the first waypoint in the route, whereas previous

waypoints are deleted. This function is available in Navigation mode only.

This function can be accessed also by selecting the WPT item from the GOTO main menu.

TRACK

The Track function allows re-
cording the track actually fol-
lowed by the boat. The Track
function can be enabled and dis-
abled several times during navi-
gation.

Starting a track
To enable the Track function,
press the GOTO key to display the
menu bar, select TRACK, START
and press ENTER to confirm. A
small circle on the boat's posi-
tion will indicate the track start-
ing point.

Stopping a track
To disable the Track function, press the GOTO key to display
the menu bar, select TRACK, STOP and press ENTER to con-
firm.

Storing a track in the CompactFlash™
Press the GOTO key to display the menu bar, select TRACK,
CURRENT, SAVE ALL and press ENTER to confirm. Use the
CURSOR key to change the default file name and press ENTER to
confirm the operation.

A message will confirm that the track has been stored cor-
rectly. Once stored, the track will disappear from the screen.

Each time a track is stored in the CompactFlash™, the plotter's
memory is cleared and the indicator of memory used in the
TRACK menu is reset to 0%.
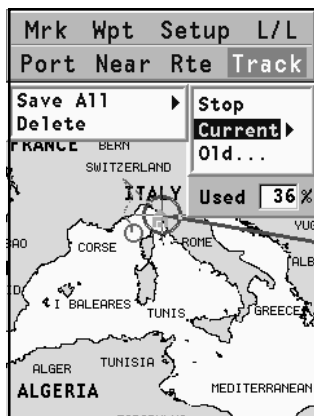
Recalling a track from the CompactFlash™
Press the GOTO key to display the menu bar, select TRACK, OLD and press ENTER to open the track catalog.

Select the track desired, then press ENTER to confirm the operation or PAGE to exit.

Deleting a track
To delete the track displayed, press the GOTO key to show the main menu, select TRACK, CURRENT, DELETE and press ENTER to confirm.

To delete a track stored in the CompactFlash™, press the GOTO key to show the menu, then select TRACK and OLD. Select the track from the list of the tracks stored in the CompactFlash™ , then press CLR to delete it and ENTER to confirm the operation.

MARKER

Markers are used to identify points of interest to which names and symbols can be assigned.

NOTE: Marker names are displayed starting from the 32 NM chart range.

CURSOR MODE
Inserting a marker

Move the cursor to the position desired and hold the **ENTER** key pressed for more than 2 seconds. A window will display the symbol and a name automatically assigned to the marker.

```
┌─────────────────────┐
│   INSERT MARKER     │
│  ┌──┐ ┌──────────┐  │
│  │ ⚑│ │ MARK0001 │  │
│  └──┘ └──────────┘  │
│  ↕      ↔   ENTER  PAGE │
│ SELECT MOVE CONFIRM EXIT│
└─────────────────────┘
```

Use the **CURSOR** key to change the marker symbol (8 symbols available) and name (max. 8 characters) according to the type of marker to store (e.g., fishing spots, wrecks, rocks, etc.). Press **ENTER** to confirm the insertion.

NOTE: The cursor can be moved to the desired position also by using most of the GOTO functions. See the relevant sections for further details.

Changing a marker name/symbol

Position the cursor on the marker desired and press ENTER; a window will display the symbol and the name previously assigned to the marker selected. Use the **CURSOR** key to change the marker name and symbol. Press **ENTER** to confirm the operation.

Deleting a marker

Position the cursor on the marker to delete and press CLR.

NAVIGATION MODE
Inserting a marker

Press the **ENTER** key to insert a marker at the boat's position. A window will display the symbol and the name automatically assigned to the marker; to change the marker symbol and name

according to the type of marker to store (e.g., fishing spots, submerged wrecks, rocks, etc.), use the CURSOR key.
Press ENTER to confirm the insertion.

Route to a marker
Press the GOTO key and select MARKER, CURRENT, GOTO MARKER by the CURSOR key. The catalog displayed will list, with respect to each marker, the symbol, the name, the insertion date/time, as well as, if available, the sea depth and temperature values as detected when entered.
Moreover, the catalog shows the number of markers entered in the current page and the number of markers still available.
By using CURSOR, choose the desired marker (the latest 8 markers used will be highlighted) from the catalog displayed, then press ENTER to confirm.

```
PORT NEAR ROUTE TRACK
MARK  INFO  SETUP  L/L
🏠 HOME        14Jul05 10:33
⌐MARKER01   14Jul05 10:33
⌐MARKER02   14Jul05 10:36




Used    3  Available   96
  ↕       ENT       CLR      PAGE
SELECT  GOTO MARK  DELETE    EXIT
```

Once the desired marker has been selected, the GEONAV will insert a waypoint at the marker position and append the new leg to the existing route (if no route is available, the new waypoint will be connected to the boat's position).
Press the PAGE key to go back to Navigation mode and enable automatically the Autozoom function.

NOTE: To delete a single marker, select it from the GOTO Marker list and press the **CLR** key.

FUNCTIONS IN THE MARKER MENU
Storing a set of markers in the CompactFlash™
Press the GOTO key to display the menu, select MARKER, CURRENT, SAVE ALL and press ENTER to confirm. Use the CURSOR key to change the default name and press ENTER to confirm.

A message will confirm that markers have been stored correctly. Once stored, markers will disappear from the screen.

Each time a set of markers is stored in the CompactFlash™, the plotter memory is cleared and the indicator of the markers available is reset to the maximum value.

Recalling a set of markers from the CompactFlash™
Press the GOTO key to display the menu, select MARKER, OLD and press ENTER to open the marker catalog.
Use the CURSOR key to select the set of markers desired and press ENTER to confirm, or PAGE to exit.

Deleting markers
To delete the set of markers displayed, press the GOTO key to show the menu, select MARKER, CURRENT, DELETE ALL and press ENTER to confirm.

To delete a single marker among those displayed, press the GOTO key to show the menu, select MARKER, CURRENT and GOTO MARKER. Select the marker desired from the list shown, then press CLR to delete it and ENTER to confirm the operation.

To delete a set of markers stored in the CompactFlash™, press the GOTO key to show the menu, then select MARKER and OLD. By using the CURSOR key, select the set of markers from the list of those stored in the CompactFlash™, then press CLR to delete it and ENTER to confirm the operation.

GOTO PORT

Press the GOTO key and select PORT by CURSOR.

The list will display the latest ten ports previously selected. Choose the desired port by CURSOR, or select New to display the whole list of the ports stored in the cartridge.

By moving the CURSOR key in the four directions, form the port name, or part of it; when the desired port is shown, highlight it by CURSOR and confirm its selection by pressing ENTER.

Once the desired port has been selected, the GEONAV will insert a waypoint in the port position and append the new leg to the existing route (if no route is available, the new waypoint will be connected to the boat's position).
Press the PAGE key to go back to Navigation mode and enable automatically the Autozoom function.

Mrk Wpt Setup L/L
Port Near Rte Trk
⬆ ● ➡ New ⬇
Aci Castello
Acciaroli

Mrk Wpt Setup L/L
Port Near Rte Trk
⬆ ● ➡ A ⬇
A. Nikolaos - Yacht Club
Abbadia - Lariana
Abelike- Meganisi
Abu Kammash
Acciaroli
Aci Castello
Aci Trezza
Acquacalda - Lipari
Acquamorta
Addaura

GOTO NEAREST

NOTE: This option is available only with the NAVIONICS cartridges containing the Port Services features. It allows finding and heading for the nearest port featuring the service desired. The NAVIONICS Platinum™ cartridges offer a wide choice of services, whereas, when using NAVIONICS Gold™ cartridges, the functions supported will be those provided by plotters employing Gold™ charts only.
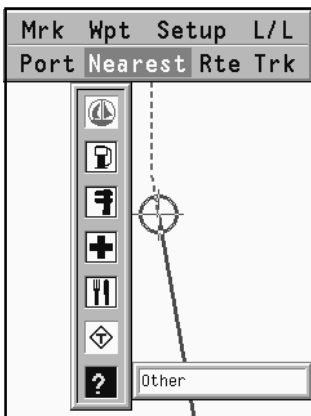
Press the GOTO key, select NEAR by the CURSOR key, choose the desired service and press ENTER to confirm, or CLR to cancel the operation.

The GEONAV will show the three destinations closest to the boat's position (if in Navigation mode), or to the cursor's position (if in Cursor mode), and position automatically on the closest destination (flashing).

Select one port at a time by using CURSOR; a window will show the distance and time to arrive (estimated on the boat's current speed). Press ENTER to confirm the selection.

The GEONAV will insert a waypoint in the port selected, delete automatically the existing route (if in Navigation mode), or append the waypoint to the existing route (if in Cursor mode), then go back to Navigation mode and enable automatically the Autozoom function.

Besides the specific set of services shown in the figure, a generic set is available. It gathers several additional services (such as hotels, restaurants, airports, shops, etc.) that can be searched for and located thanks to this function.

Tide or current forecast at the nearest survey station

**NOTE**: This function is available only with the NAVIONICS cartridges containing Tides and Currents data.

This function allows displaying, within the space of twenty-four hours with respect to the selected date, the tide level and tidal current speed and direction at a survey station in the vicinity. Unlike the estimated data shown in the Tide Info window, this forecast is much more accurate, being supplied directly by tidal surveying stations.

Press GOTO, select NEAREST by the CURSOR key, choose the Tides or Currents service, then press ENTER to confirm. The GEONAV will allow selecting one of the three nearest Tides and Currents stations. Use the CURSOR key to choose the station desired and press ENTER to confirm.
A window will show the information reported below:

Tide station
- Name of the station
- Forecast reference date
- Time and height with respect to the cursor's position in the graph
- Time and height of high/low water
- Dawn and sunset time
- Moonrise and moonset time
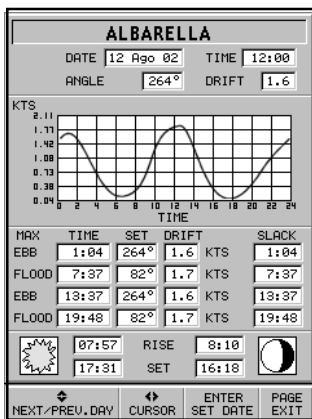- Moon phase
- Tide level graph (24 hours)
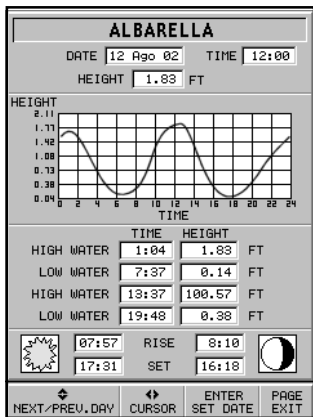
Tidal current station
- Name of the station
- Forecast reference date

- Time, speed and direction with respect to the cursor's position in the graph
- Time, speed, direction and slack
  time of daily flood and ebb streams
- Dawn and sunset time
- Moonrise and moonset time
- Moon phase
- Tide level graph (24 hours)

In both cases above, the default date is today. A different date can be set by pressing **ENTER**.

```
┌─────────────────────────────────┐
│          ALBARELLA              │
│   DATE 12 Ago 02    TIME 12:00  │
│      ANGLE   264°   DRIFT 1.6   │
│ KTS                             │
│ 2.11                            │
│ 1.77  ╱╲        ╱╲         ╱    │
│ 1.42 ╱  ╲      ╱  ╲       ╱     │
│ 1.08╱    ╲    ╱    ╲     ╱      │
│ 0.73      ╲  ╱      ╲   ╱       │
│ 0.38       ╲╱        ╲_╱        │
│ 0.04 0 2 4 6 8 10 12 14 16 18 20 22 24│
│              TIME               │
│ MAX   TIME   SET  DRIFT   SLACK │
│ EBB   1:04   264° 1.6 KTS  1:04 │
│ FLOOD 7:37    82° 1.7 KTS  7:37 │
│ EBB  13:37   264° 1.6 KTS 13:37 │
│ FLOOD 19:48   82° 1.7 KTS 19:48 │
│ ┌─────┐07:57  RISE   8:10   ◖   │
│ └─────┘17:31  SET   16:18       │
│   ↕        ↔      ENTER    PAGE │
│ NEXT/PREV.DAY CURSOR SET DATE EXIT│
└─────────────────────────────────┘
```

NOTE: The same information can be accessed by positioning the manual cursor on the icon of a Tides or Currents station, and pressing **ENTER** to confirm.

SETUP

The Setup menu allows setting the available options.
To access the Setup menu, press GOTO to display the main menu, then select SETUP by using the CURSOR key. The menu items are grouped in six sets. When selecting a set by the CURSOR key, the list of the available options will be displayed. Press ENTER to select one set, then use the CURSOR key to switch from one option to another and edit the setting.
To go back to the set list, press PAGE.

DISPLAY

- Mode (BRIGHT/DAY/NIGHT)
  Selects the colors suitable for the brightness of the environment.
- Safety Depth (OFF/2m/5m/10m/20m)
  Enables the display of the areas corresponding to the depth safety limit.
- Depth Contours (ALL/5m/10m/20m)
  Selects the display of depth contours.
- Photo Overlay (LAND/FULL/OFF)
  Selects the enabling of the overlay of satellite photographs for charts: only on land, everywhere or off, respectively.
- Chart Rotation (ON/OFF)
  Enables/disables the Chart Rotation function.
- Set Chart Detail (STD/USER/ALL)
  Selects the chart details to display. It is possible to select one of the two settings available (STD - equivalent to the standard display setting, as defined by ECS regulations - and ALL, that enables the display of all the items on the chart).

By choosing USER, enables/disables the display of the single items.
- Easy View (ON/OFF)
  Enables/disable the Chart Magnification function.
- Overzoom (ON/OFF)
  Enables/disable the Overzoom function.
- Presentation (INTER./U.S.)
  Selects the symbols and colors of chart presentation.
- Own Ship Icon
 Selects the icon that will identify the ship's position on the screen.

3D DISPLAY
- Names (ON/OFF)
  Enables/disables the visualisation of names in the 3D display.
- Navaids (ON/OFF)
  Enables/disables the visualisation of navaids in the 3D display.
- Photo (ON/OFF)
  Selects the type of texture for the 3D display, to choose from satellite photograph and simple texture.

Port	Near	Rte	Trk
Mrk	Wpt	Setup	L/L

Names	On	Off
Navaids	On	Off
Photo	On	Off

| SELECT | CHANGE | PAGE EXIT |
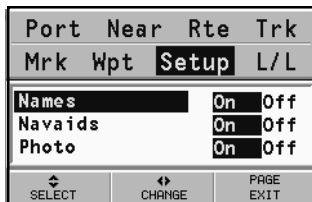
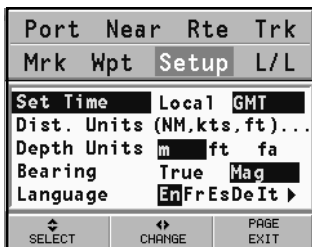**NAVIGATION**
- Calibration (ON/OFF)
  Calibrates the ship's position received by the GPS device.
- Anchor Alarm (OFF/15m/ 30m/50m)
  Enables/disables the alarm and sets the distance range for the anchor alarm.

Port	Near	Rte	Trk
Mrk	Wpt	Setup	L/L

| Calibration | On | Off |
| Anchor Alarm | Off | 15m ▶ |

| SELECT | CHANGE | PAGE EXIT |
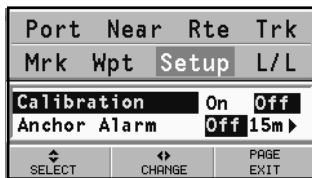
UNITS AND LANGUAGE
- **Set Time (LOCAL/GMT)**
  Enters local time.
- **Distance Units (NAUT/ METR/STAT)**
  Selects distance units.
- **Depth Units (M/FT/FA)**
  Selects depth units.
- **Bearing (TRUE/MAG)**
  Sets the magnetic mode for all bearings.
- **Language (EN/FR/ES/DE/ DK/IT/SV/NL/SU/NO/GR)**
  Selects the language.

```
Port  Near  Rte  Trk
Mrk  Wpt  Setup  L/L

Set Time    Local  GMT
Dist. Units (NM,kts,ft)...
Depth Units  m   ft  fa
Bearing      True  Mag
Language     EnFrEsDeIt ▶

  ↕         ↔        PAGE
SELECT    CHANGE     EXIT
```

WINDOWS
- Selects the auxiliary windows to display. For every window, a preview image - whose display can be enabled/disabled (ON/OFF) - is available.

```
Port  Near  Rte  Trk
Mrk  Wpt  Setup  L/L

Satellite        On  Off
General Info     On  Off
Tide Info        On  Off
Runway           On  Off
Trip Window      On  Off
3D Window        On  Off

  ↕         ↔        PAGE
SELECT    CHANGE     EXIT
```

OTHER
- *XS* **External Screen (ON/OFF)**
  Enables/disables the unit's video output.
  NOTE: For the G4 XS, the video output is available provided that the unit is connected to an external power supply. To save energy, when the unit is powered by the internal batteries, this function is disabled.

```
Port Near Route Track
Mrk  Info  Setup  L/L

External Screen On  Off
GPS              Int  Ext
Start USB        On  Off
Battery Saving   On  Off
Chart Info            ▶

↕ SELECT  ↔ CHANGE  EXIT
```
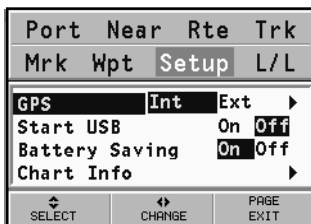
- **GPS (EXT/INT/DIFF)**
  Selects the built-in GPS, an external GPS antenna or the built-in GPS with the reception of WAAS/EGNOS differential satellites (if available).

English
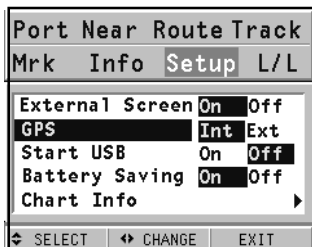
XS   **NOTE**: For the G4 XS, the reception of differential satellites, if available, is automatic.

- Start USB (ON/OFF)
  Enables / disables the connection with the USB port of a PC (see the *USB Connection* Section for further information).
- Battery Saving (ON/OFF)
  Sets the automatic switching off time for the backlight and screen, in order to reduce the battery consumption.
- Chart Info
  By selecting ON, a window will show the catalog of the charts stored in the cartridge. Select one chart by the CURSOR key and press **ENTER** to display the information associated with the chart (chart number, authority that issued it and date of issue), or **PAGE** to exit.

```
┌─────────────────────────┐
│ Port  Near  Rte   Trk   │
│ Mrk   Wpt  Setup  L/L   │
├─────────────────────────┤
│ GPS        Int  Ext   ▶ │
│ Start USB       On  Off │
│ Battery Saving  On  Off │
│ Chart Info            ▶ │
├─────────────────────────┤
│  ↕        ↔       PAGE  │
│ SELECT  CHANGE    EXIT  │
└─────────────────────────┘
```

GOTO LAT/LON

Press the GOTO key and select L/L by the CURSOR key. Enter the geographical coordinates desired by using CURSOR and confirm the insertion.

The GEONAV will move the manual cursor to the position selected, allowing the insertion of a waypoint or a marker.

AUTOPILOT

The GEONAV allows a boat equipped with an autopilot to follow automatically the entered route, compensating for any diversion caused by external conditions (wind, currents, etc.).

The GEONAV will display the "PROXIMITY TO WAYPOINT" message to warn the user that the boat is about to reach the target waypoint.

The GEONAV will display the "END OF TRIP" message to warn the user that the boat is about to reach the last waypoint in the route.

IMPORTANT: In order to avoid sudden change of course, it is always recommended to deactivate the autopilot when editing and/or creating a route.

CAR NAVIGATOR

NOTE: This function is available only when using NAVIONICS land cartography cartridges.

Select SETUP, then CAR NAVIGATOR to switch from marine navigation to road navigation. For more information on how to use the unit in road navigation mode, please refer to the Car Navigator manual supplied.

NOTE: If the cartridge currently inserted contains no land cartography, as soon as the CAR NAVIGATION option is selected, the unit will turn off showing a warning message. At the next power on, the unit will start in marine navigation mode.

USB CONNECTION

The GEONAV can be connected to the USB port of a Personal Computer.
Thanks to the USB connection, you will be able to install the GEONAV software upgrades and transfer the data (routes, tracks and markers) from the unit's CompactFlash™ to the PC, and vice versa.

To be able to connect the unit to the USB port, the following is required:

• USB cable of the GEONAV 4C;
• GEONAV 4C with CompactFlash™;
• a PC with USB port and a Windows release supporting the mass storage devices on USB (Windows XP).

IMPORTANT: Some old releases of Windows (Windows 98 and Windows 95) do not support USB connections of this type.

To carry out the USB connection:

• switch the unit on;
• select SETUP, then START USB;
• connect the unit to the USB port on the PC by the USB cable.

IMPORTANT: You are recommended to select START USB from the SETUP menu before connecting the USB cable to the PC.

From now on you will be able to access the CompactFlash™ on the GEONAV from your PC, as if it were any disk unit, as well as transfer the data file from your PC to the unit, and vice versa.

WARNING: Be cautious not to remove the chart data from the NAVIONIC folder of the CompactFlash™.

English

Once you have completed the operations described above, to disconnect the unit from the PC:

• quit the USB connection on the PC by clicking the removable disk icon by the mouse right-button and selecting "Eject";

WARNING: If you do not carry out this operation, the transferred data might get lost.

• quit the USB connection on the GEONAV by pressing **PAGE**;
• disconnect the unit's USB cable from the PC;
• switch the unit off.

Software Updating
Free software upgrades are available from the web site www.geonav.it.
Save the software upgrade to the CompactFlash™ of your GEONAV by using the USB connection.
Switch the unit off and then on again, to update the software automatically.

IMPORTANT: You are recommended to save the software upgrade to the main directory of the GEONAV, and not to its subdirectories.

TABLE OF CONTENTS