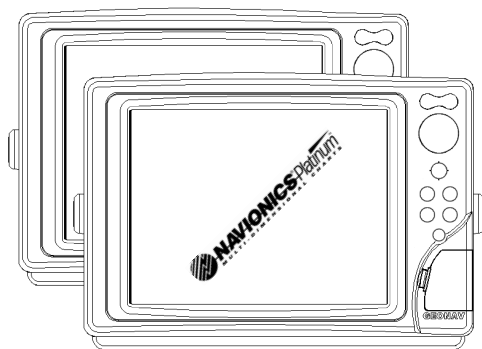


# GEONAV 11 C

# GEONAV 10C



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:** Technical characteristics and functions described in this manual are subject to change as a result of improvements or changes to the product.

This unit runs Linux, developed under GNU General Public License. Linux is a registered trademark by Linus Torvalds.

## INTRODUCTION

The GEONAV is a chart plotter that can be interfaced with a GPS receiver, autopilot and other onboard instruments, and allows displaying the boat's geographical position with respect to an electronic chart. 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 GEONAV has been designed to allow flush mounting. Equipped with an easy-to-use keyboard, the GEONAV allows controlling the autopilot directly from the plotter (Easy Pilot function) and, thanks to the unlimited capacity of the CompactFlash™ cartridges - that can also be used on PCs as personal hard disks - can store a large amount of route, track and marker data.

The GEONAV is ready for connection with the wind station and echosounder and, thanks to windows enabled automatically, able to display the relevant data, if available. The connection supports the NMEA 0183 standard protocol.

The Route functions will allow you to plan a trip, while, thanks to the new multimedia NAVIONICS Platinum™ electronic charts, you will always know exactly the boat's position. 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 additional information such as the availability of port services, as well as tides and currents data. NAVIONICS Platinum™ and Gold™ electronic charts are available worldwide from authorized NAVIONICS dealers.

When new functions are available, it will be possible to update the GEONAV internal software at any GEONAV dealer.

## CHARACTERISTICS

### General characteristics

- Easy Pilot™ function for easy and direct control of autopilot
- Possibility to transfer routes from one plotter station to another through network connection
- EBL and VRM functions
- Multiple display of tracks
- Storage of track data including significant additional information such as date, time, latitude/longitude, depth, temperature, wind data, etc.
- GOTO function (Waypoint, Port, Nearest Service, Marker, Track, Lat/Lon, R/B)
- Screen Amplifier™ function
- Autozoom™ function
- Overzoom™ function
- 8 marker shapes, 8-character name
- Reverse route function
- Selectable depth units (meters, feet and fathoms)
- Platinum™ electronic charts
- EasyView™ function
- X-Plain™ function
- ARPA display function
- Heading vector
- CompactFlash™ cartridge
- Storage of routes, tracks and markers in separate files on CompactFlash™ cartridges
- NMEA 0183 interface
- Ethernet connection
- Display of depth and water temperature data (if interfaced with an echosounder)
- Display of wind data (if interfaced with wind instruments)
- Backlit keypad
- Color LCD, transfective TFT 10.4", daylight visible (*G10C model*)
- Color LCD, TFT 10.4", enhanced contrast and brightness, sunlight visible (*G11C model*)

- Water resistant (IPX6)

#### Electrical characteristics

- Power supply: 9 to 36 Vd.c.
- Power consumption: Max. 13 W (*G10C model*)
- Power consumption: Max. 21 W (*G11C model*)
- Auxiliary voltage output: 10 to 36 Vd.c.  
(same as input voltage) - Max. 250 mA
- Protection against: Reverse polarity  
Input overvoltage (up to 40 Vd.c.)  
Overcurrent at auxiliary voltage output (over 250 mA)
- Operating temperature: 0°C to +55°C
- Storage temperature: -20°C to +70°C

#### Memory characteristics

- Up to 100 waypoints per route
- Up to 5000 trackpoints (multiple tracks)
- Up to 3000 markers per group
- Number of routes, tracks and markers: unlimited, depending on the size of the CompactFlash™ utilised

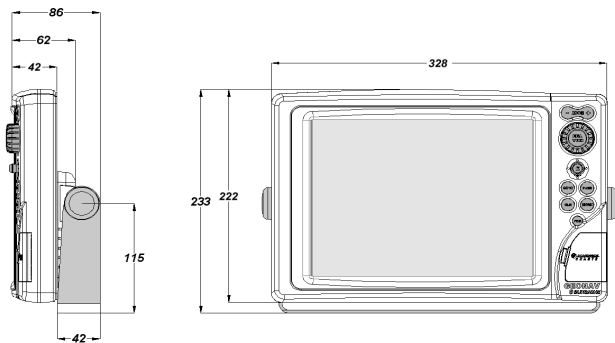
#### Interface characteristics

- Standard NMEA 0183 sentences
  - from position sensor:  
GLL, VTG, GGA, RMC, GSV, ZDA, RMA, GSA, GNS, DTM
  - from wind instrument:  
MWV
  - from depth sounder:  
DBT, MTW
  - from ARPA radar:  
TLL, TTM
  - to autopilot:  
APA, APB, XTE, RMB, BWC, GLL, VTG

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

### Accessories

- Bracket for detachable installation
- Gasket and drilling template for panel mounting
- Plastic frame and drilling template for flush mounting
- Power supply cable
- Auxiliary power supply cable
- User and Installation Guide
- Protection cap
- Carrying case



## INSTALLATION AND PRECAUTIONS

### Precautions

Wherever possible, the power supply cable shield should be connected to the boat's ground plate.

The GEONAV is water resistant but not waterproof, therefore it should not be immersed totally in water.

The cartridge slot cover, located on the plotter's right-hand side, should always be kept closed and opened only when replacing cartridges. Make sure that the cartridge replacement is carried out as the unit is perfectly dry and that no water enters the unit.

Rear connectors, when not in use, should always be protected by the appropriate rubber covers.

### Cleaning

It is recommended the use of a non-alcoholic product to clean the glass, since alcoholic products may damage the glass surface or make it opaque.

### Panel mounting

Locate the area where the GEONAV is to be installed, then use the drilling template supplied with the plotter to properly cut holes and sockets out of the instrument's panel.

The neoprene adhesive gasket supplied must be applied to the GEONAV rear side to avoid moisture penetration and to reduce vibrations.

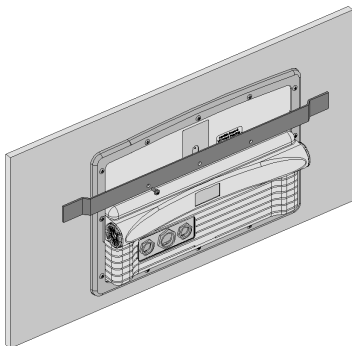
Mounting screws must be 4 mm in diameter and maximum 5 mm in length, plus the thickness of the panel. Do not exceed tightening the screws, in order to avoid damaging the screw seats.



### Flush mounting

Locate the area where the GEONAV is to be installed, then use the cutting template supplied with the plotter to cut the panel.

Apply a layer of silicone glue (the use of black colored glue is recommended, in order to prevent the area from going yellow when exposed to sunlight) to the plastic frame rear part; place the frame into the socket cut out of the panel, so that the frame edge leans against the panel.



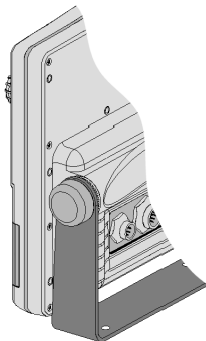
Make sure that the frame and the panel are correctly fixed; if necessary, apply additional metal brackets (not supplied in the package) as shown in the relevant figure.

Let the silicone glue dry, then apply the neoprene gasket to the plotter rear side, insert the instrument into the frame and lock it by the screws supplied.

Do not exceed tightening the screws, in order to avoid damaging the screw seats.

**Bracket mounting**

Fix the bracket to the boat's dashboard with screws 6mm in diameter.

**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 and data connector (9 pins)****1. Power supply**

- 1 + VDC
- 2 GND

**2. NMEA 0183 data input**

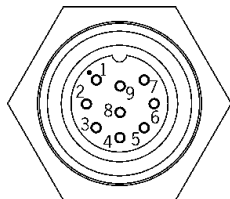
- 3 GPS IN +
- 4 GPS IN -

**3. NMEA 0183 data output**

- 5 DATA OUT +
- 6 DATA OUT -

**4. Auxiliary output voltage (Vaux)**

- 7 Vaux+, 250mA \*
- 8 GND
- 9 SHIELD



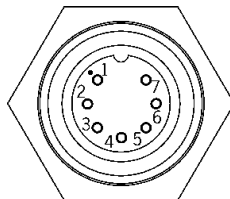
\* Vaux voltage is the same as the plotter's input voltage.

**Auxiliary connector (7 pins)**

Allows connecting the GEONAV to an auxiliary instrument equipped with NMEA 0183 interface (e.g., echosounder and masthead transducer).

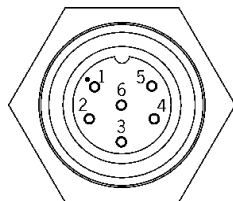
**1. NMEA 0183 auxiliary data input**

- 1 DATA IN +
- 2 DATA IN -

**Network connector (6 pins)****1. Ethernet connection**

- 1 I AN GND 1
- 2 RX +
- 3 RX -

- 4 I AN GND 2
- 5 TX +
- 6 TX -



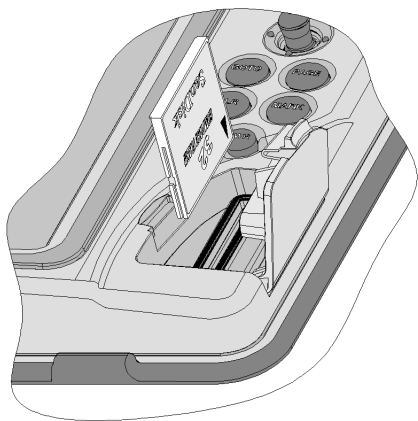
## CARTRIDGE INSTALLATION

### Installing the CompactFlash™

Open the cartridge slot cover located on the plotter's front side.

Insert the cartridge into the appropriate slot, with the label side towards the right, and push it down.

Close the cover exercising light pressure and check that it is perfectly closed, in order to avoid any water infiltration.



**NOTE:** Ensure that the cartridge is correctly inserted. Attempts to insert the cartridge upside down with force into the slot may result in damage to the plotter or the cartridge. This type of damage is not covered by our warranty policy.

### Removing the CompactFlash™

Make sure that the plotter is perfectly dry.

Open the cartridge slot cover located on the plotter's front side, 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 personal 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 \GEO NAV 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 chart scale
- Enables/disables the Autozoom function

### JOYSTICK (right/left - up/down)

- Moves the cursor across the screen
- Switches from Navigation mode to Cursor mode
- Selects the options from menus and submenus

### If pressed:

- Displays the chart object attributes

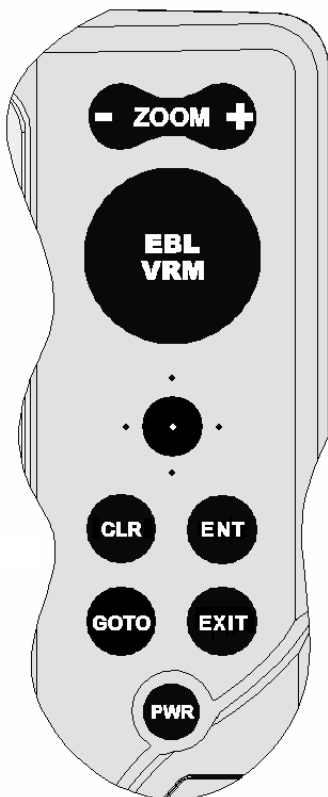
### ENT (ENTER):

#### Cursor mode:

- Inserts a waypoint at the cursor's position
- Inserts a marker at the cursor's position (if held pressed)

#### Navigation mode:

- Changes the target waypoint
- Inserts a marker at the ship's position (if held pressed longer)



**Menu:**

- Confirms a selection

**GOTO**

- Accesses the main menu and enables the MOB function (if held pressed longer)

**CLR**

- Cancels the setting of data in the windows
- Cancels the option selection from the menu

**Cursor mode:**

- Deletes all waypoints, starting from the last entered
- Deletes the waypoint pointed by the cursor
- Deletes the marker pointed by the cursor

**Navigation mode:**

- Deletes the whole current route

**KNOB**

- Adjusts EBL/VRM parameters
- Selects the several options from the menu windows
- Scrolls letters and numbers when entering data in the windows

**If pressed:****Navigation mode:**

- Switches from EBL to VRM

**Menu:**

- Switches from vertical to horizontal scrolling and confirms the selection

**EXIT**

- Cancels a selection

**Cursor mode:**

- Switches from Cursor mode to Navigation mode

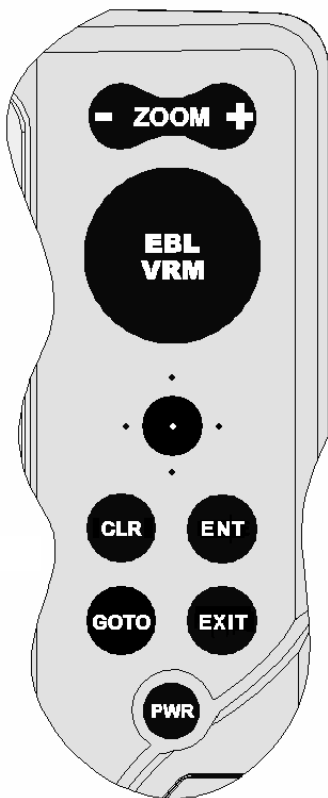
**Navigation mode:**

- Turns the pages of navigation data



**PWR**

- Switches the GEONAV on
- Opens the brightness window
- Switches the GEONAV off (if held pressed for more than 3 seconds)



## DIAGNOSTIC

The GEONAV features a diagnostic program to verify its correct performance, once installed, and to detect problems that may occur during the use of the unit.

To access the diagnostic program, hold the **ENTER** key pressed when switching the unit on.

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, by simply holding the **PWR** key pressed for more than 10 seconds. This function is useful if the unit is panel mounted or flush mounted and the power switch cannot be easily accessed.

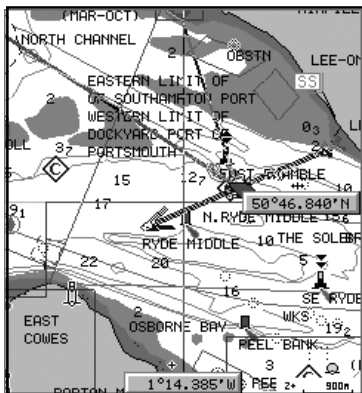
## NAVIONICS ELECTRONIC CHARTS

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.

NAVIONICS electronic charts contain a detailed set of symbols, similar to those used on official nautical charts.

To display the boundaries of the chart loaded, press the GOTO key to display the menu, select SETUP, SET CHART DETAIL and, by the joystick, choose the option USER or ALL.

A small square will locate the area covered by the cartridge installed; position the cursor within the square and then decrease the chart scale by the ZOOM+ key to display the details of the area covered by the cartridge.



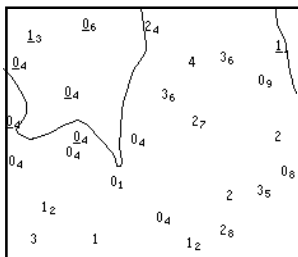
The maximum detail level is obtained within port plans where the smallest point on screen can be equivalent to approximately 1 meter, depending on the cartridge type and coverage.

### Increasing/decreasing the chart scale

Press the -ZOOM+ key. The current chart scale, ranging from 4096 NM down to 1/8 NM, is displayed in a small window located in the upper left-hand corner of the screen. The scale units are shown in the range window.

### Converting depth values into the units set

Press GOTO to display the menu, select SETUP, DEPTH UNITS and then set the unit desired in 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 relative to the navaid selected.

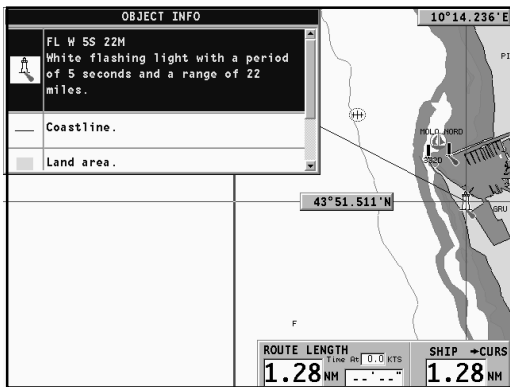
#### Description of navaid characteristics:

ABBREVIATIONS FOR LIGHT		ABBREVIATIONS FOR COLOUR	
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	
xx S	xx seconds	xx M	xx nautical miles

### Displaying object attributes

Move the manual cursor on top of an object on the chart, then press the joystick. A window will show the description of all the objects present on the chart at the cursor's position. Select one object from this window and press the joystick to show all of the object attributes.

The objects that can be queried include depth contours, depth areas, point objects (lights, nav aids, landmarks, etc.), land areas, spot soundings, coastlines, rocks, wrecks and, in general, any symbol present on the chart.



By querying the lights and nav aids, 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 and PRESENTATION (INTER. or US).

### 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 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.

### Displaying chart details

The display of spot soundings, landmarks and other chart details can be selectively enabled or disabled from the SETUP, SET CHART DETAIL menu.

### Displaying light sectors

The display of light sectors can be enabled or disabled from the Setup menu.

Press GOTO to display the menu, select SETUP, SET CHART DETAIL, then LIGHT SECTORS (ON/OFF/AUTO).

## Displaying port services

**NOTE:** This function is available only with the NAVIONICS Platinum™ cartridges containing the Port Services feature. If the NAVIONICS Gold™ cartridges are used, the supported functions will be those provided by the chart plotters employing only the 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 the joystick to pan it. Select PILOTS to gain access to the main information on the marina. To display more detailed information available, select the INDEX option from the submenu.

Viareggio		
Tel: 0584-43931/0584-951270		
PORTS	PHOTOS	PILOTS
Index	Next	Previous
Porto di Viareggio		
<p>11.18 Porto di Viareggio is situated at the seaward end of Canale della Burlamacca, the outlet for Lago di Massaciuccoli, 3 miles SE. The port consists of an outer harbour, and an inner harbour comprising the outer part of Canale della Burlamacca and five basins situated on the S side of the canal. Constant dredging is required in both the outer and inner harbours in order to maintain the depths, which are particularly affected by winter gales.</p> <p>11.19 Porto Esterno, the outer harbour, is protected on the N by a mole extending 3 cables HSW from the N entrance point of Canale della Burlamacca, and on the SW by a breakwater extending 3 cables NW from the shore. The mole is marked at its head by a white column light-structure with red bands, on a pedestal, 5 m in height; a similar light-structure, with black bands, marks the head of the breakwater. A light-structure, from which storm signals are displayed, consisting of a white round tower on a white house, 16 m in height, stands near the root of the mole, on the S side of the canal.</p> <p>Within Porto Esterno, there is good shelter for small craft during winds from N through E and S to SW. It is not possible to berth alongside the mole or breakwater. Depths in the entrance and middle of the harbour are normally maintained by dredging to between 3 and 4 m (10 and 13 ft), but after gales they may be reduced to as little as 2.5 m (8 ft) at the entrance.</p>		

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 the joystick. 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 joystick 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.

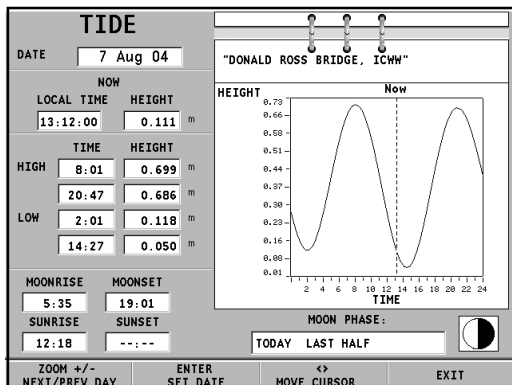
Position the cursor on the icon of a Tide or Current station.

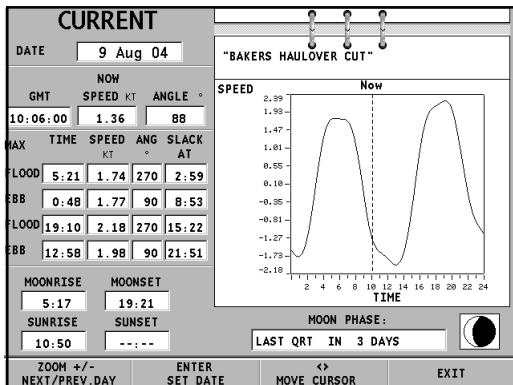


If the zoom level is adequate, the present tide or current value will show in the vicinity of the cursor position, together with the curve estimated in the subsequent hours. Press ENTER to display the whole graph.



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



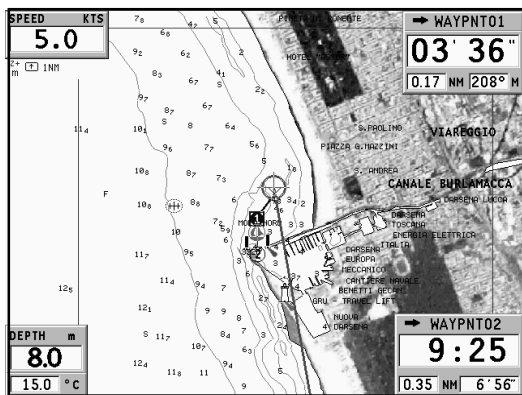


### Displaying aerial / satellite charts

**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 OVERLAY** and then **LAND** or **FULL**.

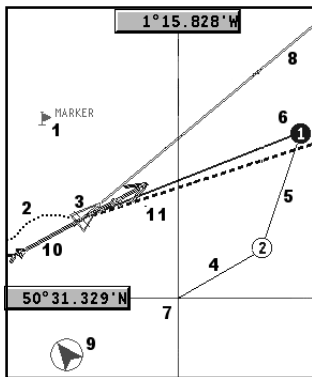
From a given zoom level onwards, where available, aerial or satellite photographs will overlay the traditional chart items, only in land areas (**LAND**) or both in land and sea areas (**FULL**).



## 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, a name and a color.

### 2 - Track segment

Recording of the track actually followed by the boat; the track is displayed as a colored 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 EXIT 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.

**10 - True wind vector**

Indicates the direction of true wind detected by onboard instruments.

**11 - Layline**

Indicates the direction after the next tack or gybe. In order to achieve the best performance, the tack or gybe should be carried out as soon as the layline crosses the target waypoint.

## 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 3 seconds.

### Welcome page

At start-up, the GEONAV displays a welcome page whose text (e.g., the boat's name) can be edited by the Setup menu (see the *Setup* Section). To freeze the page displayed, press ENTER. To unfreeze the page and continue with the instrument's operation, press ENTER again.

### Depth sounder

If connected to a depth sounder via NMEA, the GEONAV will enable the depth sounder mode, showing a graph of the sea bed or the relevant data in numerical form and the water temperature.

The depth value can be expressed in meters (default value), feet or fathoms; to select the unit, press GOTO, then choose SETUP and DEPTH UNITS (M/FT/FA).

### Sailing functions

If connected to a masthead transducer (anemometer), the GEONAV will automatically enable the Sailing mode, once the wind speed and direction data have been received, and provided that the Sailing window is enabled via the Setup menu.

### Navigation mode (automatic)

At start-up, the GEONAV automatically enables the Navigation mode, as soon as the GPS 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 updates the boat's position on the screen.

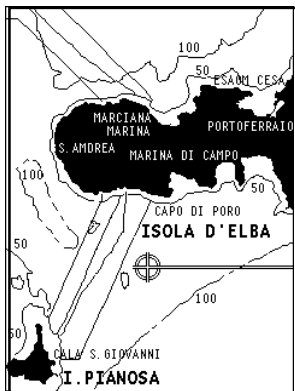
#### Cursor mode (manual)

When in Cursor mode, the manual cursor is displayed. It is possible to insert, delete and move waypoints, insert and delete markers, display navaid information, etc., but it is not possible to gain access to the depth sounder window.

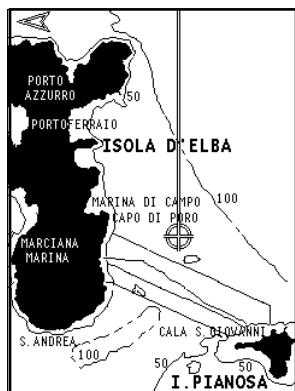
To switch from Navigation mode to Cursor mode, use the joystick. To go back to Navigation mode, press the EXIT key.

#### 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.



Without Chart Rotation




With Chart Rotation

The Chart Rotation function allows rotating the electronic chart displayed according to the plotted route (COG - Course Over

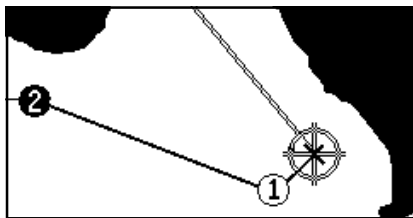
Ground), as detected by the GPS receiver. Since the COG value varies continuously, a filter has been inserted to prevent the chart from bouncing.

The Chart Rotation function is enabled at a speed greater than 1 knot. To enable the Chart Rotation function, press GOTO, select SETUP, CHART ROTATION and ON. A message will prompt the user to select the chart scale before activating the chart rotation. Confirm by pressing ENTER.

The northern direction will be indicated by the symbol .

### Autozoom

With the Autozoom function the GEONAV will always display automatically the boat's position and the target waypoint at the best available chart scale. This function is enabled provided that at least one waypoint has been previously entered.



To enable the Autozoom function, press ZOOM+ until the "AUTOZOOM ? ENTER = YES" message is displayed, then confirm by pressing ENTER. To disable the Autozoom function, press ZOOM.

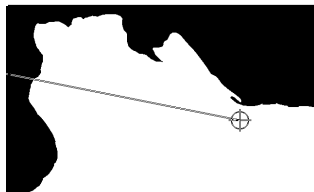
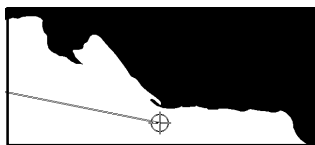
When the GEONAV is turned on, and if at least one waypoint has been previously entered, the Autozoom function will be automatically enabled.

### Screen Amplifier

This function automatically redraws the chart according to the boat's course, so as to maintain 2/3rds of the screen ahead

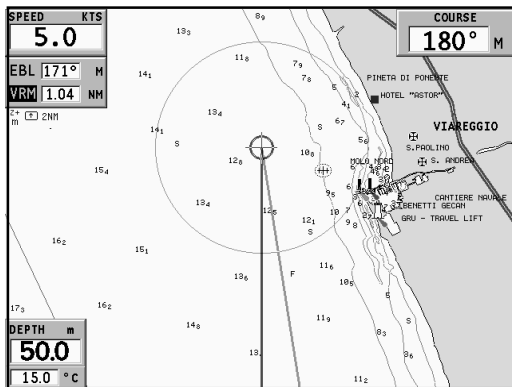


of the boat, provided that the boat's speed is greater than 3 knots. This function will be enabled provided that no waypoint has been previously entered.



### EBL/VRM functions

The EBL (Electronic Bearing Line) and VRM (Variable Range Marker) functions allow entering markers and waypoints as range and bearing coordinates with respect to the current position.



To enable these functions, rotate the knob to display the EBL, position the line on the bearing desired, then press the knob

to enable the VRM ring and adjust its size by rotating the knob so as to reach the range desired. To edit the values set, press the knob to switch from the VRM function to the EBL function.

To insert a waypoint where the EBL and VRM intersect, press ENTER; to insert a marker, hold ENTER pressed.

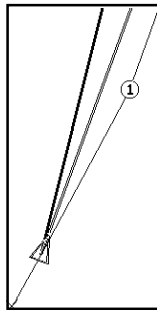
Range and bearing values are displayed in the upper left-hand side of the screen, together with the indication of the function currently enabled. Press CLR to disable the two functions in sequence.

The VRM ring can also be used to set the range for navigation from the coast, for example to avoid navigating out of the limit allowed. In this case, set the EBL to any value, adjust the VRM ring size as desired, then navigate making sure that at least one point in the ring is always touching the coast.

### Easy Pilot function

The Easy Pilot function allows editing temporarily a route set and followed by the autopilot, but keeping the route unchanged. This function is useful to make real time corrections (e.g., because of other boats or to approach points of interests), without having to edit the route planned or disable the autopilot.

To enable this function, rotate the knob and position the EBL on the new route to follow, then press ENTER. The EBL will change color, as the boat starts following the new route; the planned route will be abandoned, although displayed. To go back to the planned route, thus canceling the temporary correction, press CLR.



**NOTE:** The Easy Pilot function can be enabled only if a route is present.

### Overzoom

The Overzoom function allows expanding the chart range. The Overzoom does not provide any additional chart detail, only improves the readability of the available information, acting as a magnifying glass.

When the Overzoom is enabled, the unit will add OVZ to the scale displayed in the Navigation window.

To enable/disable the Overzoom function, press **GOTO** to display the menu bar, then select **SETUP**, **OVERZOOM** and **ON/OFF**.

### Position calibration

All position sensors are affected by intrinsic errors that make the boat's position incorrect (from few meters to several hundred meters).

The position calibration function allows correcting manually the position error present in all GPS, provided that this error is not greater than 2 nautical miles.

Press **GOTO** and then, by using the joystick, select **SETUP**, **CALIBRATION** 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 GPS 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 enabled, the coordinates (latitude/longitude) in the General Info window will be marked by (\*).

To cancel the calibration, press **GOTO**, select **SETUP**, **CALIBRATION** and then **OFF**.

### Local time

This function allows entering local time instead of the Greenwich time (GMT) supplied by the GPS receiver.

To enter local time, press GOTO and then, by using the joystick, select SETUP, SET TIME and then LOCAL.

The joystick will allow entering local time as well as confirming and saving the operation. To cancel local time, press GOTO, select SETUP, SET TIME and then GMT.

### Brightness

Press the PWR key to display the LIGHT window. Use the joystick to adjust the brightness level. Press ENTER to exit.

### Color

Besides displaying color nautical charts, the GEONAV allows selecting the track and marker colors.

Press the GOTO key to access the menu, select TRACK or MARKER, then COLORS and confirm by pressing ENTER; choose the color desired and confirm the selection.

The color of markers can also be selected when entered or edited, whereas the track segment color can be selected by positioning the manual cursor on the segment itself.

The color of chart items can be chosen from DAY, NIGHT or BRIGHT. Press GOTO to display the menu, select SETUP, MODE and then DAY, NIGHT or BRIGHT.

### Backup copy in the CompactFlash™

To be sure that no data can be accidentally lost, every time data are saved or the unit is turned off, one copy of route, track and marker information will be saved on the cartridge.

The file names are the following:

- For tracks: TRKBCK01 and TRKBCK02
- For markers: MRKBCK01 and MRKBCK02
- For routes: RUTBCK01 and RUTBCK02

### 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.

### ARPA

Your GEONAV allows displaying the position of targets tracked by any radar featuring the ARPA (Automatic Radar Plotting Aid) or MARPA (Mini-ARPA) function.

To activate the ARPA display function select ACTIVATE from the GOTO, SETUP, ARPA menu. When the ARPA display function is active, the instrument shows the target data received from the ARPA radar connected to the plotter through the NMEA0183 port.

#### *ARPA target representation*

The figure below shows a sample of tracked ARPA targets. The following graphic items are displayed:

#### 1 - Target name

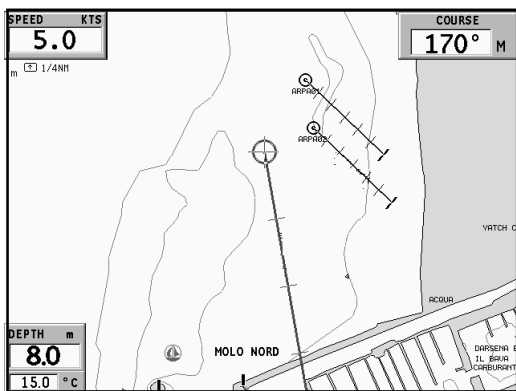
The name of the target being tracked.

#### 2 - Vector

Shows the current direction of the target. The longer the vector, the faster the target.

#### 3 - Marks

Each mark provides the forecasted position of the target - based on its own current speed and direction - every minute.



#### 4 - Thicker mark

The last mark - thicker than the others - shows the forecasted position of the target - based on its own current speed and direction - after six minutes.

#### 5 - Target shape

The target shape provides information on the target tracking status. The status can be:

- Target being tracked (still in process of acquisition)



- Target being tracked (steady, i.e., currently tracked ok)



- CPA/TCPA warning: target falls within the CPA/TCPA limits



- Target lost



**NOTE:** When the ARPA function is active, the own ship vector shows the six marks - like the target vectors - providing the forecasted position of the own ship every minute for the following six minutes.

### *ARPA target information*

To display the information concerning any ARPA target, move the cursor on the target icon and press **ENTER**.

A window containing the information on the target will show.

TARGET NAME	RNG NM	BRG	CPA NM	TCPA	COURSE	SPEED
ARPA-06	0.00	0°	-	-	0°	0.00
ARPA-08	0.00	0°	-	-	0°	0.00
ARPA-01	0.05	270°	-	-	210°	1999
ARPA-02	0.05	90°	0.05	-	221°	300
ARPA-00	0.08	24°	-	-	300°	4005
ARPA-07	0.09	190°	110.00	0h0'	151°	94
ARPA-04	0.10	80°	-	-	200°	1498
ARPA-09	0.10	0°	90.00	0h0'	160°	656
ARPA-10	0.10	100°	10.00	0h0'	130°	656
ARPA-11	0.10	0°	90.00	0h0'	160°	656

ENTER / ↕  
CHANGE PAGE

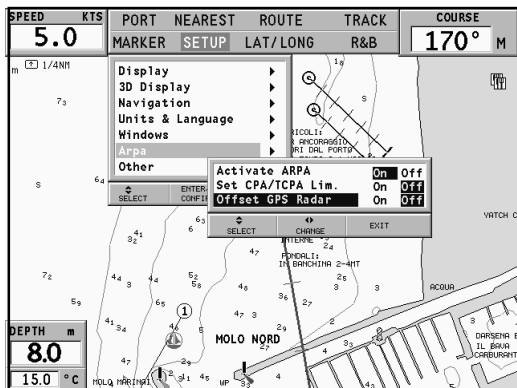
EXIT

**CPA/TCPA limits**

Press the GOTO key, select SETUP, then the SET CPA/TCPA LIM. option to set the CPA (Closest Point of Approach) and T CPA (Time to Closest Point of Approach) limits. As soon as the CPA or T CPA parameters of a target become lower than the selected limits, a warning message is issued.

**Radar offset**

Press the GOTO key, select SETUP, then the OFFSET GPS RADAR option to recall the menu that will allow setting the position of the radar antenna with respect to the GPS antenna, so as to improve the accuracy of target representation.





## QUICK TOUR

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

Make sure that the GPS receiver is connected, insert a Compact Flash™ cartridge and press the PWR key. At start-up, all the NAVIONICS charts stored into the Compact Flash™ will be automatically loaded.

A message will warn the user that electronic nautical charts do not replace official government charts.

Press the PWR key to turn the display backlight on and adjust the brightness by the joystick; press ENTER to continue (enabling the Geonav mode).

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.

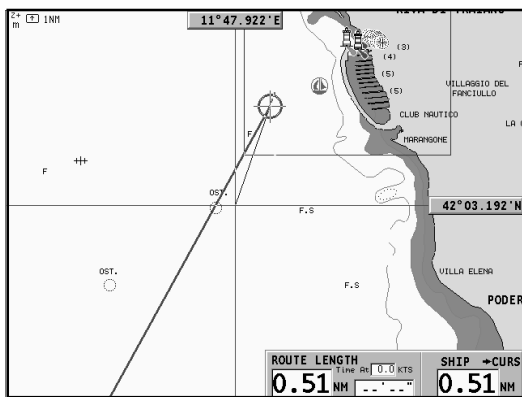
The default language is English. To change the language, press GOTO to display the menu, then select SETUP, LANGUAGE and the desired language by the joystick.

The line, or vector, starting from the boat indicates the boat's direction, to be ignored if the boat is stationary.

Windows will display the boat's speed, route, chart scale and local time.

The GEONAV is in Navigation mode; by the joystick, it is possible to switch to Cursor mode (editing mode). The cursor position is shown by two windows. The joystick allows moving in all directions.

To plot a route starting from the boat's position, move the cursor to the position desired and press ENTER to insert a waypoint, that will be indicated by a circle containing the number 1.



The windows will also show the time to reach the target waypoint, distance, bearing and estimated time to arrive.

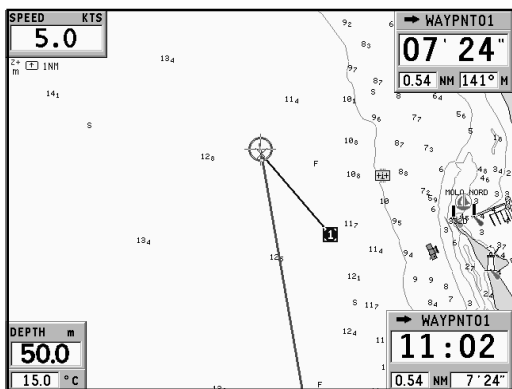
Press the EXIT key to go back to Navigation mode. To add more waypoints, enter the Cursor mode by using the joystick and repeat the operations described above.

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 EXIT.

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 functions as well. See the relevant sections for more details.

The NAVIONICS Platinum™ charts provide detailed information that can be displayed at any time.



By using the joystick, position the cursor on the chart item desired (symbol for light, buoy, depth area, etc.) and then press the joystick; the relative information of the object will be shown.

Use the joystick to scroll the information list, then press EXIT to exit and select another item. Press EXIT again to go back to Navigation mode.

## OPERATING MODES

When switching on the GEONAV, the user can select one of the two main operating modes available.

Press the PWR key and wait for the message on official nautical charts to show (if required, select one chart among those contained in the cartridge), then press GOTO to enable the ECS mode, or ENTER to enable the standard GEONAV mode.

It is also possible to press ZOOM+ to enter the demo mode, in which the unit automatically shows, in sequence, different views relative to the chart currently loaded.

### ECS mode

This mode allows displaying the chart data according to the RTCM standard. During navigation, only the ship's position, the heading vector and a set of chart items - defined by the applicable regulations (and known as standard display) - are displayed at full screen.

Markers are not displayed and navigation data are made accessible only by quitting the standard display. By enabling the manual cursor by the joystick, the markers will show again.

### Geonav mode

This is the unit standard mode. During navigation, the windows showing position and route (if present) data, as well as the waypoints and markers, are enabled.

It is not possible to disable the marker display, whose relevant option does not appear in the Setup menu.

In Geonav mode, the unit displays different types of data, according to the operating mode enabled (Cursor mode or Navigation mode). The following paragraphs will describe the differences between the modes available.

## CURSOR MODE

To plan a new route, or to append waypoints to the existing route, move the cursor by using the joystick and press ENTER. The GEONAV will display the following data:

- Route overall length
- Time to the end of the route (estimated on the speed value manually entered in the ROUTE menu; see the *Route Section*)
- Distance from the last waypoint to the cursor
- Chart scale

To edit the existing route, move the cursor by using the joystick. The GEONAV will display the following data:

- Distance from the boat's position to the cursor
- Time to arrive to the cursor
- Bearing from the boat's position to the cursor
- Chart scale

Now it will be possible to move the cursor on a route item to edit it, or press ENTER to lengthen the route by appending new waypoints.

## NAVIGATION MODE

By pressing the EXIT key repeatedly, it will be possible to access the several windows available, provided that they have been previously enabled by the appropriate option of the Setup menu.

When the fix is valid, the window sequence will be the following:

**SAILING > NAVIGATION > DEPTH SOUNDER > 2D/2D SPLIT > 2D/3D SPLIT > TRIP > SATELLITE > GENERAL INFO > TIDE INFO > RUNWAY**

If data is received from the wind instrument, an arrow on the ship's position will indicate the true wind direction and, if a route is present, the Sailing windows will be displayed.

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

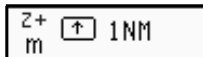
## CHART ONLY MODE

To hide the Navigation windows and display a full screen chart, press GOTO and EXIT at the same time. Press any key to show the windows again.

In Chart only mode, chart details and display parameters will be automatically set as required by the RTCM display standard.

## RANGE WINDOW

This window, always present, shows the following information:

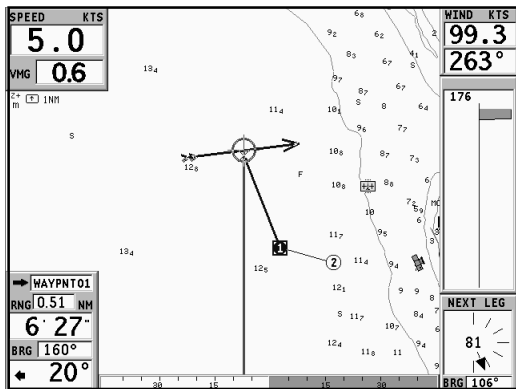


- Zoom status (top left corner):
  - Z+ means the chart can be further enlarged by pressing ZOOM+;
  - no indication means the chart is shown at the best possible level;
  - OVZ means the chart is shown in Overzoom mode, i.e., it is overzoomed without adding any further graphic detail.
- Chart range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

## SAILING WINDOWS

These windows are enabled automatically as soon as the GPS receiver has obtained a valid fix (FIX OK), data is received from the wind instruments, a route is present and provided that they have been enabled via the Setup menu.



They display the following information:

- Boat's speed
- Chart scale
- Target waypoint
- Distance to the target waypoint
- Bearing to the target waypoint
- Angle to steer
- Sea depth (if available)



- Water temperature (if available)
- True wind speed
- True wind direction (magnetic)

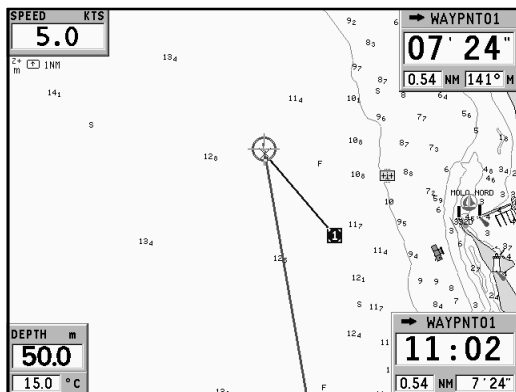
If more waypoints are present, besides the target waypoint, a window will show the apparent wind data on the next leg. The apparent wind speed is indicated by the digits in the center of the window. The wind direction is represented graphically by an arrow.

If a close hauled or a run is planned on the next leg, the arrow will indicate the direction of apparent wind on the first beat of the next leg, whilst the direction of apparent wind on the waypoint will be represented by a single line. The bearing to the following waypoint is also shown.



If a route has been entered, the Navigation window will show the following data:

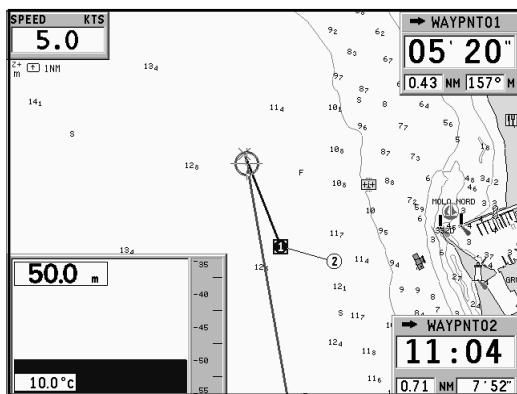
- Boat's speed
- Chart scale
- Target waypoint
- Distance to the target waypoint
- Time to arrive to the target waypoint
- Estimated time to the route end
- Sea depth (if available)
- Water temperature (if available)



**NOTE:** To display sea depth and temperature values, the GEONAV must be interfaced with a depth sounder.

## DEPTH SOUNDER WINDOW

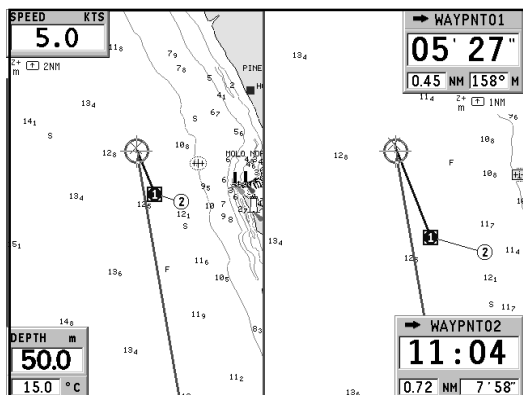
This window, displayed if the GEONAV is interfaced with a depth sounder, replaces the number indicating the sea depth in the Motor Boating windows with a graph showing the sea bed. If received, the graph shows the water temperature as well.



When navigating in waters deeper than sounder operating range or if the boat's speed is too high for depth sounding, data acquisition will be interrupted and the number replaced by "—".

## 2D/2D SPLIT WINDOWS

The 2D/2D split windows allow displaying, at the same time, two different areas on the chart. For instance you can see your ship's position at two different zoom levels in the two windows. Or, while you insert a route in one window, you can keep under control your ship's position in the other one. To activate the 2D/2D split windows press GOTO to display the menu, select SETUP, 2D/2D SPLIT WINDOWS and edit the option as desired.



After enabling this option, the two windows can be shown by pressing repeatedly the EXIT key. The two windows, the left one and the right one, can be operated independently. The usual operations (zoom, pan, waypoint and marker insertion, etc.) are available in the active window, i.e. the one marked by a surrounding frame.

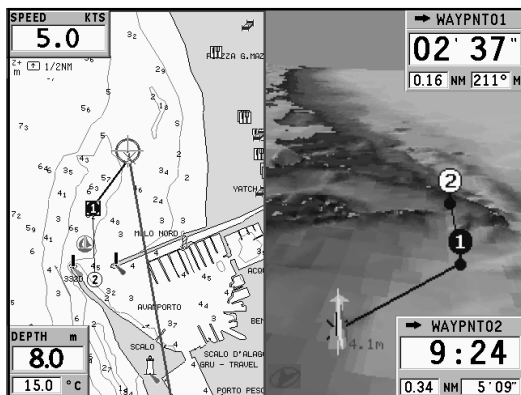
To change the active window from left to right or vice versa, hold EXIT pressed for a short time. Note that if a window is in Cursor mode, because the cursor has been moved, pressing EXIT returns in Navigation mode, without changing the active window. Press EXIT again to change the active window.

To exit from the 2D/2D split windows, hold the EXIT key pressed for a few seconds.

## 2D/3D SPLIT WINDOWS

**NOTE:** This function is available only with the NAVIONICS Platinum™ cartridges.

The 2D/3D split windows allow displaying, at the same time, standard cartography (2D) and three-dimensional cartography (3D); this requires a Navionics Platinum™ chart.



To activate the 2D/3D split windows press GOTO to display the menu, select SETUP, 2D/3D SPLIT WINDOWS and edit the option as desired.

After enabling this option, the two windows can be shown by pressing repeatedly the EXIT key. The two windows, the left one and the right one, can be operated independently.

When the 2D window is active, i.e. marked by a surrounding frame, the usual plotter operations (zoom, pan, waypoint and marker insertion, etc.) are available.

To change the active window from 2D to 3D or vice versa, hold EXIT pressed for a short time. When the 3D window is active, use the joystick to displace the view point, the ZOOM key to enlarge or reduce the image and the knob to rotate the view.

The knob allows also to raise the view point and to change its angle. Press the knob to switch from one function to another. After changing the point of view, using either the joystick or the knob, it is possible to restore the original point of view by pressing EXIT.

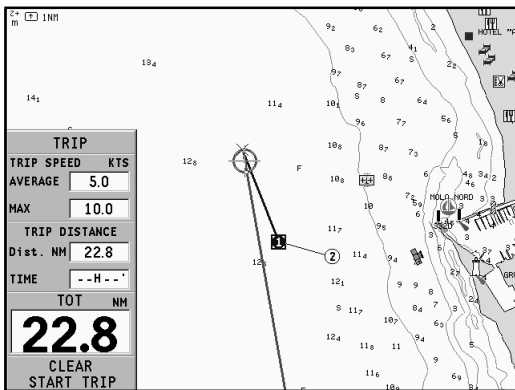
To exit from the 2D/3D split windows, press EXIT and hold it pressed for a few seconds.



## TRIP WINDOW

The Trip window shows general data relating to the route followed:

- Average speed from departure
- Maximum speed from departure
- Time elapsed from departure
- Partial distance covered from departure
- Overall distance covered

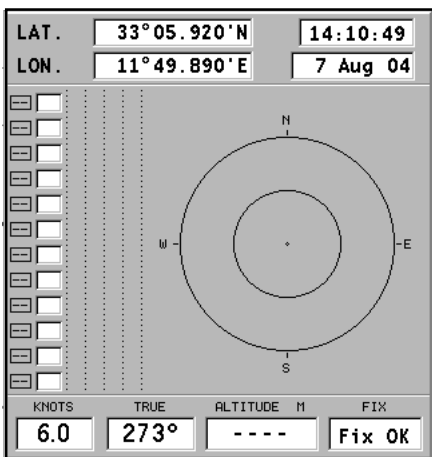


To reset all counters (except for the overall distance) before starting a new journey, press the CLR key.

## 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. As soon as a satellite is tracked by the GPS receiver, the number inside the square is displayed in reverse.

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 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 position 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 EXIT key repeatedly until it appears.

## GENERAL 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 (SETUP, CALIBRATION)
- Magnetic variation value received by the GPS
- Course (COG)
- Speed (SOG)

SHIP POSITION		
LATITUDE		
33° 05.908' N*		
LONGITUDE		
11° 49.887' E*		
CALIBRATION		
dLAT	dLON	
0° 00.012' S	0° 00.003' W	
COG	SOG	KTS
303° <sub>T</sub>	6.0	
MAG. VAR.	- . --	

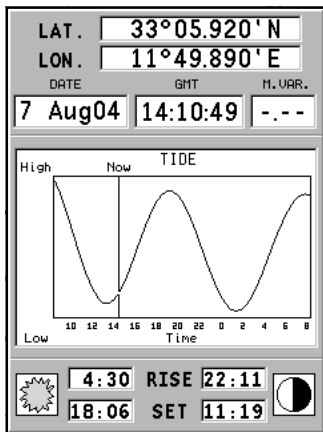
**NOTE:** This window is available in Navigation mode only.

## 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

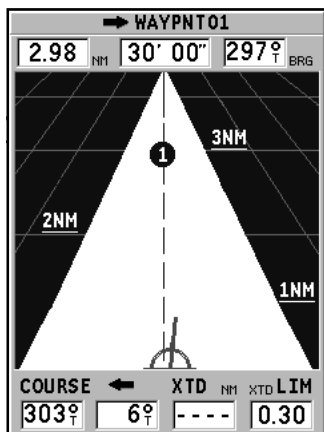


**WARNING:** Unlike the graph displayed at a T&C station position (accessible through the GOTO function, or by positioning the cursor on the Tides and Currents station symbol) that is accurate since it is supplied by hydrographic offices, this graph shows estimated data, being the result of interpolation 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)
- XTD limit (runway width)



The graph shows the boat's position with respect to the route. When the XTD reaches the extreme value shown in the lower right-hand corner of the window, the boat symbol will reach the runway right or left side.

To change the XTD limit, see the *Setup* Section.

**NOTE:** This window is available in Navigation mode only.

## MAIN MENU

The main menu bar, that appears when pressing the GOTO key, allows accessing the following options:

**ROUTE:** To display route information, reverse and delete the route, set the consumption data and save or read data from the cartridge.

**TRACK:** To enable/disable the track function, delete a track, choose the track color, show the used percentage of track memory and save or read data from the cartridge.

**MARKER:** To delete markers, choose the marker color, show the number of markers used and available, and save or read marker data from the cartridge.

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

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

**SETUP:** To enable/disable and change the plotter's setup.

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

**GOTO RANGE/BEARING:** To plan a route to a position whose range and bearing values are known.

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

## ROUTE

### EDITING A ROUTE (CURSOR MODE)

#### Creating a waypoint

Using the joystick, move the cursor on the position desired 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 99 waypoints per route can be entered, also by using the GOTO functions available from the main menu.

#### 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 joystick to position the cursor on the waypoint to delete and press the CLR key.

#### 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 and its length. Move the manual cursor to the position desired, insert the new waypoint and confirm by pressing ENTER.



### EDITING A ROUTE (NAVIGATION MODE)

If the manual cursor is displayed, press the EXIT key to enter Navigation mode.

#### Changing the target waypoint

Use the “Route to a waypoint” function (see the *Functions in the Route Menu* Section).

**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 on several adjacent pages containing general route information and the geographical coordinates of all waypoints. Press GOTO to display the main menu, then select ROUTE, CURRENT and GOTO WP. A window will show the following information:

**WP NAME :** Waypoint name

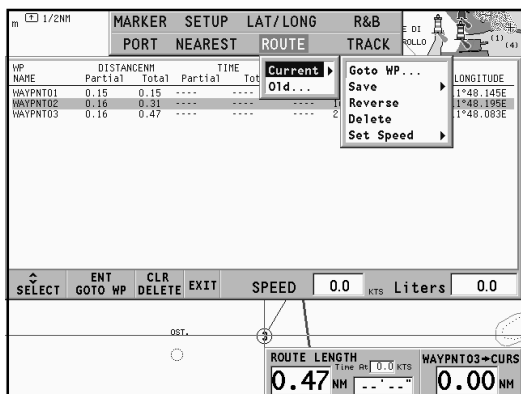
**DISTANCE:** Distance from START to current waypoint

**TIME:** Estimated time from START to current waypoint

**FUEL LITERS:** Estimated fuel consumption (liters or gallons)

**BRG:** Bearing from previous waypoint to current waypoint

**POSITION:** Waypoint latitude / longitude



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).

To move within the page and scroll the adjacent pages, use the joystick. To go back to the menu, use the joystick; to exit, press the EXIT key.

#### 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. Use the joystick 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. To change the default name, use the joystick. To confirm the operation, press ENTER.

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 joystick and then press ENTER to confirm, or EXIT 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 and 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, select ROUTE, CURRENT and then 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 joystick. Press ENTER and select the target waypoint by the joystick. Press ENTER to confirm the selection, or EXIT to exit.

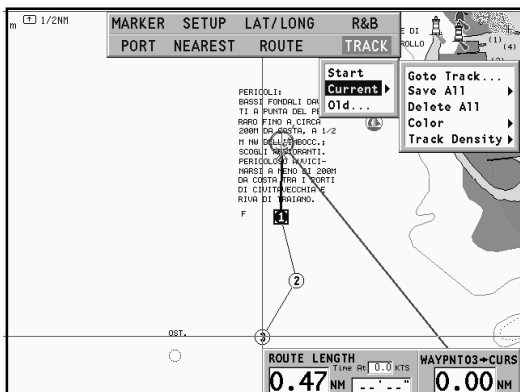
As the GEONAV plots a new route, the waypoint selected becomes the first waypoint in the route, whereas previous waypoints are deleted.

## TRACK

The Track function allows recording the track actually followed by the boat. The Track function can be enabled and disabled several times during navigation; in this case, separate track segments will be drawn.

### Starting a track

To enable the Track function, press the GOTO key to display the main menu, select TRACK, START and press ENTER to confirm. A small circle on the boat's position will indicate the track starting point.



### Stopping a track

To disable the Track function, press the GOTO key to display the main menu, select TRACK, STOP and press ENTER to confirm.

### Storing a track in the CompactFlash™

Press the GOTO key to display the main menu, select TRACK,

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CURRENT, SAVE ALL and press ENTER to confirm. To change the default file name, use the joystick. To confirm the operation, press ENTER.

A message will confirm that the track has been stored correctly. 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 main menu, select TRACK, OLD and press ENTER to open the track catalog.

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

#### Deleting a track

To delete the track displayed, press the GOTO key to show the main menu, select TRACK, CURRENT, DELETE ALL 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.

#### Setting the track color

The track color can be selected from the menu; press the GOTO key to display the main menu, select TRACK, CURRENT, COLOR, choose a color by the joystick and confirm the selection by pressing ENTER. The selected color will be stored together with the track.

**NOTE:** The track color cannot be changed while the recording is active.

### Displaying and changing track segment data

Position the manual cursor on a point in the track segment. A window will show the navigation data recorded in that position.

- Recording date
- Recording time
- Sea depth
- Water temperature
- True wind direction
- True wind speed

Wind and depth values are displayed only if available.

By positioning the manual cursor on the starting point of a track segment, a menu will allow changing the segment name, displaying average/maximum speed data, trip length/time, deleting the single segment as well as changing the single segment color.

When the menu pops up, press ENTER to access the options, then use the joystick to select the desired option and press ENTER to confirm.

### Route to a track segment

Press the GOTO key and select TRACK, CURRENT, GOTO TRACK by the joystick. A window will show, for each track segment, the line color, the name, the recording start date and time as well as the recording duration and length.

The list can be sorted by using the joystick to select the sort field and ENTER to confirm. Use the joystick to select the target segment (the latest 8 segments used will be highlighted) from the catalog and then press ENTER to confirm.

The GEONAV will position the manual cursor at the beginning of the track segment selected; insert a waypoint by pressing ENTER, or a marker by holding ENTER pressed.

#### **Setting the track density**

Press the GOTO key and select TRACK, CURRENT, TRACK DENSITY by the joystick. A window will allow setting the trackpoint saving density by time interval, distance or automatically.

#### **Automatic track**

When no track has been manually enabled by the user, the Automatic track function will allow keeping the record of the route anyway.

The automatic track is active provided that no track has been previously set by the user and is displayed in a different color so as to distinguish it from the user's track.

To save the automatic track, press GOTO, select TRACK, CURRENT and SAVE ALL. To change the default file name, use the joystick.

**NOTE:** The symbol identifying the track starting point will not be shown in case of automatic track.

## MARKERS

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

When a marker is entered, the plotter records also date, time and sea depth and temperature (if available). This data is stored together with the marker name, symbol and color and can be displayed in the window shown by the GOTO MARKER menu.

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

### CURSOR MODE

#### Inserting a marker

Move the cursor to the position desired and hold the ENTER key pressed. A window will display the symbol and a name automatically assigned to the marker.



Use the joystick and the -ZOOM+ key to change the marker symbol (8 symbols available), name (max. 8 characters) and color 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 the GOTO functions.

#### Changing a marker name/symbol/color

Position the cursor on the marker desired and press ENTER; a window will display the symbol, the name and the color previously assigned to the marker selected. Use the joystick and the -ZOOM+ key to change the marker name, symbol and color. Press ENTER to confirm the operation.

#### Deleting a marker

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



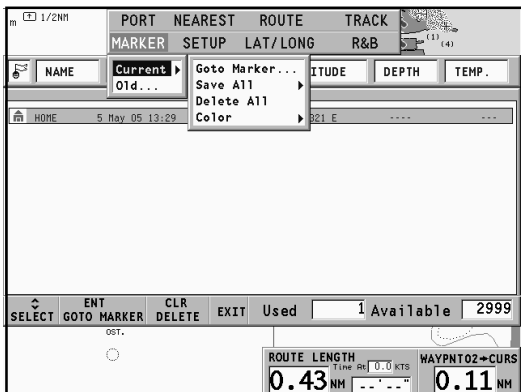
## NAVIGATION MODE

### Inserting a marker

Hold the ENTER key pressed 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, name and color according to the type of marker to store (e.g., fishing spots, submerged wrecks, rocks, etc.), use the joystick and the -ZOOM+ key. Press ENTER to confirm the insertion.

### Route to a marker

Press the GOTO key and select MARKER, CURRENT, GOTO MARKER by the joystick. 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. The list can be sorted by using the joystick to select the sort field and ENTER to confirm.

By using the joystick, choose the desired marker (the latest 8 markers used will be highlighted) from the catalog displayed, then press ENTER to confirm.

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 EXIT 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. Use the joystick to change the default name and press ENTER to confirm the operation.

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.

Select the marker set desired by using the joystick, then press ENTER to confirm the operation, or EXIT 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.

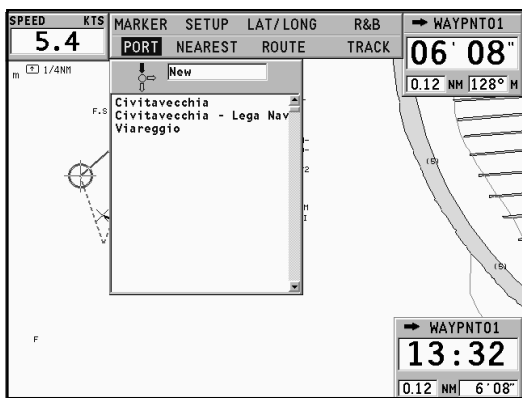
To delete a set of markers stored in the CompactFlash™, press the GOTO key to show the menu, then select MARKER and OLD.

By using the joystick, 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 the joystick.

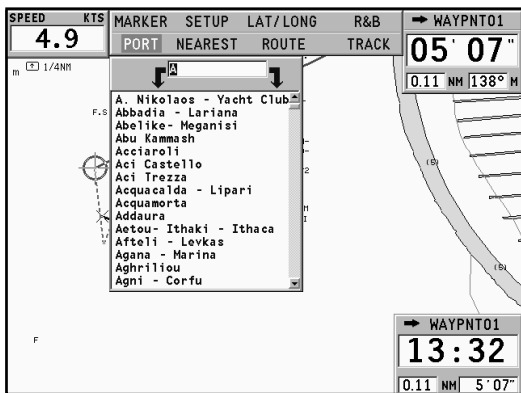
The list will display the latest ten ports previously selected. Choose the desired port by the joystick, or select New to display the whole list of the ports stored in the cartridge.



By moving the joystick in the four directions, form the port name, or part of it; when the desired port is shown, highlight it by the joystick 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).

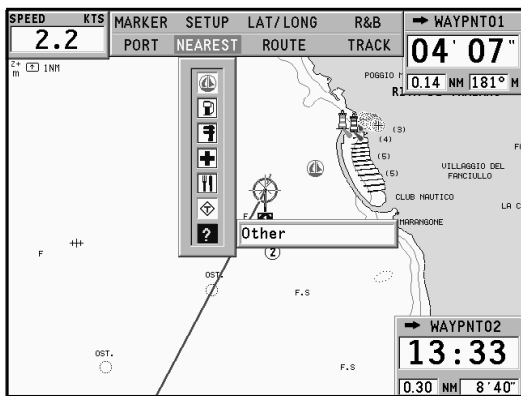
Press the EXIT key to go back to Navigation mode and enable automatically the Autozoom function.



## 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 **NEAREST** by the joystick, choose the desired service and press **ENTER** to confirm, or **EXIT** 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 the joystick; a window will show the distance and time to arrive (estimated on the boat's current speed). Press **ENTER** to confirm the selection.

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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 the Nearest 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.

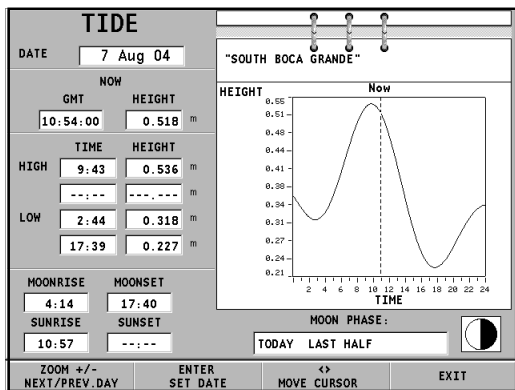
This function allows displaying, within the space of twenty-four hours with respect to the selected date, the tide level and tidal current speed and direction at a survey station in the vicinity. Unlike the estimated data shown in the Info window, this forecast is much more accurate, being supplied directly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

Press the GOTO key, select NEAREST by the joystick, 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 joystick to choose the station desired, then 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

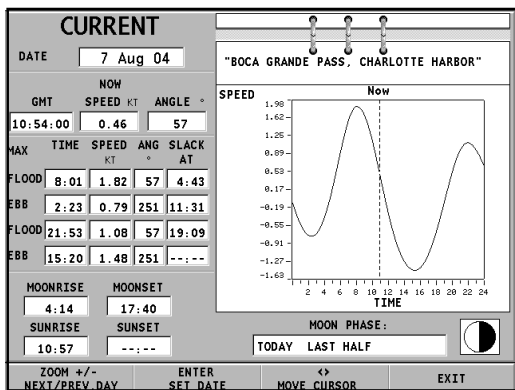
- Dawn and sunset time
- Moonrise and moonset time
- Moon phase
- Tide level graph (24 hours)



#### 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** or **-ZOOM+**.

**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.

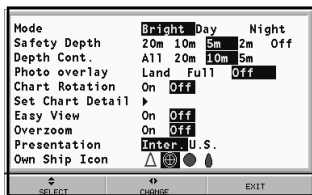
## SETUP

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 joystick.

The menu items are grouped in seven sets. When selecting a set by the joystick, the list of the available options will be displayed. Press ENTER to select one set, then use the joystick to switch from one option to another and edit the setting. To go back to the set list, press EXIT.

## DISPLAY

- **Mode (BRIGHT/DAY/NIGHT)**  
Selects the colors suitable for the environment.
- **Safety Depth (OFF/2m/5m/10m/20m)**  
Enables the display of the areas corresponding to the depth safety contour.
- **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 (ON/OFF)**  
By selecting ON, the chart details to display (STD/USR/ALL) can be chosen. 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), or, by choosing USER, enable/disable the display of the single items.



- Easy View (ON/OFF)  
Enables/disables the Chart Magnification function.
- Overzoom (ON/OFF)  
Enables/disables 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

- Photo (ON/OFF)  
Selects the type of texture for the 3D display, to choose from satellite photograph and simple texture.



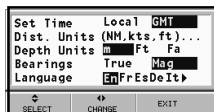
### NAVIGATION

- Route Plan (GREAT C./RHUMB L.)  
Selects the Route Planning mode between Great Circle or Rhumb line.
- XTD Alarm (ON/OFF)  
Sets the maximum deviation allowed from the route set.
- Calibration (ON/OFF)  
Calibrates the ship's position received by the GPS.
- Anchor Alarm (OFF/15m/30m/50m)  
Enables/disables the alarm and sets the distance range for the anchor alarm.



### UNITS AND LANGUAGE

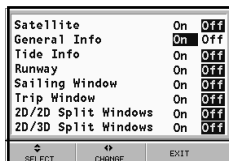
- Set Time (LOCAL/GMT)  
Enters local time.
- Distance Units (NAUT/METR/STAT)  
Selects distance units.



- **Depth Units (M/FT/FA)**  
Selects depth units.
- **Bearings (TRUE/MAG)**  
Sets the magnetic mode for all bearings.
- **Language (EN/FR/ES/DE/DK/IT/SV/NL/SU/NO/GR)**  
Selects the language.

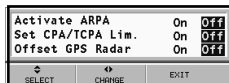
## WINDOWS

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



## ARPA

- **Activate ARPA (ON/OFF)**  
Enables/disables the display of ARPA targets.
- **Set CPA/TCPA Limits (ON/OFF)**  
Sets the limits for CPA (*Closest Point of Approach*) and TCPA (*Time to Closest Point of Approach*) alarms.
- **Offset GPS Radar (ON/OFF)**  
Sets the offset between the GPS unit and the radar antenna.



## OTHER

- **Chart Info**  
By selecting ON, a window will show the catalog of the charts stored in the cartridge.  
Select one chart by the joystick and press ENTER to display the information associated, or EXIT to exit.
- **Welcome Message (ON/OFF)**  
Enables/disables the display of a message in the welcome page, appearing as the instrument is turned on.  
By selecting ON, a window will allow writing or editing the message.



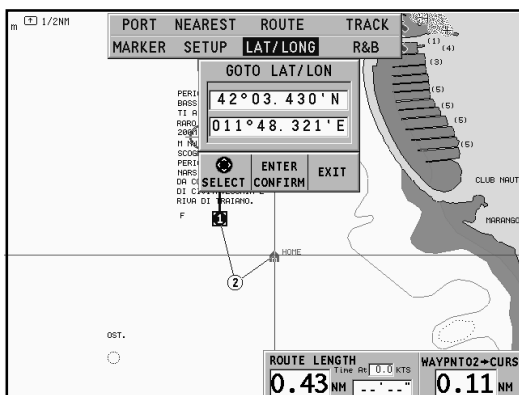
CHART INFO			
CODE	EDI.DATE	CHART NAME	CUR.DATE DATUM
5G239T12	20/ 1/05	LAGHI ITALIANI	17/07/00 WGS84
5G271T12	29/12/04	ADRIATIC SEA	16/06/04 WGS84
5G273T12	29/12/04	TYRRENIAN SEA	04/05/04 WGS84
5R272T12	29/12/04	CEN. MEDITERRANEAN	28/06/03 WGS84

↕ SELECT	ZOOM +/- CHANGE PAGE	ENTER INFO	EXIT
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## GOTO LAT/LON

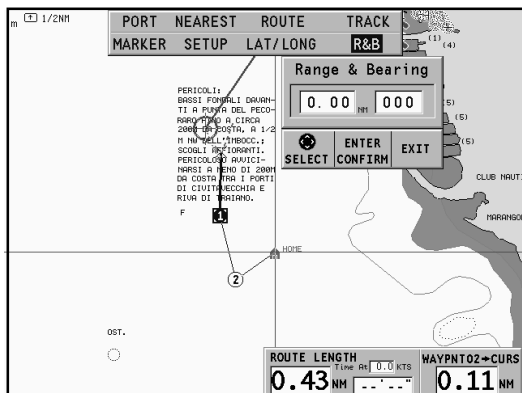
Press the GOTO key and select LAT/LONG by the joystick. Enter the geographical coordinates desired and confirm. The GEONAV will move the manual cursor to the position selected; insert a waypoint by pressing ENTER, or a marker by pressing ENTER longer.



## GOTO RANGE/BEARING

Press the GOTO key and select R&B by the joystick. Enter the range and bearing values relative to the position desired and confirm.

The GEONAV will move the manual cursor to the position selected; insert a waypoint by pressing ENTER, or a marker by holding ENTER pressed.



## MOB FUNCTION

If one member of the crew should accidentally fall overboard, the MOB (Man Overboard) function allows plotting the position where the fall occurred, providing useful pieces of information for the rescue.

To enable the MOB function, hold the GOTO key pressed longer. The GEONAV will place a special marker on the current position and show a window with the following data:

- Geographical coordinates of the man overboard position
- Time elapsed from the fall
- Distance and bearing of the man overboard with respect to the boat's subsequent positions

If the unit is connected to an autopilot, the transmission of commands to the autopilot is stopped.

All the unit's functions are disabled as long as the MOB function is active. It will be only possible to zoom in / out the chart.

To disable the MOB function and go back to the standard functions, press EXIT.



## ETHERNET CONNECTION

The GEONAV features *Ethernet Connection*, a system for the network connection (Ethernet) of several plotters. This system makes it possible to transfer the changes to a route - including temporary changes made through the Easy Pilot function - from one plotter to another.

Another innovative feature is the sharing of the electronic chart among several instruments, without having to purchase more than one original chart to be used on one GEONAV; all the other instruments connected to the network can use copies of the original chart (see *Chart sharing*).

**NOTE:** No GPS receiver suitable for network connection to the *Ethernet Connection* has been put on sale yet. Therefore, it is necessary to connect each plotter to a GPS receiver by the NMEA0183 standard port. In any case, a single GPS receiver can be connected to several plotters. The autopilot, however, must be connected to only one of the plotters on the network, still using the NMEA0183 standard port.

### Connecting the instruments

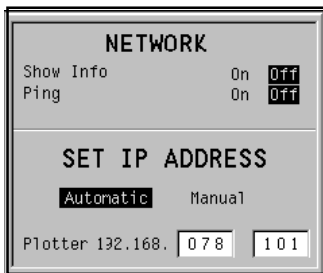
The installation of the *Ethernet Connection* system, to be carried out only by skilled personnel, requires the use of standard Ethernet cables and connectors (UTP cat. 5 cables and RJ-45 connectors). To connect to the network more than two instruments, use one cable (Code no. N1016140) for each plotter and connect one another by a network hub available on the market. To execute a link between two instruments only, use the Ethernet kit (Code no. P201086) including two network cables, two adapters and one crossover 10 meters long.

Once the network has been appropriately implemented and set as described in the following paragraph, the *Ethernet Connection* system will be automatically detected at start-up and the instruments made ready for data transfer.

### Setting the network

To ensure a correct network communication, the plotters have

to be assigned network addresses different from those assigned to any external device (PC, printer, server, etc.) connected to the same network.



The setting of network parameters is automatic. To solve possible conflicts that cannot be handled automatically, this operation can also be carried out manually. Press GOTO to display the main menu, select SETUP, OTHER and then press the GOTO and ENTER keys simultaneously.

#### Transferring the route

The operations that allow editing an active route - and that are therefore transferable to all the instruments on the network - are the following:

- Route editing (insertion, deletion and displacement of a waypoint; recall and deletion of a route)
- Insertion of a waypoint and selection of the target waypoint by the GOTO function
- Temporary editing of the route by the Easy Pilot function (EBL knob)

As one of the above operations has been carried out from any instrument connected to the network, switch from Cursor mode to Navigation mode by pressing the EXIT key.

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The route edited will be transferred to all the instruments connected to the network, thus overwriting the local route data (if any). To cancel the route transfer operation, press CLR.

**NOTE:** After canceling the transfer of the edited route, it is still possible to save the changes to the cartridge inside the instrument; press **ENTER** to confirm the saving or **CLR** to cancel. In both cases, as the operation has been completed, the instrument restores the original active route. The route saved to the local cartridge can be recalled later and then transferred to the network.

### Chart sharing

Usually the plotter can read the electronic chart exclusively from the CompactFlash™ cartridge to which it was saved at the moment of purchase. Now, thanks to the Chart Sharing function, that allows copying the electronic chart to as many CompactFlash™ cartridges as the instruments connected to the network, all the plotters will be able to read them: it is required just to insert the original CompactFlash™ cartridge into any instrument.

To make a copy of the charts, a PC equipped with a CompactFlash™ reader is required. Access the original cartridge by the MS-Windows File Manager, copy the \NAVIONIC\CHARTS folder to a temporary location in the hard disk, then insert a new CompactFlash™ into the reader and copy the content of the \NAVIONIC\CHARTS folder from the hard disk to the \NAVIONIC\CHARTS folder in the CompactFlash™. If necessary, create the \NAVIONIC\CHARTS folder in the new CompactFlash™ by the File Manager.

Be careful not to delete the chart files already present in the target CompactFlash™ (if any). Repeat the operation for as many CompactFlash™ cartridges as necessary to fit all the plotters on the network.

**NOTE:** The Chart Sharing function is active provided that the instrument with the original CompactFlash™ is connected to the network and turned on.

## 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.

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

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