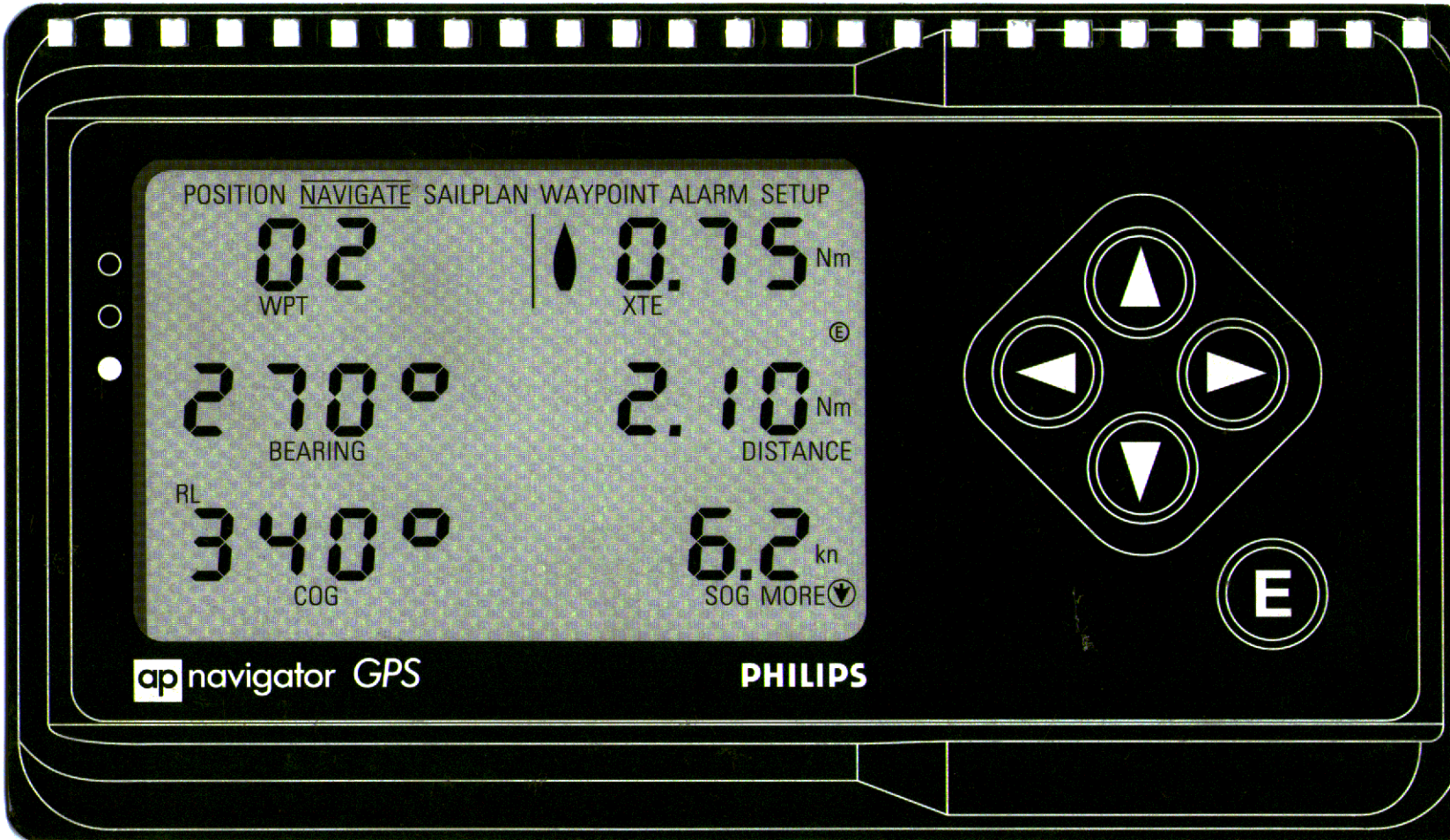
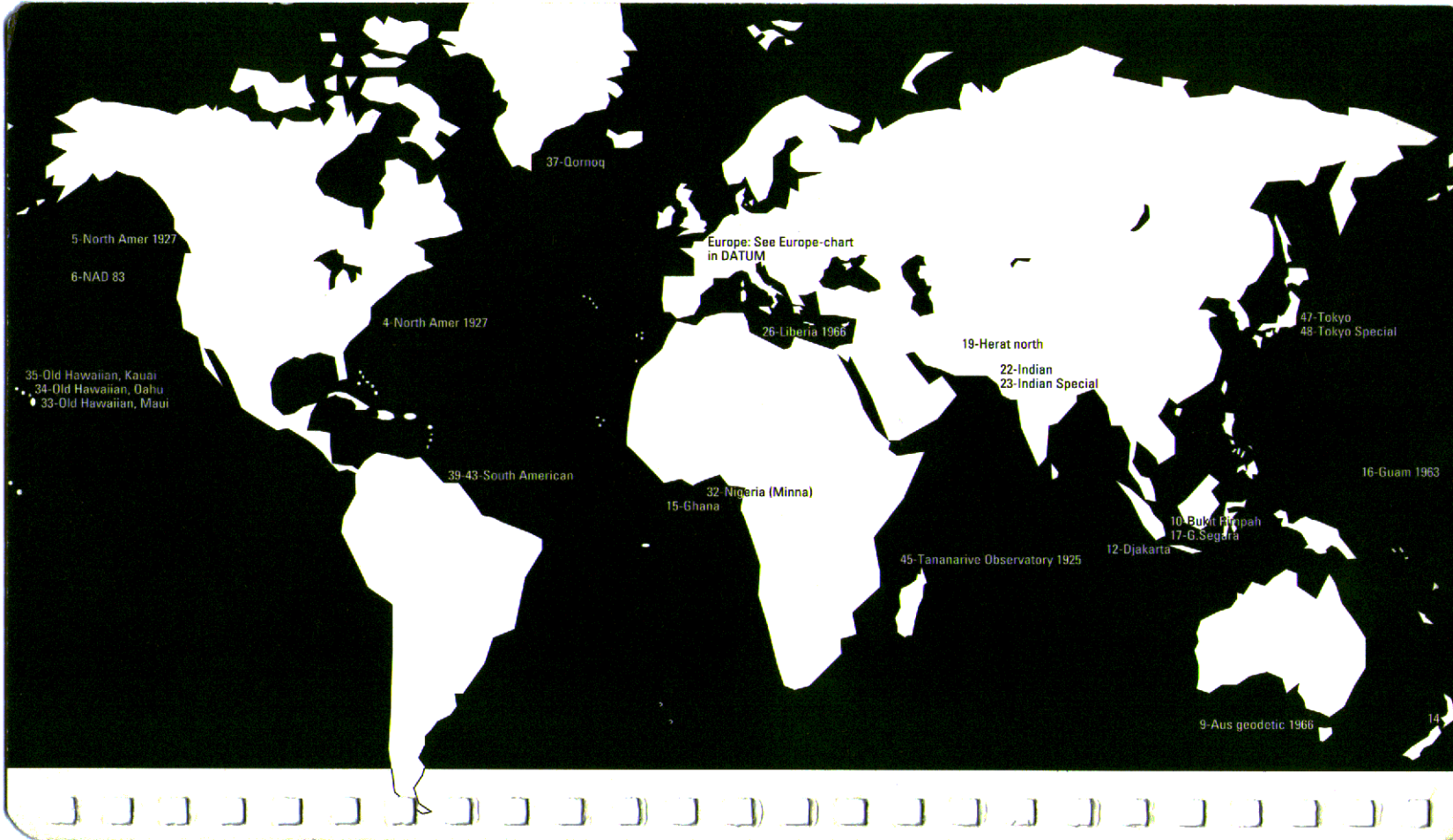

POSITION NAVIGATE SAILPLAN WAYPOINT ALARM SETUP
02
WPT
0.75
Nm
XTE
270°
BEARING
2.10
Nm
DISTANCE
RL
340°
COG
6.2
kn
SOG MORE
E
ap navigator GPS
PHILIPS


37-Qornoq
5-North Amer 1927
6-NAD 83
Europe: See Europe-chart in DATUM
4-North Amer 1927
26-Liberia 1966
19-Herat north
47-Tokyo
48-Tokyo Special
22-Indian
23-Indian Special
35-Old Hawaiian, Kauai
34-Old Hawaiian, Oahu
33-Old Hawaiian, Maui
39-43-South American
32-Nigeria (Minna)
15-Ghana
16-Guam 1963
10-Bukit Rimpah
17-G.Segara
12-Djakarta
45-Tananarive Observatory 1925
9-Aus geodetic 1966
14

PREFACE

The Philips navigator MK8 operates on signals from the satellite based Global Positioning System – GPS.

The MK8 is a navigational aid that determines your position, course and speed over ground and provides steering information to a pre-selected point (waypoint navigation).

Further, a number of audible and visual alarms are provided.

The MK8 is simple, precise and easy to operate.

It can be installed in the cockpit or on the flybridge and has a large and self explanatory display.

Only 5 keys are needed to control all functions.

GPS NAVIGATION

Please note
The prudent mariner will never rely solely on any single navigational aid. He will always use whatever information is available.

The Global Positioning System (GPS) is developed and operated by the United States Department of Defense (DOD).

Only part of the system is available for civil applications. The expected position accuracy is better than 100 meters for 95 per cent of the time; but may be up to 300 meters occasionally.
The derived speed and course readings may be hampered accordingly.

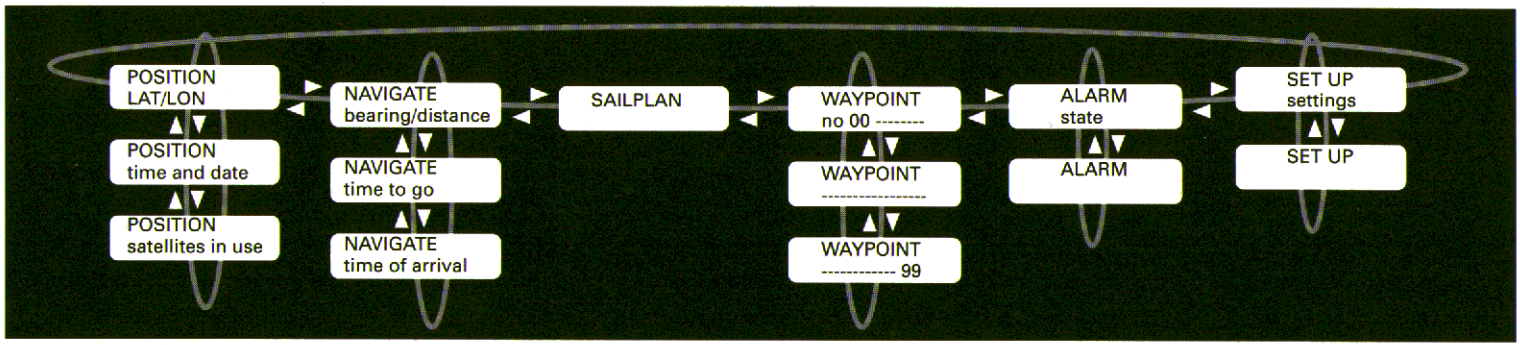
The Global Positioning System is still (January 1993) in an experimental phase.

That implies that the availability and precision can be changed at any time and to any extent.

GPS is expected to be declared operational by the end of 1993.
After that date the availability and precision will be kept within the stated limits as far as the military and political situation allows.

3/93; 12NC: 3508 101 88000 GB

FUNCTIONS



The functions of the navigator

POSITION: Present position in latitude and longitude.
NAVIGATE: Gives steering information
SAILPLAN: The stored waypoints can be arranged in any desired order.
WAYPOINT: Up to 100 waypoints can be stored by their position in terms of latitude and longitude.
ALARM: The navigator has 8 alarm functions, on which some of the limits can be set.
SETUP: Gives access to a variety of customizing facilities.

Try it
Scroll through the functions by pressing the arrow keys.

When shown between two bars, a function has been selected, e.g. POSITION
The display text MORE ⊛ indicates that more information is available by scrolling down.

START-UP

Switch on the navigator.

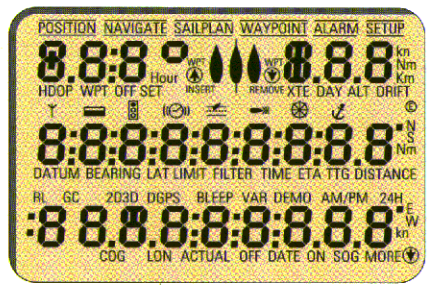
Traffic light
The traffic light will flash red.
When the first satellite has been tracked the red light will stop flashing.
The traffic light will show green, when the position has been calculated.

A start-up screen will be displayed. Thereafter, the **POSITION** display will appear.
The navigator will find your position and will be operational within 1 minute.

The navigator automatically changes to **POSITION** or **NAVIGATE** when no enterings have been made for 1 minute.
If a sailplan has been entered, the navigator will change to **NAVIGATE**.

VERY FIRST START

It may take approximately 15 minutes to display a position. Use this time to get familiar with the manual.



A start-up screen.

The start-up screens are followed by a select datum display.
In order for the navigator to give correct information from the start, enter the datum now.

Select datum: The first digit starts flashing. Enter the datum number.

Entering datum
Refer to DATUM and follow the instruction.

When datum has been entered, the display changes to **POSITION**.

Please note!
It is always possible to change the datum in **SETUP**. The navigator will automatically correct the position in accordance with the new datum.

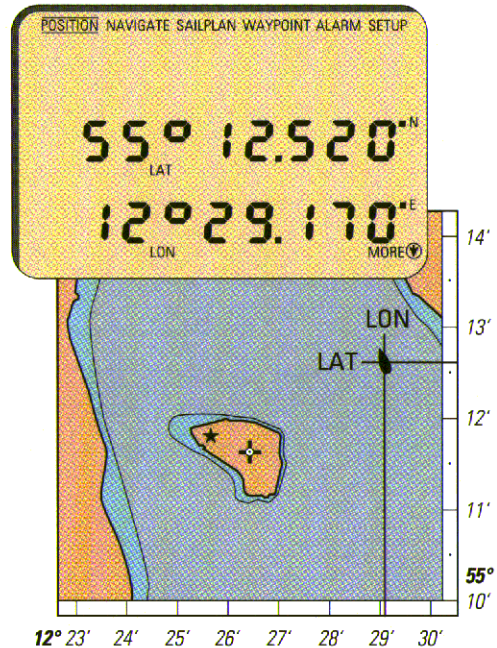
POSITION

In **POSITION,** the following is displayed:

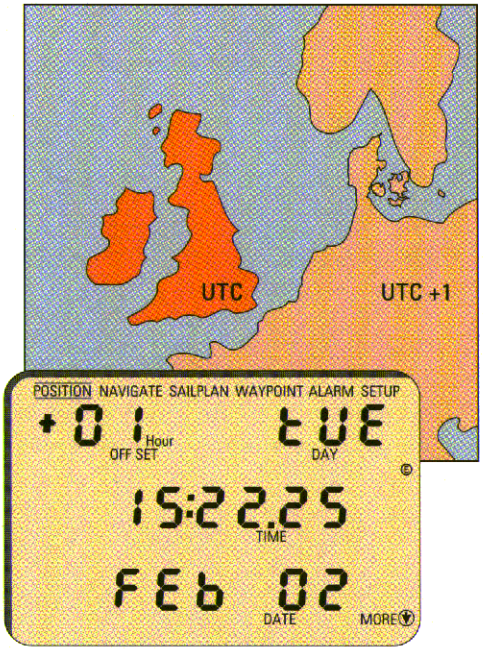
1 The present position of the ship in latitude and longitude.
2 Time, date and OFF SET= time zone.
3 Satellites in use and the number of visible satellites.

Press ▲ or ▼ to choose one of the displays mentioned above.

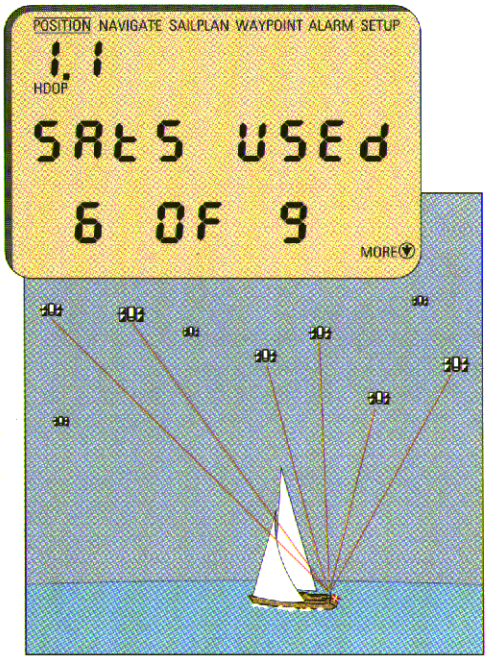
Entering off set
Off set is the correction to UTC to obtain local time.
Press Ⓔ
Press ▲ or ▼ to select + or -
Press ► to activate the next digit.
When a digit flashes, press ▲ or ▼ to count up or down.
Press ► to activate the next digit.
Press Ⓔ to finish entering.



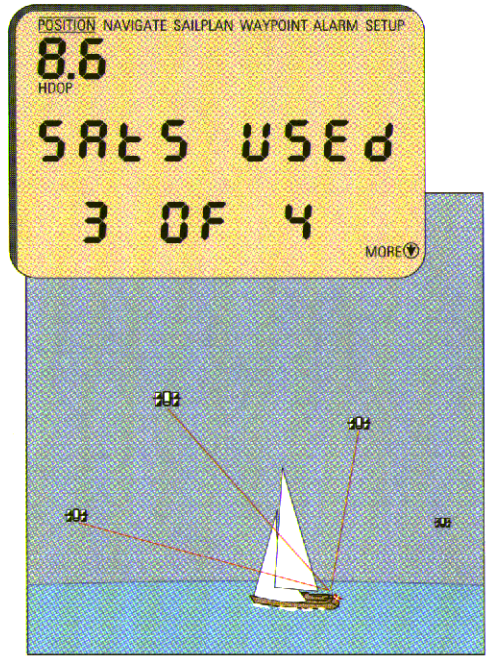
***1** The present position in latitude and longitude, measured in degrees, minutes and thousandths of minutes.*



***2** OFF SET = time zone can be entered. OFF SET is the correction to UTC to obtain local time.*



3 Satellites in use - 6 out of 9 visible. HDOP is OK. The navigator calculates the precise position. (Green light)



Satellites in use - 3 out of 4 visible. HDOP exceeds 6, the calculation of the position is less precise. (Yellow light)

Display texts
LAT = LATitude
LON = LONgitude
OFF SET = Time offset to UTC
DAY
TIME
DATE
Mon = Monday
tUE = Tuesday
WEd = Wednesday
thu = Thursday
Fri = Friday
SAt = Saturday
Sun = Sunday
SATS USEd = SATelliteS USEd
HDOP = Horizontal Dilution Of Precision. Scale of precision from 0-10.

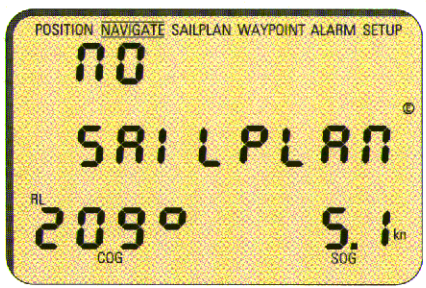
If HDOP is between 6 and 10, the traffic light indicator changes from green to yellow.
If HDOP is more than 10, the traffic light changes to red, indicating that the navigator has stopped updating the position.

NAVIGATE

In **NAVIGATE** you can:

With no sailplan
1 See course and speed over ground.
2 Enter a sailplan with one waypoint.

With sailplan
3 Get various steering information.



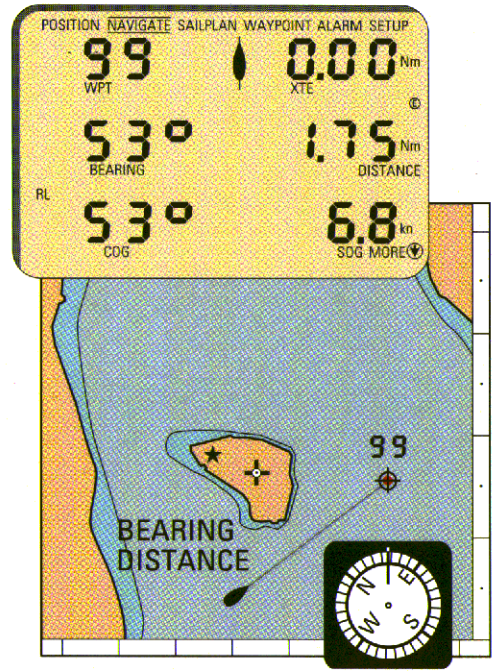
1 No sailplan. Here you see your course (COG) and speed (SOG) over ground .

Entering a sailplan with one waypoint (i.e. the direct line from your present position to a designated point).
There are two ways:

You can enter a new waypoint (WPT):
Press E
First digit in WPT will flash.
Press ▲ or ▼ to count.
Press ► to activate the next digit.
Press ▲ or ▼ to count.
Press E

- or enter BEARING and DISTANCE:
Press E
Press ► ► to go to first digit in BEARING.
Press ▲ or ▼ to count.
Press ► to activate the next digit.
Continue this procedure, till BEARING and DISTANCE are correctly entered.
Press E
The information is now stored in Waypoint 99 (WPT 99) as a position.

A sailplan containing multiple waypoints can be entered in **SAILPLAN.**



2 Sailplan with one waypoint: Enter bearing and distance (WPT = 99)

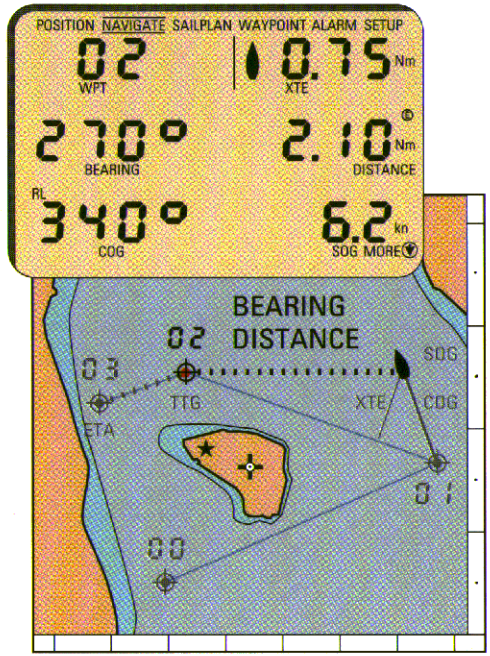
With sailplan
When you have entered a sailplan, you will get steering information as follows:

Number of next waypoint (WPT).
Distance from the course line (XTE).
Bearing to the next waypoint (BEARING).
Distance to the next waypoint (DISTANCE).
Course and speed over ground (COG, SOG).

When you press ▼ DISTANCE is replaced by TTG = time to go (hrs:min) to the next waypoint
or by ETA = estimated time of arrival (hrs:min) to the last waypoint in the sailplan.

If TTG is more than 99.59 hours, the display will show bars in stead of digits.

If ETA is more than 1 day ahead of time, it will be displayed as alternating date and time.



***3** Steering information. DISTANCE changes to TTG or ETA, when you press ▼ ▲*

Display texts
WPT = WayPoinT
XTE = X (cross) Track Error
Nm = Nautical miles
BEARING
DISTANCE
COG = Course Over Ground
SOG = Speed Over Ground
kn = knots
ETA = Estimated Time of Arrival
TTG = Time To Go
c = Magnetic North / variation ON
o = True North / variation OFF
(See **SETUP** for variation corrections)

Display symbols
Cross Track Error (XTE)

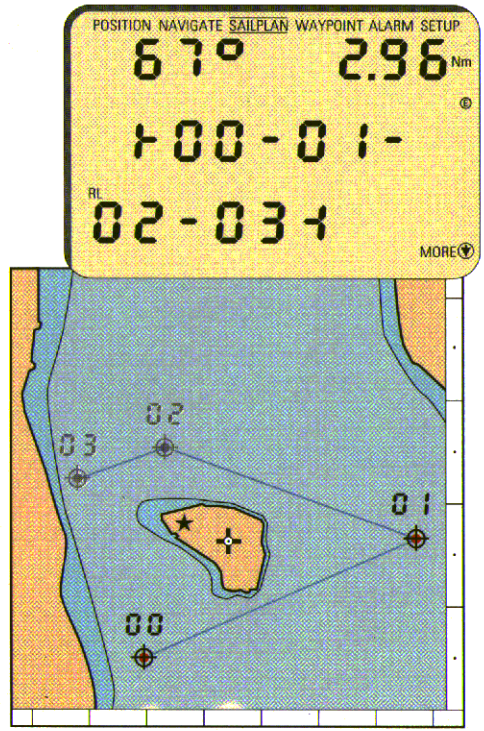
SAILPLAN ENTERING

In **SAILPLAN** the waypoints can be arranged in the order you want to pass them.

A new sailplan always starts with waypoint 00 = the present position. You will not have to enter waypoint 00. When you have entered your destination and are leaving the sailplan by pressing Ⓔ waypoint 00 will automatically be frozen.

Entering a sailplan
Press Ⓔ
The digit is flashing.
Press ▲ or ▼ to set a value.
Press ► to extend the sailplan.
Press Ⓔ to finish your entering.

Detailed instructions
Follow the example shown below.

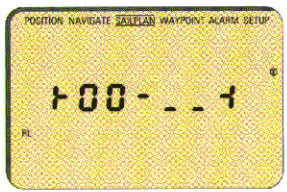


Sailplan. The numbers on the top line of the display gives bearing and distance between the two waypoints in the center line (e.g.from 00 towards 01).

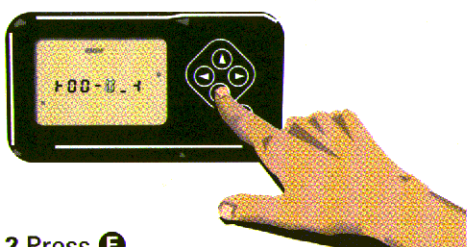
When a waypoint in the sailplan is passed, it replaces the point of departure (i.e. the previous point of departure is deleted). Bearing and distance is displayed in accordance with the new track.
When the last waypoint in the plan is passed, the sailplan is cleared.

Check your sailplan
Scroll through the sailplan with ▲ and ▼ and check for every single pair of waypoints, that bearing and distance are correct compared to what you have plotted in the chart.

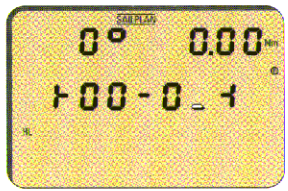
Display texts
o = True North / variation OFF
c = Magnetic North / variation ON
Nm = Nautical miles
⊦ = Start of the sailplan
⊣ = End of the sailplan



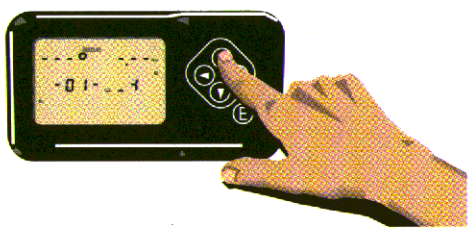
1 When the sailplan is empty, this display will appear. If you have entered a sailplan in **NAVIGATE**, the display shows e.g. 001-991
To clear the sailplan: Press E ▼ E and follow instructions from point 2.



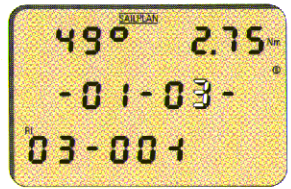
2 Press E
First empty digit place flashes and you can enter first digit of the waypoint-number by counting up or down with ▲ or ▼



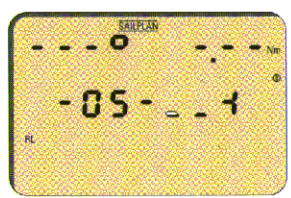
3 Press ►
Next digit place flashes and you can enter second digit of the waypoint number by counting up or down with ▲ or ▼



4 When the first waypoint in the sailplan is entered, press ►
Again you get two empty digit places. Enter a new waypoint in the same way as described above.

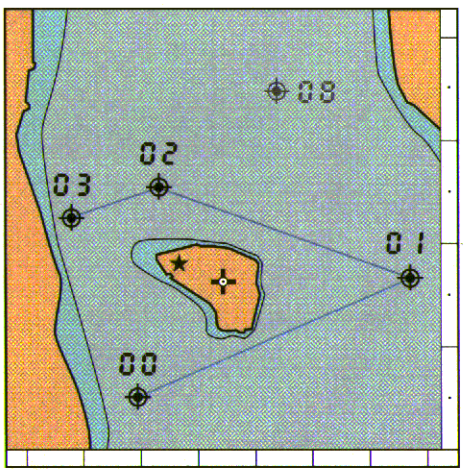


5 Corrections can be made in the sailplan by pressing ◄ or ►
When a digit is flashing, you can change it by pressing ▲ or ▼



6 The sailplan can be extended by pressing ► after the last waypoint.
Then you get two new digit places and can enter again.
Press E to finish entering.

SAILPLAN MODIFICATION



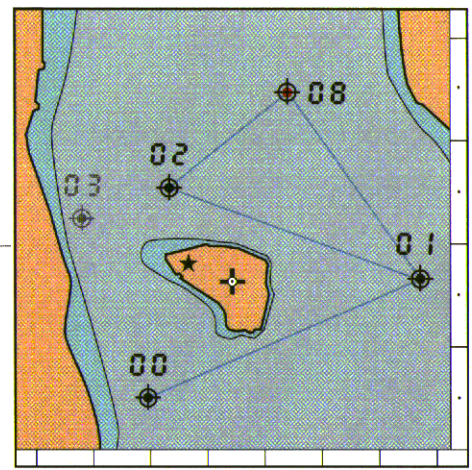
Sailplan before modification:
/-00-01-02-03-/

Modification of a sailplan
A waypoint can only be modified when shown in the center line of the display.
Scroll through the sailplan by ▲ or ▼ to move the waypoint to the center line.

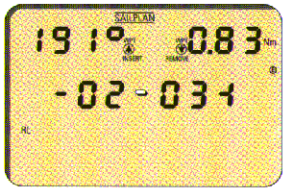
It is now easy to modify the sailplan
from 00-01-02-03 to 00-01-08-02-01

Follow the example on next page.

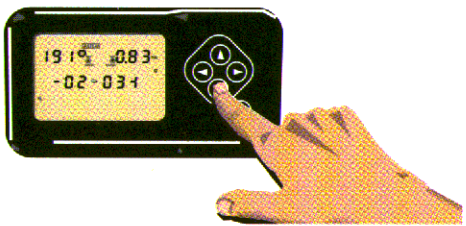
Display texts
WPT INSERT = Insert waypoint
WPT REMOVE = Remove waypoint
o = True North / variation OFF
c = Magnetic North / variation ON
Nm = Nautical miles



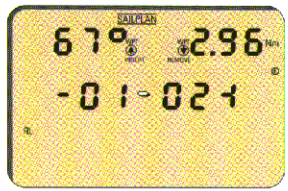
Sailplan after modification:
/-00-01-08-02-01-/



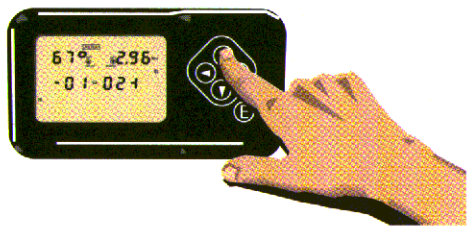
1 Remove waypoint 03: Scroll through the sailplan by pressing ▼ until waypoint 03 is displayed.
Press E



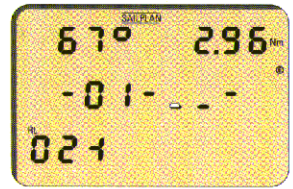
2 Press ▼ = WPT REMOVE, remove waypoint.



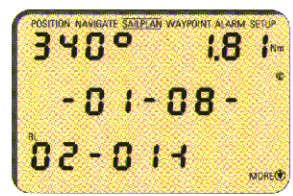
3 The above display will appear.
Waypoint 03 has been removed.
The rest of the sailplan is unchanged.
Insert waypoint 08 between 01 and 02.



4 Press ▲ = WPT INSERT, insert waypoint.



5 Two digit places will be empty for entering the new waypoint.
The first digit place flashes.
Enter waypoint 08 between 01 and 02.



6 Enter waypoint 01 after waypoint 02.
Use the arrow keys to count and scroll.
Press E to finish modification.

WAYPOINT

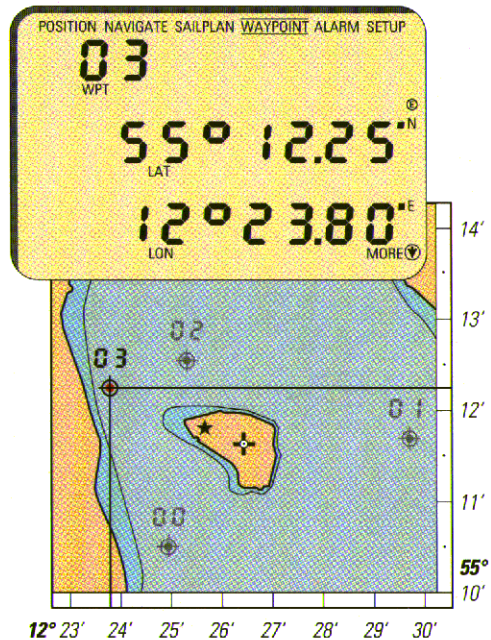
Waypoints to be used for your sailplan are stored in **WAYPOINT**.

Up to 100 waypoints (00-99) can be stored in the waypoint bank as positions in latitude/longitude (LAT/LON).

Waypoint 00 is your point of departure and is automatically stored when **E** is pressed to finish your sailplan.

Waypoint 99 can be entered in **NAVIGATE** as bearing and distance.

See the example below.



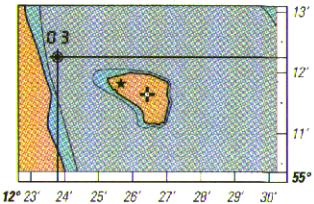
Waypoint. Enter LAT/ LON in degrees, minutes and hundredths of minutes.

It might be useful to group the waypoints.

Waypoints 01-20 could be reserved for frequent trips.
Waypoints 20-40 could be reserved for the best fishing spots, while the rest of the waypoints could be reserved for holidays.

Display texts
WPT = WayPoinT
LAT = LATitude
LON = LONgitude
N = North
S = South
E = East
W = West

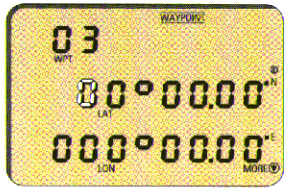
Check your waypoints
Before leaving **WAYPOINT**, check that no mistakes have been entered by scrolling through the waypoint bank.



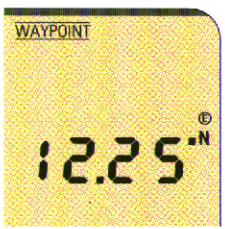
Entering waypoints

1 Mark your waypoints on the chart. Write down latitudes and longitudes in degrees, minutes and hundredths of minutes. Scroll to **WAYPOINT**.

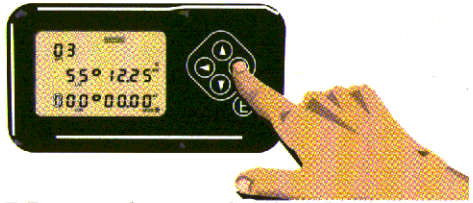
2 Press ▼ or ▲ until the required waypoint number appears in the display, say number 03.
Press E the first digit in LAT starts flashing. Enter your waypoint.



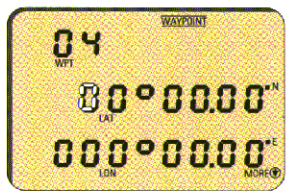
3 To enter the latitude of the first waypoint, say 55°12.25, press ▲ or ▼ until 5 appears. Press ► to activate the next digit. Follow this procedure until all digits are entered.



4 When flashing »N« = North can be changed to »S« = South by pressing ▲ or ▼



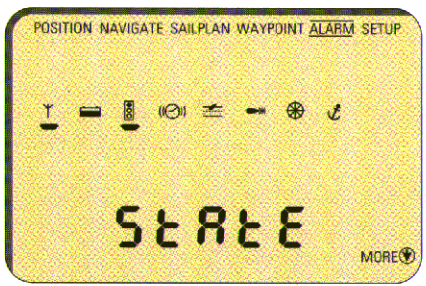
5 Press ► for entering longitude. Enter longitude in the same way as you did latitude.



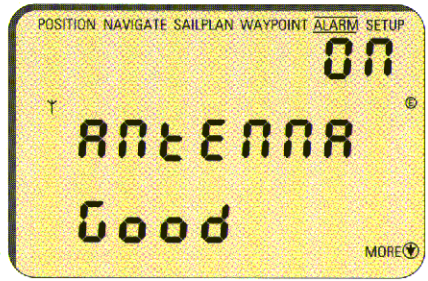
6 When pressing ► the digit in the upper left corner will change, allowing you to enter a new waypoint.
Press E to finish entering.
Your waypoints have now been stored.

ALARM

Eight **ALARM** functions are fitted.
Every alarm can be switched ON or OFF. Some of the alarm limits (LIMIT) have to be set individually.
When an alarm occurs, a bleep will sound and the actual alarm symbol will appear in all displays.
Scroll through the functions by ▲ and ▼



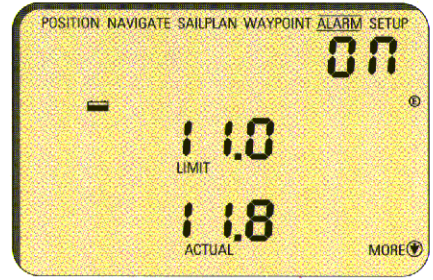
Alarm status. When ON, the alarm is underlined.



Antenna alarm can be switched ON or OFF, no limit can be set.

Switch ON or OFF the alarm
Press E
Press ▲ or ▼ to switch ON or OFF.
Press E

Setting alarm limits
Press E
Press ▼ to switch ON the alarm.
Press ► to select the first digit in LIMIT.
Press ▲ or ▼ to count.
Enter the next digits in the same way.
Press E



Battery alarm. Here you can set a limit for the battery voltage.

Antenna alarm ON:
Any fault associated with the antenna will trigger the alarm.

Battery alarm ON:
The alarm will be given when the battery voltage is lower than the preset limit.
ACTUAL indicates the present voltage of the battery.

Traffic light alarm ON:
If the navigator has not been able to calculate the position for 5 minutes, the alarm will sound.

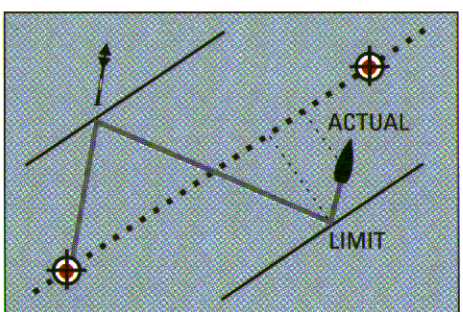
Alarm clock ON:
9 alarm clocks are fitted. Every alarm has to be set individually.
ACTUAL indicates actual time.

XTE alarm ON:
When the preset limit for XTE is reached, the navigator will trigger the alarm.

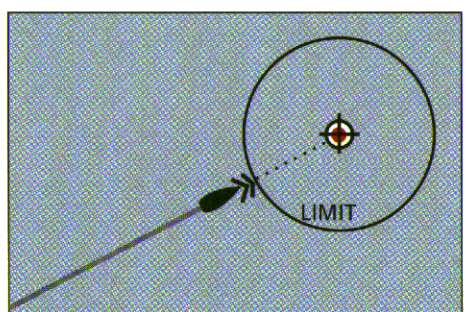
Approach alarm ON:
The alarm will sound when the boat is within a certain distance (preset) from the next waypoint.

Autopilot alarm ON:
When a waypoint is passed, the alarm will sound. Press any key to acknowledge the alarm and the new bearing.

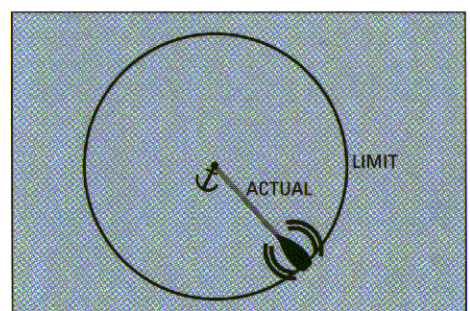
Anchor alarm ON:
The alarm will sound if the boat drifts, by more than the preset limit, from the position where it was switched on.



XTE alarm.



Approach alarm.



Anchor alarm.

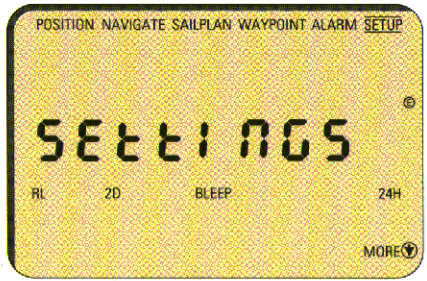
SETUP

SETUP gives you access to a variety of customizing facilities such as:

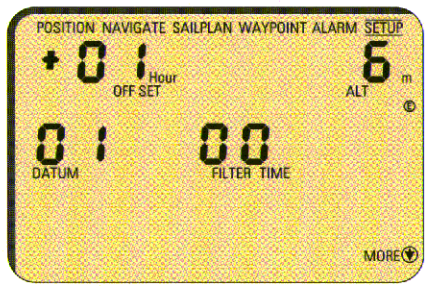
RL / GC = Rhumb Line or Great Circle navigation. When RL is ON, GC is OFF.
2D / 3D = 2 or 3 Dimensional.
BLEEP = Alarm sound.
VAR = VARiation. VAR ON: Magnetic North. VAR OFF: True North.
DEMO = DEMOnstration mode, fictive sailing. When ON, the position, COG and SOG can be controlled manually.
AM / PM / 24H = Time in AM / PM or 24 hour clock system.

Settings
Press E and use ▲ or ▼ to switch ON / OFF the following functions.
Scroll through the functions by ◄ or ►
Press E to finish entering.

Go on with ▲ and ▼



Settings: The abbreviations indicates which settings are ON.



Time OFF SET, ALTitude, DATUM and FILTER TIME.

Off set
To set the display time in accordance with your local time (hours only).
Press E
When a digit flashes, press ▲ or ▼ to count up or down.
Press ► to activate next digit.
Press E

Filter time
FILTERTIME = averaging time of COG and SOG, 0-19 (minutes).

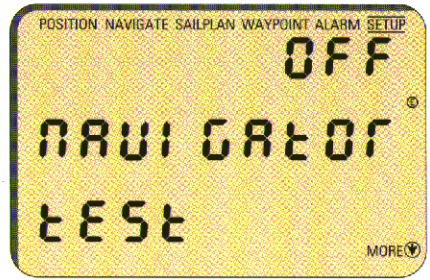
Altitude
ALTitude = antenna height above normal sea level, 0-999 (meters).
To obtain the most precise position, altitude should be set, and 2D selected.

Datum
Refer to DATUM and follow the instruction.

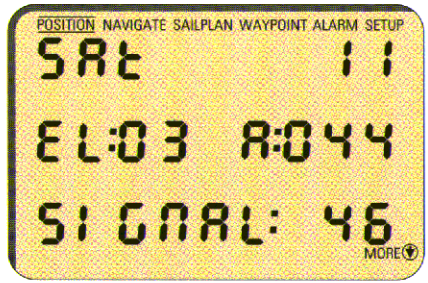
Navigator test
The navigator can run a self test.
Press E, then ▼ and E again.
See technical manual for specifications.

Sat info (Satellite information)
If Sat info is ON, **POSITION** displays the number, azimuth, elevation, and signal quality of each selected satellite.

Cold start
To clear the navigator from all your settings and waypoint positions:
Switch power off.
Press E while you switch power on and keep E pressed until PHILIPS 800 is displayed.



Navigator test.



Satellite number, elevation, azimuth and signal quality.

Display texts
RL = Rhumb Line navigation
GC = Great Circle navigation
2D3D = 2 Dimensional, 3 Dimensional
BLEEP = Alarm sound
VAR = Magnetic VARiation
DEMO = DEMOnstrations mode
AM/PM = Time in AM/PM
24H = 24 Hour clock system
OFF SET = The correction to UTC to obtain local time.
ALT = ALTitude
DATUM = Refers to the chart in use
FILTER TIME = Averaging time of COG and SOG
SAT = SAt, satellite number
A = Azimuth from true North
EL = ELevation over horizon
SIGNAL = SIGNAL, signal/noise ratio

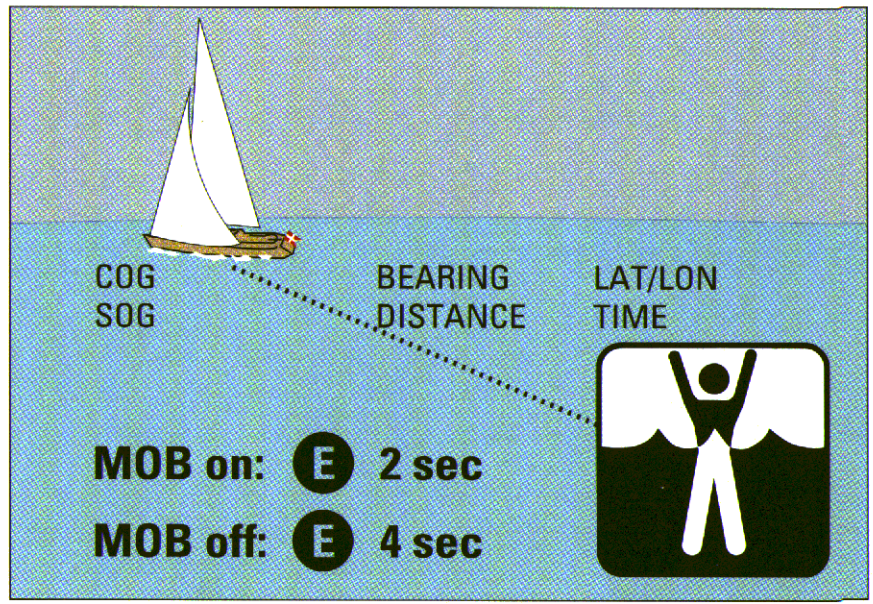
MAN OVER BOARD: PRESS E FOR 2 SECONDS

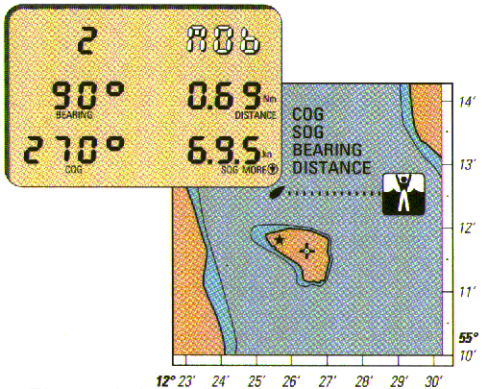
In case of a man over board:
Immediately press E until the alarm sounds (2 seconds).

Time and position of the incident will be stored automatically.

The following information is provided for guiding the boat back to the MOB position:

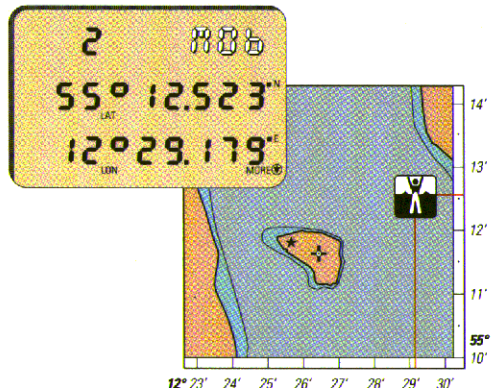
1 Elapsed time since activation of MOB (minutes)
2 Bearing and distance to MOB position
3 Course and speed over ground
4 Exact MOB position
5 Time of incident



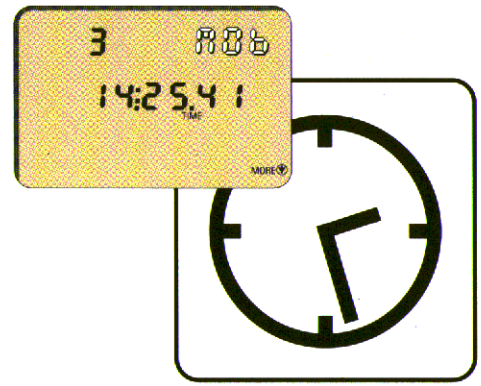


1 Elapsed time since activation of MOB (minutes).
2 Bearing and distance to MOB position.
3 Course and speed over ground.

Press ▲ or ▼ to scroll through the displays.



4 Exact MOB position.



5 Time of incident.

Display texts
BEARING: Course to MOB position
DISTANCE: Distance to MOB position
COG: Course Over Ground
SOG: Speed Over Ground

PRESS E FOR 4 SECONDS TO TURN OFF THE MOB FUNCTION

DATUM

Datum refers to the chart in use. In order that the navigator gives correct information from the start, datum ought to be entered at the very first start of the navigator. Datum may be changed at any time in **SETUP.**

Find datum in your chart.
Find the code number of the datum in the datum list.

Entering at the very first start
Press ▲ or ▼ until the correct digit appears.
Press ► to activate the next digit.
Press ▲ or ▼ until the correct digit appears.
Press E

Entering in SETUP
Press E The first digit starts flashing.
Press ▲ or ▼ until the correct digit appears.
Press ► to activate the next digit.
Press ▲ or ▼ until the correct digit appears.
Press E

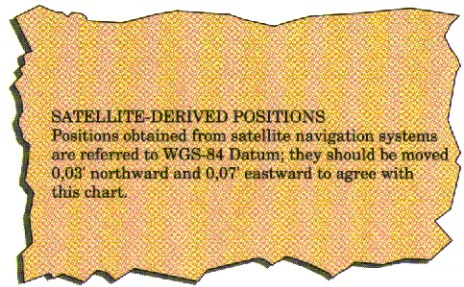
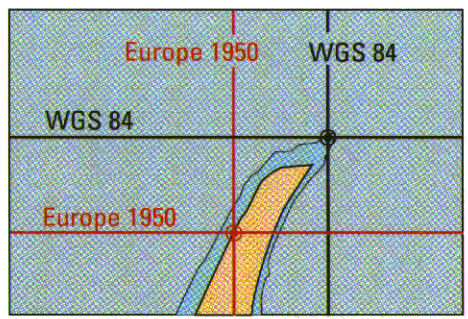
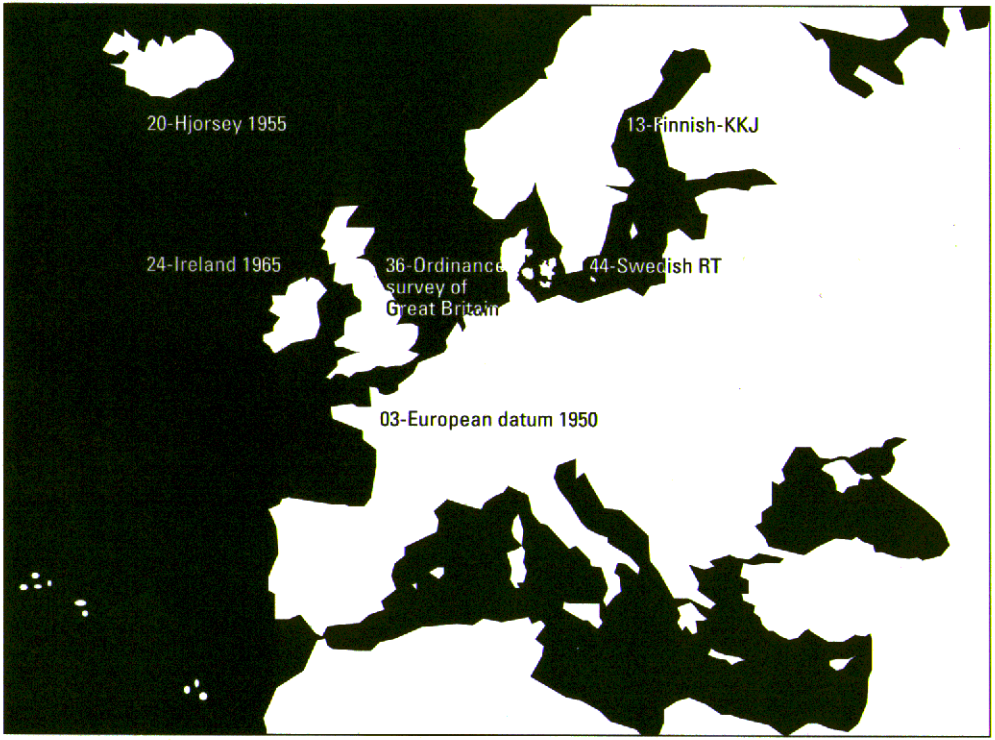


Chart information for WGS 84 + OFF SET(00)



The effect of various datum. Datum adjusts your entries.

DATUM list
00 - WGS 84 + offset
01 - Default datum, WGS 84
02 - WGS 72
03 - European datum 1950, ED 50
04 - North Amer 1927 (conus)
05 - North Amer 1927 (Alaska & Canada)
06 - NAD 83
07 - Adindan
08 - Arc 1950
09 - Australian geodetic 1966
10 - Bukit Rimpah
11 - Camp area astro
12 - Djakarta
13 - Finnish - KKJ
14 - Geodetic datum 1949
15 - Ghana
16 - Guam 1963
17 - G. Segara
18 - G. Serindung
19 - Herat north
20 - Hjorsey 1955
21 - Hu-Tzu-Shan
22 - Indian
23 - Indian Special
24 - Ireland 1965
25 - Kertau (Malayan rev. triangulation)



26 - Liberia 1966
27 - Local Astro
28 - Luzon
29 - Luzon Special
30 - Merchich
31 - Montjong Lowe
32 - Nigeria (Minna)
33 - Old Hawaiian, Maui
34 - Old Hawaiian, Oahu
35 - Old Hawaiian, Kauai
36 - Ordnance survey of Great Britain 1935
37 - Qornoq
38 - Sierra Leone 1960
39 - South American (provisional So. American 1956)
40 - South American (Correco Alegre)
42 - South American (Correco Algre)
43 - South American (Campo Inchauspe)
42 - South American (Chua Astro)
43 - South American (Yacare)
44 - Swedish RT 90
45 - Tananarive Observatory 1925
46 - Timbalai
47 - Tokyo
48 - Tokyo Special
49 - VOIROL