USER GUIDE
INTERCOM MULTIFUNCTION

SUMMARY

1   INTERCOM PRESENTATION

1.1   INTRODUCTION

The INTERCOM multifunction function is to centralize, calculate, display and communicate all the data available on the Topline Bus.

Master and Slaves
Only one display on the Bus can collect, treat and communicate the data on the Bus. This display is the "Master" and the others are the slaves.

     The INTERCOM is **initialized as the master** in production; he therefore has the number 1. It is possible to number another display as the master on your Topline Bus, although we strongly advise you not to do so. The Intercom wouldn't be able then to output course and speed over the ground, navigation data or the time.

PC USERS

   /!\   To prevent any damage to your PC while connecting it to the NMEA Output of the Intercom, we advise you to use an isolation converter or to use an nke NMEA Interface that can be directly connected on the Bus and the PC.

1.2   INTERCOM MAIN FUNCTIONS

1.2.1 BASIC FUNCTIONS

10 windows of information can be viewed with 4 functions per window.
5 of the windows have 4 fixed functions per window.
5 of the windows have 4 functions per window that can be set-up by the user.
The INTERCOM allows additional corrections and calibrations to be made to the system for True Wind Speed, True Wind direction, and Compass Heading. It enables you to enter correction tables for the anemometer, wind vane, and compass.

1.2.2 NAVIGATION COMPUTER

The following functions are available (with or without the GPS receiver):
Dead reckoned position, calculated from the boat's vector (speed & heading).
Heading and distance is calculated between two successive waypoints within a route.
Ten routes can be created from a library of **100 waypoints**.
An Olympic race course can be generated automatically from the INTERCOM's memory.
Current vector calculated and displayed (with GPS receiver in the system).
(Note GPS sensor is recommended)

1.2.3 PERFORMANCE FUNCTIONS

Correction Table for: Anemometer, Wind vane, Compass.
Drift vector (if the INTERCOM Multifunction is connected to a GPS TOPLINE).

1.2.4 GPS FUNCTIONS

Connected to a GPS or DGPS active antenna, the INTERCOM gives:
Position (Latitude/Longitude) displayed down to seconds.
Manual or Automatic declination
Memorize Time and Position of last fix.
Heading and Distance to Man-Over-Board.
Heading, Distance, Speed, and Cross Track Error to the next waypoint.
Heading and Distance between two waypoints within a route.

The INTERCOM transmits the following information on the TOPLINE Bus:
Speed over the ground, Course Over the Ground, Magnetic Ground Heading and Distance to the next waypoint, Velocity towards the next waypoint, Cross Track Error.

1.2.5   NMEA 0183 INPUT AND OUTPUT

The INTERCOM accepts NMEA data from the GPS sensor, and outputs NMEA 0183 information for use with other equipment (PC, plotters, radars, autopilots etc.).

2   OPERATION

2.1   KEYPAD EXPLANATION
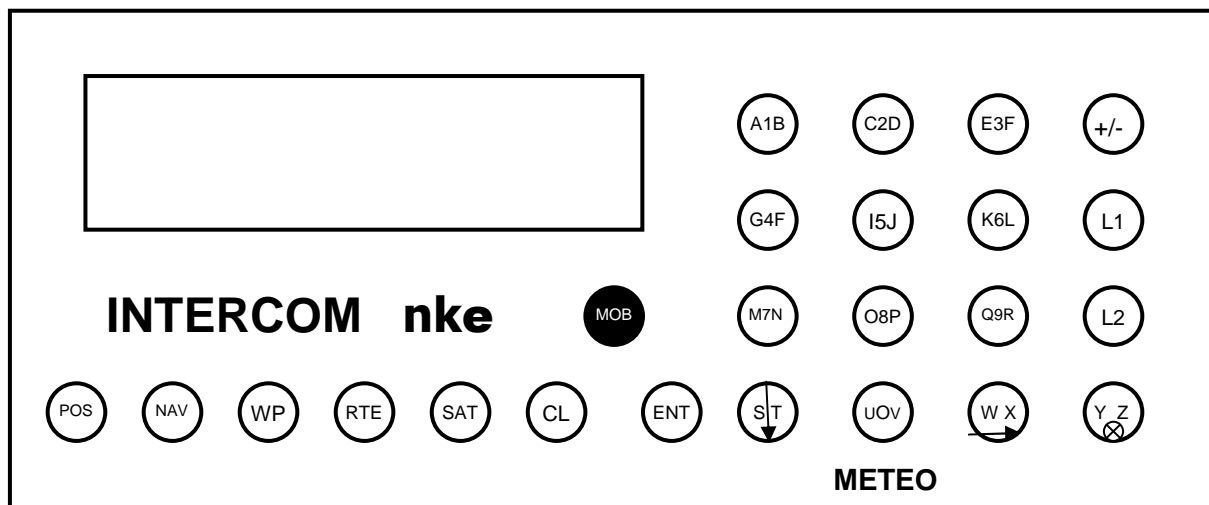
POS	Access to 4 screens.
NAV	Selection of a route, its direction – Access to 4 screens.
WP	Create – Visualize – Cancel Waypoints.
RTE	Create and memorize routes from the list of Waypoints
SAT	Information on the satellites – 6 screens.
CL	Correction – permits to modify or cancel information. Exit menu too.
ENT	Enter – permits to enter and confirm an information
1 ➤ 9	Access to the different screens
→	Moves the cursor to the right
⊗	Backlighting of the display (4 levels available).
L2	Gives access to the letters on the right.
L1	Gives access to the letters on the left.
+/-	Reverse the direction, permits to change channels.
MOB	Man Over Board.

ALPHANUMERICAL Keypad

Press   (A1B)   : 1

Press   (L1)   +   (A1B)   : A

Press   (L2)   +   (A1B)   : B

Man Over Board

(L1) **+** (L2)   *or*   MOB Button   (MOB)

2.2   CHANNELS AVAILABLE

The buttons 0 to 9 gives access to 10 pages showing 4 channels at the same time.

4 pages are fixed (0 . 1 . 2 .3).
6 pages are defined in production but can be changed by the User

FIXED PAGES
PAGE 0   PA = atmospheric pressure
« météo » (Weather info)   aT = air temperature
                                 AS = Wind Speed
                                 St = Sea temperature

PAGE 1   SP = speedometer
« loch »   dE = depth
                                 tL = Trip Log
                                 LG = Log general

PAGE 2   As = Apparent Wind Speed
« vent »   Ad = Apparent Wind Angle
                                 tS = True Wind Speed
                                 td = True Wind Direction

PAGE 3   CO = Compass heading
« compas »   cc = heading corrected from estimated leeway
                                 F = Heading over the ground
                                 dE = estimated leeway

2.3   PREDEFINED PAGES

PAGE 4   r1 = dead-reckoning 1, heading and distance since last reset
                                     r2 = dead-reckoning 2, heading and distance before reset
                                     tL = trip log
                                     LG = log general

PAGE 5   UG = VMG velocity made good
                                     tA = true wind angle
                                     CG = CMG course made good

tD = true wind direction

PAGE 6   F = COG, SOG
                               P = heading and distance to next waypoint
                               vP = speed towards next waypoint
                               ct = cross track error

PAGE 7   Battery 1 voltage
                               Battery 1 capacity in amp/hour
                               Battery 1 intensity
                               Battery 1 capacity in %

PAGE 8   Battery 2 voltage
                               Battery 2 capacity in amp/hour
                               Battery 2 intensity
                               Battery 2 capacity in %

PAGE 9   Time
                               CH = race timer
                               Date
                               Co = configuration (language selection, alarms triggering)

2.4   CUSTOMIZING THE PRE-DEFINED PAGES

The user can format six of the multi-function windows. Any functions can be put together in the window to create a customized display. The windows that can be customized are numbers: 4, 5, 6, 7, 8, 9.

Select the window you want to customize.

Push key (→) to position the cursor on the channel that you want to eliminate in exchange for a new channel.

Using the button (+/-) scroll though the channels until you reached the desired channel.

Push key (CL) to exit the mode.

The new channel will now remain in the location of the old channel.

2.5   SECONDARY CHANNELS

Certain channels of the Topline system contain secondary channels, which are used for calibrating the system and setting alarms. The available secondary channels are as follows :

2.5.1   Secondary channels description

Each* channel (*apart the ones that are calculated like dead-reckoning or true wind) has a certain number of secondary channels which permits to set the alarms, the filtering, calibrations or units.

CALIBRATION (CA)
Used to enter a correction coefficient (i.e. : log calibration : CA = 1.1, the displayed boat speed was 10% below the actual value)
OFFSET (OF)
Used to deduct or to add a value to correct the value displayed. This parameter is used for the depth sounder, the log/speed sensor, the wind vane, the compass, and the rudder reference.
DAMPENING (or filtering) (FI)

This enables you to choose the dampening coefficient from 1 to 32. The default setting is at 8. This coefficient determines the frequency of refreshment of the data displayed, avoiding the too frequent value changes making the reading difficult. The smaller the value set is, the more frequently the data is refreshed.

UNITS (UN)

Used to the unit for the different sensors :
In Knots (Kt) or Kilometers per Hour (K/H) for the log/speedo
In Knots (Kt) or meters per second (M/S) for the anemometer

In FAHRENHEIT degrees (°F) or CELSIUS degrees (°C) for the temperature
In Meters (M) or Feet (Ft) for the Depth.

ALARMS : There are 2 types of alarms :

➔ The ALARM Mode with a top and a bottom limit
HIGH ALARM (HA)
Is triggered when the value becomes superior to the value that you have set in the secondary channel HA.
LOW ALARM (LA)
Is triggered when the value becomes inferior to the value that you have set in the secondary channel LA.

The ALARM Mode with an angular value :
ALARM BASE (bA)
This the base angle determined for the alarm. E.g. Compass heading, wind angle
ALARM FORK (FO)
This is the authorized variation around the base angle. E.g. Compass Base angle set at 200, with an authorized variation set at +/- 5°, the fork val ue is set at 5.

2.5.2   Access to secondary channels

Using the buttons from 0 to 9, select the relevant page

Push key ⟶ to bring the cursor on the channel.

Push key on (ENT) o enter the secondary channels.

Select the relevant sub-channel using the ⬇ button.

Type the new value you want to enter (ENT) and press (CL) twice to exit the mode.

2.6   RESET THE TRIP LOG

Press (1) to bring the Trip Log on screen.

Using the ⟶ button, bring the cursor on tL.

Press (L2) + (9) to write the letter R (Reset)

The trip log is then reset to 0

Press (CL) to exit the menu

2.7   RESET THE DEAD RECKONING

Type (4) to bring r1 on the display (or another page number if you have modified the position of r1)

Using the   button, bring the cursor on r1.

Press (L2) + (9) to type the letter R.

The dead reckoning is reset and the old value is stored in r2.

To exit, type (CL)

2.8   ALARMS TRIGGERING

Type   (9) (or another page number if you have put the Co channel on this page).

Type 4 times on (→) to bring the cursor on **Co.**

3. Type (ENT) the screen becomes : **Co** = no ; **VA** = no.

VA means Valid alarms or alarms triggering

Type once on   (+/-)

The screen becomes : **Co** = yes
                             VA = yes

Press 2 times on   (CL) to exit this mode.

Note   This procedure applies to all the channels where an alarm value has been set.

2.9   LANGUAGE SELECTION

1. Type (9) (or another page number if you have put the Co channel on this page).

2. Type 4 times on (→) to bring the cursor on **Co.**

3. Type (ENT) the screen becomes : **Co** = no ; **VA** = no.

VA means Valid alarms or alarms triggering

4. Type once on   (↓)

   The screen becomes : **Co** = non or oui
                               LA = fran

   { Fran = French language
     Engl = English language

5. Type once on   (+/-)

   The display shows   : **Co** = no or yes

LA = engl

Press 2 times on   (CL)   to exit this mode.

2.10 LIGHTING

2.10.1 Local Mode

Use the following procedure to adjust and turn on/off the lights:

Permits to set 4 different lighting levels on the Intercom only.

⟶ Push key   (Y Z ⊗)   consecutively to change the settings.

Note : a beep will sound at each change. A deeper beep will sound when the lights are turned off.

2.10.2   General Mode

Use the following procedure to adjust and turn on/off the lights:

Permits to set 4 different lighting levels on all the displays

Push key   (L2)   and hold

⟶ Push key   (Y Z ⊗)   consecutively to change the settings.

Note : a beep will sound at each change. A deeper beep will sound when the lights are turned off.

3 PERFORMANCE FUNCTIONS

3.1 TABLES OF CORRECTION

3.1.1 Table of corrections for the compass

Before proceeding to this operation, you should erase the compensation curve that may have been previously entered (see section   ).

Normally, it is not necessary to enter a correction as the nke compass can be auto compensated, if you cannot or don't want to proceed to the auto compensation , you can determine the deviation curve using a manual compass.

To enter the table of corrections, proceed as follows :

Push key   (3)   and bring the cursor on CO using the (→) key

Push key (L2) and (9)

The display will then show:

000 030 060 090
000 000 000 000

Push key (→) to bring the cursor on the bottom line and change the values according to your bearings.

When you have entered all the values, push key (Ent) twice to confirm and (CL) to exit.

The deviation curve created is transferred in the compass.

3.1.2 Clearing the memory of the compass

The memory of the compass must be cleared whenever the compensation procedure is performed after an initial attempt, i.e., for a second time.

Use the following procedure to clear the compass memory :

1. Turn the system on.

Push key (3)   and bring the cursor on CO using the (→) key

Push key (L2) and (I5J) (as for I = Initialization)

2. Turn the system off.

The compass memory has been cleared, and is ready for another attempt at the compensation procedure.

3.1.3   TABLE OF CORRECTIONS FOR TRUE WIND SPEED

The INTERCOM provides calibration tables for True Wind Speed in order to make wind speed corrections for different apparent wind speeds and angles.
The table allows the user to enter an observed correct true wind speed at each 30° segment for each wind velocity, as follows:

Angle/Speed	05	10	15	20	25	30	35
000°	05	10	15	20	25	30	35
030°	05	10	15	20	25	30	35
060°	05	10	15	20	25	30	35
090°	05	10	15	20	25	30	35
120°	05	10	15	20	25	30	35
150°	05	10	15	20	25	30	35
180°	05	10	15	20	25	30	35
210°	05	10	15	20	25	30	35
240°	05	10	15	20	25	30	35
270°	05	10	15	20	25	30	35
300°	05	10	15	20	25	30	35
330°	05	10	15	20	25	30	35

To access and enter values in the correction table, use the following procedure:

Push key (2) the display will then show:

AS :-----   Ad :-----
Position cursor here → **tS :-----   tA :----**

Push key (→)   to position the cursor on tS as above

Push key (L2) and (9)

The display will then show:

Top row, wind speed ⟶ **05 10 15 20**
Wind angle ⟶ **000° 05 10 15 20**

Enter all the corrections in the first row of the table

Use the key (→) to skip over numbers that do not need to be corrected

Note: You can use the (CL) key to move the cursor to the left.

Push key (↓) when you're finished the first row. This will move the cursor down to the second column.

Continue entering information in the rest of the table using the same procedure.

Push key (Ent) then (Ent) then (CL) to exit this function once all the corrections have been entered.
The corrections will be retained in memory and will be applied to the wind direction functions from now onward.

3.1.4 TABLE OF CORRECTIONS FOR TRUE WIND ANGLE

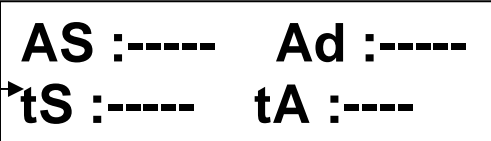The INTERCOM provides calibration tables for True Wind Angle in order to make wind angle corrections for different wind speeds.
The table allows the user to enter an observed correct wind angle at each 30° segment for each wind velocity, as follows:

	000°	030°	060°	090°	120°	150°	180°	210°	240°	270°	300°	330°
5N												
10N												
15N												
20N												
25N												
30N												
35N												

To access and enter values in the correction table, use the following procedure:

Push key (2) the display will then show:

```
AS :-----    Ad :-----
tS :-----    tA :----
```
← Position cursor here

Push key (→)   to position the cursor on tA as above

Push key (L2) and (9)

The display will then show:

Top row, wind angle ⟶
```
      000 030 060
05N 000 030 060
```
↑
Wind velocity

Enter all the corrections in the first row of the table

Use the key (→) to skip over numbers that do not need to be corrected

Note: You can use the (CL) key to move the cursor to the left.

Push key (↓) when you're finished the first row. This will move the cursor down to the second column.

Continue entering information in the rest of the table using the same procedure.

Push key (Ent) then (Ent) then (CL) to exit this function once all the corrections have been entered.

The corrections will be retained in memory and will be applied to the wind direction functions from now onward.

4   GPS FUNCTIONS

4.1   POSITION

LATITUDE – LONGITUDE

Push key (POS) and the window will then show :

POS	**47°43' 000 N**
	003°22' 000 W

State of the GPS Sensor ← **POS   47°43' 000 N   003°22' 000 W** → Latitude / Longitude
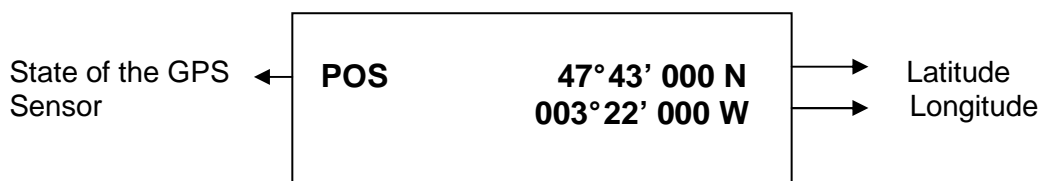
⚠ !   INI = No DATA from the GPS
ACQ = Acquisition ⟶ the GPS is searching the position
POS = Position ⟶ position is valid

LOCAL TIME

Push key (POS) 2 times

The window will then show

LOCAL   09 H 45' 05'' → Local time

21.01.1999 → Local date
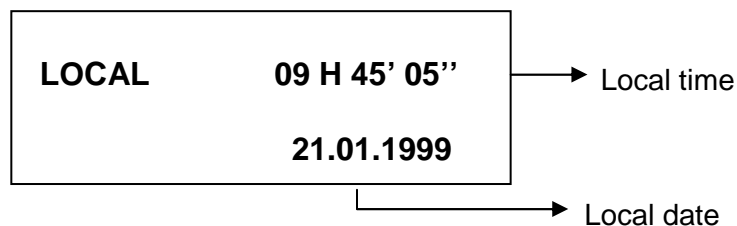
TIME AND POSITION OF THE LAST FIX

Push key (POS) 3 times

The window will then show

Time of last fix ← **09 H 46   41°31' 600 N** → Latitude of last fix

FIX   71°18' 940 W → Longitude of last fix
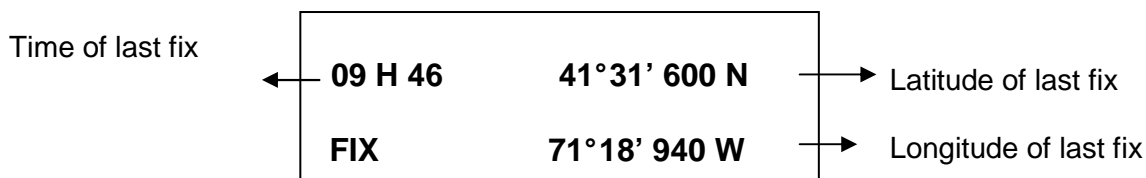
The last fix is the last position supplied by the GPS sensor

4.2   WAYPOINTS
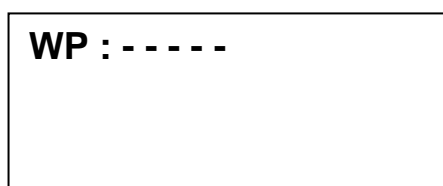
4.2.1   Definition

A waypoint is a position identified by a name, latitude and a longitude, stored in the Intercom's memory and used by the GPS to calculate a route. The intercom can store up to 100 waypoints.

4.2.2   Creating Waypoints
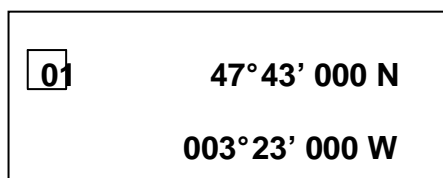
To create a waypoint, follow the procedure hereafter :

Push key (WP) the window will then show:

```
WP : - - - - -
```

Push key (ENT)

Nb of waypoint | 01 | 47°43' 000 N

003°23' 000 W

The display now shows a waypoint number and the last fix coordinates.
The cursor flashes on the first digit of the top line.
Using the alphanumeric keyboard, you can now enter a waypoint name (from 1 to 5 letters) and its coordinates.

EXAMPLE
You want to Enter a waypoint named MIAMI whose position is : 25°48' 60 N and, 80°17' 500 W :

Push key (WP) the window will then show :

```
WP : - - - - -
```

Push key (ENT) the window will then show :

```
┌──────────────────────────────────┐
│                                  │
│    0 2        47°43' 000 N       │
│                                  │
│               003°23' 000  W     │
│                                  │
└──────────────────────────────────┘
```

Push key (M) the window will then show :

```
┌──────────────────────────────────┐
│                                  │
│   M 2                            │
│                                  │
│                                  │
│                                  │
└──────────────────────────────────┘
```

Push key (I) the window will then show :

```
┌──────────────────────────────────┐
│                                  │
│   M  I                           │
│                                  │
│                                  │
│                                  │
└──────────────────────────────────┘
```
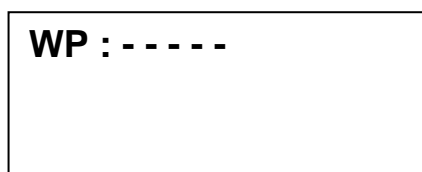
Push key (A) the window will then show :

```
┌──────────────────────────────────┐
│                                  │
│   MIA  □                         │
│                                  │
│                                  │
│                                  │
└──────────────────────────────────┘
```

Type then the letters (M) and (I)

(2) (5) (4) (8) (6) (0) (→) (→) (→) (→) (8) (0) (1) (7) (5)

Push key (ENT)

and (POS)

The waypoint is stored.

Other example :

You want to enter a waypoint named AX whose coordinates are :
47°20' 33 N and 003°30' 45 W.

Push key (WP)

Push key (ENT)

Push key (A)

Push key (X)

Push key (→) until the cursor arrives on the 1st digit of the latitude.

Type   ④ ⑦ ② Ⓞ ③ ③ ⟶ ⓪ ⓪ ③ ③ ⓪ ④ ⑤

Push key   (ENT)

Push key   (POS)

If you want to enter your current position as a waypoint and that its name is selected automatically (from 00 to 99) according to the names already in use :

Push key   (WP)

Push key   (ENT)

Push key   (ENT)

Push key   (ENT)

Push key   (POS)

4.2.3   Scrolling Through Waypoints

Push key   (WP) **…**

They will all scroll with their name and coordinates.

4.2.4   Reviewing a Waypoint stored

Push key   (WP)   the window will then show :

```
WP : - - - - -
```

Type the waypoint name

Push key   (ENT)   its name and coordinates are displayed.

NOTE : If you type a name that is not stored, the Intercom won't accept it and will beep after you pressed   (ENT)   the cursor will then come back on the first letter.

4.2.5   Changing the name or coordinates of a Waypoint

Push key   (WP)   and   (WP)   etc…to bring on screen the waypoint's name that you want to modify.

Push key   (ENT)   to bring the cursor on the first letter.

Type the new name.

Push key (ENT)

Push key (ENT) the screen displays the new name, the routes in which this waypoint is used and CL which is flashing.

To confirm the name change, push key (CL), the waypoint with its new name and coordinates is displayed.

Push key (POS) to exit.

To modify the coordinates, proceed in the same way to have the cursor blinking on the first letter

of the waypoint name, then push key (WX) to bring the cursor on the coordinates, change

them and confirm by (ENT) and then (CL) and push key (POS) to exit.

4.2.6 Removing a Waypoint from memory

Push key (WP) etc… to bring on screen the waypoint's name that you want to delete.

Push key (CL), the Intercom displays the routes in which the waypoint is used, and another time (CL)

Push key (CL) to confirm

Push key (ENT) if you don't want to delete it.

NOTE : The Intercom will not delete a waypoint if this one is currently used in the NAVIGATION function.

4.3 PROJECTED WAYPOINTS AND THE OLYMPIC TRIANGLE

The Olympic Triangle/Projected waypoint function allows the user to create waypoints simply by entering the heading and distance from the current position to another position on the chart.

This automatically creates the Latitude/Longitude for two other locations on the chart, which also forms the three marks in an Olympic triangle course.

This operation consists in creating 3 waypoints named B1 (start buoy) B2 and B3, knowing B1's position, and the heading and distance to B2.

The Intercom is on (POS) :

Push key (WP) and (ENT) and (B) and (1) and (ENT) and then the position of the start buoy.

The window will then show:

```
┌─────────────────────────────┐
│                             │
│  B1>B2  CAP : + 000°T        │
│                             │
│  DIST : 00.00 N              │
│                             │
└─────────────────────────────┘
```

The cursor blinks on **+**

Push key (→) to enter the bearing (CAP) to reach B2, and then the distance (DIST) between B1 and B2.

Push key (ENT)

The three waypoints are then recorded.

To display heading and distance to B2 or B3, push key (WP) until B2 (or B3) is displayed on screen

and push key (↓)

4.4   ROUTES

4.4.1   Definition

A route is a set of waypoints organized together to form a Navigational-route from one point to another. The Intercom can memorize up to ten routes , numbered from 0 to 9. Each route can contain up to 26 waypoints, indicated by letters A-Z. You can use the same waypoint more than once in a Route.
The waypoints that are used in a route must first be entered in the Waypoint function.

ROMER shoal ● → ● SANDY Hook

● BELL S

AMBROOSE light ●
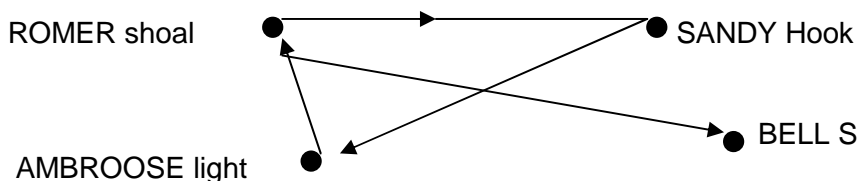
4.4.2   Creating a route

Push key (RTE) the window will then show:

> **RTE :** ☐

Using the numeric keypad, enter a route number from 0 to 9 that will be used to call up the route later
Example : 1

The window will then show:

> **R1 a FR**

Type (ENT) the window will then show:

R1 > a   < b FR

Route's name

1st waypoint Index

End of route
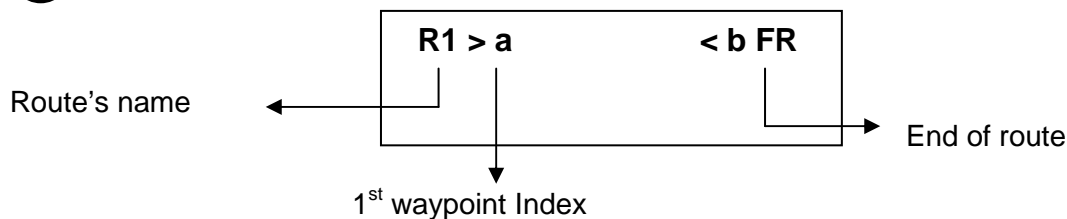
Using the alphanumeric keypad, enter the name of the first waypoint in the route.
Example : ROMER

NOTE : the waypoint name typed has to be exactly similar to one already in memory, otherwise, it won't continue the route creation.

Type (ENT) the screen becomes :

R1 b FR
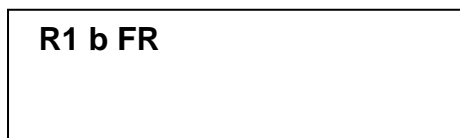
Repeat the same procedure (steps 3 –5) to enter subsequent waypoint names in the route.

When the route is complete, push key (POS) .

4.4.3   Reviewing a route

Push key (RTE) the window will then show:

RTE : ▯
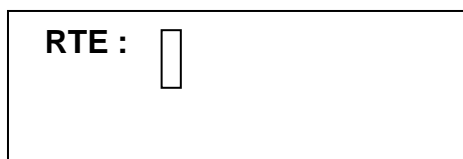
Enter the route number that you want to review.

Example : route 1
The window will then show:
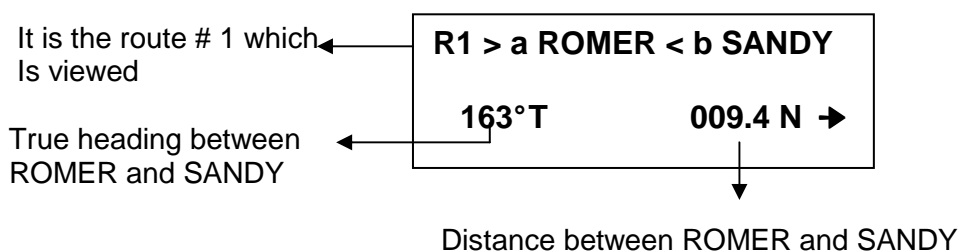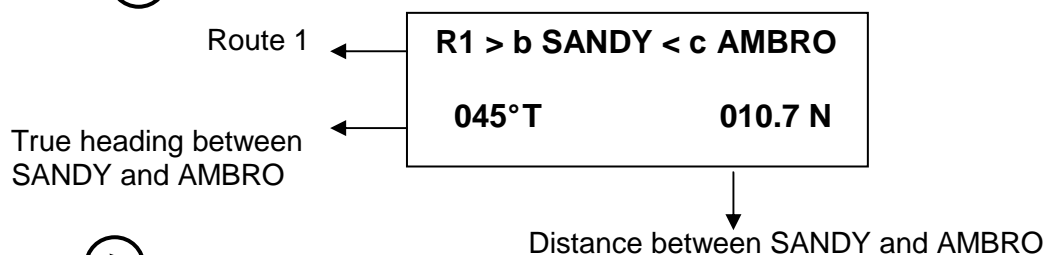
It is the route # 1 which
Is viewed

R1 > a ROMER < b SANDY

True heading between
ROMER and SANDY

163°T   009.4 N →

Distance between ROMER and SANDY

Push key (↘) the window will then show:

Route 1

R1 > b SANDY < c AMBRO

True heading between
SANDY and AMBRO

045°T   010.7 N

Distance between SANDY and AMBRO

Push key (↗) the window will then show:

Route 1 ←

R1 > c AMBRO < d ROMER

278°T   010.2 N

True heading between ←
AMBRO and ROMER

Distance between AMBRO and ROMER

Push key ⟳→ the window will then show:

Route 1 ←

R1 > d ROMER < e BELL

071°T   009.6 N

True heading between ←
ROMER and BELL

Distance between ROMER and BELL

Push key ⟳→ the window will then show:

R1 > e BELL < f FR
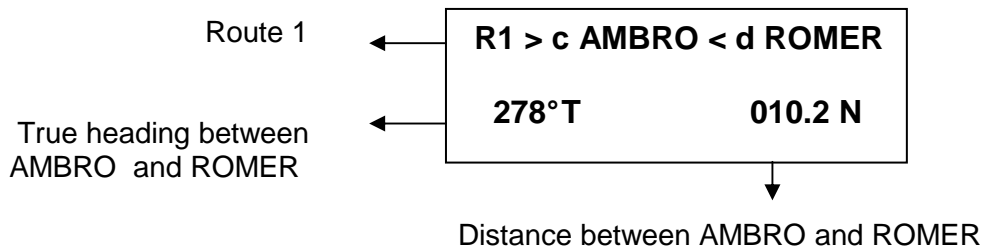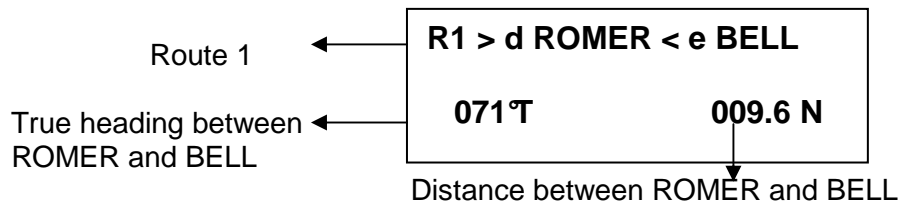
The entire route 1 has been viewed.
« FR » means that there is no other waypoint in the route.

4.4.4   Removing a waypoint from a route

Push key (RTE) .

Type the route's number.

Push key (→) until the waypoint name is between the brackets.

Push key (CL)

Push again (CL) to delete or (ENT) to keep it.

The waypoint has been deleted and the next one takes its index.

4.4.5   Inserting a waypoint in a route

Push key (RTE)

Type the route number.

Push key (→) until the waypoint that follows the one that you want to insert is between > and <.
The inserted waypoint will be placed before the one between brackets.

Push key (L1) and (5) to obtain the letter I (as for Insert)

The window will then show:

```
R1 > d          < e Y Y Y Y Y
```

Using the alphanumeric keypad, type the waypoint name or number to insert.

Push key (ENT) .

There is a new waypoint in the route.

4.4.6   Removing a route

Push key (RTE)

Type the route number you want to delete.

Push key (→) until the screen displays :

```
R1 n FR
```

4.   Push key (CL)

5.   Push key (CL) to confirm that the route should be deleted or (ENT) if you want to keep this
route.

4.4.7   Displaying of the heading and distance to a Waypoint without activating a route

The INTERCOM is on **POSITION**.

By successive push on the (WP) button, bring the waypoint on display.

Push key (s/t) the screen becomes :

Waypoint name ←

```
POS ➔ X X X X X   123°T      True Heading towards
                             point
         004   8N   128°M
```

Distance to waypoint ←

Magnetic heading to waypoint
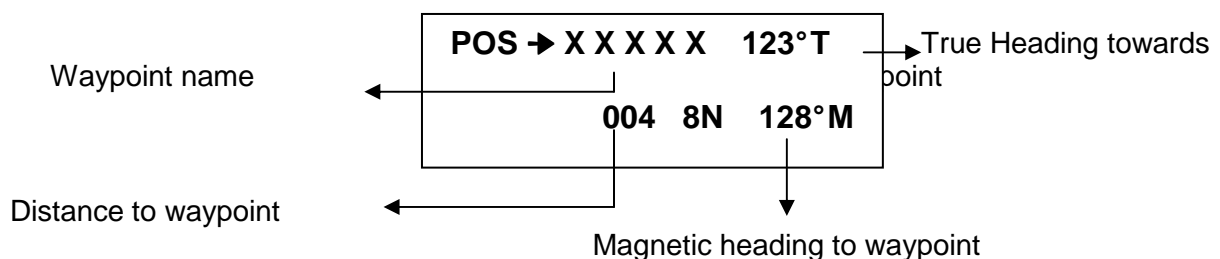
If you have not activated a route in the navigation function, you can read on all the Topline displays
the heading and distance to the waypoint X X X X X on the channel P.

If you have activated a route, it is the information relative to this route that is displayed on the Channel P, the information relative to the waypoint X X X X X are only displayed on the Intercom.

4.5   NAVIGATION FUNCTION

This function can only be used when satellite fixes are being generated.

4.5.1   Viewing speed and heading over the ground

Push key (NAV) the window will then show:

Speed over the ground ←——— **SP : 05 . 8 N   C : 055 M** ——→ Magnetic heading
over the ground
C : 050 T ——→ True Heading over the
Ground
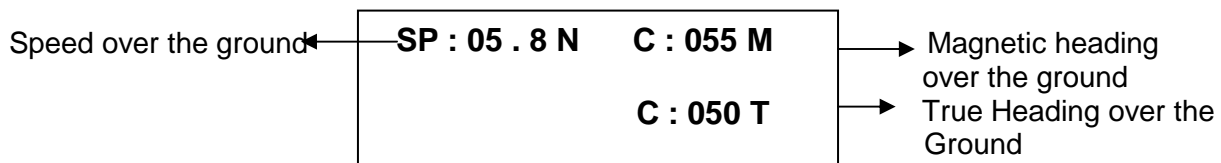
4.5.2   Entering a route to be followed

Push key (NAV) then (ENT) the window will then show:

RTE : ⬚
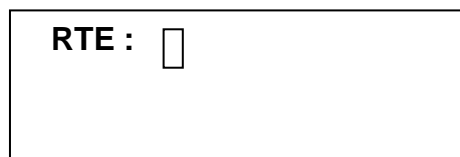
The cursor will blink at the spot where a ROUTE number from 0-9 can be entered

Enter a route number (0-9) for a route that has already been programmed, the window will then show:

R1 > a ROMER < b SANDY

163°T   009.4 N ➜
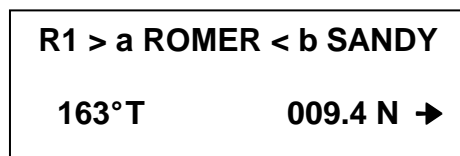
   NOTE : if the route number is not in memory, the display will beep and return to the first window in the NAV function.

Push key ➜ until the desired first waypoint is between the **>** et **<** , the stating point being your current position.

Push key (ENT) the window will then show:

R1 > z T T T T T <

Name of next waypoint
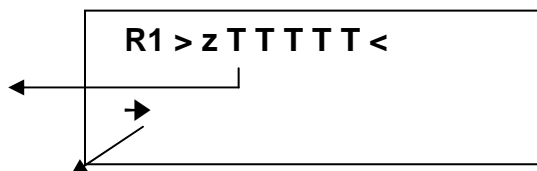
The direction that the route follows through waypoints can be changed
If the arrow is ⟶ you are going from a to b and c etc…
If the arrow is ⟵ you are going from e to d and c etc…

Push key (+/-) to change the direction of the route.

Push key (ENT)

From this moment you can read on all standard multifunctions :

Channel F : Speed and Course over the ground displayed alternatively (SOG, COG)

Channel P : heading and distance to next waypoint

Channel VP : Speed towards next waypoint

Channel ct : Cross Track Error

On the Intercom :

Push key (NAV)

Cross Track Error direction

R1 T T T T   ➜   1.29 N   Cross Track Error

Name of next waypoint

Route direction

➜ 005.0°M   009.5 N

Magnetic heading to follow   Distance to next waypoint

Push key (NAV)

Speed Over the Ground   **SP : 06.7 N   C : 085°M**   Magnetic heading

Speed towards the next
waypoint   **WP : 02.5 N   C : 080°T**

True heading to next waypoint

Push key (NAV)

R1 T T T T T ➜ U U U U U

234°M   026.7 N
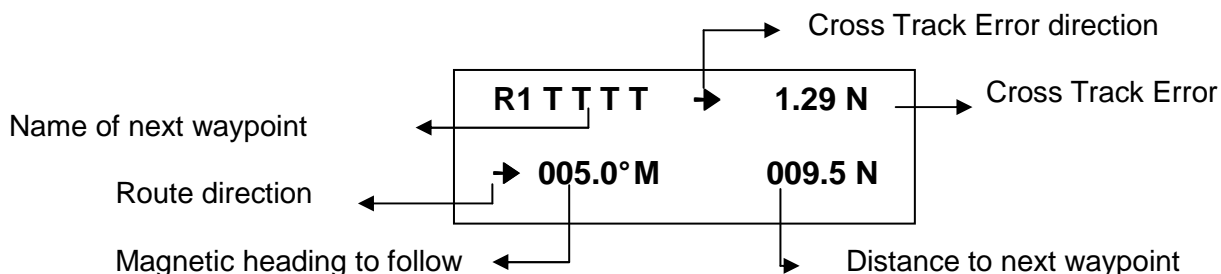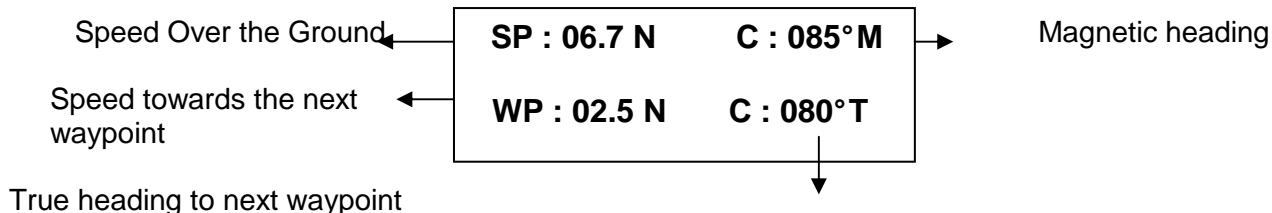
Magnetic heading and distance between the two next waypoints

NOTE: To exit the Navigation function

    Press and hold the button   (L2)

    Press once on the button   (+/-)

4.6   MAN OVER BOARD FUNCTION

The MOB function is a security function, to cancel it when it has been activated, you will have to switch off the Topline Bus completely.

The MOB function can be triggered in 4 different ways :

By a press of 2 seconds on the HOM-MER button of the old remote control or MOB button on the new one.

By a simultaneous press on the (L1) and (L2) buttons of the INTERCOM.

By a press on the button (MOB) of the INTERCOM.

By the MOB function of the Universal Radio Receiver and Wireless Remote Controls.

The position displayed then by the INTERCOM is considered as the only destination.

```
┌─────────────────────────────────┐
│  Homme Mer           0.09        │
│                                  │
│      068.0°                      │
└─────────────────────────────────┘
```

Magnetic heading to MOB

Distance to MOB

Press (POS) and (POS) and (POS) the screen becomes :

Time of activation

```
┌─────────────────────────────────┐
│  11H56          45'57'88 N       │
│                                  │
│  H Mer          009'08'77 W      │
└─────────────────────────────────┘
```

Position at the activation
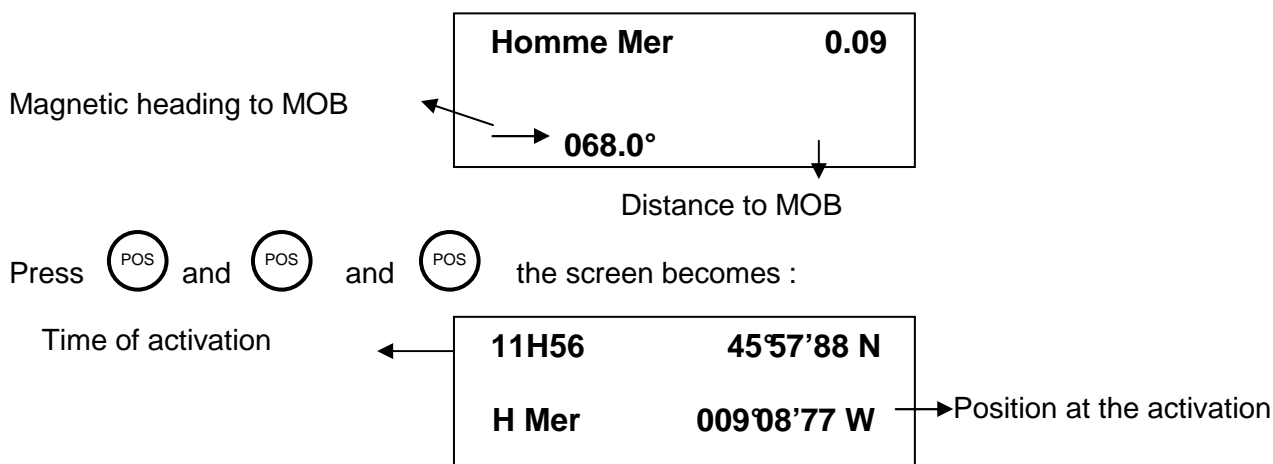
4.7   DEAD-RECKONING

If there is a compass and speedometer on the bus, the Intercom can calculate a dead reckoning from a last known position.

In absence or in case of bad satellite reception, the dead-reckoning vector is permanently calculated, and if the bad reception lasts over 30 seconds, the position displayed is corrected by the dead-reckoning vector from the last FIX stored.

In this case, the letters **DR*** appear on the screen on the POS function.

***DR** = means that the position is re-actualized according to the dead reckoning.

4.8   RACE TIMER FUNCTION

On the Intercom, you can trigger a race timer at 6 or 10 min, with synchronization at 5 min (or Chronometer) on the channel CH, page 9

- Push key (9)   the window will then show:

CH : _ _ _ _

Race timer
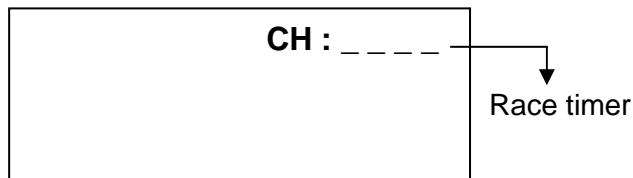
- Push key (→)   to bring the cursor on CH

- Push key (ENT)   to initialize the timer value. Push key (ENT) three times to come the other timer

 value (6 or 10 min).

- Once the timer is initialized, push key   (ENT) to start the countdown. 5 seconds before the start,

all the boat's displays will beep every second.

4.9   THE BATTERY CONTROLLER

The battery controller is a sensor now available in the Topline range that permits you to easily control your on-board energy and optimize your consumption and charging times. You can visualize the information regarding TWO different battery banks on the pages 7 and 8.

Push key (7) the window will then show:

Batt 1 voltage ←   **U1 : _ _ _ _ _   c1 : _ _ _ _**   → Batt 1 capacity
                                                                 In Amp/Hour

Batt 1 intensity ←   **I1 : _ _ _ _ _   c1 : _ _ _ _**   → Batt 1 capacity in %
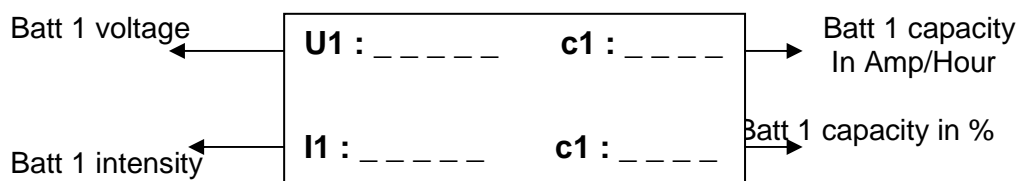
Push key (8) the window will then show:

Batt 2 voltage ←   **U2 : _ _ _ _ _   c2 : _ _ _ _**   → Batt 2 capacity
                                                                 In Amp/Hour

Batt 1 intensity ←   **I2 : _ _ _ _ _   c2 : _ _ _ _**   → Batt 2 capacity in %
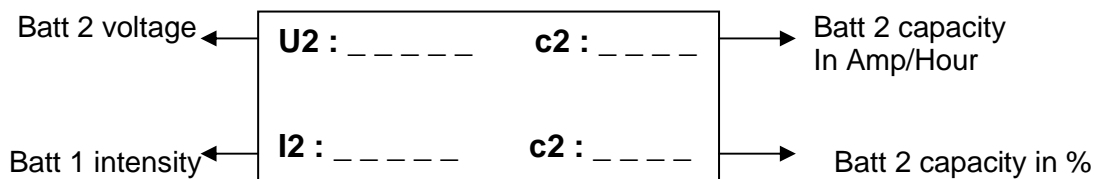
5   INSTALLATION

5.1   INTRODUCTION

Before beginning the installation, keep in mind that a good initial installation will enable you to avoid further problems. We then recommend to you to follow methodically the installation procedure.

To connect the elements together, always proceed as follows :
All cables should be ran as far as possible of electric or electronic elements that could generate perturbations (i.e. : fridge, radio transmitter, important metal parts, etc)
All cables and connections should be run in safe and DRY locations.

Prepare all your tools and material before starting the installation :

Soldering Iron, Drill, Hacksaw, drills of diameter 5 – 7 mm, Sealant, silicon grease, flat keys (8), screw driver flat and cross, rings to fix electrical wires, a cutter, screws, rivets, Etc

5.2   DIMENSIONS

Length : 200 mm
Height   : 100 mm
Width : 22 mm

Bus cable : 6 m.

5.3   INTERCOM INSTALLATION

5.3.1   Location

Follow these guidelines when installing the display:

Located at least 8" away from magnetic compass
Located at least 20" away from radio receivers and transmitters.
Located for easy access and viewing
Located in safe location

5.3.2   Mounting

Drill a ¾" hole for the wire at the chosen location for the display.
Screw the studs (provided) into the back of the display
Feed the wire into the hole
Hold the display up to the chosen location. Make sure it is straight.
Make marks where the stud holes need to be drilled.
Remove the display and drill 3/16" holes at the stud locations.
Mount the display and screw the nuts on the studs behind the mounting surface.

Note : If you have limited room behind the mounting surface, you may need to shorten the studs.

5.4   WIRING OF THE GPS SENSOR (ACTIVE ANTENNA)

INTERCOM

GPS ANTENNA

CONNECTION

White — *Whit*

Red — *Red*

Blue + shield — *Blue*

Yellow

Green
Output NMEA 183

Black and W*Green* Shi*Not connected* Black wire

BUS CABLE

Fixing ring

BUS CABLE

BUS CABLE

Black wire : **Data**

〜 Shield : **Ground (0 V)**

〜 White wire : **+ 12 V**

〜
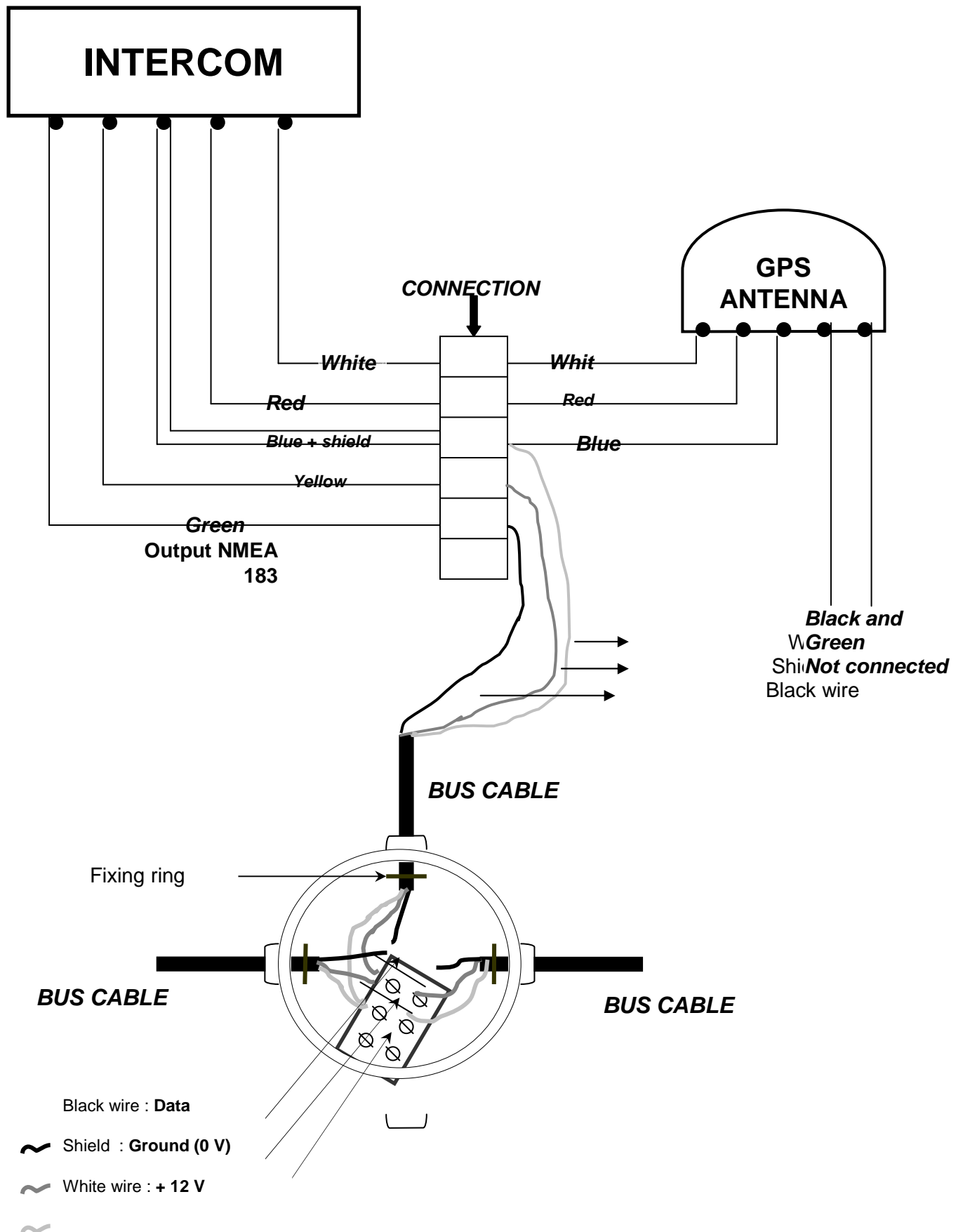
5.5   WIRING OF THE DGPS SENSOR (ACTIVE ANTENNA)

INTERCOM

CONNECTION

DGPS ANTENNA

White ——————— *Gree*

Red ———————————— *Red*

Blue +

Yellow

White + black

Green

NMEA 183 OUTPUT

Yellow and Brown Not Connected

BUS CABLE

Fixing Ring

BUS CABLE

BUS CABLE

Black wire : **Data**

Shield : **Ground (0 V)**

White wire : **+ 12 V**
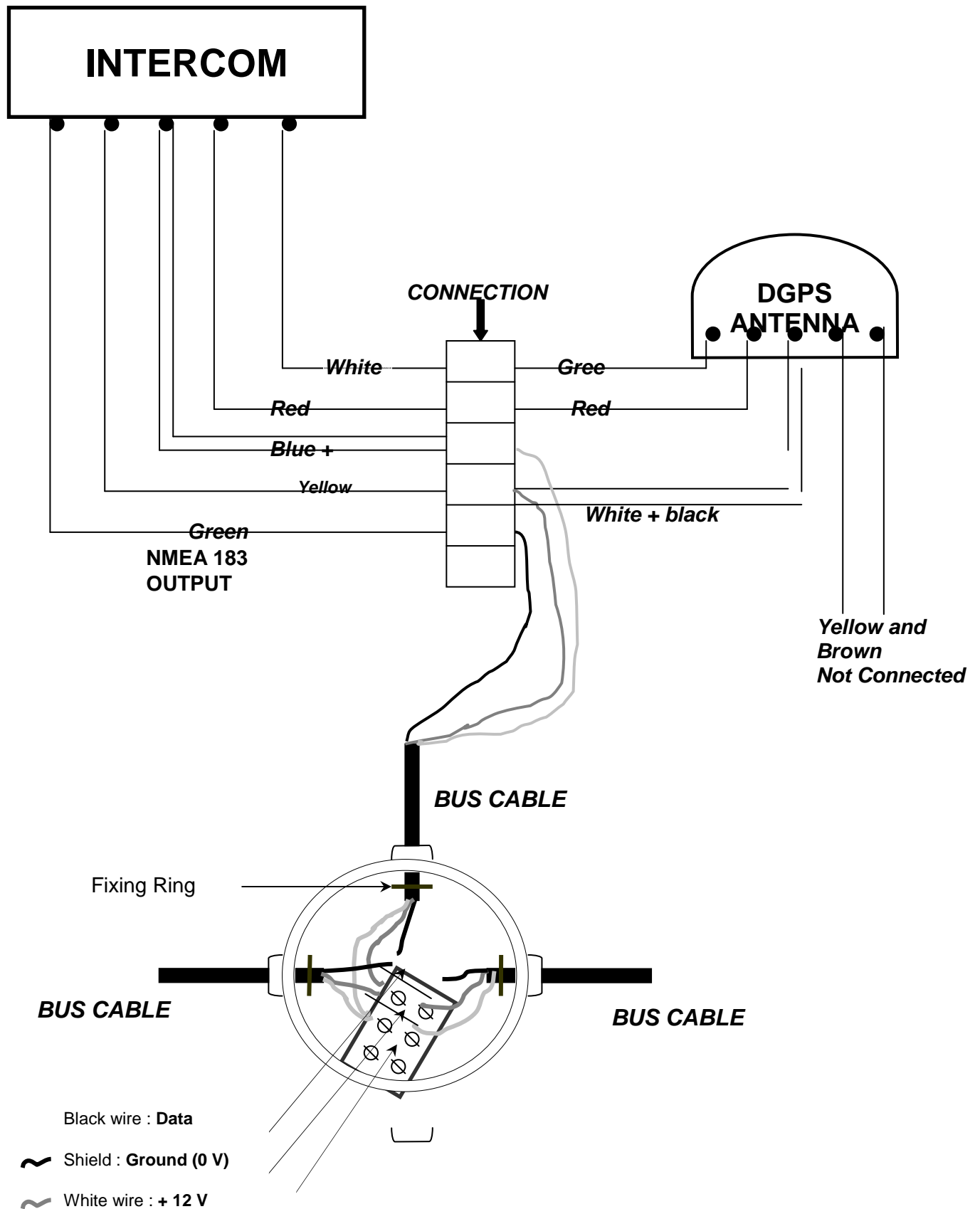
6   INITIALISATION

6.1   INTRODUCTION

The Intercom is initialized in production to be the MASTER of the BUS on your installation. It then has the number 1. You could chose to set another display as the master but we strongly recommend that you set the Intercom as the master, otherwise you wouldn't have the NAV channels on the other multifunctions.

When initializing, there is two possibilities :

It is a first installation and there is no Master set.

You are adding the Intercom to the existing Topline Installation and there is then already a master.

6.2   FIRST INITIALIZATION OF THE TOPLINE BUS

When you switch on the system, the INTERCOM shows :

INTERCOM N°1
then : CREATION LISTE
then : LISTE, followed by the display's numbers already present on the bus(normally none in this case).

The INTERCOM is the Master and its initialization is completed. See section 5.4 to number the other displays.

6.3   ADDING THE INTERCOM TO THE TOPLINE BUS

6.3.1   Introduction

You are adding the Intercom to the existing Topline Installation and there is then already a master. If you have two masters in the system, all the displays will lock-up and will not work properly. You should then :
- Remove the « wrong » master (wearing away of the number)
- Set the INTERCOM as the master
- Number all the other displays.

6.3.2   Wearing away of the « wrong » Master

The « wrong » master is the one showing Creat List at the start of the Topline Bus.

Switch off the Topline Bus.
Press and hold one button of the wrong master.
Switch on the Bus.
When the display starts beeping, loose the button and wait until the display stops beeping.
Switch off the Bus.
Repeat the procedure on all the displays that you want to re-number.

Once all the displays have been numbered to 0, the bus is not active anymore.

6.3.3   Setting the INTERCOM as the master

To set the INTERCOM as the master, proceed as follows :

1- Push key (L1) and hold.

2- Push key (+/-) the display shows :

<div style="border:1px solid">

INTERCOM   nke

GPS   Date   heure

</div>

3- Push key (0)

4- Switch off the installation.

5- Switch on.

6- Push key (1), the display shows : CREATION LISTE

 (the INTERCOM is then programmed as n°1, Master)

6.4   NUMBERING OF THE DISPLAYS

The INTERCOM is set as the Master and shows "CREATION LISTE". It also displays the data coming from the sensors installed on the Bus.

6.4.1   To designate the SLAVE displays :

Press on one button of a display, which will take number 2. The display then shows LISTE (meanwhile the MASTER displays CREAT LISTE for a few seconds and comes back to the data display).

Repeat this operation on all the displays with a minimum 5 seconds delay between each display.

Switch off the power
The displays now have their number and can communicate.

6.4.2   Normal Operation after initialization :

After these settings, all the displays are numbered. At the starting, each display shows shortly its number and then the MASTER displays "CREAT LISTE". (meanwhile, it interrogates all the elements of the BUS to constitute the LIST), and then the number of all the displays present. (e.g. : 3 slave displays 2 3 4)

Note : if there has been an error during the numbering, you need to erase the number and restart the procedure.

6.4.3   The remote control

First initialization

The Topline Bus sees the Remote Control as a display. It then has a number between 0 and 20. It can act only on the displays that have a number inferior to its own.
If you want that the remote control controls all the displays. the remote control should be the last numbered.

When all the displays have been numbered :

- Switch on the installation.
- Wait for a few seconds.
- Push on one button of the remote
- The master shows « Creat Liste »
  The other multifunctions show « **Liste** ».
- From that moment, the master gives a number to the Remote Control. This number is stored and the remote control can act on all the multifunctions with an inferior number.

-

Re-init procedure

To number it to 0 :

- Switch off the system
- Press and maintain on any button of the remote control
- Switch on the power
- After a second, loose the button
- Switch off the system without pushing any button

The remote control then has the number 0. See the numbering procedure to re-number it so that it can act again on the displays.

Note : If the LED of the remote control is not flashing after the initialization, the remote control is either faulty or badly connected to the Bus.

7   APPENDIX

7.1   THE TOPLINE BUS ARCHITECTURE

The BUS or network is made of sensors and displays linked together by a 3 wires cable (0 v = bare wire, +12 v = white wire, data = black wire).

The BUS system is a proprietary protocol that is organized by one of the displays present on the BUS. This display is the "MASTER", designated by you at the initialization of the system.
Every display has a designated number on the BUS that appears at the starting of the system.

0 = display NOT numbered
1 = master display
2 to 20 = slave display

The numbering of the displays is made as you like, but it can also depend of the type of displays you have.

7.2   TOPLINE DISPLAYS ERROR MESSAGES

EproM	EPROM faulty	These messages concern components mounted on the electronic boards, which have become faulty. The multifunction board has to be replaced.
RaM	RAM faulty	
9346	9346 faulty	

If the displays stay on **CREAt** or **LIStE** :	- Check for a short-circuit in a junction box between the black wire and other wires coming from another display or sensor - Check that there are no faulty items (display, sensor, calculator)

MAItrE AbSEnt	- The master display is missing in the system or there is a communication problem on the black wire. Check that there are no connection problems on the black wire, if the problem persists, re-init the system and name the master.
DEFAUt bAtt	- The BUS power supply battery or the voltage are too weak on the display
FAIL	- This message appears after a channel name (SP, Ad, etc) means that the related sensor is no longer sending data, the black wire is disconnected or the sensor is faulty
UoIR bUS	- This message appears if you try to go into the secondary channels of a sensor that is not detected by the BUS.

7.3   TROUBLE SHOOTING

If there is a short-circuit on the BUS with the INTERCOM as the Master :

The INTERCOM takes n°0
All slave displays show « Maitre absent »

You then have to look for the short-circuit source. Once you have the faulty connection, reset the Intercom as the master.

7.4   NMEA STRINGS

List of the NMEA strings SENT by (22) the intercom :
GGA, VTG, RMC, ZDA, GLL, XTE, APB, BWC, WCV, XTR, BEC, RMB, VHW, MWV, MWV, VLW, XDR, MTW, XDR, HDG, DBT, MWD.

Example :

$GPGGA,101309,4747.818,N,00317.170,W,1,4,2.8,3.0,M,-51.0,M,,*4C
$GPVTG,222,T,227,M,0.7,N,1.3,K,A*23
$GPRMC,101310,A,4747.818,N,00317.170,W,0.7,222,190199,5.0,W,A*0C
$GPZDA,104743,19,01,1999,01,00*4D
$GPGLL,4747.818,N,00317.170,W,101311,A,A*54
$GPXTE,A,A,0.00,L,N,A*03
$GPAPB,A,A,0.00,L,N,A,V,5,M,START,270,T,275,M,A*06
$GPBWC,102220,4747.827,N,00317.163,W,270,T,275,M,0.00,N,START,A*06
$GPWCV,0.0,N,START,A*34
$GPRMB,1,0.00,L,START,START,4747.827,N,00317.163,W,0.0,270,0.0,A,A*39
$IIVHW,,,266,M,0.00,N,0.00,K*33
$IIMWV,134,R,0.0,N,A*25
$IIMWV,1,T,0.0,N,A*24
$IIVLW,1,N,1.32,N*62
$IIXDR,C,25.9,C,TempAir*28
$IIMTW,19.8,C*13
$IIXDR,P,1.002,B,Barometer*24
$IIHDG,279,5.0,W,,*27
$IIDBT,20.6,f,6.3,M,3.4,F*27
$IIMWD,,,266,M,0.0,N,0.0,M*22