SAILOR RT4822
VHF-DSC
Operating Instructions

Distress Calls, see page ii . Contents, see page 1.

DISTRESS Call

Quick DISTRESS Call

1. If off or UNIT OFF: press ON/OFF.

2. Open DISTRESS lid.

3. Press DISTRESS until RELEASE is displayed.
This takes 5 seconds, during which the indicator lamps TX and ALARM will flash

5 - 4 - 3 - 2 - 1 - RELEASE

Press the DISTRESS button
for **5** seconds to transmit
TYPE : Distress
MSG. : Undesignated
Pos : N:05°01E:009°54
Time : 18.12 UTC CANCEL

Waiting for Distress Acknowledgment **16**

Retransmit distress call every 4 minutes CANCEL

Wait for answer!

(The distress call is auto-repeated every 3.5-4.5 minutes.)

NB! DISTRESS is only to be used in case of an emergency!

Acknowledgment

Distress acknowledg-ment received
FROM: 002191000 VIEW
Tx 1W US CALL ALARM

Read call contents.

4. Press VIEW.

Call contents
first page
Time: 18.22.06 19 Aug 97
TYPE : All station
FROM: 002191000
CAT : Distress
ACK : Call MORE

View next page.

Call contents CONNECT
second page

COMM: Distress ackn
SHIP : 123456789
MSG. : Undesignated
Pos : N:05°01E:009°54 AGAIN

View call again.

Mayday Procedure

5. Press "16".

16 25W INT
MEM VOL SQ
2 13 06

6. Lift handset.

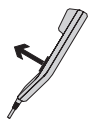
Press

Press PTT and say:

"MAYDAY, MAYDAY, MAYDAY
This is <Ship name (3 times)>

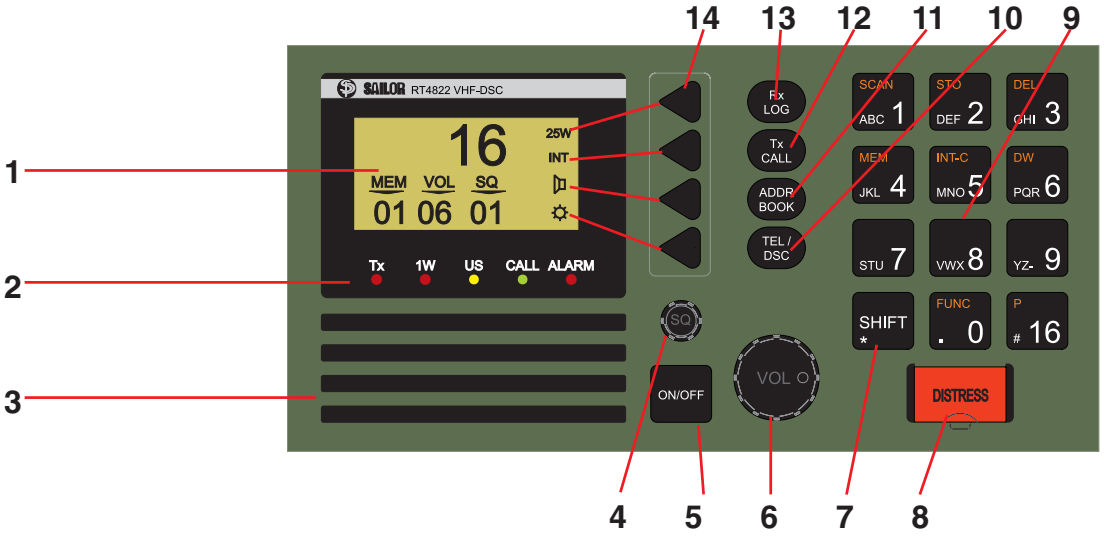
MAYDAY
This is <Ship name + call sign>
Position:.....
What is wrong:.....
Kind of assistance:.....
Number of crew:.....
Other info:....
OVER."

Release



Release PTT and listen for answer.

What is What?



1. Display.
2. Indicator lamps. Condition when lit:
   Tx: Transmitting.
   1W: 1 watt transmission mode.
   US: US channel system activated.
   (For information on the BI version, see page 11)
   CALL: DSC (see button 10) call for you received.
   ALARM: Alarm call received.
3. Loudspeaker.
4. Squelch control. Adjust to silent when no station is received.
5. ON/OFF push button.
6. Volume control.
7. Shift key. Press and hold for yellow functions.
8. DISTRESS button, protected by shield. To use, lift the shield and press for 3 seconds, guided by the text displayed.
9. Keyboard.
10. TEL/DSC function switch.
    In TEL mode radiotelephone parameters are shown and selected.
    In DSC mode DSC parameters are shown and selected.
11. Open the ADDR BOOK in DSC mode.
12. Tx CALL: Press to start creating a DSC call.
13. Open the Rx log of received calls in DSC mode.
14. Display keys. The function of each key is described in its respective line on the right side of the display.

Abbreviations Used in this Manual

ADDR	Address
ATIS	Automatic Transmitter Identification System
BI	Channel mode used when sailing on European rivers (more details on p. 11)
DSC	Digital Selective Calling
DUP	Duplex
DW	Dual Watch
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System
LF	Low Frequency
MEM	Memory
MMSI	Maritime Mobile Ship Identification
MSG	Message
PTT	Push-To-Talk
RX	Receive(r)
SQ	Squelch
STN	Station
TEL	Telephony
TX	Transmit(ter)
UTC	Coordinated Universal Time

Introduction

S. P. Radio A/S

For more than half a century S. P. Radio A/S has been the market leader within maritime radio communication.

Sailor

The communication products and systems of S. P. Radio are recognized under the brand name Sailor. The Sailor name has become a guarantee of reliable and technologically superior radio equipment, ranging from basic VHF units to satellite systems and complete compact GMDSS solutions.

Products

The SAILOR COMPACT 2000 GMDSS is based on the well proven range of Sailor products specifically developed to meet the GMDSS requirements and supported by a world-wide Certified GMDSS service concept, giving several hundred reasons for shipping companies to choose equipment manufactured by S. P. Radio A/S. Today S. P. Radio A/S is recognized as the world's leading supplier of GMDSS solutions.
The SAILOR COMPACT 2000 GMDSS has already been and still is constantly supplied to a large number of the world's leading shipping companies and national naval fleets. It is a complete GMDSS solution which matches communication and safety needs exactly - regardless of whether you operate with A1, A2, A3 or A4.
The System 4000 GMDSS sets new standards. It is constructed on the basis of our comprehensive experience developing GMDSS equipment. It satisfies all the relevant requirements regarding safety and efficiency. The System 4000 presents a large number of attractive convenience and safety facilities, either as a complete solution or as a series of stand-alone products.
Sailor has a long history as a satellite communications supplier offering a full programme of satellite systems which includes Mini M, SAT-C and a number of stationary satellite systems. Our SAT-B is a breakthrough in maritime aerial technology and reliability. The SAT-B is the best possible choice when high quality speech transmission, top level security and the capacity to deal with large volumes of telex, fax, data and high-speed data (HSD) transmissions are required.

Training certification

Training of deck officers to meet the requirements within the concept of GMDSS, as to operation of equipment and basic understanding of the systems, is an extremely important factor for the overall successful implementation of GMDSS. As a unique initiative for GMDSS solutions, we can supply a complete software training programme for on-board training, to be used as preparation in order to fulfil the GMDSS requirements for obtaining the General Operation Certificate.

Service

A world-wide Sailor GMDSS certified service concept has been established in order to provide the shipping industry with a highly professional and uniform level of service. The Sailor GMDSS Certified Service Centre concept, which is constantly monitored, ensures that replacement units and spare parts are available at all the Sailor Certified Service Centres around the world. Service centres which are in position along all the major shipping routes. Furthermore the Certified Service Centres ensure that technicians with an annually updated training are ready to provide service 24 hours a day, 365 days a year.

Maintenance

Because of the fact that GMDSS equipment has been installed on board ships in order to meet the SOLAS (Safety of Life At Sea) convention, manufacturers and suppliers of GMDSS equipment have a certain responsibility to secure reliable supplies of equipment and spares in the years to come.
Therefore shipowners operating ships both locally and internationally should be fully aware of the importance of fitting GMDSS solutions which will be fully supported by the manufacturer.
It is a firm policy of S. P. Radio A/S, as the world's major manufacturer and supplier of GMDSS solutions, that for both the present GMDSS solutions and for future, alternative product solutions, all Sailor GMDSS systems will be entering the next century in fully parallel production.

About this Manual

This manual is for the daily user of the system. The manual includes two main sections, "basic" operation and "full" operation. The basic part offers a short easily-read description of the main functions; the full part offers elaborate descriptions of the functions of the product.

Please note

Any responsibility or liability for loss or damage in connection with the use of this product and the accompanying documentation is disclaimed. The information in this manual is furnished for informational use only, is subject to change without notice, may contain errors or inaccuracies, and represents no commitment whatsoever. This agreement is governed by the laws of Denmark.

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Contents

VHF Fundamental Info

The VHF Channel System

The VHF radio telephony system uses a limited number of frequencies called channels. The public system has 57 channels, numbered CH 1 to 28 and 60 to 88, each of which has a certain purpose: intership, ship-to-port, or ship-to shore (public). You can have private channels, too. In **US** waters, the channels are different. Therefore you need to set the system to “US” channels there. Other waters like the Rhine have their own different systems, too.
Four channels have special purposes:

16: To be used for **verbal distress calls** and for **calling** “all stations” ***only.*** All large ships are obliged to monitor it constantly. **Never to be used for chatting, etc.!**
70: The DSC channel, see below.
75-76: Used as Guard Band for distress channel 16.

Verbal VHF Communication

All channels except channel 70 are used for verbal communication. There are two types of channels, **simplex** and **duplex**:

- On a **simplex** channel, both parties transmit and receive on the same frequency. Therefore you cannot talk and listen at the same time. When you have finished talking, say “over”, and release the handset’s PTT key.
- On a **duplex** channel, you talk and listen on two different frequencies. You can therefore speak and listen at the same time. To save power, release the handset’s PTT key except when talking.

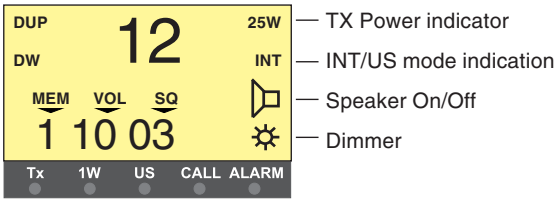
Note that everybody with a VHF receiver can listen to your conversation, but it is forbidden to use or pass on what is heard.

DSC Digital Communication

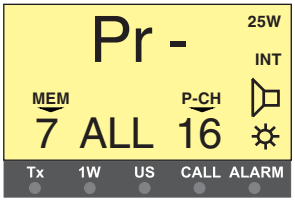
DSC is a digital data transfer system using VHF CH 70. The transmitter waits until the channel is free and then sends its data, either to a designated address, or to “all stations” for example for a DSC distress call. It is mainly used for getting in contact in order to establish verbal communication.

Telephony display

Normal display



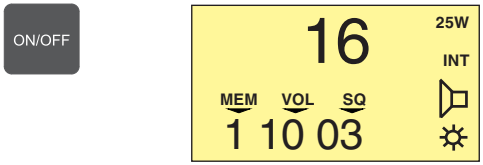
Scanning display



Basic Operation

Switching ON/OFF

1. Press the ON/OFF button.

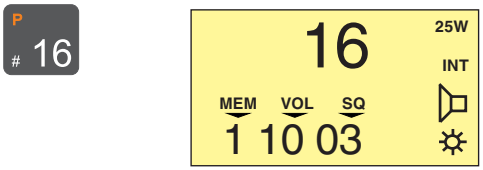


In **UNIT OFF** mode, the VHF set is remote controlled.
To activate the panel, press ON/OFF.

Listening for Telephony Calls

According to international rules, all ships shall monitor channel 16 constantly:

1. Select channel 16 by pressing:



2. Set the squelch level by means of the button

a. Step down squelch level until noise is heard on free channel.
b. Then step up to the first level where just silent.

(To listen for calls on other channels, select the channel number or use the scanning facility.)

Basic Telephony Operation

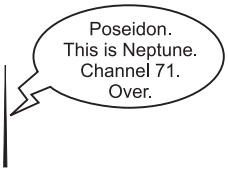
To activate the VHF functions if not active press the key TEL/DSC or the key “16”.

Receiving a Telephony Call

When a call comes in and your call name is heard in the loudspeaker:

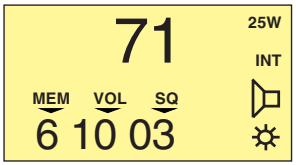
1. Hook off the handset.
2. Press the PTT key on the handset.

3. To answer the call, say:
   "<The name of the calling station>
   This is <Your station name>"



4. To suggest channel, say:
   "Channel" <suggested channel number>"
5. Say "over" and release the PTT key to let the caller accept the proposed channel number.

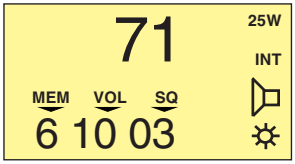
6. Switch to the channel agreed upon (for example channel 71) and communicate:



Press the PTT key when talking only. If on a simplex channel, say "over" every time you have completed talking.

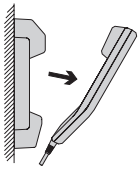
Making a Telephony Call

In telephony mode:

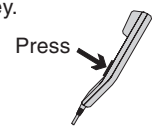


1. Select channel 16 or another channel specified or agreed upon:

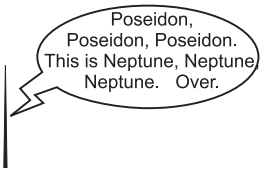
2. Hook off the handset.



3. When speaking,
   press the handset PTT key.

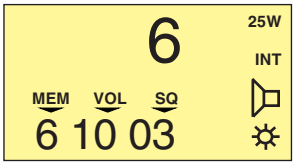


Make the call:
1. <Called station name (3 times)>
2. "This is "
   <Your station name (3 times)>
3. "Over"



4. Release the PTT key to listen.

5. When answered,
   agree upon a channel,
   switch to the channel (for example channel 6) and communicate.



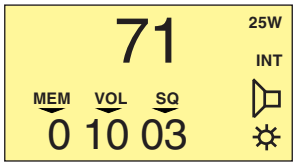
Press the PTT key when talking only. If on a simplex channel, say "over" every time you have completed talking.

Channel Control

Setting the VHF channel can be done in two ways by means of the numeric input keys or by using the quick select key “16”:

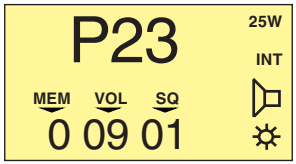
Numeric keys:
Press the numeric input keys until the desired channel number is shown on the display:

Ex:

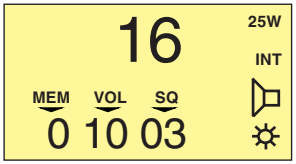


If private channels are available in your VHF system, a private channel number is selected by pushing the buttons:

Ex: Private channel 23

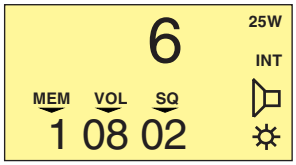


Quick select key:
Press the key



Squelch Control

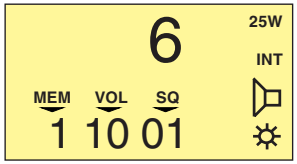
Set the squelch sensitivity of the receiver by the button



The squelch setting is shown on the display below the “SQ” symbol.

Setting the Volume Level

To change the volume setting use



The volume setting is shown on the display below “VOL”.

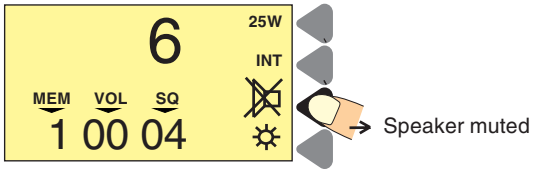
Muting the Speaker

If the speaker is active, it is automatically muted when the PTT is pressed, and then reactivated when the PTT is released.

The speaker icon on the display shows the speaker state.

Speaker active:

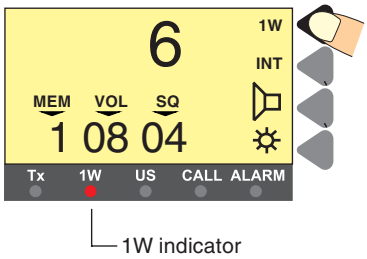
To mute or unmute the speaker, press the soft key



Setting Transmitter Power Level

The VHF set can control the transmitter power level, which can be set to either 1W or 25W.

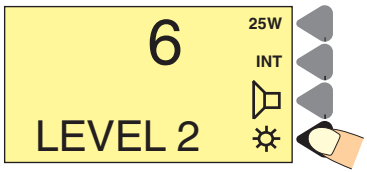
Low power 1W is indicated by the indicator lamp on the display. Some channels may be programmed to operate at 1W level only. To change the TX power level press the soft key.



Dimmer Function

The VHF set features display backlight, keyboard backlight and light in the indicator lamps (TX, 1W, US, CALL and ALARM). The light can be set in four steps 0-3.

To change the dimmer level press the soft key

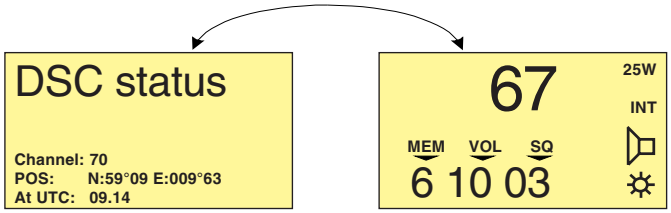


When the key is being pressed the dimmer level will change every second.

Basic DSC Operation

DSC Main Buttons

To switch between the TEL and DSC screens, press TEL/DSC.



DSC status display or previously used DSC display

Telephony Display

The 

button opens the screen menu where all DSC calls are stored, for up to 48 hours.
In this menu CALLS or ALARM CALLS can be read separately and sorted according to time of reception.

The 

button opens the DSC transmitter menu. From here it is possible to make simple calls (SHORE, SHIP, ALL SHIP) and more complicated calls including special category and telecommands. (EXTENDED)

The 

button opens the address book menu.
An ADDR BOOK call is a complete DSC call incl. a name. It is possible to transmit, add or delete calls from here.

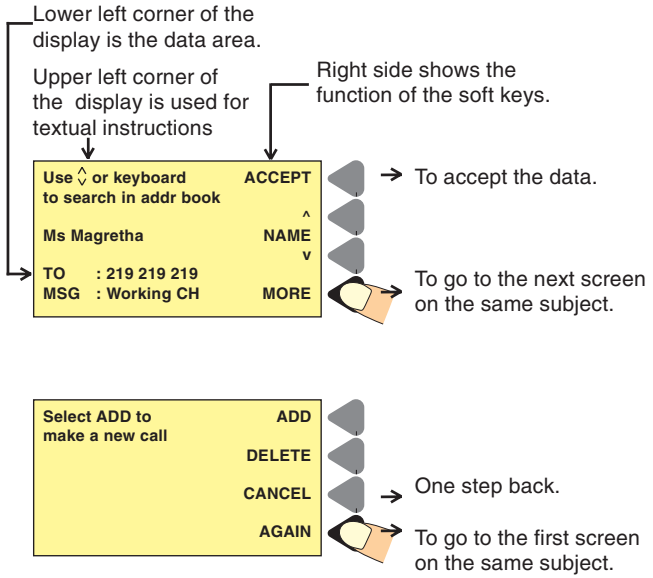
The 

button switches between the TEL and the DSC screen.

DSC Display Operation

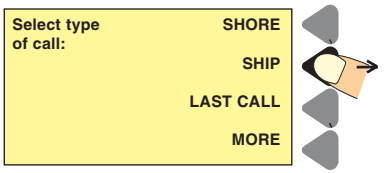
Featuring a self-explanatory menu-driven system, the display guides the user by textual instructions. Also, the function of each soft key placed to the right of the display is shown.

Opens the address book menu.



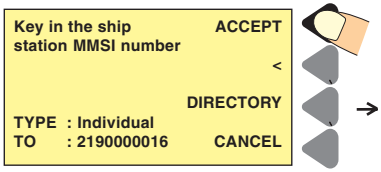
Calling a SHIP

Press TX CALL



To select a SHIP call.

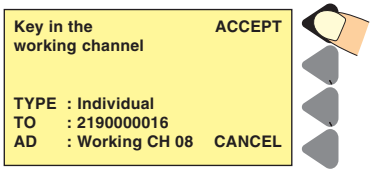
Key in the nine digit MMSI number of the wanted ship.



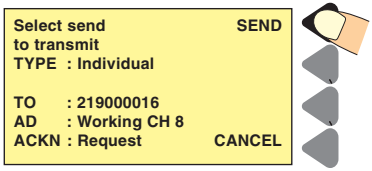
To accept the number.

A submenu where a pre-programmed ship can be selected.

A free international ship channel is suggested.



To accept the channel.



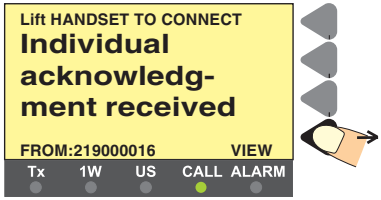
To transmit the call

You see the flashing messages “Call in progress” and “Waiting for acknowledgment”

Wait for answer

Receiving an Individual Call

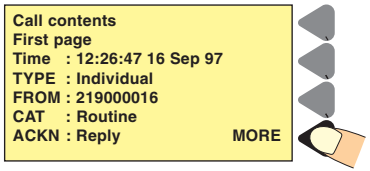
When switched on, your VHF set is constantly monitoring channel 70 for incoming DSC calls.



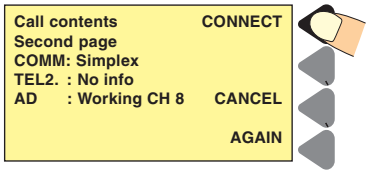
Lift the handset to connect to the caller.

or

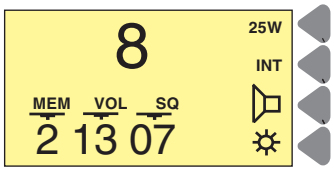
Press VIEW to read out the call.



To view the second part of call.



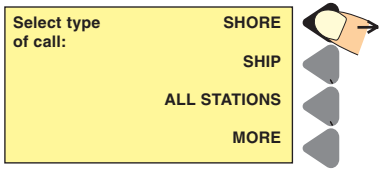
To change to telephony mode and set channel.



Lift handset and start talking.

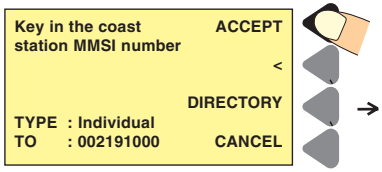
Calling a SHORE Station

Press TX CALL



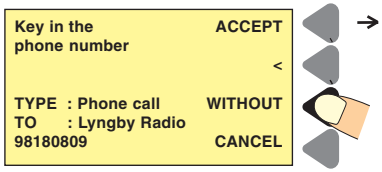
To select a SHORE call.

Key in the nine digit MMSI number of the coast station.



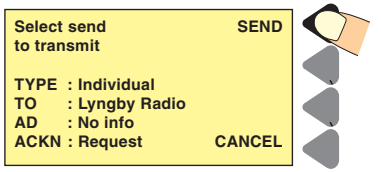
To accept the number.

→ A submenu where a pre-programmed coast station can be selected.



→ To make an automatic phone station call.

To delete the phone number.



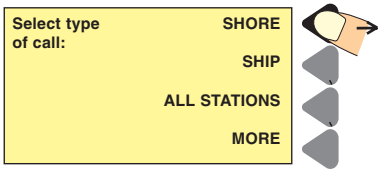
To transmit the call.

The messages “Call in progress” and “Waiting for acknowledgment” will flash.

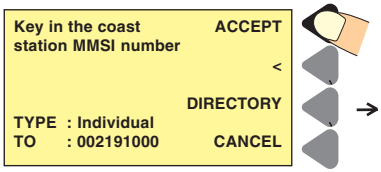
Wait for answer.

Calling a PHONE NUMBER Directly

Press TX CALL



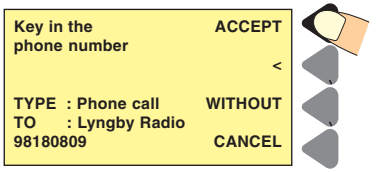
To select a SHORE call.



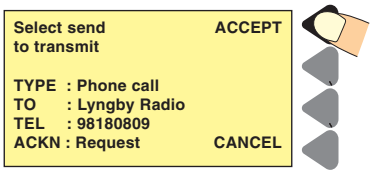
To accept the number.

→ A submenu where a pre-programmed coast station can be selected.

Key in the phone number.



To accept the number.



To transmit the call.

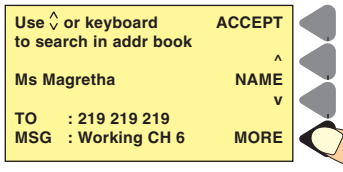
The messages “Call in progress” and “Waiting for acknowledgment” will flash.

Wait for answer.

The ADDR BOOK

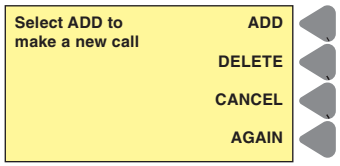
Press ADDR BOOK to open the address book menu.

ADDR BOOK



→ To accept the call, and go to the SEND menu.

→ To go to the next page.



→ To store a new call in address book register.

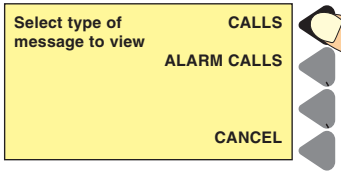
→ To delete calls.

→ To return to telephony operation.

The Rx LOG

Press RX LOG

Rx LOG

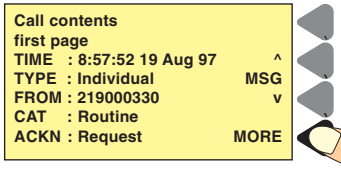


→ To view ordinary calls.

→ To view alarm calls.

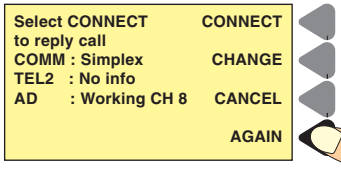
ALARM CALLS buffer contains:
Distress calls, distress acknowledgment, distress relay, and calls of category distress and urgency.

CALLS buffer contains:
All other types of calls



→ To scroll in the buffer.

→ To go to the next screen.



→ To reply to call and set channel.

→ To change reply.

→ To view first page again.

Full Operation

Full VHF Telephony Operation

Setting Channel Mode

Some VHF radios offer a choice between two sets of channels, called channel modes. If your VHF features two modes, you can either switch between international/US channels, or between international/BI channels.

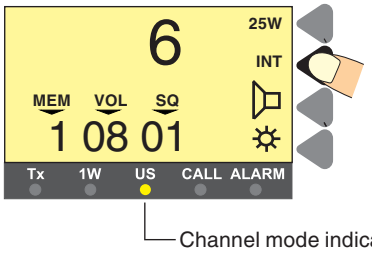
International mode is used when sailing on any sea in the world, except in US waters.

US mode is used when sailing in US waters.

BI mode is used when sailing on the rivers of Europe.

Setting International/US Channel Mode

If your VHF features the choice of international/US mode, switching between those two sets of channels is done by pressing the soft key:

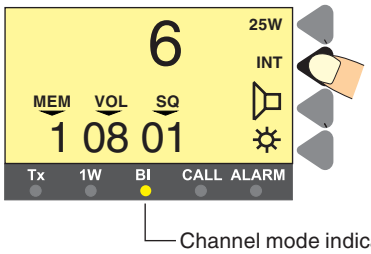


Channel mode indication

When US mode is selected, the yellow US indicator lamp is lit. Otherwise, the radio is in international mode.

Setting International/BI Channel Mode

If your VHF features the choice of international/BI mode, switching between those two sets of channels is done by pressing the soft key:



Channel mode indication

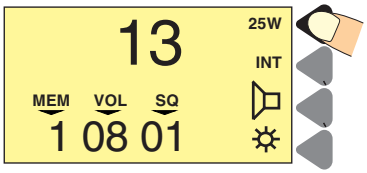
When BI mode is selected, the yellow BI indicator lamp is lit. Otherwise, the radio is in international mode.

When BI mode is selected, ATIS is activated automatically.

25W Transmitter Power Level

NB! For US channels 13 and 67.
If the VHF is programmed with the set of US channels, some of those channels are specified to be used only with the limited transmitter power level of 1W. This means that the TX power level cannot be changed to 25W as described.

However, it is still possible to set the TX power level to 25W by using:



When the key has been pushed for 1 second the TX power level will change if allowed.

Setting Memory Scan Table

The VHF 4000 system has eight independent sets of memory tables to save channels for making scanning sessions. Each memory table may contain all channels available in the system.
To distinguish between the tables, each table has a number (0-7) and to each number can be attached a name of maximum seven characters.
To attach a name to a scan table, enter the function menu.

The scan table number selected is shown in the left corner of the display.

Pre-programmed memory tables for scanning of channels:

Table 6: Channels for intership communication.

Table 7: All channels in system.

It is recommended not to alter the pre-programmed channels in scanning tables 6 and 7. These scanning tables are used to search for channels for intership DSC communication, and altering the channels may exclude you from performing intership communication on certain channels.

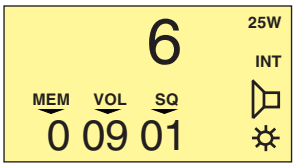
Setting the selected scan table:
To set the selected scan table to be number 0:

1. Press SHIFT * MEM JKL 4

The VHF set display shows the message “SEL”ect and the MEM symbol. The lower part of the display shows the scan table’s number and name.

2. Press FUNC . 0

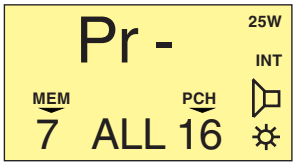
The VHF display now shows the new scan table number 0.



Scanning of Channels

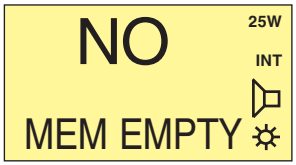
To start scanning:

Press SHIFT * SCAN ABC 1



The lower part of the display shows from left to right: scan table number, scan table name and priority channel of scan table.

If scan table contains no channels, no scanning will be started, and the display will show the following message:



To stop scanning:
Scanning in progress can be terminated in the following ways:

1. Press SHIFT * SCAN ABC 1

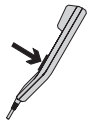
   The system resumes normal VHF operation on the channel selected before the scanning session was initiated.

2. Press P # 16

   The system resumes normal VHF operation on quick select channel 16.

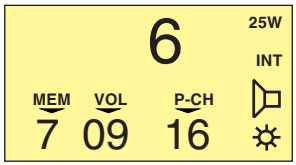
3. Hook off the handset.
   The system resumes normal VHF operation on the channel selected before the scanning session was initiated.

4. Push the PTT



If no signal has been detected on any channel, the system resumes normal VHF operation on the channel selected before the scanning session was initiated. If a signal has been detected on a channel, the system resumes normal VHF on the last channel where signal was detected.

If scanning is in progress and a signal is detected on eg. channel 6, the display changes to show the selected channel number and volume level.
When a priority scanning is in progress, channel 16 is scanned once for every channel scanned in the scan table. Channel 16 cannot be deleted or excluded while a scanning is in progress.

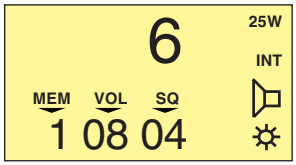


To add a channel to a scan table:
Select channel number (shown on the display), and then press

Ex: To add channel 6 to scan table number 1:

1. Press 

Channel 6 is selected.



2. Press 

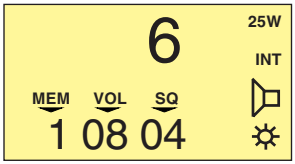
The message “stores channel” is shown for two seconds.

To delete a channel from a scan table:
Select channel number (shown on the display), and then press 

Ex: To delete channel 6 from scan table number 1:

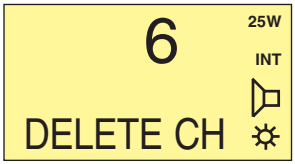
1. Press 

Channel 6 is selected.

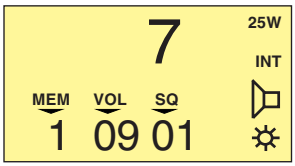


2. Press 

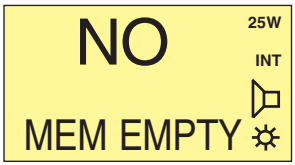
The message “delete channel” is shown for one second.



Then the display will show the next channel in the scan table.



If there are no more channels in the scan table and deletion is attempted, the display will show the message “mem empty”.



To view contents of channels in a scan table:
Viewing which channels a specific scan table contains, can be done in two ways:
While key is being pressed down, the VHF display will step through the channels of the scan table selected.

1. Press SHIFT * SCAN ABC 1, the latter for 1 second.

OR

2. Press SHIFT * MEM JKL 4, the latter for 1 second.

Dual Watch

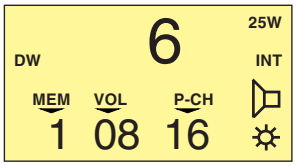
The VHF set may perform a dual watch of channels, a priority channel and the selected channel being monitored simultaneously.

To start a dual watch of channel 6 and priority channel 16:
Select channel 6.

Then press

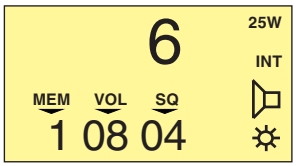
SHIFT * DW PQR 6

When a dual watch is in progress, "DW" appears on the display and the priority channel is shown in the lower right corner of the display.

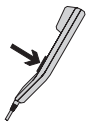


To stop a dual watch: When a dual watch is in progress it can be terminated in three ways.

1. Press SHIFT * DW PQR 6

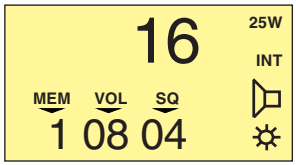


2. Push PTT



The system resumes VHF on the selected channel 6 and starts transmitting.

3. Push P # 16



The system resumes VHF on the quick select channel (normally 16).

Intercom

If your VHF system has more than one control unit, it is possible to carry out an intercom between two control units.
When the intercom feature is used the VHF will perform as follows:

Initiating an intercom from the VHF set to another control unit:
To call another control unit:

1. Press 

This display indicates that the unit expects an input of the location number to be called.

2. Press a numeric key to choose location to be called

Ex: 

3. If location 2 is NOT available, the display shows

and no dialling is carried out.

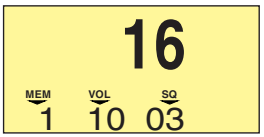
If location 2 is available the display shows

and a ringing tone is heard in the speaker/earpiece.

This indicates that a dial-up is in progress to the control unit with location number 2. The lower part of the display now toggles the message CALLING and the NAME of the called control unit. During the dialling time of 30 seconds it is possible to hook off the handset and speak into the microphone. As LF is activated in the called control unit during dialling, the receiver of the call can hear you in the speaker without hooking off. This makes it possible to use the VHF system as a sort of paging system.

4. If the intercom attempt is answered:
   When the receiver of the call hooks off his handset, the intercom is established.

   If the intercom attempt is not answered within 30 seconds, the unit automatically hangs up and reenters normal VHF operation.

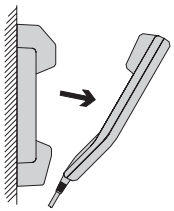


Receiving an intercom attempt from another control unit:
When an intercom is attempted from another control unit, the following will happen (the caller has location number 3).

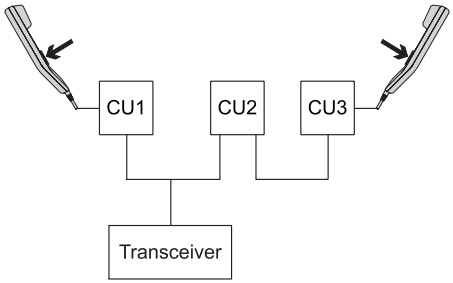
1. Receiving an intercom

   The display toggles CALLING and the NAME of the caller.
   A ringing tone is heard in the speaker.

2. To answer the intercom, hook off handset.



The intercom connection is now established; to communicate, simply press PTT and speak into the microphone.

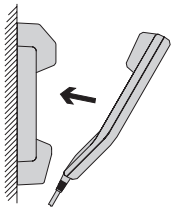


During intercom the unit is able to:

1. Adjust volume level
2. Mute/unmute speaker
3. Adjust squelch level
4. Adjust dimmer level

Terminating an intercom session:
The intercom connection can be terminated by either of the control units.
To end an intercom:

1. Place handset on hook.
   The VHF set resumes in VHF mode.



2. Key 

   The VHF set resumes in VHF mode.

3. Key 

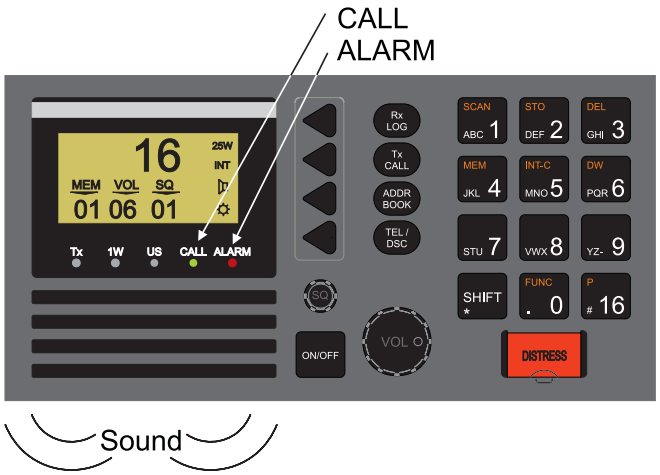
   The VHF set resumes in VHF mode selecting channel 16.

Full DSC Operation

Receiving DSC Calls

When a DSC call is received, the user will be advised by the unit. This is done in different ways, depending on the type of DSC call and the unit operation mode:

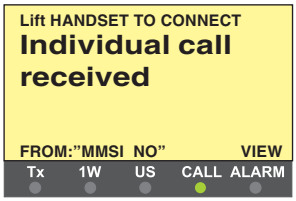
Sound,
CALL indicator lamp or
CALL and ALARM indicator lamps.



Furthermore the unit does as follows:

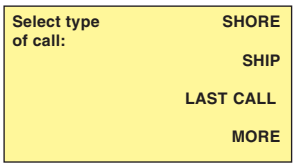
1. **If on hook:**

   A. If VHF mode active:



   The unit automatically changes to DSC mode.

   B. If DSC mode or function menu active, the unit continues the function in progress.



2. **If hooked off:**

   A. If VHF mode active:
   The unit continues in VHF mode, for your VHF control.

   Press TEL / DSC to view the limited call contents as in 1 A.

   B. If DSC mode or function menu active:
   The unit continues the function in progress.

   In all cases, to view all DSC call contents:

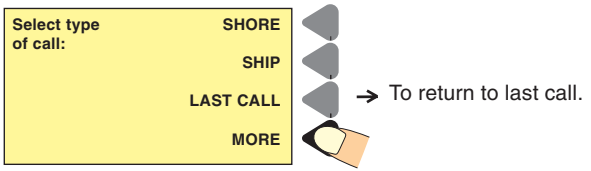
   Press Rx LOG and view all call contents by entering the RX LOG menu.

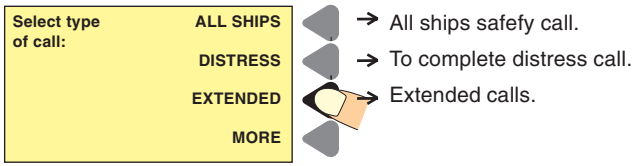
TX CALL Menu

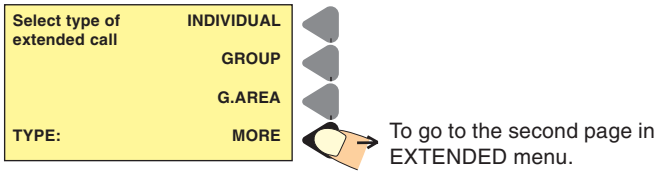
An extended DSC call makes it possible for you to control the call completely within international rules, including the possibility of sending data or fax from optional equipment connected to your VHF set.

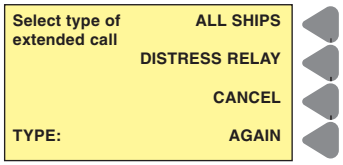
To start an extended call, select EXTENDED as the “Type of call” in the TX menu below, and then continue in the extended calls menu on next page.

Press TX CALL









TX CALL menu. Enter correct data instead of examples**:**

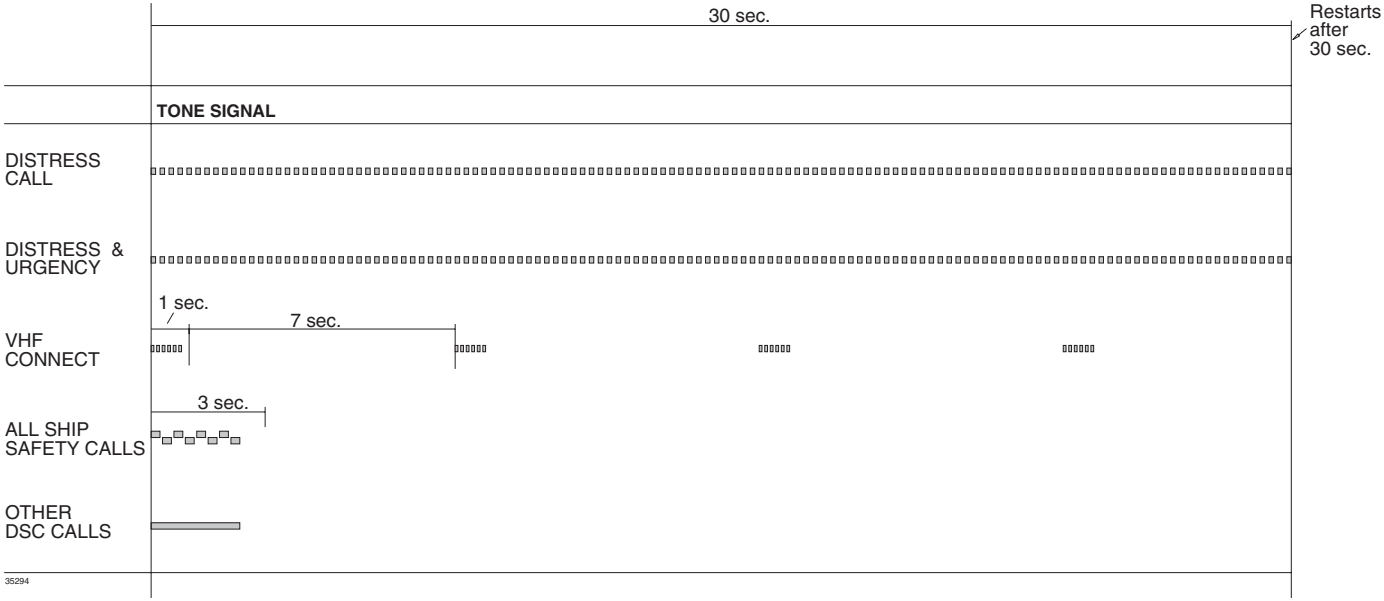
Type of call	Address	Options	Other data transmitted	Add. MSG.	Ackn.
SHORE Shore:	001234567	No info: Call shore station	Routine - Simplex	No info	Yes
Shore -->Phone:	or from ADDR.BOOK	98765432: Call Phone No.	Routine - Simplex - <Phone number>	No info	Yes
SHIP	123456789	(none)	Routine - Simplex - No Info	Working ch xx	Yes
LAST CALL	Repeat the last call made.				
ALL SHIPS	All ships	(none)	Safety - Simplex - No Info	Working ch xx	No
DISTRESS		COLLISION SINKING PIRACY UNDESIGNATED GROUNDING MAN OVER BOARD ABANDONING SHIP FLOODING FIRE LISTING (CAPSIZING) DISABLED AND ADRIFT	Position UTC time for position ... to be entered manually if not obtained from e.g. a GPS.		No
EXTENDED	(See next page)				
VTS CALL	(Reserved for future use)				

EXTENDED TX call started from “EXTENDED” in the table on the previous page. Enter correct data instead of examples**:**

Type of call	Address		Options		Category	Telecom 1	Telecom 2	Add. MSG.	Ackn.
INDIVIDUAL Phone	001234567		Phone number		Routine	Simplex	No info	No info	Yes
Shore:	001234567					SIMPLEX	No info		
Ship:	123456789					POLLING	MEDICAL		
GROUP	012345678					POSITION	NEUTRAL		
G.AREA	N:57° d02° W:009° d03° The data in the example gives the area: N:57..55° W:9..6°				ROUTINE URGENCY DISTRESS SAFETY BUSINESS	NO INFO FAX ARQ DATA Unable to comply	No info No info V.21 V.22 V.22 *bis* V.23 V.26 *bis* V.26 *ter* V.27 *ter* V.32 No reason Congestion Busy Queue Station barred No operator Temporarily engaged Equipment disabled Bad channel Bad mode No info	 No info Position Working ch xx	 Yes No
ALL SHIPS					DISTRESS URGENCY SAFETY	Simplex No info FAX ARQ DATA	No info As for DATA above	Working ch xx	No
DISTRESS RELAY	Type of address	Address	Ship in distress	Distressed ship's MMSI	Distress		As for DISTRESS in table Tx Call menu	Position	
	ALL SHIPS INDIVIDUAL	All ships 001234567	UNKNOWN KNOWN	 123456789					

MMSI address rule:
Shore station numbers start with 00, group numbers start with 0, ship numbers start with a digit 1-9.

Tone signalling when receiving DSC Calls



The tone signalling sequence is repeated every 30 seconds or until the DSC call is either read or answered.
When handset is hooked off, there is a short tone every 30 seconds until call is read.

Please note that if the radio receive a distress call when the speaker volume is less than 10, the volume will be 10 until you change it back again.

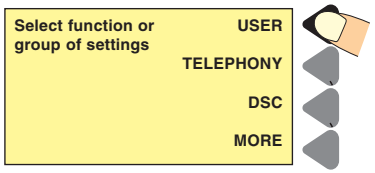
Function Menu

Changing a Function

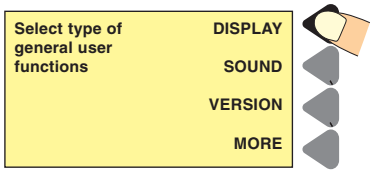
There are a large number of function settings available, selectable from a functions tree, see next page. This chapter only deals with the principles of how to use the functions tree.

Example used: Changing the display contrast.

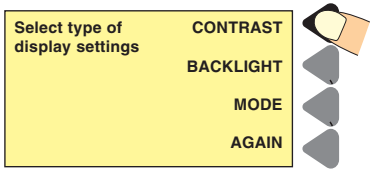
Press SHIFT and FUNC to enter function menu.



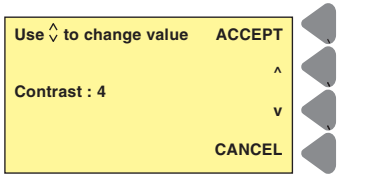
To select the USER function.



To open display settings.



To open contrast menu.



ACCEPT stores the selected value in memory.

^ To change contrast value (up = darker)
v To change contrast value (down = lighter)

CANCEL leaves this menu and reloads the old contrast value.

Functions Tree

Menu	Submenu Level 1	Submenu Level 2	Parameters
USER	DISPLAY	CONTRAST	0 to 7. High contrast = 7.
		BACKLIGHT	Settings for each of the "Level 0..3" backlight levels on the TEL display. Display: Backlight (0..7, no light = 0) Keyboard: Backlight. ON/OFF.
		MODE	Dimmer mode: To minimum / To centre, To maximum.
	SOUND	EARPIECE	EARPIECE level : 0 to 15.
		ALARM	Loudspeaker ALARM level: 0 to 15.
		SPEAKER	Selects if the loudspeaker is to be active with handset OFF.
	VERSION		Software version. Your apparatus' serial number.
	PRINT SETUP		Printer: ON/OFF / Codes. Paper width: 80 or 24 char.
	LANGUAGE	The languages selectable	Selects the language of the display texts. Only active if allowed.
TELEPHONY	CHANNELS		Read out VHF channel information
	SCANNER		Setup/edit name of scan tables
	ATIS		Your station's ATIS number
DSC	MMSI		Your station's MMSI number.
	POSITION *		Automatic if connected to a GPS or equiv., otherwise enter here.
	TIME	CHANGE Displays time and date	Automatic if connected to a GPS or equiv., otherwise set here. Local time zone: -12 to + 12 (-12 to +12). Time hh mm ss: (0-23:59:59h). Date: dd-mm-yy.
	TEST		DSC TEST CALLS
	AUTO ACKN		Auto acknowledgment on request: ON/OFF. With position data: ON/OFF.
DIRECTORY	ADD		Adds new entry in the DIRECTORY register.
	DELETE		Deletes an entry.
	VIEW		Views the contents of the DIRECTORY.
Key in "9876"	UNIT	LOCATION	1 to 7 unique number of control unit.
		NAME	Unit name, e.g. "BRIDGE".
		SPEAKER	Must be set to 1. Not to be changed for future use.

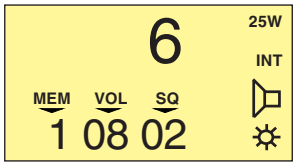
*) Note: If time of position is different from current time:
1. Select 'Time' and key in the time of position.
2. Select 'Position' and key in the position.

VHF System Description

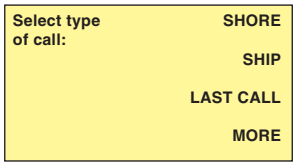
To the VHF system can be connected up to 7 control units. Each control unit has a unique location (1-7). If a control unit wants to control the transceiver, it has to be master of the system. The following describes the display read-outs shown in connection with different system priorities of the control units:

The control unit assigned location number 1 has the highest priority in the VHF system and is able to become master of the system at any time needed.
When more control units are connected to the VHF system, the main control unit has to be assigned location number 1.

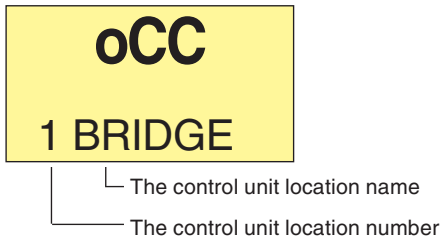
When the system is free:
If a control unit is in VHF mode, it shows the VHF display.



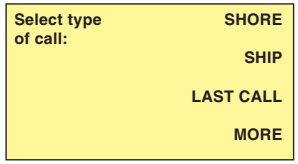
If a control unit in DSC mode or the function menu is active, the display shows the menu item.



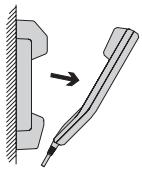
When a control unit is master of the system,
the other control units, if in VHF mode, show the following display to indicate that the transceiver is in use by another control unit:



If the other control units are in DSC mode or the function menu is active, the display will show the menu item as usual.



Getting the MASTER priority in the system:
To operate the transmitter, the control unit has to be master of the system. To become master of the system, simply hook off the handset.
When the control unit becomes master of the system, the display will not change.



If the control unit does not become master of the system and it is operated in VHF mode, the display will show the message:

If the system is occupied by another control unit, hang up and wait for the system to become free.

International Channels

Channels	TX MHz	RX MHz	SIMPLEX Intership	SIMPLEX Port	DUPLEX Port	DUPLEX Public
1	156,050	160,650			●	●
2	156,100	160,700			●	●
3	156,150	160,750			●	●
4	156,200	160,800			●	●
5	156,250	160,850			●	●
6	156,300	156,300	●			
7	156,350	160,950			●	●
8	156,400	156,400	●			
9	156,450	156,450	●	●		
10	156,500	156,500	●	●		
11	156,550	156,550		●		
12	156,600	156,600		●		
13	156,650	156,650	●	●		
14	156,700	156,700		●		
15	156,750	156,750	●	●		
16	156,800	156,800	**Distress and calling**			
17	156,850	156,850	●	●		
18	156,900	161,500			●	●
19	156,950	161,550			●	●
20	157,000	161,600			●	●
21	157,050	161,650			●	●
22	157,100	161,700			●	●
23	157,150	161,750			●	●
24	157,200	161,800			●	●
25	157,250	161,850			●	●
26	157,300	161,900			●	●
27	157,350	161,950			●	●
28	157,400	162,000			●	●

Channels	TX MHz	RX MHz	SIMPLEX Intership	SIMPLEX Port	DUPLEX Port	DUPLEX Public
60	156,025	160,625			●	●
61	156,075	160,675			●	●
62	156,125	160,725			●	●
63	156,175	160,775			●	●
64	156,225	160,825			●	●
65	156,275	160,875			●	●
66	156,325	160,925			●	●
67	156,375	156,375	●	●		
68	156,425	156,425		●		
69	156,475	156,475	●	●		
70	156,525	156,525	**DSC**	**DSC**		
71	156,575	156,575		●		
72	156,625	156,625	●			
73	156,675	156,675	●	●		
74	156,725	156,725		●		
75	156,775	156,775		● **L)**		
76	156,825	156,825		● **L)**		
77	156,875	156,875	●			
78	156,925	161,525			●	●
79	156,975	161,575			●	●
80	157,025	161,625			●	●
81	157,075	161,675			●	●
82	157,125	161,725			●	●
83	157,175	161,775			●	●
84	157,225	161,825			●	●
85	157,275	161,875			●	●
86	157,325	161,925			●	●
87	157,375	157,375		● ***)**		
88	157,425	157,425		● ***)**		

Notes:

L) 1 W TX power.

***)** Due to the introduction of the channels AIS1 at 161.975 MHz and AIS2 at 162.025 MHz for Automatic Identification System, channels 87 and 88 became simplex channels as of 1 January 1999.

NB! The RX and TX frequencies can be read out on the control unit handset by pressing (for more than one second) and holding the CH key.
At a front-operated VHF radio, the RX and TX frequencies can be displayed on a menu.

US Channels

Channels	TX MHz	RX MHz	SIMPLEX	DUPLEX
1	156,050	156,050	●	
2				B)
3	156,150	156,150	● !)	
4				B)
5	156,250	156,250	●	
6	156,300	156,300	●	
7	156,350	156,350	●	
8	156,400	156,400	●	
9	156,450	156,450	●	
10	156,500	156,500	●	
11	156,550	156,550	●	
12	156,600	156,600	●	
13	156,650	156,650	● L)	
14	156,700	156,700	●	
15		156,750	● RX)	
16	156,800	156,800	Distress and calling	
17	156,850	156,850	●	
18	156,900	156,900	●	
19	156,950	156,950	●	
20	157,000	157,000	●	
21	157,050	157,050	● !)	
22	157,100	157,100	●	
23	157,150	157,150	● !)	
24	157,200	161,800		●
25	157,250	161,850		●
26	157,300	161,900		●
27	157,350	161,950		●
28	157,400	162,000		●

Channels	TX MHz	RX MHz	SIMPLEX	DUPLEX
60				B)
61	156,075	156,075	● !)	
62				B)
63	156,175	156,175	●	
64	156,225	156,225	● !)	
65	156,275	156,275	●	
66	156,325	156,325	●	
67	156,375	156,375	● L)	
68	156,425	156,425	●	
69	156,475	156,475	●	
70	156,525	156,525	DSC	
71	156,575	156,575	●	
72	156,625	156,625	●	
73	156,675	156,675	●	
74	156,725	156,725	●	
75			B)	
76			B)	
77	156,875	156,875	● L)	
78	156,925	156,925	●	
79	156,975	156,975	●	
80	157,025	157,025	●	
81	157,075	157,075	● !)	
82	157,125	157,125	● !)	
83	157,175	157,175	● !)	
84	157,225	161,825		●
85	157,275	161,875		●
86	157,325	161,925		●
87	157,375	161,975		●
88	157,425	157,425	●	

Channels	WX	RX MHz
P1	WX1	162,550
P2	WX2	162,400
P3	WX3	162,475
P4	WX4	162,425
P5	WX5	162,450
P6	WX6	162,500
P7	WX7	162,525
P8	WX8	161,650
P9	WX9	161,775
P10	WX10	163,275

Notes:

L) 1W TX power. By pressing the 25W button in the US hook, the transmitter will transmit 25W on channels 13 and 67, which are normally limited to 1W transmission.

B) Channels 2, 4, 60, 62, 75 and 76 cannot be selected in US mode.

!) Channels 3, 21, 23, 61, 64, 81, 82 and 83 may be legally used in certain instances, but they are not for use by the general public in US waters.

RX) Only RX. Transmitter is blocked.

NB! The RX and TX frequencies can be read out on the control unit handset by pressing (for more than one second) and holding the CH key.
At a front-operated VHF radio, the RX and TX frequencies can be displayed on a menu.

BI Channels

Channels	TX MHz	RX MHz	SIMPLEX Intership	SIMPLEX Port	DUPLEX Port	DUPLEX Public
1	156,050	160,650			●	●
2	156,100	160,700			●	●
3	156,150	160,750			●	●
4	156,200	160,800			●	●
5	156,250	160,850			●	●
6	156,300	156,300	● L)			
7	156,350	160,950			●	●
8	156,400	156,400	● L)			
9	156,450	156,450	●	●		
10	156,500	156,500	● L)	● L)		
11	156,550	156,550		● L)		
12	156,600	156,600		● L)		
13	156,650	156,650	● L)	● L)		
14	156,700	156,700		● L)		
15	156,750	156,750	● L)	● L)		
16	156,800	156,800	Distress and calling			
17	156,850	156,850	● L)	● L)		
18	156,900	161,500			●	●
19	156,950	161,550			●	●
20	157,000	161,600			●	●
21	157,050	161,650			●	●
22	157,100	161,700			●	●
23	157,150	161,750			●	●
24	157,200	161,800			●	●
25	157,250	161,850			●	●
26	157,300	161,900			●	●
27	157,350	161,950			●	●
28	157,400	162,000			●	●

Channels	TX MHz	RX MHz	SIMPLEX Intership	SIMPLEX Port	DUPLEX Port	DUPLEX Public
60	156,025	160,625			●	●
61	156,075	160,675			●	●
62	156,125	160,725			●	●
63	156,175	160,775			●	●
64	156,225	160,825			●	●
65	156,275	160,875			●	●
66	156,325	160,925			●	●
67	156,375	156,375	●	●		
68	156,425	156,425		●		
69	156,475	156,475	●	●		
70	156,525	156,525	DSC	DSC		
71	156,575	156,575		● L)		
72	156,625	156,625	● L)			
73	156,675	156,675	●	●		
74	156,725	156,725		● L)		
75	156,775	156,775		B)		
76	156,825	156,825		B)		
77	156,875	156,875	● L)			
78	156,925	161,525			●	●
79	156,975	161,575			●	●
80	157,025	161,625			●	●
81	157,075	161,675			●	●
82	157,125	161,725			●	●
83	157,175	161,775			●	●
84	157,225	161,825			●	●
85	157,275	161,875			●	●
86	157,325	161,925			●	●
87	157,375	157,375		● *)		
88	157,425	157,425		● *)		

Notes:

B) Channels 75 and 76 cannot be selected in BI mode.

L) 1W TX power on channels 6, 8, 10, 11, 12, 13, 14 ,15, 17, 71, 72, 74, and 77.

***)** Due to the introduction of the channels AIS1 at 161.975 Mhz and AIS2 at 162.025 MHz for Automatic Identification System, channels 87 and 88 became simplex channels as of 1 January 1999.

NB! - The ATIS function is enabled on all channels.

- The RX and TX frequencies can be read out on the control unit handset pressing (for more than one second) and holding the CH key.
At a front-operated VHF radio, the RX and TX frequencies can be displayed on a menu.

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