NEXUS
PASSION FOR PERFORMANCE™

NX2000

- Marine VHF Radio -

Installation and Operation Manual
English

Contents

1 OPERATION RULES

1.1 Priorities

• Read all rules and regulations pertaining to priorities and keep an up-to-date copy handy. Safety and distress calls take priority over all others.
• You must monitor Channel 16 when you are not operating on another channel.
• False or fraudulent distress calls are prohibited under law.

1.2 Privacy

• Information overheard but not intended for you cannot lawfully
Be used in any way.
• Indecent or profane language is prohibited.

1.3 Radio licenses

1.3.1 Ship station license

When your craft is equipped with a VHF FM transceiver, you must have a current radio station license before using the transceiver. It is unlawful to operate a ship station which is not licensed. Inquire through your dealer or the appropriate government agency for a Ship-Radiotelephone license. This license includes the call sign which is your craft's identification for radio purposes.

1.3.2 Operator's license

A restricted Radiotelephone Operator Permit is the license most often held by small vessel radio operators when a radio is not required for safety purposes. The Restricted Radiotelephone Operator Permit must be posted near the transceiver or be kept with the operator. Only a licensed radio operator may operate a transceiver. However, non-licensed individuals may talk over a transceiver if a licensed operator starts, supervises, ends the call and makes the necessary log entries. A current copy of the applicable government rules and regulations is only required to be on hand for vessels in which a radio telephone is compulsory. However, even if you are not required to have these on hand it is your responsibility to be thoroughly acquainted with all pertinent rules and regulations.

2 INTRODUCTION

The NX2000 is a Class-D Digital Selective Calling (DSC) VHF marine transceiver. Comprised of a VHF marine Radio and a DSC controller, it is very convenient and easy to use. The transceiver is a 1/25-watt, frequency modulated waterproof transmitter/receiver for operations on all currently allocated marine channels as well as 10 expansion channels.

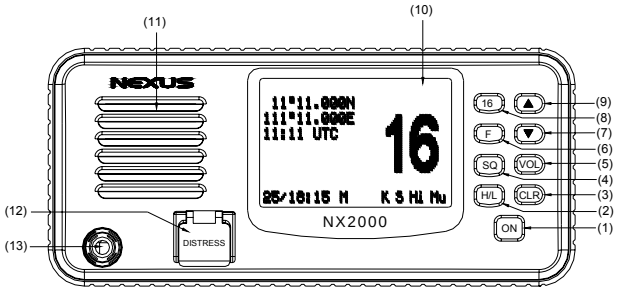
The NX2000 supports the latest GMDSS requirement for non-SOLAS vessels from the International Maritime Organization (IMO). When connected with a GPS, it will display the position and Universal Time Coordinate (UTC) of your vessel.

The NX2000 lets you make digitally selected calls, which are quicker and simpler to make compared with conventional voice calls using channel 16. Should a distress, urgency or safety situation occur, you can depend on the NX2000 to raise an alert quickly, thereby indicating your identity and position automatically through a distress communication on the emergency voice channel.

NEXUS MARINE AB operates a policy of continual development and reserves the right to alter and improve the features/specification of their products without prior notice.

3 PANEL DESCRIPTION

3.1 Front panel



1. **POWER SWITCH (ON)**
   Press the **(ON)** button once to switch on the NX2000.
   To switch off, press the **(ON)** button again.
2. **HIGH/LOW POWER KEY (H/L)**
   Select an output power of RF.
3. **CLEAR KEY (CLR)**
   Stops current task and returns to the main screen.
4. **SQUELCH MODE SELECTION KEY (SQ)**
5. **VOLUME CONTIOL MODE SELECTION KEY (VOL)**
6. **FUNCTION SELECT KEY (F)**
   This key is an aggregation of DUAL WATCH, FULL SCAN, MEMORY SCAN and TAG CHANNEL function. To access these function by press F key and press again to confirm.
7. **DOWN KEY (▼)**
   Selects the desired channel, squelch control level or volume control level. Each press selects the next lower channel number or level. Hold down this key to scroll downwards through all selectable channels.
8. **CHANNEL 16 KEY (16)**
   Press this key and return to channel 16 immediately from any channel or function.
9. **UP KEY (▲)**

Selects the desired channel, squelch control level or volume control level. Each press selects the next higher channel, number or level. Hold down this key to scroll upward through all selectable channels.

LIQUID CRYSTAL DISPLAY (LCD)

Dot Matrix display, giving up to 8 lines of information.

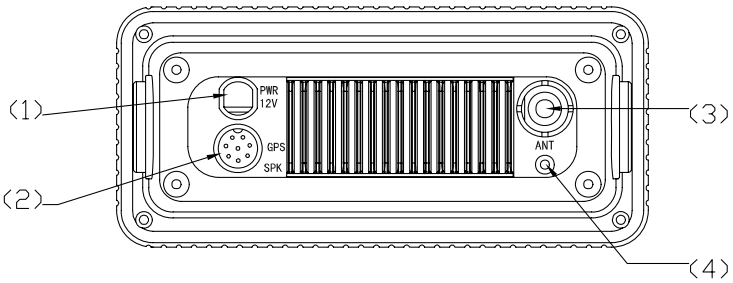
11. SPEAKER

12. DISTRESS CALL BUTTON

The distress button is located under a spring-loaded cover that must be lifted before the button can be pressed.

13. FIST MICROPHONE/CONTROLLER CORD

3.2 Back panel

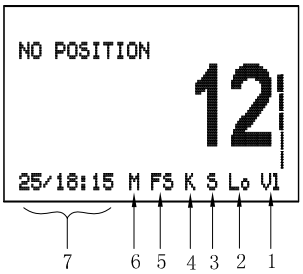


1. **POWER CORD**
2. **GPS and EXT.SP socket.**
3. **ANTENNA**
4. **Ventilation Hole**

Should the display show signs of misting up, remove this screw and ventilate the unit until the mist is cleared. Upon completion, insert the screw and tighten once again.

Note : To ensure your NX2000 maintains its water-proof integrity, please make sure the water-proof plastic washer is properly inserted before the screw; the screw should be fully tightened to prevent water ingress.

3.3 LCD Display



GROUP 1

VL Volume control activated, the Bar indicates the volume level.
Sq Squelch control activated, the Bar indicates the squelch level.
Mu Appears when the squelch opens.
RX The Radio is in receptive state (RX) and when receiving a signal.
TX The Radio is transmitting (TX).

GROUP 2

Hi Indicates Transmitter maximum output power is 25W.
Lo Indicates Transmitter maximum output power is 1W.

GROUP 3

S Indicates the displayed channel is a simplex channel.
D Indicates the displayed channel is a duplex channel.

GROUP 4

I Indicates the international channels are selected.
K Indicates the international channels + UK M1 and M2 channels are selected.
U Indicates the USA channels are selected.
C Indicates the Canada channels are selected.
A Indicates the ATIS channels are selected.
S Indicates the ATIS SEA channels are selected.

GROUP 5

DW Indicates dual watch is in operation.
FS Indicates full scanning of every channel in current channel list is in operation.
MS Indicates scanning of the selected memory channels is in operation.

GROUP 6

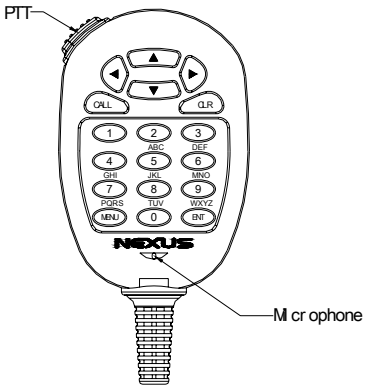
M Indicates the displayed channel is a tagged channel for memory scan.

GROUP 7

Date/hours: minutes

4 FIST MICROPHONE/CONTROLLER

The fist microphone/controller has the microphone, Push to Talk (PTT) switch and soft keypad as illustrated below:



4.1 Soft Keypad (0 - 9)

The telephone style keypad ITU 0 – 9 / A - Z is used for entering numeric data. When required, the keys will automatically switch to character mode allowing letters, numbers and punctuation marks to be entered. Repeatedly pressing a key will cycle through the characters available on that key.

Number	1	2	3	4	5	6	7	8	9	0
1 press	—	A	D	G	J	M	P	T	W	
2 press	,	B	E	H	K	N	Q	U	X	□
3 press	□	C	F	I	L	O	R	V	Y	□
4 press	/	□	□	□	”	’	S	&	Z	%
5 press	1	2	3	4	5	6	7	8	9	0

ENTER KEY (ENT)

Confirms the action.

CLEAR KEY (CLR)

Stop tasks and returns to main screen or returns to the last screen.

◄ / ► Key

Used to select stored numbers and names as marked by the cursor, or to select through the call log.

▲/ ▼ KEY

Use to select working channel (Up or Down). Can also be used to select stored working channels. Allows viewing of next or previous message and selection next or previous item.

PTT BUTTON

Keys the transmitter allowing you to transmit a message.

(CALL) KEY.

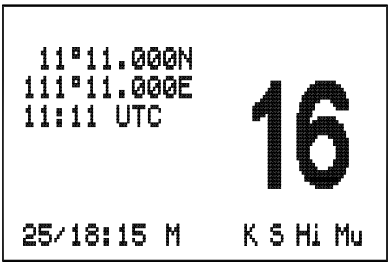
Activates “CALL” menu.

(MENU) KEY

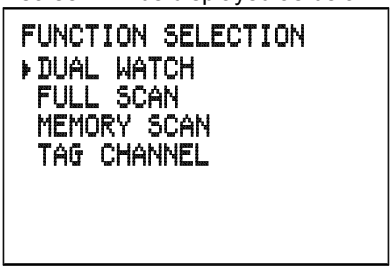
To activate a menu that consists of RADIO SETTING, DSC SETTING and LOG REVIEW function.

5 GENERAL OPERATION

The NX2000 is switched on by pressing the **(ON)** key once. If a GPS receiver has been connected to the NX2000, the MAIN screen will be as below:



Press the **(F)** key on the front panel once to enter the Function Selection mode. The FUNCTION SELECTION screen will be displayed as below:



Press the ▲ or ▼ key to move the cursor to the required function (DUAL WATCH, FULL SCAN, MEMORY SCAN, TAG CHANNEL), then press **(F)** key to confirm. The relevant screen will be displayed. Press **(F)** key again or press **(16)** key to restore normal operation, and press **(CLR)** key to change to the main screen.

5.1 DUAL WATCH (DW)

Dual Watch enables the Radio to scan between the selected channel and priority channel (normally CH16). In Dual Watch mode, the DW indicator will appear on the bottom line of the LCD.

Note that the Radio will not transmit, nor will alternative channels be able to be selected while in Dual Watch mode. To restore normal operation press **(F)** key again or press channel **(16)** key.

5.2 Full Scan (FS)

This function scans through each channel sequentially until a signal is detected above the squelch level set. Once the signal ends or drops below the squelch level, the Radio will continue scanning. Alternatively, you can instruct the NX2000 to continue scanning even if a signal has been detected on any particular channel by pressing the ▲ key once. When in Full Scan mode, FS will appear on the bottom line of LCD.

Note that the Radio will not transmit, nor will alternative channels be able to be selected while in Full Scan mode. To restore normal operation press **(F)** key or press channel **(16)** key.

5.3 Memory Scan (MS)

The Memory Scan operates in the same way as the Full Scan, except that it will only scan channels that have been entered into the Scan Memory. If no channels have been entered into the memory then this function will not be available.

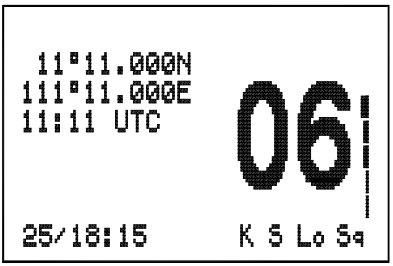
When in Memory Scan mode, “MS” will appear on the bottom line of the LCD.

5.4 Tag Channel

This function is to tag or cancel tag on a channel, which means select or unselect a channel for Memory Scan. If a channel is tagged then the “M” indicator will appear on the bottom of LCD.
To tag a channel, enter the desired channel number on the Microphone controller and press “F” on the front panel. Select TAG CH and press “F” again. To delete the tag for a channel, repeat the procedure above.

5.5 Squelch Control

When the **(SQ)** key on the front panel is pressed, the squelch level bar and “Sq” symbol will appear at the right side of the screen as below:

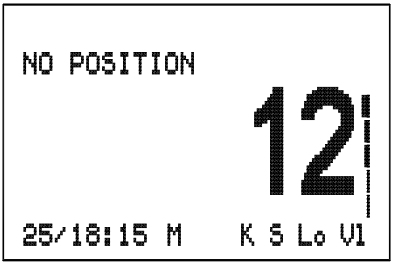


Then use ▲ and ▼ key on the front panel to adjust the receiver muting threshold (squelch) level.

To cut out weaker signals, press ▲ key to increase the squelch until the background interference noise disappears. To receive weaker signals press ▼ key to decrease the squelch.

5.6 Volume Control (VOL)

Press the **(VOL)** key on the front panel, the volume control screen will be displayed. The level bar and character "VL" will appear on the right side of the screen as below:



Press ▲ key to increase the volume. Press ▼ key to reduce the volume.

5.7 Channel 16 (16)

Pressing the **(16)** key will automatically select channel 16 on high power. Any active function (DUAL WATCH, DSC SETTING, LOG VIEW etc) will be cancelled.

5.8 Channel Selection (▲/▼)

Press ▲ key to go up through the channels. Press ▼ key to go down through the channels.

Channel Selection Shortcut:

Select the desired channel directly from the main screen by pressing the channel number on the fist microphone/controller, and then press "ENT" to confirm.

5.9 HIGH / LOW Power Selection (H/L)

Press (H/L) key to select high or low output power of RF. A “Hi” or “Lo” indicator will appear on bottom of LCD.

5.10 Time Out Timer

A time out timer is provided to prevent continuous transmissions for periods greater than 5 minutes. In the event that the radio will be needed to transmit for periods longer than 5 minutes, it will be necessary to release the PTT briefly before the 5 minute timer expires.

WARNING

1) Users can press the PTT once again after 5 minutes to continue the transmission. But the radio should be placed somewhere which nobody can touch it to avoid scalding injury.
2) The life of the radio set will be shortened by long time continuous transmission.

6 RECEIVING A DSC CALL

When a DSC call is received, the Radio will switch to the call log screen to display the details of the call and ring or sound the alarm depending on the nature of the call. The procedures hereunder describe how to handle the types of calls that can be received.

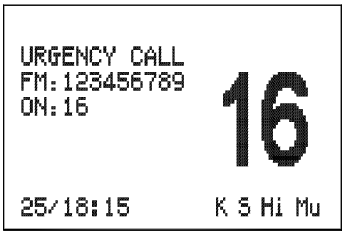
6.1 Routine Call

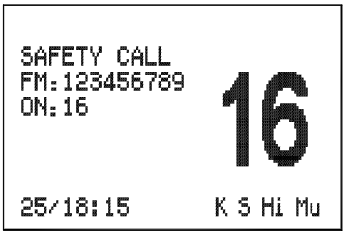
When a Routine Call is received, an alarm will sound and the screen will show the details of the call, where it is from and the working channel, as below:

Press the **(ENT)** key on the fist microphone/controller keypad, an acknowledgement will be sent to the caller and the Radio will be automatically switched to working channel for normal voice communication. The "*" will disappear when the call has been acknowledged.

6.2 Urgency And Safety Call

The procedures for Urgency and Safety Calls are very similar. An urgency call will sound the distress alarm and switch the Radio to Channel 16. A safety call will sound a normal ring and switch the Radio to channel 16 too.

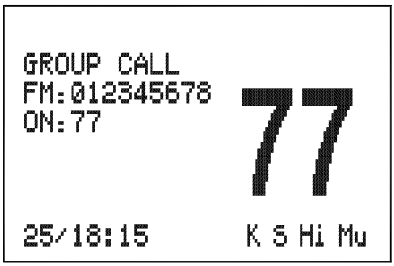




Press the **(ENT)** key to stop the alarm (or ringing), and then listen for the voice message.

6.3 Group Call

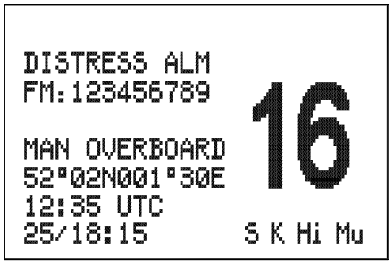
When a Group Call is received, the Radio will ring and display the details of the call, indicating whom it is from and the working channel as below:

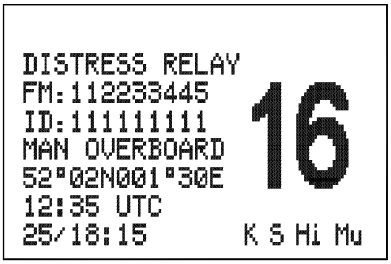


Press **(ENT)** key to stop the ringing, then listen for the voice message or begin speaking.

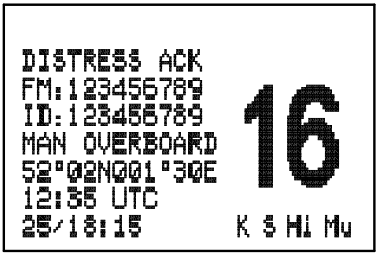
6.4 Distress Alert

If a Distress Alert or a Distress Relay is received from another vessel, an alarm will sound and the Radio will switch to channel 16. The screen will show the details of the Distress Alert or Distress Relay, the MMSI (Maritime Mobile Service Identifier) of the vessel, the nature of the distress, its position and time, mute the alarm by pressing **(ENT)** key and maintain a listening watch on channel 16 for the distress messages. Press **(CLR)** key to clear the display.





When the distress Alert Call is cancelled, the Radio will sound “B,B”, and the screen of it will show as below:



7 SENDING A DSC CALL

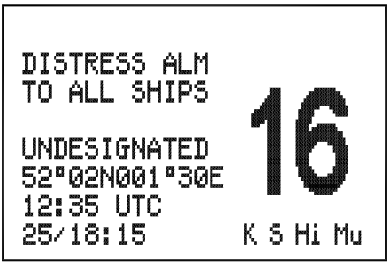
Making a DSC Call is very simple. First choose the call type (Routine, Safety, Urgency, Group or Distress Alert). If required, enter the destination and working channel and then send the call by pressing **(ENT)** key on the fist microphone/controller. The digital signal will be sent out in under a second, containing the vessel's ID and the call type.

In order for the Radio to function, your MMSI number will need to be entered. This number can be obtained from your local Radio communications authority. For group calls, the group ID will need to be entered also.

7.1 DISTRESS CALL

This call should only be made if the vessel is in a distress situation, and lives are in danger.

Making a Distress Alert call is very simple. Lift the protective cover and press **(DIST)** key on the front panel. The Distress Alert screen will be displayed as below:



If time permits, press the ◄ or ► key to select the nature of the distress. There are 10 categories recognized as Distress Alert situations, which are: ***fire, flooding, collision, grounding, listing, sinking, adrift, abandoning, piracy and man overboard***. There is also a default ***undesignated*** category, which is used if no category is selected here.

Press and hold the **(DIST)** key for about five seconds. A countdown to the transmission will be displayed then an alarm will sound.

The Distress Alert transmission contains the following data:

1. The vessel's MMSI;
2. The vessel's position (either from the NMEA0183 input, or manually entered);

3. The time (from NMEA or Manual input);
4. The nature of the distress.

After the Distress Alert has been sent, the Radio will automatically tune to channel 16 and the Radio will repeat the Alert approximately every four minutes until either an acknowledgement is received, or **(CLR)** key is pressed (it is not recommended that the Distress Alert is cancelled manually by pressing **(CLR)** key unless you are requested to do so by the rescue authorities).

While the Distress Alert remains active, an intermittent alarm will continue to sound approximately once every 25 seconds.

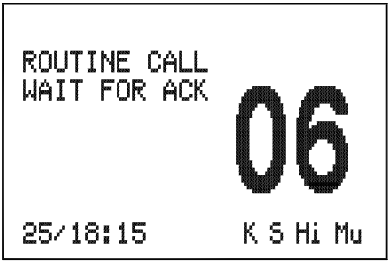
When an acknowledgement is received from the Rescue Co-ordination Centre, this will cancel the Distress Alert transmission from the Radio and automatically switch the Radio to the required working channel. The subsequent Rescue Co-ordination will be performed using the voice-working channel.

7.2 Routine Call

To make a Routine Call, press **(CALL)** key on the fist microphone/- controller to select Routine Call. The screen as below:

Then enter the corresponding MMSI number with the keypad and select a working channel by pressing the ▲ or ▼ key on the keypad from the channel list.

Press **(ENT)** key and the Radio will send a Routine Call; the Radio will change to the following screen as you wait reply.

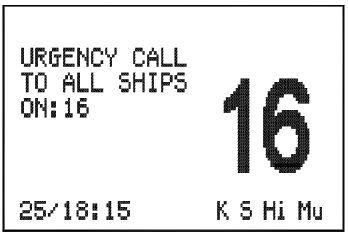


When a reply is received, the Radio will sound a tone and automatically switch to the specified working channel. A voice call can then be made in the normal way.

Note. If you have made a directory of stored MMSI numbers, you can only send a Routine Call to someone from the Directory.

7.3 Urgency And Safety Call

Press **(CALL)** key on the fist microphone/controller keypad to select Safety Call or Urgency Call as below:

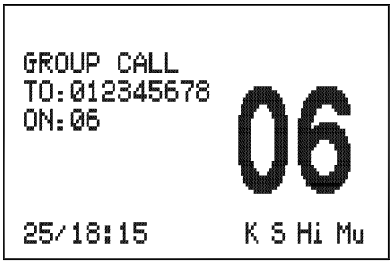


Press **(ENT)** key, and the screen will change to the following:

Press the **(ENT)** key again to make the call, or press **(CLR)** to cancel. When the call is sent, the Radio will be set to the working channel 16.

7.4 Group Call

If a group ID has been set up for the called Radio. A call can be made to other members of the group.
Press the **(CALL)** key on the keypad to select the GROUP CALL screen as below:

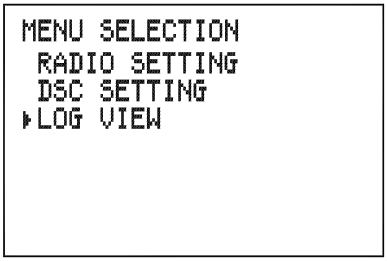


Select a working channel from the channel list by pressing the ▲ or ▼ key on the keypad.

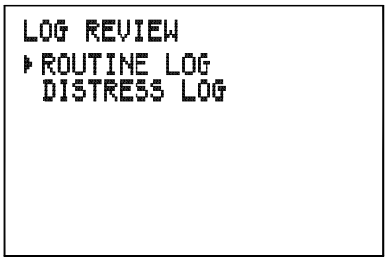
Press **(ENT)** key to send the call. Allow a few seconds for the other members of the group to reach their Radios (all VHF Radios in the group should automatically switch to selected working channel upon acknowledgement), then make a normal voice call.

8 LOG REVIEW

There are 2 kinds of logs, they are DISTRESS LOGS and ROUTINE LOGS. To view the logs, press **(MENU)** key on the fist microphone/controller keypad, the MENU SELECTION screen will appear on the display as follows:



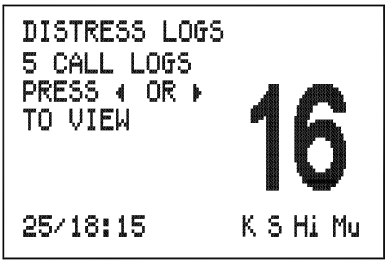
Press ▲ or ▼ key to move the symbol ► on the MENU SELECTION screen to front of LOG VIEW, then press **(ENT)** key to confirm, the LOG REVIEW screen will appear on the display as follows:



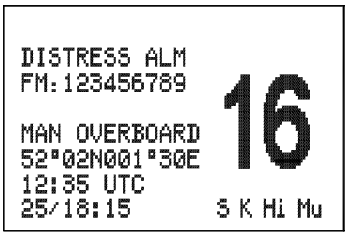
8.1 Review distress logs

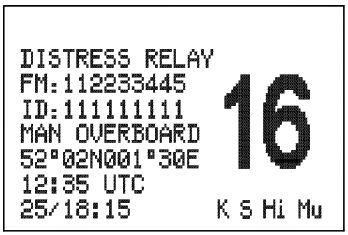
The distress log can be used to look back through the previous 20 distress calls that have been received, the most recent call first.

Press **(MENU)** key on the fist microphone/controller keypad to select the DISTRESS LOG screen as below:



If there are any distress calls in the distress log screen, press the ◄ or ► key to move back and forth through the DISTRESS LOG screen. The DISTRESS LOG screen as below:





Press **(CLR)** key to exit the call log screen.

8.2 Review Routine Log

The routine log can be used to look back through the last 20 calls that have been received, the most recent call first.

Press **(MENU)** key on the fist microphone/controller keypad to select the ROUTINE LOG screen as below:

If there are any general calls in the routine log press the ◄ or ► key to move back and forth through the log, the ROUTINE LOG screen as below:

If there is a "*" symbol on the screen, you can press **(ENT)** KEY to send an acknowledgement directly to the caller. After acknowledgement, the "*" symbol will disappear.

Press **(CLR)** key to exit the call screen.

9 RADIO SETTINGS

Use the instruction listed below to set up user environment.
To enter Radio settings, press MENU followed by ENT

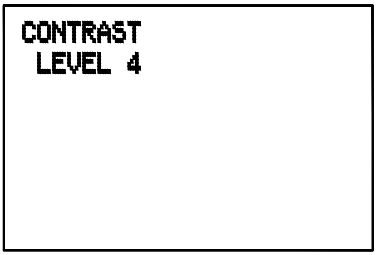
9.1 Backlight adjustment

Press "▲" "▼" on the fist microphone/controller to select BACKLIGHT option and press **(ENT)** to obtain the following screen.

Then, press "▲" "▼" to adjust the brightness of backlight. There are 5 levels of brightness. Press **(ENT)** for confirmation exit.

9.2 Contrast adjustment

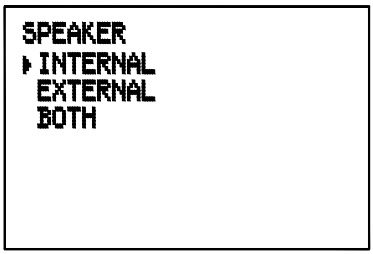
Using "▲" "▼" on the fist microphone/controller to select CONTRAST and press (ENT) to obtain the following screen.



Then, press "▲" "▼" to adjust the contrast of the screen. There are 6 levels of contrast. Press **(ENT)** for confirmation and exit.

9.3 Speaker selecting

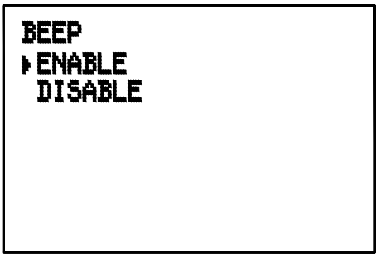
Using “▲” “▼” on the fist microphone/controller to select SPEAKER and press **(ENT)** to obtain the following screen.



Then, press “▲” “▼” to select internal, external or both speaker. Press **(ENT)** for confirmation and exit.

9.4 Beep sound selecting

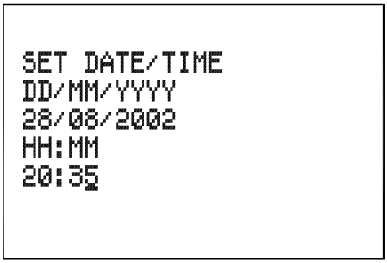
Using “▲” “▼” to select BEEP and press **(ENT)** to obtain the following screen.



Then, press “▲” “▼” to select enable or disable the BEEP sound function on pressing any key and notifying sound of NAVTEX message received. Press **(ENT)** for confirmation and exit.

9.5 Set Date And TimE

Press ▲ or ▼ key to move the cursor on the RADIO SETTING screen to the front of DATE/TIME, then press **(ENT)** key, the SET DATE/TIME screen will appear.



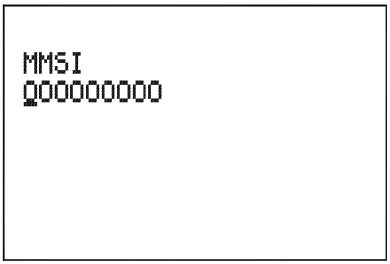
Use the numeric keys to enter numbers, then press **(ENT)** key to accept the date and time.

Note that the time should be entered in 24 hour clock format.

10 DSC Setting

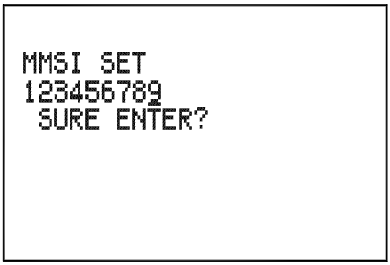
10.1 Enter and view MMSI

If a MMSI No. has not been entered into the NX2000, the MMSI SET screen will appear on the display every time when the unit is switched on, as below:



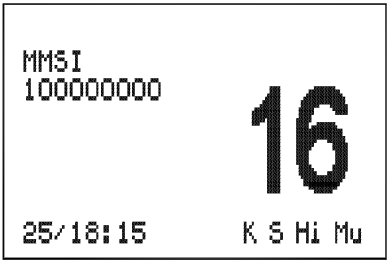
If you do not have a MMSI-number, you can still use the unit, but the DSC function can not be used, and every time when the NX2000 is switched on, it will be asked to enter the MMSI number.

Switch on the unit, then press numeric key on the fist microphone/controller to enter the MMSI number (9-digit). This number can be obtained from your local Radio communications authority. If a mistake is made, use the ◄ or ► key to move back and edit the error. Then press **(ENT)** key, the Radio will ask for verification as below:



It is important that the MMSI entered is checked carefully, as it can only be entered once!

Press **(ENT)** key once again to confirm the number and the screen will now show the MMSI of your vessel.
To view your vessel's MMSI, press **(MENU)** key on the fist microphone/controller to select the MMSI screen, as below:

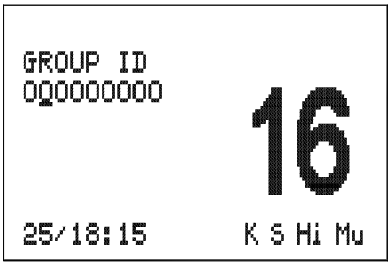


Press **(CLR)** key to go back to the main screen.

To change the MMSI number after it has been programmed, the unit must be returned to an authorized dealer to erase the existing number.

10.2 Set Group Id

To enter a Group ID (if for example, the vessel is part of a flotilla or fishing fleet etc), press **(MENU)** key to select the GROUP ID screen. The screen will be displayed as below:

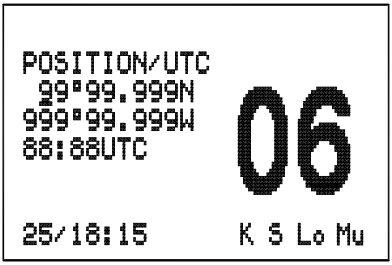


Press numeric key to enter the GROUP ID number (8-digits, the first digit must be "0"). If a mistake is made, use the ◄ or ► key to move back the cursor and reset the number. Press **(ENT)** key and the Radio will ask for verification. Check that the No. is correct and press **(ENT)** key once again to confirm your entry. To amend, press **(CLR)** key to go back to main screen.

10.3 Set Manual Position/UTC

If the position of the vessel cannot be obtained from a GPS via the NMEA 0183 input, this data can be entered manually.

Press **(MENU)** key to select the “POSITION/UTC” screen as below:

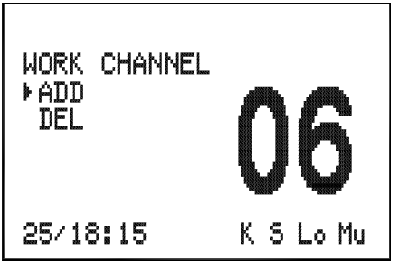


Use the numeric key to enter the required data, then press **(ENT)** key to accept the position and time entered.

After 23 hours, if the Radio has not received any position data either manually or from the NMEA input, then the position data will disappear from the screen, and it will show “NO POSITION”.

10.4 Set Work Channel

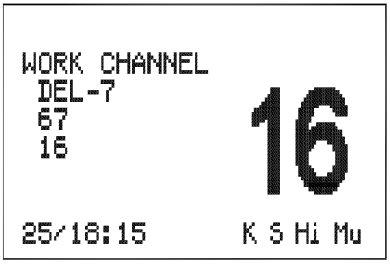
The Radio includes a list of 9 working channels, which can be scrolled through when using the routine group calling. The first four channels are preset as 06, 08, 72 and 77. These cannot be amended. The remaining five channels are programmable. Always consult your local authority requirements when choosing suitable working channels. Find out which channels are duplex as these do not allow ship-to-ship communication.
Press **(MENU)** key to select the WORK CHANNEL screen as below:



Press ◄ or ► key to select “ADD” from the WORK CHANNEL screen, then press **(ENT)** key to enter, as below:

Press ▲ or ▼ key to change the selected channel, and press **(ENT)** key to accept. Then press ◄ or ► key to enter the next channel.

To delete a Work Channel, press ◄ or ► key to move the cursor on the WORK CHANNEL screen and select “DEL”, then press **(ENT)** to accept. The WORK CHANNEL screen appears as below:

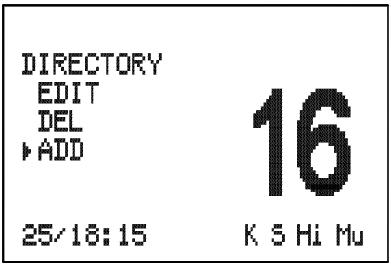


Press ◄ or ► key to select the channel (5th – 9th channel) that you wish to delete, then press **(ENT)** key to accept.

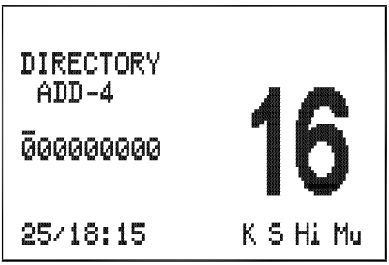
10.5 Set the Directory

The DIRECTORY function is used to add, edit and delete a note (information about a vessel) from the directory. The directory can store 20 notes, each note consists of MMSI and vessel name, which can be recalled in the routine call screen. Press **(MENU)** key to select the “DIRECTORY” screen as below:

Note. If you have made a directory of stored MMSI numbers, you can only send a Routine Call to someone from the Directory.

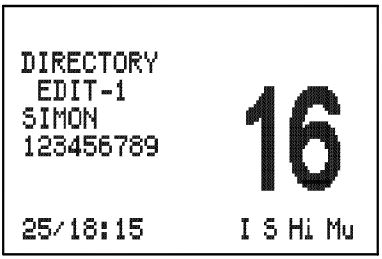


To access a new entry, press ▲ or ▼ to move the cursor in front of “ADD”, then press **(ENT)** key to enter DIRECTORY-ADD screen as below:



Use the keypad to move backwards and forwards along the line to enter a name. Then move the cursor with ►until it jumps to the second row and enter the MMSI number, press **(ENT)** key to confirm.

To edit an existing entry, press▲ or ▼ key to move the cursor in front of “EDIT”, then press **(ENT)** key to enter DIRECTORY-EDIT screen as below:



Use the ◄ or ► key to move along the name and MMSI fields, using the keypad to edit the data. Press **(ENT)** to store the modified entry.

To delete an entry, press ◄ or ► key to move the cursor in front of “DEL”, then press **(ENT)** key to enter DIRECTORY-DEL screen as below:

Use the ◄ or ► key to select the number you wish to delete, then press **(ENT)** key to delete the entry.

11 EXPANSION CHANNELS

Authorized users can have up to 10 expansion channels activated on their Nexus NX2000 units.

Nexus Marine AB Service Division

12 ATIS FUNCTION

The ATIS function is a mandatory technical requirement according to Automatic Transmitter Identification System (ATIS) used in some countries. NX2000 can work on ATIS band by a licence.

If you have an ATIS licence, NX2000 can work on ATIS channels, and if you have an ATIS SEA licence, NX2000 can work on ATIS channels and SEA channels. Press (16) key together with ▼ then select ATIS or ATIS SEA as required.

- In ATIS mode, channels do not have full scan, memory scan, dual watch and DSC/Distress alert. The VHF will transmit the ID code during transmission.

- In ATIS SEA mode, channels do not have Full Scan and Memory Scan but have Dual Watch and DSC/Distress Alert.

13 TECHNICAL SPECIFICATIONS

Power Supply	DC 12 V +30/-10%
Channel Capability	57 international channels
	UKM1/M2 and includes 10 expansion channels
Frequency Resolution	25KHz
Method of Frequency Generation	synthesizer
Dimension	175(W) × 79(H) ×130(D) mm
Weight	1175 grams

13.1 Receiver

Multi Channel Receiver

1. The receiver incorporates a dual conversion super-heterodyne design.

2. Tuning Frequency Range	156.025-163.275MHz
3. IF Frequency Used:	21.7MHz; 450KHz
4. Maximum Useable Sensitivity	≤6dBμe.m.f. of 20dB/SINAD
5. Adjacent Channel Selectivity	≥70dB
6. Spurious Response Rejection	≥70dB
7. Inter-Modulation Rejection	≥68dB
8. Spurious Emission Radiation	□2nW
9. Current:	0.9 Amps (Max Audio)
	0.4 Amps (STBY)
10. Audio Frequency Response	+1, -3dB of +6dB/octave
	De-emphasis 300-3000Hz
11. Hum and Noise	≤-40dB
12. Audio Output	3.5W at less than 10% distortion
	with 4 Ohm external speaker
	2W only internal speaker

13.2 Channel 70 Monitor General Specification

1.Frequency	CH70 (156.525MHz)
2.Sensitivity	≤6dBμEMF for 20dB SINAD
3.Bandwidth	16KHz
4. First IF Frequency Used	17.9MHz
5. Second IF Frequency Used	455KHz
6. Adjacent Channel Selectivity	≥70dB
7. Spurious Response Rejection	≥70dB
8. Inter-Modulation Rejection	≥68 dB
9. Mode of Reception	16K0G2B
10. Spurious Emission, Radiation	≤2nW, 9KHz to 2GHz

13.3 Transmitter

1.Type of Emission	16K0G3E(Voice) 13K5G2B(DSC)
2.Frequency Range	156.025-161.425MHz
3.Maximum Output Power	25W, 1W into 50 Ohms
4. Audio Harmonic Distortion	≤10%
5. Audio Frequency Response	+1/-3dB of +6dB/octave Pre-emphasis 300 – 3000Hz
6. Hum and Noise	≤-40dB
7. Frequency Deviation	5KHz max peak
8. Spurious Emissions (Radiated)	≤0.25μW
9. Current	≤5 Amps(25W)

13.4 GPS

1.Input Data Format:	NMEA0183 version 2.0 sentences RMC, GGA and GLL , GNS

14 INTERNATIONAL VHF MARINE CHANNEL CHART

Channel	Transmitter Frequency	Receiver Frequency	Mode S/D	Channel Assignment
1	156.050	160.650	D	Public Correspondence
2	156.100	160.700	D	Public Correspondence
3	156.150	160.750	D	Public Correspondence
4	156.200	160.800	D	Public Correspondence
5	156.250	160.850	D	Public Correspondence
6	156.300	156.300	S	Intership
7	156.350	160.950	D	Public Correspondence
8	156.400	156.400	S	Intership
9	156.450	156.450	S	Intership/Port operations
10	156.500	156.500	S	Intership/Port operations
11	156.550	156.550	S	Port Operations
12	156.600	156.600	S	Port Operations
13	156.650	156.650	S	Intership/Port operations
14	156.700	156.700	S	Port Operations
15	156.750	156.750	S	Intership/Port operations (1W)
16	156.800	156.800	S	Distress/Safety/Calling
17	156.850	156.850	S	Intership/Port operations (1W)
18	156.900	161.500	D	Port Ops/Public Corresdondence
19	156.950	161.550	D	Public Correspondence
20	157.000	161.600	D	Public Correspondence
21	157.050	161.650	D	Public Correspondence
22	157.100	161.700	D	Public Correspondence
23	157.150	161.750	D	Public Correspondence
24	157.200	161.800	D	Public Correspondence
25	157.250	161.850	D	Public Correspondence
26	157.300	161.900	D	Public Correspondence
27	157.350	161.950	D	Public Correspondence
28	157.400	162.000	D	Public Correspondence
60	156.025	160.625	D	Public Correspondence
61	156.075	160.675	D	Public Correspondence
62	156.125	160.725	D	Public Correspondence
63	156.175	160.775	D	Public Correspondence
64	156.225	160.825	D	Public Correspondence
65	156.275	160.875	D	Public Correspondence
66	156.325	160.925	D	Public Correspondence
67	156.375	156.375	S	Intership/Port operations
68	156.425	156.425	S	Port operations
69	156.475	156.475	S	Intership/Port operations
70	156.525	156.525	S	Digital Selective Calling For Distress, Safety And Calling
71	156.575	156.575	S	Port Operations
72	156.625	156.625	S	Intership
73	156.675	156.675	S	Intership/Port operations
74	156.725	156.725	S	Port Operations
75		156.775		Ch 16 guard – no transmitter
76		156.825		Ch 16 guard – no transmitter
77	156.875	156.875	S	Intership
78	156.925	161.525	D	Public Correspondence
79	156.975	161.575	D	Public Correspondence
80	157.025	161.625	D	Public Correspondence
81	157.075	161.675	D	Public Correspondence
82	157.125	161.725	D	Port Ops/Public Correspondence
83	157.175	161.775	D	Port Ops/Public Correspondence
84	157.225	161.825	D	Port Ops/Public Correspondence
85	157.275	161.875	D	Port Ops/Public Correspondence
86	157.325	161.925	D	Port Ops/Public Correspondence
87	157.375	157.375	S	Port Operations
88	157.425	157.425	S	Port Operations

ATIS CHANNEL CHART

Channel	Transmitter Frequency	Receiver Frequency	Mode S/D	Channel Assignment
01	156.050	160.650	D	Public Correspondence
02	156.100	160.700	D	Public Correspondence
03	156.150	160.750	D	Public Correspondence
04	156.200	160.800	D	Public Correspondence
05	156.250	160.850	D	Public Correspondence
06	156.300	156.300	S	Intership(1W)
07	156.350	160.950	D	Public Correspondence
08	156.400	156.400	S	Intership(1W)
09	156.450	156.450	S	Intership/Port operations
10	156.500	156.500	S	Intership/Port operations(1W)
11	156.550	156.550	S	Port operations(1W)
12	156.600	156.600	S	Port operations(1W)
13	156.650	156.650	S	Intership/Port operations(1W)
14	156.700	156.700	S	Port operations(1W)
15	156.750	156.750	S	Intership/Port operations(1W)
16	156.800	156.800	S	DISTRESS/SAFETY/CALLING
17	156.850	156.850	S	Intership/Port operations(1W)
18	156.900	161.500	D	Port ops/public correspondence
19	156.950	161.550	D	Public Correspondence
20	157.000	161.600	D	Public Correspondence
21	157.050	161.650	D	Public Correspondence
22	157.100	161.700	D	Public Correspondence
23	157.150	161.750	D	Public Correspondence(25W)
24	157.200	161.800	D	Public Correspondence
25	157.250	161.850	D	Public Correspondence
26	157.300	161.900	D	Public Correspondence
27	157.350	161.950	D	Public Correspondence
28	157.400	162.000	D	Public Correspondence
60	156.025	160.625	D	Public Correspondence
61	156.075	160.675	D	Public Correspondence
62	156.125	160.725	D	Public Correspondence
63	156.175	160.775	D	Public Correspondence
64	156.225	160.825	D	Public Correspondence
65	156.275	160.875	D	Public Correspondence
66	156.325	160.925	D	Public Correspondence
67	156.375	156.375	S	Intership/Port operations
68	156.425	156.425	S	Port Operations
69	156.475	156.475	S	Intership/Port operations
71	156.575	156.575	S	Port Operations(1W)
72	156.625	156.625	S	Intership(1W)
73	156.675	156.675	S	Intership/Port operations
74	156.725	156.725	S	Port operations(1W)
75	156.775	156.775	S	Ch 16 guard - no transmitt(1W)
76	156.825	156.825	S	Ch 16 guard - no transmitt(1W)
77	156.875	156.875	S	Intership(1W)
78	156.925	161.525	D	Public Correspondence
79	156.975	161.575	D	Public Correspondence
80	157.025	161.625	D	Public Correspondence
81	157.075	161.675	D	Public Correspondence
82	157.125	161.725	D	Port ops/public correspondence
83	157.175	161.775	D	Port ops/public correspondence (25W)
84	157.225	161.825	D	Port ops/public correspondence
85	157.275	161.875	D	Port ops/public correspondence
86	157.325	161.925	D	Port ops/public correspondence
87	157.375	157.375	S	Port operations
88	157.425	157.425	S	Port operations

ATIS/SEA Channel Chart

Channel	Transmitter Frequency	Receiver Frequency	Mode S/D	Channel Assignment
01	156.050	160.650	D	Public Correspondence
02	156.100	160.700	D	Public Correspondence
03	156.150	160.750	D	Public Correspondence
04	156.200	160.800	D	Public Correspondence
05	156.250	160.850	D	Public Correspondence
06	156.300	156.300	S	Intership
07	156.350	160.950	D	Public Correspondence
08	156.400	156.400	S	Intership
09	156.450	156.450	S	Intership/Port operations
10	156.500	156.500	S	Intership/Port operations
11	156.550	156.550	S	Port operations
12	156.600	156.600	S	Port operations
13	156.650	156.650	S	Intership/Port operations(1W)
14	156.700	156.700	S	Port operations
15	156.750	156.750	S	Intership/Port operations(1W)
16	156.800	156.800	S	DISTRESS/SAFETY/CALLING
17	156.850	156.850	S	Intership/Port operations(1W)
18	156.900	161.500	D	Port ops/public correspondence
19	156.950	161.550	D	Public Correspondence
20	157.000	161.600	D	Public Correspondence
21	157.050	161.650	D	Public Correspondence
22	157.100	161.700	D	Public Correspondence
23	157.150	161.750	D	Public Correspondence
24	157.200	161.800	D	Public Correspondence
25	157.250	161.850	D	Public Correspondence
26	157.300	161.900	D	Public Correspondence
27	157.350	161.950	D	Public Correspondence
28	157.400	162.000	D	Public Correspondence
60	156.025	160.625	D	Public Correspondence
61	156.075	160.675	D	Public Correspondence
62	156.125	160.725	D	Public Correspondence
63	156.175	160.775	D	Public Correspondence
64	156.225	160.825	D	Public Correspondence
65	156.275	160.875	D	Public Correspondence
66	156.325	160.925	D	Public Correspondence
67	156.375	156.375	S	Intership/Port operations
68	156.425	156.425	S	Port Operations
69	156.475	156.475	S	Intership/Port operations
70	156.525	156.525	S	Digital selective calling for distress, safety and calling
71	156.575	156.575	S	Port Operations
72	156.625	156.625	S	Intership
73	156.675	156.675	S	Intership/Port operations
74	156.725	156.725	S	Port operations
75		156.775	S	Ch 16 guard - no transmitt
76		156.825	S	Ch 16 guard - no transmitt
77	156.875	156.875	S	Intership
78	156.925	161.525	D	Public Correspondence
79	156.975	161.575	D	Public Correspondence
80	157.025	161.625	D	Public Correspondence
81	157.075	161.675	D	Public Correspondence
82	157.125	161.725	D	Port ops/public correspondence
83	157.175	161.775	D	Port ops/public correspondence
84	157.225	161.825	D	Port ops/public correspondence
85	157.275	161.875	D	Port ops/public correspondence
86	157.325	161.925	D	Port ops/public correspondence
87	157.375	157.375	S	Port operations
88	157.425	157.425	S	Port operations

15 INSTALLATION

15.1 Unit Installation

The NX2000 should be sited so that engine noise and vibration or other background noises do not make it difficult for the operator to hear.

It is recommended not to install the unit where it will be exposed to continuous direct sunlight as this will eventually damage the LCD display.

As loudspeakers contain powerful magnets, the Radio should not be installed within 1m (3ft 3in) of any compasses, whether magnetic or electronic.

The fins on the back of the unit act as a heat sink to dissipate heat generated by the set when in use, which maintains the high efficiency of the Radio. The free circulation of air is essential - if the Radio is mounted in an enclosed space, please ensure the space is well ventilated

The NX2000 is supplied with a reversible mounting bracket. This can be used to mount the Radio on the chart table or on an overhead bulkhead (Fig A). Before installing, ensure that there is at least 100mm (4.0 in) vertical clearance and 70mm (2 3/4in) horizontal clearance behind the bracket to allow the Radio to fit (Fig B). The rake angle of the Radio can be adjusted by slackening the clamp.

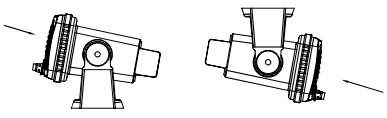


Fig A

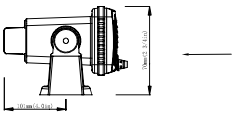


Fig B

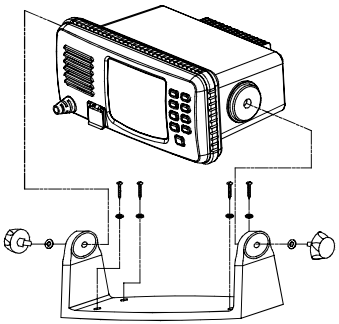


Fig C

On the back of the NX2000 there is an antenna socket, a power cable socket (Fig D) and an external speaker and GPS input socket.

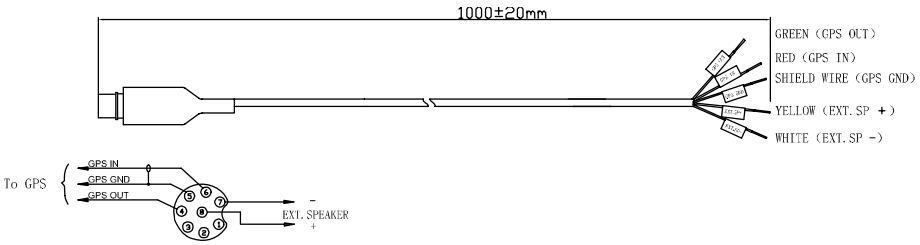


Fig D

The NX2000 requires a 12v DC supply to operate. This lead should be connected to the vessel's power supply (the red wire is positive, black is negative), and the cable kept as short as possible. Although the Radio draws very little current when receiving, a heavier current is drawn when transmitting which may result in a voltage drop if very long cables are used of inadequate core diameter. If the supplied power lead is not long enough, an extension of up to 3m(10 ft) can be made using at least 2.5mm (13AWG) wire.

The chassis of the NX2000 is not connected to either supply rail. This allows a direct connection to the ship's earth connection for voltage and RF interface protection. The red wire is positive and black is negative. If polarity is accidentally reversed, the set will not operate.

The antenna is connected to the NX2000 using a standard PL259 type connector as fitted to most marine antenna. If fitted to an existing antenna, check that the contacts are not corroded before connecting, as this will affect the quality of the signal, Ensure that the retaining collar of the antenna plug is securely tightened to prevent accidental disconnection.

15.2 Antenna Installation Recommendations

The most important factor in the performance of the NX2000 will be the quality and positioning of the antenna. Most recorded problems with VHF Radios are related to poor antenna sighting, faulty cabling, poor quality cable joints and low voltage supply. Even the best performing Radio cannot compensate for these factors. If replacing an existing installation using the same antenna, it is important that these factors are checked when installing the Radio.
As the range of VHF signals are governed by line of sight, the antenna should be placed as high as possible, while remaining clear of any metallic objects that could influence the resonance of the antenna.

The most popular antenna for marine use are 1m (3ft 3in) long. On sail boats these are usually mounted at the masthead, where the length of the antenna keeps it clear from the navigation lights and wind vanes etc. This type of antenna can also be mounted on the cabin roof or radar arch on powerboats.

Longer whip antenna are recommended for larger boats. These radiate the same total power as smaller antenna, but concentrate it into a narrower beam, which is advantageous on a tall mast at extreme range where concentrating the available power into a narrow horizontal beam becomes more important. However, if the antenna is not vertical when transmitting, the beam will be angled either too high or too low (Fig E). Here the wider beam of the shorter antenna will be more universally effective, although the signal will be weaker (Fig F):

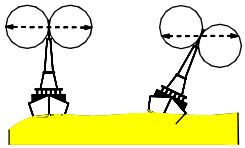


Fig E

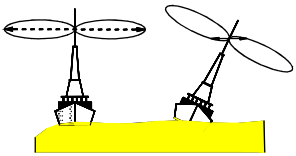


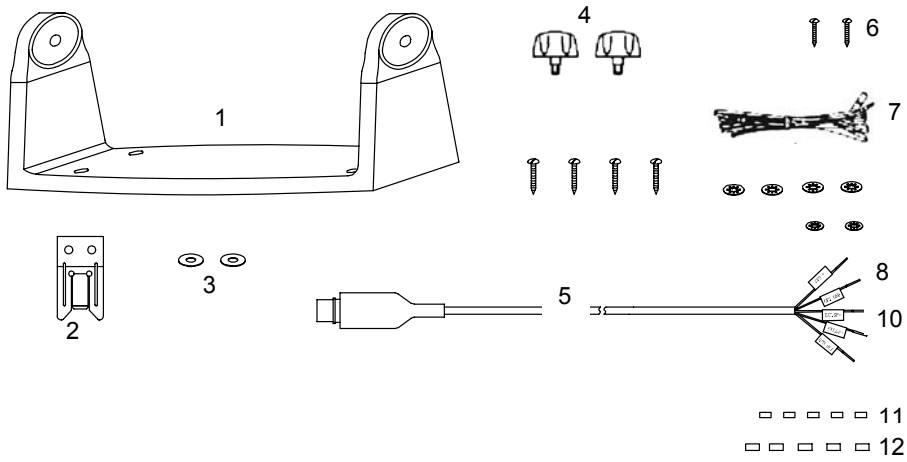
Fig F

Therefore vessels with a large heel angle (small sailboats) would do better with a short masthead antenna. Your local agent should be able to provide specific advice on antenna choice for the vessel it is to be fitted on.

The antenna coaxial cable and any connectors used must be rated at
50Ω. Under no circumstances should standard domestic TV cable and connectors be used. Incorrectly rated cabling and connectors could result in power not reaching the antenna, but also power could be reflected back into the Radio, damaging it in the process.

16 SUPPLIED PARTS

1.	Mounting Bracket	1	7.	Power Cord	1
2.	Microphone Hanger	1	8.	Mounting Bracket Washer	4
3.	Bracket Knob Washer	2	9.	Hanger Spring Washer	2
4.	Mounting Bracket Knob	2	10.	GPS/Speaker Plug Cord	1
5.	Mounting Bracket Screw	4	11.	Thermoshrink Tube Φ2	5
6.	Mic Hanger Screw	2	12.	Thermo shrink Tube Φ3	5



17 WARRANTY

WARRANTY

GENERAL

All our products are designed and built to comply to the highest class industry standards. If the products are correctly installed, maintained and operated, as described in the installation and operation manual, they will provide long and reliable service. Our international Network of distributors can provide you with the information and assistance you may require virtually anywhere in the world.

Please read through and fill in this warranty card and send it to your national distributor for product registration.

LIMITED WARRANTY

The warranty covers repair of defective parts due to faulty Manufacturing and includes labour when repaired in the country of purchase. The warranty period is stated in the product manual, and commences from the date of purchase. The above warranty is the Manufacturer's only warranty and no other terms, expressed or implied, will apply. The Manufacturer specifically excludes the implied warranty of merchantability and fitness for a particular purpose.

CONDITIONS

- The supplied warranty card and receipt with proof of purchase date, must be shown to validate any warranty claim. Claims are to be made in accordance with the claims procedure outlined below.
- The warranty is non-transferrable and extends only to the original purchaser.
- The warranty does not apply to Products from which serial numbers have been removed, faulty installation or incorrect fusing, to conditions resulting from improper use, external causes, including service or modifications not performed by the Manufacturer or by its national distributors, or operation outside the environmental parameters specified for the Product.
- The Manufacturer will not compensate for consequential damage caused directly or indirectly by the malfunction of its equipment. The Manufacturer is not liable for any personal damage caused as a consequence of using its equipment.
- The Manufacturer, its national distributors or dealers are not liable for charges arising from sea trials, installation surveys or visits to the boat to attend to the equipment, whether under warranty or not. The right is reserved to charge for such services at an appropriate rate.
- The Manufacturer reserves the right to replace any products returned for repair, within the warranty period, with the nearest equivalent, if repair within a reasonable time period should not be possible.
- The terms and conditions of the warranty as described do not affect your statutory rights.

CLAIMS PROCEDURE

Equipment should be returned to the national distributor, or one of its appointed dealers, in the country where it was originally purchased. Valid claims will then be serviced and returned to the sender free of charge.

Alternatively, if the equipment is being used away from the country of purchase, it may be returned to the national distributor, or one of its appointed dealers, in the country where it is being used. In this case valid claims will cover parts only. Labour and return postage will be invoiced to the sender at an appropriate rate.

DISCLAIMER

Common sense must be used at all times when navigating and the Manufacturer's navigation equipment should only be considered as aids to navigation.

The Manufacturers policy of continuous improvement may result in changes to product specification without prior notice.

File id:

WARRANTY CARD

TO BE RETURNED TO YOUR NATIONAL DISTRIBUTOR

OWNER:

Name:________________________________

Street :________________________________

City/Zip Code :____________________________

Country:________________________________

Product name:	Serial number: A	B	C	1	2	3	4	5	6	7
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Date of purchase:________________ Date installed:________________

Dealers stamp:

☐ Tick here if you do not wish to receive news about future products

18 DECLARATION OF CONFORMITY

NEXUS
PASSION FOR PERFORMANCE

Declaration Of Conformity

Nexus Marine AB
P.O. Box 998
S19129 Sollentuna
Sweden

Hereby confirms that this VHF Radio conforms to the essential requirements of the Radio and Telecommunications Terminal Equipment Directive 1999/5/EC and that all appropriate test suite measurements have been performed.

Equipment: **Marine VHF DSC (Class D) Transceiver**

Type-designation: **NX2000**

This compliance is based on conformity with the following harmonised standards, specifications or documents:

Standards No: EN301 025
EN301 843
IEC60215
Statement No: G103354U

CE 0678 ⓘ

Tony Kent
Chief Operating Officer
Nexus Marine AB

Copyright ©:
Nexus Marine AB
Kuskvägen 4, 191 62 Sollentuna, Sweden
Tel: +46 -(0) 8 – 506 939 00. Fax: +46 -(0) 8 -506 939 01
www.nexusmarine.se

28321-1 Edition 2