ICS NAV5plus

GMDSS NAVTEX Receiver

User Guide

VESSEL IDENTIFICATION INFORMATION

Name		
Call Sign		
MMSI		
ICS NAV5plus S/N		
RX frequencies	***518 kHz***	
	490 kHz	

Safety Warnings

This instrument is for use as an aid to sailors and should not lead to a reduction in the level of good seamanship required at all times.

Reception of messages cannot always be guaranteed as this depends on local radio propagation.

Contents

Please take the time to read this manual carefully. It contains some essential information regarding the operation and maintenance of the product and a useful background to the NAVTEX system.

We recommend that you regularly visit the McMurdo website *www.mcmurdo.co.uk* for information on updates, the availability of software enhancements, further options and support. The support pages contain frequently asked questions about the ICS NAV5plus that you may find useful. There is also a NAVTEX database providing a list of operational NAVTEX stations and their details.

The IMO and various national coastguards also operate informative websites that you may wish to visit, see the links page at *www.mcmurdo.co.uk*.

QUICK START

You will find this product extremely easy to operate.

- Follow the installation guidelines
- Re-check the cable connections
- Apply power
- Switch on the ICS NAV5plus
- The ICS NAV5plus will now print NAVTEX messages

INTRODUCTION

NAVTEX is a method of transmitting navigational warnings and weather forecasts from designated coast radio stations. All English language transmissions are made on 518 kHz. Each station is allocated several time 'slots' during the day, when it is permitted to transmit; these are normally at four hourly intervals. The only exceptions to this are gale warnings and search and rescue messages, which may be transmitted at any time.

Reception of NAVTEX is normally limited to an area of 200 - 300 miles radius around each transmitting station, although considerably greater ranges are possible at night.

Subject to IMO approval, additional local language transmissions may be made on 490 kHz.

The ICS NAV5plus has been designed to the latest European and International specifications to provide up to date weather and navigation warning information to commercial vessels. It meets IMO requirements under GMDSS and is designed for simplicity of operation. It will provide reliable printed information day after day within designated NAVTEX coverage areas.

Installation is straightforward. Connect the ICS NAV5plus to a 12 or 24 volt DC supply and connect a suitable antenna. Switch it on, and it will start printing NAVTEX messages without further manual intervention. Note that if there are only a couple of NAVTEX stations within range it may be several hours before you receive the first message

If all stations and message types are left selected, the ICS NAV5plus may overwhelm you with information. It can therefore be set up to print only those stations and message categories you want to receive and which are applicable to the area in which you are sailing.

Normally, routine messages are repeated at four hourly intervals. Provided that the ICS NAV5plus is left running, repeated messages are not printed again. The suppression of repeated messages stops three days (72 hours) after the last transmission of the message.

Permanent installation of the ICS NAV5plus can be made with the bulkhead-mounting bracket provided. Alternatively, the optional FMT-2 flush panel mounting kit, part number 913-24, may be purchased.

A NAVTEX antenna should be mounted where it is elevated clear of metal objects in a location where it cannot easily be damaged.

Please read the installation section of the user guide thoroughly before attempting installation of the ICS NAV5plus.

HOW TO OPERATE YOUR ICS NAV5PLUS

Initial Operation

Switch on the ICS NAV5plus by pressing the power button

The LCD display backlight will come on.

The LCD data display will show :

The “V2.07” is the software version, which may vary.

A short self-test is performed, then the ICS NAV5plus is ready to receive NAVTEX messages.

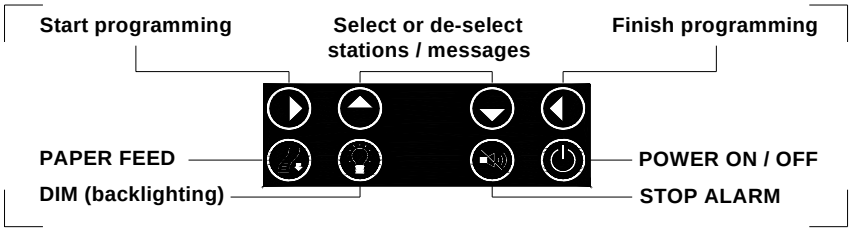
The factory default setting is for all NAVTEX stations and message categories to be printed.

To change the settings, refer to the SETUP section.

SETUP

Setup Controls

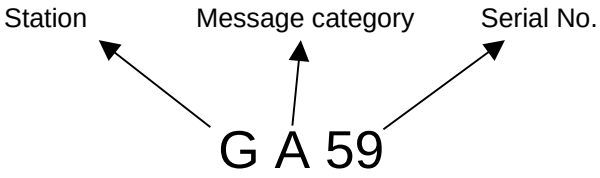
The diagram shows the main functions of the front panel controls:



NAVTEX Message Type Selection

At the beginning of each NAVTEX message there is a message header which identifies the source and nature of message using an identity code.

For example GA59 :-



This identifies which station has transmitted the message and the nature of the message.

It is possible to select the NAVTEX stations you wish to receive messages from and to restrict certain message categories.

DUAL CHANNEL OPERATION

The ICS NAV5plus is a dual channel receiver.

The  and  keys on the keypad are used to switch the LCD display between RX-A (the standard 518 kHz receiver) and RX-B (the 490 kHz second receiver).

The LAST MSG display shows the identity number of the last message received on that receiver and the two-dot signal indicator will flash if there is a signal being received from that receiver.

- Pressing  and  will display the corresponding information for the other receiver.

Notes:
Although the  and  keys are used to select which receiver is shown on the display, it is important to realise that both receivers are actively receiving signals all the time.

<u>If messages are being transmitted at the same time on both channels, both messages will be received and printed.</u>

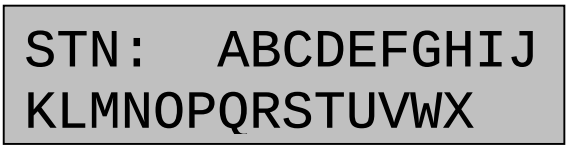
Messages from RX-B are identified separately on the printout.

Only messages from the 518 kHz receiver channel will be present on the RS422 serial output.

NAVTEX Stations Setup Procedure

When the key is pressed, the set up mode for the selected receiver will be started. This enables the stations and message types required for that receiver to be set. The two receivers are set up independently.

Station selection is displayed first:



Press followed by either the or the buttons, one push of either button will select, a second push will deselect.

Deselected stations are indicated by a ‘dash’ (–).

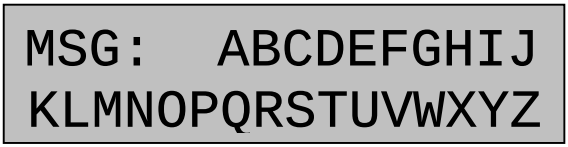
Each NAVTEX transmitting station has its own identifying letter. A list of these can be found in the NAVTEX Station Designations table section of this manual (Appendix 1).

If you do not know which stations cover your area, start by leaving them all stations selected. You will soon find which stations are relevant to you.

Press to store the NAVTEX station and message category selections.

NAVTEX Message Category Setup Procedure

- Once you have completed the NAVTEX station selection, press ◑ to change to the message category selection screen:



Message categories are identified by a single letter.

Press ◐ followed by either the ◒ or the ◓ buttons; one push of either button will select, a second push will deselect.

Deselected message categories are indicated by a 'dash' (–).

- Message categories, A, B, D and L cannot be deselected.

Press ◑ to store the NAVTEX station and message category selections.

For a table of NAVTEX message categories, see APPENDIX II.

SYSTEM ALARMS

Audible Alarms

The alarm signal within the ICS NAV5plus will sound under the following circumstances:-

- INCORRECT KEY PRESSED
- PAPER OUT
- LOW BATTERY (Power supply voltage is less than 9V DC)
- VITAL NAVTEX MESSAGE

Remove the cause of the alarm and then press the  key to stop the alarm.

Visible Alarms

The visible alarms will show on the LCD under the following circumstances:-

- PAPER OUT
- LOW BATTERY (Power supply voltage is less than 9V DC)
- VITAL NAVTEX MESSAGE

Remove the cause of the alarm and then press the  key to stop the alarm.

SERIAL OUTPUT

The ICS NAV5plus has an EIA RS422A-compatible serial output which can be used to connect the ICS NAV5plus to other equipment such as an integrated bridge system or a PC running charting software.

The serial output operates all the time that the ICS NAV5plus is switched on – there is no ON/OFF control for the serial output.

All correctly received NAVTEX messages from the 518 kHz receiver are sent to the serial output. The station and message category settings for printing within the ICS NAV5plus are ignored.

It is anticipated that the external equipment (e.g. a PC running charting software) will have its own method of selecting stations and message categories and as such ALL NAVTEX messages received by the ICS NAV5plus will be output.

Note: Only messages from the 518 kHz receiver channel will be present on the RS422 serial output.

Connecting to the Serial Output

Main Connector

Pin	Function
3	EIA-RS-422-A Output (TxA)
4	EIA-RS-422-A Output (TxB)

The RS422 output is ‘simplex’ which means that multiple receivers can be connected to the ICS NAV5plus but the ICS NAV5plus is the only transmitter.

The RS422 standard for connecting equipments specify that, for a short cable with only one receiver, the cable may be unterminated. For longer cables (20 metres or more) or installations with multiple receivers, a termination resistor should be fitted at the far end of the cable run from the ICS NAV5plus. The resistor value should be the ‘characteristic impedance’ of the cable, which typically is 100 to 120ohms. A ¼ W resistor is sufficient.

The cable used should be twisted pair 7/0.2 mm or similar.

Configuring the RS422 Receiver

The receiving device (a PC running charting software, or similar) needs to be configured so that it can receive the NAVTEX messages output from the ICS NAV5plus. Set up the RS422 receiver's communication port as:

Baud rate 4800
8 data bits
1 stop bit
no parity
XON/XOFF

Connecting to an RS422 Device

If the receiver is an RS422 device then only 2 connections are required:

Pin	***ICS NAV5plus Connection***	***RS422 Receiver Connection***
3	Output (Y)	Input (A)
4	Output (Z)	Input (B)

Note that, because receiver terminology varies between manufacturers, it may be necessary to swap the two connections for the receiver to function correctly. Don't worry – you won't damage the interface.

Connecting to a RS232 Device

If the receiver is a RS232 device, eg a computer serial (COM) port, then a RS422 to RS232 converter is required.

A suitable converter is Amplicon 'Model 485F9/485H9', although any similar product should be compatible. Be sure to follow the connection instructions supplied with your converter.

TEARING OFF A PRINTOUT

Use a ***gentle*** up or downward and sideways motion to tear the paper at the exit point of the ICS NAV5plus case.

Warning: DO NOT PULL THE PAPER THROUGH THE PRINTER AS THIS ACTION MAY DAMAGE THE PRINTER MECHANISM

Always use the paper feed button  to feed the paper clear of the mechanism.

PAPER LOADING

The ICS NAV5plus is supplied with one roll of paper fitted. At the end of this paper roll the ICS NAV5plus will sound an alarm and printing will stop. Early warning that the paper is about to run out is given by red stripes on the paper.

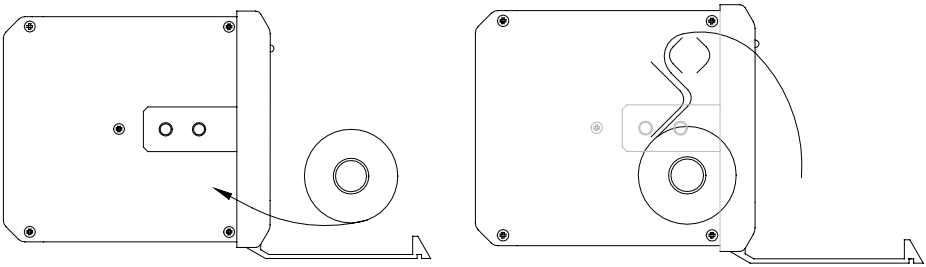
Should the paper run out in the middle of a message, information will not be lost provided that the ICS NAV5plus is not switched off whilst the paper roll is replaced.

Ensure that proper anti-static procedures are applied when installing or servicing the ICS NAV5plus and also when replacing the paper roll. Take care to discharge any static that you may be carrying by touching exposed metalwork on the case prior to replacing the paper roll.

- To remove the remaining paper, open the paper loading door. Push a top corner of the door to release the locking door catch
- Tear off the paper where it enters the printer mechanism
- Remove the old paper roll
- Remove the plastic spindle from inside the paper roll
- Press the paper feed button  to feed the remaining paper through the printer mechanism

Warning: DO NOT PULL THE PAPER THROUGH THE PRINTER AS THIS ACTION MAY DAMAGE THE PRINTER MECHANISM

- Place the new roll onto the spindle with the paper emerging from the top of the roll pointing towards you
- Mount the new roll and spindle onto the roll bracket

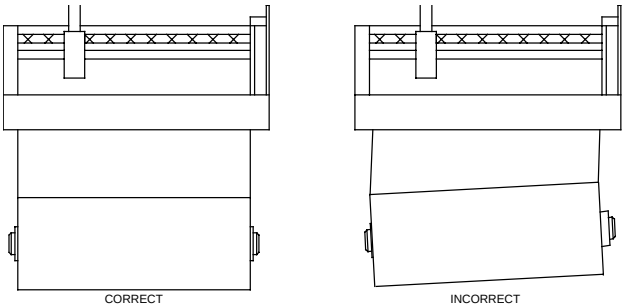


- Insert the paper into the slot at the base of the printer mechanism, and feed it in as far as it will go

It is important that the edge of the new paper roll is cut straight and that the paper is dry. Use scissors to prepare a clean straight paper edge.

- Check that the paper is inserted so that the heat sensitive surface is uppermost as the paper exits the printer

- Check that the paper roll is correctly aligned with the print mechanism as shown below



Press the paper feed button  until the paper appears through the door exit

New supplies of paper rolls can be ordered from McMurdo dealers, or contact McMurdo Tel +44 (0) 23 9262 3900 Fax +44 (0) 23 9262 3999, Email sales@mcmurdo.co.uk.

Quote order code: NAVTEX Rolls.

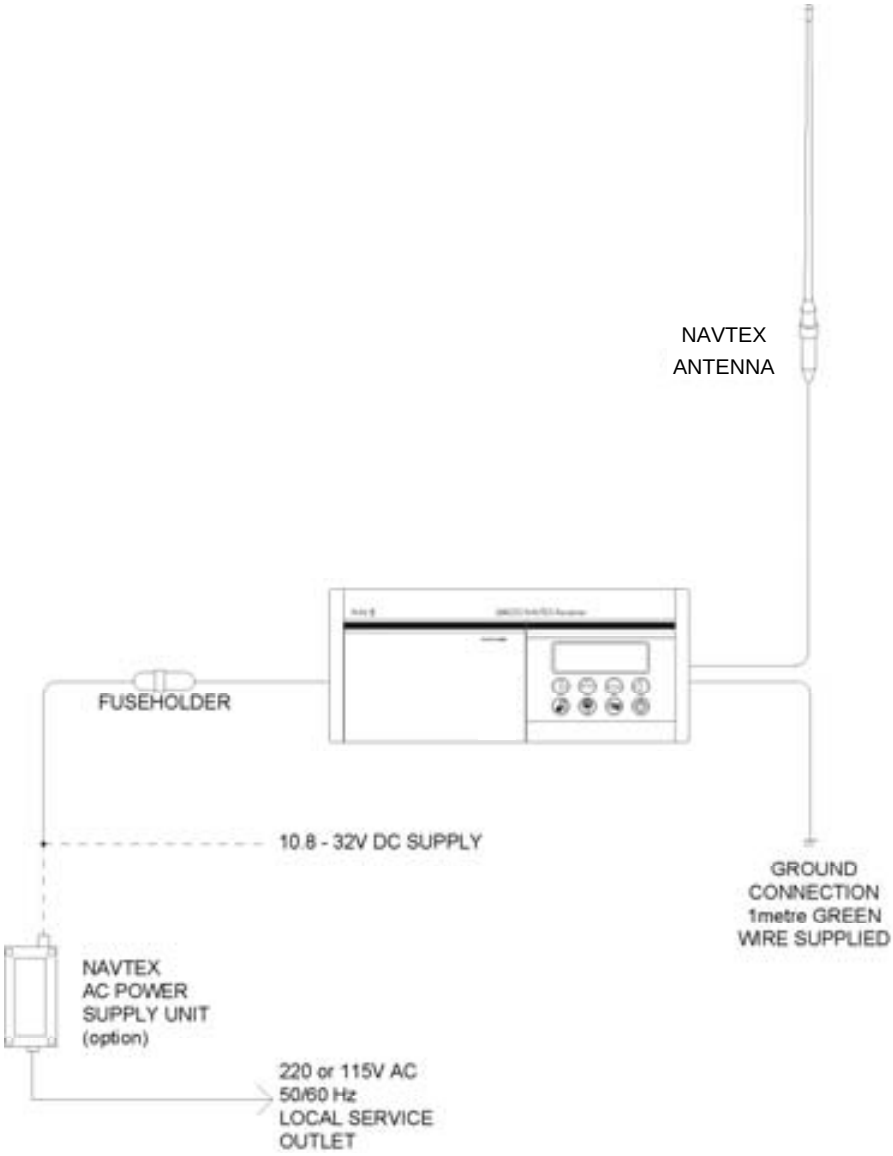
This specifies a box of eight rolls of paper.

The paper roll size is 80mm x 20m with a maximum diameter of 42mm and an internal spindle (hole) diameter of 12mm.

An updated list of McMurdo distributors is available on the McMurdo website (*www.mcmurdo.co.uk*) Distributors page

INSTALLATION

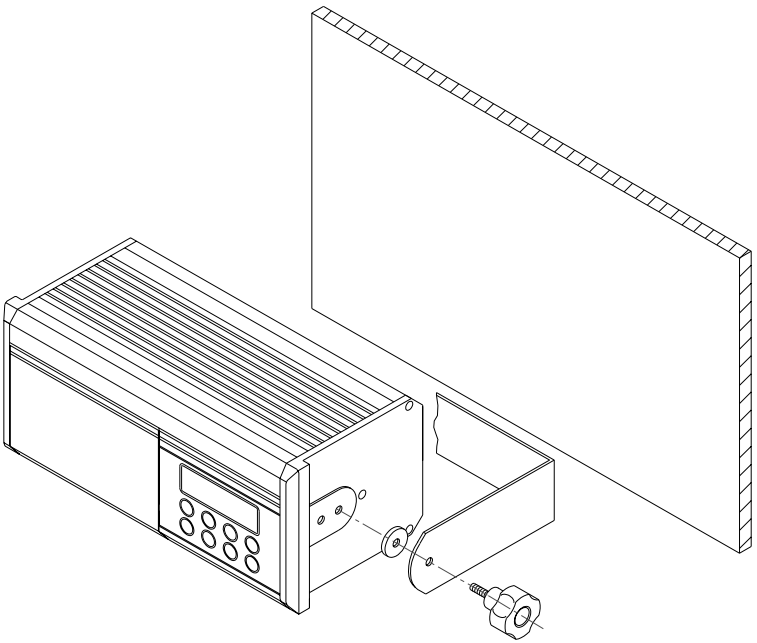
ICS NAV5plus System Overview



Mechanical Mounting using U-Bracket Supplied

The standard bulkhead mounting U-Bracket can be used to mount the ICS NAV5plus above or below a horizontal (or near horizontal) surface.

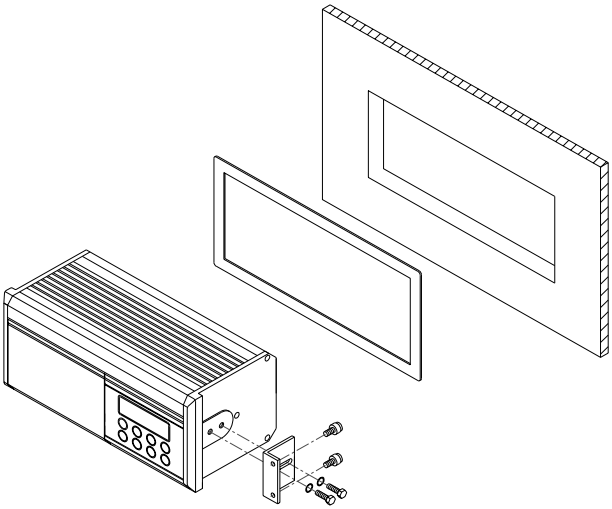
- Use the U-bracket as a template to mark out the 4 fixing holes on the mounting surface.
- Drill 4 off fixing pilot holes (1/8 inch / 2.5 mm diameter for hardwood, or 3/32 inch / 3mm diameter for softwood or plywood).
- Use the No.10 S/S pozidrive screws supplied to attach the U-Bracket to the mounting surface.
- Use the two 25 mm diameter rubber washers supplied between the U-Bracket and the ICS NAV5plus case.
- Make the necessary electrical connections to the rear of the ICS NAV5plus.
- Ensure that the two handwheel knobs are inserted through the bracket and rubber washers on each end of the ICS NAV5plus.
- Hand tighten the knobs.



Mechanical Mounting using the Optional Flush Mount Kit

If the ICS NAV5plus is to be mounted through a flat panel, it is advised that you purchase the FMT-2 flush mounting kit option, part 913-24.

Full fitting instructions are included in the FMT-2 flush mounting kit.



Warning: Do not mount the ICS NAV5plus in a position where sea spray can reach it, or where it may be exposed to direct sunlight

Electrical Connections

A connection must be made to a 12 or 24 V DC supply via a circuit breaker capable of supplying at least 2 amps. Connection should be to the ships radio battery and be in accordance with GMDSS requirements.

- Connections are made directly to the screw terminals on the ICS NAV5plus mating connector at the rear of the unit using the 1m length cable provided.
- Use cable ties to restrain the wiring, and so prevent it becoming weakened by vibration. The connecting cables should be restrained by securing them to the rear of the ICS NAV5plus bracket, or to adjacent metalwork.

Safety Warning

The ICS NAV5plus has been designed and manufactured to be completely safe when used in accordance with the instructions given in this manual. To ensure that the complete installation is safe, it is essential that a fuse or circuit breaker is installed in the supply cable as described in the Installation Section of this manual.

The ICS NAV5plus is supplied with a DC power cable and an in-line Type 'T' 2.5 amp fuse. It is essential that this fuse is included in the installation.

To ensure the best possible protection of the ICS NAV5plus from static electricity or nearby lighting strikes, the pre-fitted green grounding wire (connected to the safety earth stud) must be connected to a nearby (hull) electrical grounding point.

Interface Connections

ICS NAV5plus rear panel connections:

Main Connector

Pin	***Function***
1	Not used
2	Not used
3	EIA-RS-422-A Output (Y)
4	EIA-RS-422-A Output (Z)
5	Not used
6	Not used
7	Power input (negative)
8	Power input (positive)
9	N/O Alarm contact (2 A max @ 24 V DC)
10	N/O Alarm contact (2 A max @ 24 V DC)

Antenna Connector

Pin	***Function***
1	Active antenna input*
2	Active antenna screen
3	Safety ground
4	Antenna ground
5	Passive antenna screen
6	Passive antenna input

*** WARNING: DC voltage is present on Pin 1**

NOTES:

For each connector, Pin 1 is on the right, looking at the rear of the ICS NAV5plus.

- The auxiliary alarm contact is capable of switching up to 24 V DC at up to 2 A. The contacts are not connected to any internal voltages
- The power supply input is isolated from the case and antenna. It must remain within the range 10.8 – 32 V DC at all times.

Selecting a Suitable Antenna

The ICS NAV5plus receives transmissions on two frequencies. 518 kHz transmissions are in International English; 490 kHz tranmissions may be in a local language.

To receive on both frequencies the ICS NAV5plus must be used with a broadband antenna that covers both 518 kHz and 490 kHz.

Only one antenna can be connected to the ICS NAV5plus, either to the passive antenna input or to the active antenna input.

Several different antenna types are recommended for the ICS NAV5plus. The best option will depend upon the receive frequencies required and the ease of installation.

Choice of Antenna

Antenna	**490 kHz**	**518 kHz**
ANT/w	✓	✓
NAV-ANT/w *	✓	✓
NAV-ACTIVE *	✓	✓
Whip antenna with 50 ohm match	✓	✓
Long wire with 50 ohm match	✓	✓

* recommended options

The ICS NAV5plus must be used with a low impedance 50 Ω antenna or an antenna with a 50 Ω matching network.

A ‘mis-matched’ or ‘high impedance’ whip or wire antenna should not be used or the operational range of NAVTEX reception will be greatly reduced.

- If a ‘Wire’ or ‘long whip’ antenna is used with the ICS NAV5plus it must be fitted with a 50 Ω matching transformer.

Important

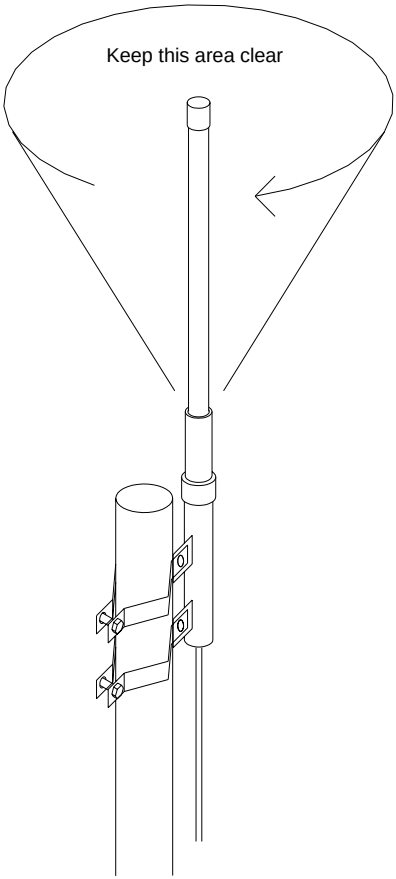
NAVTEX antennas must be mounted clear of obstructions and at least 0.5 metres away from other antennas.

Ensure that they cannot be snagged by mooring warps or running rigging or engulfed by green water.

Antennas should always be mounted vertically.

Installation of a NAVTEX Antenna

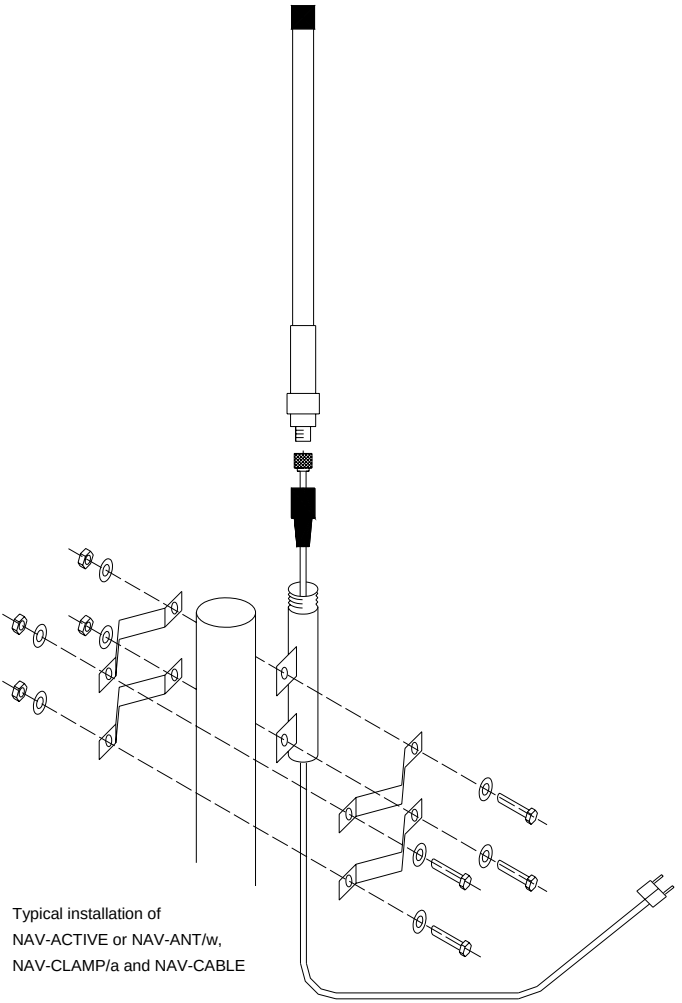
The NAVTEX antenna should be mounted vertically, in an elevated position. Metal, rigging or other antennas must not be located in the 'NO GO cone' surrounding the upper part.



Installation procedure: NAV-ANT/w & NAV-ACTIVE, NAV-CABLE, NAV-CLAMP/a

Start the antenna cable installation from the ICS NAV5plus (lower) end first.

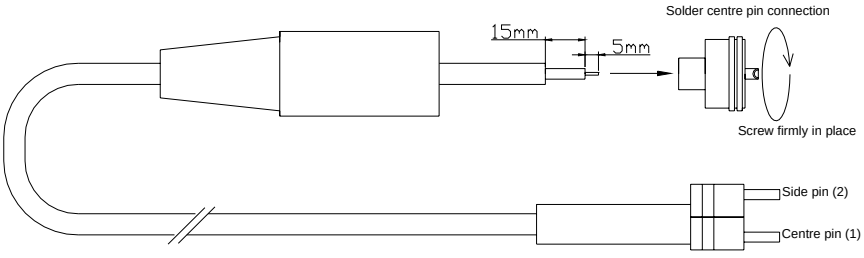
Where the cable passes through bulkheads or decks, waterproof deck glands should be installed. Securely fasten the cable against vibration using plastic cable tie wraps.



Typical installation of
NAV-ACTIVE or NAV-ANT/w,
NAV-CLAMP/a and NAV-CABLE

Antenna connection

Pass the cable though the black plastic boot and prepare the end of the cable as shown in the diagram, folding the cable braid back and screwing the PL259 connector firmly in place. To ensure a good connection it is recommended that the centre pin is soldered.



NAV-CABLE assembly detail

ICS NAV5plus connection

If required, the NAV-CABLE may be extended with 50 ohm coaxial cable and connectors. The maximum cable length should not exceed 100m. Ensure that any cable joints are well secured and waterproofed using self-amalgamating (rubber) tape.

Active Antenna Installation

McMurdo recommend the NAV-ACTIVE 905.05, an active NAVTEX antenna with PL socket and 1 inch nut fixing.

The ICS NAV5plus provides a regulated 9 V DC 100 mA output to provide power for an active antenna. Check that your active antenna is compatible with this power output. If it is not, then an external power supply interface will be required. Your antenna supplier should be able to provide this.

If you use an external power supply interface then you must connect the RF output from the interface to the ICS NAV5plus passive antenna input rather than the active antenna input.

Securely mount the active antenna to a vertical surface or pole, route the connecting cable though to the ICS NAV5plus using cable glands to pass though bulkheads as required.

Connect the active antenna output coaxial cable centre core to Antenna Connector Terminal 1 and the coaxial screen to Terminal 2.

Passive Antenna Installation

Connect the passive antenna output coaxial cable centre core to Antenna Connector Terminal 6 and the coaxial screen to Terminal 5

Dual Antenna Installation

A dual antenna installation is NOT possible.

NAVTEX AC Power Supply Unit

Consult the installation instructions packed with the power supply.

An additional ground wire may be connected between the green safety earth wire on the ICS NAV5plus and the ground terminal on the NAVTEX Power Supply Unit.

SELF TEST

If you have any doubts as to whether the ICS NAV5plus is working correctly run the self-test.

'Self Test' is selected by holding down the feed button  while the ICS NAV5plus is switched on using the power button.

The ICS NAV5plus will print out the test results and then start normal operation.

If all tests are passed, a printout will appear as shown:

```
pqrstuvwxyz{"}~
HIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmno
!"#$%&'()*+,-./0123456789:;<=>/?@ABCDEFG

ROMDATE            :         Nov 21 2002
ROM                :      ICS NAV5plus V2.07
DISPLAY            :                PASS
RAM                :                PASS
CPU                :                PASS
RXA-I              :                PASS
RXA-Q              :                PASS
RXB-I              :                PASS
RXB-Q              :                PASS
PAPER SENSOR       :                PASS
HEAD RESISTANCE    :                   C *
```

*** Either A, B or C will show here.**

Notes :

The first three lines of this print out are simply a test of the printer.

The ROMDATE and ROM lines change in line with product development.

The DISPLAY line tests the LCD display module.

The RAM and CPU lines test the memory and central processor.

The RXA-I and RXA-Q lines test the two signal paths in the 518 kHz radio receiver.

The RXB-I and RXB-Q lines test the two signal paths in the 490 kHz radio receiver.

The PAPER SENSOR tests whether the unit can recognise the presence of paper in the roll holder.

The HEAD RESISTANCE letter is for service use only, and should match the head resistance mark on the printer assembly.

This self-test is carried out automatically each time the unit is switched on, but the results are not reported unless a fault is detected.
Three beeps mark the progress of this test.

As an additional receiver confidence test, the ICS NAV5plus also flashes two small squares at the right hand side of the display whenever it is receiving a NAVTEX signal, even if the message is not selected for printing.

TROUBLESHOOTING GUIDE

Check that :-

- The antenna is mounted vertically, and is sited clear of obstructions
- The vessel is operating within the coverage area of a NAVTEX transmitter
- The NAVTEX station(s) selected are transmitting, two small squares at the right hand side of the ICS NAV5plus display show whenever a NAVTEX signal is received
- The required NAVTEX station and message categories have not been de-selected in the ICS NAV5plus set-up menu

Antenna

Check that the antenna is clear of obstructions and has not suffered external damage. Check that the antenna cable is not damaged.

Receiver

Perform a system self test - refer to Self Test section for details.

- At scheduled transmission time, look for two small squares at the right hand side of the ICS NAV5plus display; these flash whenever a NAVTEX signal is received.

Printer

If there is no sign of life from the printer after power up and a printer fault is shown on the LCD display, check that there is no paper jammed in the printer.

- If the printer operates but nothing is printed, check that the paper roll is of a type recommended by ICS and that the ‘heat sensitive side’ of the paper is uppermost (as that paper exits the door, test with a ‘hot’ item).

Paper Out

- In the case of a “Paper Out” alarm, replace the paper roll
- If the paper has not run out, check that the paper roll is fitted correctly

Default Reset

Use the Default Reset to reset the ICS NAV5plus to the factory default settings. This sets all NAVTEX stations and message categories to on.

- Turn the unit off
- Hold down the alarm silence button  while pushing the power button 
- The ICS NAV5plus will sound a bleep, and load default settings

Self Test

Run the ICS NAV5plus self test, refer to 'self test' section for details.

Should any item on the self test fail, turn the ICS NAV5plus off and on again and repeat the system self test. Should any item on the self test list fail a second time, contact your supplier for advice or call the McMurdo Technical Help Line for assistance.

Tel +44 (0) 23 9262 3900
Fax +44 (0) 23 9262 3999
Email: customerservice@mcmurdo.co.uk

Printer Jam

Mishandling of the paper when installing a new paper roll can sometimes cause the printer to jam.

If the moving printer head is allowed to catch the edge of the paper roll the printer mechanism may stall. This will result in a ‘printer fault’ being reported by the unit (alarm : ‘bleep-bleep’, ‘bleep-bleep’, ‘bleep-bleep’).

This condition may be avoided by first ensuring that the new paper roll has a flat, cleanly cut edge.

- Consult the ‘Paper Loading’ instructions for details of the paper load procedure

Should a paper jam occur, do not pull on the paper or try to force the printer head sideways as such action may cause damage to the printer and may invalidate your warranty.

Clearing a Paper Jam

As the procedure to clear a ‘stalled printer’ involves disassembly of the main unit it is recommended that this should only be attempted by authorised service personnel.

In the first instance :

Contact the dealer who supplied your unit for further instructions.

If you are still not satisfied contact the McMurdo Electronics Technical Helpline for assistance.

Tel +44 (0) 23 9262 3900
Fax +44 (0) 23 9262 3999
Email: customerservice@mcmurdo.co.uk

Software Upgrade

From time to time software upgrades may be available. Check our website for information on new releases.

WARRANTY

Subject to the provisions set out below McMurdo Limited warrants that this product will be free of defects in materials and workmanship for a period of 24 months from the date of sale.

McMurdo Limited will not be liable to the buyer under the above warranty:-

- for any defect arising from fair wear and tear, wilful damage, negligence, abnormal working conditions, failure to follow McMurdo Limited's instructions (whether oral or in writing) including a failure to install properly and/or to use batteries recommended and/or supplied by McMurdo Limited, misuse or alterations or repair of the product by persons other than McMurdo Limited or an Approved Service Agent;
- for parts, materials or equipment not manufactured by McMurdo Limited in respect of which the buyer shall only be entitled to the benefit of any warranty or guarantee given by the manufacturer to McMurdo Limited;
- for the battery storage life which is specifically excluded from this warranty;
- if the total price for the product has not been paid.

McMurdo Limited does not make any other promises or warranties (express, implied or statutory) about the product except where the product is sold to a consumer in which case the statutory rights of a consumer are not to be affected.

In order to be valid, claims must be made under the above warranty in writing as soon as practicable after discovery of the defect or failure and within the warranty period referred to above. Proof of purchase will be required. The claim should be sent together with the product in question to the address set out below or to an Approved Service Agent.

Following a valid warranty claim McMurdo Limited shall be entitled to repair or replace the product (or part) in question free of charge, or at McMurdo Limited's sole discretion to refund to the buyer the price of the product (or a proportional part of the price). McMurdo Limited shall not be liable to a buyer who is not a consumer for any other loss or damage (whether indirect, special or consequential loss of profit or otherwise) costs, expenses or other claims for compensation which arise out of or in connection with this product. In the case of a consumer McMurdo Limited shall only be liable where other loss or damage is foreseeable.

Nothing shall limit McMurdo Limited's liability for death or personal injury caused by its negligence.

This warranty is to be interpreted under English law.

All enquiries relating to this warranty or Approved Service Agents should be sent to:

McMurdo Limited
Silver Point, Airport Service Road, Hampshire, PO3 5PB, United Kingdom
Telephone: Int + 44 (0) 23 9262 3900 **Fax: Int + 44 (0) 23 9262 3999**
Web: *www.mcmurdo.co.uk* **Email:sales@mcmurdo.co.uk**

OPTIONS

The following ICS NAV5plus ancillary parts can be purchased:

Model	Description	Code
ICS NAV5plus	Dual channel SOLAS printing NAVTEX Receiver	915-05
ICS NAV5plus Cyrillic	Dual channel SOLAS printing NAVTEX Receiver with Cyrillic alphabet support	916-06
Passive NAVTEX antenna	518 - 490kHz, PL socket, white glass fibre construction with 1inch nut fitting	905-03
Active NAVTEX antenna	518 - 490kHz + 4209.5 kHz, PL Socket, white glass fibre construction with 1inch nut fitting	905-05
NAV-CLAMP	Pole mount stand-off bracket for NAVTEX Antenna, 1inch bolt mount fitting.	903-01
NAV-CLAMP /b	Pole or Wall mount stand-off bracket for NAVTEX Antenna, 1inch bolt mount fitting	903-02
NAV-CLAMP /c	Deck mount for NAVTEX antenna, 1inch bolt mount fitting	903-04
NAV-CABLE 20	20m antenna cable kit	903-00
FMT2 Flush Mount Kit	Panel mounting kit for ICS NAV5plus	913-24
NAV-ROLLS	Box of 8 paper rolls	913-13
NAV5plus Technical Manual	Service and maintenance information	28-230
CIS-CERT	Russian Register of Shipping Certificate	TBA
CHI-CERT	Chinese Register of Shipping Certificate	TBA

SPECIFICATIONS

Receiver

RxA Receiver Frequency	518 kHz
RxB Receiver Frequency	490 kHz
Sensitivity	<2 microvolts
Frequency stability	+/- 10 Hz
Antenna Input	50 ohms

NAVTEX Reception conforms to ITU-R 540-2, ETS 300-065

Environmental

Meets the relevant parts of BS EN 60945

Printer Specification

Type	Thermal, 40 chars per line
Character Matrix	7 x 5
Paper Roll	80mm wide x 20m long
Paper Out	Audible and visual alarm
Front Panel	2 line x 16 character backlit LCD
	Membrane keypad

Controls

Power ON/OFF
LCD backlight dim
Paper feed
Stop alarm
Four programming keys

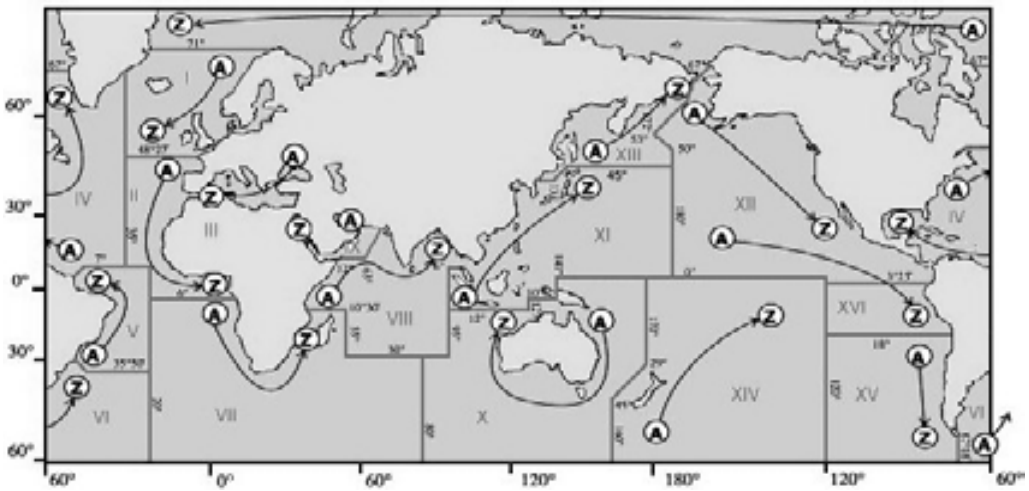
Serial Interface

EIA-RS-422-A compatible o/p
8 data bits
1 stop bit
No parity
Baud rate 4800
518 kHz receiver channel messages only

Rear Connections	
	10 way power and RS422 6way antenna Earth stud
Alarms	
	Vital message receipt Paper Out
Operating Temperature Range	-15 to +55 °C
Storage Temperature Range	-20 to +55 °C
Humidity	0 to 95%, non-condensing
Mounting	Below decks, desk-top, bulkhead or panel mount
Weight	1500 g (approx.)
Dimensions	252W x 106H x 120D mm
Mounting	Shelf/bulkhead FMT-2 panel mount option
Power	
Voltage range	10.8 V to 32 V
Consumption (Typical)	Standby 1.5 W Printing 2.5 W
Fused externally	2.5A Type ‘T’

Note: Specifications may be changed without notice.

APPENDIX I: NAVTEX STATION DATABASE



518kHz NAVTEX Stations

Id	Area	Country	Name	Latitude	Longitude	Range (NM)	Op
A	15	Chile	Antofagusta	23°40'S	70°25'W	300	Yes
A	09	Iran	Bushehr	28°58'N	50°50'E	300	Yes
A	02	France	Corsen	48°28'N	5°3'W	300	Yes
A	11	Indonesia	Jayapura	2°31'S	140°43'E	300	Yes
A	04	USA	Miami	25°30'N	80°23'W	240	Yes
A	03	Russia	Novorossiysk	44°43'N	37°47'E	300	Yes
A	01	Norway	Svalbard	78°4'N	13°38'E	450	Yes
A	13	Russia	Vladivostok	43°7'N	131°53'E	280	No
B	11	Indonesia	Amboina	3°42'S	128°12'E	300	Yes
B	09	Bahrain	Bahrain	26°9'N	50°28'E	300	Yes
B	04	Bermuda	Bermuda Harbour	32°23'N	64°41'W	280	Yes
B	01	Norway	Bodo	67°16'N	14°23'E	450	Yes
B	13	Russia	Kholmsk	47°2'N	142°3'E	300	Yes
B	03	Ukraine	Mariupol	47°6'N	37°33'E	280	Yes
B	15	Chile	Valparaiso	32°48'S	71°29'W	300	Yes
B	07	Namibia	Walvis Bay	23°3'S	14°37'E	380	Yes
C	07	South Africa	Cape Town	33°41'S	18°43'E	500	Yes
C	08	Mauritius	Mauritius	20°10'S	57°28'E	400	Yes
C	01	Russia	Murmansk	68°58'N	33°5'E	140	Yes
C	03	Ukraine	Odessa	46°29'N	30°44'E	280	Yes
C	13	Russia	Petropavlosk	53°0'N	158°40'E	280	No
C	12	USA	San Francisco	37°55'N	122°42'W	350	Yes
C	04	Canada	Sept -Iles	50°11'N	66°7'W	300	Yes
C	11	Singapore	Singapore	1°20'N	103°42'E	400	Yes
C	15	Chile	Talcahuano	36°42'S	73°6'W	300	Yes
D	02	Spain	Coruna	43°22'N	8°27'W	400	Yes
D	01	Sweden	Grimeton	57°6'N	12°23'E	299	Yes

Id	Area	Country	Name	Latitude	Longitude	Range (NM)	Op
D	03	Turkey	Istanbul	41°4'N	28°57'E	300	Yes
D	13	Russia	Magadan	59°40'N	151°1'E	000	No
D	12	Canada	Prince Rupert	54°18'N	130°25'W	300	Yes
D	15	Chile	Puerto Montt	41°29'S	72°57'W	300	Yes
D	04	Canada	Sept -Iles	50°11'N	66°7'W	300	Yes
D	11	Indonesia	Ujungpandang	5°6'S	119°26'E	300	Yes
E	13	Russia	Beringovskiy	64°10'N	179°02'W	000	No
E	11	Indonesia	Jakarta	6°7'S	106°52'E	300	Yes
E	15	Chile	Magallanes	52°56'S	70°54'W	300	Yes
E	01	UK	Niton	50°35'N	1°18'W	270	Yes
E	03	Turkey	Samsun	41°17'N	36°20'E	300	Yes
E	12	USA	Savannah	32°8'N	81°42'W	200	Yes
F	03	Turkey	Antalya	36°53'N	30°42'E	300	Yes
F	01	Russia	Arkhangelsk	64°33'N	40°32'E	300	Yes
F	09	Iran	Bandar Abbas	27°8'N	57°4'E	300	Yes
F	04	USA	Boston (Ice Rep)	41°43'N	70°31'W	200	Yes
F	02	Acores	Horta	38°32'N	28°38'W	640	Yes
F	15	Chile	Isla De Pascua	27°9'S	109°25'W	300	Yes
F	11	Thailand	Krung Thep	13°44'N	100°34'E	200	Yes
F	06	Uruguay	La Paloma	34°40'S	54°9'W	280	Yes
F	13	Russia	Providenia Bukhta	64°10'N	173°10'W	000	No
G	01	UK	Cullercoats	55°4'N	1°28'W	270	Yes
G	09	Saudi Arabia	Damman	26°26'N	50°6'E	390	Yes
G	15	Chile	Isla De Pascua	27°9'S	109°25'W	300	Yes
G	08	India	Mumbai	19°5'N	72°50'E	299	Yes
G	11	Japan	Naha	26°9'N	127°46'E	400	Yes
G	04	USA	New Orleans	29°53'N	89°55'W	200	Yes
G	02	Spain	Tarifa	36°1'N	5°34'W	400	Yes
H	15	Chile	Antofagusta	23°40'S	70°25'W	300	Yes
H	01	Sweden	Bjuroklubb	64°28'N	21°36'E	300	Yes
H	06	Dutch Antilles	Curacao	12°10'N	68°52'W	250	Yes
H	03	Greece	Iraklion	35°20'N	25°7'E	280	Yes
H	09	Saudi Arabia	Jeddah	21°23'N	39°11'E	390	Yes
H	11	Japan	Moji	33°52'N	130°36'E	400	Yes
H	04	Canada	Prescott	44°20'N	81°10'W	300	Yes
H	12	Canada	Tofino	48°56'N	125°32'W	300	Yes
I	03	Turkey	Izmir	38°21'N	26°35'E	300	Yes
I	02	Islas Canarias	Las Palmas	28°9'N	15°25'W	400	Yes
I	07	South Africa	Port Elizabeth	33°57'S	25°31'E	500	Yes
I	15	Chile	Valparaiso	32°48'S	71°29'W	300	Yes
I	11	Japan	Yokohama	35°22'N	139°36'E	400	Yes
J	01	Sweden	Gislovshammer	55°29'N	14°19'E	300	Yes
J	12	Alaska	Kodiak	57°46'N	152°34'W	200	Yes
J	11	Japan	Otaru	43°12'N	141°0'E	400	Yes
J	04	Canada	Sydney	46°11'N	59°54'W	300	Yes
J	15	Chile	Talcahuano	36°42'S	73°6'W	300	Yes
J	03	Bulgaria	Varna	43°4'N	27°46'E	350	Yes
K	03	Greece	Kerkyra	39°45'N	19°52'E	280	Yes
K	11	Japan	Kushiro	42°59'N	144°23'E	400	Yes
K	01	UK	Niton (N.France)	50°35'N	1°18'W	270	Yes
L	11	Hong Kong	Hong Kong	22°13'N	114°15'E	299	Yes
L	03	Greece	Limnos	39°52'N	25°4'E	280	Yes
L	15	Chile	Magallanes	52°56'S	70°54'W	300	Yes
L	01	Norway	Rogaland	58°39'N	5°36'E	450	Yes
M	02	Morocco	Casablanca	33°36'N	7°38'W	180	No
M	03	Cyprus	Cyprus	35°10'N	33°26'E	200	Yes
M	09	Oman	Muscat	23°37'N	58°31'E	270	Yes
M	01	Belgium	Oostende (Thames)	51°11'N	2°48'E	150	Yes
M	11	China	Sanya	18°14'N	109°30'E	250	Yes
M	06	Argentina	Ushuaia Prefectur	54°48'S	68°18'W	280	Yes
N	03	Egypt	El Iskandariya	31°12'N	29°52'E	350	Yes
N	11	China	Guangzhou	23°9'N	113°29'E	250	Yes
N	01	Norway	Orlandet	63°40'N	9°33'E	450	Yes

Id	Area	Country	Name	Latitude	Longitude	Range (NM)	Op
N	04	USA	Portsmouth	36°44'N	76°1'W	280	Yes
N	06	Argentina	Rio Gallegos	51°37'S	69°3'W	280	Yes
O	06	Argentina	Comodoro Rivadavi	45°51'S	67°25'W	280	Yes
O	07	South Africa	Durban	29°48'S	30°49'E	500	Yes
O	11	China	Fuzhou	26°2'N	119°18'E	250	Yes
O	12	Hawaiian Islands	Honolulu	21°22'N	158°9'W	350	Yes
O	03	Malta	Malta	35°49'N	14°32'E	400	Yes
O	01	UK	Portpatrick	54°51'N	5°7'W	270	Yes
O	04	Canada	St Johns	47°37'N	52°40'W	300	Yes
P	06	Argentina	Bahia Blanca	38°43'S	62°6'W	280	Yes
P	11	Vietnam	Hai Phong	20°43'N	106°44'E	400	No
P	03	Israel	Hefa	32°49'N	35°0'E	200	Yes
P	01	Netherlands	Ijmuiden	52°27'N	4°35'E	110	Yes
P	09	Pakistan	Karachi	24°51'N	67°3'E	400	Yes
P	11	Taiwan	Keelung	25°8'N	121°45'E	540	Yes
P	11	Taiwan	Lintou	23°33'N	119°38'E	350	Yes
P	11	Taiwan	Linyuan	22°29'N	120°25'E	540	Yes
P	08	India	Madras	13°8'N	80°17'E	299	Yes
P	11	Taiwan	Meilung	23°59'N	121°37'E	350	Yes
P	04	Canada	Thunder Bay	48°26'N	89°13'W	300	Yes
Q	12	USA	Long Beach	35°31'N	121°3'W	350	Yes
Q	01	Ireland	Malin Head	55°22'N	7°21'W	400	Yes
Q	06	Argentina	Mar Del Plata	38°3'S	57°32'W	280	Yes
Q	11	China	Shanghai	31°7'N	121°33'E	250	Yes
Q	03	Croatia	Split	43°30'N	16°29'E	085	Yes
Q	04	Canada	Sydney	46°11'N	59°54'W	300	Yes
R	06	Argentina	Buenos Aires	34°27'S	58°37'W	560	Yes
R	11	China	Dalian	38°52'N	121°31'E	250	Yes
R	02	Portugal	Monsanto	38°44'N	9°11'W	530	Yes
R	01	Iceland	Reykjavik	64°5'N	21°51'W	550	Yes
R	04	Greenland	Reykjavik	64°5'N	21°51'W	550	Yes
R	03	Italy	Roma	41°48'N	12°31'E	320	Yes
R	12	Puerto Rico	San Juan	18°28'N	67°4'W	200	Yes
S	04	Canada	Iqaluit	63°44'N	68°33'W	200	No
S	11	Malaysia	Labuan	5°54'N	118°0'E	350	Yes
S	16	Peru	Paita	5°5'S	81°7'W	200	Yes
T	03	Italy	Cagliari	39°14'N	9°14'E	320	Yes
T	04	Canada	Iqaluit	63°44'N	68°33'W	200	No
T	11	Malaysia	Kuching	4°27'N	114°1'E	350	Yes
T	01	Belgium	Oostende	51°11'N	2°48'E	050	Yes
U	16	Peru	Calleo	12°3'S	77°9'W	200	Yes
U	04	Canada	Fundy	43°45'N	66°10'W	300	Yes
U	11	Malaysia	Port Kelang	5°25'N	100°24'E	350	Yes
U	01	Estonia	Tallinn	59°30'N	24°30'E	300	Yes
U	03	Italy	Trieste	45°41'N	13°46'E	320	Yes
V	03	Italy	Augusta	37°14'N	15°14'E	320	Yes
V	11	South Korea	Chukpyon	37°3'N	129°26'E	200	Yes
V	04	Canada	Fundy	43°45'N	66°10'W	300	Yes
V	11	Mariana Islands	Guam	13°34'N	144°50'E	100	Yes
V	01	Norway	Vardo	70°22'N	31°6'E	450	Yes
W	12	USA	Astoria	46°10'N	123°49'W	216	Yes
W	11	Vietnam	Da Nang	16°5'N	108°13'E	400	Yes
W	04	Greenland	Kook Islands	64°4'N	52°1'W	400	No
W	03	France	La Garde	43°6'N	5°59'E	250	Yes
W	16	Peru	Mollendo	17°1'S	72°1'W	200	Yes
W	11	South Korea	Pyonsan	35°36'N	126°29'E	200	Yes
W	01	Ireland	Valentia (Dublin)	51°27'N	9°49'W	400	Yes
X	11	Vietnam	Ho Chi Minh-City	10°47'N	106°40'E	400	Yes
X	12	Alaska	Kodiak	57°47'N	152°32'W	200	Yes
X	04	Canada	Labrador	53°18'N	60°33'W	300	Yes
X	09	Egypt	Serapeum	30°28'N	32°22'E	200	Yes
X	03	Spain	Valencia	38°43'N	0°9'E	300	Yes

Notes:

No liability can be accepted for any inaccuracies or omissions in this NAVTEX stations table, although every care has been taken to make it as complete and accurate as possible.

Check our website *www.mcmurdo.co.uk* for information on updates to the station database.

For updated NAVTEX station listings information refer to the current UK 'Admiralty List of Radio Signals, Volume 5' or equivalent national publications.

All 518 kHz NAVTEX transmissions are in English language.

Local language NAVTEX services are available in some parts of the World on 490 kHz and 4209.5 kHz.

APPENDIX II: MESSAGE TYPE INDICATORS

NAVTEX broadcasts use following message type letter:

A	Navigational warnings
B	Meteorological warnings
C	Ice reports
D	Search and rescue information, and pirate warnings
E	Meteorological forecasts
F	Pilot service messages
G	DECCA messages
H	LORAN messages
I	OMEGA messages (Note: OMEGA has been discontinued)
J	SATNAV messages (i.e. GPS or GLONASS)
L	Navigational warnings - additional to letter A
V	Notice to Fishermen (U.S. only)
W	Environmental (U.S. only)
X	Special services - allocation by IMO NAVTEX Panel
Y	Special services - allocation by IMO NAVTEX Panel
Z	No message on hand

APPENDIX III: DECLARATION OF CONFORMITY

Silver Point
Airport Service Road
Portsmouth
Hampshire UK
PO3 5PB
Int + 44 (0)23 9262 3900
www.mcmurdo.co.uk

mcmurdo

EC DECLARATION OF CONFORMITY

The following products comply with the essential requirements of Council Directive 96/98/EC on the approximation of the laws of the member States relating to Marine Equipment as amended by Commission Directives 98/85/EC, 2001/53/EC, 2002/75/EC and 2002/84/EC, and by the application of an EC Type Examination Certificate as detailed overleaf.

Products covered by this Declaration

Product Type: **GMDSS NAVTEX receiver**

Models: **McMurdo ICS NAV5plus**

Intended usage of products
All vessels which must comply with IMO SOLAS regulations in coastal or International waters.

Surveillance conformity assessment is undertaken in accordance with Production Quality Assurance Module D by:

QinetiQ (No. 0191)
Fort Cumberland Road
Portsmouth PO4 9LJ
United Kingdom

The product will carry this Conformity Marking:

CE 0191
XX

Issued on behalf of McMurdo Limited

Signed :

Name: C P Hoffman
Title: Technical Director

Date: 4 JUNE 2004

Technical Construction File held by:

McMurdo Limited
Silver Point, Airport Service Road, Portsmouth PO3 5PB UK

Regulations and Standards complied with:

EN 300-065:2001	IEC 61097-6:(1995)
BS EN 60945:2002	EN 301-011:1998

Additionally, the equipment is recognised as complying with IMO Resolutions A.525(13) and A.694(17)

EC Type Examination Certificates:-

Name of Notified Body	:	QinetiQ (No. 0191)
Address of Notified Body	:	Fort Cumberland Road, Portsmouth PO4 9LJ UK
EC Type Examination Certificate No	:	QQ-MED-12/04-01 17 May 2004

ATTENTION

The attention of the specifier, purchaser, installer, or user is drawn to special measures and limitations to use which must be observed when the product is taken into service to maintain compliance with the above directive. Details of these special methods and limitations to use are available on request, and are also contained in the product owner manuals.