



**DESIGNED AND  
MANUFACTURED  
IN ENGLAND**



**WIRELESS  
WIND**  
SVWB

**INSTALLATION AND  
USER INSTRUCTIONS**

**NASA**→  
MARINE INSTRUMENTS

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# NASA WIRELESS WIND

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# NASA MARINE WIRELESS WIND

## INTRODUCTION

The mast head transmitter (MHT) is completely wireless and requires only occasional bright daylight falling on the solar panel to top up its internal battery. The base unit, which is powered by the vessel's 12 volt supply, receives wind speed and direction data from the MHT and sends it, at a nominal 1 second repeat rate, to any compatible NMEA display unit.

## BASIC OPERATION

When not in use, the MHT will be in sleep mode. It wakes up briefly every 30 seconds and listens to determine if it is being called by the base unit.

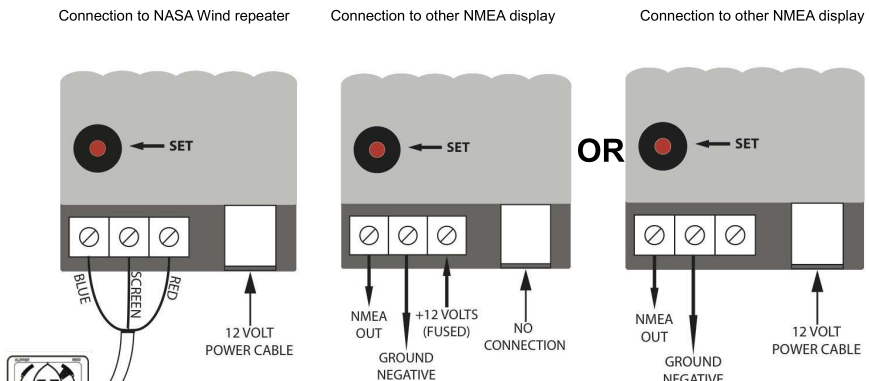
When power is applied to the base unit it will interrogate the MHT when it next wakes up. The MHT will then begin sending wind speed and direction data to the base unit on one of the four available operating channels.

If power is removed from the base unit then it will no longer interrogate the MHT which, after a period of 2 minutes, will revert to the sleep mode.

(NB. If power is removed from the base unit then connection cannot be re-established for 2 minutes until the MHT has reverted back to sleep mode.)

Connect the base unit to a suitable display unit as shown in fig.1. The NMEA output of the base unit connects to the NMEA input of the display unit. If the display unit has an NMEA reference input (NMEA input -ve)) it will be necessary to connect this to the supply negative.

## BASE UNIT CONNECTIONS



**NB. THE NMEA OUTPUT SENTENCE IS MWV. THE FORMAT IS NMEA 0183 4800 BAUD AND THE SIGNAL LEVEL IS 0 TO 12 VOLTS FROM A 220R SOURCE RESISTOR**

Figure 1

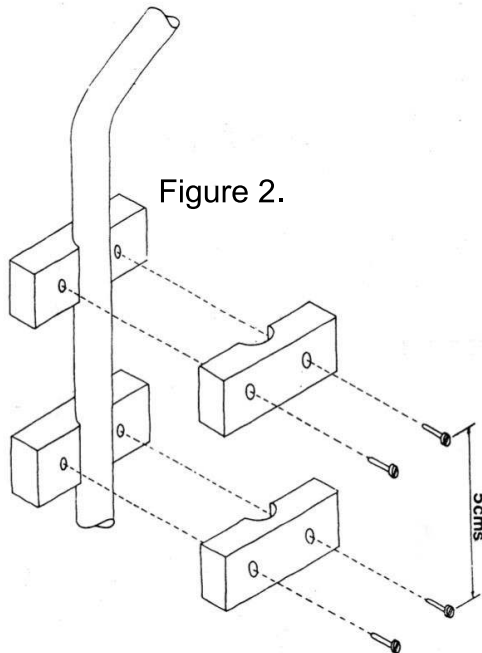
## TESTING THE WIRELESS WIND PRIOR TO INSTALLATION

Turn on the power to the base unit and, after a period of one second, the red LED will illuminate until contact is established with the MHT. This can take any time up to 30 seconds. When contact has been established the LED will flash briefly each time data is received from the MHT. If contact cannot be established then disconnect the base unit's power supply and place the MHT in bright daylight for a couple of hours and try again. (Note the LED will flash every second for wind speeds greater than 2 knots and, to conserve power when the wind is very light, the LED will flash once every two seconds when the wind drops below 2 knots.)

The display should now respond to spinning the wind cups or moving the wind vane. If the display fails to respond then check the NMEA connection between the base unit and the display unit and check the display unit's configuration settings.

## INSTALLING THE MAST HEAD TRANSMITTER AND BASE UNIT

Carefully remove the four screws from the clamping plate on the MHT. Fully insert the short end of the anodised tube into the slot on the underside of the MHT then replace the clamping plate and four screws. Drill the mast and fit the long end of the tube to the mast using the mounting block as shown in figure 2



The base unit is not waterproof so must be positioned in an area that is always dry. Select a position, and when you are satisfied it is working correctly, then the unit can be screwed in position using the side flanges.

To calibrate the direction, point the wind vane to dead ahead then press and hold the "SET" key until the LED glows steadily. Releasing the key returns to normal operation with the dead ahead position reading zero degrees.

In free space the MHT has a range in excess of 40 metres. However, on a typical vessel, reflections and absorption of the signal will generally conspire to reduce that range. If communication is lost due to interference or unfavourable reflections, then, after 2.5 minutes, the base unit will attempt to re-establish contact and return to normal operation. If contact is regularly lost, indicated by 2.5 minutes loss of signal, then re-positioning of the antenna, by moving the base unit a few centimetres, may be all that is necessary. However if the problem is caused by interference on the working channel then an alternative channel can be selected.

To change the working channel, first remove the four screws from the back of the base unit and locate the channel selector switch. There are four combinations of switches:-

### **2 / 1 SWITCH SELECTION**

- off/off is channel A
- off/on is channel B
- on/off is channel C
- on/on is channel D



Select an alternative combination of switches then, next time the MHT is awoken from sleep by the base unit, the new channel will be used.

## **USING THE WIRELESS WIND**

Turn on the power to the base unit. Remember it can take up to 30 seconds to establish contact with the MHT.

Then, each time the LED flashes, the wind speed and direction information will be sent to the display. When not in use don't forget to turn off the power to the base unit, this will result in the MHT going into sleep mode and preserve the battery.

# SPECIFICATION - MASTHEAD TRANSMITTER - EN 300 220-1

Sleep time.....> 15,000 Hours (Note 1)  
Operating time.....> 2,000 Hours (Note 1)  
Charging time.....<150 Hours of bright daylight.

Note 1, Fully charged with no further daylight.

Wind speed = Typically 2 KTS to 100 KTS +/- 2 KTS  
Wind angle = 0 – 359° +/- 3°  
Weight =290 grams

## BASE UNIT

NMEA 0183 4800 Baud  
O/P Level 0 to 12 volt from 220 ohm source resistance.  
Sentence MWV  
Supply voltage 6 to16 volts. (Nominal 12 volts)  
Supply current = 18mA  
Fuse = 1 Amp  
Resolution = 1°  
Accuracy = +/- 3°



## FREQUENTLY ASKED QUESTIONS

- Q.** Can I charge the MHT battery under domestic lighting?  
**A.** No, domestic lights do not emit the correct energy spectrum.
  
- Q.** Could the battery run out of charge under heavy use?  
**A.** It's very unlikely, every hour of bright daylight will add about 13 hours of extra operation or 100 hours of extra sleep.
  
- Q.** Do I need bright sunlight to charge the battery?  
**A.** No, bright daylight, without direct sunlight, will charge the battery. Lower levels of daylight will charge at a reduced rate.
  
- Q.** The LED flashes every second but there is no wind speed and direction information shown on the display?  
**A.** The flashing LED means NMEA data is being sent by the base unit. Check the connections between the base unit and display. Check the display is set to receive NMEA and the baud rate and sentence are compatible.
  
- Q.** When I rotate the wind vane the display response is sluggish?  
**A.** With no wind speed the wind angle is of little value so the update rate is reduced. When the wind speed rises above 2 Kts the wind angle will respond correctly.

# **CLIPPER WIND REPEATER DISPLAY**

## **PRE-TEST OF INSTRUMENT**

Before mounting the repeater unit, check that the instrument is complete and undamaged.

Connect the lead from the repeater into the wireless wind base unit as shown in FIGURE 1 on page 1. Apply 12 volts to the base unit and confirm that a reading is shown on the display.

## **INSTALLING THE REPEATER UNIT**

Select a convenient position for the repeater on a panel or bulk-head. The site must be flat and the cavity behind the panel must remain dry at all times. (The cable entry is deliberately not sealed to ensure adequate ventilation. This prevents misting of the display). Cut a hole in the panel 67mm high and 87mm wide. Pass the attached cable through the hole ready for routing to the master unit.

Unscrew and remove the wing nut from the rear of the instrument and remove the stainless steel clamping bracket. Fit the "O" ring seal into the groove in the panel mounting face of the instrument. Ensure that it is correctly lying in its groove before fitting the instrument to the panel, which provides the watertight seal for the display. Fit the instrument into the panel, fit the stainless clamp over the stud, fit and tighten the wing nut finger tight only. It is important that the O-ring rubber seal makes good contact with the panel to prevent water getting behind the unit and entering the cavity behind the panel. It is good practice to run the cables vertically downwards from the unit, even if they later have to rise to connect to the master unit. Doing so prevents any water that might get onto the cables from running back along the cables and into the unit.

## **ALIGN WIND DIRECTION**

To calibrate the direction, point the wind vane to dead ahead (eg. By motoring into a steady headwind) then press and hold the "SET" key on the base unit until the LED glows steadily. Releasing the key returns to normal operation with the dead ahead position reading zero degrees.

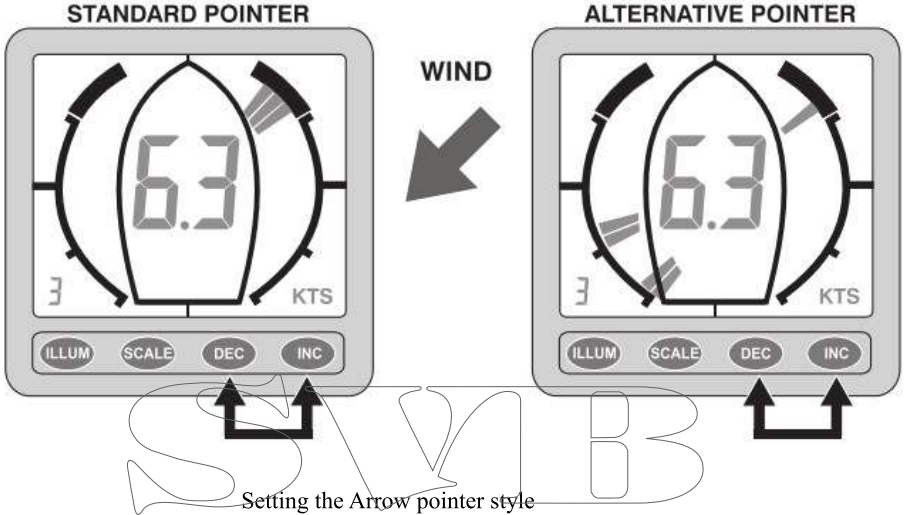
## **CHANGING THE POINTER SIZE**

The width of the wind direction pointer can be selected by the user. Press the INC button to increase the pointer width. Press the DEC button to reduce the pointer width.



## CHANGING THE POINTER STYLE

An alternative pointer is available which resembles a mast head indicator. Press the DEC and INC buttons simultaneously to change to the alternative pointer style at any time. Press the DEC and INC buttons again to change back to the standard pointer. Note that no width adjustment of the standard pointer is available when the alternative pointer is selected.



## CHANGING THE SPEED SETTING

The Clipper Wind Repeater can display wind speed measurements in miles per hour (MPH), nautical miles per hour (knots, shown as KTS), and metres per second (m/s). Pressing SCALE switches between knots, miles per hour, and metres per second. The choice is always saved so the unit operates as set whenever it is powered up again, and is not dependent on the setting of the master unit.

## CHANGING THE BACKLIGHT SETTING

Backlighting is provided to allow the unit to be seen at night. The backlit area is restricted in the top corners of the display to concentrate the lighting in the areas of interest. The brightness of the backlighting can be adjusted by pressing the ILLUM button. Each press of the button increases the brightness by one in the range 0 to 9, shown by the backlight indicator in the bottom left of the Repeater display. A setting of zero switches the backlighting off. In common with other settings in the unit, the backlight setting is stored even when the unit is off so that it returns to the chosen setting whenever the unit is powered up again.

**NOTES**

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## IMPORTANT READ THIS BEFORE UNPACKING INSTRUMENT

Prior to unpacking this instrument read and fully understand the installation instructions. Only proceed with the installation if you are competent to do so. Nasa Marine Ltd. will not accept any responsibility for injury or damage caused by, during or as a result of the installation of this product. Any piece of equipment can fail due to a number of causes. Do not install this equipment if it is the only source of information and its failure could result in injury or death. Instead return the instrument to your retailer for full credit. Remember this equipment is an aid to navigation and not a substitute for proper seamanship. This instrument is used at your own risk, use it prudently and check its operation from time to time against other data. Inspect the installation from time to time and seek advice if any part thereof is not fully seaworthy.

### LIMITED WARRANTY

Nasa Marine Ltd. warrants this instrument to be substantially free of defects in both materials and workmanship for a period of one year from the date of purchase. Nasa Marine Ltd. will at its discretion repair or replace any components which fail in normal use within the warranty period. Such repairs or replacements will be made at no charge to the customer for parts and labour. The customer is however responsible for transport costs. This warranty excludes failures resulting from abuse, misuse, accident or unauthorised modifications or repairs. In no event shall Nasa Marine Ltd. be liable for incidental, special, indirect or consequential damages, whether resulting from the use, misuse, the inability to correctly use the instrument or from defects in the instrument.

If any of the above terms are unacceptable to you then return the instrument unopened and unused to your retailer for full credit.

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Address \_\_\_\_\_

Date of Purchase \_\_\_\_\_

**Proof of purchase may be required for warranty claims.**