28-213V

NAV5plus
DUAL NAVTEX RECEIVER UNIT

Factory Acceptance Test

McMurdo Limited
Silver Point
Airport Service Road
Portsmouth
Hampshire
PO3 5PB

ISSUE RECORD

C.N.	C2922				
DATE	02/06/04				
ISSUE	1				

COMPILED BY	CHECKED BY	ENGINEERING APPROVAL

1. Equipment Required

NAV5 Test loom
DSC Test Station (including Marconi 2024 and PSU)
PC running suitable software such as Autocom or Hyperterm
RS422 to RS232 level shifter
PC running Prowin (or similar) set to :

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

2. Setup Procedure

2.1.1 Connect the BNC connector from the test leads to the Marconi output.

2.1.2 Connect the Red & Black leads from the test leads to the 28V Power Supply.

2.1.3 Connect the RS422 output from the test leads to the RS422 to RS232 level shifter.

2.1.4 Select the normal MF/HF set up with 518kHz and –107dBm on the Marconi. This will normally be held in memory 132 or 120.

2.1.5 Load the NAVTEST file into the Autocom/Hyperterm software on the DSC test station PC and type FEC <RETURN>.

3. Functional tests

3.1 Initial power on

3.1.1 Open door and remove test paper. Close the door.

3.1.2 Turn UUT on by pressing the  button and check the UUT does not display 'AUTO INITIALIZING'.

If this test fails then there is probably a problem with the battery.

3.2 Paper out alarm

3.2.1 Close the door and check that the UUT paper out alarm is active and the display shows 'PAPER OUT' error.

3.2.2 Install paper roll and insert into printer using the  button.

3.2.3 Check that the UUT paper out alarm is cleared and the display shows 'ICS NAV-5 LOG EMPTY'.

3.3 Backlight

3.3.1 Press  button several times and check backlight changes state (i.e. on or off) with each press.

3.4 Keypad cursor keys

3.4.1 Check operation of all cursor keys using NAVTEX station selection menu.

3.5 Self test report

3.5.1 Turn the UUT off and then on again whilst holding down the key.

3.5.2 The UUT will now perform its self test routine and print out the results.

3.5.3 Check that it passes all tests.

3.5.4 Check that the ROM test result shows 'ICS NAV-5' and the correct version number.

3.5.5 Check that the printer head resistance letter is the same as indicated on the rear label.

3.5.6 Turn the UUT off and on again checking that the UUT starts up correctly. (i.e. 1 long clear tone followed by two ringing tones and two for the second receiver are heard.

3.5.7 Check that the LCD shows all dots on followed by the normal display.

3.6 518kHz Message test

3.6.1 Set the signal generator to 518.000kHz, modulation to 2 FSK, modulation frequency 85Hz, signal level –107dBm. This will normally be held in memory 132 or 120.

3.6.2 From Autocom/Hyperterm select FEC broadcast mode.

3.6.3 Check the two data indicators on the right of the display are flashing alternately.

3.6.4 Send the following message:

ZCZC DD00 <CR><LF>
DISTRESS MESSAGE TEST – PASS OK <CR><LF>
NNNN<Ctrl D>

3.6.5 End the FEC broadcast.

3.6.6 Check the UUT prints the message with zero errors and that the alarm is sounding.

3.6.7 Check the auxiliary alarm output is asserted i.e. LED on test loom is on.

3.6.8 Press the button to acknowledge the message and cancel the alarm.

3.6.9 Check the alarm turns off and the auxiliary alarm output turns off i.e. LED on test loom is off.

3.7 Second Receiver Message test

3.7.1 For a dual 518/490 Nav5 : Set the signal generator to 490.000kHz, modulation to 2 FSK, modulation frequency 85Hz, signal level –107dBm. This will normally be held in memory 121.

3.7.2 For a dual 518/4209.5 Nav5 : Set the signal generator to 4209.500kHz, modulation to 2 FSK, modulation frequency 85Hz, signal level –107dBm. This will normally be held in memory 122.

3.7.3 From Autocom/Hyperterm select FEC broadcast mode.

3.7.4 Check the two data indicators on the right of the display are flashing alternately.

3.7.5 Send the following message:

ZCZC ED00 <CR><LF>
THIS MESSAGE SHOULD ALSO SOUND THE DISTRESS ALARM <CR><LF>
NNNN<CR><LF>

3.7.6 End the FEC broadcast.

3.7.7 Check the UUT prints the message with zero errors and that the alarm is sounding.

3.7.8 Check the auxiliary alarm output is asserted i.e. LED on test loom is on.

3.7.9 Press the  **button to acknowledge the message and cancel the alarm.**

3.7.10 Check the alarm turns off and the auxiliary alarm output turns off i.e. LED on test loom is off.

3.8 RS422 Output

3.8.1 Check that the message sent for 3.6 518kHz Message Test above is displayed in the Procom window with zero errors.

3.9 End of Test

3.9.1 Press the  **button.**

3.9.2 The display should change and the letter "A" should be flashing.

3.9.3 Press the  **button to change the "A" to a "-".**

3.9.4 Turn the UUT OFF and ON again.

3.9.5 Press the  **button and check the "A" letter is still a "-".**

3.9.6 Press the  **button to turn it back to an "A".**

3.9.7 Press the  **button twice to return to the opening display.**

3.9.8 Check there is no continuity between pin 2 and pin 7 of the rear connector.

3.9.9 Check that there is 9V ± 1V between pins 1 & 2 of the antenna connector.

3.9.10 Disconnect the RF from pins 5 & 6 of the antenna connector.

3.9.11 Check that there is 0V ± 100mV between pins 5 & 6 of the antenna connector.

3.9.12 Turn UUT OFF with the printer head in the centre position and sign the print-out with your name. Do not tear the print-out off as it must be shipped with the UUT.

4. Connections to UUT

Main Connector

Pin	*Function*
1	Not used
2	Not used
3	EIA-RS-422-A Output (Y) connect to B' RS422 input on converter
4	EIA-RS-422-A Output (Z) connect to A' RS422 input on converter
5	Not used
6	Not used
7	Power input (negative) connect to 0V for test
8	Power input (positive) connect to 12V for test
9	Not used
10	Not used

Antenna Connector

Pin	*Function*
1	Not used
2	Not used
3	Connect to pin 4
4	Connect to pin 3
5	Passive antenna screen – connect to signal generator
6	Passive antenna input – connect to signal generator

The form QA4232 (copy overleaf) issue 1, will be required when performing the tests detailed in this test procedure. These forms are available from McMurdo CDS department. It is the responsibility of the test operator to ensure that the correct form is being used and that it is at issue 1.

NAV5plus FACTORY ACCEPTANCE TEST RECORD

EQUIPMENT USED

Item	Serial Number	Software Version(s)
Power supply **Signal Generator** **Autocom** **Prowin** **RS422 to RS232 level shifter** **DSC Test Station**		

TEST RESULTS

Pass = tick ✓ Fail = cross X

Serial No.	Date	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	Initials