NiCOM

CHAPTER 3
INSTALLATION

3.1 INTRODUCTION

This chapter contains the information required for installation of the NT 20 exciter and for preliminary checks.

3.2 UNPACKING

Remove the unit from its packaging and before any other operation, check for any damage that the unit may have suffered in transit and that all front and rear panel controls are functioning.

3.3 INSTALLATION

1) You don't need to select the AC power input because the power supply accepts all voltages between 90 and 240 Volts.
The current capacity of the fuse are as follows:

220-240V - 2A
100-120V - 3.15A

2) Now you must check that the PWR ADJ control is rotated fully counter clockwise, using a small screwdriver. Units are usually shipped with this control already at 10 W.

WARNING: When the unit is switched on with the control at its minimum position, power output is about 1W.

3) Connect R.F. Output connector to the antenna cable.

4) Inject Audio signal coming from external source, to the BNC connector.

5) Connect line power to the unit via the VDE socket, then switch on the equipment.

6) Select PWR/FWD power measuring, through the selector placed on the front panel, and adjust the PWR ADJ trimmer to obtain the reading of 20W on the analog meter (1 Fig.1A-1B).

7) Now, Select DEV measuring through the selector PWR/DEV and adjust INPUT LEVEL trimmer , to obtain a reading of 75 KHz on the analog meter.

8) If you are transmitting in MONO, you should insert the Pre-emphasis switch that is in the front panel, if you transmit in STEREO this switch has to be OFF.

3.4 PRE-INSTALLATION

Before the installation of the equipment, we suggest to execute a complete check on it, to avoid problems during the installation itself.

Power Output Checking

1) Now ensure that the PWR ADJ control is turned fully counter clockwise, using a small screwdriver. Units are usually shipped with this control already at 10 W.

WARNING: When the unit is switched on with the control at its minimum position, power output is about 1W.

2) Connect a dummy load with a power rating of at least 20 W continuous to the RF output , situated on the rear panel of the unit . It is advisable to connect a bypass wattmeter in series with this load in order to verify the accuracy of the unit's internal wattmeter.

3) Connect a switch, via a cable, to the INTERLOCK connector on the front panel so that the switch is able to short the central conductor to the ground. Leave the switch in the short-circuit position.

4) Set the unit's ON/OFF switch to the OFF position.

5) Connect line power to the unit via the VDE socket . (Note: It is essential that the unit be properly grounded to ensure both the safety of the operator as well as the correct performance of the equipment).

6) Switch the power switch to the ON position and check that the both green voltages presence leds and the green LOCK led are ON. Select the desired operating frequency using the corresponding selector . The green LOCK LED should light on within 30 seconds, indicating that the oscillator has locked onto the operating frequency.

Furthermore, if a frequency is selected beyond the two limits of the 87.5-108MHz band, the amplifier will continue to work even though the displayed frequency no longer corresponds to the operating frequency of the unit.

Warning! Transmitting outside the legal band (87.5-108 MHz) is an offense and may lead to prosecution.

7) After having verified that the LOCK led is on and that the unit is therefore locked to the selected operating frequency, move the switch connected to the INTERLOCK connector in order to remove the short circuit between the central conductor and ground. The RF output is now enabled and should correspond to

a power level of about 1W. To check this reading, select FORWARD POWER, and then read the power on the 25W full scale meter.

8) Using a small screwdriver, rotate the PWR ADJ control clockwise; the power output should increase progressively to a maximum of 20-25W. Check the value with the bypass wattmeter which should be within ±10%.

Deviation reading check

1) Put the selector in the DEV position. Connect a low-distortion audio generator to the MONO and/or MPX inputs. Inject a 400 Hz tone at a level of 0dBm (775mV RMS = 2.2Vpp on the 600 Ohm impedance). Check that the deviation reading is 100% (or 75 KHz).

Connection of an External Stereophonic Source

1) Connect the stereo source's output to the MPX input of the unit.

2) Adjust the stereo encoder to obtain just the 19 KHz sub-carrier output (without pre-emphasis) and ensure the total absence of signals on the left and right inputs of the encoder.

3) Adjust the output level of the encoder to obtain the correct level (-14dB under the carrier) as displayed on the Modulation Analyzer connected on an R.F. TEST .

4) Inject audio signals into the left and right inputs of the encoder and adjust the sensitivity of the input to obtain a peak reading of MAX=75KHz with both channels enabled.

5) Disconnect right and left channels on the encoder and verify that the reading is now of about 7.5 KHz.

Monophonic Transmission .

1) Connect the signal source (audio mixer, receiver, compressor etc.) to the MONO input .This input is unbalanced.

2) Adjust INPUT LEVEL trimmer on the desired level.

3) Adjust the signal level of the equipment connected to the NT 20 (with the audio signal present) for a peak reading of MAX DEV=75KHz.

Note that international standards allow a maximum deviation (DEV MAX) of 75 KHz for frequency modulated radio transmissions. Exceeding this limit will only result in the degradation of the signal quality. In case of mono transmissions, the MPX input is available for frequencies between 40 KHz and 100 KHz. Ie: Sub-carriers for SCA, RDS etc., with a sensitivity of 0 dBm (775mVrms = 2.2Vpp, 600 Ohm) for a deviation of 75KHz.

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CHAPTER 4

MAINTENANCE

4.1 SAFETY REQUIREMENTS

WARNING WARNING WARNING WARNING WARNING WARNING WARNING

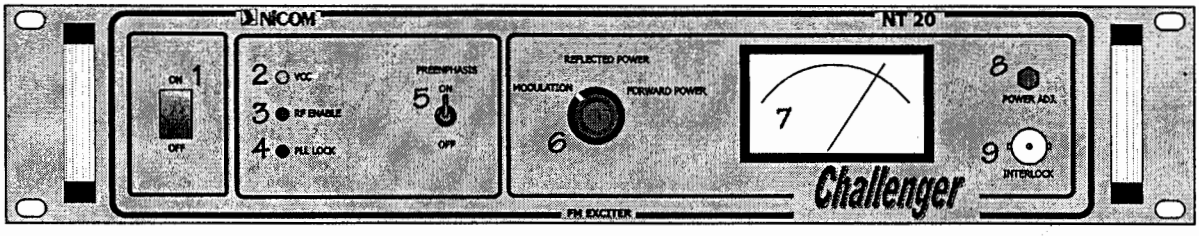
Removing the top cover when the exciter is operational, will expose the operator to lethal voltages on the main AC line and heavy currents on the power supply filter terminals and power transistors. Use insulated tools for any type of maintenance work and do not touch any internal components when the exciter is switched on.

Ensure that the exciter is disconnected from the line supply before carrying out any maintenance work.

MAINTENANCE LEVEL 1

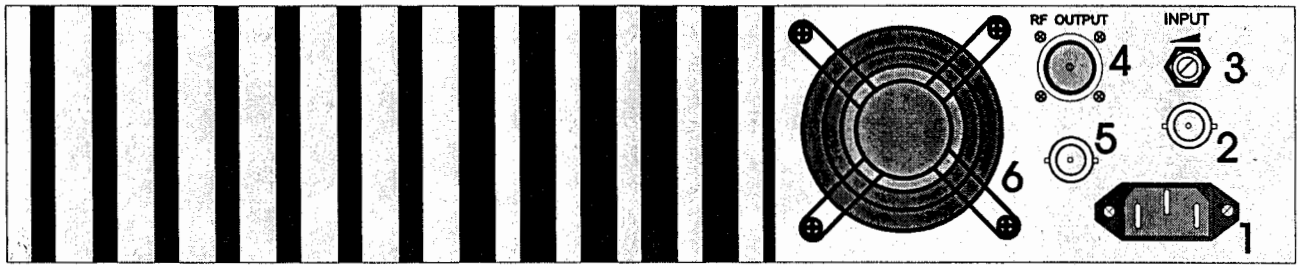
4.2 ROUTINE MAINTENANCE

The only routine maintenance required by the NT 20 challenger is the periodic replacement of the cooling fan and the removal of accumulated dust. The period between such action will depend on ambient operating conditions such as temperature, air-borne dust levels and humidity. It is advisable to check the unit every 6 months and to replace noisy or worn fans. Fans should be replaced as a matter of course after no more than 18 months of operation.



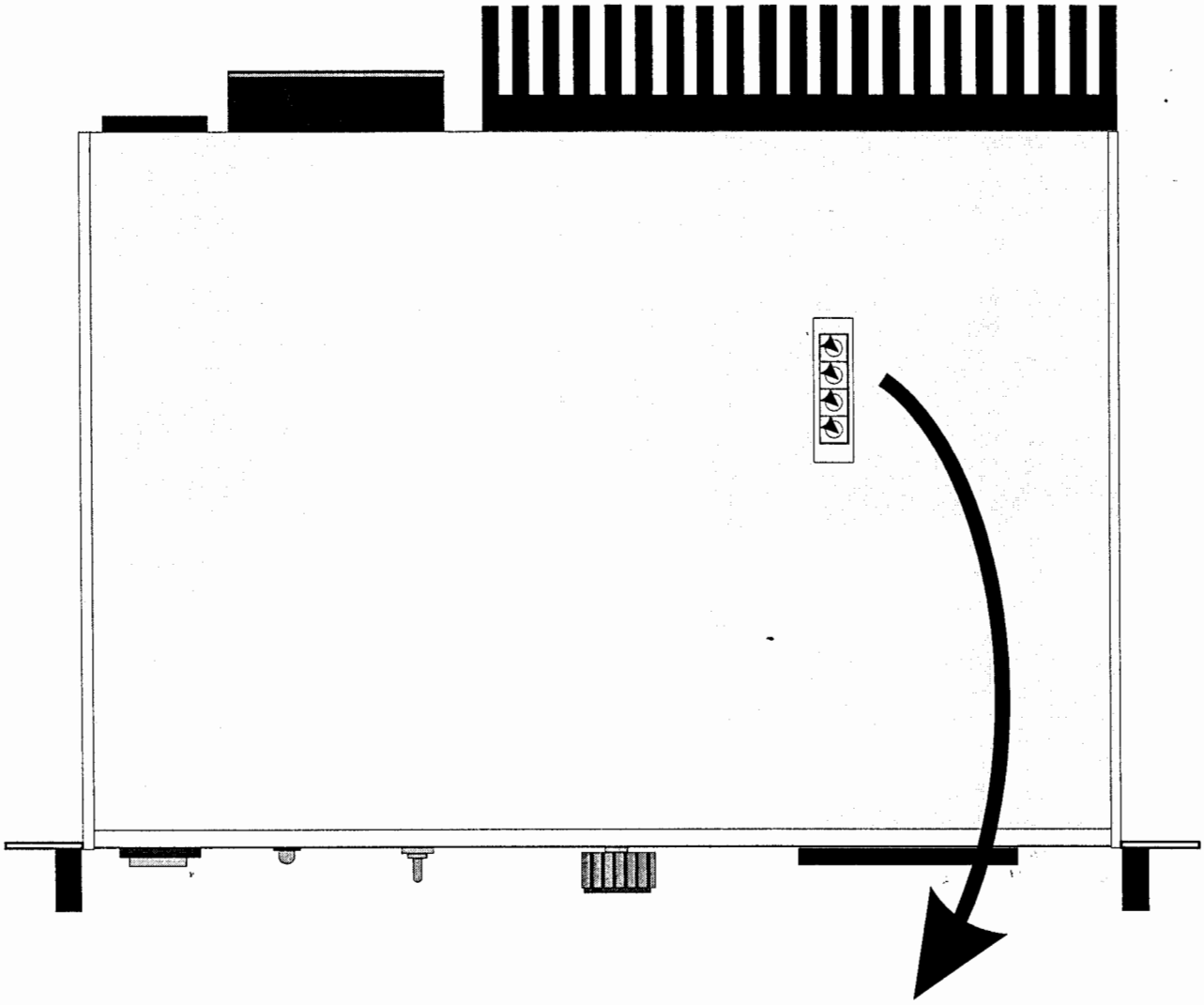
1 - MAIN SWITCH
2 - POWER SUPPLY INDICATOR
3 - ON AIR INDICATOR (OPERATIVE STATUS)
4 - PLL LOCK INDICATOR
5 - PREENPHASIS CIRCUIT SWITCH
6 - MULTIMETER SELECT FUNCTION
7 - MULTIMETER
8 - POWER ADJUSTING TRIMMER
9 - INTERLOCK BNC CONNECTOR

NICOM - U S A	
TITLE: NT20 FM EXCITER-TRANSMITTER -FRONT PANEL-	
DATE: NOV. 2003	DRAWING NO. NT20 B FRONT LAYOUT.CDR

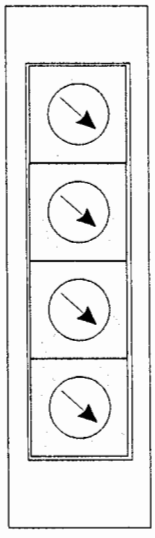


1 - AC LINE SOCKET
2 - MPX COMPOSITE INPUT CONNECTOR
3 - MODULATION LEVEL ADJUSTING
4 - RF OUTPUT CONNECTOR
5 - SCA INPUT
6 - FAN

NICOM - U S A	
TITLE	NT20 FM EXCITER-TRANSMITTER -REAR PANEL-
DATE	DRAWING NO.



FREQUENCY SETTING



9	A	MHz X 10
8	1	MHz X 1
1	7	KHz X 100
0	0	KHz X 10

Example for 98.1 Mhz

Example for 101.7 Mhz

NICOM - U S A	
TITLE	NT20 FM EXCITER-TRANSMITTER -TOP PANEL-
DATE	DRAWING NO