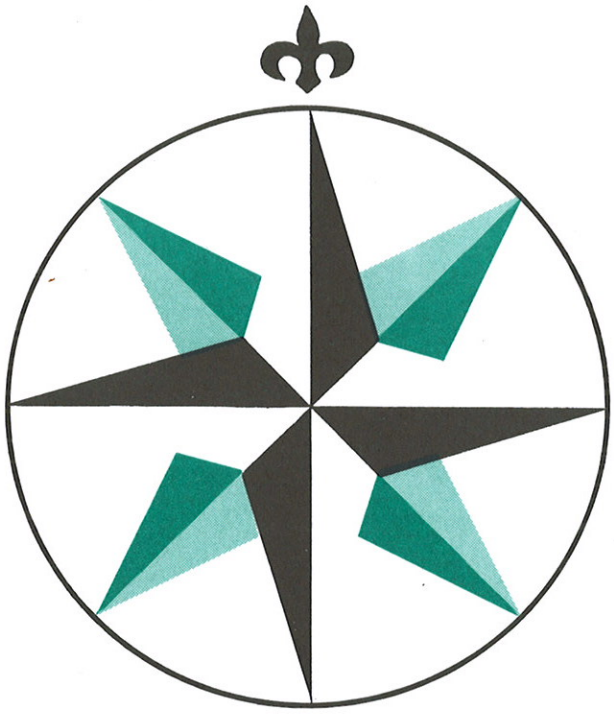


Sailor

Sailor

INSTRUKTIONSBOG FOR SAILOR N1401

INSTRUCTION BOOK FOR SAILOR N1401

A/S S. P. RADIO · AALBORG · DENMARK

CONTENTS:

GENERAL DESCRIPTION

SAILOR N1401 is an AC power supply intended to supply a SAILOR SSB short-wave set, when the set has to be supplied from AC mains.

SAILOR N1401 has a MAIN SWITCH which controls all power supply to the short-wave set. All fuses for the short-wave set are located behind the AIR FILTER.

SAILOR N1401 has a built-in delay unit which ensures the proper sequence for applying voltages to the transmitter, regardless of how the MAIN SWITCH is operated.

SAILOR N1401 with MAIN SWITCH in position RECEIVER ONLY. Only the receiver is supplied and low power consumption is achieved.

SAILOR N1401 with MAIN SWITCH in position STAND BY, filament and negative bias are supplied to the transmitter.

SAILOR N1401 has a meter which controls the input voltage. A switch behind the AIR FILTER makes it possible, with the same meter, to check the voltages inside the set.

SAILOR N1401 is provided with thermal breakers, which switch off the set if the temperature inside the power supply gets too high.

SAILOR N1401 has a built-in loudspeaker for the connected receiver.

SAILOR N1401 fits into SAILOR 19" rack system.

TECHNICAL DATA

The power supply N1401 delivers all necessary voltages to a SAILOR SSB short-wave set with an output power of 800 W PEP in the frequency range 4 - 27.5 MHz. In the frequency range 1.6 - 4 MHz the plate voltage is reduced in order to limit the output power to 400 W PEP.

Input voltage: 110/127/220/237V AC ±10%, frequency 50 - 60 Hz

Input current:

Input current (220V AC)	1.6 - 4 MHz	4 - 27.5 MHz
Receiver only	0.25A	0.25A
Stand by	1.2A	1.2A
On	1.4A	1.4A
Tune (full PEP 2-tone)	5.0A	6.5A
SSB Normal Speech	4.2A	5.2A
A3H Normal Speech	4.5A	5.8A

Output voltages:

DC unstabilized

Va	1.4/2 KV
Vfilament	27 V
-45	-45 V

DC stabilized

Vdriver	28V ±5%
V_{g1}	-60V ±5%
22V	22V ±2%
2xV_{g2}	400V ±2%

The currents from V_{g2}'s are limited to protect the screen in the P.A. tubes.

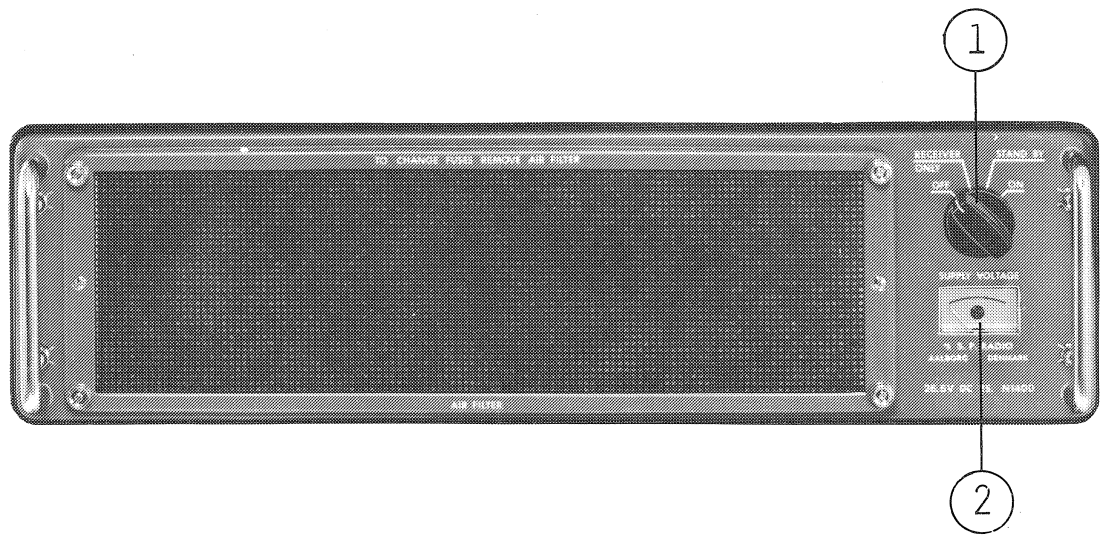
AC unstabilized

Blower supply 220V (input via autotransformer.)

Operation temperature range: -15°C to +55°C

Cooling: With MAIN SWITCH in positions STAND BY and ON the internal blower is running. If the inside temperature gets too high thermal breakers disconnect the 22V and stop the set until it has cooled down.

CONTROLS



(1) MAIN SWITCH

Switching between the functions.

OFF

The set is switched off.

RECEIVER ONLY

The receiver is supplied with power and ready for use.

STAND BY

Internal blower starts and voltages are supplied to the transmitter in order to make it ready for use.

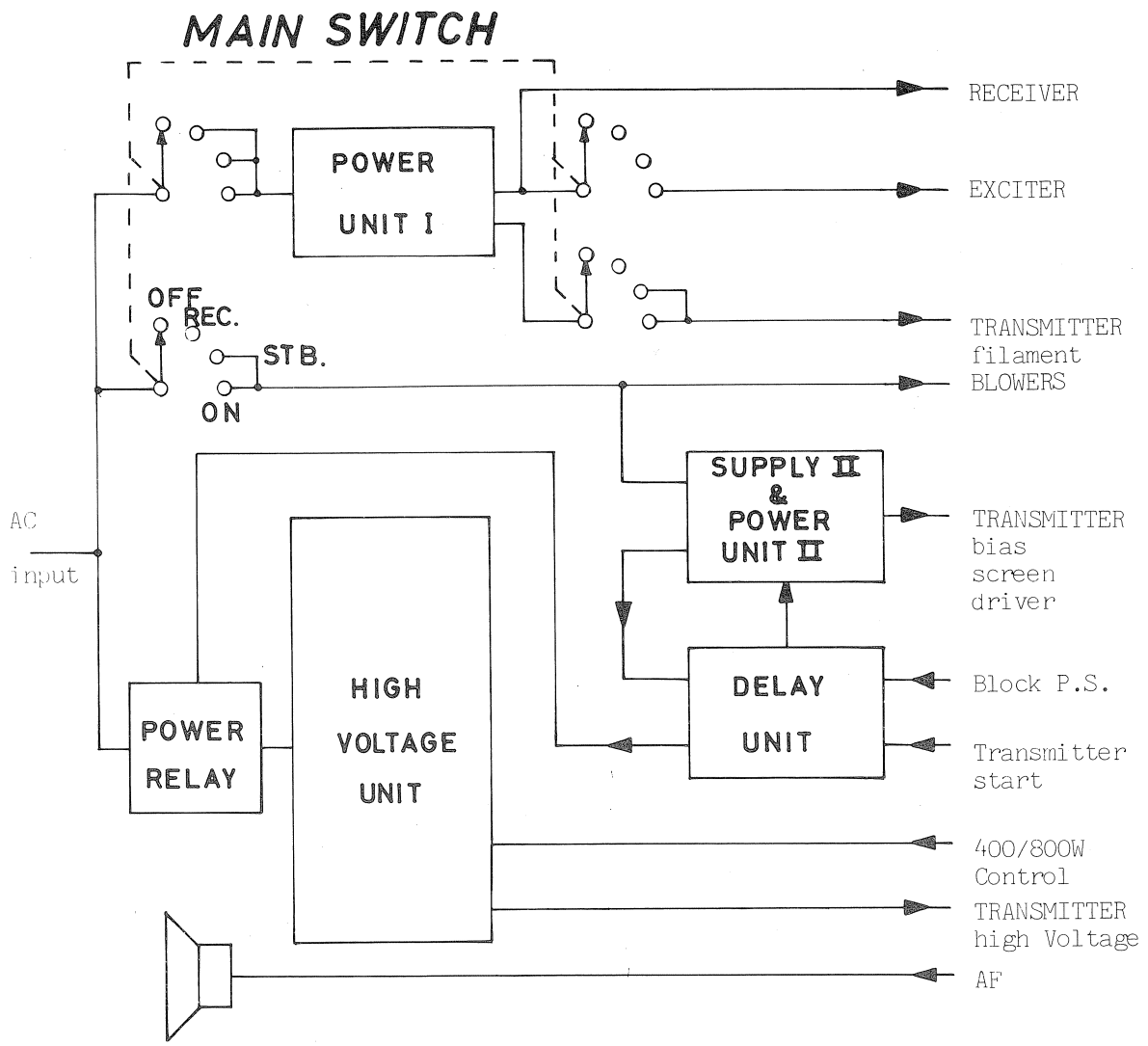
ON

The transmitter is ready for use if it has been in position STAND BY or ON for a period equal to or longer than the delay time.

(2) SUPPLY VOLTAGE METER

Meter checking the input voltage to the set. Internal voltage check, by using the switch located behind the AIR FILTER it is possible to check different voltages in the set.

PRINCIPLE OF OPERATION N1401



POWER SUPPLY N1401

The function of the power supply is controlled from MAIN SWITCH, DELAY UNIT and the control inputs Transmitter start and Block P.S.

POWER UNIT I is connected in positions RECEIVER ONLY, STAND BY and ON. It supplies the RECEIVER and the EXCITER. The EXCITER in position ON only. POWER UNIT I delivers filament to the TRANSMITTER in positions STAND BY and ON.

POWER UNIT II & SUPPLY II is connected in positions STAND BY and ON. The output bias is present, whereas the outputs screen and driver follows the Transmitter start control input if the power supply N1401 is not blocked via the control input Block P.S.

HIGH VOLTAGE UNIT is functional in position ON controlled by the control input Block P.S. via the POWER RELAY. The size of the HIGH VOLTAGE is controlled via the control input 400/800W Control.

DELAY UNIT is started in position STAND BY and runs in STAND BY and ON while filament is supplied to the transmitter tubes. After the delay time the control inputs Transmitter start and Block P.S. are allowed to pass through the DELAY UNIT.

SERVICE

1. MAINTENANCE

1.1.
When the SAILOR SHORT-WAVE SET type 1000 has been correctly installed, the maintenance can, dependent on the environment and working hours, be reduced to a performance check at the service workshop at intervals not exceeding 5 years. A complete performance check list is enclosed in the PERFORMANCE CHECK section.

Also inspect the antennas, cables and plugs for mechanical defects, salt deposits, corrosion and any foreign bodies.

Along with each set a TEST SHEET is delivered, in which some of the measurings made at the factory are listed. If the performance check does not show the same values as those on the TEST SHEET, the set must be adjusted as described under ADJUSTMENT PROCEDURE.

Any repair of the set should be followed by a FUNCTION CHECK of the unit in question.

2. NECESSARY TEST EQUIPMENT

T1127	N140X	S1300	R1117		
X	X	X	X	OSCILLOSCOPE:	
				Bandwidth	0-25 MHz
				Sensitivity	2mV/cm
				Input impedance	1 Mohm//30 pF
				Triggering	EXT-INT-ENVELOPE
				E.g. PHILIPS	PM3212
X		X	X	PASSIVE PROBE:	
				Attenuation	10x
				Input resistance DC	10 Mohm
				Input capacitance	15 pF
				Compensation range	10 pF - 30 pF
				E.g. PHILIPS	PM 9396
		X	X	MULTIMETER:	
				Sensitivity (f.s.d.)	1V
				Input impedance	10 Mohm
				Accuracy (f.s.d.)	±2%
				E.g. PHILIPS	PM2503
X	X			MULTIMETER:	
				Sensitivity	0.3V and 3A
				Input impedance	30 Kohm/V
				Accuracy (F.S.d.)	±1%
				Current range	100A
				Voltage range	500V, and 2.5 kV
				E.g. Unigor A43, with probe and shunt	

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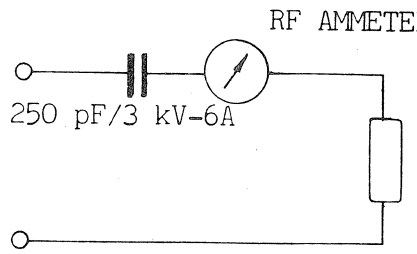
NECESSARY TEST EQUIPMENT cont.:

T1127	N140X	S1300	R1117		
		X		TONEGENERATOR:	
				Frequency range	200 - 3000 Hz
				Output	1V RMS
				Output impedance	≦ 600 ohm
				E.g. PHILIPS	PM5107
			X	AF VOLTMETER:	
				Sensitivity (f.s.d.)	300 mV
				Input impedance	≧ 4 ohm
				Accuracy (f.s.d.)	±5 %
				Frequency range	100 Hz - 5 kHz
				E.g. PHILIPS	PM2503
		X	X	FREQUENCY COUNTER:	
				Frequency range	100 Hz - 40 MHz
				Resolution	0,1 Hz at f ≧ 10 MHz
				Accuracy	$1 \cdot 10^{-7}$
				Sensitivity	100 mV RMS
				Input impedance	1 Mohm
				Single period measurement range	1 sec.
				resolution	1 mS
				E.g. PHILIPS	PM6611 + PM9679
			X	SIGNAL GENERATOR	
				Frequency range	550 kHz - 30 MHz R1118: 100 kHz - 30 MHz
				Output impedance	50/75 ohm
				Output voltage	1 uV - 100 mV EMF
				Modulation	AM, 30%, 1000 Hz
				E.g. PHILIPS	PM5326

T1127	N140X	S1300	R1117	
				POWER SUPPLIES
X				T1127:
				V_{out} 26,5V DC
				I_{out} 60A DC
				E.g. 2 pcs. LAMBDA type LMG24
		X	X	R1117/S1300:
				V_{out} 1 22V
				I_{out} 1 1,5A
				V_{out} 2 -45V
				I_{out} 2 0,2A
				E.g. SAILOR POWER SUPPLY type N1402
		X		TEST BOX S1300:
				SP type S1300/01 TEST BOX
X				POWER METER:
				Power range 500W
				E.g. Bird Thruline Wattmeter Model 43
				plug-in element 500W 2-30 MHz
				impedance 50 ohm
X				RF-AMMETER (Thermocross)
				Current range 5A
				E.g. HELWEG MIKKELSEN & CO. Copenhagen, Denmark
				type TR-68x71 5A
X		X		DUMMY LOAD for HF bands, 4 MHz to 25 MHz
				Impedance 50 ohm
				Frequency range 0-25 MHz
				Power range 500W
				E.g. BIRD Termaline Coaxial resistor Model 8401

NECESSARY TEST EQUIPMENT cont.:

T1127	N140X	S1300	R1117	
X				DUMMY LOAD for C.T. band 1.6 MHz to 4 MHz
			X	DUMMY LOAD for the C.T. band 1.6 to 4 MHz
			X	DUMMY LOAD for the HF bands 4 MHz to 25 MHz

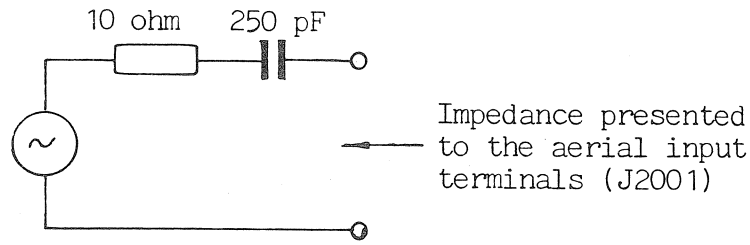


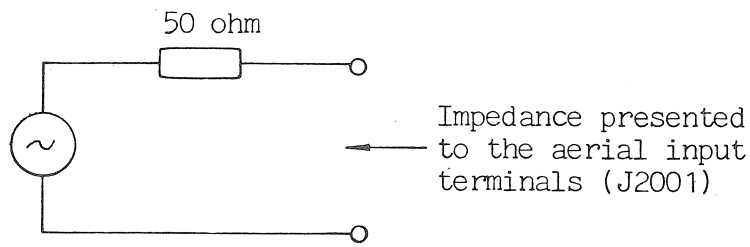
250 pF

E.g. DRALORIC 06 1291 TD 20x50 L
8 KV_S 250 pF ±20% R85

10 ohm

E.g. 10 pcs. DALE PH-25A-17, 100 ohm 5% 25W





E.g. SAILOR Rx DUMMY LOAD type H219.

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3. TROUBLE-SHOOTING

Trouble-shooting should only be performed by persons with sufficient technical knowledge, who have the necessary test equipment at their disposal, and who have carefully studied the operation principles and structure of the unit in question.

Start to find out whether the fault is somewhere in the antenna circuit, the power source, or in the short-wave set.

For help with trouble-shooting in the short-wave set there is a built-in test meter and test meter switch, located behind the air filter on the power supply.

When the fault has been located to a certain unit look up the PERFORMANCE CHECK list in the instruction book and make relevant performance check to incircle the fault. Then look up the CIRCUIT DESCRIPTION. This section contains schematic diagrams, description of the modules and pictures showing the location of the components. (ADJUSTMENT LOCATIONS).
Typical AC and DC voltages are indicated on the schematic diagrams.

No adjustment must take place unless the service workshop has the necessary test equipment to perform the ADJUSTMENT PROCEDURE in question.

After repair or replacement of the module look up the section NECESSARY ADJUSTMENTS AFTER REPAIR to see, whether the unit has to be adjusted or not.

Anyway the unit has to have a complete FUNCTION CHECK after repair.

4. PERFORMANCE CHECK FOR N1401

In order to make the performance check easier, the function of the power supply for the different modes, in which the power supply can operate, are listed in the tables below.

4.1.
TABLE I, POWER SUPPLY FUNCTION.

This table indicates the outputs from the power supply and in which conditions the different outputs are present.
To achieve all these outputs, the power supply shall be connected to a short-wave set or controlled externally as indicated in 4.3. (table III) and 4.4. (table IV).

Used in	Use	Voltage (V)	Pin in J701		OFF	RECEIVER ONLY	STAND BY	ON	
			Common						keyed
Receiver		22	Chassis 10, 16 22, 23	11		X	X	X	X
		-45		12		X	X	X	X
Exciter		22		25				X	X
		-45		24		X	X	X	X
Transmitter	Va	1.4/2K						XD	XD
	Vg2	400		1					XD
	Vg2	400		4					XD
	Vg1	-60		18			X	X	X
	V_{driver}	28		7					XD
	Blower	220 AC	Between	33 36			X	X	X
	Filament	26.5	26, 27 Chassis	6			X	X	X
		26.5		9			X	X	X
		26.5		15			X	X	X

X voltage present

XD voltage present after delay

PERFORMANCE CHECK FOR N1401 cont.:

4.1.1.
The accuracy of voltages.

Following voltages are stabilized:

22V, Vg2, Vg1 and V_{driver}

22V and Vg2 = 400V within ±2%

Vg1 = -60V and V_{driver} = 28V within ±5%

Other voltages are not stabilized and will vary with input voltage and load.

4.2.
TABLE II, VOLTAGE CHECK WITH SUPPLY VOLTAGE METER.

This table indicates in which way the meter marked SUPPLY VOLTAGE can be used for checking different voltages inside the power supply.
Correct reading is when the pointer is in the middle of the green area.

NOTE: Va only reaches the green area when Va = 2kV (frequency above 4 MHz, pin 17 in J701 grounded).

This meter is only for checking, not for measuring voltages.

MAIN SWITCH / meter switch	OFF	RECEIVER ONLY	STAND BY	ON	
					keyed
input		X	X	X	X
Va				XD	XD
Vg2					XD
22V		X	X	X	X
V_{driver}					XD
Vg1			X	X	X

After use leave the meter switch in pos. input.

4.3.
TABLE III, CONTROL OF POWER SUPPLY.

This table indicates the state for the power supply, versus the control conditions. The MAIN SWITCH in position ON.

Control Conditions			State for P.S.	
Block P.S.	Transmitter start	Delay time past	Keyed	High Voltage present
pin 14 J701	pin 31 J701	30 secs		
grounded	22V	No		
grounded	0V	Yes		X
grounded	22V	Yes	X	X
open	22V	Yes		
open	0V	Yes		

4.4.
TABLE IV, CONTROL OF Va VERSUS FREQUENCY.

This table indicates how the high voltage Va is changed when the frequency is above or below 4 MHz.

Frequency	400/800W Control	High Voltage Va
MHz	pin 17 J701	kV
below 4	open	1.4
above 4	grounded	2

5. ADJUSTMENT PROCEDURE FOR N1401

5.1.
ADJUSTMENT OF 22V.

5.1.1.
With the voltmeter in 30V range connect the + terminal to TP1 and the - terminal to chassis. The MAIN SWITCH in pos. ON (if the power supply is separate, load the 22V with 3 - 3.5A).

5.1.2.
Adjust with potentiometer R106 to the voltmeter reads 22.0V.

5.1.3.
Connect an oscilloscope to TP1 and check that the ripple is less than 200 mVpp.

5.1.4.
If possible variate the supply voltage and check that the 22V remains stable.

5.2.
ADJUSTMENT OF Vg2.

5.2.1.
With the voltmeter in 500 or 1000V range, connect the + terminal to TP2 and the - terminal to chassis. Key the short-wave set, but no drive to the PA stage (ex. A3J, no modulation). If the power supply is separate, key the power supply using the informations in TABLE III 4.3.

5.2.2.
Adjust with potentiometer R226 to the voltmeter reads 400V.

5.2.3.
Move the voltmeter to TP3, the reading shall remain 400V, even though TP4 is short-circuited to chassis. With the voltmeter on TP4 check that the voltage remain 400V when TP3 is short-circuited.

5.2.4.
Check that the voltage of TP5 is -60V.

5.2.5.
Check that the voltage of TP6 is 28V.

6. NECESSARY ADJUSTMENTS AFTER REPAIR

6.1.
AFTER REPAIR IN POWER UNIT I, PERFORM ADJUSTMENT IN ACCORDANCE WITH SECTION 5.1. ADJUSTMENT OF 22V.

6.2.
AFTER REPAIR IN POWER UNIT II, PERFORM ADJUSTMENT IN ACCORDANCE WITH SECTION 5.2. ADJUSTMENT OF Vg2.

7. FUNCTION CHECK FOR N1401

7.1.
FUNCTION CHECK WHEN THE POWER SUPPLY IS INSTALLED IN A SHORT-WAVE SET.

7.1.1.
Using TABLE II section 4.2. check that the reading on the meter marked SUPPLY VOLTAGE is correct.

7.2.
FUNCTION CHECK WHEN THE POWER SUPPLY IS SEPARATE.

7.2.1.
The power supply supplied with the correct input and controlled in accordance with TABLE III section 4.3. and TABLE IV section 4.4. Use TABLE II section 4.2. to check the function via the SUPPLY VOLTAGE meter.

7.2.2.
When the power supply is separate and unloaded the power consumption can give information about the condition of the circuit.

Input Voltage	OFF	RECEIVER ONLY	STAND BY	ON		
					Keyed 1.4KV	Keyed 2KV
	Iin	Iin	Iin	Iin	Iin	Iin
220V AC	0	0.1	0.4	0.5	0.75	0.75

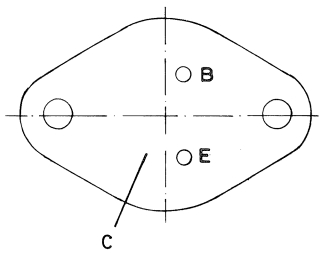
7.3.
NOTES FOR SUPPLY VOLTAGE METER.

7.3.1.
In position Vg2 only Vg2 on pin 4 in J701 is checked.

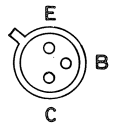
7.3.2.
In N1401 the voltage -45V is used for the meter, when the meter switch is in position input.

7.3.3.
Working frequency of converter. The frequency is between 300 - 500 Hz.

BOTTOM VIEW



MJ 802
MJ 3000
2N5686



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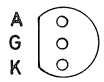

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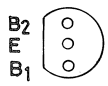


2N4871

PIN CONFIGURATIONS

CIRCUIT DESCRIPTION N1401

HIGH VOLTAGE UNIT

The HIGH VOLTAGE UNIT is made by two transformers TR301 and TR302, the belonging rectifiers and filter components.

The high voltage can be either 1.4 kV or 2 kV dependent on whether relay RE301 is open or closed (400/800 W Control).

Switching on and off the high voltage unit takes place via relay RE701.

Resistors R301, R302 and R303 ensure that the voltage across the capacitors C314 - C319 are equal even if the leakage currents are different.

POWER UNIT I

This unit supplies receiver and the exciter with the voltages +22V and -45V. The filament to the transmitter is also supplied from POWER UNIT I.

The transformer TR101 outputs are rectified and filtered, one is the voltage -45V and unstabilized. The other voltage is positive and via the regulator, consisting of the transistors T101 and T102 and the 7.5V zener diode D103 stabilized to +22V, adjustment of +22V is made by R106.

The output +22V is secured against overload by the fuse F704 6.3A.

POWER UNIT II

This unit supplies the transmitter and the driver unit with stabilized voltages. The input to the DC-DC converter is stabilized in the regulator, consisting of the transistors T201 and T202 and the 7.5V zener diode D201.

The output from the regulator is fed to the DC-DC converter with the transistors T203 and T204 and the matching transformers TR201 and TR202. The four outputs of the transformer TR202 are thereby stabilized and adjustment of the voltages is made by R226. The ratio of the voltages is determined by the transformer TR202.

The output Vg1 -60V is present as soon as the unit is in function, whereas the outputs V_{driver} +28V and the two Vg2 +400V are controlled by the +22V to the relays RE201, RE202 and RE203 (Transmitter start).

The circuit for the Vg2 supply is made so that the currents to the screens in the PA tubes are limited due to R219 and R220. If a screen tends to emit, the increase of screen voltage is prevented due to a low impedance in the circuit consisting of R218 and the diodes D208 and D209.

The POWER UNIT II has built-in resistors for the TEST METER.

SUPPLY II

Transformer TR501 is on the primary coupled as an autotransformer in order to supply the blowers with 220V AC independent on the supply voltage. The output from TR501 is rectified and filtered in the D501, L501, C502, C503, C504, C505 and C506.

DELAY UNIT

The DELAY UNIT starts when it is connected. Across the zener diode D401 there is a voltage of 7.5V and the capacitor C404 starts charging up via resistor R407, when the anode gate is 0.7V below the anode, the D404 is triggered and the capacitor C404 is discharged.

In order to ensure enough current in the gate, a negative going pulse 200 - 500 mS of 0.7V is fed to the gate via C403.

The discharge of C404 causes a positive pulse across R406. The SCR D405 is triggered and relay RE402 is closed.

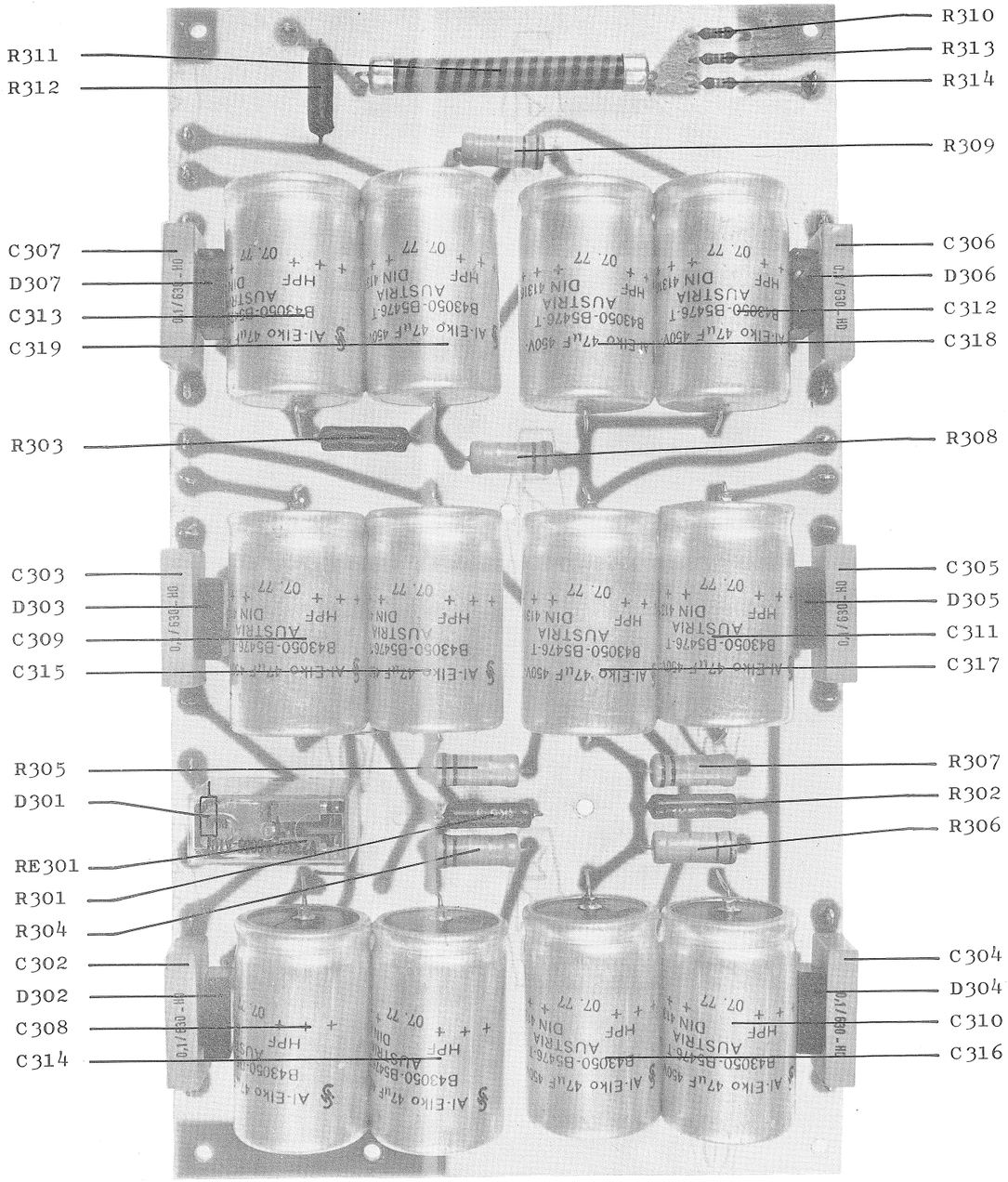
Relay RE401 is controlled via the control input Block P.S., when both relays are closed, control inputs are allowed to pass through the DELAY UNIT.

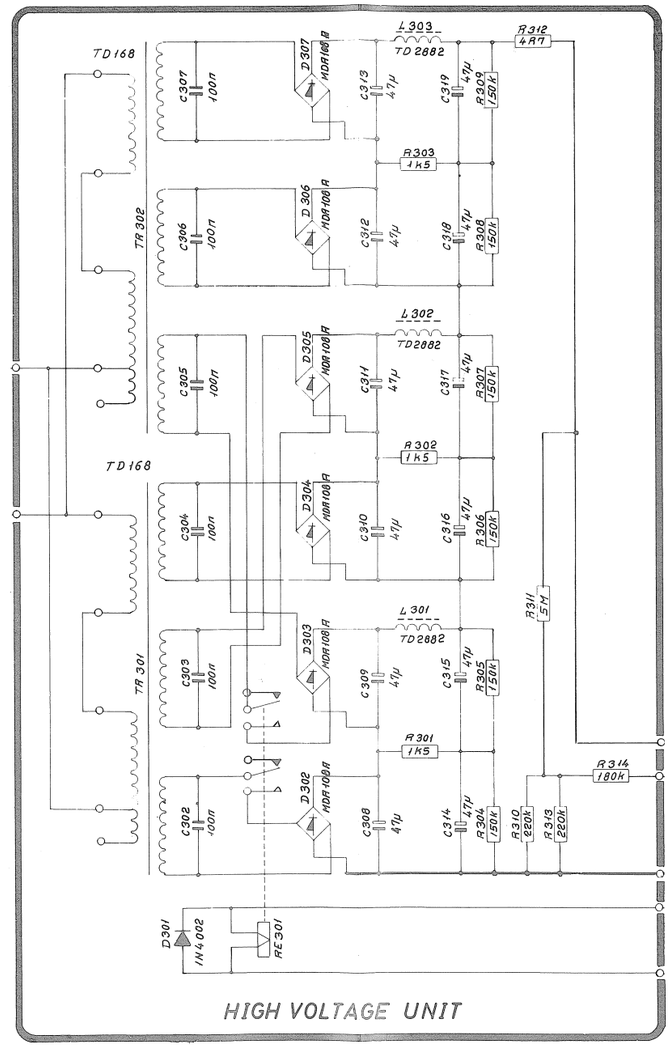
TEST METER

When using the SUPPLY VOLTAGE meter M601 and the switch S601 voltages are monitored. The resistors are placed either on the test meter print or in the different units.

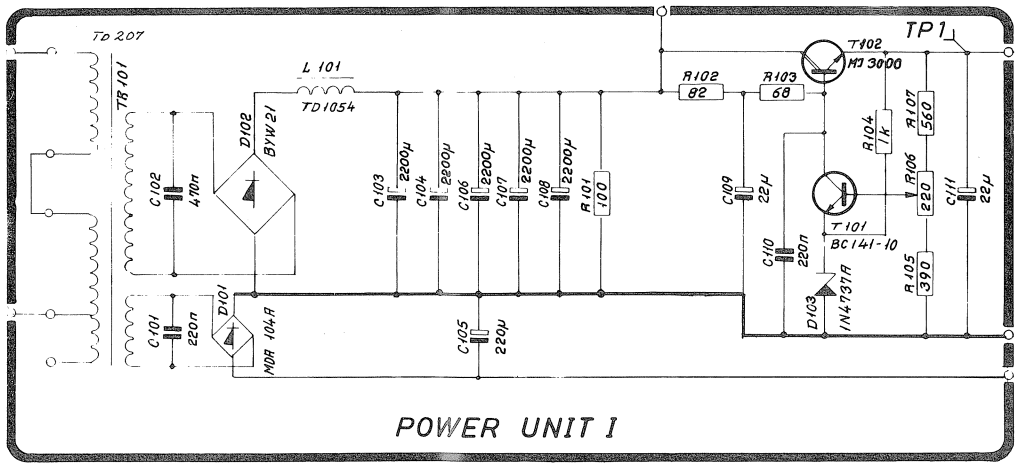
MAIN SWITCH

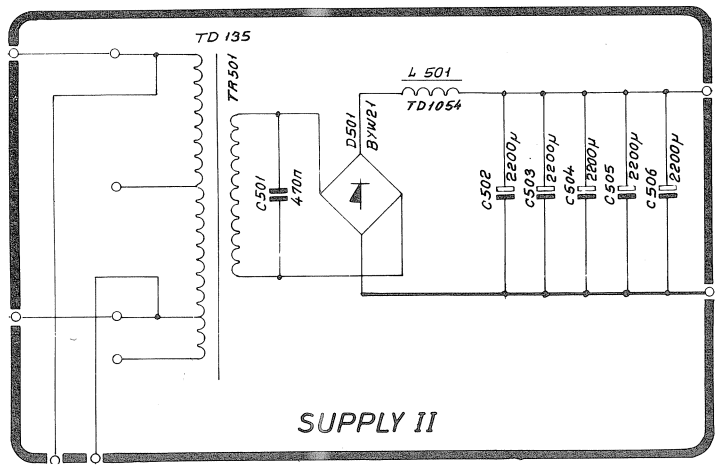
The switch S701 controls the function of the power supply and it is operated from the front.

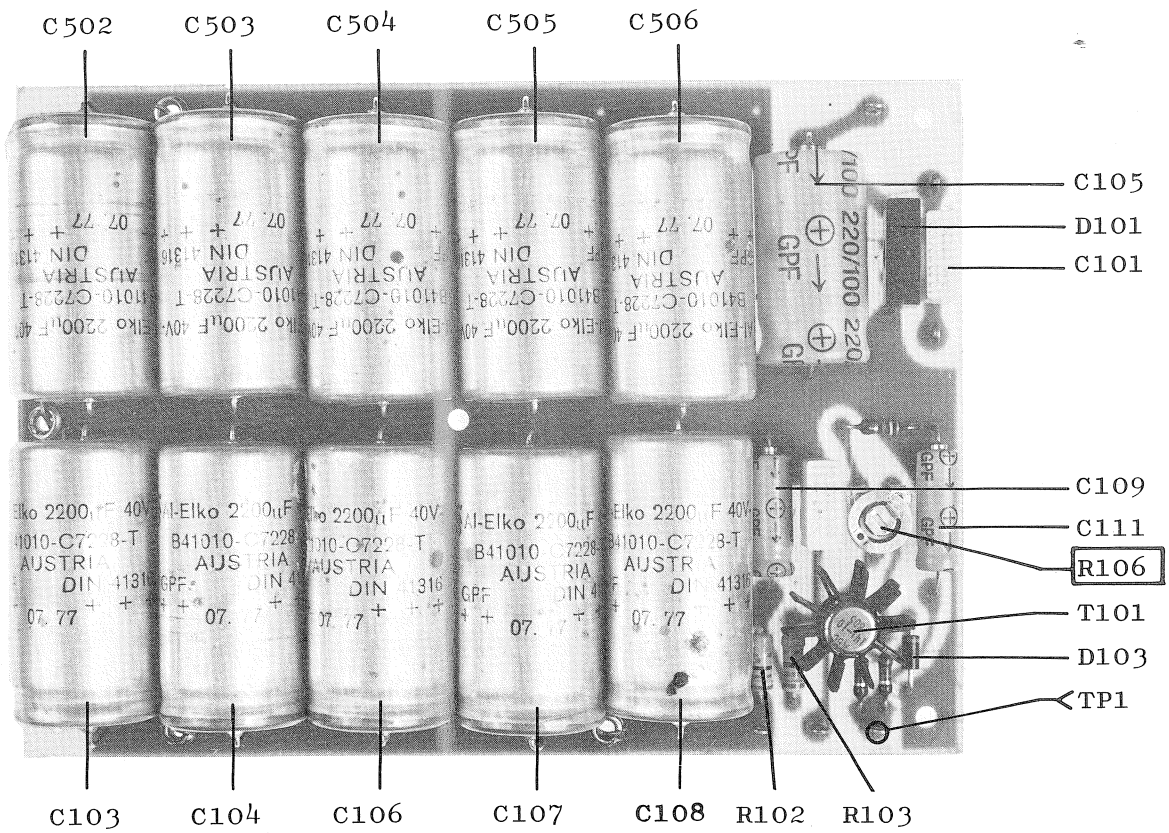




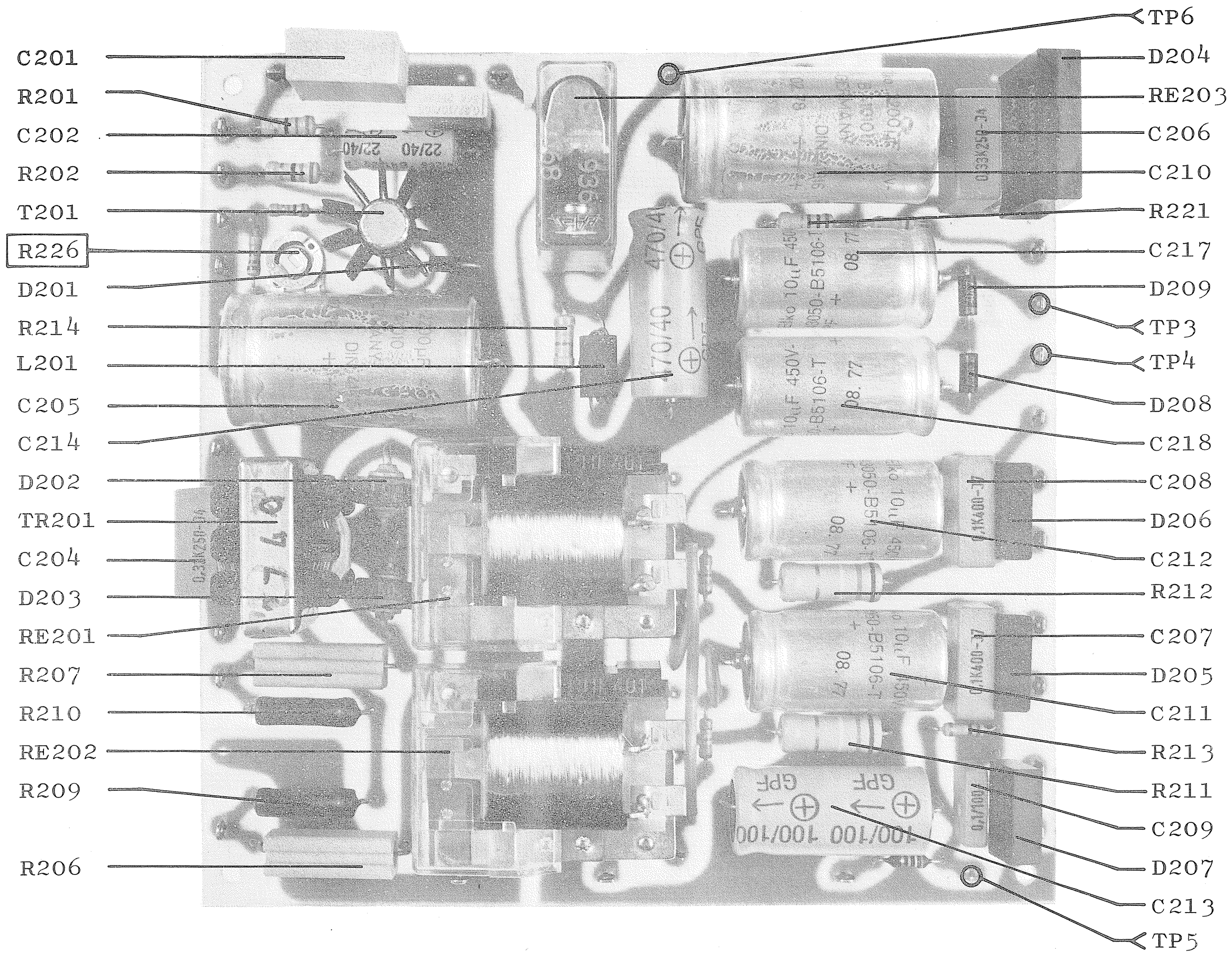
HIGH VOLTAGE UNIT

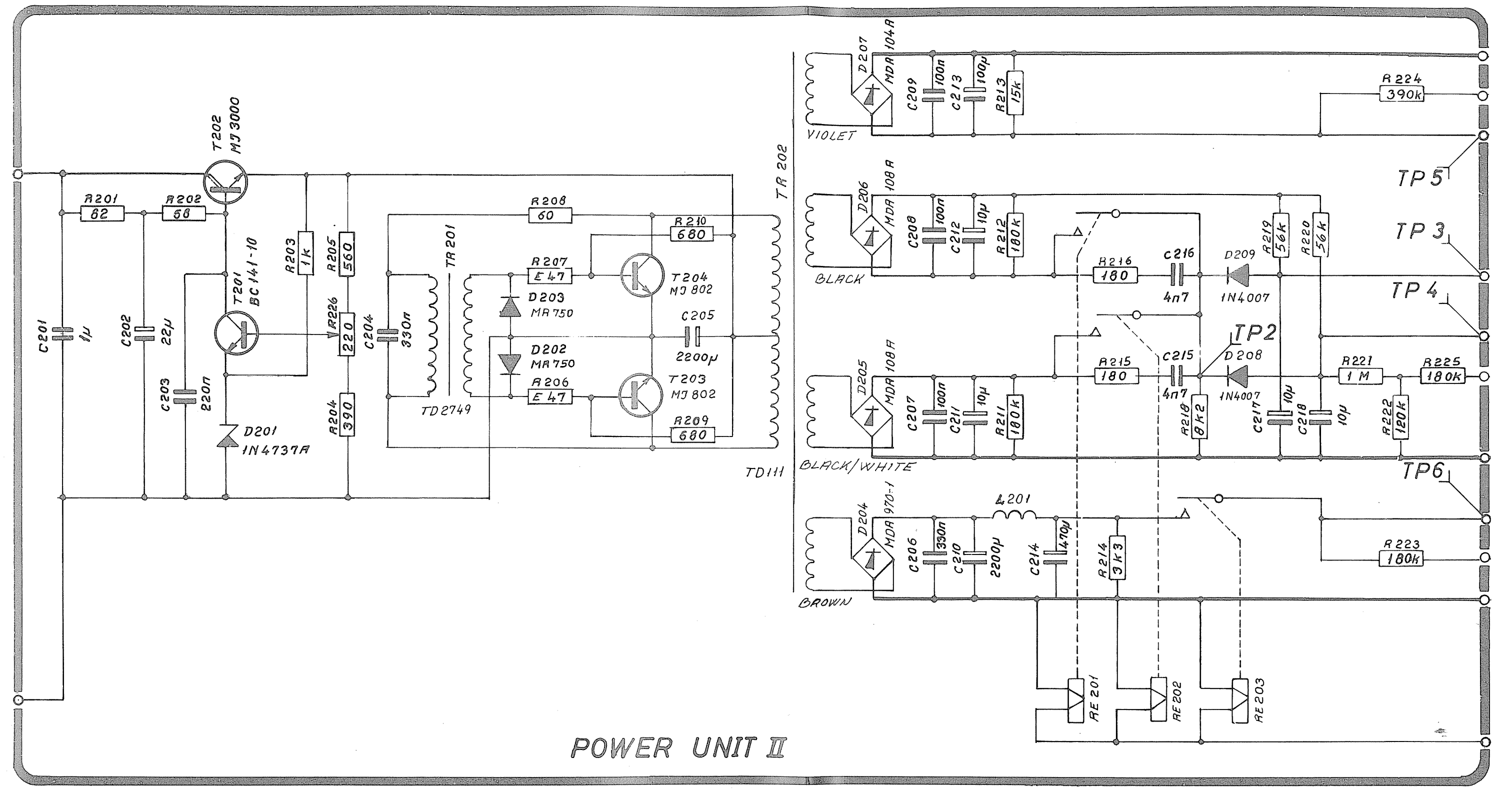


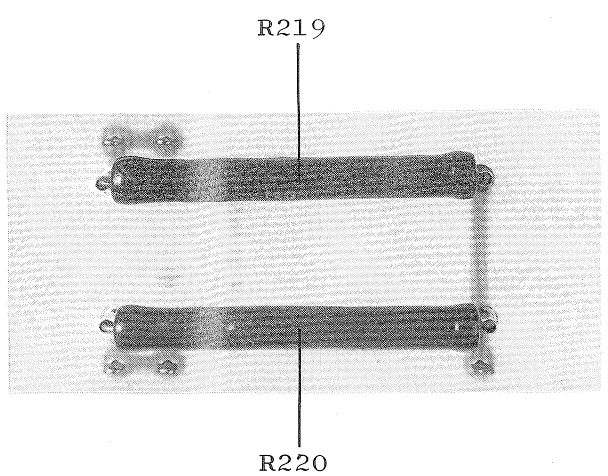


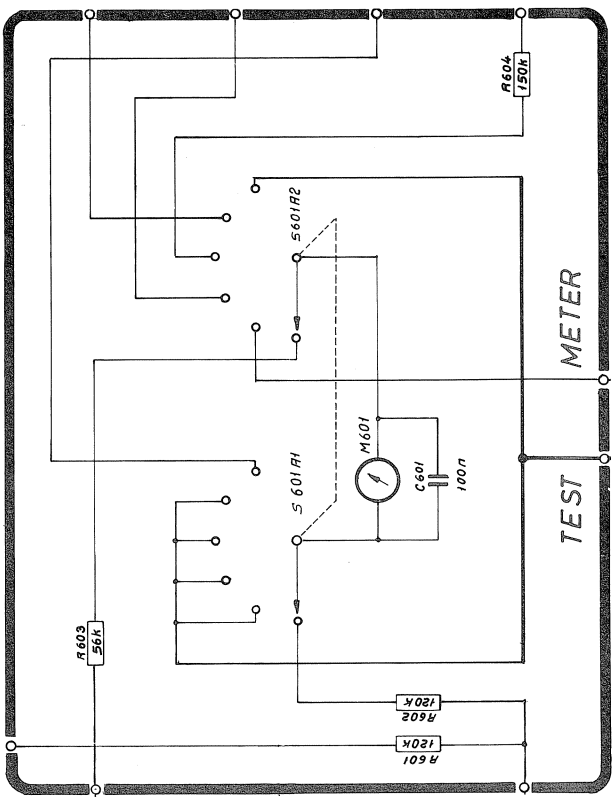


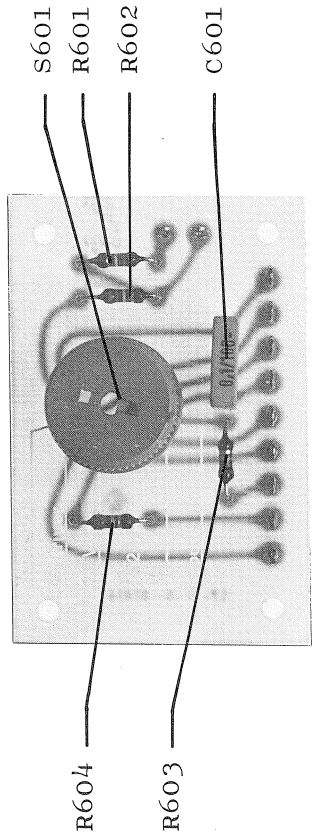
POWER UNIT I & SUPPLY II N1401

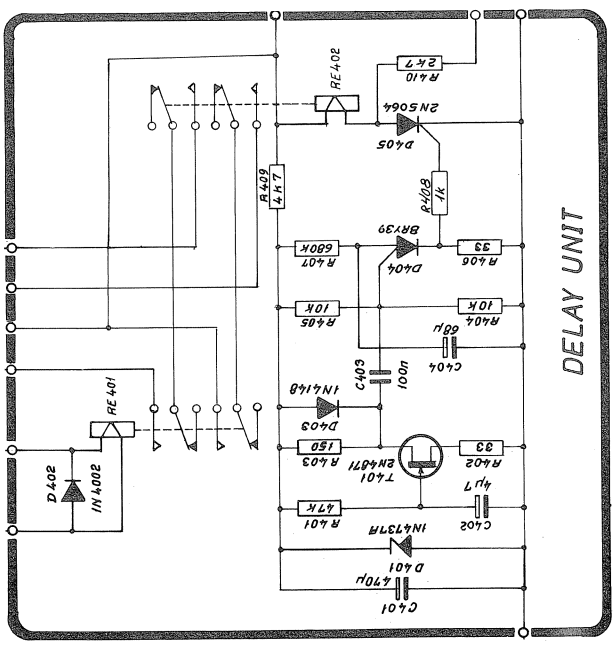

C201
R201
C202
R202
T201
R226
D201
R214
L201
C205
C214
D202
TR201
C204
D203
RE201
R207
R210
RE202
R209
R206
TP6
D204
RE203
C206
C210
R221
C217
D209
TP3
TP4
D208
C218
C208
D206
C212
R212
C207
D205
C211
R213
R211
C209
D207
C213
TP5

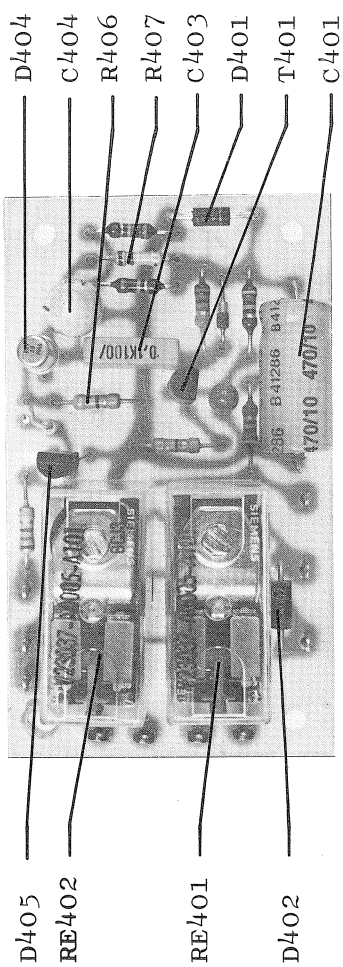

T202 MJ3000
T201 BC141-10
R201 82
R202 68
R203 1k
R205 560
R226 220
R204 390
C201 1µ
C202 22µ
C203 220n
C204 330n
D201 1N4737A
TR201
TD2749
R208 60
R207 E47
R206 E47
D203 MR750
D202 MR750
C205 2200µ
R210 680
R209 680
T204 MJ802
T203 MJ802
TR202
TD111
VIOLET
BLACK
BLACK/WHITE
BROWN
D207 MDA 104A
D206 MDA 108A
D205 MDA 108A
D204 MDA 970-1
C209 100n
C213 100µ
R213 15k
C208 100n
C212 10µ
R212 180k
C207 100n
C211 10µ
R211 180k
C206 330n
C210 2200µ
L201
C214 470µ
R214 3k3
R216 180
C216 4n7
R215 180
C215 4n7
R218 8k2
D209 1N4007
D208 1N4007
R219 56k
R220 56k
C217 10µ
C218 10µ
R221 1M
R222 180k
R224 390k
R225 180k
R223 180k
TP2
TP3
TP4
TP5
TP6
RE201
RE202
RE203
POWER UNIT II


R219
R220



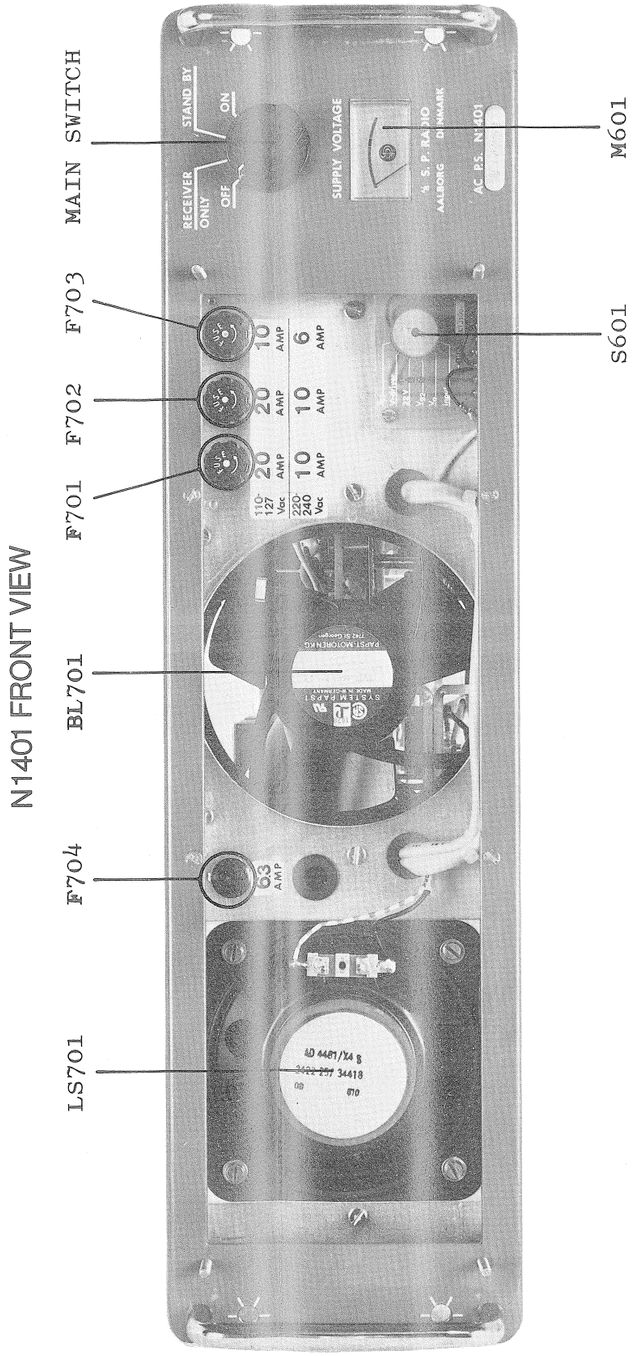




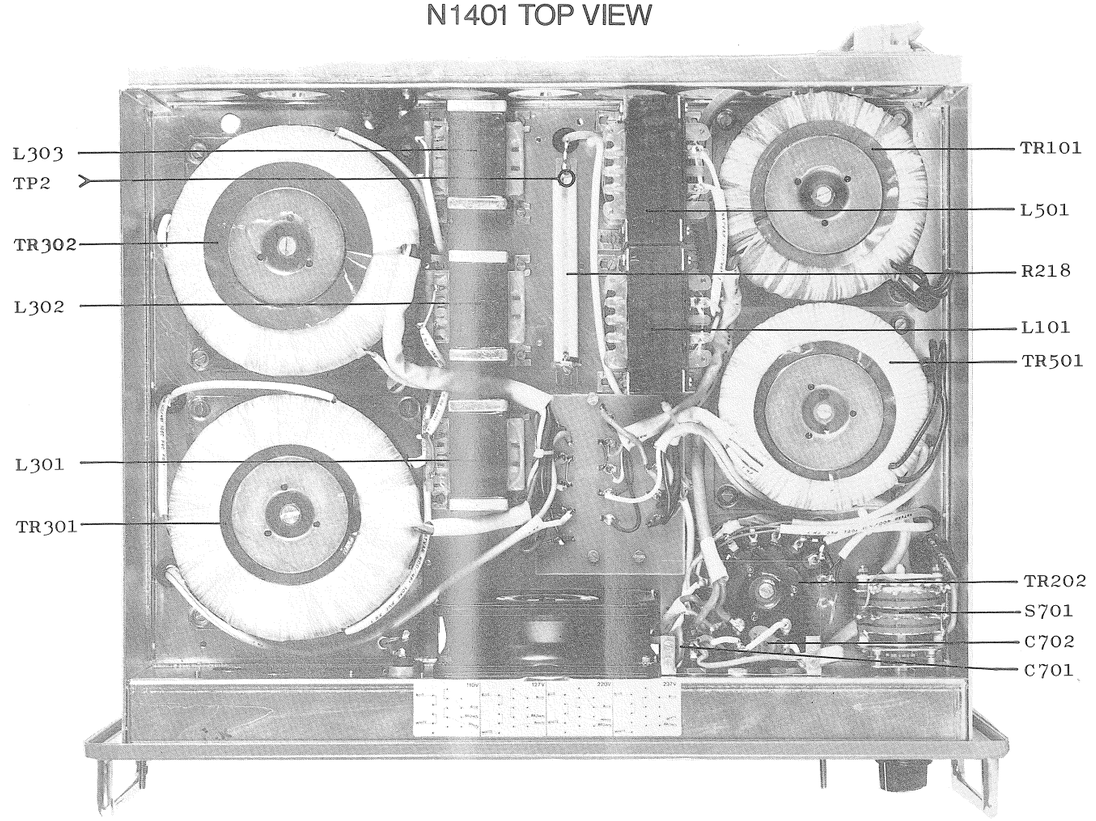


DELAY UNIT & TEST METER N1400/N1401

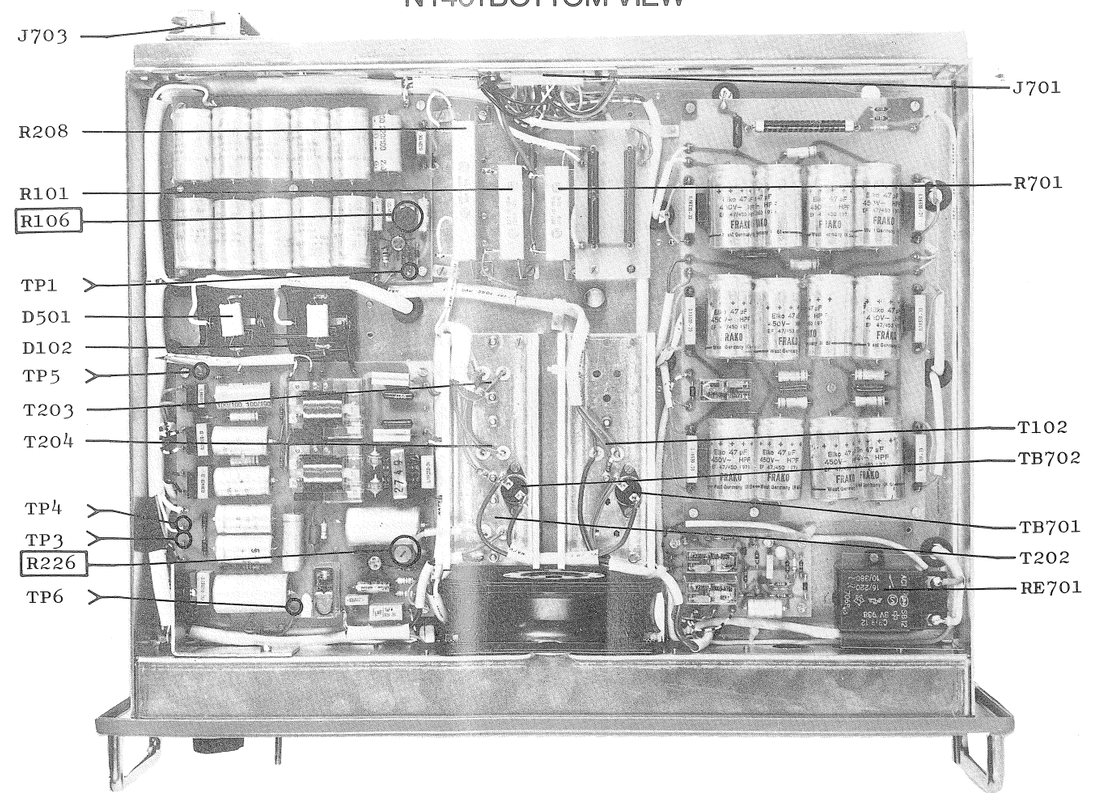
N1401 FRONT VIEW



N1401 TOP VIEW



N1401 BOTTOM VIEW



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Power unit I N1401

Symbol	Description			Manufact.	
R101	Resistor	100 ohm 10%	15W	Vitrohm	222-0
R102	Resistor	82 ohm	0,5W	Philips	2322 212 13829
R103	Resistor	68 ohm	0,5W	Philips	2322 212 13689
R104	Resistor	1Kohm	0,33W	Philips	2322 211 13102
R105	Resistor	390 ohm	0,33W	Philips	2322 211 13391
R106	Potentiometer	220 ohm		Draloric	70 WTD-K-C
R107	Resistor	560 ohm	0,33W	Philips	2322 211 13561
C101	Capacitor polyester	0,22uF	100V	ERO	MKT1822-422/0
C102	Capacitor polyester	0,47uF	100V	Philips	2222 341 29474
C103	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C104	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C105	Capacitor electrolytic	220uF	100V	Siemens	B41010-D9227-T
C106	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C107	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C108	Capaciotr electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C109	Capacitor electrolytic	22uF	40V	Siemens	B41283-B7226-T
C110	Capacitor polyester	0,22uF	100V	ERO	MKT1822-422/0
C111	Capacitor electrolytic	22uF	40V	Siemens	B41283-B7226-T
L101	Coil			Tradania	TD1054
TR101	Transformer			Tradania	TD207
D101	Diode bridge			Motorola	MDA 104A
D102	Diode bridge			Motorola	BYW 21
D103	Diode zener	7,5V	1W	Motorola	1N4737A
TR101	Transistor			Siemens	BC141-10
TR102	Transistor			Motorola	MJ3000

a Power unit II N1400/N1401

Symbol	Description			Manufact.	
R201	Resistor	82 ohm	0,5W	Philips	2322 212 13829
R202	Resistor	68 ohm	0,5W	Philips	2322 212 13689
R203	Resistor	1Kohm	0,33W	Philips	2322 211 13102
R204	Resistor	390 ohm	0,33W	Philips	2322 211 13391
R205	Resistor	560 ohm	0,33W	Philips	2322 211 13561
R206	Resistor	0,47 ohm 10%	4W	Vitrohm	206-0
R207	Resistor	0,47 ohm 10%	4W	Vitrohm	206-0
R208	Resistor	60 ohm 5%	23W	Vitrohm	222-0
R209	Resistor	680 ohm	4,2W	Philips	2322 330 22681
R210	Resistor	680 ohm	4,2W	Philips	2322 330 22681
R211	Resistor	180Kohm	1,15W	Philips	2322 214 13184
R212	Resistor	180Kohm	1,15W	Philips	2322 214 13184
R213	Resistor	15Kohm	0,33W	Philips	2322 211 13153
R214	Resistor	3,3Kohm	0,5W	Philips	2322 211 13332
R215	Resistor	180 ohm	0,33W	Philips	2322 211 13181
R216	Resistor	180 ohm	0,33W	Philips	2322 211 13181
R218	Resistor	8,2Kohm 5%	30W	Vitrohm	224-0
R219	Resistor	56Kohm 5%	12W	Danotherm	GAN 12
R220	Resistor	56Kohm 5%	12W	Danotherm	GAN 12
R221	Resistor	1Mohm	0,5W	Philips	2322 212 13105
R222	Resistor	120Kohm	0,33W	Philips	2322 211 13124
R223	Resistor	180Kohm	0,33W	Philips	2322 211 13184
R224	Resistor	390Kohm	0,33W	Philips	2322 211 13394
R225	Resistor	180Kohm	0,33W	Philips	2322 211 13184
R226	Potentiometer	220 ohm		Draloric	70 WTD-K-C
C201	Capacitor polyester	1uF	100V	ERO	MKT1822-510/0
C202	Capacitor electrolytic	22uF	40V	Siemens	B41283-B7226-T
C203	Capacitor polyester	0,22uF	100V	ERO	MKT1822-422/0
C204	Capacitor polyester	0,33uF	250V	ERO	MKT1822-433/2
C205	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C206	Capacitor polyester	0,33uF	250V	ERO	MKT1822-433/2
C207	Capacitor polyester	0,1uF	400V	ERO	MKT1822-410/4
C208	Capacitor polyester	0,1uF	400V	ERO	MKT1822-410/4

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Power unit II N1400/N1401

Symbol	Description			Manufact.	
C209	Capacitor polyester	0,1uF	100V	ERO	MKT1822-410/0
C210	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C211	Capacitor electrolytic	10uF	450V	Siemens	B43050-B5106-T
C212	Capacitor electrolytic	10uF	450V	Siemens	B43050-B5106-T
C213	Capacitor electrolytic	100uF	100V	Siemens	B41010-A9107-T
C214	Capacitor electrolytic	470uF	40V	Siemens	B41010-A7477-T
C215	Capacitor ceramic	4,7nF	400V	Ferroperm	9/0138,9
C216	Capacitor ceramic	4,7nF	400V	Ferroperm	9/0138,9
C217	Capacitor electrolytic	10uF	450V	Siemens	B43050-B5106-T
C218	Capacitor electrolytic	10uF	450V	Siemens	B43050-E5106-T
T201	Transistor			Siemens	BC141-10
T202	Transistor			Motorola	MJ3000
T203	Transistor	matched pair		Motorola	MJ802
T204	Transistor			Motorola	MJ802
D201	Diode zener		7,5V	Motorola	1N4737A
D202	Diode			Motorola	MR750
D203	Diode			Motorola	MR750
D204	Diode bridge			Motorola	MDA970-1
D205	Diode bridge			Motorola	MDA108A
D206	Diode bridge			Motorola	MDA108A
D207	Diode bridge			Motorola	MDA104A
D208	Diode			Motorola	1N4007
D209	Diode			Motorola	1N4007
L201	Coil			S.P.	Drg.No. TL067
TR201	Transformer			Tradania	TD2749
TR202	Transformer			Tradania	TD111
RE201	Relay			AEG	RHL401 24V/02
RE202	Relay			AEG	RHL401 24V/02
RE203	Relay			PASI	KH/A BV 936

High voltage unit N1401

Symbol	*Description*			*Manufact.*	
R301	Resistor	1,5 Kohm	4,2W	Philips	2322 330 22152
R302	Resistor	1,5 Kohm	4,2W	Philips	2322 330 22152
R303	Resistor	1,5 Kohm	4,2W	Philips	2322 330 22152
R304	Resistor	150 Kohm	1,15W	Philips	2322 214 13154
R305	Resistor	150 Kohm	1,15W	Philips	2322 214 13154
R306	Resistor	150 Kohm	1,15W	Philips	2322 214 13154
R307	Resistor	150 Kohm	1,15W	Philips	2322 214 13154
R308	Resistor	150 Kohm	1,15W	Philips	2322 214 13154
R309	Resistor	150 Kohm	1,15W	Philips	2322 214 13154
R310	Resistor	220 Kohm	0,33W	Philips	2322 211 13224
R311	Resistor	5 Mohm 20%	2W	Vitrohm	177-0
R312	Resistor	4,7 ohm	4,2W	Philips	2322 330 22478
R313	Resistor	220 Kohm	0,33W	Philips	2322 211 13224
R314	Resistor	180 Kohm	0,33W	Philips	2322 211 13184
C302	Capacitor polyester	0,1uF	630V	ERO	MKT1822-410/6
C303	Capacitor polyester	0,1uF	630V	ERO	MKT1822-410/6
C304	Capacitor polyester	0,1uF	630V	ERO	MKT1822-410/6
C305	Capacitor polyester	0,1uF	630V	ERO	MKT1822-410/6
C306	Capacitor polyester	0,1uF	630V	ERO	MKT1822-410/6
C307	Capacitor polyester	0,1uF	630V	ERO	MKT1822-410/6
C308	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C309	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C310	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C311	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C312	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C313	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C314	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C315	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C316	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C317	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C318	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T
C319	Capacitor electrolytic	47uF	450V	Siemens	B43050-B5476-T

High Voltage unit N1401

Symbol	*Description*	*Manufact.*	
TR301	Transformer	Tradania	TD168
TR302	Transformer	Tradania	TD168
D301	Diode	Motorola	1N4002
D302	Diode bridge	Motorola	MDA 108A
D303	Diode bridge	Motorola	MDA 108A
D304	Diode bridge	Motorola	MDA 108A
D305	Diode bridge	Motorola	MDA 108A
D306	Diode bridge	Motorola	MDA 108A
D307	Diode bridge	Motorola	MDA 108A
RE301	Relay	Siemens	V23037-A00005-A101

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Delay unit N1400/N1401

Symbol	*Description*	*Manufact.*	
R401	Resistor 47Kohm 0,33W	Philips	2322 211 13473
R402	Resistor 33 ohm 0,33W	Philips	2322 211 13339
R403	Resistor 150 ohm 0,33W	Philips	2322 211 13151
R404	Resistor 10Kohm 0,33W	Philips	2322 211 13103
R405	Resistor 10Kohm 0,33W	Philips	2322 211 13103
R406	Resistor 33 ohm 0,33W	Philips	2322 211 13339
R407	Resistor 680Kohm 0,33W	Philips	2322 211 13684
R408	Resistor 1Kohm 0,33W	Philips	2322 106 13102
R409	Resistor 4,7Kohm 0,33W	Philips	2322 211 13472
R410	Resistor 2,7Kohm 0,33W	Philips	2322 211 13272
C401	Capacitor electrolytic 470uF 10V	Siemens	B41283-A3477-T
C402	Capacitor tantal 4,7uF 35V	ERO	ETP2E 4.7/35
C403	Capacitor polyester 0,1uF 100V	ERO	MKT 1822-410/0
C404	Capacitor tantal 68uF ±10% 16V	ERO	ETQ5 68/16 ±10%
T401	Transistor UJT	Motorola	2N4871
D401	Diode zener 7,5V	Motorola	1N4737A
D402	Diode	Motorola	1N4002
D403	Diode	Texas	1N4148
D404	Diode SCR	Philips	BRY39
D405	Diode SCR	Motorola	2N5064
RE401	Relay	Siemens	V23037-A0005-A101
RE402	Relay	Siemens	V23037-A0005-A101

Supply II N1401

Symbol	*Description*			*Manufact.*	
C501	Capacitor polyester	0,47uF	100V	Philips	2222 341 29474
C502	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C503	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C504	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C505	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
C506	Capacitor electrolytic	2200uF	40V	Siemens	B41010-C7228-T
L501	Coil			Tradania	TD1054
TR501	Transformer			Tradania	TD135
D501	Diode bridge			Motorola	BYW21

Testmeter N1400 /N1401

Symbol	*Description*			*Manufact.*	
R601	Resistor	120Kohm	0,33W	Philips	2322 211 13124
R602	Resistor	120Kohm	0,33W	Philips	2322 211 13124
R603	Resistor	56Kohm	0,33W	Philips	2322 211 13563
R604	Resistor	150Kohm	0,33W	Philips	2322 211 13154
C601	Capacitor polyester	0,1uF	100V	ERO	MKT1822-410/0
M601	Meter			Aug.Eklöw	MG20 Drg. No. 9-3-21496
S601	Switch			ITT	RBP 12F 2x6NCC

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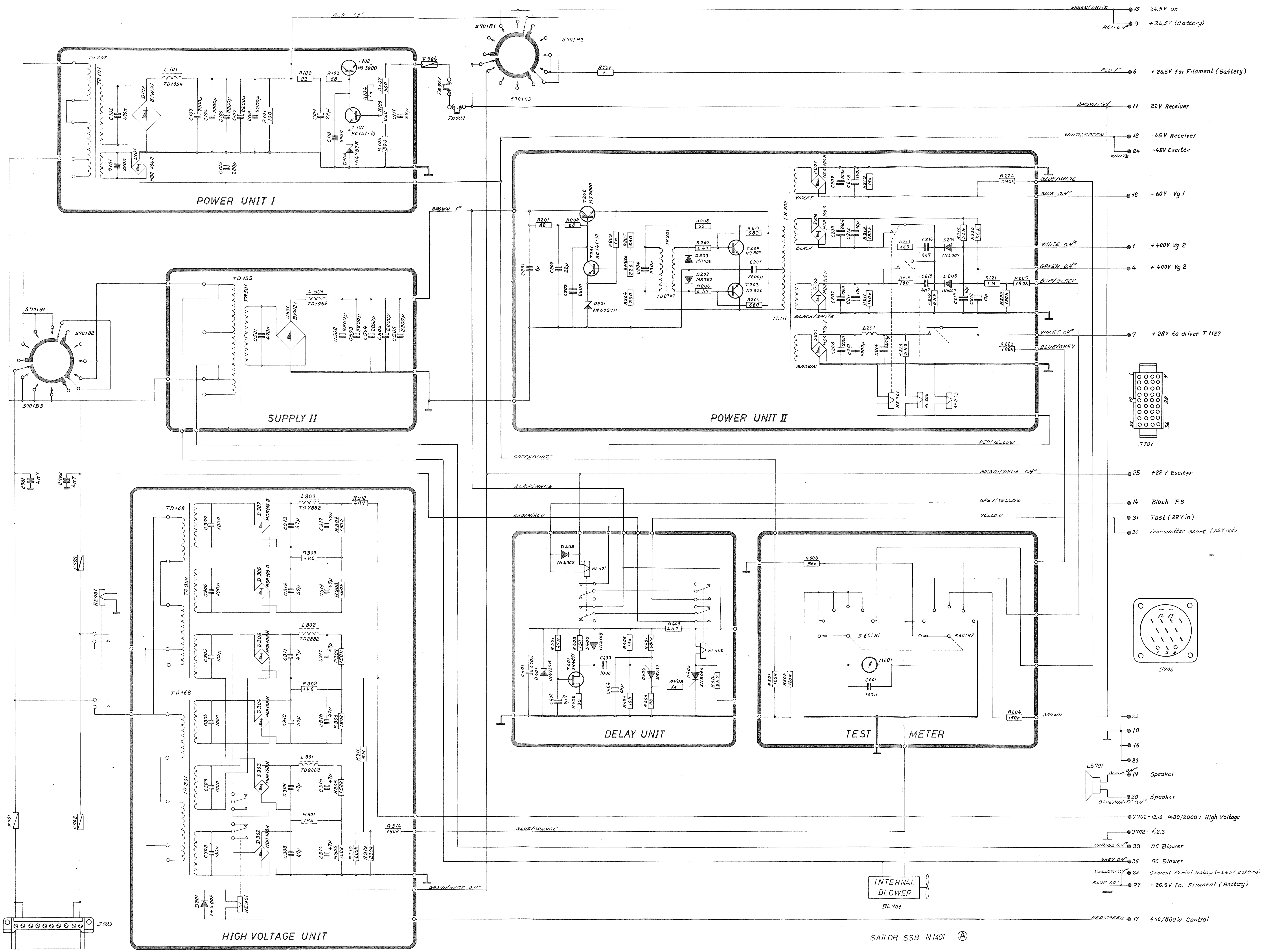
Chassis N1401

Symbol	Description			Manufact.	
R701	Resistor	1 ohm	10% 15W	Vitrohm	220-0
C701	Capacitor ceramic	4,7nF	5KV	Ferroperm	9/0138,9
C702	Capacitor ceramic	4,7nF	5KV	Ferroperm	9/0138,9
	At 220V AC				
F701	Fuse		10 A	Wickmann	314010
F702	Fuse		10 A	Wickmann	314010
F703	Fuse		6 A	Wickmann	314006
F704	Fuse		6,3 A	ELU	5x20mm 6,3A
	At 110V AC				
F701	Fuse		20 A	Wickmann	314020
F702	Fuse		20 A	Wickmann	314020
F703	Fuse		10 A	Wickmann	314010
F704	Fuse		6,3 A	ELU	5x20mm 6,3 A
S701	Switch			NSF	HD 120231S MSD 2
RE701	Relay			PASI	CR/B BV 938
BL701	Blower	220V AC		PAPST	Typ 4550N
LS701	Loudspeaker			Philips	2422 257 34419
TB701	Thermal Breaker			Elmwood	2455 R-21-910
TB702	Thermal Breaker			Elmwood	2455 R-21-910
J701	Receptacle			Molex	1772-2
J702	Socket			Hirschmann	Meb 160
J703	Plug			Weidmüller	STV 2/10-3338.6


POWER UNIT I
SUPPLY II
POWER UNIT II
HIGH VOLTAGE UNIT
DELAY UNIT
TEST METER
INTERNAL BLOWER
BL701
J701
J702
J703
LS701
15 24,5V on
9 + 24,5V (Battery)
6 + 26,5V for Filament (Battery)
11 22V Receiver
12 -45V Receiver
24 -45V Exciter
18 -60V Vg 1
1 +400V Vg 2
4 + 400V Vg 2
7 + 28V to driver T 1127
25 +22V Exciter
14 Block P.S.
31 Tast (22V in)
30 Transmitter start (22V out)
22
10
16
23
19 Speaker
20 Speaker
J702-12,13 1400/2000V High Voltage
J702-1,2,3
33 AC Blower
36 AC Blower
26 Ground Aerial Relay (-24,5V Battery)
27 - 26,5V for Filament (Battery)
17 400/800W Control
SAILOR SSB N1401 A