

Consisting of:

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How to open the Preamplifier Type 2619, see exploded view. (2619.2)

Trouble Shooting

If the reason for a fault is not an obvious one such as a faulty transistor, broken down resistor etc., then first test the DC-voltages and compare them with the voltages shown in the tables sheet 1 in order to localize the defect. Should this method of finding the fault prove unsuccessful, then check the instrument by adapting the method described in the adjustment procedure. When the trouble has been found and remedied, the voltages and adjustments which are influenced by the remedy must be rechecked.

The tolerances stated in the instructions can only be used as a guide for adjustment and control, but any deviations must not be corrected without being sure that the tolerances of the instruments used for making the adjustment are so small as to have no influence on the measurements.

The instructions in this manual are given purely as a guide to the service of equipment with minor faults. Some faults, as f. inst. small deviations in tolerances require for their correction special control equipment and extensive experience, and in these cases it is necessary to send the instrument to the factory.

Spare Parts

Please state type- and serial number of apparatus when spare parts are ordered.

Instruments Necessary for Service and Repair

Multimeter (50 μ A)
Beat Frequency Oscillator type 1022 (1013)
Frequency Analyzer type 2107
Pistonphone type 4220

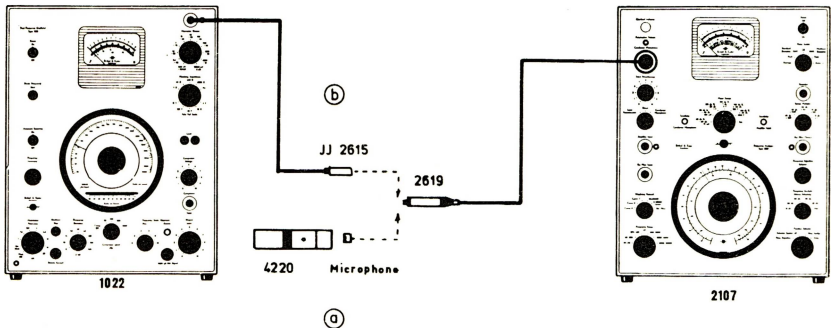
1.1. DC Voltages When type 2619 is connected to a 120 V DC supply.

Voltages on Guard Ring: $60 \text{ V} \pm 5 \text{ V}$.

Voltages on V_1 emitter: 65 V
collector: 60 V

Heating Element approx. 50 mA

V_3 collector: 120 V
emitter: 65 V

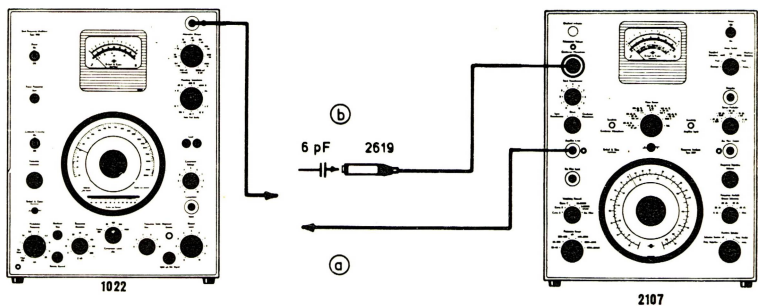


1.2. Function Check

- Place the Pistonphone 4220 on the Microphone of the Preamplifier 2619 and switch 4220 to "Measure".

The indication of the Microphone Amplifier (2107) should be equal to the Sound Pressure Level produced by the pistonphone (do not forget to correct for the corresponding "K" factor).

- If a pistonphone is not available feed an input signal 1 V, 1 kHz through the input adaptor JJ 2615 to the preamplifier 2619 and check the output voltage 1 V.



1.3. Attenuation

120 V DC supply or
28 V DC supply

- Check the sensitivity of the Microphone Amplifier type 2107 in position "Condenser Microphone" and "Direct". If necessary adjust deflection to the red mark by means of "Sen. Cond. Micr." and "Sen. Ampl. Input". Connect an input signal (1000 Hz) to INPUT of Microphone Amplifier 2107 and adjust the input voltage for 1 V deflection

b. Now connect a 6 pF capacitor in series with the input signal and feed the signal to the gold contact on the front end of 2619 and measure the attenuation of the output voltage: Max. 1 dB

Change the frequency to 10 Hz and check item b. again.

Attenuation: Max. 4 dB

1.4. Frequency Response

Input signal: 100 mV, 1 kHz connected to the input adaptor JJ 2615.

Check the frequency response in the range from 2-200,000 Hz.

a. 28 V DC supply

Frequency:	3 Hz	Tolerance: re. 1 kHz	-3 dB
"	1 kHz - 150 kHz	"	± 2 dB
"	200 kHz	"	± 0,5 dB

b. 120 V DC supply

Frequency:	2 Hz adjustable by R 1	Tolerance re. 1 kHz	-1 to -3 dB
"	1 kHz - 150 kHz		± 0,2 dB
"	200 kHz		-1 dB

1.5. Distortion

a. 28 V DC supply

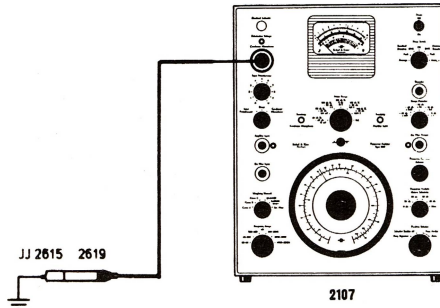
Frequency: 1000 Hz. Adjust the input voltage for 4 V output from 2619.

Distortion: Max. 4%

b. 120 V DC supply

Measure the distortion again but at 32 V output voltage.

Distortion: Max. 4%

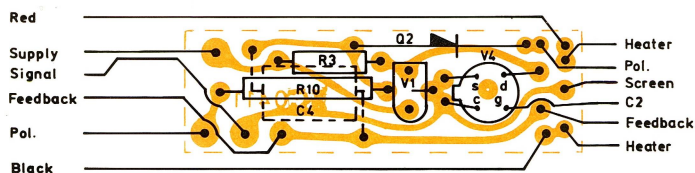
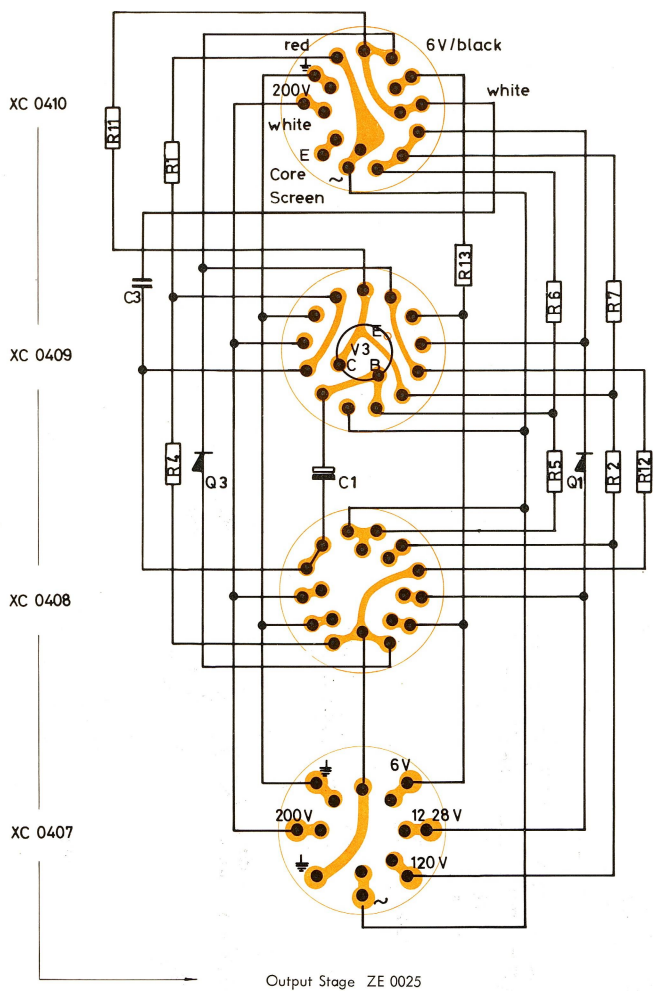


1.6. Noise and Hum

28 V DC supply or
120 V DC supply

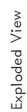
Screw the input Adaptor JJ 2615 on the preamplifier and connect the input of the JJ 2615 to ground.

Noise:	Lin. 20-40,000 Hz:	20 μ V
	Curve "A":	4 μ V



Input Circuit ZE 0023

Printed Circuit XC 0411



2619.2- 9.71

CIRCUIT DIAGRAM REF.	COMPONENT TYPE	STOCK REF.
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CAPACITORS:

C 1	Tantalum	6 μ F/ 10 V	CF 0007
C 2	Glas	300pF/300 V	CG 0002
C 3	Ceramic	0.1 μ F/ 50 V	CK 5100
C 4	Polystyrene	47 nF/250 V	CS 0550

RESISTORS:

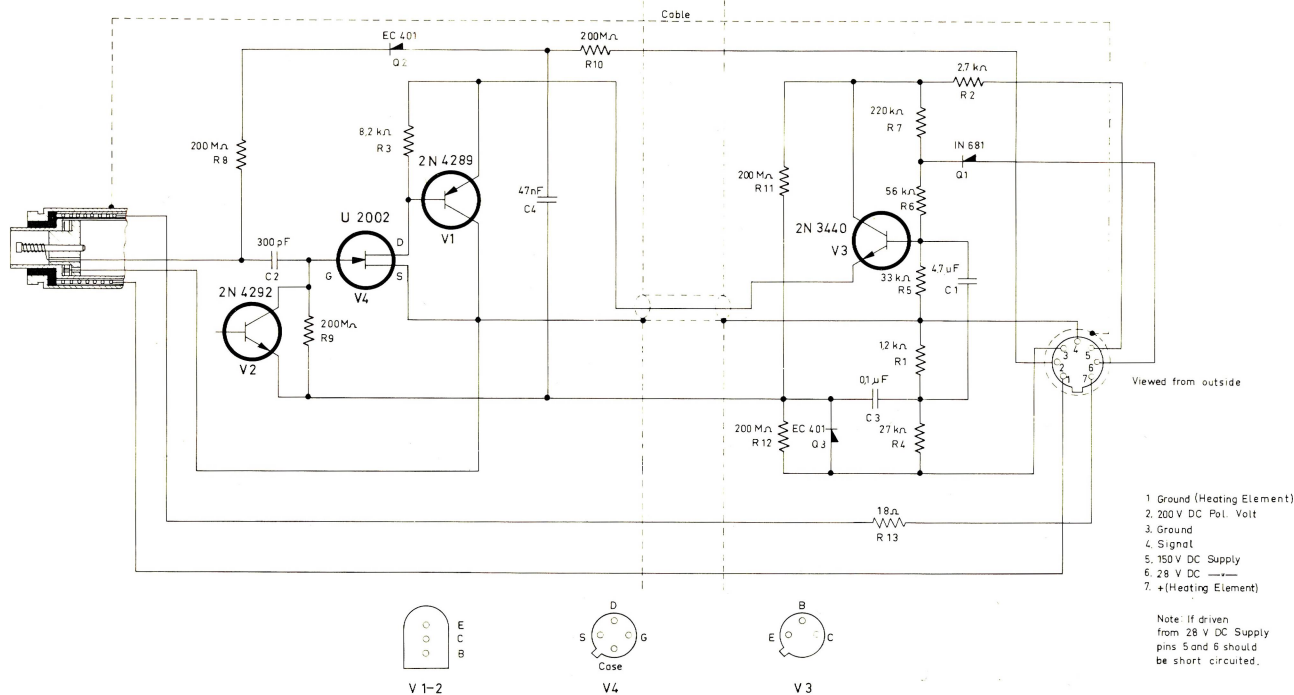
R 1	Carbon	0.2 W	5%	1.2 k Ω	RB 3120
R 2	"	"	"	4.7 k Ω	RB 3470
R 3	"	"	"	8.2 k Ω	RB 3820
R 4	"	"	"	27 k Ω	RB 4270
R 5	"	"	"	33 k Ω	RB 4330
R 6	"	"	"	56 k Ω	RB 4560
R 7	"	"	"	220 k Ω	RB 5220
R 8-12	Metal	0.25 W	10%	200M Ω	RH 0905
R 13	Carbon	0.2 W	5%	18 Ω	RA 0300

SEMICONDUCTORS:

V 1	Silicon Transistor	2N4289 PNP	VB 0049
V 2	"	2N4292 NPN	VB 0050
V 3	"	2N3440 NPN	VB 0250
V 4	F. E. T.	U 2002	VB 0505
Q 1	Silicon Diode	1N681 275 V/ 30 mA	QV 0209
Q 2,3	"	EC401 100 V/225 mA	QV 0213

PRINTED CIRCUITS:

Input Circuit	XC 0411
XC 0411 complete with comp.	ZE 0023
ZE 0023 complete with FET input and heating element	ZE 0024
Output Stage	XC 0007
"	XC 0008
"	XC 0009
"	XC 0010
Output Stage, complete with comp. and plug	ZE 0025
Cable	AO 1003



23-1-68	237519
19-2-69	27002.0

Brüel & Kjær
Copenhagen



1/2" Microphone Preamplifier
Type 2619