TECHNICAL DATA

5722

Sylvania

TYPE 5722

NOISE GENERATING DIODE

RATINGS AND CHARACTERISTICS

Maximum Filament Voltage	5.5	Volts
Minimum Filament Voltage	2.0	Volts
Filament Current at 4.9 Volts	1.6	Amperes
Maximum DC Plate Voltage	200	Volts
Maximum Plate Current	35	Ma.
Maximum Plate Dissipation		
Continuous Service	3.5	Watts
Intermittent Service	5.0	Watts
Maximum On Period in 50% Duty Cycle	5	Min.
Direct Interelectrode Capacitances:**		
Plate to Filament	1.5	μμf

* *Horizontal operation permitted if Pins 1 and 2 are in vertical plane.*

** *With no external shield.*

PHYSICAL SPECIFICATIONS

Style	Miniature
Bulb	T 5 1/2
Diameter	3/4" Max.
Seated Height	1 7/8" Max.
Overall Length	2 1/8" Max.
Mounting	Vertical*

BASE PIN CONNECTIONS

Pin 1 - Plate
Pin 2 - No Connection
Pin 3 - Filament
Pin 4 - Filament
Pin 5 - No Connection
Pin 6 - Plate
Pin 7 - Filament Center

RMA Basing 5 CB

TYPICAL OPERATING CONDITIONS

Plate Voltage	150	Volts
Filament Voltage	Adjust to give desired Plate Current or Noise Output	

CIRCUIT APPLICATION

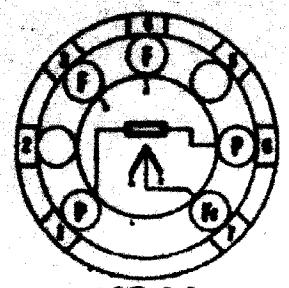
Sylvania Type 5722 is a tungsten filament diode designed for use as a noise generator at frequencies up to 400 or 500 mc. The filament center tap allows better RF grounding of the filament when used in the recommended circuit shown on a following page.

Since the tube has a tungsten filament the "shot effect" may be used as a standard noise source if sufficient plate voltage is applied to obtain saturation. The noise factor (NF) may be obtained from the equation NF = 20 IR where R is the total generator resistance and I is the diode plate current in amperes. To convert to decibels $NF_{db} = 10 \text{ Log}_{10} 20 IR$.

In use, the diode is coupled to the input of the amplifier under test and the filament voltage is increased until the noise output power is double that read without the diode. From the plate current reading and the generator resistance the noise factor can be calculated. Additional construction details may be obtained from the article "How Sensitive Is Your Receiver", by Byron Goodman in the September 1947 issue of Q.S.T. and also "Coaxial Noise Diode" by K. Johnson, RCA Review, March, 1947, Volume VIII, No. 1.

The useful life is dependent on the operating voltages since the usual causes of failure are burnout or vaporization of the tungsten filament. A curve is given on a following page which shows this relationship.

NOV. 29, 1948 COMMERCIAL ENGINEERING DEPARTMENT
Sylvania Electric Products Inc., Emporium, Pennsylvania
PRINTED IN U.S.A.



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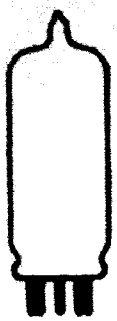


Sylvania Type 5722

NOISE GENERATING DIODE

PHYSICAL SPECIFICATIONS

Base	Miniature Button 7 Pin
Bulb	T-5½
Maximum Overall Length	2⅛"
Maximum Seated Height	1⅝"
Mounting Position	Vertical*

*Horizontal operation permitted if Pins 1 and 2 are in a vertical plane.

RATINGS

Maximum Filament Voltage	5.5 Volts
Minimum Filament Voltage	2.0 Volts
Filament Current at 4.9 Volts	1.6 Amperes
Maximum DC Plate Voltage	200 Volts
Maximum Plate Current	35 Ma.
Maximum Plate Dissipation	
Continuous Service	3.5 Watts
Intermittent Service	5.0 Watts
Maximum On Period in 50% Duty Cycle	5 Minutes

Direct Interelectrode Capacitances:*

Plate to Filament	1.5 $\mu\mu$f.

**With no external shield.

TYPICAL OPERATION

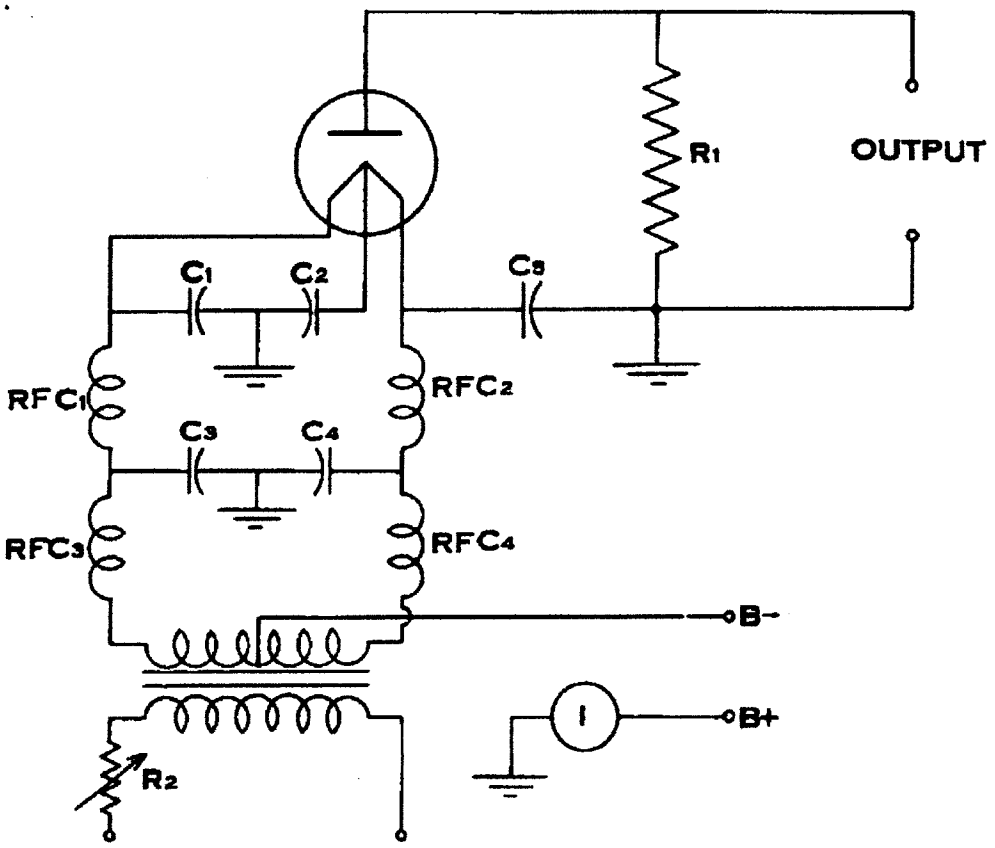
Sylvania Type 5722 is a tungsten filament diode designed for use as a noise generator at frequencies up to 400 or 500 mc. The filament center tap allows better RF grounding of the filament when used in the recommended circuit shown on a following page.

Since the tube has a tungsten filament the "shot effect" may be used as a standard noise source if sufficient plate voltage is applied to obtain saturation. The noise factor (NF) may be obtained from the equation $NF = 20\ IR$ where R is the total generator resistance and I is the diode plate current in amperes. To convert to decibels $NFdb = 10\ Log_{10}\ 20\ IR$.

In use, the diode is coupled to the input of the amplifier under test and the filament voltage is increased until the noise output power is double that read without the diode. From the plate current reading and the generator resistance the noise factor can be calculated. Additional construction details may be obtained from the article "How Sensitive is Your Receiver," by Byron Goodman in the September 1947 issue of Q.S.T. and also "Coaxial Noise Diode" by H. Johnson, RCA Review, March 1947, Volume VIII, No. 1.

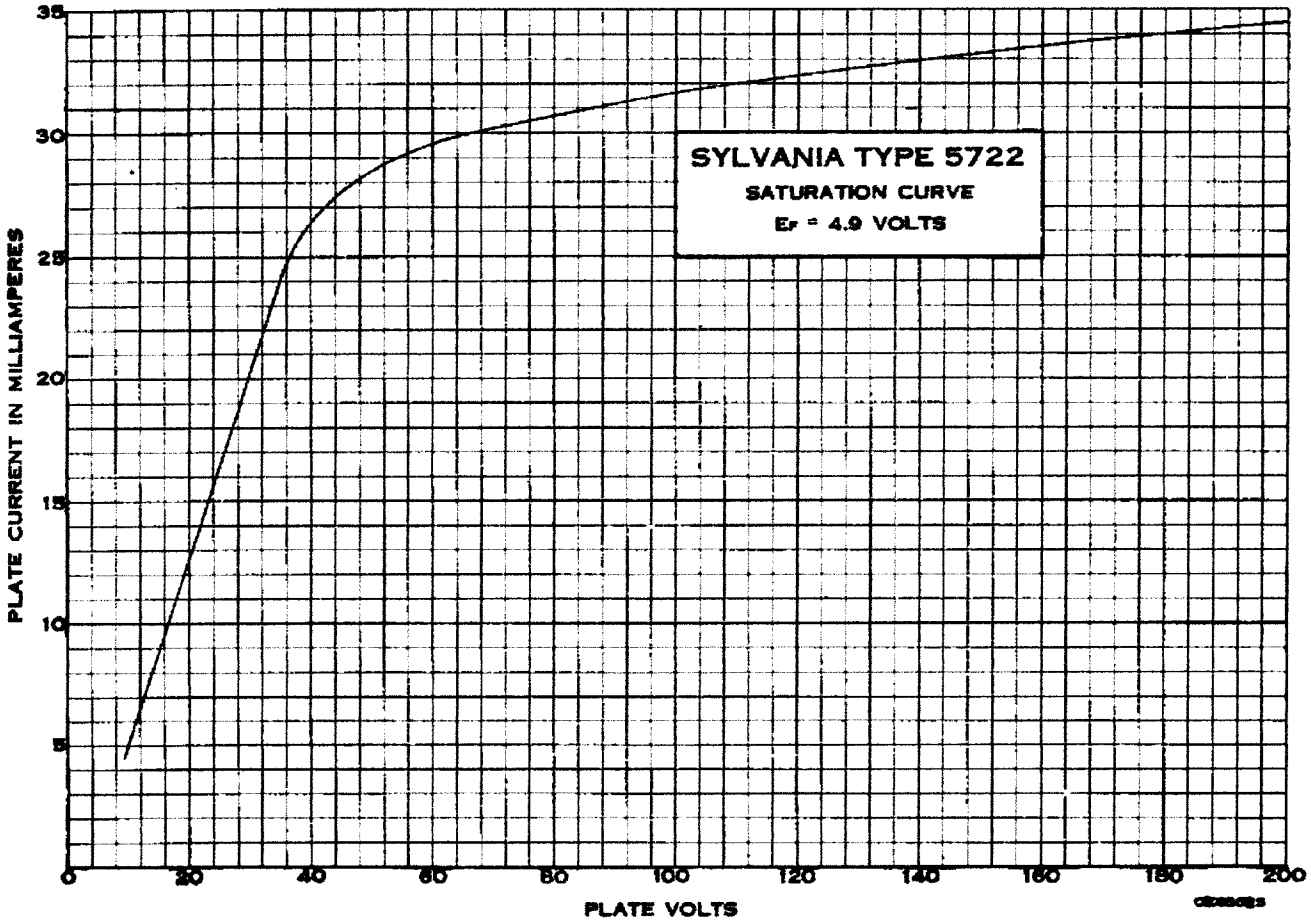
The useful life is dependent on the operating voltages since the usual causes of failure are burnout or vaporization of the tungsten filament.

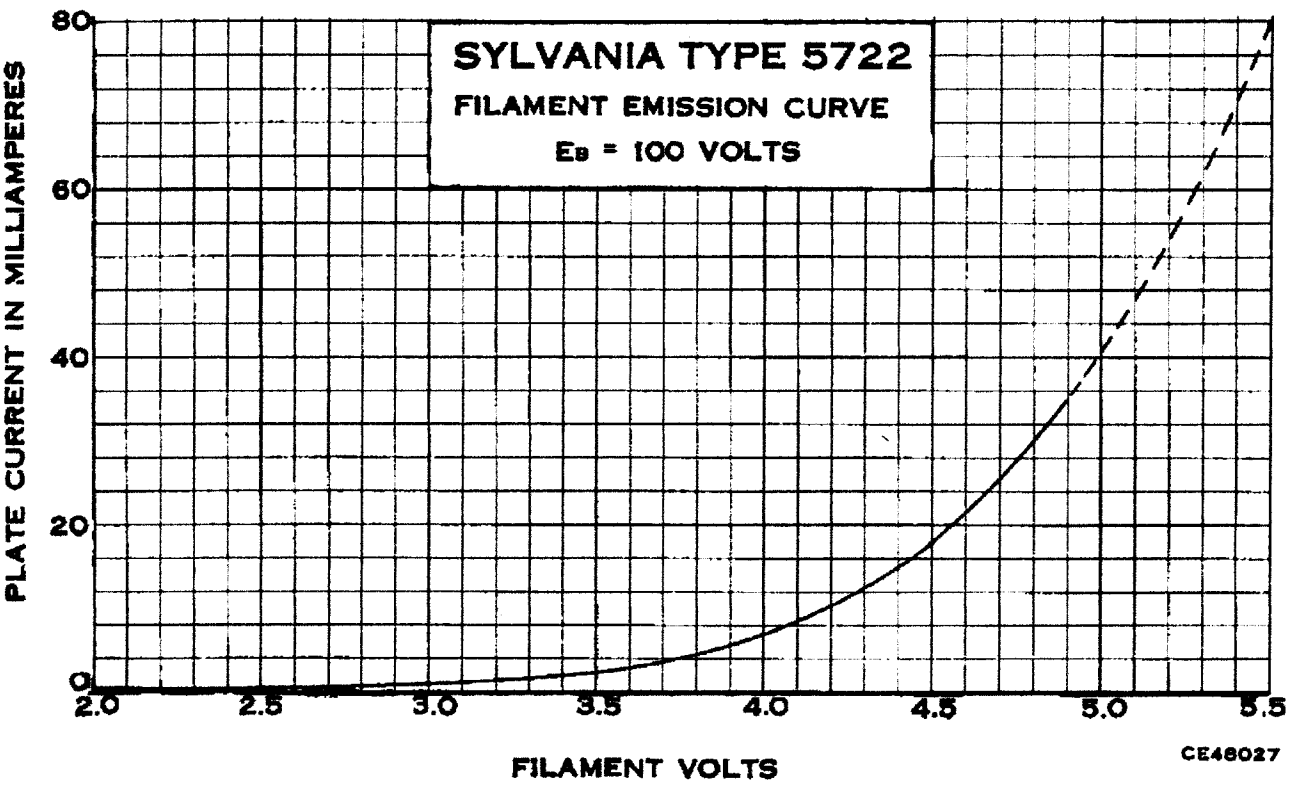
RECOMMENDED CIRCUIT



PARTS LIST

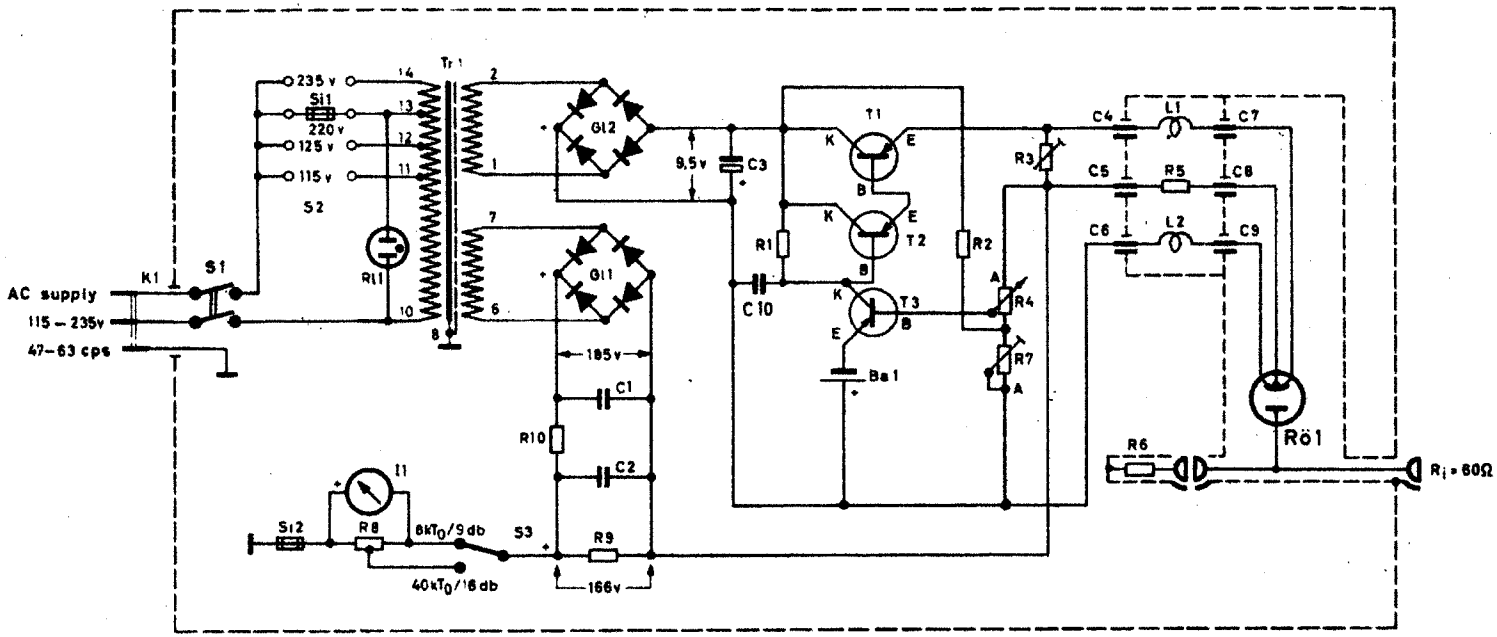
C_1, C_2, C_3, C_4, C_5	500 μμf
RFC_1, RFC_2	6 Turns #16 Enamel Wire on 3/16" Air Core
RFC_3, RFC_4	30 Turns #16 Enamel Wire on 3/8" O.D., 1/4" I.D. Bakelite Coil Form With Powdered Iron Core
R_1	50 to 300 Ohms as Required to Match Load
R_2	Filament Voltage Control


SYLVANIA TYPE 5722
SATURATION CURVE
Ef = 4.9 VOLTS
PLATE CURRENT IN MILLIAMPERES
PLATE VOLTS
0
20
40
60
80
100
120
140
160
180
200
5
10
15
20
25
30
35


SYLVANIA TYPE 5722
FILAMENT EMISSION CURVE
Eb = 100 VOLTS
PLATE CURRENT IN MILLIAMPERES
FILAMENT VOLTS
CE48027
0
20
40
60
80
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5

1.2. Technische Daten

	100.4688.50	100.4688.60	100.4688.70
Frequenzbereich	———	1...1000 MHz	———
Innenwiderstand	50 Ω	60 Ω	75 Ω
Welligkeit	< 1,1	< 1,1	< 1,1
Rauschleistung	———	stetig einstellbar	———
Maximale Änderung der Rauschleistung bei ±10 % Netzspannungsänderung (ohne Einfluß auf die Meßgenauigkeit)	≦ ±2,5 %	≦ ±2,5 %	≦ ±2,5 %
Anzeigebereiche der Rauschzahl	1...6,5 1...33	1...8 1...40	1...6,4 1...32
Anzeigebereiche für das der Rauschzahl entsprechende Rauschmaß	0...8 dB 0...15 dB	0...9 dB 0...16 dB	0...8 dB 0...15 dB
Fehler der Anzeige			
im Frequenzbereich bis 300 MHz	≦ ±0,5 dB	≦ ±0,5 dB	≦ ±0,5 dB
im Frequenzbereich über 300 MHz	≦ ±1 dB	≦ ±1 dB	≦ ±1 dB
Ausgang	Kurzhubstecker Dezifix B, umrüstbar (Rohrsockel) siehe Abschn. 2.3.		
Netzanschluß	115/125/220/235 V, 47...63 Hz (25 VA)		
Bestückung	3 Transistoren, 1 Röhre		
Abmessungen	470 x 195 x 260 mm (R&S-Normkasten Größe 45)		
Gewicht	9 kg		
Bestellbezeichnungen	Rauschgenerator SKTU		
Innenwiderstand 50 Ω	100.4688.50		
" 60 Ω	100.4688.60		
" 75 Ω	100.4688.70		



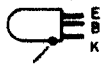
A.-Z.„b" Nr. 5909

Rö1

Sylvania 6722

T2 T3

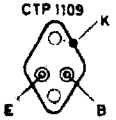
OC 604 spez.

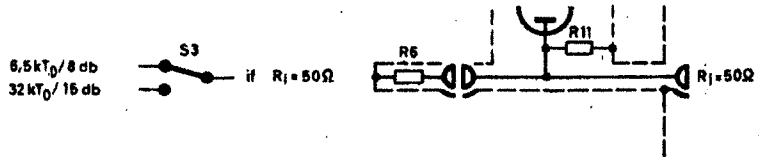


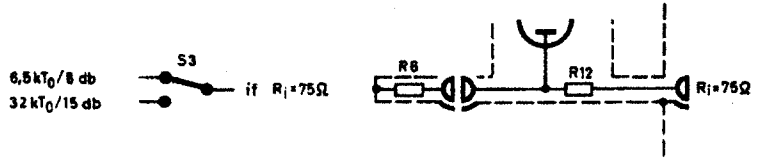
Red dot

T1

CTP 1109



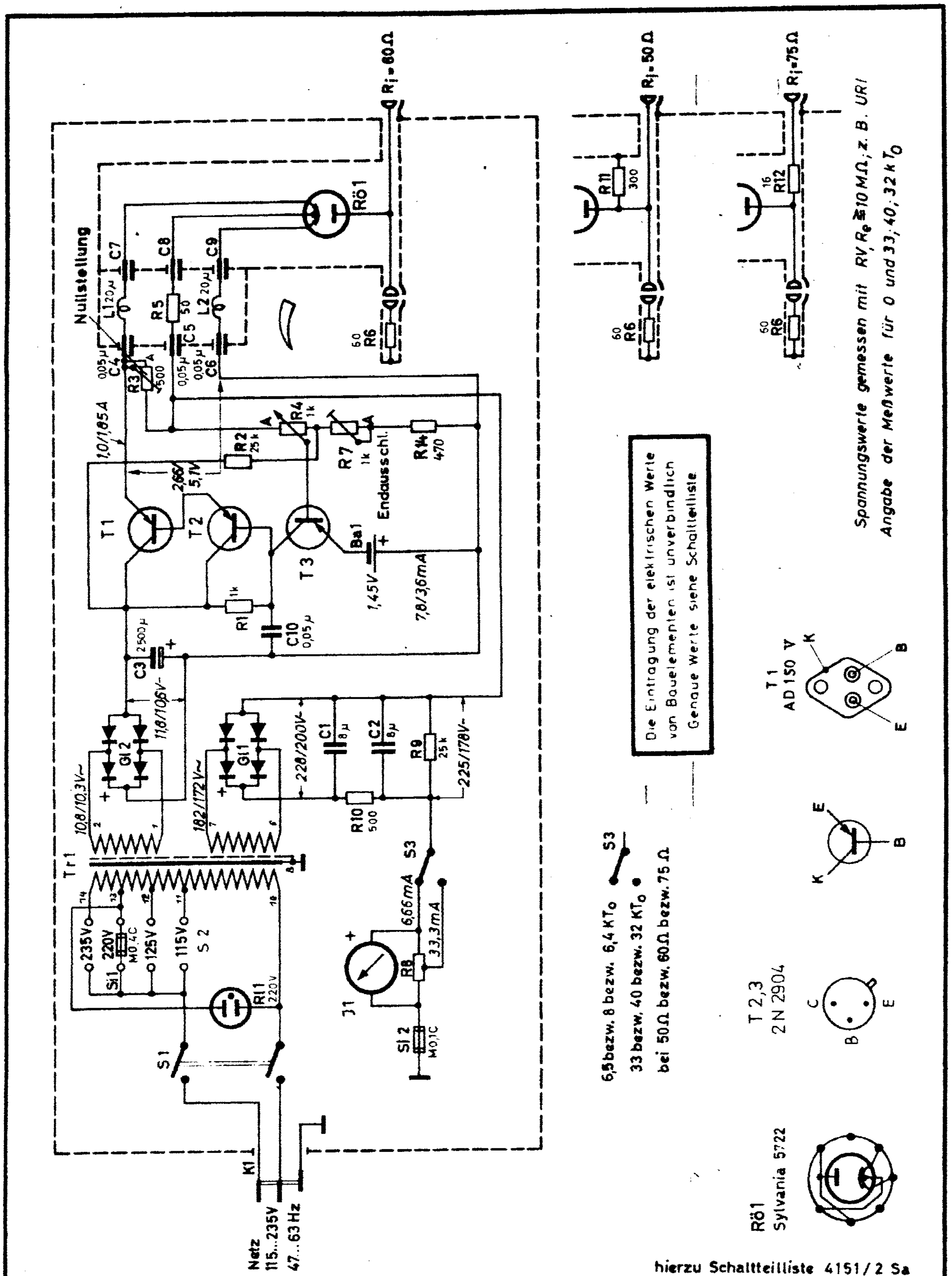




Voltages measured with high-impedance meter adjusted for 32 to 40 kT_o

NOISE GENERATOR
Type SKTU

R 8508
663
Bl. 23



hierzu Schaltteilliste 4151/2 Sa

ROHDE & SCHWARZ MÜNCHEN	Halbzeug, Werkstoff	Unlolerierte Maße	Zeichn. Nr. 4151/2 S
		Maßstab	
			Ersatz für

	Tag	Name	Änd.-zust.	Änd.-Mittlg. Nr.	Tag	Name
gezeichnet	30.7.58	[illegible]	i	MB 36	3.71	Mt.
bearbeitet	21.7.58	Klein	k	MB 104	12.74	Mt
geprüft	4.8.58	Wa				
normgepr.			h	14544	30.4.60	Kl

Stromlauf zu

Rauschgenerator Type SKTU