Ericsson LM

BROADBAND PENTODE 7721

D 3 a

Broadband amplifier beam pentode with low noise and extremely high transconductance. The tube features very low input conductance and outstanding gain-bandwidth product.

CAPACITANCES (without external shield)

Grid No 1 to Plate, cold tube	max. .035	$\mu\mu$F
Input, cold tube	10±1	$\mu\mu$F
Input, 28 ma Cathode Current	17	$\mu\mu$F
Output, cold tube	2±.3	$\mu\mu$F

ABSOLUTE MAXIMUM RATINGS

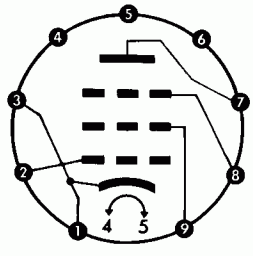
Plate Voltage, peak (intermittent operation)	400	volts
Grid No 2 Voltage, peak (intermittent operation)	400	volts
Plate Voltage, DC	220	volts
Grid No 2 Voltage, DC	180	volts
Beam Plate Voltage, DC	0	volt
Grid No 1 Voltage, positive value	0	volt
Grid No 1 Voltage, negative value	10	volts
Plate Dissipation	4.5	watts
Grid No 2 Dissipation	1.1	watt
Cathode Current	33	ma
Grid No 1 Circuit Resistance, cathode bias	.5	Mohm
Heater — Cathode Voltage	60	volts
Heater — Cathode Resistance, external*	.02	Mohm
Bulb Temperature, at hottest point	170	°C

* The maximum value is recommended in order to avoid influence on the operating conditions by the leakage between heater and cathode.

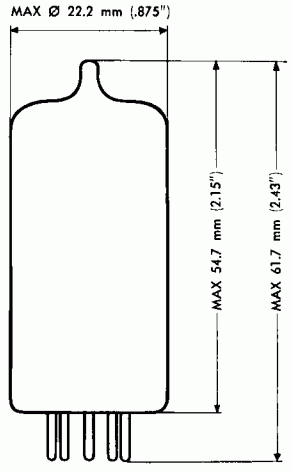
MECHANICAL DATA

Base: Small Button Noval 9-pin, RETMA E9-1
Bulb: EIA T 6½
Mounting Position: Any

PIN NO	CONNECTED TO
1.	Cathode
2.	Grid No 1
3.	Cathode
4.	Heater
5.	Heater
6.	Do not connect
7.	Plate
8.	Beam Plates, Internal Shield
9.	Grid No 2



Bottom view



Pins are goldplated

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TYPICAL OPERATION. CLASS A1

Heater Voltage	6.3	volts
Heater Current	.32	amp
Plate Supply Voltage	190	volts
Beam Plate Voltage	0	volt
Grid No 2 Supply Voltage	160	volts
Grid No 1 Supply Voltage	+ 10	volts
Cathode Bias Resistor	400	ohms
Plate Current	22	ma
Grid No 2 Current	6	ma
Transconductance	35,000	μmhos
Plate Resistance	.12	Mohm
Amplification Factor Grid No 2 to 1	85	
Equivalent Noise Resistance	150	ohms
Input Conductance at 100 Mc	1000	μmhos

GAIN-BANDWIDTH PRODUCT	*Tube Cold*	*Typical operation**	
At LF $\frac{g_m}{2\pi \quad (C_{in}+C_{out})}$	464	232	Mc
At IF $\frac{g_m}{2\pi \sqrt{C_{in} \cdot C_{out}}}$	1246	623	Mc

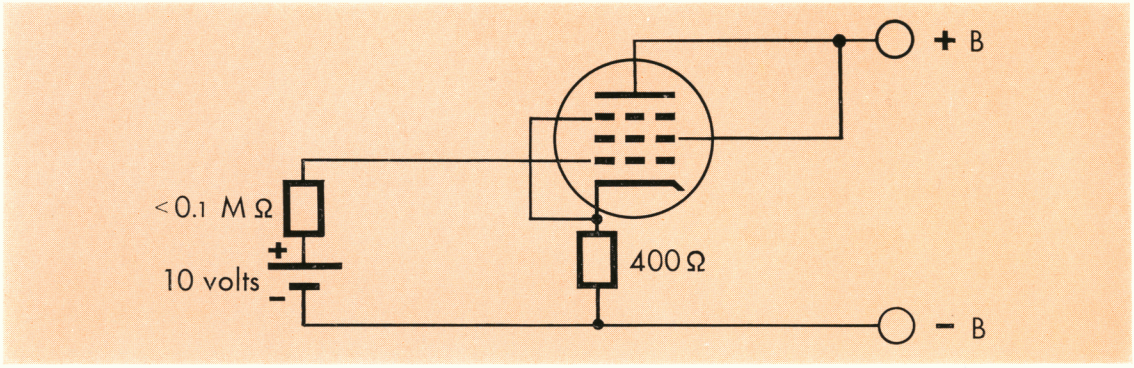
* The following additions have been made for tube sockets and wiring capacitances to get total circuit capacitances under typical operating conditions:
At LF — 5 $\mu\mu$F.
At IF — 3 $\mu\mu$F for input circuit and 2 $\mu\mu$F for output circuit.

OPERATION RANGE VALUES

Heater Voltage		6.3		volts
Plate Supply Voltage		190		volts
Grid No 2 Supply Voltage		160		volts
Grid No 1 Supply Voltage		+ 10		volts
Cathode Bias Resistor		400		ohms
	MIN	AVE	MAX	
Heater Current	300	320	340	ma
Plate Current	21	22	23	ma
Grid No 2 Current	5	6	7	ma
Transconductance	30,000	35,000	40,000	μmhos
Transconductance, End of Life Point	24,000			μmhos
Grid No 1 Current			— .5	μa
I_{hk} at E_{hk} = ± 100 volts			20	μa

Printed in Sweden
GRAFISK REKLAM/RELIEFTRYCK AB STHLM 1963

Tentative Data 3/63 Edition 1

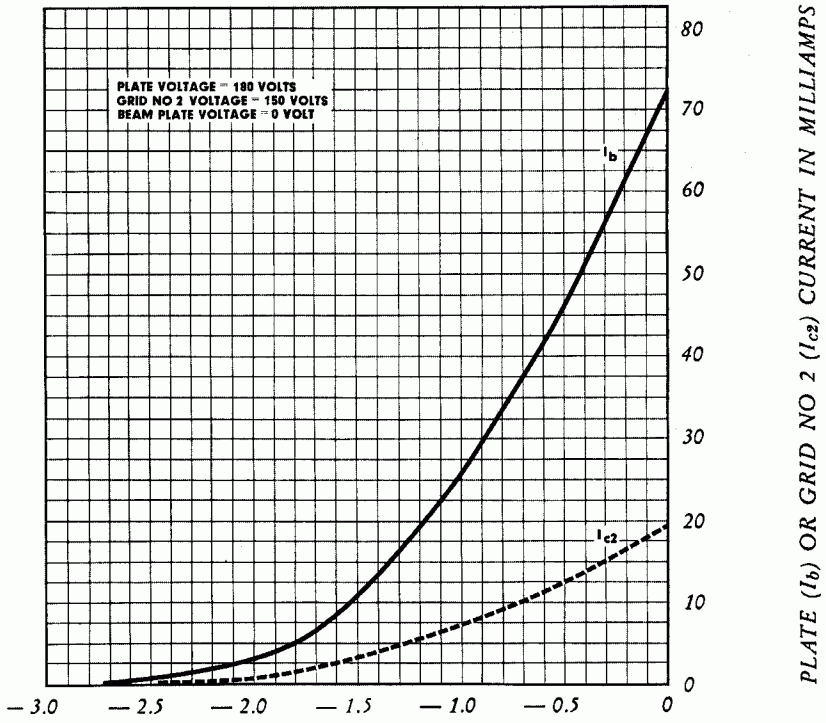


BIAS CONSIDERATIONS:

The use of a 400 ohms cathode resistance, in conjunction with a DC control grid return to a + 10 volt supply is recommended.

To prevent burning out grid wires by removal of plate and/or grid No 2 voltage when the + 10 volt bias is still applied, a limiting resistor of 10,000 ohms in series with the bias supply is suggested. Where the use of such a resistor is not practical, care should be taken to see that the grid bias is not applied before the plate or grid No 2 voltage.

AVERAGE CHARACTERISTICS



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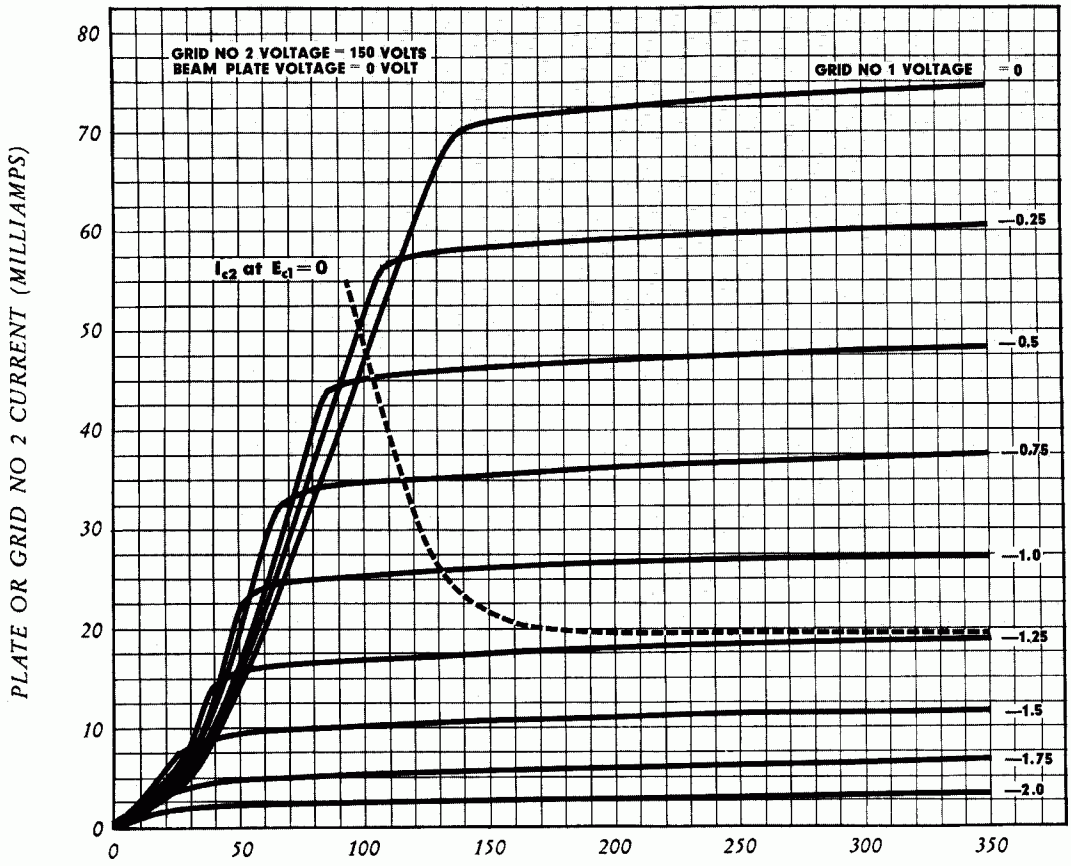

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