SINGLE TRIODE 5842 / 417 A

The 5842/417A is specially designed for use at intermediate frequencies where, owing to the absence of negative feed-back, use can be made of triodes, which have the advantage of causing less noise. The frame grid, described in Section A, has a lateral wire diameter of only .0065 mm.

COLD CAPACITANCES (no external shield unless specified)

Grounded Grid		
Plate to Cathode and Heater	max. .55	μμF
Input (Cathode to Grid and Heater)	9.0	μμF
Output (Plate to Grid and Heater)	1.8	μμF
Output. External shield connected to grid pins	2.6	μμF
Grounded Cathode		
Plate to Grid	1.7	μμF
Input (Grid to Cathode and Heater)	5.5	μμF
Output (Plate to Cathode and Heater)	.4	μμF

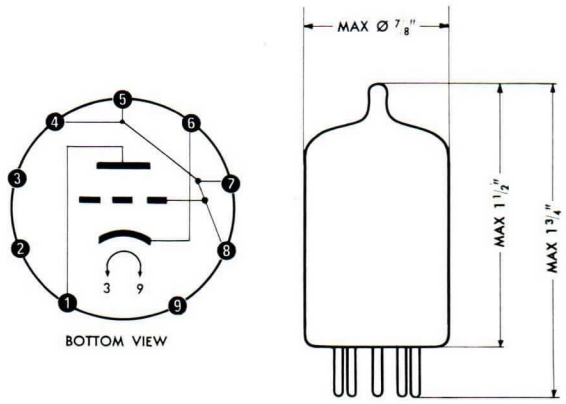
ABSOLUTE MAXIMUM RATINGS

Plate Voltage	200	volts
Grid Voltage, positive value	+ 0	volt
Grid Voltage, negative value	— 25	volts
Cathode Current	38	ma
Plate Dissipation	4.5	watts
Heater — Cathode Voltage	55	volts
Bulb Temperature, at hottest point	160	°C
Grid Circuit Resistance		
with fixed bias	.05	Mohm
with cathode bias	.1	Mohm

MECHANICAL DATA

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

PIN NO.	CONNECTED TO
1.	Plate
2.	No Connection
3.	Heater
4.	Grid
5.	Grid
6.	Cathode
7.	Grid
8.	Grid
9.	Heater



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Ericsson LM

TYPICAL OPERATION. CLASS A_1

Heater Voltage	6.3	6.3	volts
Heater Current	.3	.3	amp
Plate Supply Voltage	130	150	volts
Grid Supply Voltage	+ 9	—	volts
Cathode Bias Resistor	360	60	ohms
Plate Current	27	25	ma
Transconductance	27,000	25,000	μmhos
Amplification Factor	44	43	
Plate Resistance approx.	1600	1700	ohms
Grid Voltage for Plate Current = 10 μa	— 5	— 5	volts
Equivalent Noise Resistance	100	100	ohms

FIGURE OF MERIT

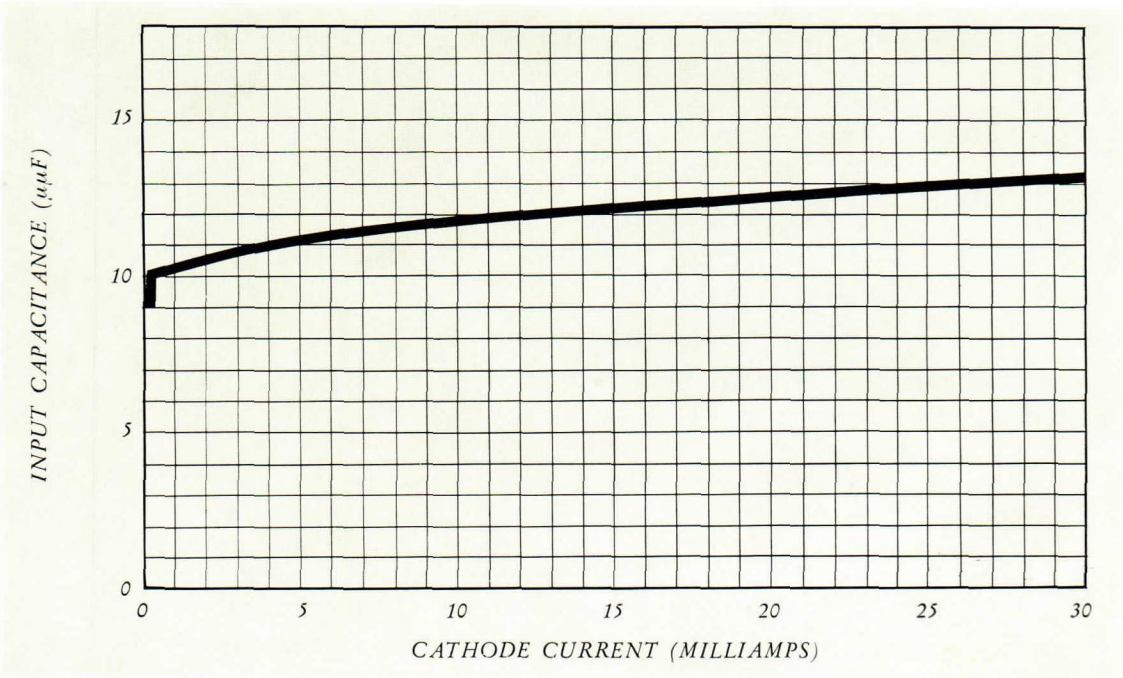
	Tube Cold	*Typical operation**
At IF without external shield $\frac{g_m}{\sqrt{C_{in} \cdot C_{out}}}$	6.2	3.2

* 3 μμF has been added for input circuit and 2 μμF for output circuit in order to get total circuit capacitances under typical operating conditions.

OPERATION RANGE VALUES

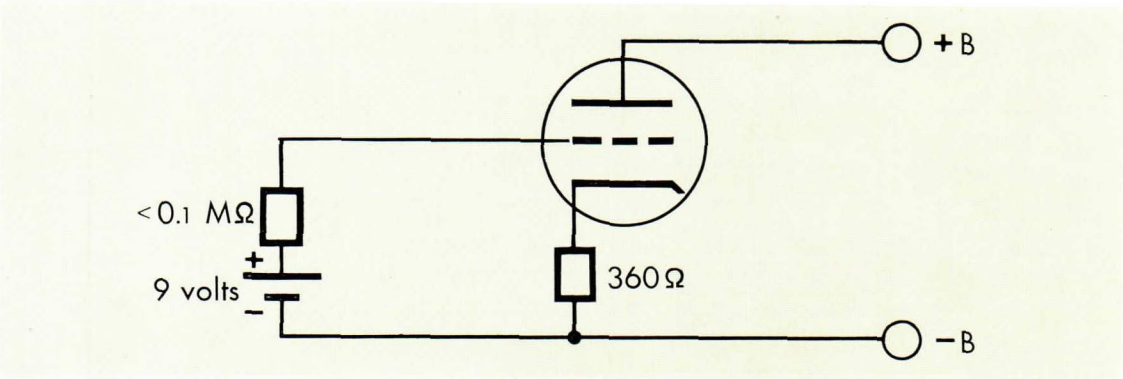
Heater Voltage		6.3		volts
Plate Supply Voltage		150		volts
Cathode Bias Resistor		60		ohms
	MIN	AVE	MAX	
Heater Current	280	300	320	ma
Plate Current	20	25	30	ma
Transconductance	20,000	25,000	30,000	μmhos
Transconductance, End of Life Point	16,000			μmhos
I_{hk} at $E_{hk} = \pm 100$ volts			20	μa
Grid Current			–.5	μa
Cutoff Plate Current at $E_{c1} = -10$ volts			100	μa
Vibration Output Measured at 2.5 g and 25 cps. $E_f = 6.3$ v, $E_b = 150$ v, $E_{c1} = -2$ v, $r_p = 2000$ ohms.			100	mv

SPECIAL DATA



CAPACITANCES IN OPERATION:

Space-charge effects in electron current flow cause an increase in tube capacitances. Input capacitance as a function of cathode current is shown above. For best value of figure of merit external shield should be excluded.



BIAS CONSIDERATIONS:

The operating characteristics of high transconductance tubes are sensitive to variations in manufacture. Because of this the use of a 360 ohm cathode resistor, in conjunction with a DC control grid return to a + 9.0 volt supply, is recommended. This circuit is shown below.

To prevent burning out grid wires by removal of plate voltage when the + 9.0 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 voltage.

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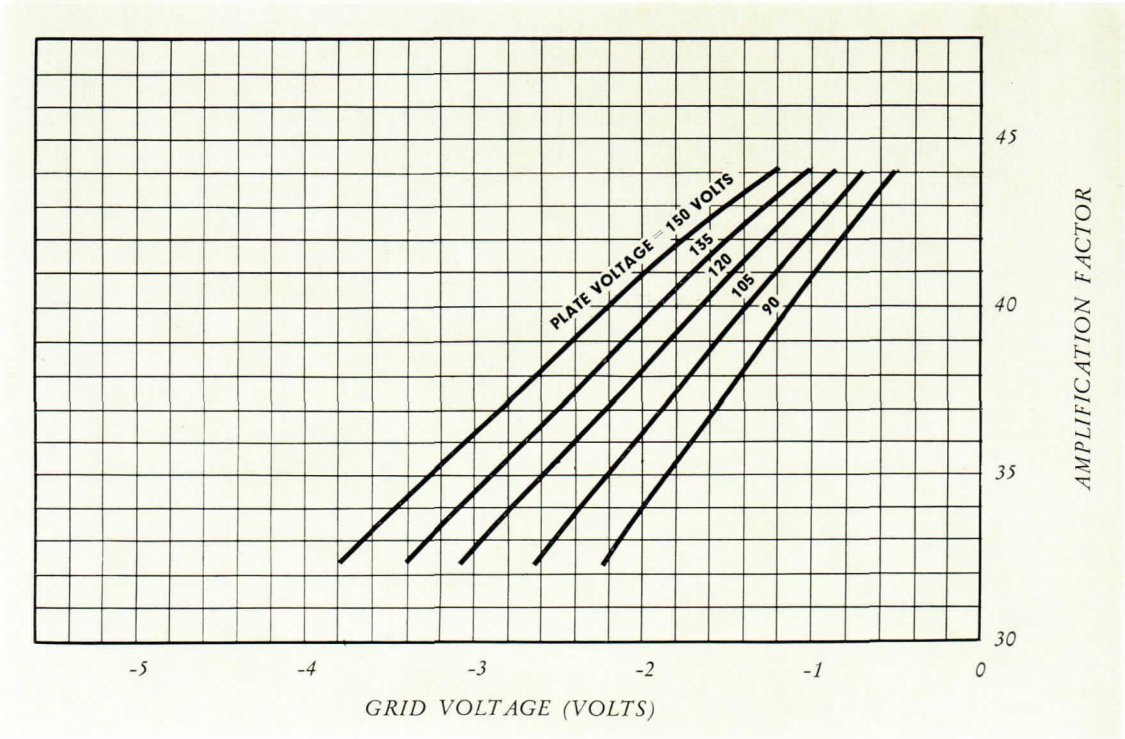
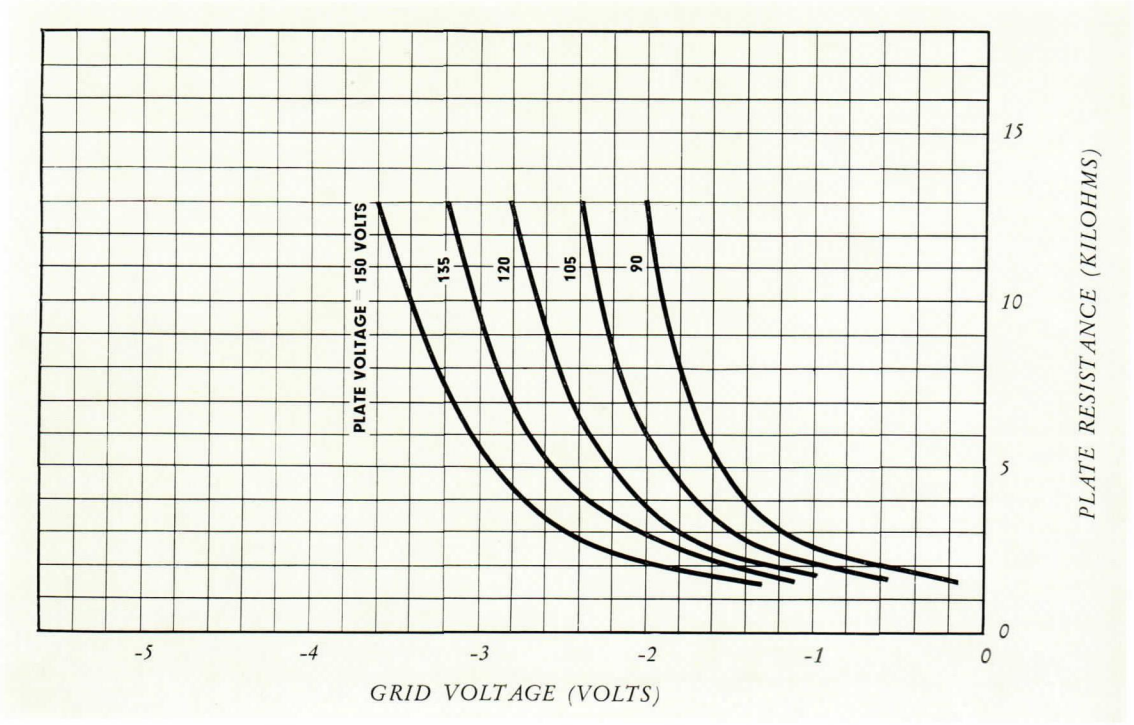
AVERAGE CHARACTERISTICS





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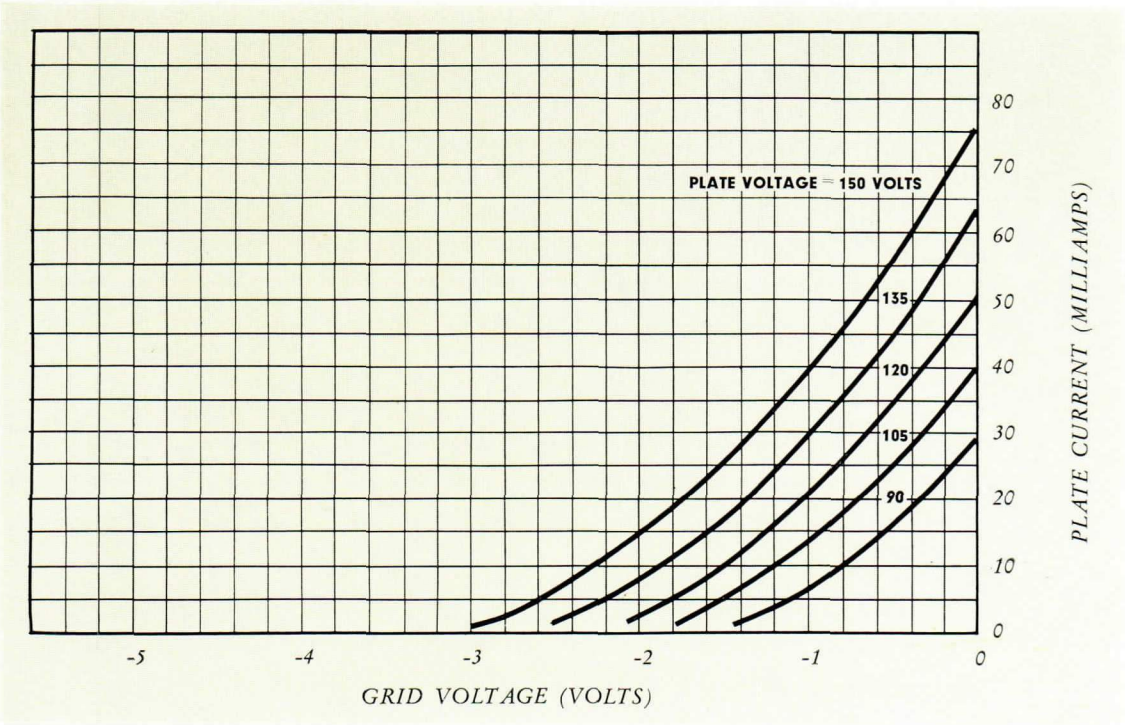
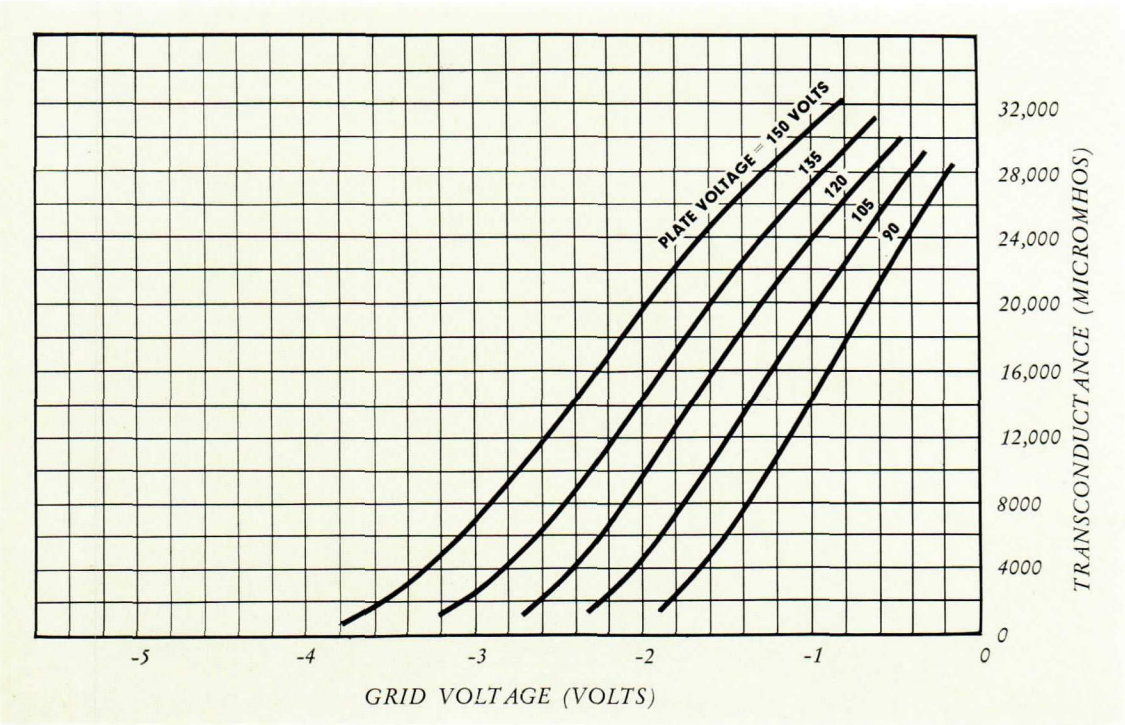
AVERAGE CHARACTERISTICS





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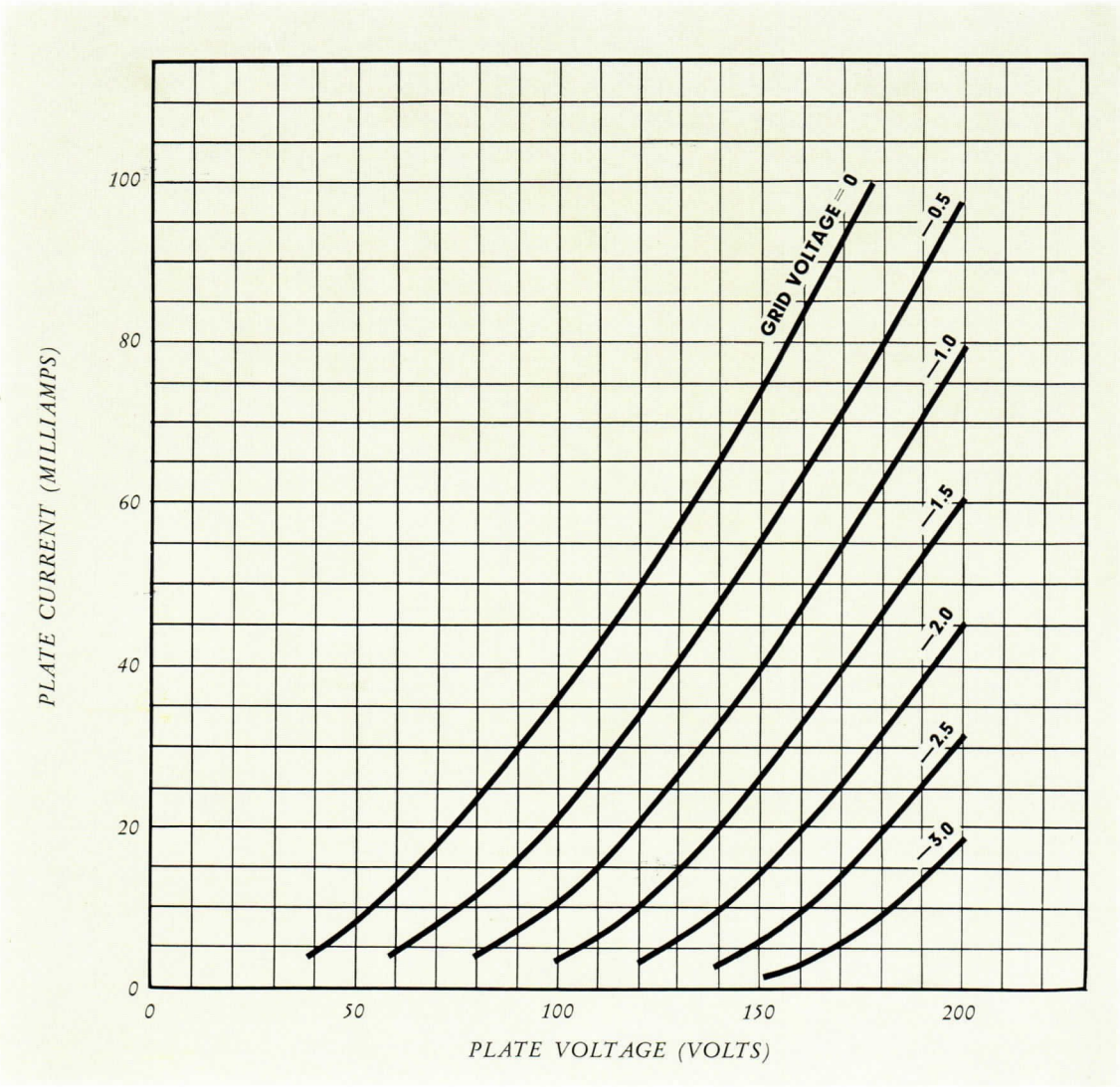
AVERAGE CHARACTERISTICS