

MECHANICAL DATA

Bulb	T-9
Base	Small Button Novar 9-Pin E9-75 (B7-233 or B8-142)
Outline	9-85
Basing	9NZ
Cathode	Coated Unipotential
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS AND RATINGS

Average Characteristics Heater Operation		Parallel
Heater Voltage ¹		6.3 Volts
Heater Current		800 Ma
Ratings (Design Maximum Values) ³		Min-Max
Heater Voltage ²		5.7 - 6.9 Volts
Maximum Heater-Cathode Voltage		
Heater Negative with Respect to Cathode		
Total DC and Peak		200 Volts
Heater Positive with Respect to Cathode		
DC		100 Volts
Total DC and Peak		200 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid No. 1 to Plate	0.15 pf
Input	11 pf
Output	4.4 pf

RATINGS (Design Maximum Values)³

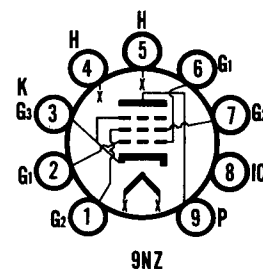
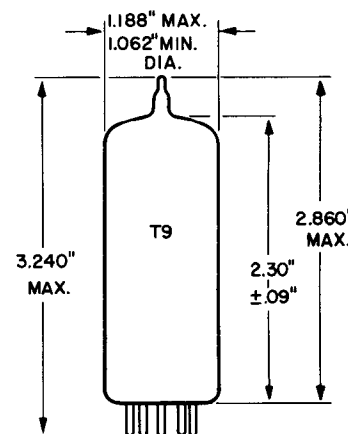
Plate Voltage	550 Volts
Grid No. 2 Voltage	440 Volts
Plate Dissipation	19 Watts
Grid No. 2 Dissipation ⁴	3.3 Watts
Cathode Current	90 Ma
Grid No. 1 Circuit Resistance	
Fixed Bias	0.3 Megohms
Self Bias	1.0 Megohms

CHARACTERISTICS AND TYPICAL OPERATION

	Pentode Operation S.T.—Class A1 Amp	Ultra-Linear Operation Class AB1—Push-Pull
Plate Voltage	300	400 425 Volts
Grid No. 2 Voltage	300	Note 5 — Volts
Grid No. 1 Voltage	-10	-20.5
Cathode Resistor	—	185 Ohms
Peak AF Grid Voltage	10	41 42 Volts
Zero Signal Plate Current	60	60 88 Ma
Max. Signal Plate Current	75	115 100 Ma
Zero Signal Grid No. 2 Current	8	8 12 Ma
Max. Signal Grid No. 2 Current	15	18 16 Ma
Transconductance	10.2K	— μmhos
Plate Resistance (Approx.)	29K	— Ohms
Load Resistance	3K	— Ohms
Load Resistance (PL to PL)	—	6600 6600 Ohms
Power Output	11	23 21 Watts
Total Harmonic Distortion	13	2.5 3.5 Percent

QUICK REFERENCE DATA

The 7868 is a power pentode contained in a T-9 bulb with a 9-pin Novar base. It is designed for output stages in high fidelity audio amplifiers and can furnish relatively high power output, with low distortion. In Push-Pull Class AB1 applications, two 7868's can deliver a maximum signal power of 44 watts, with 5 % total harmonic distortion.



SYLVANIA ELECTRONIC TUBES

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RECEIVING TUBE OPERATIONS

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CHARACTERISTICS AND TYPICAL OPERATION (Continued)

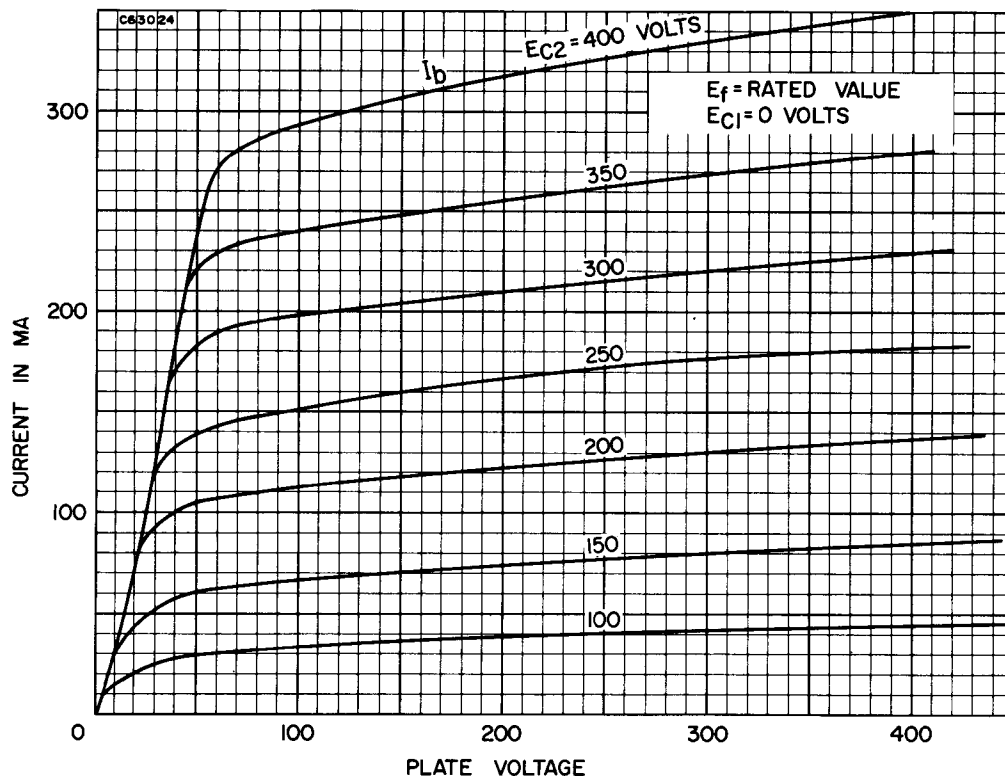
Pentode Operation (Class AB1 Push-Pull Amp.)

Plate Voltage	300	350	400	450	450	450 Volts
Grid No. 2 Voltage	300	350	350	350	400	400 Volts
Grid No. 1 Voltage	-12.5	-15.5	-16	-16.5	-21	— Volts
Cathode Resistor	—	—	—	—	—	170 Ohms
Peak AF Grid to Grid Voltage	25	31	32	33	42	31 Volts
Zero Signal Plate Current	74	72	64	60	40	86 Ma
Max. Signal Plate Current	116	130	135	142	145	94 Ma
Zero Signal Grid No. 2 Current	10	9.5	8	7.2	5	10 Ma
Max. Signal Grid No. 2 Current	28	32	28	26	30	20 Ma
Load Resistance (PL to PL)	6600	6600	6600	6600	6600	10,000 Ohms
Power Output	24	30	34	38	44	28 Watts
Total Harmonic Distortion	5	2.5	2	2.5	5	2 Percent

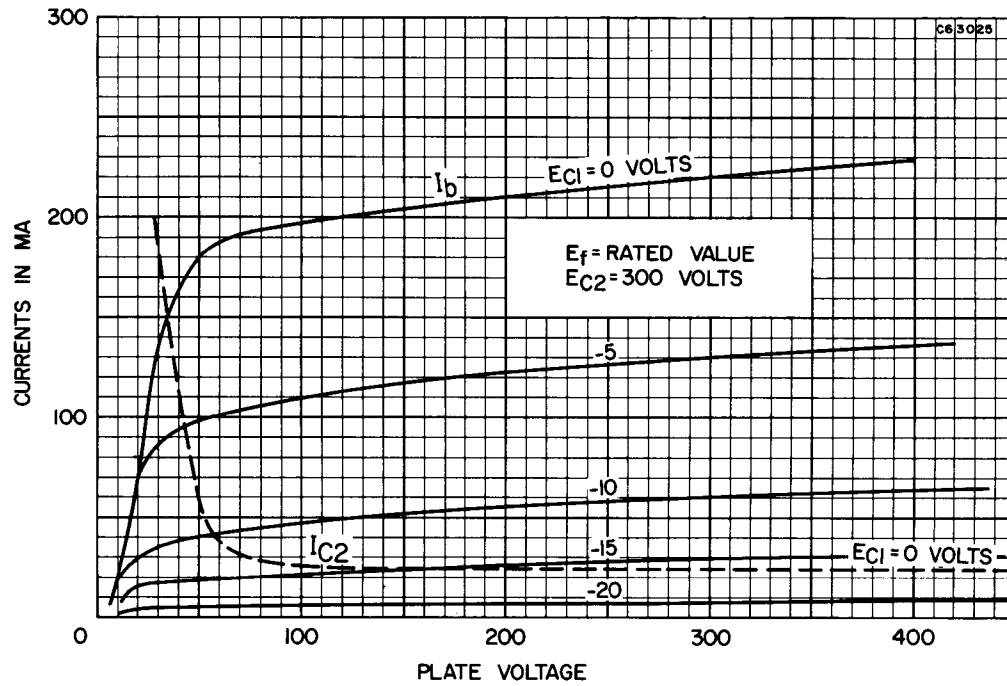
NOTES:

1. For parallel operation of heaters, equipment should be designed that at normal supply voltage bogey tubes will operate at this value of heater voltage.
2. Heater voltage supply variations shall be restricted to maintain heater voltage within the specified values.
3. Design Maximum Ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.
The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.
The equipment manufacturer should design so that initially and throughout life no design maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.
4. Grid No. 2 Dissipation may be permitted to reach 6 watts during the periods of maximum input of speech and music signals. For efficient operation of Grid No. 2, the two Grid No. 2 connections, Pins 1 and 7, should be externally tied together.
5. Grid No. 2 tapped from the primary winding of output transformer, in a manner to apply 50 % of plate signal to G2 of each tube.

AVERAGE PLATE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS



POWER OUTPUT AND DISTORTION

