

Maximum-Signal Grid-No.2 Current	15	mA
Triode Amplification Factor ^a	16.8	
Plate Resistance (Approx.)	29000	ohms
Transconductance	10200	μmhos
Load Resistance	3000	ohms
Total Harmonic Distortion	13	per cent
Maximum-Signal Power Output	11	watts

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.3	megohm
For cathode-bias operation	1	megohm

* Grid-No.2 input may reach 6 watts during peak levels of speech and music signals.

* Triode connection, grid No.2 connected to plate.

Push-Pull Class AB₁ Amplifier**MAXIMUM RATINGS (Same as for Class A₁ Amplifier)**

TYPICAL OPERATION (Values are for two tubes)	Fixed Bias	Cathode Bias	
Plate Supply Voltage	350	450	volts
Grid-No.2 Supply Voltage	350	400	volts
Grid-No.1 Supply Voltage	-15.5	-21	volts
Cathode-Bias Resistor			
(Common to both cathodes)	—	—	200 ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage	31	42	volts
Zero-Signal Plate Current	92	66	mA
Maximum-Signal Plate Current	130	144	mA
Zero-Signal Grid-No.2 Current	13	9.4	mA
Maximum-Signal Grid-No.2 Current	28.6	30	mA
Effective Load Resistance (Plate-to-plate)	6600	6600	ohms
Total Harmonic Distortion	2	1.5	per cent
Maximum-Signal Power Output	30	45	watts

7695

Refer to chart at end of section.

7717/6CY5

Refer to chart at end of section.

7724/14GT8

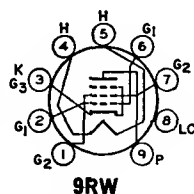
Refer to chart at end of section.

7788

Refer to chart at end of section.

7868**POWER PENTODE**

Novar type used in output stages of high-fidelity audio amplifiers and radio receivers. Outlines section, 11C or 30D; requires novar 9-contact socket. This tube, like other power-handling tubes, should be adequately ventilated.



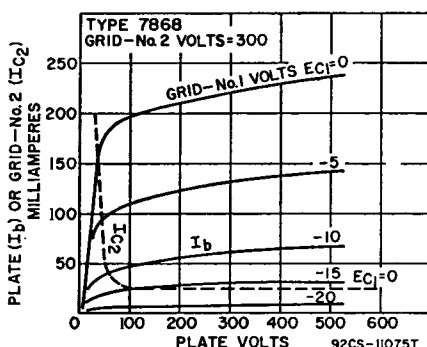
Heater Voltage (ac/dc)	6.3	volts
Heater Current	0.8	ampere
Heater-Cathode Voltage:		
Peak value	±200 max	volts
Average value	100 max	volts
Direct Interelectrode Capacitances (Approx.):		
Grid No.1 to Plate	0.15	pF
Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3	11	pF
Plate to Cathode, Heater, Grid No.2, and Grid No.3	4.4	pF

Class A₁ Amplifier**MAXIMUM RATINGS (Design-Maximum Values)**

Plate Voltage	550*	volts
Grid-No.2 (Screen-Grid) Voltage	440	volts
Average Cathode Current	90	mA
Plate Dissipation	19	watts
Grid-No.2 Input	3.3*	watts
Bulb Temperature (At hottest point)	240	°C

TYPICAL OPERATION AND CHARACTERISTICS

Plate Supply Voltage	300	volts
Grid-No.2 Voltage	300	volts
Grid-No.1 (Control-Grid) Voltage	-10	volts
Peak AF Grid-No.1 Voltage	10	volts
Zero-Signal Plate Current	60	mA
Maximum-Signal Plate Current	75	mA
Zero-Signal Grid-No.2 Current	8	mA
Maximum-Signal Grid-No.2 Current	15	mA
Plate Resistance (Approx.)	29000	ohms
Transconductance	10200	μmhos
Effective Load Resistance	3000	ohms
Total Harmonic Distortion	13	per cent
Maximum-Signal Power Output	11	watts



MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.3	megohm
For cathode-bias operation	1	megohm

- In push-pull circuits where the grid No.2 of each tube is connected to a tap on the plate winding of the output transformer, this maximum rating is 440 volts.
- Grid No.2 input may reach 6 watts during peak levels of speech and music signals.

Push-Pull Class AB₁ Amplifier

MAXIMUM RATINGS (Same as for class A₁ amplifier)

TYPICAL OPERATION (Values are for two tubes)

	Fixed Bias					Cathode Bias		
Plate Supply Voltage	300	350	400	450	450	450	450	volts
Grid-No.2 Supply Voltage	300	350	350	350	400	400	400	volts
Grid-No.1 Voltage	-12.5	-15.5	-16	-16.5	-21	—	—	volts
Cathode-Bias Resistor (Common to both cathodes)	—	—	—	—	—	170	170	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage	25	31	32	33	42	31	31	volts
Zero-Signal Plate Current	14	72	64	60	40	86	86	mA
Maximum-Signal Plate Current	116	130	135	142	145	94	94	mA
Zero-Signal Grid-No.2 Current	10	9.5	8	7.2	5	10	10	mA
Maximum-Signal Grid-No.2 Current	28	32	28	26	30	20	20	mA
Effective Load Resistance (Plate-to-plate)	6600	6600	6600	6600	6600	10000	10000	ohms
Total Harmonic Distortion	5	2.5	2	2.5	5	2	2	per cent
Maximum-Signal Power Output	24	30	34	38	44	28	28	watts

Push-Pull Class AB₁ Amplifier

Grid No.2 of Each Tube Connected to Tap on Plate Winding of Output Transformer*

MAXIMUM RATINGS (Same as for class A₁ amplifier)

TYPICAL OPERATION (Values are for two tubes)

	Fixed Bias	Cathode Bias	
Plate Supply Voltage	400	425	volts
Grid-No.2 Supply Voltage	*	*	volts
Grid-No.1 Voltage	-20.5	—	volts
Cathode-Bias Resistor (Common to both cathodes)	—	185	ohms

Peak AF Grid-No.1-to-Grid-No.1 Voltage	41	42	volts
Zero-Signal Plate Current	60	88	mA
Maximum-Signal Plate Current	115	100	mA
Zero-Signal Grid-No.2 Current	8	12	mA
Maximum-Signal Grid-No.2 Current	18	16	mA
Effective Load Resistance (Plate-to-plate)	6600	6600	ohms
Total Harmonic Distortion	2.5	3.5	per cent
Maximum-Signal Power Output	23	21	watts

* Grid No.2 supply voltage is obtained from taps on the primary winding of the output transformer. The taps are located on each side of the center tap (B+) so as to apply 50 per cent of the plate signal voltage to the grid No.2 of each output tube.

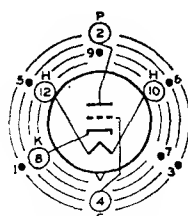
7895

INDUSTRIAL TYPE

HIGH-MU TRIODE

Nuvistor type high-mu triode for use in a wide variety of industrial applications. Outlines section, 1; requires nuvistor socket.

Heater Voltage (ac/dc)	6.3 $\pm 10\%$	volts
Heater Current	0.135	ampere
Peak Heater-Cathode Voltage	± 100 max.	volts
Direct Interelectrode Capacitances (Approx.):		
Grid to Plate	0.9	pF
Grid to Cathode, Shell, and Heater	4.2	pF
Plate to Cathode, Shell, and Heater	1.7	pF
Plate to Cathode	0.22	pF
Heater to Cathode	1.3	pF



INDEX= LARGE LUG
●= SHORT PIN - C

12AQ

Industrial Service

MAXIMUM RATINGS (Absolute-Maximum Values)

For operation at any altitude

Plate Supply Voltage	330	volts
Plate Voltage	110	volts
Grid Voltage:		
Negative-bias value	55	volts
Peak-positive value	2	volts
Grid Current	2	mA
Plate Current	20	mA
Cathode Current	15	mA
Plate Dissipation	1	watt

MAXIMUM CIRCUIT VALUES

Grid-Circuit Resistance:*		
For fixed-bias operation	0.5	megohm
For cathode-bias operation	1	megohm

* For operation at metal-shell temperature up to 150°C.

Class A₁ Amplifier

CHARACTERISTICS

Plate Supply Voltage	110	volts
Grid Supply Voltage	0	volts
Cathode Resistor	150	ohms
Amplification Factor	64	
Plate Resistance (Approx.)	6800	ohms
Transconductance	9400	μ mhos
Plate Current	7	mA
Grid Voltage (Approx.) for plate μ A = 10	—4	volts

Special Ratings & Performance Data

SHOCK RATING

Impact Acceleration	1000 max.	g
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FATIGUE RATING

Vibrational Acceleration	2.5 max.	g
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