

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance:

For fixed-bias operation	0.5	megohm
For cathode-bias operation	1	megohm

Push-Pull Class AB₁ Amplifier

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

MAXIMUM RATINGS (Design-Maximum Values)

Plate and Grid-No.2 Supply Voltage	410	volts
Plate Dissipation	12	watts
Grid-No.2 Input	1.75	watts
Bulb Temperature (At hottest point)	250	°C

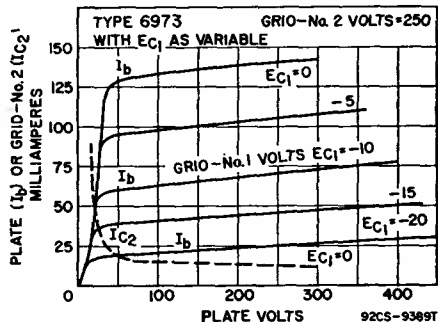
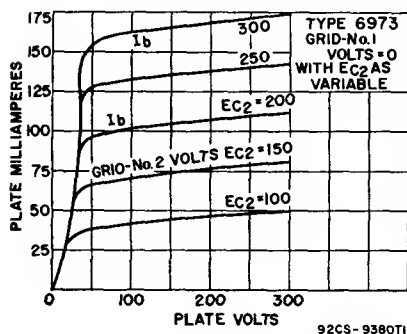
TYPICAL OPERATION (Values are for two tubes)

	Fixed Bias	Cathode Bias	
Plate Supply Voltage	375	370	volts
Grid-No.2 Supply Voltage	*	#	volts
Grid-No.1 Voltage*	-33.5	—	volts
Cathode-Bias Resistor	—	355	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage	67	62	volts
Zero-Signal Cathode Current	62	74	mA
Maximum-Signal Cathode Current	95	84	mA
Effective Load Resistance (Plate-to-plate)	12500	13000	ohms
Total Harmonic Distortion	1.5	1.2	per cent
Maximum-Signal Power Output	18.5	15	watts

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance:

For fixed-bias operation	0.1	megohm
For cathode-bias operation	1	megohm



* 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 grid No.2 of each output tube.

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 supply 43 per cent of the plate signal voltage to grid No.2 of each output tube.

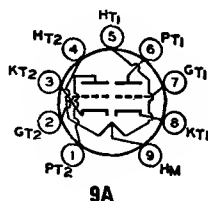
* The type of input-coupling network used should not introduce too much resistance in the grid-No.1 circuit. Transformer- or impedance-coupling devices are recommended.

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Refer to chart at end of section.

7025**HIGH-MU TWIN TRIODE**

Miniature type used as phase inverter or resistance-coupled amplifier in high-quality, high-fidelity audio amplifiers. Outlines section, 6B; requires miniature 9-contact socket. This type is identical with miniature type 12AX7A except that it has a controlled equivalent noise and hum characteristic. For operation as resistance-coupled amplifier, refer to Resistance-Coupled Amplifier section.



EQUIVALENT-NOISE AND HUM VOLTAGE REFERENCED TO GRID (Each Unit)

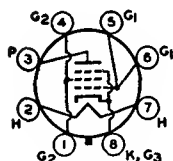
Average Value (rms)†	1.8	μV
Maximum Value (rms)•	7	μV

† Measured in "true rms" units under following conditions: heater volts (ac), 6.3 (parallel connection); center tap of heater transformer connected to ground; plate supply volts, 250; plate load resistor, 2700 ohms; cathode-bypass capacitor, 100 μF; grid resistor, 0 ohms; and amplifier covering frequency range between 25 to 10000 cycles per second.

• Same conditions as for "Average Value" except cathode resistor is unbypassed and grid resistor is 0.05 megohm.

Refer to chart at end of section.

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BEAM POWER TUBE

7027A

Glass octal type used in push-pull power amplifier circuits of high-fidelity audio equipment. Outlines section, 9F; requires octal socket. This tube, like other power-handling tubes, should be adequately ventilated.

Heater Voltage (ac/dc)	6.3	volts
Heater Current	0.9	ampere
Heater-Cathode Voltage:		
Peak value	±200 max	volts
Average value	100 max	volts
Direct Interelectrode Capacitances (Approx.):		
Grid No.1 to Plate	1.5	pF
Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3	10	pF
Plate to Cathode, Heater, Grid No.2, and Grid No.3	7.5	pF

Class A₁ Amplifier

CHARACTERISTICS

Plate Voltage	250	volts
Grid-No.2 (Screen-Grid) Voltage	250	volts
Grid-No.1 (Control-Grid) Voltage	-14	volts
Plate Resistance (Approx.)	22500	ohms
Transconductance	6000	μmhos
Plate Current	72	mA
Grid-No.2 Current	5	mA

Push-Pull Class AB₁ Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

Plate Voltage	600	volts
Grid-No.2 Voltage	500	volts
Plate Dissipation	35	watts
Grid-No.2 Input	5	watts

TYPICAL OPERATION (Values are for two tubes)

	Fixed Bias			Cathode Bias			
Plate Supply Voltage	400	450	540	400	380	425	volts
Grid-No.2 Supply Voltage	300	350	400	300	380	415	volts
Grid-No.1 Voltage	-25•	-30•	-38•	—	—	—	volts
Cathode-Bias Resistor	—	—	—	200	180	200	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage	50	60	76	57	68.5	86	volts
Zero-Signal Plate Current	102	95	100	112	138	150	mA
Maximum-Signal Plate Current	152	194	220	128	170	196	mA
Zero-Signal Grid-No.2 Current	6	3.4	5	7	5.6	8	mA
Maximum-Signal Grid-No.2 Current	17	19.2	21.4	16	20	20	mA
Effective Load Resistance (Plate-to-plate)	6600	6000	6500	6600	4500	3800	ohms
Total Harmonic Distortion	2	1.5	2	2	3.5	4	per cent
Maximum-Signal Power Output	34	50	76	32	36	44	watts

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance:		
For fixed-bias operation•	0.1	megohm
For cathode-bias operation	0.5	megohm

• The type of input coupling network used should not introduce too much resistance in the grid-No.1 circuit. Transformer- or impedance-coupling devices are recommended.