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6F6

POWER PENTODE

METAL TYPE

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage 6.3 ac or dc volts

Current 0.7 amp

Direct Interelectrode Capacitances (Approx.):

Grid No.1 to plate. 0.26 μ f ←Grid No.1 to cathode & grid No.3, grid No.2,
shell, and heater 6.5 μ fPlate to cathode & grid No.3, grid No.2,
shell, and heater 13.5 μ f

Mechanical:

Mounting Position Any

Maximum Overall Length 3-1/4"

Maximum Seated Length 2-11/16"

Maximum Diameter 1-5/16"

Dimensional Outline See General Section

Bulb Metal Shell MT8B ←

Base Small-Wafer Octal 7-Pin (JETEC No.87-22) ←

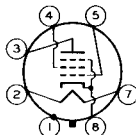
Basing Designation for BOTTOM VIEW. 7S

Pin 1 - Shell

Pin 2 - Heater

Pin 3 - Plate

Pin 4 - Grid No.2



Pin 5 - Grid No.1

Pin 7 - Heater

Pin 8 - Cathode,
Grid No.3AF POWER AMPLIFIER - Class A₁

Maximum Ratings, Design-Center Values:

PLATE VOLTAGE 375 max. volts

GRID-No.2 (SCREEN-GRID) VOLTAGE 285 max. volts

GRID-No.2 INPUT 3.75 max. watts

PLATE DISSIPATION 11 max. watts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode 90 max. volts

Heater positive with respect to cathode 90 max. volts ←

Typical Operation and Characteristics:

	Fixed Bias		Cathode Bias		
Plate Voltage	250	285	250	285	volts
Grid-No.2 Voltage	250	285	250	285	volts
Grid-No.1 (Control- Grid) Voltage	-16.5	-20	-	-	volts
Cathode Resistor.	-	-	410	440	ohms
Peak AF Grid-No.1 Voltage	16.5	20	16.5	20	volts
Zero-Signal Plate Current	34	38	34	38	ma

← Indicates a change.



6F6

POWER PENTODE

	Fixed Bias		Cathode Bias		
Max.-Signal Plate Current	36	40	35	38	ma
Zero-Signal Grid-No.2 Current	6.5	7	6.5	7	ma
Max.-Signal Grid-No.2 Current	10.5	13	9.7	12	ma
Plate Resistance (Approx.)	80000	78000	-	-	ohms
Transconductance	2500	2550	-	-	μmhos
Load Resistance	7000	7000	7000	7000	ohms
Total Harmonic Distortion	8	9	8.5	9	%
Max.-Signal Power Output	3.2	4.8	3.1	4.5	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

For fixed-bias operation 0.1 max. megohm

For cathode-bias operation 0.5 max. megohm

AF POWER AMPLIFIER - Class A₁*Triode Connection - Grid No.2 Connected to Plate***Maximum Ratings, Design-Center Values:**

PLATE VOLTAGE	350 max.	volts
PLATE DISSIPATION	10 max.	watts

→ PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode 90 max. volts

Heater positive with respect to cathode 90 max. volts

Typical Operation and Characteristics:

	Fixed Bias	Cathode Bias	
Plate Voltage	250	250	volts
Grid-No.1 (Control-Grid) Voltage	-20	-	volts
Cathode Resistor	-	650	ohms
Peak AF Grid-No.1 Voltage	20	20	volts
Zero-Signal Plate Current	31	31	ma
Max.-Signal Plate Current	34	32	ma
Amplification Factor	6.8	-	
Plate Resistance (Approx.)	2600	-	ohms
Transconductance	2600	-	μmhos
Load Resistance	4000	4000	ohms
Total Harmonic Distortion	6.5	6.5	%
Max.-Signal Power Output	0.85	0.8	watt

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

For fixed-bias operation 0.1 max. megohm

For cathode-bias operation 0.5 max. megohm

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6F6

6F6

POWER PENTODE

PUSH-PULL AF POWER AMPLIFIER - Class A₁

Maximum Ratings, Design-Center Values:

PLATE VOLTAGE.	375 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE.	285 max.	volts
GRID-No.2 INPUT.	3.75 max.	watts
PLATE DISSIPATION.	11 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	90 max.	volts
Heater positive with respect to cathode.	90 max.	volts

Typical Operation:

Values are for 2 tubes

Fixed Bias Cathode Bias

Plate Voltage.	315	315	volts
Grid-No.2 Voltage.	285	285	volts
Grid-No.1 Voltage.	-24	-	volts
Cathode Resistor.	-	320	ohms
Peak AF Grid-No.1-to-			
Grid-No.1 Voltage.	48	58	volts
Zero-Signal Plate Current.	62	62	ma
Max.-Signal Plate Current.	80	73	ma
Zero-Signal Grid-No.2			
Current.	12	12	ma
Max.-Signal Grid-No.2			
Current.	19.5	18	ma
Effective Load Resistance			
(Plate to plate)	10000	10000	ohms
Total Harmonic Distortion.	4	3	%
Max.-Signal Power Output .	11	10.5	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

PUSH-PULL AF POWER AMPLIFIER - Class AB₂

Maximum Ratings, Design-Center Values:

PLATE VOLTAGE.	375 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE.	285 max.	volts
GRID-No.2 INPUT.	3.75 max.	watts
PLATE DISSIPATION.	11 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	90 max.	volts
Heater positive with respect to cathode.	90 max.	volts

Typical Operation:

Values are for 2 tubes

Fixed Bias Cathode Bias

Plate Voltage.	375	375	volts
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← Indicates a change.



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	<i>Fixed Bias</i>	<i>Cathode Bias</i>	
Grid-No.2 Voltage.	250	250	volts
Grid-No.1 Voltage.	-26	-	volts
Cathode Resistor	-	340	ohms
Peak AF Grid-No.1-to-			
Grid-No.1 Voltage.	82	94	volts
Zero-Signal Plate Current. .	34	54	ma
Max.-Signal Plate Current. .	82	77	ma
Zero-Signal Grid-No.2			
Current.	5	8	ma
Max.-Signal Grid-No.2			
Current.	19.5	18	ma
Effective Load Resistance			
(Plate to plate)	10000	10000	ohms
Total Harmonic Distortion. .	3.5	5	%
Max.-Signal Power Output . .	18.5	19	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

PUSH-PULL AF POWER AMPLIFIER - Class AB₂*Triode Connection - Grid No.2 Connected to Plate***Maximum Ratings, Design-Center Values:**

PLATE VOLTAGE.	350 max.	volts
PLATE DISSIPATION.	10 max.	watts
→ PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	90 max.	volts
Heater positive with respect to cathode.	90 max.	volts

Typical Operation:*Values are for 2 tubes*

	<i>Fixed Bias</i>	<i>Cathode Bias</i>	
Plate Voltage.	350	350	volts
Grid-No.1 (Control-Grid)			
Voltage.	-38	-	volts
Cathode Resistor	-	730	ohms
Peak AF Grid-No.1-to-			
Grid-No.1 Voltage.	123	132	volts
Zero-Signal Plate Current. .	48	50	ma
Max.-Signal Plate Current. .	92	60	ma
Effective Load Resistance			
(Plate to plate)	6000	10000	ohms
Total Harmonic Distortion. .	2	3	%
Max.-Signal Power Output . .	13	9	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

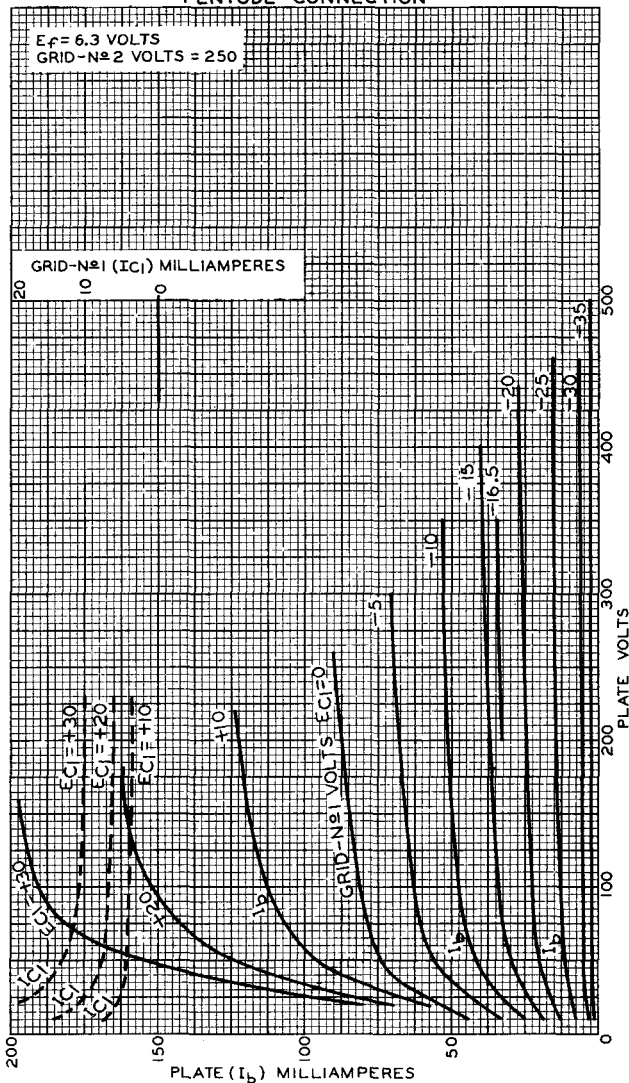
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6F6

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AVERAGE CHARACTERISTICS PENTODE CONNECTION



TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-4431R1



6F6

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OPERATION CHARACTERISTICS PENTODE CONNECTION—CLASS AB₂ OPERATION

 $E_f = 6.3$ VOLTSINPUT STAGE: CLASS A₁ DRIVER—ONE TYPE 6F6 AS TRIODE.
PLATE-SUPPLY VOLTS=250

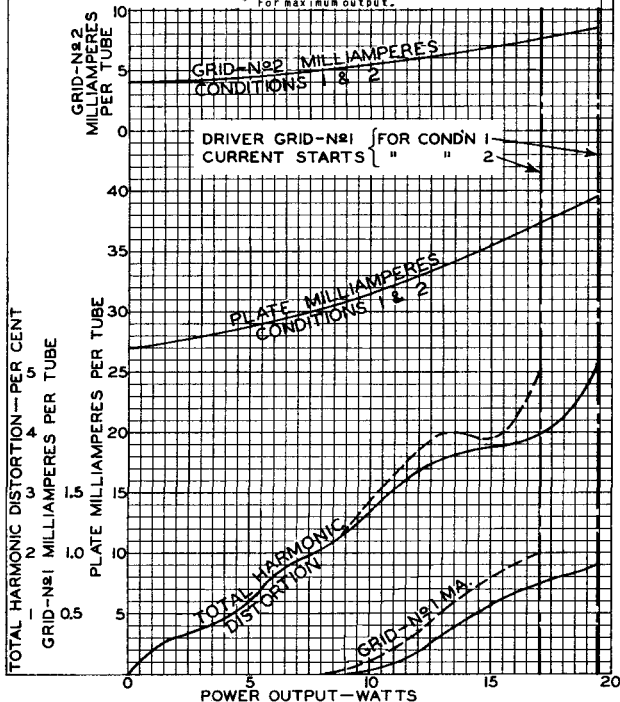
CATHODE RESISTOR (OHMS)=650

OUTPUT STAGE: CLASS AB₂—TWO TYPE 6F6'S AS PENTODES.
ZERO-SIGNAL PLATE VOLTS=375 FROM SOURCE HAVING
RESISTANCE (R_b) SHOWN IN TABLE.ZERO-SIGNAL GRID-N₂ VOLTS=250 FROM THE ABOVE
375-VOLT PLATE SUPPLY THROUGH RESISTANCE (R_b)
SHOWN IN TABLE.ZERO-SIGNAL BIAS VOLTS=VALUE FROM GRID RESISTOR
(R_c) OF 340 OHMS.

EFFECTIVE LOAD RESISTANCE (PLATE TO PLATE)=10000 OHMS

CONDI- TION	CURVE	R_b Ohms	R_d Ohms	DRIVER STAGE		INTERSTAGE TRANSFORMER	
				Input-Sig. Volts* (RMS)	Plate Load Ohms	Voltage Ratio Prim.:1/2Sec.	Peak Power Efficiency Per Cent
1	—	0	0	14.6	51100	2.50:1	47.7
2	---	1000	2000	10.3	33100	1.74:1	64.4

* For maximum output.



TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-4517R1