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6155/4-125A

BEAM POWER TUBE

FORCED-AIR COOLED

Useful with full input up to 120 Mc
and with reduced input up to 200 Mc

GENERAL DATA

Electrical:

Filament, Thoriated Tungsten:

Voltage 5.0 \pm 5% ac or dc volts
Current at 5.0 volts. 6.5 amp

Mu-Factor, Grid No.2 to Grid No.1,

for plate volts = 3000, grid-No.2
volts = 400, and plate ma. = 50 6.2

Direct Interelectrode Capacitances:

Grid No.1 to plate. 0.07 max. $\mu\mu\text{f}$
Grid No.1 to filament and grid No.2 11 $\mu\mu\text{f}$
Plate to filament and grid No.2 3 $\mu\mu\text{f}$

Mechanical:

Operating Position. Vertical, base down or up

Maximum Overall Length. 5-3/32"

Seated Length 4-3/16" \pm 1/4"

Maximum Diameter. 2-7/16"

Weight (Approx.). 3 oz

Cap Skirted Small

Base. Special-Button Giant 5-Pin

Basing Designation for BOTTOM VIEW. 5BK

Pin 1-Filament

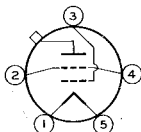
Pin 4-Grid No.2

Pin 2-Grid No.2

Pin 5-Filament

Pin 3-Grid No.1

Cap-Plate



Forced-Air Cooling. 5 cfm

Under any condition of operation, adequate cooling of the bulb must be provided to limit the seal temperatures to their specified maximum values. At frequencies above 50 Mc, special attention should be given to adequate cooling of the bulb and seals. The use of a heat-radiating plate connector is recommended.

Seal Temperature:

Plate 220 max. $^{\circ}\text{C}$
Grid-No.2, grid-No.1, and filament. 180 max. $^{\circ}\text{C}$

AF POWER AMPLIFIER & MODULATOR — Class AB₁[‡]Maximum CCS[®] Ratings, Absolute Values:

DC PLATE VOLTAGE. 3000 max. volts
DC GRID-No.2 (SCREEN-GRID) VOLTAGE. 600 max. volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE -500 max. volts

[‡], [•]: See next page.

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MAX.-SIGNAL DC PLATE CURRENT*	225	max.	ma
MAX.-SIGNAL PLATE INPUT*	350	max.	watts
MAX.-SIGNAL GRID-No.2 INPUT*	20	max.	watts
PLATE DISSIPATION*	125	max.	watts

Typical CCS Operation:

Values are for 2 tubes

DC Plate Voltage	1500	2000	2500	volts
DC Grid-No.2 Voltage [⊕]	600	600	600	volts
DC Grid-No.1 Voltage*	-94	-95	-97	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage.	185	186	190	volts
Zero-Signal DC Plate Current . .	64	60	60	ma
Max.-Signal DC Plate Current . .	218	222	216	ma
Zero-Signal DC Grid-No.2 Current.	0.3	0.2	0.2	ma
Max.-Signal DC Grid-No.2 Current.	27	24	26	ma
Effective Load Resistance (Plate to plate)	12000	17600	25000	ohms
Max.-Signal Driving Power. . . .	0	0	0	watts
Max.-Signal Power Output (Approx.)	170	260	345	watts

AF POWER AMPLIFIER & MODULATOR — Class AB₂[♠]Maximum CCS[®] Ratings, Absolute Values:

DC PLATE VOLTAGE	3000	max.	volts
DC GRID-No.2 (SCREEN-GRID) VOLTAGE	400	max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE.	-500	max.	volts
MAX.-SIGNAL DC PLATE CURRENT*	225	max.	ma
MAX.-SIGNAL PLATE INPUT*	500	max.	watts
MAX.-SIGNAL GRID-No.2 INPUT*	20	max.	watts
PLATE DISSIPATION*	125	max.	watts

Typical CCS Operation:

Values are for 2 tubes

DC Plate Voltage	1500	2000	2500	volts
DC Grid-No.2 Voltage [⊕]	350	350	350	volts
DC Grid-No.1 Voltage**	-48	-50	-51	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage.	330	296	240	volts
Zero-Signal DC Plate Current . .	60	60	60	ma
Max.-Signal DC Plate Current . .	455	395	302	ma
Zero-Signal DC Grid-No.2 Current.	0.5	0.3	0.2	ma
Max.-Signal DC Grid-No.2 Current.	84	64	36	ma
Effective Load Resistance (Plate to plate)	7200	12000	20000	ohms
Max.-Signal Driving Power (Approx.) ^{••}	4.8	3.2	1.8	watts
Max.-Signal Power Output (Approx.)	455	550	550	watts

⊕, •, * ⊕, ★, •, ** : See next page.



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BEAM POWER TUBE

RF POWER AMPLIFIER — Class B Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

Maximum CCS* Ratings, Absolute Values:

DC PLATE VOLTAGE	3000 max.	volts
DC GRID-No.2 (SCREEN-GRID) VOLTAGE	400 max.	volts
DC PLATE CURRENT	135 max.	ma
PLATE INPUT.	200 max.	watts
GRID-No.2 INPUT.	14 max.	watts
PLATE DISSIPATION.	125 max.	watts

Typical CCS Operation:

DC Plate Voltage	2000	2500	3000	volts
DC Grid-No.2 Voltage	350	350	350	volts
DC Grid-No.1 (Control-Grid) Voltage.	-50	-50	-50	volts
Peak RF Grid-No.1 Voltage.	65	55	50	volts
DC Plate Current	83	70	60	ma
DC Grid-No.2 Current	1.5	1	1	ma
DC Grid-No.1 Current (Approx.)	1.5	0	0	ma
Driving Power (Approx.) ^{††}	0.52	0.44	0.45	watt
Power Output (Approx.)	54	55	58	watts

PLATE-MODULATED RF POWER AMPLIFIER — Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

Maximum CCS* Ratings, Absolute Values:

DC PLATE VOLTAGE	2500 max.	volts
DC GRID-No.2 (SCREEN-GRID) VOLTAGE	400 max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE.	-500 max.	volts
DC PLATE CURRENT	200 max.	ma
DC GRID-No.1 CURRENT	15 max.	ma
PLATE INPUT.	415 max.	watts
GRID-No.2 INPUT.	20 max.	watts
PLATE DISSIPATION.	83 max.	watts

Typical CCS Operation:

DC Plate Voltage	2000	2500	volts
DC Grid-No.2 Voltage [†]	350	350	volts
DC Grid-No.1 Voltage	-220	-210	volts
Peak AF Grid-No.2 Voltage (100% modulation).	300	300	volts
Peak RF Grid-No.1 Voltage.	390	380	volts
DC Plate Current	150	152	ma
DC Grid-No.2 Current	33	30	ma
DC Grid-No.1 Current (Approx.)	5	4.5	ma
Driving Power (Approx.)	2	1.7	watts
Power Output (Approx.)	225	300	watts

⊕ • * ⊕ ★ ** ● ⊕ ▲: See next page.



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BEAM POWER TUBE

RF POWER AMPLIFIER & OSCILLATOR — Class C Telephony[♦]
and
RF POWER AMPLIFIER — Class C FM Telephony

Maximum CCS[•] Ratings, *Absolute Values:*

DC PLATE VOLTAGE	3000 max.	volts
DC GRID-No.2 (SCREEN-GRID) VOLTAGE	400 max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE.	-500 max.	volts
DC PLATE CURRENT	225 max.	ma
DC GRID-No.1 CURRENT	15 max.	ma
PLATE INPUT.	625 max.	watts
GRID-No.2 INPUT.	20 max.	watts
PLATE DISSIPATION.	125 max.	watts

Typical CCS Operation:

DC Plate Voltage	2000	2500	3000	volts
DC Grid-No.2 Voltage	350	350	350	volts
DC Grid-No.1 Voltage	-100	-150	-150	volts
Peak RF Grid-No.1 Voltage.	260	330	300	volts
DC Plate Current	200	200	167	ma
DC Grid-No.2 Current	50	40	30	ma
DC Grid-No.1 Current (Approx.)	9	9	6.5	ma
Driving Power (Approx.)	2.4	3	2	watts
Power Output (Approx.)	275	375	375	watts

⊕ Subscript 1 indicates that grid-No.1 current does not flow during any part of the input cycle.

• Continuous Commercial Service

* Averaged over any audio-frequency cycle of sine-wave form.

⊕ Obtained from a fixed supply.

★ Total effective grid-No.1-circuit resistance should not exceed 0.15 megohm.

↓ Subscript 2 indicates that grid-No.1 current flows during some part of input cycle.

** Obtained from fixed supply having dc resistance not exceeding 250 ohms.

•• Driver stage should be capable of supplying the No.1 grids of the class AB₂ stage with the specified driving power at low distortion. The effective resistance per grid-No.1 circuit of the AB₂ stage should be held at a low value.

⊕⊕ At crest of audio-frequency cycle with modulation factor of 1.0.

▲ Obtained preferably from a separate source modulated along with the plate supply, or from the modulated plate supply through a series resistor.

♦ Key-down conditions per tube without amplitude modulation. Amplitude modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.



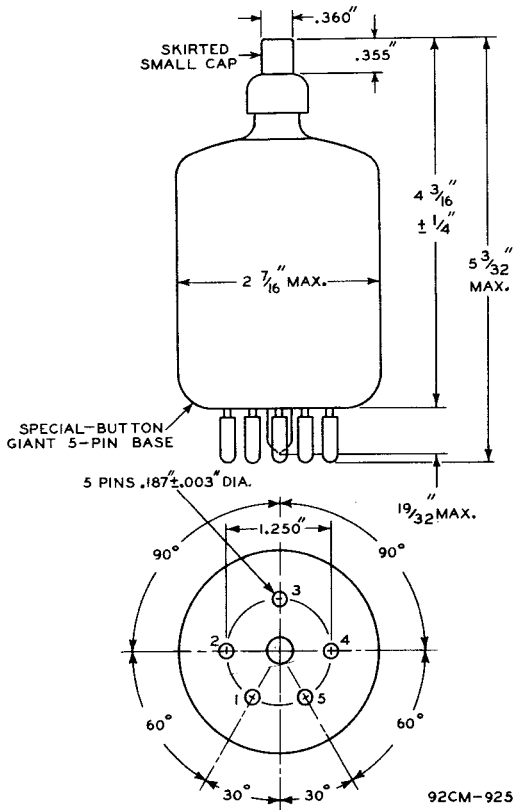
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MAXIMUM RATINGS vs OPERATING FREQUENCY

FREQUENCY	120		170		200		Mc
MAX.—PERMISSIBLE PERCENTAGE OF MAX.—RATED PLATE VOLTAGE OR PLATE INPUT:	<i>Voltage</i>	<i>Input</i>	<i>Voltage</i>	<i>Input</i>	<i>Voltage</i>	<i>Input</i>	
Class B telephony	100	100	90	95	70	75	%
Class C telephony	100	100	90	90	67	70	%
Class C telegraphy	100	100	75	90	67	70	%

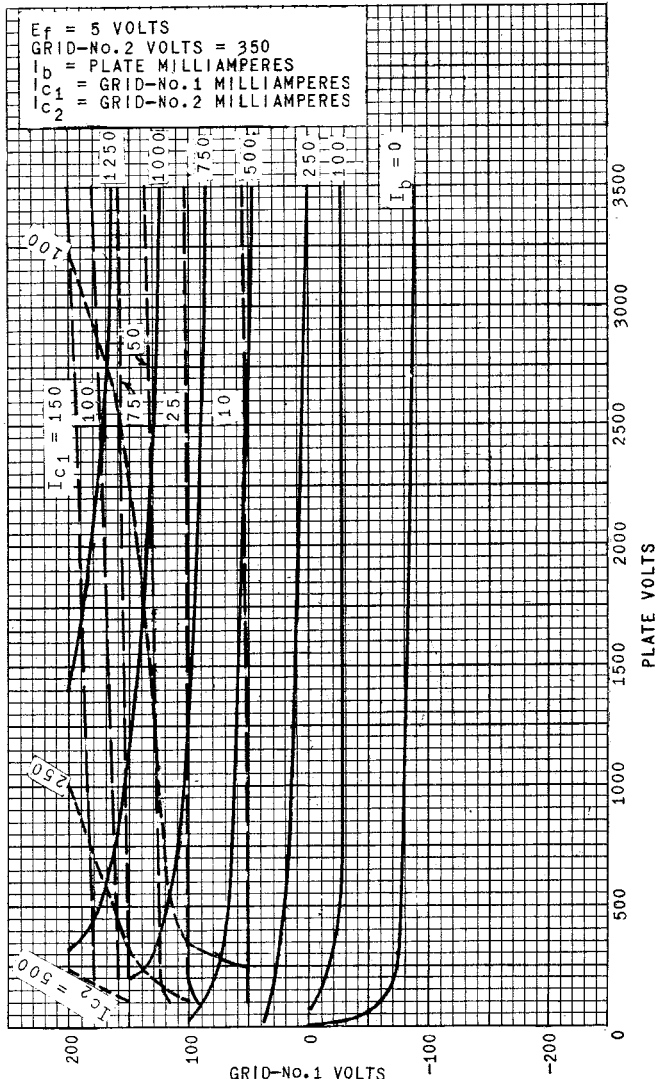


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AVERAGE CONSTANT-CURRENT CHARACTERISTICS



$E_f = 5$ VOLTS
GRID-No. 2 VOLTS = 350
 I_b = PLATE MILLIAMPERES
 I_{c1} = GRID-No. 1 MILLIAMPERES
 I_{c2} = GRID-No. 2 MILLIAMPERES

$I_b = 0$

GRID-No. 1 VOLTS

PLATE VOLTS

ELECTRON TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CS-9269