

## Beam Power Tube

CERMOLOX<sup>®</sup>

THORIATED-TUNGSTEN MESH FILAMENT

INTEGRAL LOUVERED-FIN RADIATOR

FORCED-AIR COOLED

5500 WATTS UHF TV OUTPUT AT 890 Mc

5500 WATTS CW OUTPUT AT 900 Mc

Also Useful in Applications Intended for UHF TV Service in Stationary and Portable Equipment, such as AF Power Amplifiers or Modulators, Plate-Modulated RF Power Amplifiers in Class-C Telephony Service, AM or Single-Sideband Linear RF Power Amplifiers, Hard-Tube Modulators, Pulsed-RF Amplifiers, Regulators, or other Special Services

### Electrical:

Filamentary Cathode, Thoriated

Tungsten Mesh Type:<sup>c</sup>

Voltage (AC or DC) . . . . . { 4.5 typ. volts  
5.0 max. volts

Current:

At 4.5 volts . . . . . 125 typ. amp

For starting, even momentarily . . . . . 300 max. amp

Cold resistance . . . . . 0.005 ohm

Minimum heating time . . . . . 15 sec

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

for plate volts = 1200, grid-No.2

volts = 900, and plate amperes = 8. . . . . 16

Direct Interelectrode Capacitances:

Grid No.1 to plate<sup>a</sup> . . . . . 0.32 max. pf

Grid No.1 to filament . . . . . 65 pf

Plate to filament<sup>a, b</sup> . . . . . 0.040 max. pf

Grid No.1 to grid No.2 . . . . . 70 pf

Grid No.2 to plate . . . . . 13 pf

Grid No.2 to filament<sup>b</sup> . . . . . 2.0 max. pf

### Mechanical:

Operating Position . . . . . Vertical, either end up

Maximum Overall Length . . . . . 5.65"

Maximum Diameter (See *Dimensional Outline*) . . . . . 6.17"

Weight (Approx.) . . . . . 10 lbs

Radiator . . . . . Integral part of tube

Terminal Connections (See *Dimensional Outline*):

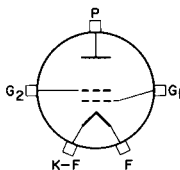
G<sub>1</sub> - Grid-No.1-  
Terminal  
Contact  
Surface

G<sub>2</sub> - Grid-No.2-  
Terminal  
Contact  
Surface

F - Filament -  
Terminal  
Contact  
Surface

K-F - Cathode-  
Filament  
Terminal  
Contact  
Surface

P - Plate-  
Terminal  
Contact  
Surface



**Thermal:**

Terminal Temperature (Plate, grid No.2, grid No.1, cathode-filament and filament) . . . . .	250 max.	°C
Plate-Core Temperature. . . . .	250 max.	°C

Air Flow:<sup>d</sup>

Through radiator — Adequate air flow to limit the plate-core temperature to 250° C should be delivered by a blower through the radiator before and during the application of filament, plate, grid-No.2, and grid-No.1 voltages.

*To Plate, Grid-No.2, Grid-No.1, Cathode-Filament, and Filament Terminals* — A sufficient quantity of air should be allowed to flow past each of these terminals so that their temperature does not exceed the specified maximum value of 250° C.

*During Standby Operation* — Cooling air is required when only filament voltage is applied to the tube.

*During Shutdown Operation* — Air flow should continue for a few minutes after all electrode power is removed.

**RF POWER AMPLIFIER — Class B Television Service<sup>c</sup>**

*Synchronizing-level conditions per tube  
unless otherwise specified*

**Maximum CCS Ratings, Absolute-Maximum Values:**

DC Plate Voltage. . . . .	7000	volts
DC Grid-No.2 Voltage. . . . .	1500	volts
DC Plate Current. . . . .	4	amp
Plate Dissipation . . . . .	10000	watts
Grid-No.2 Input . . . . .	150	watts
Grid-No.1 Input . . . . .	100	watts

**Typical CCS Operation:**

*In a cathode-drive circuit at 890 Mc  
and bandwidth of 8.5 Mc*

DC Plate Voltage. . . . .	5700	volts
DC Grid-No.2 Voltage. . . . .	1000	volts
DC Grid-No.1 Voltage. . . . .	-40	volts
DC Plate Current:		
Synchronizing level . . . . .	2.9	amp
Pedestal level. . . . .	2.2	amp
DC Grid-No.2 Current:		
Synchronizing level . . . . .	0.015	amp
Pedestal level. . . . .	0.011	amp
DC Grid-No.1 Current:		
Synchronizing level . . . . .	0.375	amp
Pedestal level. . . . .	0.275	amp
Driver Power Output:		
Synchronizing level . . . . .	600	watts
Pedestal level. . . . .	335	watts
Output Circuit Efficiency . . . . .	80	%



Useful Power Output:		
Synchronizing level . . . . .	5500	watts
Pedestal level . . . . .	3100	watts

**RF POWER AMPLIFIER & OSCILLATOR — Class C Telephony<sup>e</sup>**  
and

**RF POWER AMPLIFIER — Class C FM Telephony<sup>e</sup>**

**Maximum CCS Ratings, Absolute-Maximum Values:**

DC Plate Voltage . . . . .	7000	volts
DC Grid-No.2 Voltage . . . . .	1500	volts
DC Grid-No.1 Voltage . . . . .	-100	volts
DC Plate Current . . . . .	3	amp
DC Grid-No.1 Current . . . . .	0.65	amp
Grid-No.1 Input <sup>f</sup> . . . . .	100	watts
Grid-No.2 Input <sup>g</sup> . . . . .	150	watts
Plate Dissipation . . . . .	10000	watts

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance . . . . .	5000	ohms
Grid-No.2-Circuit Impedance . . . . .	See Note g	
Plate-Circuit Impedance . . . . .	See Note h	

**Typical CCS Operation:**

*In Cathode-Drive Circuit at 900 Mc*

DC Plate Voltage . . . . .	5700	volts
DC Grid-No.2 Voltage . . . . .	1000	volts
DC Grid-No.1 Voltage . . . . .	-85	volts
DC Plate Current . . . . .	2.7	amp
DC Grid-No.2 Current . . . . .	0.025	amp
DC Grid-No.1 Current . . . . .	0.200	amp
Driver Power Output . . . . .	900	watts
Output-Circuit Efficiency . . . . .	72	%
Useful Power Output . . . . .	5500	watts

<sup>a</sup> With external flat metal shield 8" in diameter having a center hole 3" in diameter. Shield is located in plane of the grid-No.2 terminal, perpendicular to the tube axis, and is connected to grid No.2.

<sup>b</sup> With external flat metal shield 8" in diameter having a center hole 2-3/8" in diameter. Shield is located in plate of the grid-No.1 terminal, perpendicular to the tube axis, and is connected to grid No.1.

The following footnotes apply to the *RCA Transmitting Tube Operating Considerations* given at front of this section.

<sup>c</sup> See *Electrical Considerations* — Filament or Heater.

<sup>d</sup> See *Cooling Considerations* — Forced-Air Cooling.

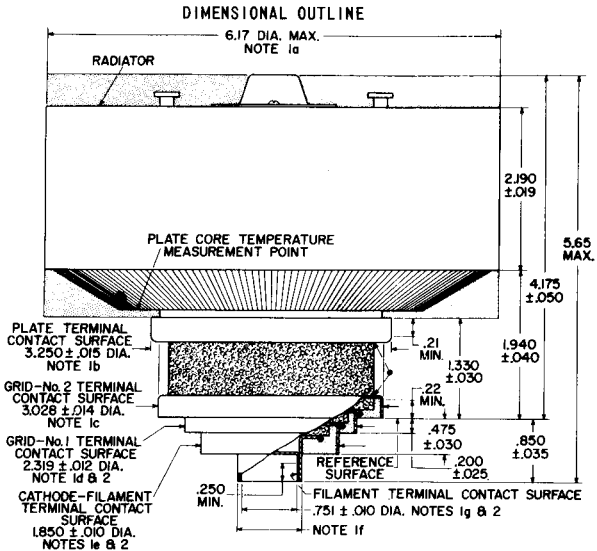
<sup>e</sup> See *Classes of Service*.

<sup>f</sup> See *Electrical Considerations* — Grid-No.1 Voltage Supply.

<sup>g</sup> See *Electrical Considerations* — Grid-No.2 Voltage Supply.

<sup>h</sup> See *Electrical Considerations* — Plate voltage Supply.





▨ STIPPLED REGION NOTE 3

▨ CERAMIC INSULATOR

- TERMINAL TEMPERATURE MEASUREMENT POINT

92CL-13039

**DIMENSIONS IN INCHES**

**Note 1:** Concentricity between the various diameters is such that the tube will enter a gauge having suitably spaced concentric apertures and posts of the following diameters:

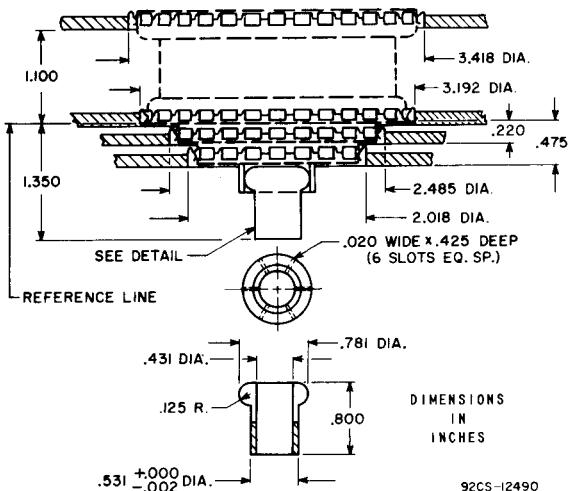
- a. Radiator - 6.240
- b. Plate Terminal - 3.288
- c. Grid-No. 2 Terminal - 3.061
- d. Grid-No. 1 Terminal - 2.338
- e. Cathode-Filament Terminal - 1.878
- f. Filament Terminal (OD) - 0.908
- g. Filament Terminal (ID) - 0.722

**Note 2:** The diameter of the terminal is held to the indicated value only over the contact surface length. The contact surface length of the filament, cathode-filament, and grid-No. 1 terminals extends from the edge of its terminal to the plane coincident with the edge of the adjacent larger terminal.

**Note 3:** Keep all stippled regions clear. Do not allow contacts or circuit components to protrude into these annular regions.

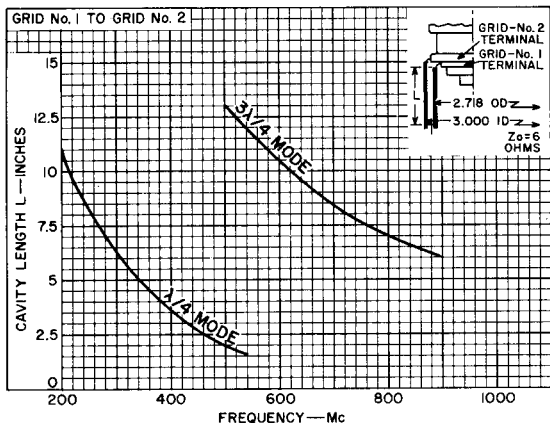


## PREFERRED MOUNTING ARRANGEMENT



Note: All finger stock No. 97-380, made by Instrument Specialties Co., Little Falls, N.J.

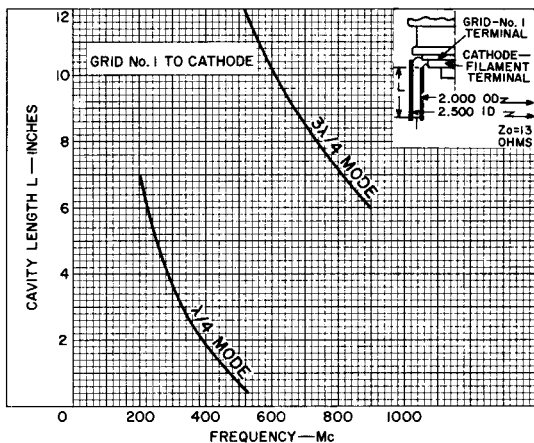
## CAVITY TUNING CHARACTERISTICS



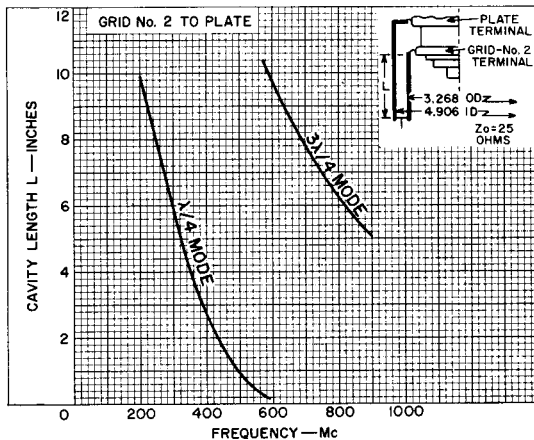
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## CAVITY TUNING CHARACTERISTICS

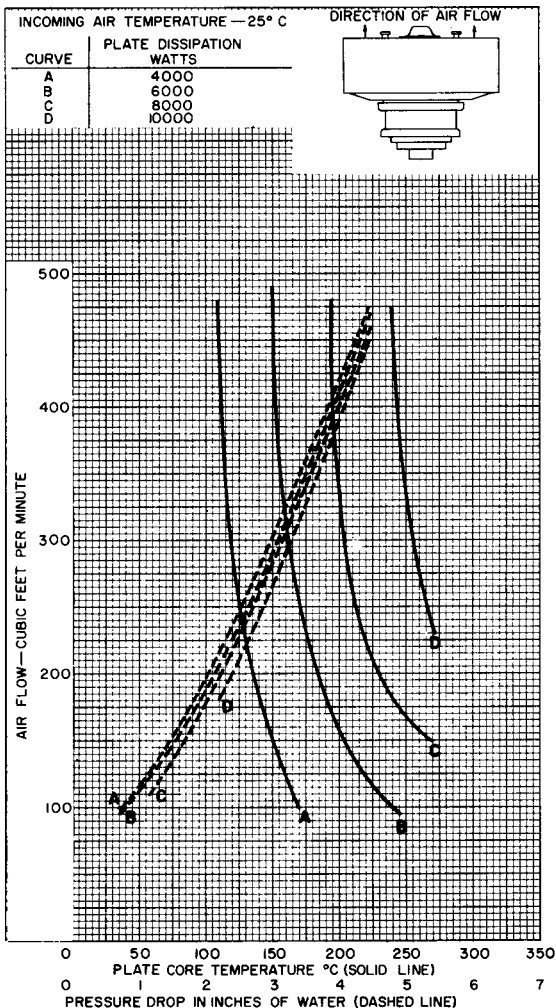


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92CS-13034

## TYPICAL COOLING CHARACTERISTICS



92CM-12488



## TYPICAL CONSTANT-CURRENT CHARACTERISTICS

