

Power Triode

WATER AND FORCED-AIR COOLED

GROUNDED-GRID TYPE

GENERAL DATA

Electrical:

Filament, Multistrand Thoriated-Tungsten:

Voltage (AC or DC). 11 ± 0.6 volts

Current at filament volts = 11. 285 amp

Starting Current: It is not necessary to provide means for limiting filament starting current on this type. Full rated filament voltage can be applied safely to the cold filament.

Minimum Heating Time. 15 sec

Amplification Factor. 40 ←

Direct Interelectrode Capacitances

(Approx.):

Grid to plate 53 pf

Grid to filament. 89 pf

Plate to filament 1.2 pf

Mechanical:

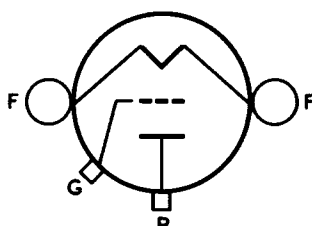
Operating Position. Vertical, filament end up

Maximum Overall Length. 24-1/2"

Maximum Diameter. 9-1/2"

Terminal Diagram (See *Dimensional Outline*):

F - Filament
G - Grid



P - Plate

Thermal:

Water Flow. 20 to 25 gpm

The specified water flow must start before the application of any voltages, and may be removed simultaneously with the filament and plate power.

Air Flow:

To plate seal and bulb:

At frequencies below 1.7 Mc Natural

At frequencies above 1.7 Mc Up to 250 cfm

Adequate forced-air cooling should be provided to limit the temperature of the plate seal and bulb to their specified maximum values. The amount of air flow required will increase with the operating frequency. The cooling air should start before the application of any voltages and should be distributed uniformly around the plate seal by means of a suitable air manifold and an air deflector. The airflow may be removed simultaneously with filament and plate power.

← Indicates a change.



To filament seals and grid seal 10 min. cfm
 The specified air flow should be directed vertically from a 1-1/4" diameter nozzle into the filament heater before and during the application of any voltages. It may be removed simultaneously with filament and plate power.

Outlet Water Temperature. 70 max. °C
 Bulb Temperature. 180 max. °C
 Seal Temperature (Filament, grid, and plate) . 165 max. °C

AF POWER AMPLIFIER & MODULATOR — Class B

Maximum CCS^a Ratings, Absolute-Maximum Values:

DC PLATE VOLTAGE.	15000 max.	volts
MAX.-SIGNAL DC PLATE CURRENT ^b	6 max.	amp
Max.-SIGNAL PLATE INPUT ^b	90 max.	kw
PLATE DISSIPATION ^b	50 max.	kw

Typical Push-Pull Operation:

Values are for 2 tubes

DC Plate Voltage.	10200	15000	volts
DC Grid Voltage	-220	-320	volts
Peak AF Grid-to-Grid Voltage.	900	1560	volts
Zero-Signal DC Plate Current.	0.6	0.6	amp
Max.-Signal DC Plate Current.	5.8	12	amp
Effective Load Resistance (Plate to plate).	3600	2640	ohms
Max.-Sig. Driving Power (Approx.) ^c . . .	120	688	watts
Max.-Sig. Power Output (Approx.). . .	37	117	kw

PLATE-MODULATED RF POWER AMPLIFIER — Class C Telephony

*Carrier conditions per tube for use
 with a maximum modulation factor of 1*

Maximum CCS Ratings, Absolute-Maximum Values:

DC PLATE VOLTAGE.	12500 max.	volts
DC GRID VOLTAGE	-2000 max.	volts
DC PLATE CURRENT.	5.0 max.	amp
DC GRID CURRENT.	1.25 max.	amp
PLATE INPUT	60 max.	kw
PLATE DISSIPATION	33 max.	kw

Typical Operation:

DC Plate Voltage.	10200	12500	volts
DC Grid Voltage: ^d			
From a fixed-supply	-1500	-1500	volts
From a grid resistor of 2100 ohms. .	-1500	-	volts
From a grid resistor of 1400 ohms. .	-	-1500	volts
Peak RF Grid Voltage.	2070	2180	volts
DC Plate Current.	3.3	4.5	amp
DC Grid Current (Approx.) ^e	0.72	1.1	amp
Driving Power (Approx.) ^e	1350	2160	watts
Power Output (Approx.).	28	45	kw

RF POWER AMPLIFIER & OSCILLATOR — Class C Telegraphy^f

Maximum CCS Ratings, Absolute-Maximum Values:

DC PLATE VOLTAGE	17000 max.	volts
DC GRID VOLTAGE	-2000 max.	volts
DC PLATE CURRENT	9 max.	amp
DC GRID CURRENT	1.25 max.	amp
PLATE INPUT	150 max.	kw
PLATE DISSIPATION	50 max.	kw

Typical Operation in Grounded-Filament Circuit:

DC Plate Voltage	14000	17000	volts
DC Grid Voltage: ^g			
From a fixed supply	-900	-1450	volts
From a cathode resistor of 125 ohms	-900	-	volts
From a cathode resistor of 150 ohms	-	-1450	volts
From a grid resistor of 750 ohms	-900	-	volts
From a grid resistor of 1320 ohms	-	-1450	volts
Peak RF Grid Voltage	1600	2375	volts
DC Plate Current	6	8.5	amp
DC Grid Current (Approx.) ^e	1.2	1.1	amp
Driving Power (Approx.) ^e	1700	2300	watts
Power Output (Approx.) ^e	65	105	kw

Typical Operation in Grounded-Grid Circuit:

*Same values as for Grounded-Filament
Circuit with the following exceptions:*

Driving Power (Approx.) ^e	6250	11200	watts
Power Output	70	114	kw

^a Continuous Commercial Service.

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

^c The driving stage should have good regulation and should be capable of supplying considerably more than the specified driving power.

^d Obtained from a fixed supply, grid resistor, or a combination of both.

^e For effect of load resistance on grid current and driving power, refer to TUBE RATINGS-Grid Current and Driving Power in the General Section.

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

^g Obtained from a fixed supply, a cathode resistor, a grid resistor, or from a combination of a fixed supply and self-bias.

CHARACTERISTICS RANGE VALUES

	Note	Min.	Max.	
Filament Current	1	265	305	amp
Amplification Factor	1,2	35	45	←
Grid-Plate Capacitance	-	47	59	pf
Grid-Filament Capacitance	-	74	104	pf
Plate-Filament Capacitance	-	0.8	1.6	pf
Grid Voltage	1,3	-310	-490	volts
Plate Voltage	1,4	7100	9100	volts ←
Plate Voltage	1,5	3600	4600	volts
Peak Cathode Current	1,6	50	-	amp
Useful Power Output	1,7	80	-	kw ←

← Indicates a change.



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- Note 1: With 11 volts ac on filament.
- Note 2: With dc grid voltage of -50 volts, and with plate voltage adjusted to give dc plate current of 2 amperes.
- Note 3: With dc plate voltage of 15000 volts, and with grid voltage adjusted to give dc plate current of 0.05 ampere.
- Note 4: With dc grid voltage of -100 volts, and with plate voltage adjusted to give a dc plate current of 2 amperes.
- Note 5: With dc grid voltage of 0 volts, and with plate voltage adjusted to give dc plate current of 2 amperes.
- Note 6: Represents the maximum usable cathode current (plate current and grid current) for the tube under any condition of operation.
- Note 7: With dc plate voltage of 17000 volts, dc plate current of 8.8 amperes, dc grid current of 1.05 to 1.25 amperes, grid resistor of $1600 \pm 10\%$ ohms, and frequency of 1.6 Mc.

MAXIMUM RATINGS vs OPERATING FREQUENCY

OPERATING FREQUENCY Mc	MAXIMUM PERMISSIBLE PERCENTAGE OF MAXI- MUM-RATED PLATE VOLTAGE & PLATE INPUT	
	TELEPHONY	TELEGRAPHY
	Class C Plate-Modulated	Class C Unmodulated
20	100	100
27	88	88
35	77	77

CURVES
shown under Type 5671
also apply to the 5770

→ Indicates a change.

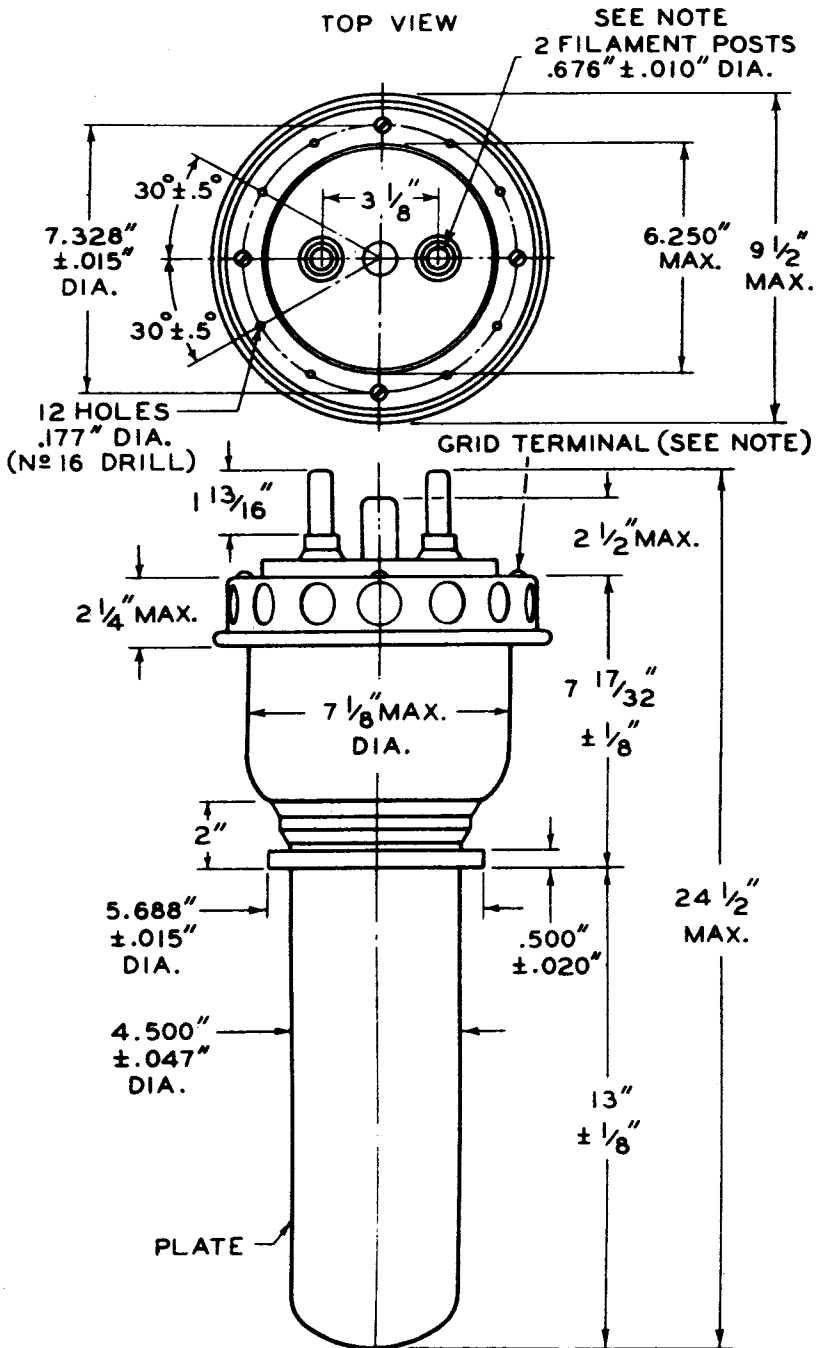




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POWER TRIODE

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NOTE: FLEXIBLE CONNECTIONS ARE REQUIRED.

92CM-7070