

FEDERAL POWER TRIODE

Type F-5771

22.5 Kilowatts Plate Dissipation



GENERAL DATA

DESCRIPTION:

Federal's F-5771 is a three-electrode tube built for use as a radio-frequency amplifier, oscillator, or a Class B modulator. The anode is water-cooled, capable of dissipating 22.5 kilowatts. The cathode is a thoriated tungsten filament. The design of the terminal mount connections and the re-entrant anode minimizes lead inductance, makes the tube particularly suitable for high-frequency applications up to 25 megacycles at full ratings, 50 megacycles at reduced ratings.

Electrical:

- ▶ Filament Voltage 7.5 Volts
- ▶ Filament Current 170 Amperes
- ▶ Filament Starting Current 800 Amperes max.
- ▶ Filament Cold Resistance .0055 Ohms
- ▶ Amplification Factor, at
 - $I_b = 2.0$ amps.,
 - $E_c = -100$ volts 20
- ▶ Interelectrode Capacitances
 - Grid-Plate 24.5 $\mu\mu\text{f}$
 - Grid-Filament 47 $\mu\mu\text{f}$
 - Plate-Filament 3 $\mu\mu\text{f}$

Mechanical:

- ▶ Mounting Position—
 - Vertical, anode down
- ▶ Type of Cooling—
 - Water and Forced Air
 - Water Flow on Anode 20 GPM
 - Maximum Outgoing Water Temperature 70° C
 - Air Flow (to bulb and seals) from a 3-inch diameter nozzle 20 CFM
 - Maximum Glass Temperature 180° C
 - Maximum Seal Temperature 165° C
- ▶ Net Weight, approximate 7 Pounds

From raw materials to the finished product, every Federal vacuum tube is checked and double-checked to assure the utmost in electrical and mechanical perfection.

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Maximum Ratings vs. Operating Frequency

Frequency	1.6	25	50 Megacycles
Percentage of Maximum Rated Plate Voltage and Plate Input			
Class B—	100	100	75 Per Cent
Class C—Plate Modulated	100	100	75 Per Cent
Class C—Unmodulated			
Max. Plate Voltage	120	100	75 Per Cent
Max. Plate Input	112.5	100	75 Per Cent

Maximum Ratings and Typical Operating Conditions

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS B

Maximum Ratings, Absolute Values

DC Plate Voltage	12,500 Volts
Maximum Signal DC Plate Current†	5 Amperes
Maximum Signal Plate Input†	45 Kilowatts
Plate Dissipation†	22.5 Kilowatts

Typical Operation

(Unless otherwise specified, values are for two tubes)

DC Plate Voltage	12,500 Volts
DC Grid Voltage	—600 Volts
Peak A-F Grid-to-Grid Voltage	1,900 Volts
Zero Signal DC Plate Current	1.0 Amperes
Maximum Signal DC Plate Current	6.4 Amperes
Effective Load Resistance, Plate to Plate	4,400 Ohms
Maximum Signal Driving Power, approximate	430 Watts
Maximum Signal Power Output, approximate	55 Kilowatts

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

RADIO-FREQUENCY POWER AMPLIFIER—CLASS B

(Carrier conditions per tube for use with a maximum modulation factor of 1.0)

Maximum Ratings, Absolute Values

DC Plate Voltage	12,500 Volts
DC Plate Current	4 Amperes
Plate Input	33 Kilowatts
Plate Dissipation	22.5 Kilowatts

Typical Operation

DC Plate Voltage	12,500 Volts
DC Grid Voltage	—625 Volts
Peak R-F Grid Voltage	625 Volts
DC Plate Current	2.4 Amperes
DC Grid Current, approximate	0 Amperes
Driving Power, approximate‡	1 Kilowatt
Power Output, approximate	12 Kilowatts

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

PLATE-MODULATED RADIO-FREQUENCY POWER AMPLIFIER—CLASS C TELEPHONY

(Carrier conditions per tube for use with a maximum modulation factor of 1.0)

Maximum Ratings, Absolute Values

DC Plate Voltage	10,000 Volts
DC Grid Voltage	—1,600 Volts
DC Plate Current	4 Amperes
DC Grid Current	0.8 Amperes
Plate Input	40 Kilowatts
Plate Dissipation	15 Kilowatts

Typical Operation

DC Plate Voltage	10,000 Volts
DC Grid Voltage	—840 Volts
Peak R-F Grid Voltage	1,440 Volts
DC Plate Current	3.8 Amperes
DC Grid Current, approximate	0.78 Amperes
Driving Power, approximate	1 Kilowatt
Power Output, approximate	29 Kilowatts

RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—CLASS C —TELEGRAPHY

(Key-down conditions per tube without amplitude Modulation)¶

Maximum Ratings, Absolute Values

DC Plate Voltage	12,500	15,000*	Volts
DC Grid Voltage	—1,600	—1,600*	Volts
DC Plate Current	6	6*	Amperes
DC Grid Current	0.8	0.8*	Amperes
Plate Input	60	67.5*	Kilowatts
Plate Dissipation	22.5	22.5*	Kilowatts

Typical Operation

DC Plate Voltage	10,000	12,500	15,000	Volts
DC Grid Voltage	—770	—630	—990	Volts
Peak R-F Grid Voltage	1,440	1,230	1,620	Volts
DC Plate Current	6	4.8	4.5	Amperes
DC Grid Current, approximate	0.77	0.75	0.8	Amperes
Driving Power, approximate	1	1	1.2	Kilowatts
Power Output, approximate	40	44	53	Kilowatts

¶Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of carrier conditions.

*These ratings apply only at a frequency of 1,500 kilocycles or less.

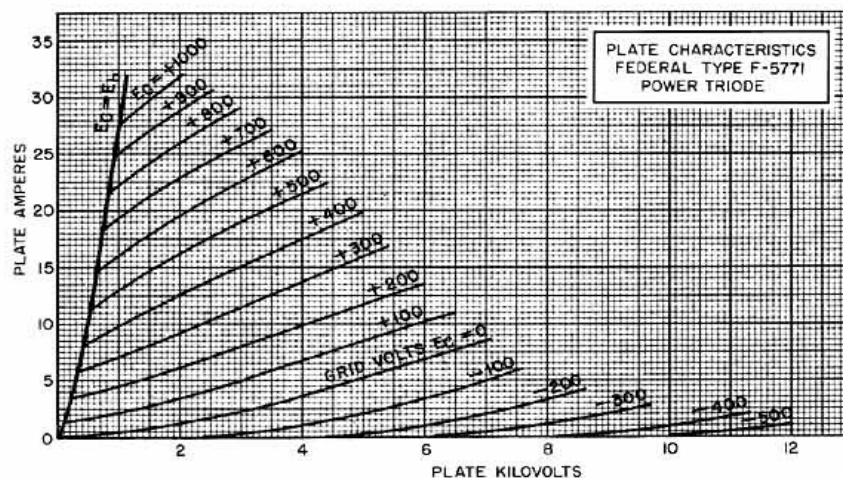
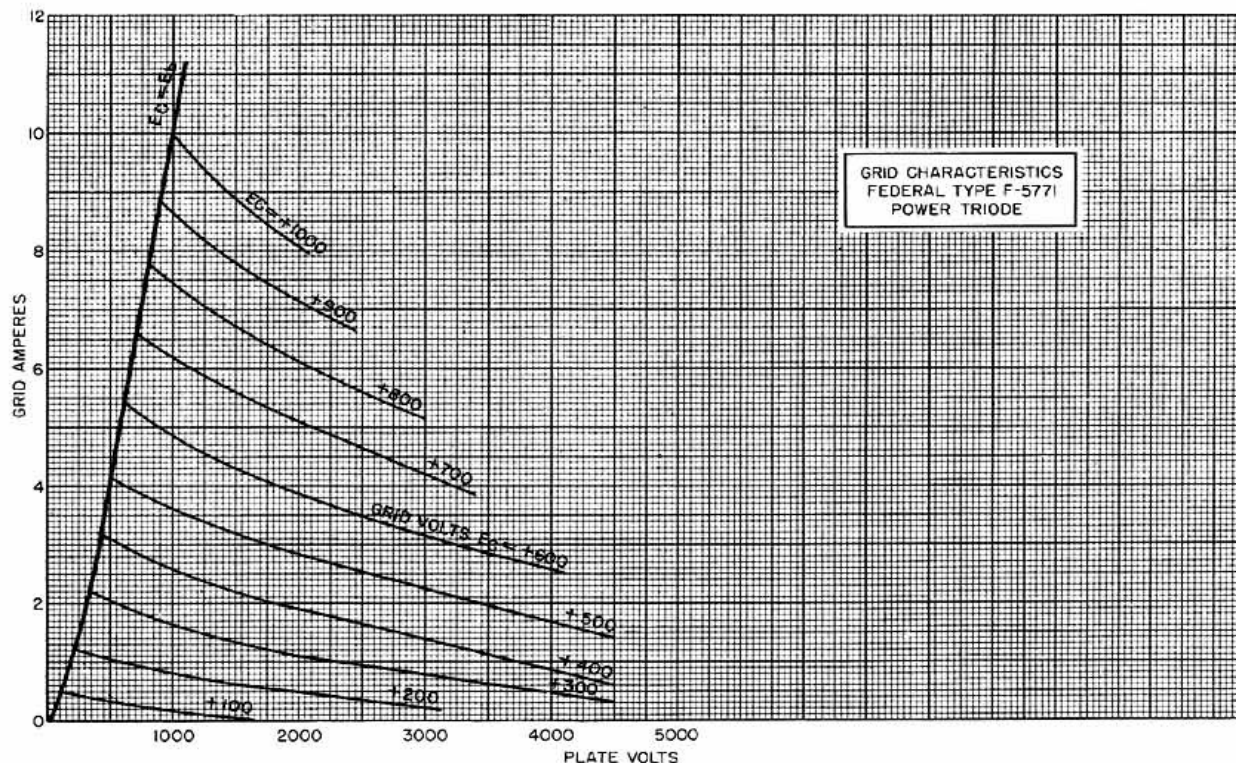


Federal tubes of all types are in service around the world . . . delivering the high calibre performance for which they were designed.

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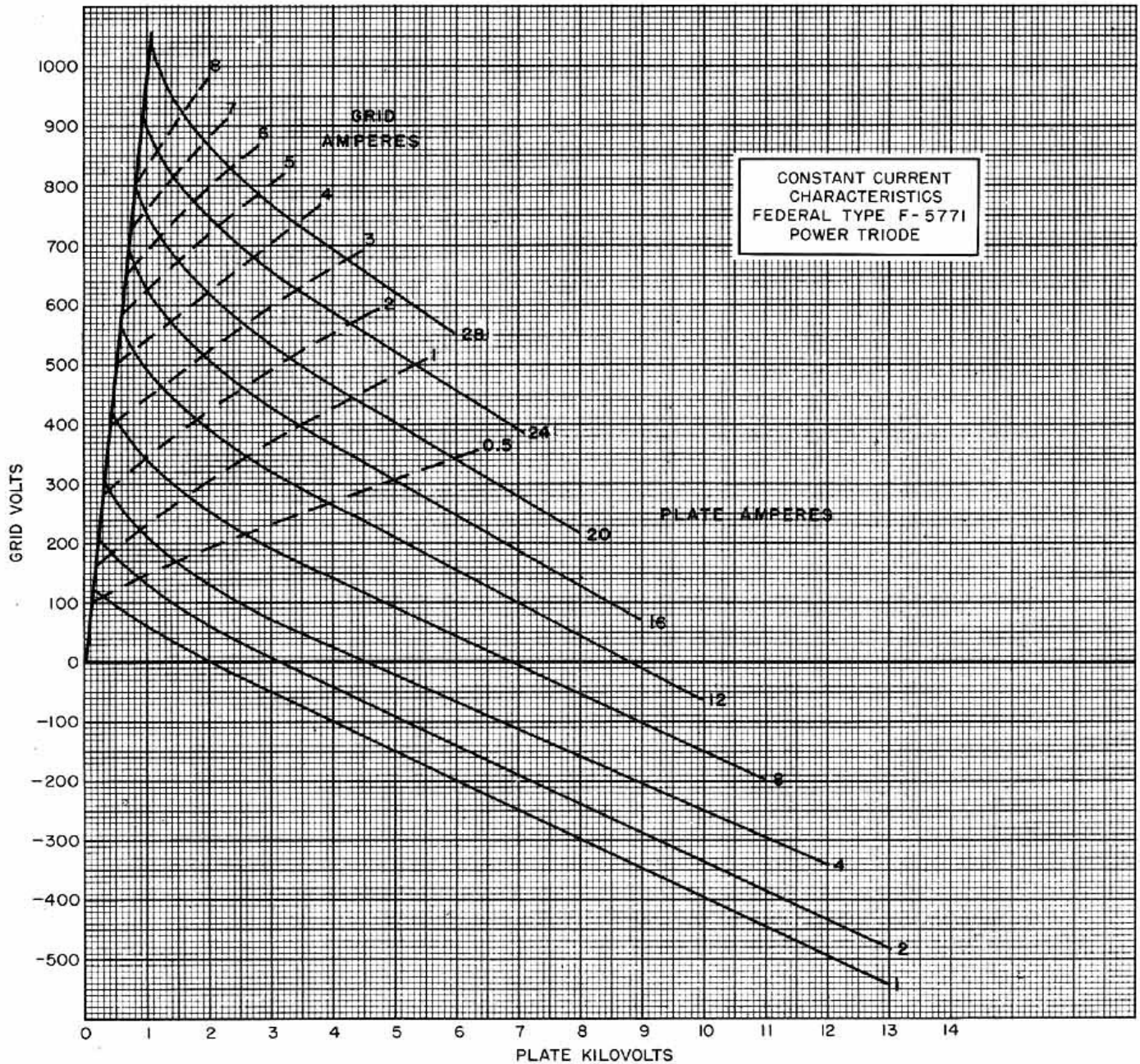


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Backed by years of engineering and manufacturing experience, Federal tubes have consistently set the world's standards of performance in broadcast service.

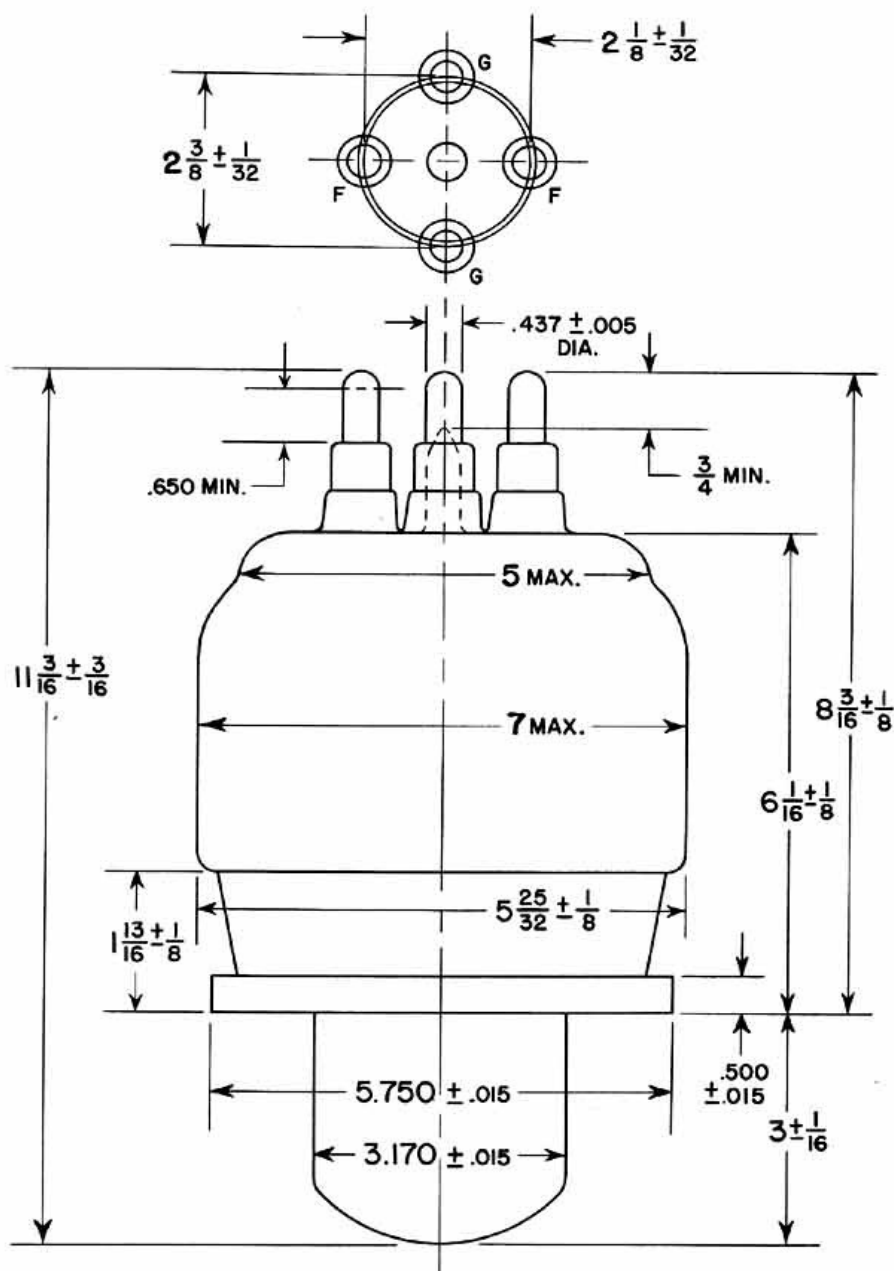


Federal vacuum tubes are designed for long service life and maintenance of original characteristics, and produced with all the care and precision of fine craftsmanship.

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OUTLINE DRAWING
F - 5771

Federal Telephone and Radio Corporation

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