

FEDERAL POWER TRIODE Type F-5919 35 Kilowatts Plate Dissipation



GENERAL DATA

DESCRIPTION:

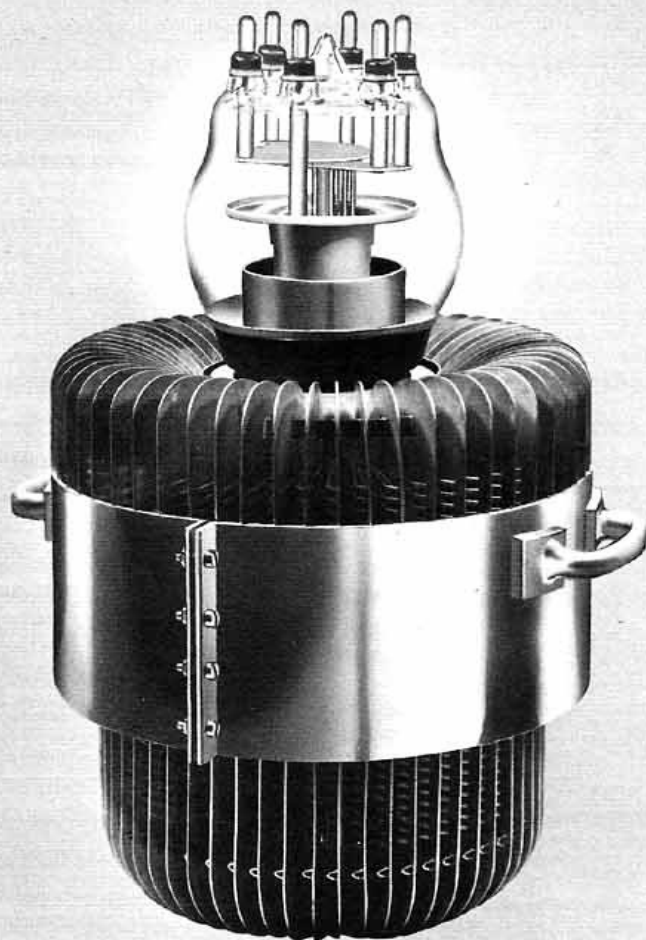
Federal's F-5919 is a three-electrode tube designed for use as radio-frequency amplifier, oscillator, or Class B modulator. The anode is forced air-cooled, capable of dissipating 35 kilowatts. The cathode is a thoriated tungsten filament. Maximum ratings apply up to 22 megacycles.

Electrical:

► Filament Voltage	11 Volts
► Filament Current	285 Amperes
► Filament Starting Current	1,000 Amperes max.
► Filament Cold Resistance	.005 Ohms
► Peak Cathode Current	100 Amperes
► Amplification Factor, at $I_b = 2$ amps. $E_b = -200$ volts	37
► Interelectrode Capacitances	
Grid-Plate	34.5 $\mu\mu\text{f}$
Grid-Filament	75 $\mu\mu\text{f}$
Plate-Filament	2.6 $\mu\mu\text{f}$

Mechanical:

► Mounting Position— Vertical, Anode Down	
► Type of Cooling— Forced Air	
Air Flow	1800 CFM
Maximum Incoming Air Temperature	45° C
Maximum Glass Temperature	165° C



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The F-5919 enables single-ended design for a full 50 Kilowatt output.

Maximum Ratings and Typical Operating Conditions

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS B

Maximum Ratings, Absolute Values

DC Plate Voltage	17,500 Volts
Maximum Signal DC Plate Current†	14 Amperes
Maximum Signal Plate Input†	175 Kilowatts
Plate Dissipation†	35 Kilowatts

Typical Operation

(Unless otherwise specified, values are for two tubes)

DC Plate Voltage	10,000 Volts
DC Grid Voltage	—220 Volts
Peak A-F Grid-to-Grid Voltage	820 Volts
Zero Signal DC Plate Current	0.6 Ampere
Maximum Signal DC Plate Current	5.8 Amperes
Effective Load Resistance, Plate to Plate	3,600 Ohms
Max. Sig. Driving Power, approx.	820 Watts
Max. Sig. Power Output, approx.	37 Kilowatts

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

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	14,000 Volts
DC Grid Voltage	—3,000 Volts
DC Plate Current	12 Amperes
DC Grid Current	2 Amperes
Plate Input	100 Kilowatts
Plate Dissipation	24 Kilowatts

Typical Operation

DC Plate Voltage	10,000	11,000 Volts
DC Grid Voltage	—750	—900 Volts
Peak R-F Grid Voltage	1,360	1,500 Volts
DC Plate Current	6.6	5.7 Amperes
DC Grid Current	0.9	0.9 Ampere
Driving Power, approx.	1.2	1.3 Kilowatts
Power Output, approx.	50	50 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	17,500 Volts
DC Grid Voltage	—3,000 Volts
DC Plate Current	14 Amperes
DC Grid Current	2 Amperes
Plate Input	175 Kilowatts
Plate Dissipation	35 Kilowatts

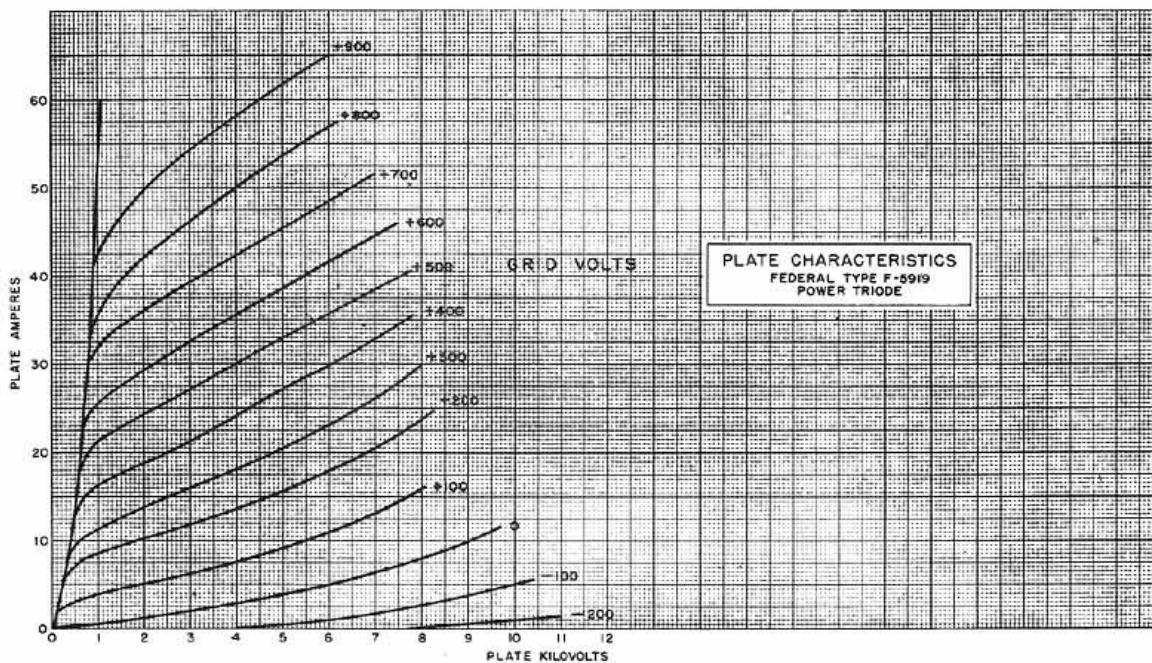
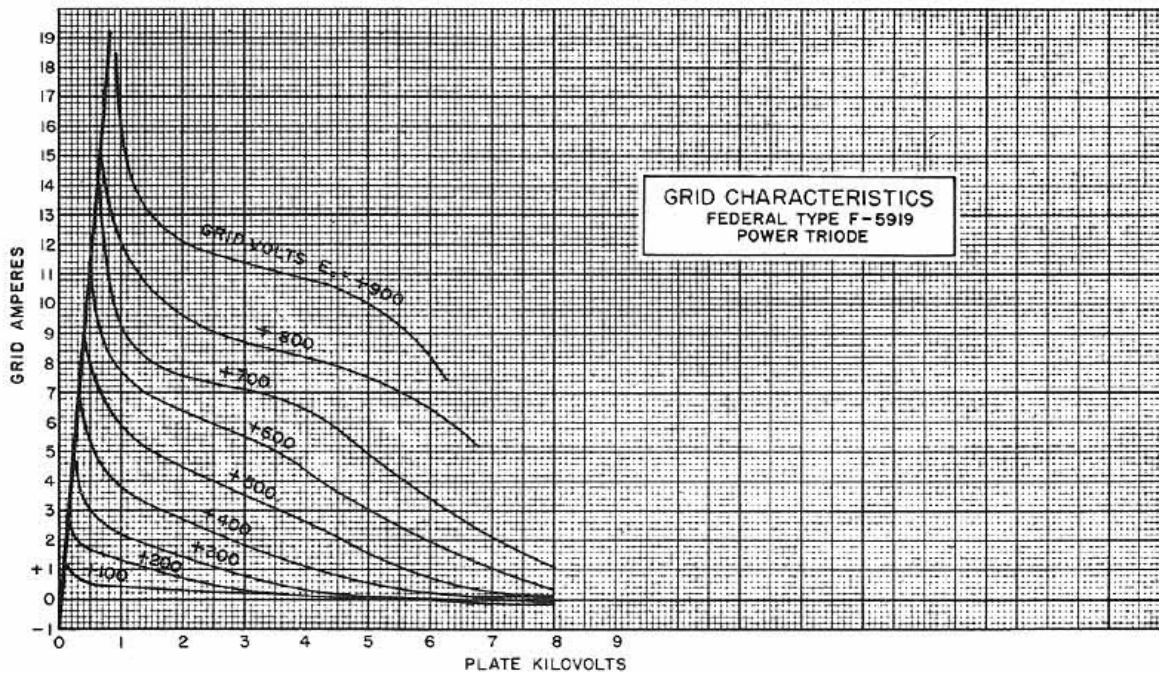
Typical Operation

DC Plate Voltage	10,000 Volts
DC Grid Voltage	—1,000 Volts
Peak R-F Grid Voltage	1,675 Volts
DC Plate Current	6.4 Amperes
DC Grid Current, approximate	1.1 Amperes
Driving Power, approximate	1.7 Kilowatts
Power Output, approximate	50 Kilowatts

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

The F-5919 grid is especially treated for unusually high heat dissipation contributing to stability in operation.

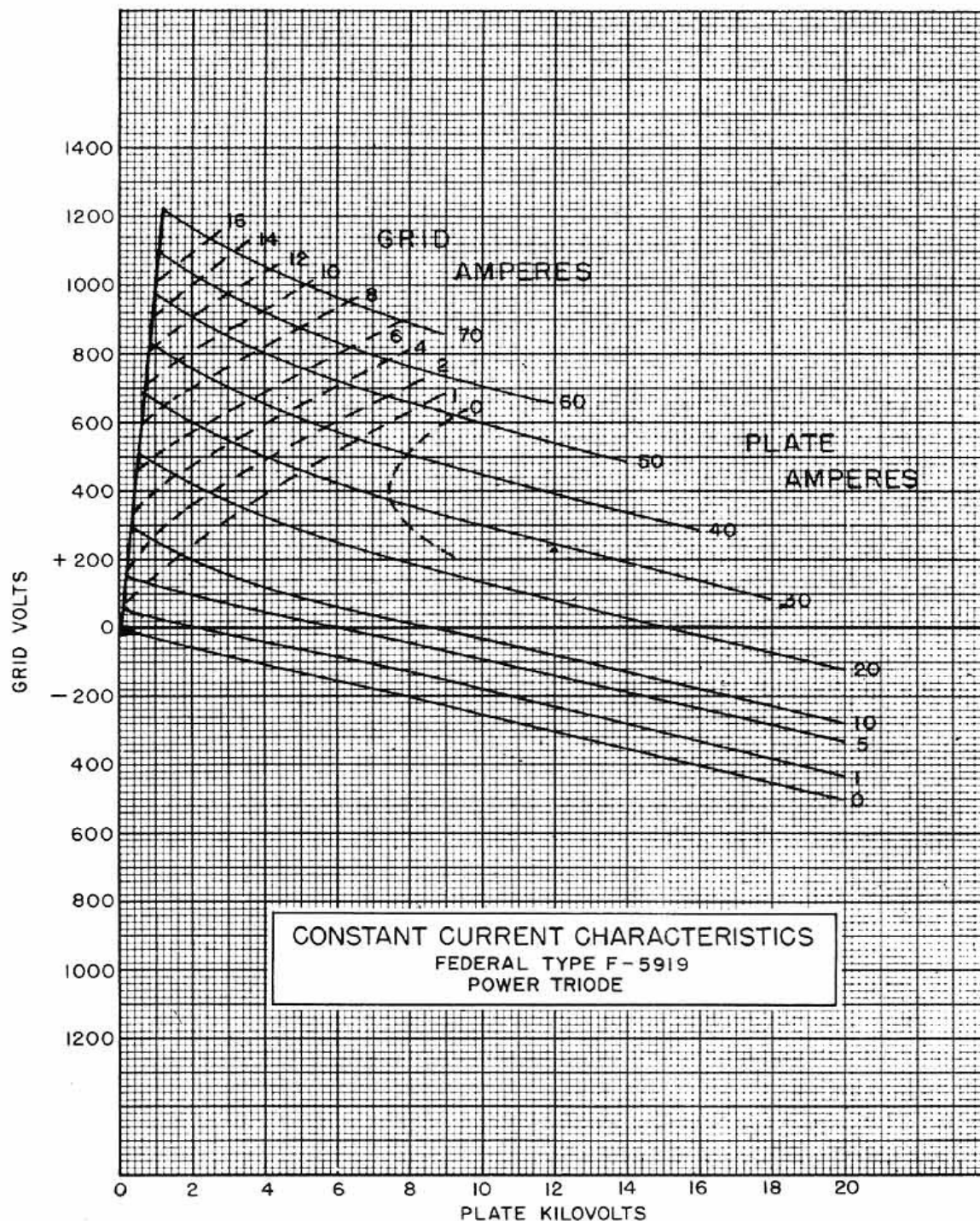
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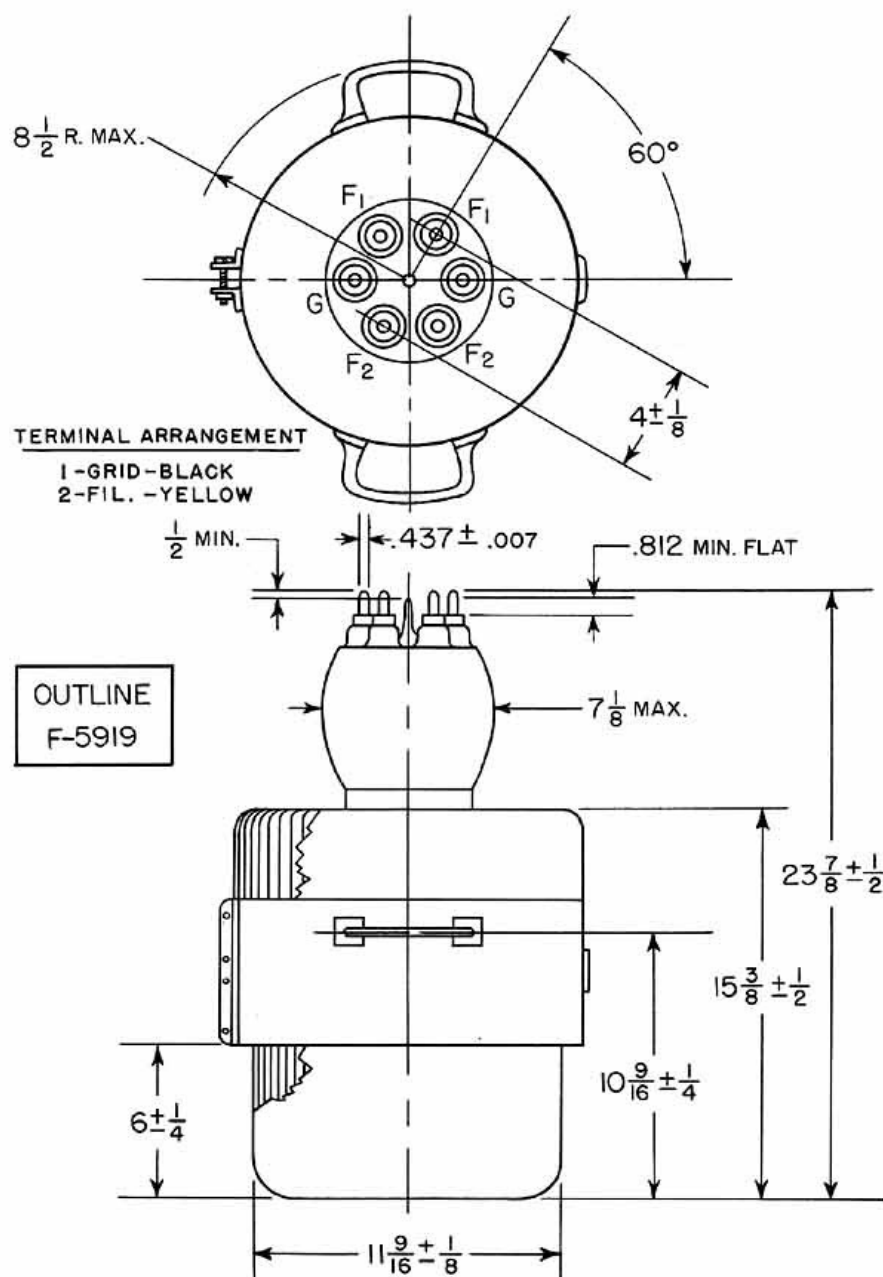
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Federal means longer tube life, finer performance, greater satisfaction, greater value for your tube dollar.



Kovar₂-to-glass seals throughout and heavy wall anode contribute to the electrical and mechanically rugged structure of the F-5919.

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Federal Telephone and Radio Company

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