

FEDERAL POWER TRIODE

Type F-343-A

10 Kilowatts Plate Dissipation



GENERAL DATA

DESCRIPTION:

Federal's F-343-A is a three-electrode tube designed for use as a radio-frequency amplifier, oscillator, or modulator. The anode, water-cooled, is capable of dissipating 10 kilowatts. The cathode is a pure tungsten filament. Maximum ratings apply up to 4 megacycles.

Electrical:

► Filament Voltage	21.5 Volts
► Filament Current	57.5 Amperes
► Filament Starting Current	120 Amperes max.
► Filament Cold Resistance	.0375 Ohms
► Amplification Factor, at $I_b = 0.75$ amp., $E_c = -200$ volts	40
► Interelectrode Capacitances	
Grid-Plate	24 μmf
Grid-Filament	17 μmf
Plate-Filament	1.8 μmf

Mechanical:

► Mounting Position—	
Vertical, anode down	
► Type of Cooling—Water	
Minimum Water Flow on	
Anode	3 GPM
Maximum Outgoing Water	
Temperature	70° C
Maximum Glass Temperature	150° C
► Net Weight, approximate	3.5 Pounds

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Maximum Ratings vs. Operating Frequency

Frequency	4	10	16 Megacycles
Percentage of Maximum Rated Plate Voltage and Plate Input			
Class B—	100	85	75 Per Cent
Class C—Telephony	100	85	75 Per Cent
Class C—Telegraphy	100	75	50 Per Cent

Maximum Ratings and Typical Operating Conditions

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS B

Maximum Ratings, Absolute Values

DC Plate Voltage	18,000 Volts
Maximum Signal DC Plate Current†	2 Amperes
Maximum Signal Plate Input†	30 Kilowatts
Plate Dissipation†	10 Kilowatts

Typical Operation

(Unless otherwise specified, values are for two tubes)

DC Plate Voltage	10,000	12,000 Volts
DC Grid Voltage	—150	—200 Volts
Peak A-F Grid-to-Grid Voltage	1,380	1,380 Volts
Zero Signal DC Plate Current	0.44	0.5 Ampere
Maximum Signal DC Plate Current	2.6	2.6 Amperes
Effective Load Resistance, Plate to Plate	7,600	8,600 Ohms
Maximum Signal Driving Power, approximate	175	150 Watts
Maximum Signal Power Output, approximate	15	18 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	9,000 Volts
DC Grid Voltage	—1,500 Volts
DC Plate Current	1 Ampere
DC Grid Current	0.2 Ampere
Plate Input	9 Kilowatts
Plate Dissipation	5 Kilowatts

Typical Operation

DC Plate Voltage	5,000	7,500 Volts
DC Grid Voltage	—300	—400 Volts
Peak R-F Grid Voltage	870	950 Volts
DC Plate Current	1	1 Ampere
DC Grid Current, approximate	0.06	0.05 Ampere
Driving Power, approximate	50	50 Watts
Power Output, approximate	3.3	5 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	18,000 Volts
DC Grid Voltage	—1,500 Volts
DC Plate Current	2 Amperes
DC Grid Current	0.2 Ampere
Plate Input	36 Kilowatts
Plate Dissipation	10 Kilowatts

Typical Operation

DC Plate Voltage	12,500	15,000 Volts
DC Grid Voltage	—600	—700 Volts
Peak R-F Grid Voltage	1,200	1,300 Volts
DC Plate Current	1.2	1.1 Amperes
DC Grid Current, approximate	.018	.018 Ampere
Driving Power, approximate	20	25 Watts
Power Output, approximate	9.5	12 Kilowatts

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

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	18,000 Volts
DC Plate Current	1.5 Amperes
Plate Input	15 Kilowatts
Plate Dissipation	10 Kilowatts

Typical Operation

DC Plate Voltage	12,500	15,000 Volts
DC Grid Voltage	—300	—350 Volts
Peak R-F Grid Voltage	550	550 Volts
DC Plate Current	0.7	0.7 Ampere
DC Grid Current, approximate	.008	.003 Ampere
Driving Power, approximate‡	25	13 Watts
Power Output, approximate	2.9	3.5 Kilowatts

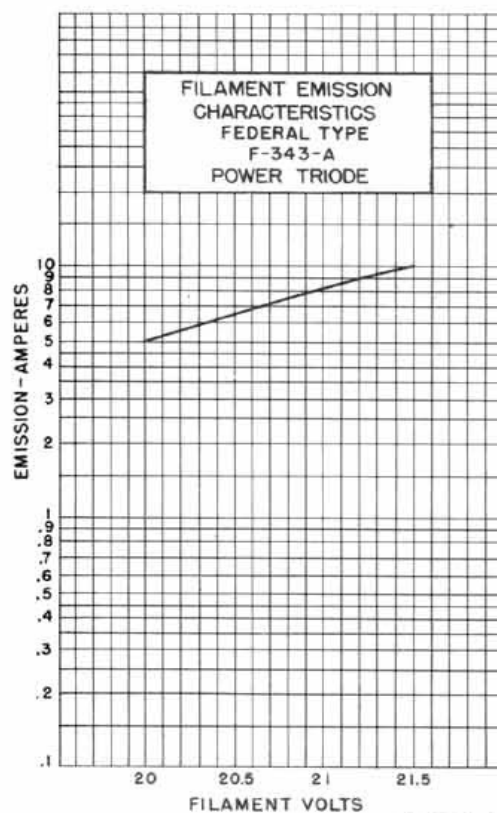
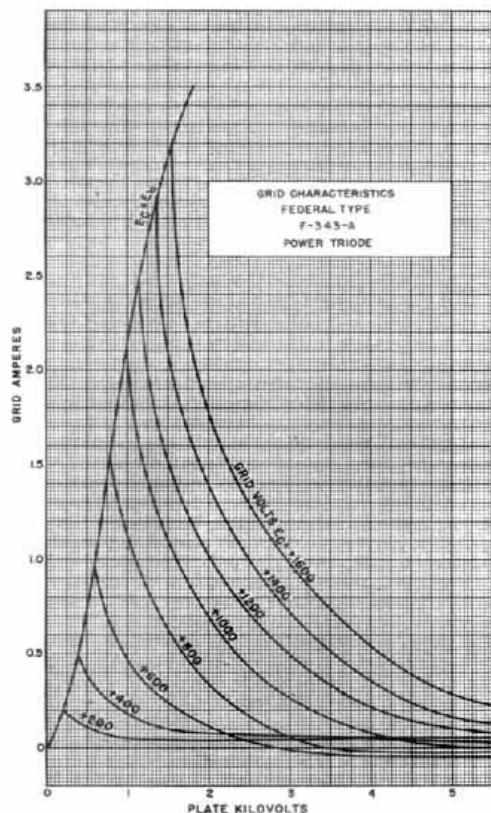
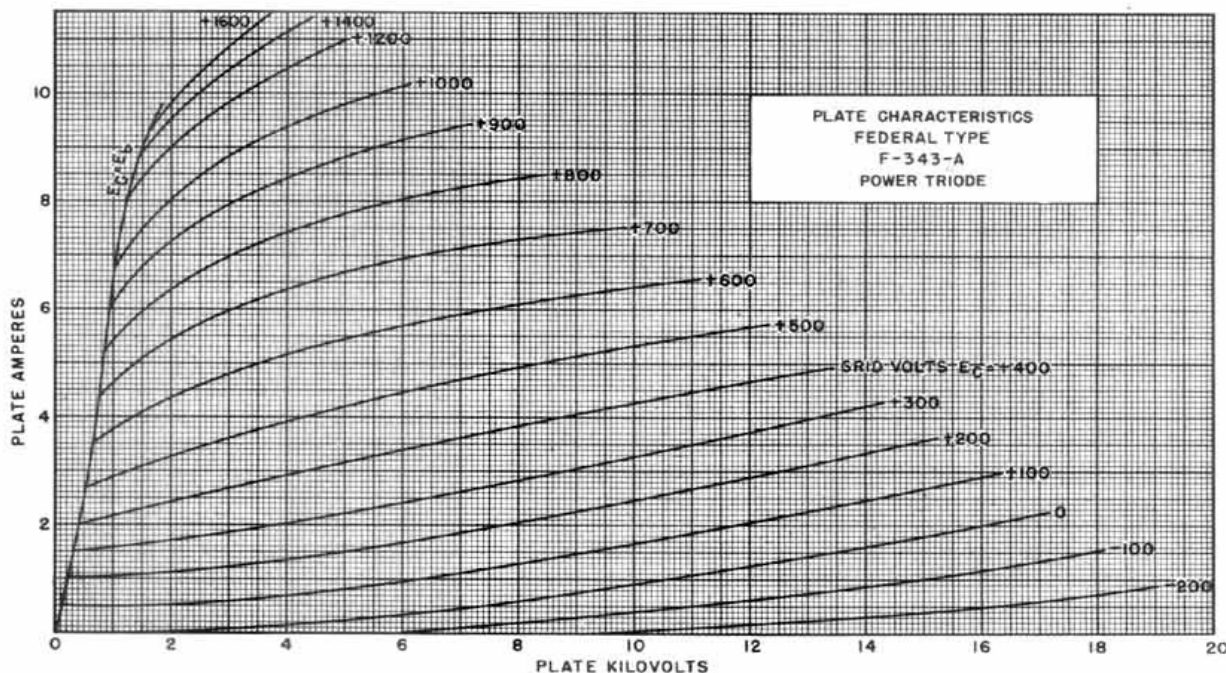
‡At crest of audio-frequency cycle with modulation factor of 1.0.

Only the finest tubes give the finest service. Federal makes only *fine* tubes . . . fine from every standpoint of design and manufacture.

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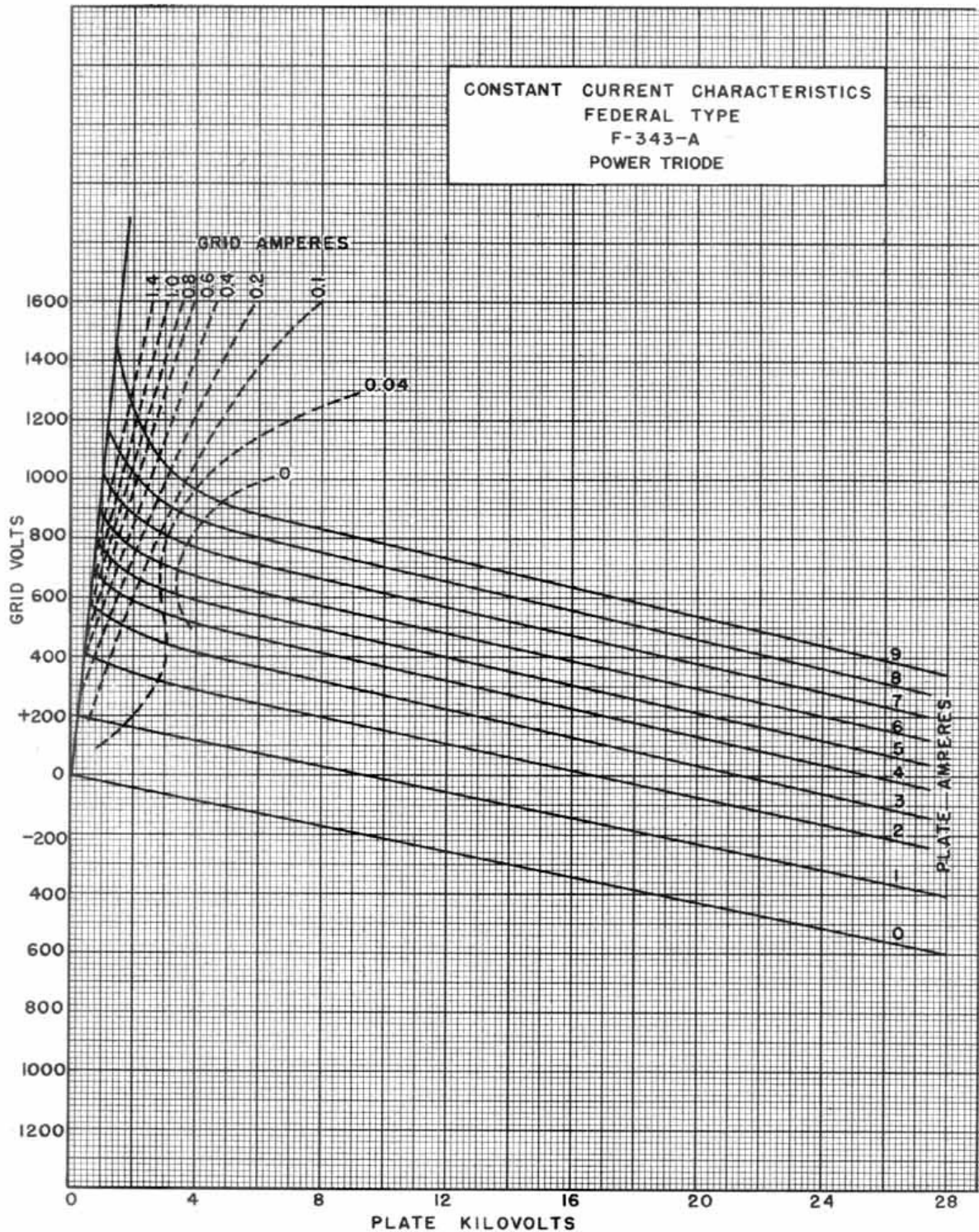


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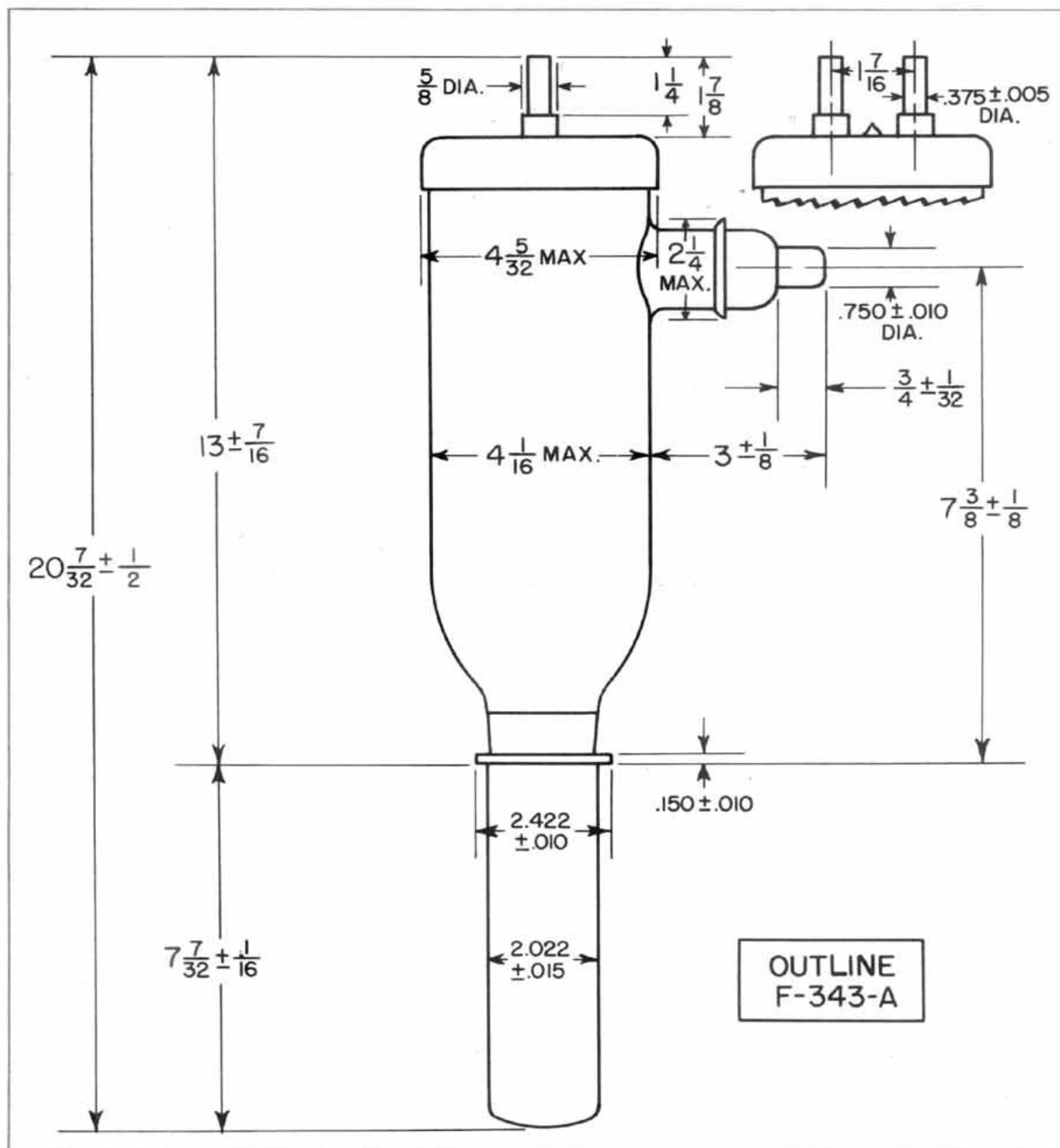


Extra Federal Values: Exceptionally sturdy construction; superior high vacuum processing; ratings commensurate with design and application.



To assure tube excellence, all incoming materials are subjected to the vigorous tests and standards specified by Federal engineers.

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