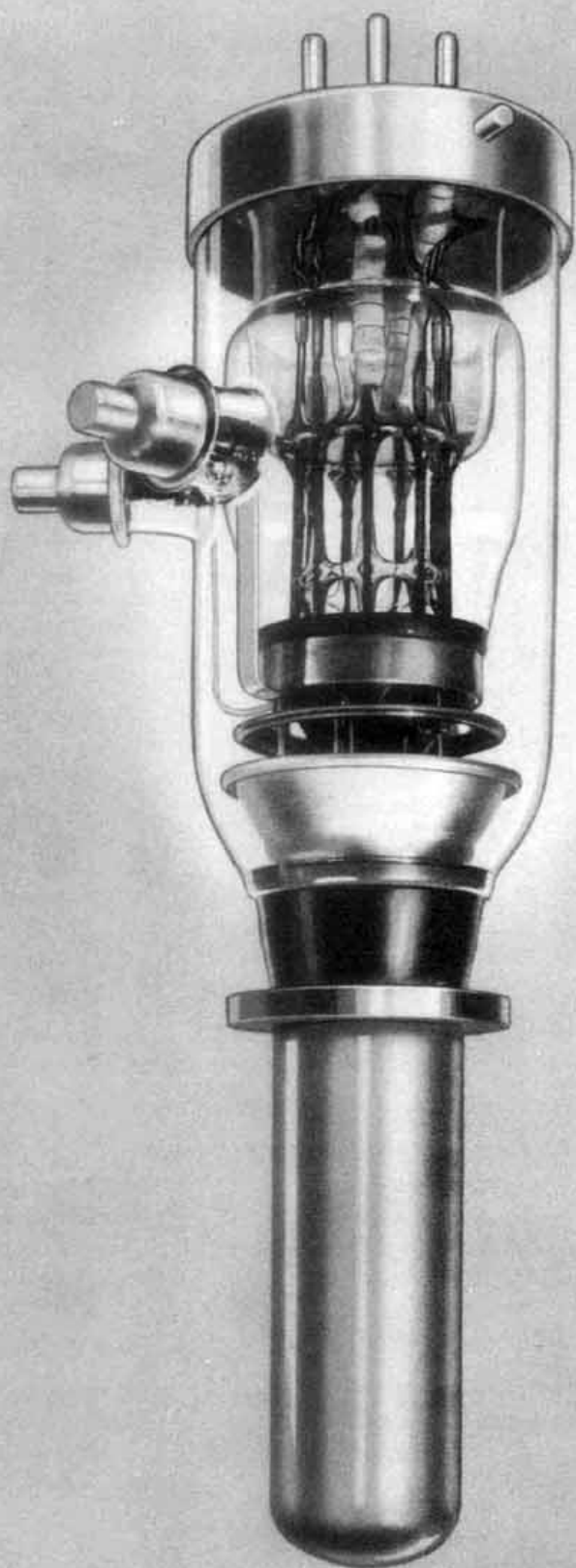




FEDERAL POWER TRIODE

Type F-9C30

40 Kilowatts Plate Dissipation



GENERAL DATA

DESCRIPTION:

The F-9C30 is a three-electrode tube, Federal-designed, for use as a radio-frequency amplifier, oscillator, or Class B modulator. The anode, water-cooled, is capable of dissipating 40 kilowatts. The cathode is a thoriated tungsten multi-strand filament, and may be operated on direct current, single-phase, three-phase, or six-phase alternating current excitation. Maximum ratings apply up to 20 megacycles.

Electrical:

► Filament Voltage§	15 Volts
► Filament Current§	135 Amperes
► Filament Starting Current§	200 Amperes max.
► Filament Cold Resistance§	.019 Ohms
► Peak Cathode Current	45 Amperes
► Amplification Factor, at $E_c = -200V \quad I_b = 1.6A$	40.5
► Interelectrode Capacitances	
Grid-Plate	35 $\mu\mu f$
Grid-Filament	46 $\mu\mu f$
Plate-Filament	5.6 $\mu\mu f$

§Single phase excitation.

Mechanical:

► Mounting Position—	
Vertical, anode down	
► Type of Cooling—Water	
Minimum Water Flow on Anode	15 GPM.
Maximum Outgoing Water Temperature	70° C
Maximum Glass Temperature	150° C
► Net Weight, approximate	11½ Pounds

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Federal was the first in the industry to develop, engineer and produce thoriated tungsten filaments in high-power tubes.

Maximum Ratings and Typical Operating Conditions

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS B

Maximum Ratings, Absolute Values

DC Plate Voltage	15,000 Volts
Maximum Signal DC Plate Current†	5 Amperes
Maximum Signal Plate Input†	50 Kilowatts
Plate Dissipation†	30 Kilowatts

Typical Operation

(Unless otherwise specified, values are for two tubes)

DC Plate Voltage	10,000 Volts
DC Grid Voltage	—200 Volts
Peak A-F Grid-to-Grid Voltage	1,600 Volts
Zero Signal DC Plate Current	0.5 Amperes
Maximum Signal DC Plate Current	6.0 Amperes
Effective Load Resistance, Plate to Plate	3,750 Ohms
Maximum Signal Driving Power, approximate	360 Watts
Maximum Signal Power Output, approximate	39 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	15,000 Volts
DC Plate Current	4 Amperes
Plate Input	60 Kilowatts
Plate Dissipation	40 Kilowatts

Typical Operation

DC Plate Voltage	15,000 Volts
DC Grid Voltage	—200 Volts
Peak R-F Grid Voltage	470 Volts
DC Plate Current	2.7 Amperes
DC Grid Current, approximate	0.0 Amperes
Driving Power, approximate‡	480 Watts
Power Output, approximate	13.7 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	12,000 Volts
DC Grid Voltage	—3,000 Volts
DC Plate Current	4.5 Amperes
DC Grid Current	1 Ampere
Plate Input	54 Kilowatts
Plate Dissipation	30 Kilowatts

Typical Operation

DC Plate Voltage	12,000 Volts
DC Grid Voltage	—750 Volts
Peak R-F Grid Voltage	1,510 Volts
DC Plate Current	3.1 Amperes
DC Grid Current, approximate	0.48 Amperes
Driving Power, approximate	700 Watts
Power Output, approximate	27.2 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	15,000 Volts
DC Grid Voltage	—3,000 Volts
DC Plate Current	8 Amperes
DC Grid Current	1 Ampere
Plate Input	120 Kilowatts
Plate Dissipation	40 Kilowatts

Typical Operation

DC Plate Voltage	15,000 Volts
DC Grid Voltage	—900 Volts
Peak R-F Grid Voltage	1,940 Volts
DC Plate Current	4.7 Amperes
DC Grid Current, approximate	0.75 Amperes
Driving Power, approximate	1,350 Watts
Power Output, approximate	52 Kilowatts

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

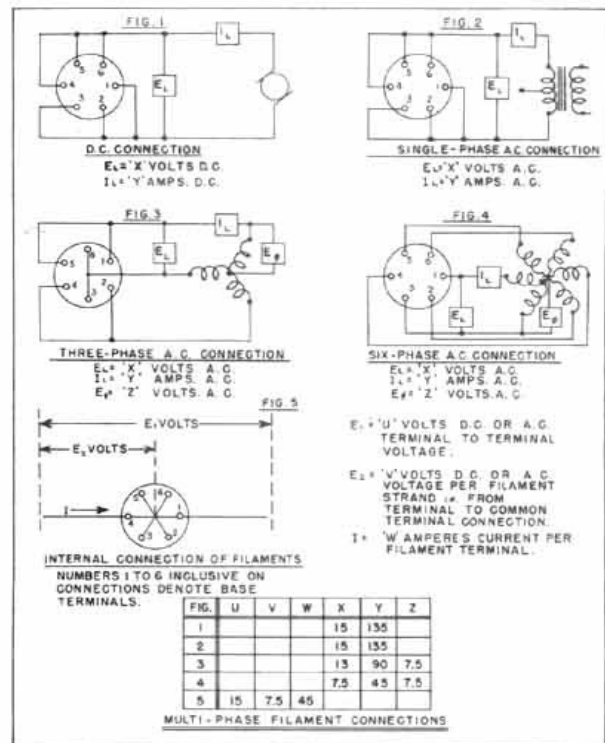
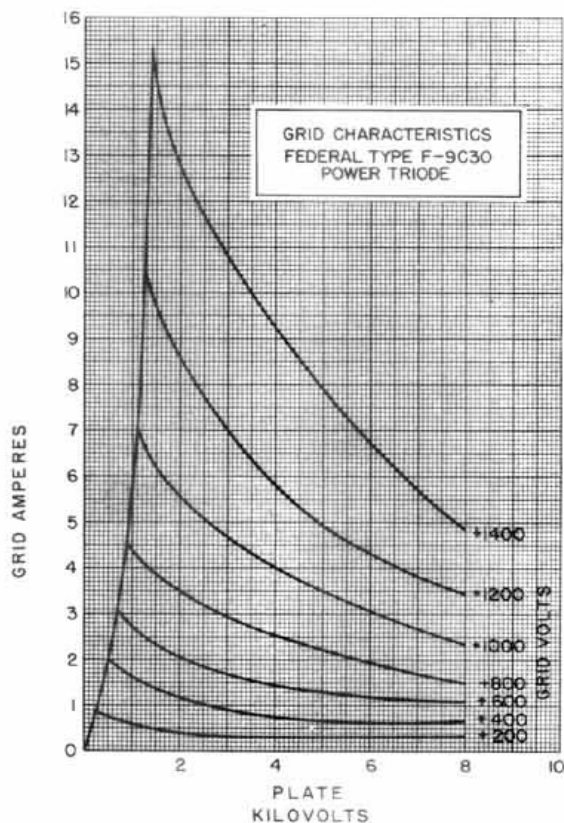
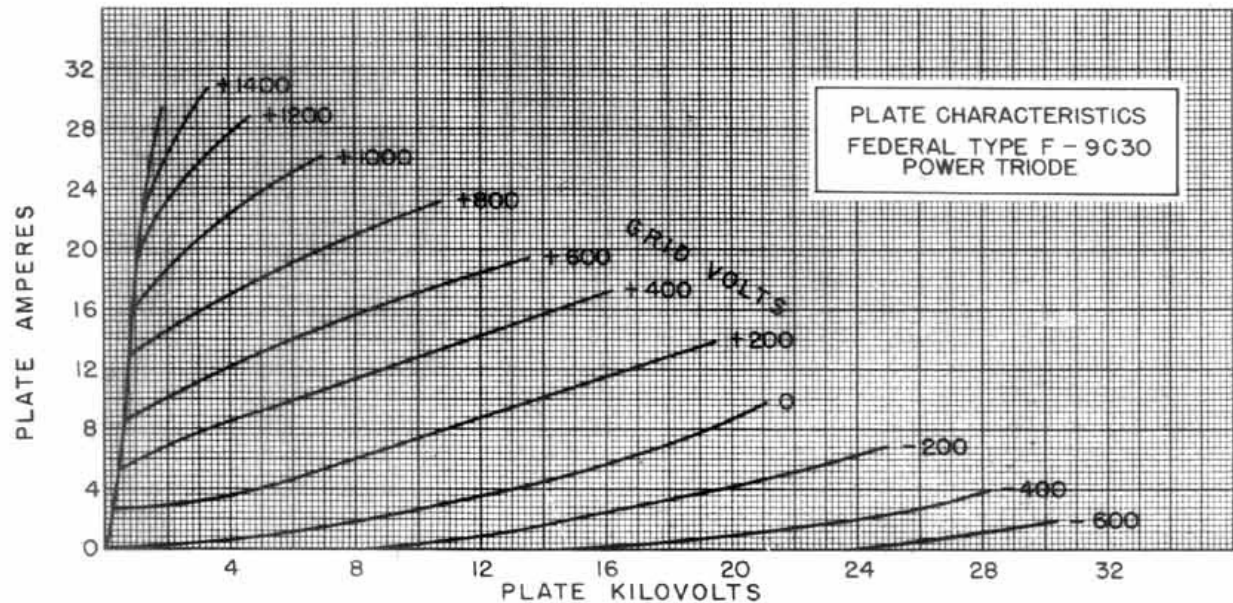


Typical triodes using Federal thoriated tungsten filaments are F-9C30 and F-9C31 power amplifiers . . . F-9C28 and F-9C29 modulators.

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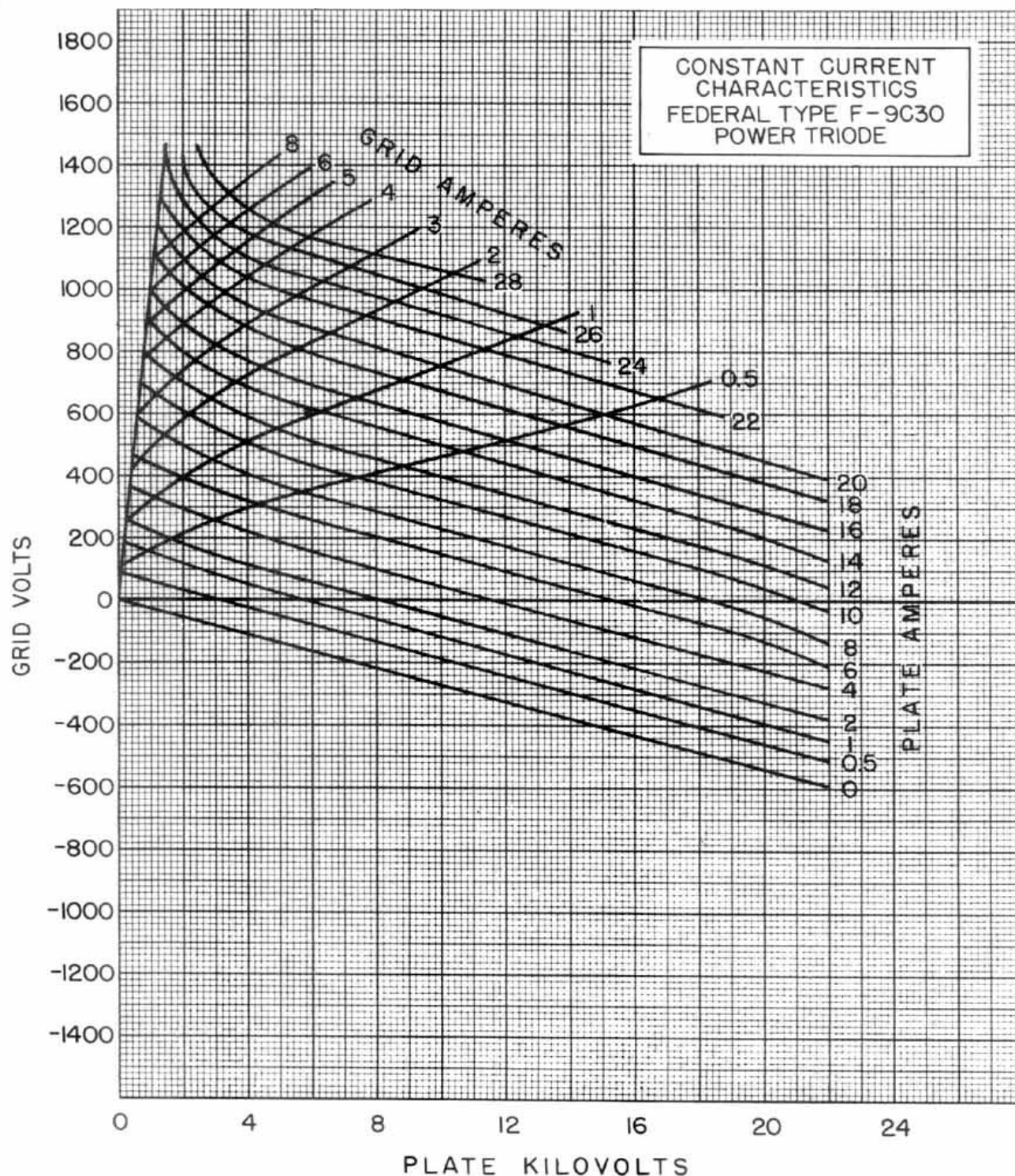
FEDERAL POWER TRIODE

Type F-9C30

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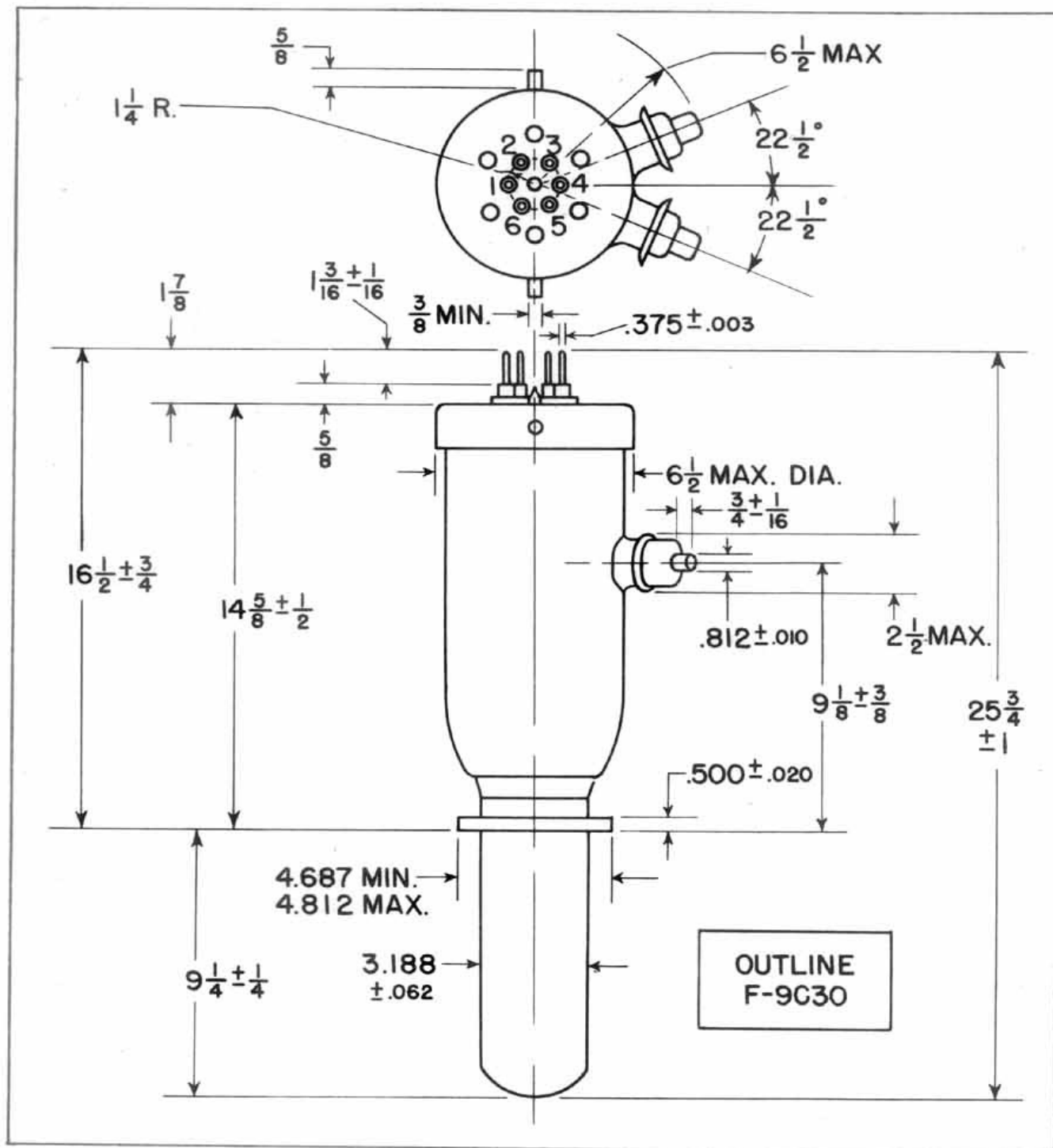
Federal's newest triodes for 50 KW transmitters . . . F-9C30 and F-9C28 . . . give greater electron emission with less filament power, lower hum level, and longer life.



Federal's introduction of high-power tubes with thoriated tungsten filaments marked an epoch of new economies in filament power, and operating efficiencies.

FEDERAL POWER TRIODE Type F-9C30

40 Kilowatts Plate Dissipation



Federal Telephone and Radio Corporation

100 Kingsland Road Clifton, New Jersey

