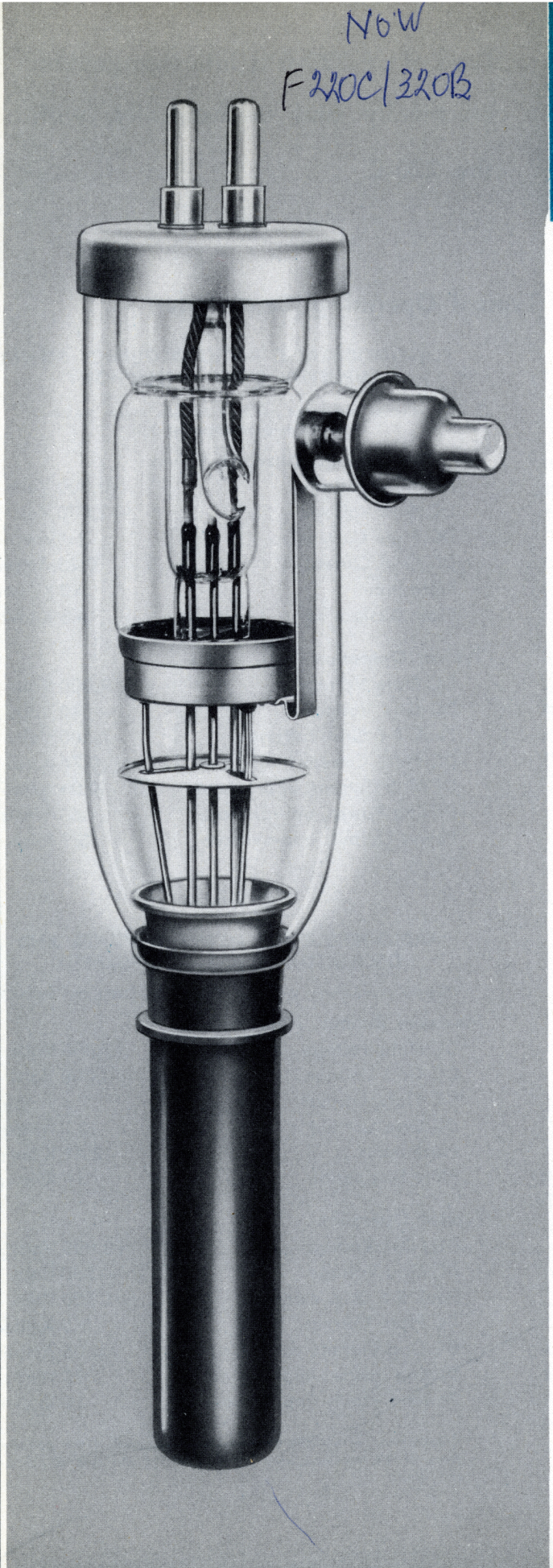

FEDERAL POWER TRIODE
Type F-320-B
10 Kilowatts Plate Dissipation

GENERAL DATA

DESCRIPTION:

Federal's F-320-B is a three-electrode tube designed for use as an RF amplifier, oscillator or Class B 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	41 Amperes
Filament Starting Current	82 Amperes max.
Filament Cold Resistance	0.080 Ohms
Amplification Factor, at I_b = 0.85 amps., E_c = —50 volts	40

Interelectrode Capacitances

Grid-Plate	23.5 $\mu\mu$f
Grid-Filament	16.5 $\mu\mu$f
Plate-Filament	2 $\mu\mu$f

Mechanical:

Mounting Position—
Vertical, anode down

Type of Cooling—Water

Minimum Water Flow on Anode	5 GPM
Maximum Outgoing Water Temperature	70° C
Maximum Glass Temperature	150° C

Net Weight, approximate	4 Pounds

FEDERAL POWER TRIODE
Type F-320-B
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Federal's F-320-B is interchangeable, electrically and mechanically, with the 220-C.

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†	1.5 Amperes
Maximum Signal Plate Input†	20 Kilowatts
Plate Dissipation†	10 Kilowatts

Typical Operation

(Unless otherwise specified, values are for two tubes)

DC Plate Voltage	13,500 Volts
DC Grid Voltage	—250 Volts
Peak A-F Grid-to-Grid Voltage	2,100 Volts
Zero Signal DC Plate Current	0.25 Amperes
Maximum Signal DC Plate Current	2.5 Amperes
Effective Load Resistance, Plate to Plate	12,000 Ohms
Maximum Signal Driving Power, approximate	450 Watts
Maximum Signal Power Output, approximate	24 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	1.2 Amperes
Plate Input	15 Kilowatts
Plate Dissipation	10 Kilowatts

Typical Operation

DC Plate Voltage	12,000 Volts
DC Grid Voltage	—275 Volts
Peak R-F Grid Voltage	1,080 Volts
DC Plate Current	0.63 Amperes
DC Grid Current, approximate	0.08 Amperes
Driving Power, approximate‡	80 Watts
Power Output, approximate	2.5 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	—3,000 Volts
DC Plate Current	1.1 Amperes
DC Grid Current	0.25 Amperes
Plate Input	10 Kilowatts
Plate Dissipation	6.6 Kilowatts

Typical Operation

DC Plate Voltage	9,000 Volts
DC Grid Voltage	—840 Volts
Peak R-F Grid Voltage	1,500 Volts
DC Plate Current	0.76 Amperes
DC Grid Current, approximate	0.04 Amperes
Driving Power, approximate	65 Watts
Power Output, approximate	5.1 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	1.5 Amperes
DC Grid Current	0.3 Amperes
Plate Input	22.5 Kilowatts
Plate Dissipation	10 Kilowatts

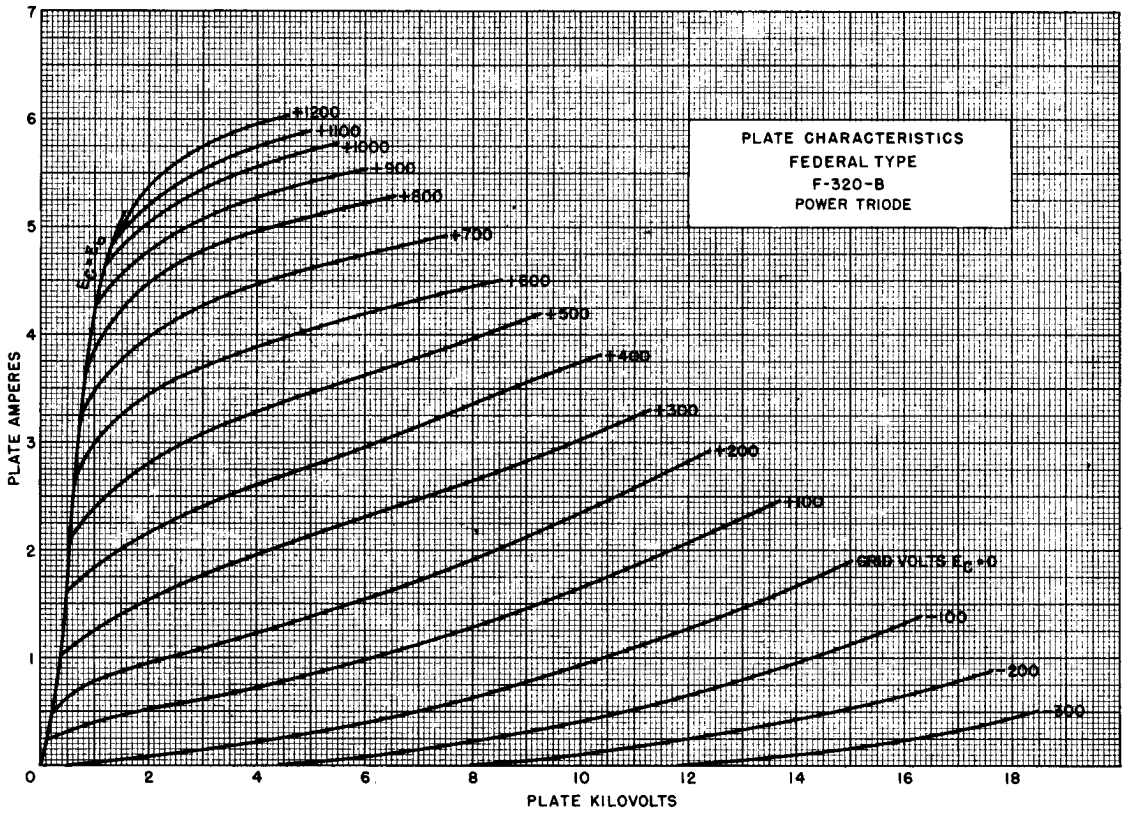
Typical Operation

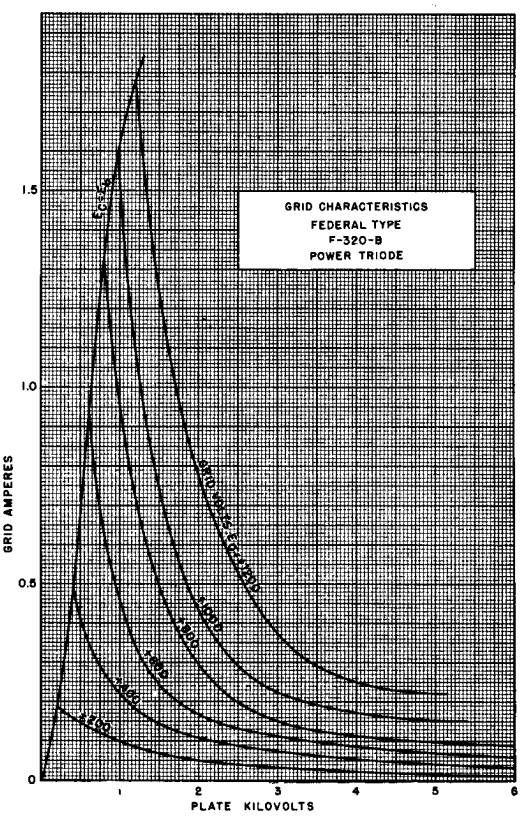
DC Plate Voltage	10,000 Volts
DC Grid Voltage	—500 Volts
Peak R-F Grid Voltage	1,500 Volts
DC Plate Current	1.5 Amperes
DC Grid Current, approximate	0.06 Amperes
Driving Power, approximate	90 Watts
Power Output, approximate	10 Kilowatts

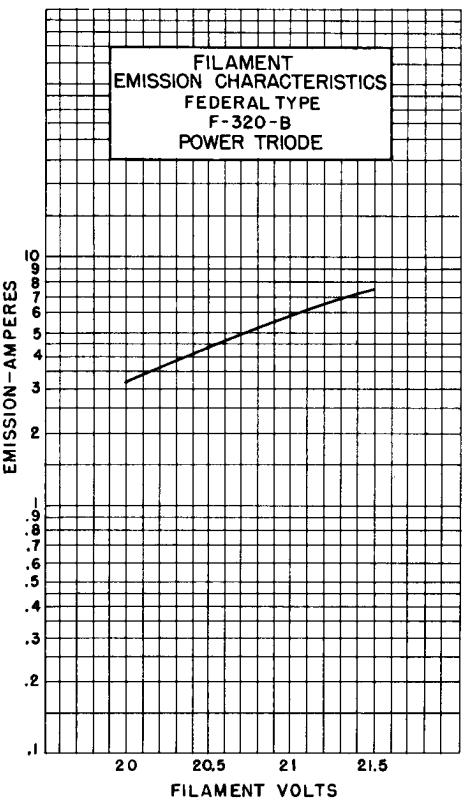
¶Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of carrier conditions.

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

FEDERAL POWER TRIODE
Type F-320-B
10 Kilowatts Plate Dissipation

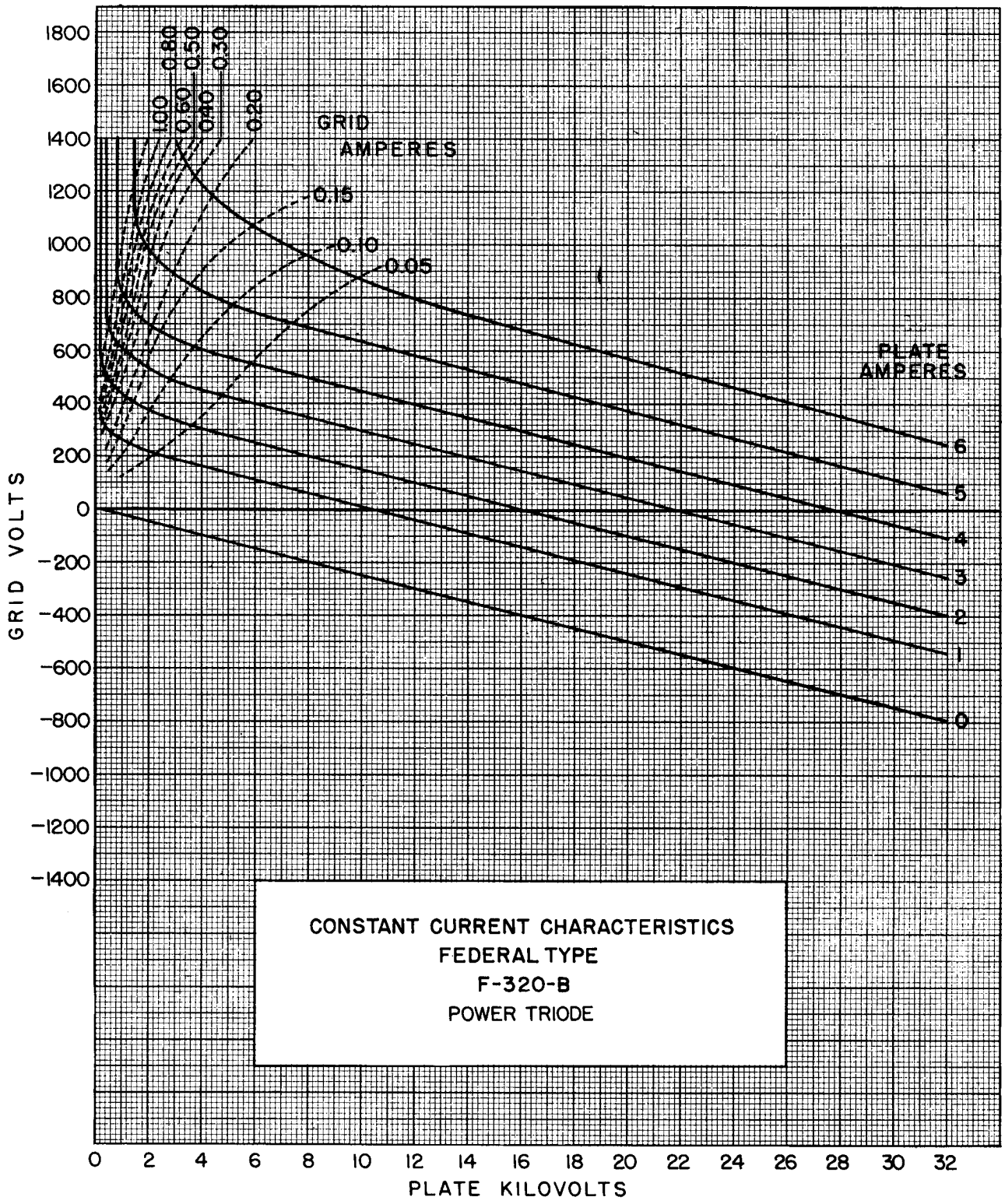






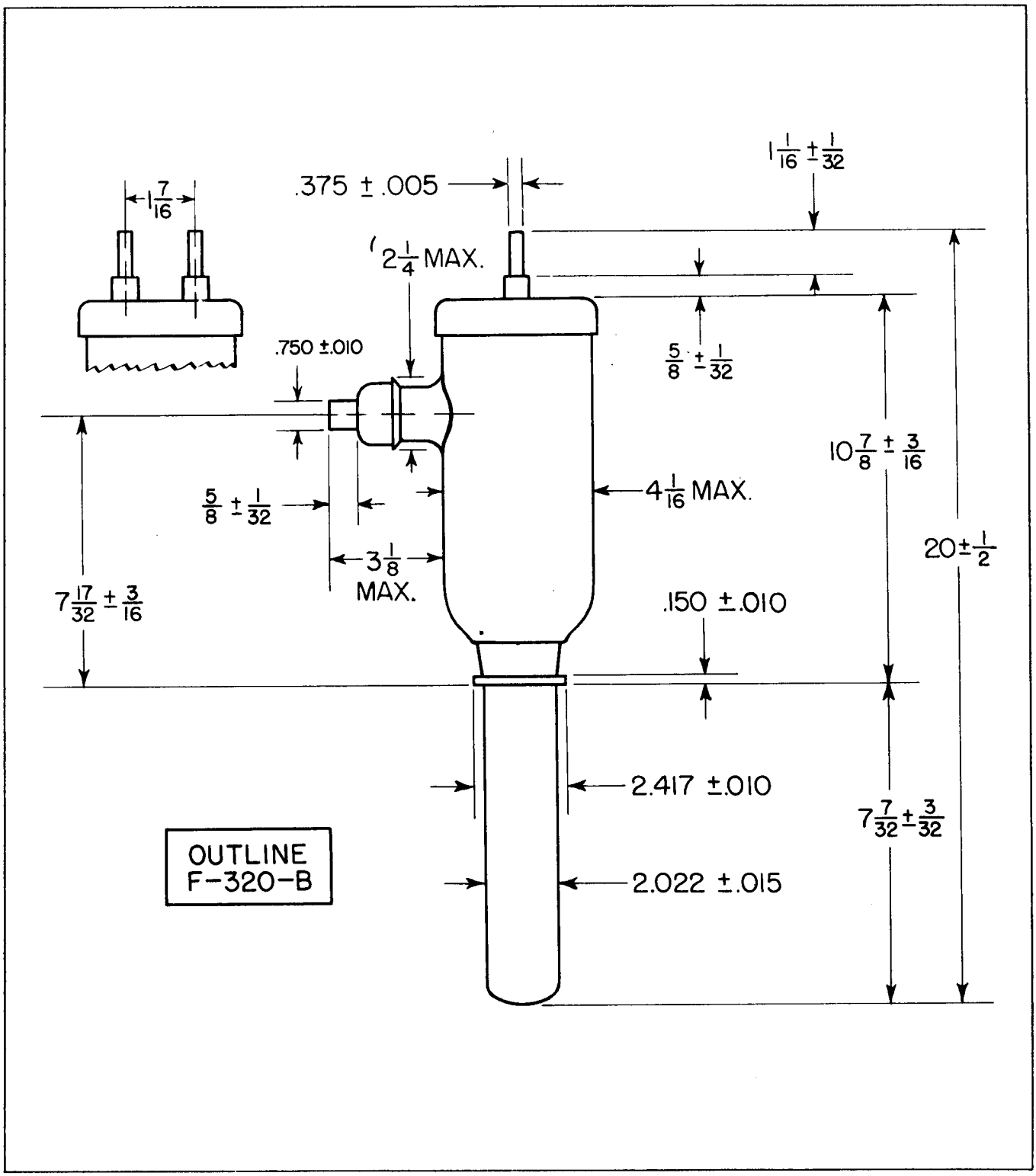
FEDERAL POWER TRIODE
Type F-320-B
10 Kilowatts Plate Dissipation

The high quality of materials and precision craftsmanship established by Federal in the early days of tube making have never been compromised.



Long life in a tube is not a chance result or circumstance. In Federal, long life is a part of the design.

FEDERAL POWER TRIODE
Type F-320-B
10 Kilowatts Plate Dissipation



Federal Telephone and Radio Corporation
100 Kingsland Road Clifton, New Jersey

Federal Always Has
Made Better Tubes

Form FJ-161 Printed in U. S. A.