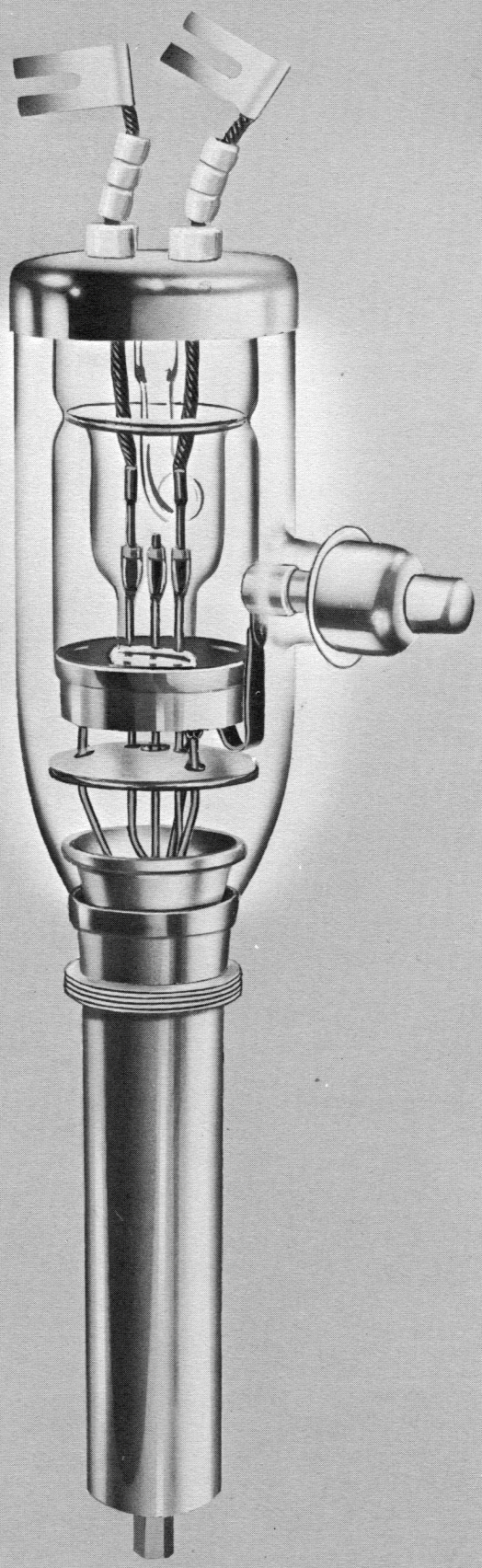
FEDERAL POWER TRIODE
Type F-110-X
25 Kilowatts Plate Dissipation



GENERAL DATA

DESCRIPTION:

Federal's F-110-X is a three-electrode tube designed for use as a radio-frequency power amplifier and oscillator. The anode is water-cooled, capable of dissipating 25 kilowatts. The cathode is a pure tungsten filament. Maximum ratings apply up to 3 megacycles with operation permissible up to 20 megacycles at reduced ratings.

Electrical:

▶ Filament Voltage	28 Volts
▶ Filament Current	51 Amperes
▶ Filament Starting Current	102 Amperes
▶ Peak Cathode Current	12.5 Amperes
▶ Amplification Factor, at I_b=0.75 amp. E_c=—300 volts	40
▶ Interelectrode Capacitances	
Grid-Plate	30 $\mu\mu$f
Grid-Filament	20 $\mu\mu$f
Plate-Filament	2.7 $\mu\mu$f

Mechanical:

▶ Mounting Position— Vertical, Anode Down	
▶ Type of Cooling—Water	
Water Flow on Anode	10 GPM
Maximum Outgoing Water Temperature	70° C
Maximum Glass Temperature	150° C
▶ Net Weight, approximate	4 Pounds

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Maximum Ratings vs. Operating Frequency

Frequency	3	20 Megacycles
Percentage of Maximum Rated Plate Voltage and Plate Input Class C—Telegraphy	100	42 Per Cent

Maximum Ratings and Typical Operating Conditions

RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—CLASS C TELEGRAPHY

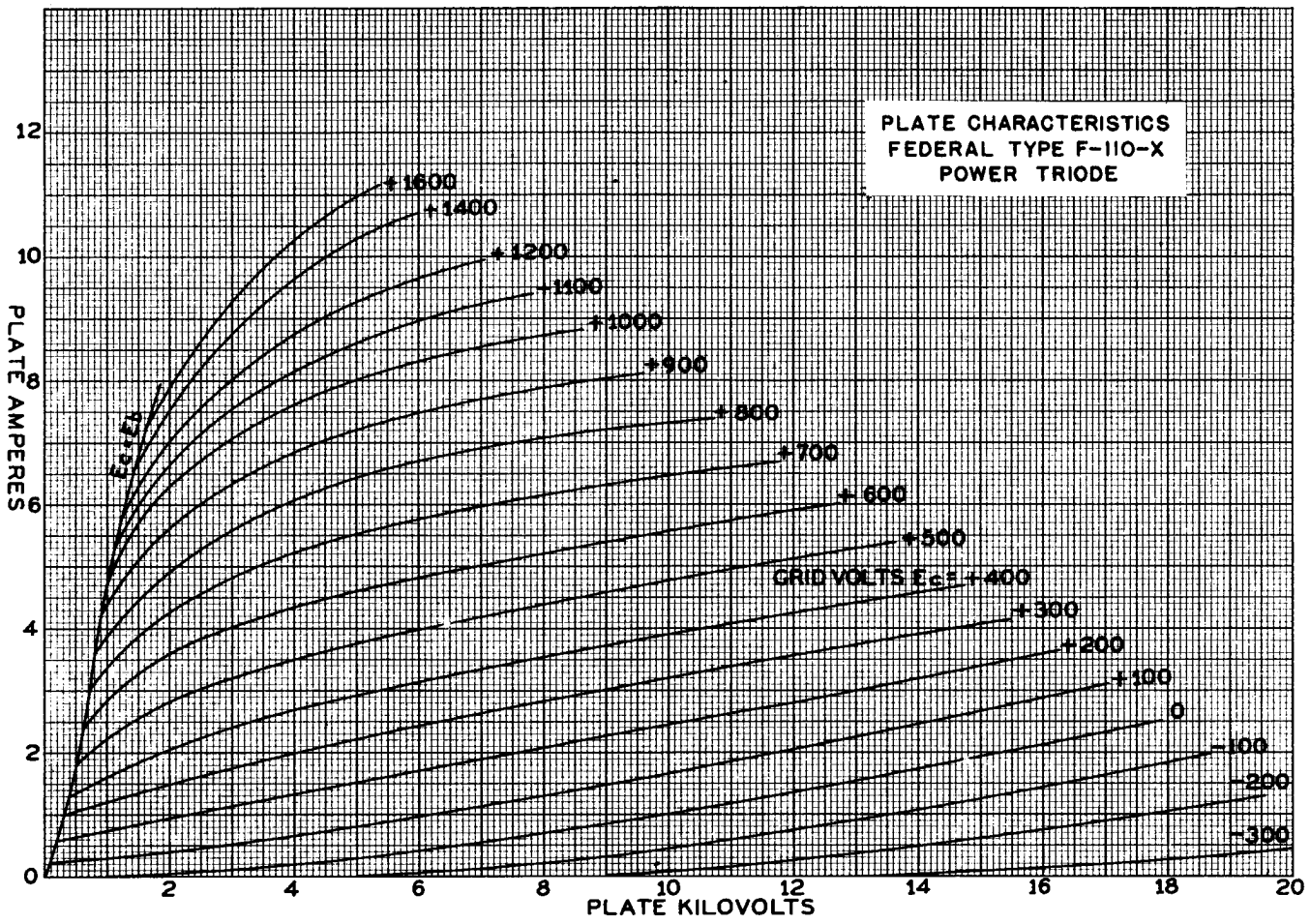
(Key-down conditions per tube without amplitude Modulation)

Maximum Ratings, Absolute Values

DC Plate Voltage	20,000 Volts
DC Grid Voltage	—5,000 Volts
DC Plate Current	2.5 Amperes
DC Grid Current	0.5 Ampere
Plate Input	50 Kilowatts
Plate Dissipation	25 Kilowatts

Typical Operation

DC Plate Voltage	10,000 Volts
DC Grid Voltage	—360 Volts
Peak R-F Grid Voltage	1,760 Volts
DC Plate Current	2.5 Amperes
DC Grid Current, approx.	0.325 Ampere
Driving Power, approx.	550 Watts
Power Output, approx.	16.8 Kilowatts



Buyers who specify "Federal" because they want *long-lived* tubes, know from experience they'll get what they want.

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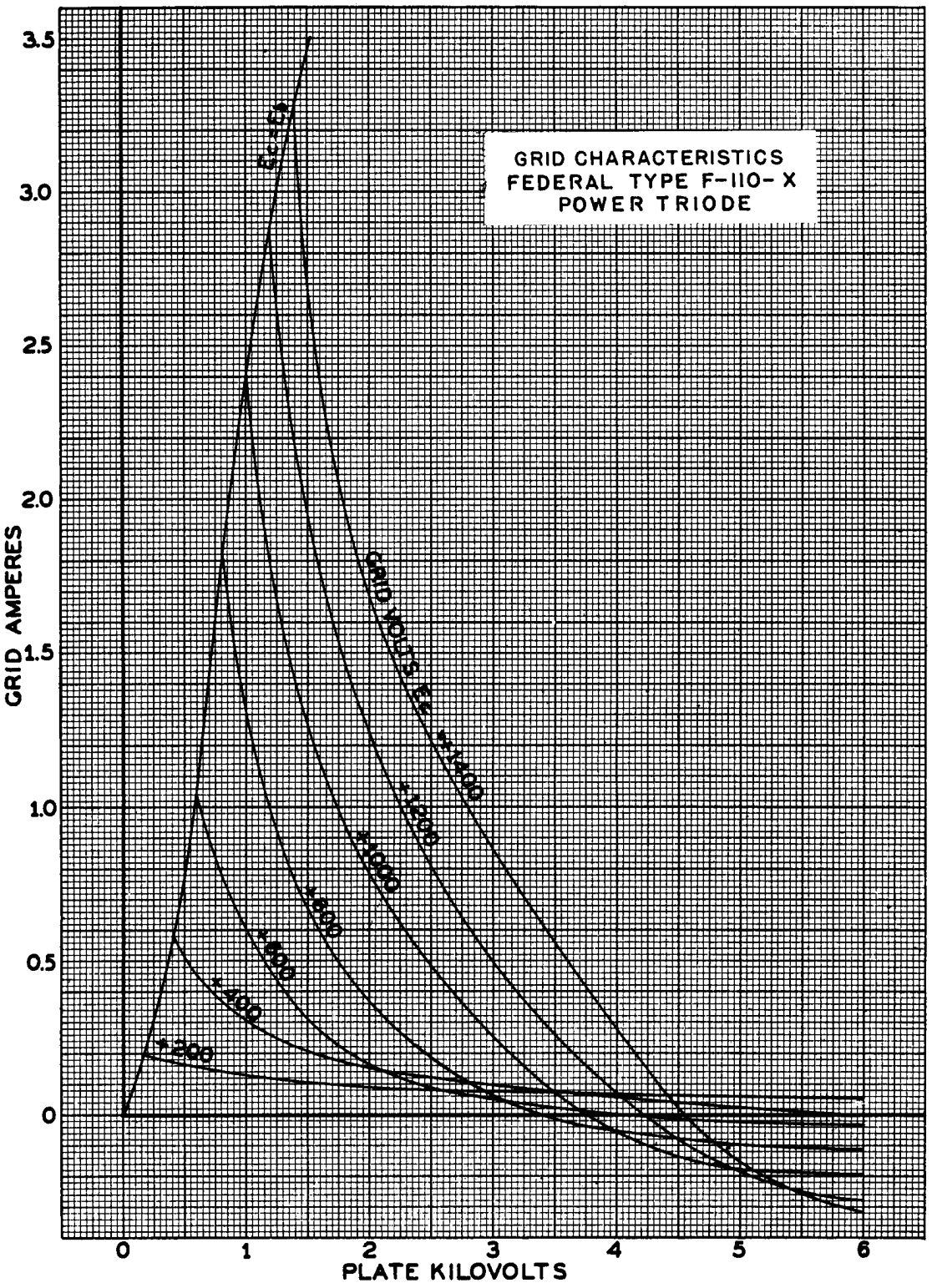

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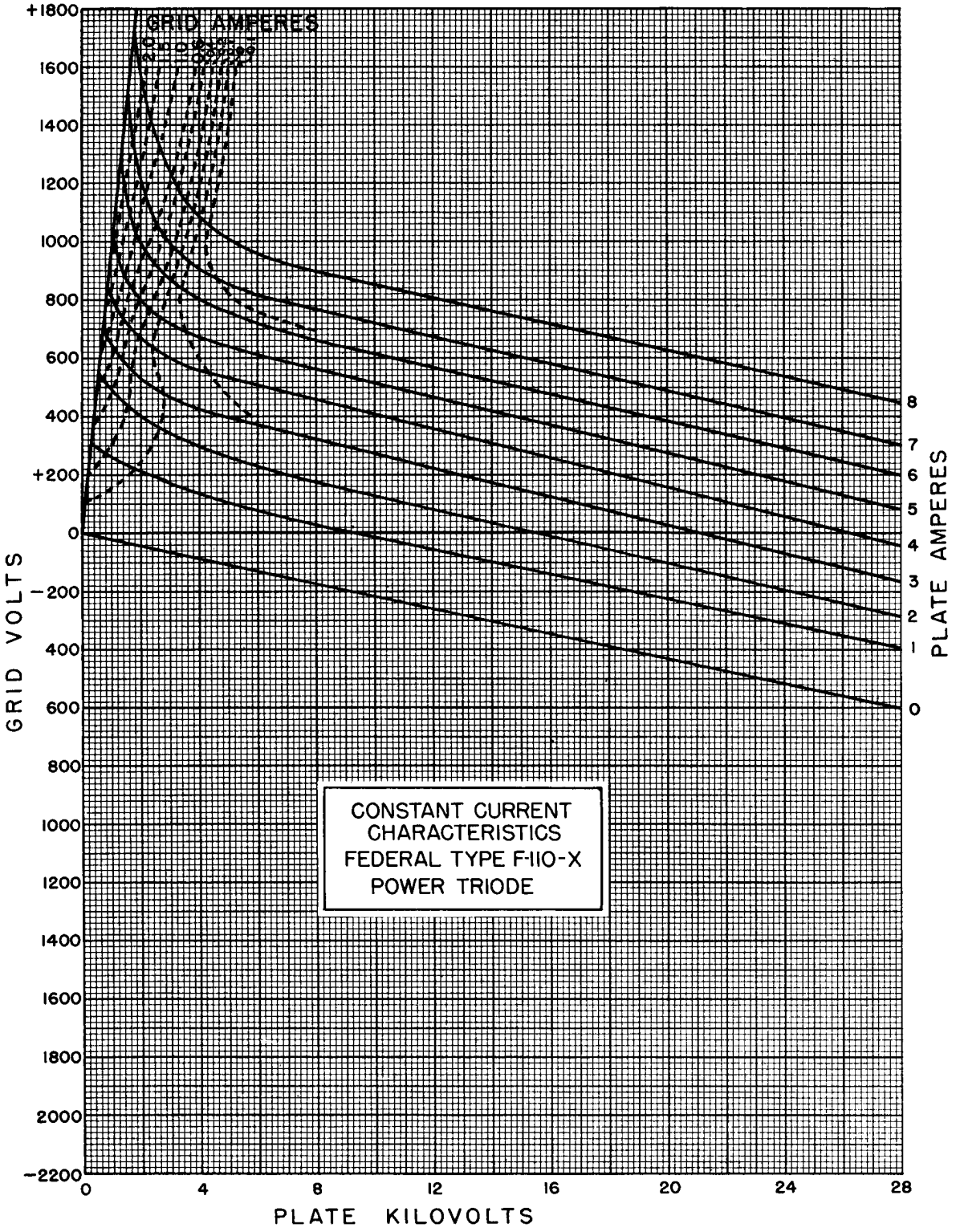
Federal always has made *first-quality* tubes, and the record goes back for more than 40 years.



Federal's name on a tube signifies the best in design, engineering, materials, components and craftsmanship.

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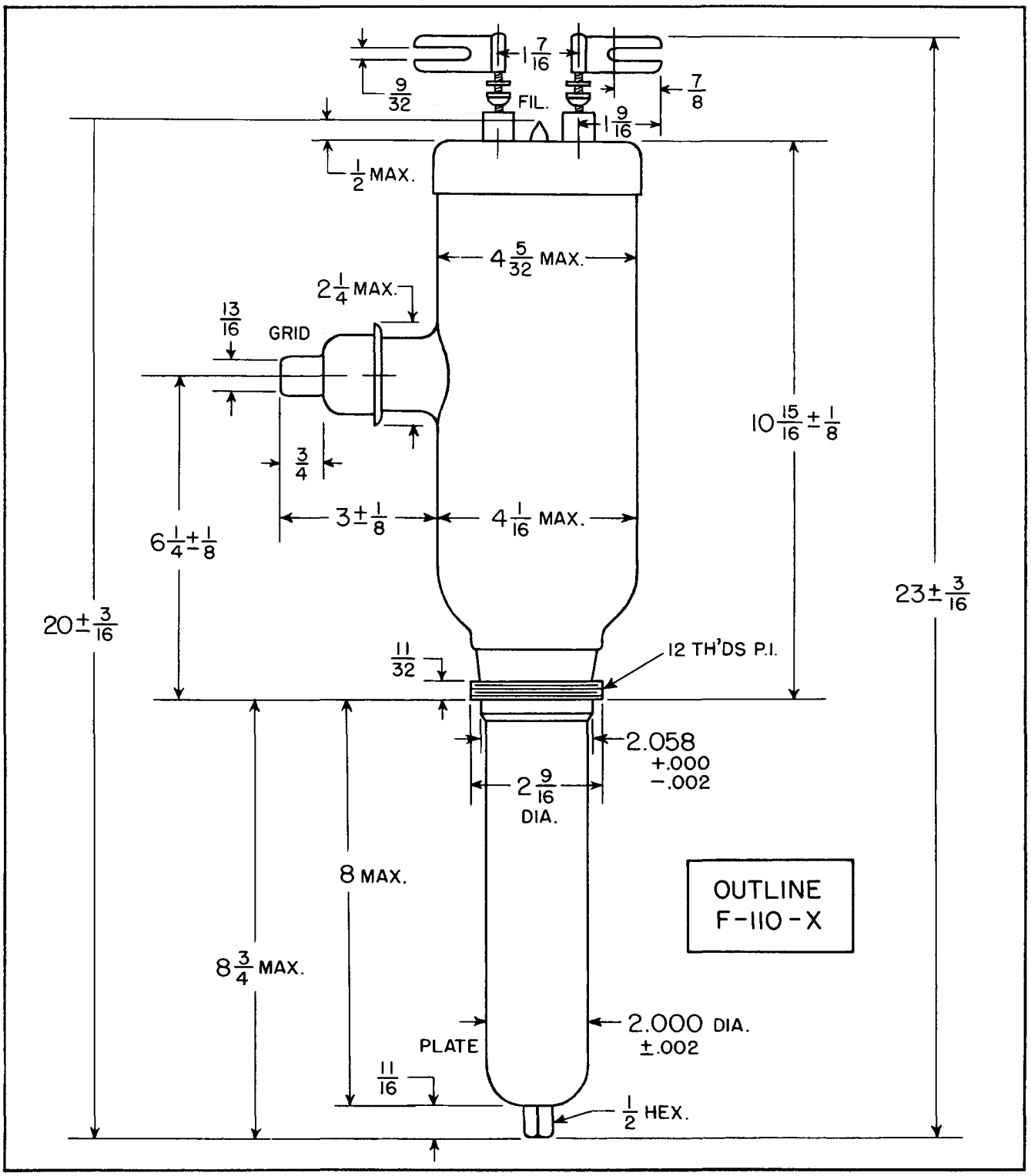

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FEDERAL TELEPHONE & RADIO

FTR

Federal Always Has
Made Better Tubes