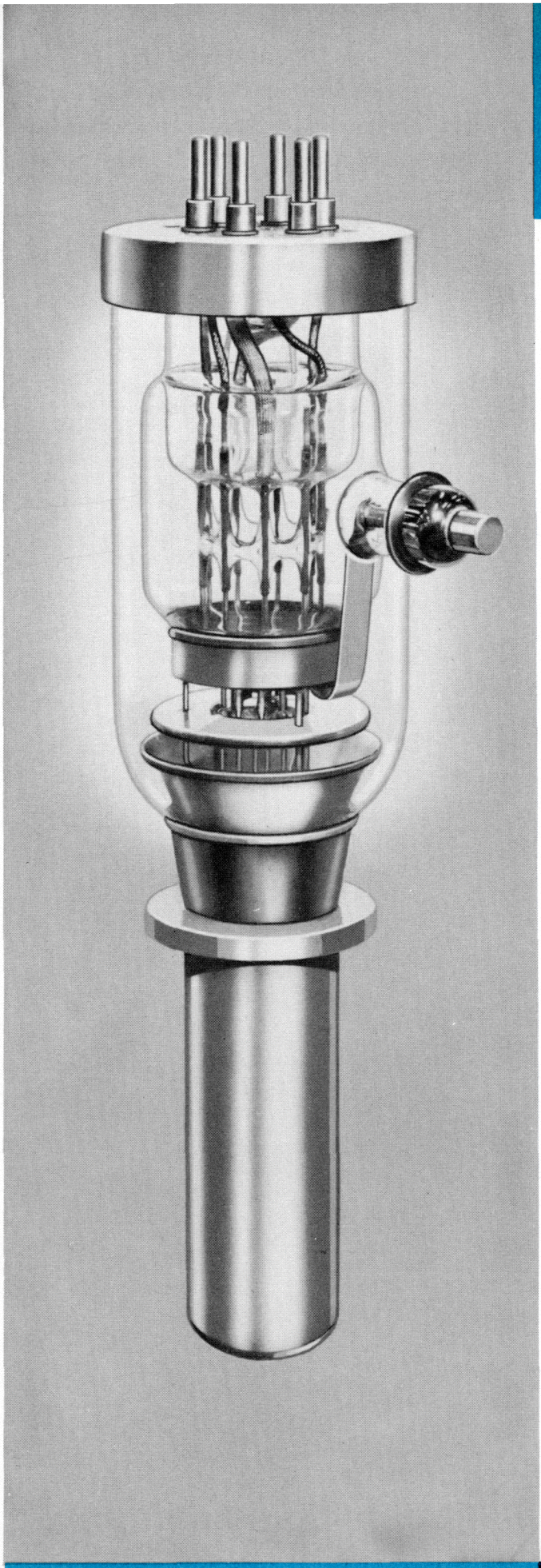
FEDERAL POWER TRIODE
Type F-125-A
40 Kilowatts Plate Dissipation



GENERAL DATA

DESCRIPTION:

The Type F-125-A by Federal is a three-electrode tube designed and engineered as a modulator. The electrical characteristics of this F-125-A make it especially suitable to Class AB modulator circuits. The anode is water-cooled, capable of dissipating 40 kilowatts. The cathode is a pure tungsten multi-strand filament which may be operated on DC, 1 Ø, 3 Ø, or 6 Ø AC excitation. Maximum ratings apply for audio-frequency use only.

Electrical:

Filament Voltage§	27.2 Volts
Filament Current§	196.5 Amperes
Filament Starting Current§	300 Amps. Max.
Filament Cold Resistance§	.015 Ohms
Amplification Factor, $E_c = -1600V$ $I_b = 3.0A$	4.75
Interelectrode Capacitances	
Grid-Plate	45$\mu\mu$f
Grid-Filament	56$\mu\mu$f
Plate-Filament	20$\mu\mu$f

§Single phase excitation.

Mechanical:

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

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Federal's F-125-A serves the nation's broadcast transmitters as modulator for the 124-A for which it was specifically designed. It has set a *standard* in the industry.

Maximum Ratings and Typical Operating Conditions

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS AB1

Maximum Ratings, Absolute Values

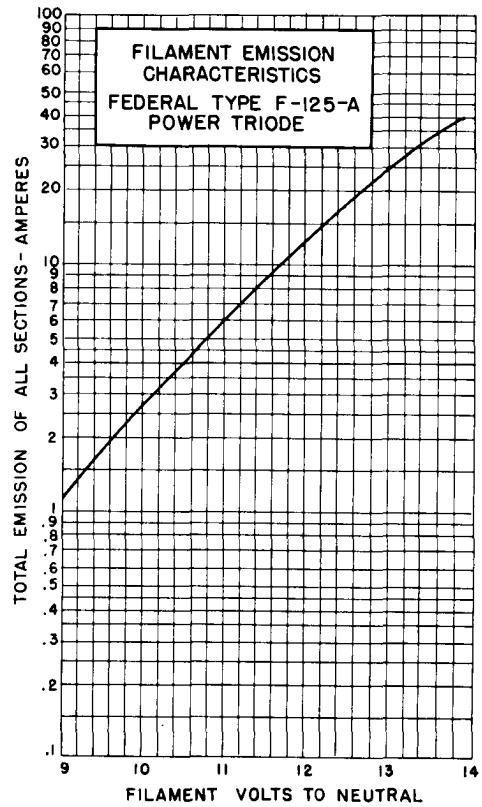
DC Plate Voltage	15,000 Volts
Maximum Signal DC Plate Current†	10 Amperes
Maximum Signal Plate Input†	100 Kilowatts
Plate Dissipation†	40 Kilowatts

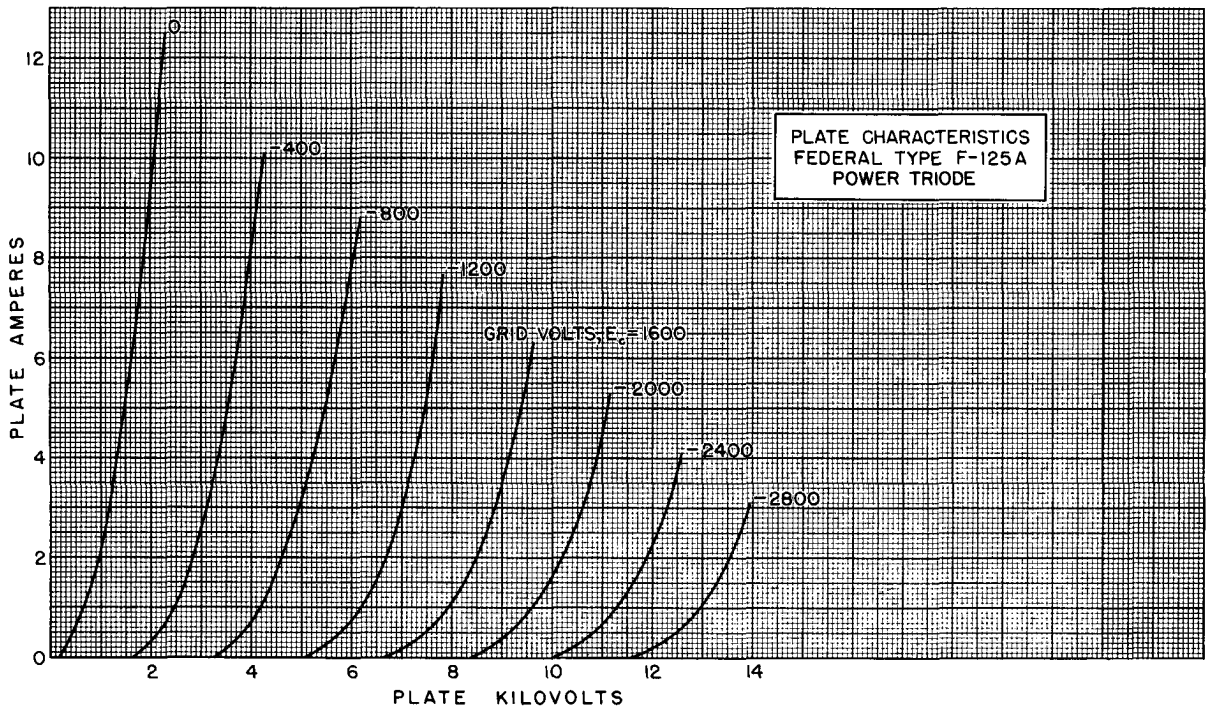
Typical Operation

(Unless otherwise specified, values are for two tubes)

DC Plate Voltage	10,000	12,000 Volts
DC Grid Voltage	—2,125	—2,600 Volts
Peak A-F Grid to Grid Voltage	4,220	5,160 Volts
Zero-Signal DC Plate Current	1.4	1.8 Amperes
Maximum Signal DC Plate Current	6.1	5.3 Amperes
Effective Load Resistance, Plate to Plate	3,100	5,000 Ohms
Maximum Signal Driving Power	0	0 Watts
Maximum Signal Power Output	40	40 Kilowatts

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





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The low amplification factor in the F-125-A makes for easy attainment of high output in Class AB_1 modulators *without driving the grid positive.*

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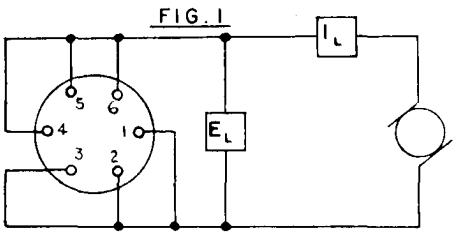
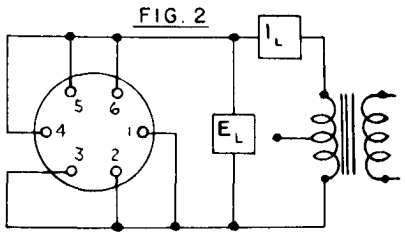
FIG. 1



D.C. CONNECTION

E_L = 'X' VOLTS D.C.
I_L = 'Y' AMPS. D.C.

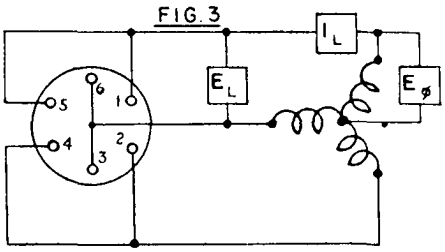
FIG. 2



SINGLE-PHASE A.C. CONNECTION

E_L = 'X' VOLTS A.C.
I_L = 'Y' AMPS. A.C.

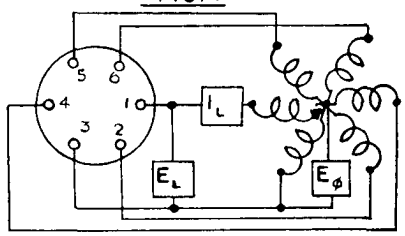
FIG. 3



THREE-PHASE A.C. CONNECTION

E_L = 'X' VOLTS A.C.
I_L = 'Y' AMPS. A.C.
E_ϕ = 'Z' VOLTS A.C.

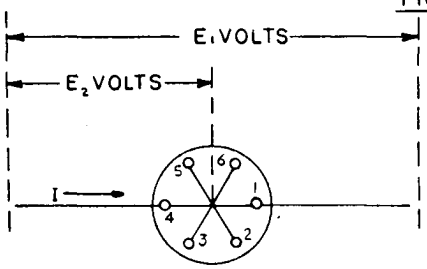
FIG. 4



SIX-PHASE A.C. CONNECTION

E_L = 'X' VOLTS A.C.
I_L = 'Y' AMPS. A.C.
E_ϕ = 'Z' VOLTS A.C.

FIG. 5



INTERNAL CONNECTION OF FILAMENTS

NUMBERS 1 TO 6 INCLUSIVE ON CONNECTIONS DENOTE BASE TERMINALS.

E_1 = 'U' VOLTS D.C. OR A.C. TERMINAL TO TERMINAL VOLTAGE.

E_2 = 'V' VOLTS D.C. OR A.C. VOLTAGE PER FILAMENT STRAND *i.e.* FROM TERMINAL TO COMMON TERMINAL CONNECTION.

I = 'W' AMPERES CURRENT PER FILAMENT TERMINAL.

FIG.	'U'	'V'	'W'	'X'	'Y'	'Z'
1				27.2	196.5	
2				27.2	196.5	
3				23.5	131.0	13.6
4				13.6	65.5	13.6
5	27.2	13.6	65.5			

MULTI-PHASE FILAMENT CONNECTIONS

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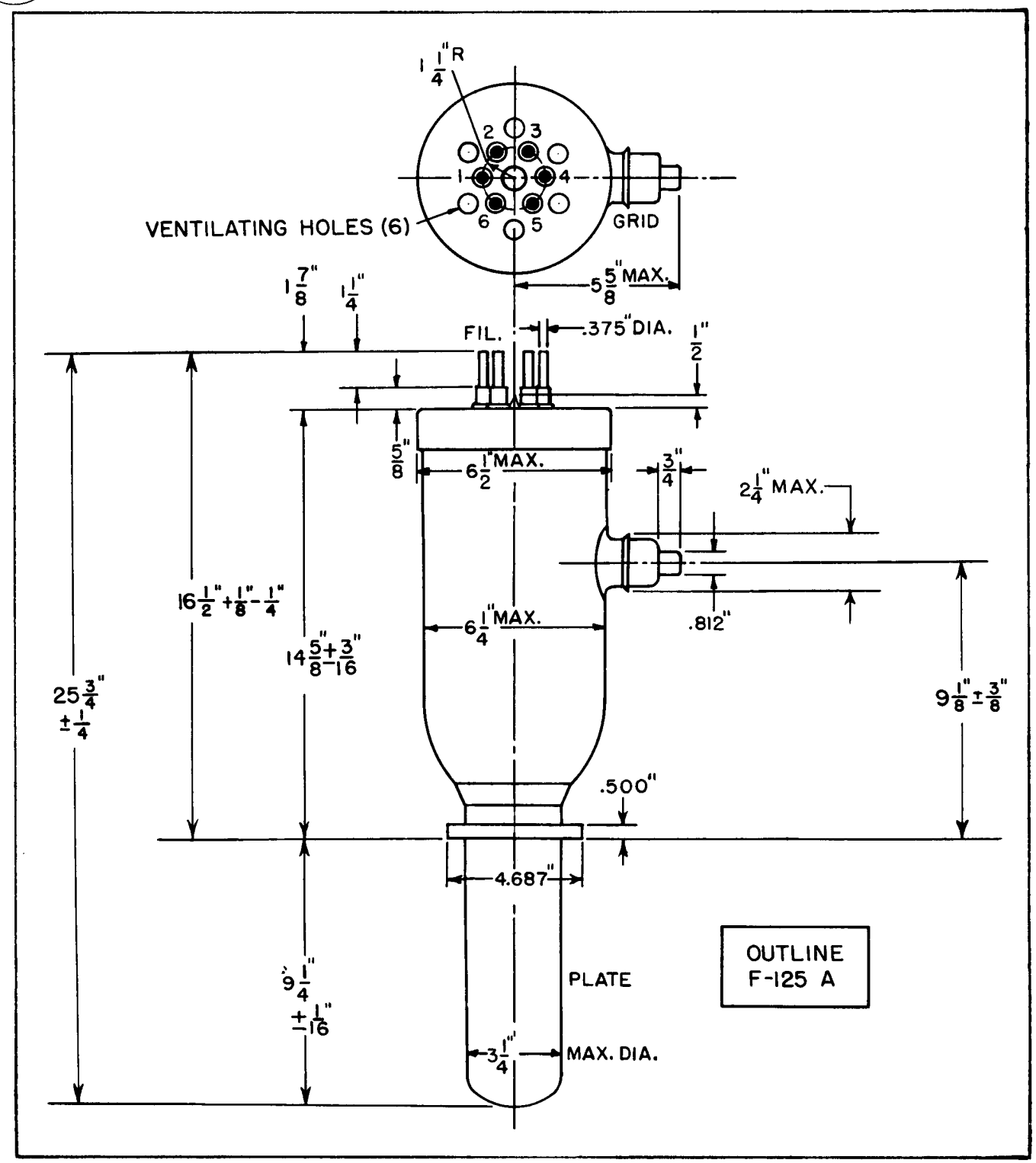
For nearly four decades the name *Federal* has been synonymous with leadership in tube development, design, manufacture and performance.



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