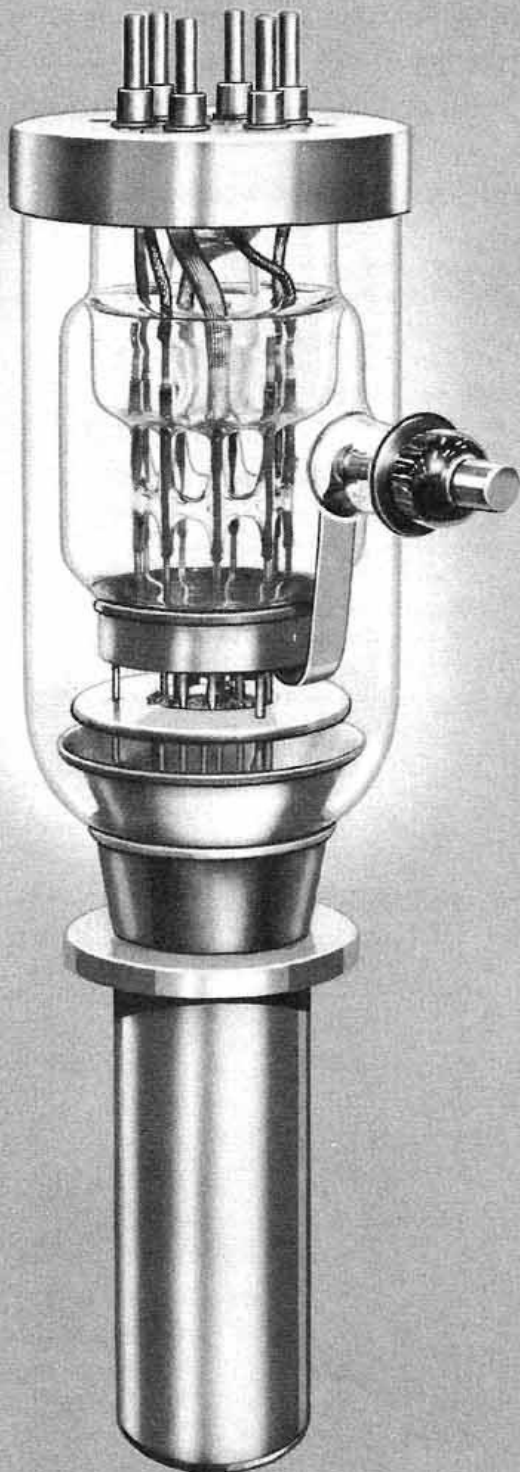




FEDERAL POWER TRIODE

Type F-9C28

40 Kilowatts Plate Dissipation



GENERAL DATA

DESCRIPTION:

Federal's F-9C28 is a three-electrode tube designed for use as a modulator in Class AB₁ circuits. The anode is water-cooled, capable of dissipating 40 kilowatts. The cathode is a thoriated tungsten multi-strand filament and may be operated on DC, 1 ϕ , 3 ϕ , or 6 ϕ AC excitation. Maximum ratings apply for audio-frequency use only.

Electrical:

► Filament Voltage§	15 Volts
► Filament Current§	135 Amperes
► Filament Starting Current§	200 Amps. max.
► Filament Cold Resistance§	.019 Ohms
► Peak Cathode Current	45 Amperes
► Amplification Factor, $E_c = -1,600 \text{ V}; I_b = 3.0 \text{ A}$	4.75

► Interelectrode Capacitances

Grid-Plate	45 $\mu\mu\text{f}$
Grid-Filament	56 $\mu\mu\text{f}$
Plate-Filament	20 $\mu\mu\text{f}$

§Single phase excitation.

Mechanical:

► Mounting Position— Vertical, Anode Down	
► Type of Cooling—Water Minimum Water Flow on Anode	20 GPM
Maximum Outgoing Water Temperature	70° C
Maximum Glass Temperature	150° C
► Net Weight, approx.	11 1/2 Pounds

FEDERAL POWER TRIODE

Type F-9C28

40 Kilowatts Plate Dissipation



The F-9C28 is Federal's thoriated tungsten filament low μ modulator tube for use in conjunction with the F-9C30.

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

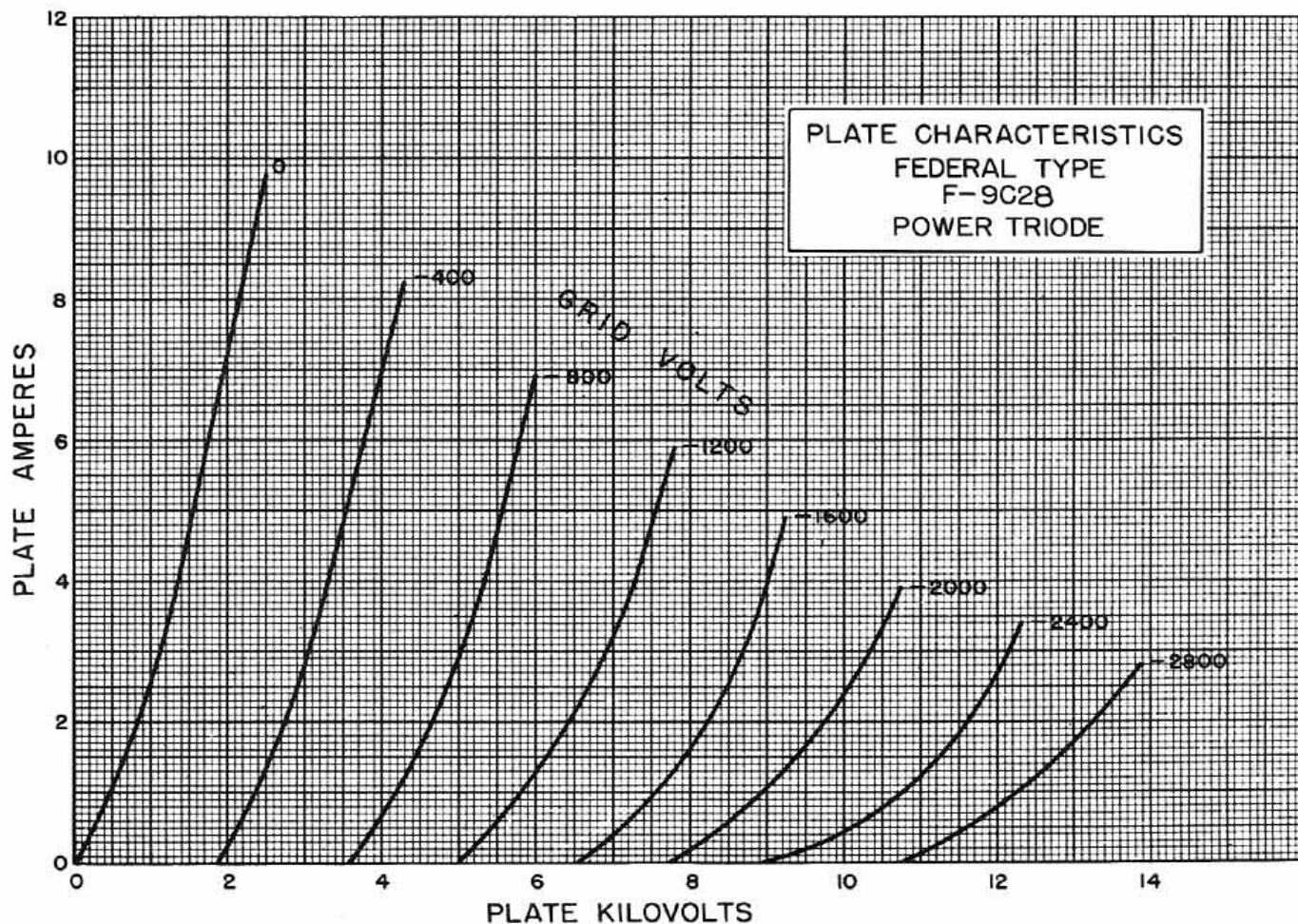
Typical Operation

(Unless otherwise specified, values are for two tubes)

DC Plate Voltage	10,000	12,000 Volts
DC Grid Voltage	-2,200	-2,600 Volts

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

Peak A-F Grid to Grid Voltage	4,380	5,160 Volts
Zero-Signal DC Plate Current	1.2	1.4 Amperes
Maximum Signal DC Plate Current	7.2	5.6 Amperes
Effective Load Resistance, Plate to Plate	2,600	4,500 Ohms
Maximum Signal Driving Power	0	0 Watts
Maximum Signal Power Output	39	39 Kilowatts

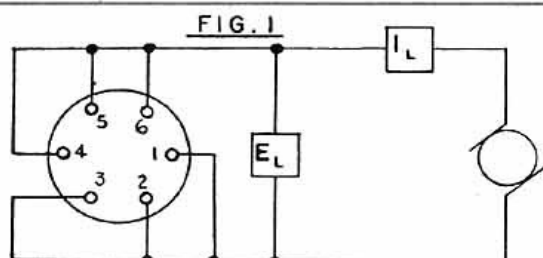


Up to 100 kilowatts of audio power
is available . . . from two Federal
F-9C28 tubes in a Class AB modulator.

FEDERAL POWER TRIODE

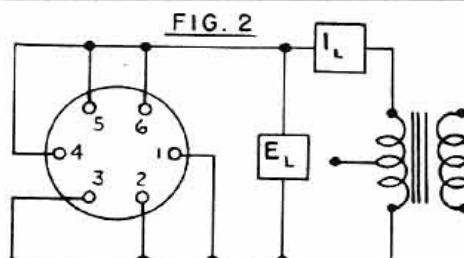
Type F-9C28

40 Kilowatts Plate Dissipation



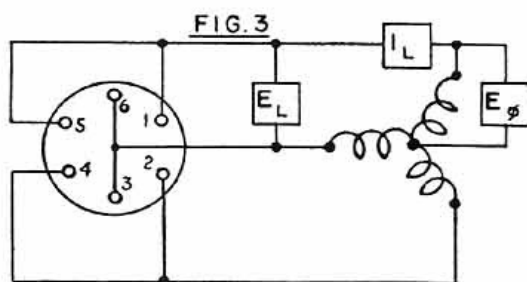
D.C. CONNECTION

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



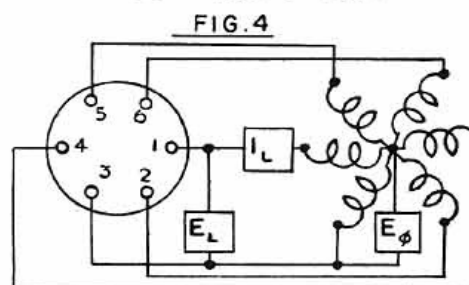
SINGLE-PHASE A.C. CONNECTION

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



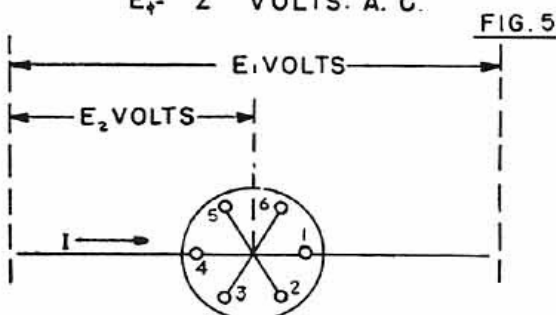
THREE-PHASE A.C. CONNECTION

$E_L = 'X'$ VOLTS A.C.
 $I_L = 'Y'$ AMPS. A.C.
 $E_\phi = 'Z'$ VOLTS. A.C.



SIX-PHASE A.C. CONNECTION

$E_L = 'X'$ VOLTS A.C.
 $I_L = 'Y'$ AMPS. A.C.
 $E_\phi = 'Z'$ VOLTS. A.C.



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				15	135	
2				15	135	
3				13	90	7.5
4				7.5	45	7.5
5	15	7.5	45			

MULTI-PHASE FILAMENT CONNECTIONS

FEDERAL POWER TRIODE

Type F-9C28

40 Kilowatts Plate Dissipation



One of the *first* to manufacture power tubes, Federal's experience goes back to the earliest days of the industry.

