



**FEDERAL
TUBES**

engineering

DATA

**F-7206
POWER TRIODE**

VACUUM TUBE DEPARTMENT

TENTATIVE SPECIFICATION

DESCRIPTION

The F-7206 is a three-electrode tube designed for use as an industrial oscillator. The anode is capable of dissipating 20 kilowatts during Continuous Commercial Service. Cooling is accomplished by circulating water on the anode and forced air on the bulb and seals. The cathode is a thoriated tungsten filament of mesh cathode construction and may be operated on d-c or single phase a-c.

ELECTRICAL

Filament Voltage	7.5 volts
Filament Current	220 amperes
Filament Starting Current	
Full rated filament voltage may be safely applied to the cold filament	
Filament Heating Time, minimum	5 seconds
Amplification Factor	
$E_c = 150$ v. $I_b = 4.0$ amps	18
Peak Cathode Current (Note 1)	45 amperes
Direct Inter-electrode Capacitances	
Grid-Plate	55 μmf
Grid-Filament	42 μmf
Plate-Filament	3.0 μmf

Note 1: Represents maximum usable cathode current (plate current plus grid current) for any CW condition of operation.

MECHANICAL

Type of Cooling	Water and Forced Air			
Water flow on Anode				
Plate Dissipation	8	12	16	20 kilowatts
Minimum Water Flow	2.6	3.3	4.6	7.2 gpm
Maximum Outgoing Water Temperature				70 °C
Air Flow (to bulb and seals)				50 cfm
from a 3-inch diameter nozzle				
Weight, approximate				6 lbs



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P. O. BOX 412, CLIFTON, NEW JERSEY

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Radio-Frequency Power Amplifier and Oscillator--Class C Telegraphy (Key down conditions per tube without Amplitude Modulation*)

Maximum CCS Ratings, Absolute Values

D-C Plate Voltage	10,000 volts max.
D-C Grid Voltage	-1,500 volts max.
D-C Plate Current	8 amperes max.
D-C Grid Current**	.6 amperes max.
Plate Input	55 kilowatts max.
Plate Dissipation	20 kilowatts max.

Typical Operation

D-C Plate Voltage	9,500	7,500	6,000 volts
D-C Grid Voltage	-1,300	-1,200	-1,000 volts
Peak R-F Grid Voltage	1,850	1,700	1,500 volts
D-C Plate Current	5.5	5.2	5.5 amperes
D-C Grid Current, approx.	.530	.53	.53 amperes
Driving Power, approx.	1,000	900	800 watts
Grid Dissipation, approx.	300	275	275 watts
Power Output, approx.	35	28	22 kilowatts

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

**The power dissipated by the grid must never exceed 600 watts. Grid dissipation approximates the product of peak positive grid voltage and d-c grid current. Peak positive grid voltage may be measured by means of a suitable peak voltmeter connected between grid and filament, or determined by calculations using the constant current characteristics of the tube.

RATINGS VERSUS FREQUENCY

Maximum ratings apply up to 30 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced according to the tubulation below (other maximum ratings are the same as shown above). Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency	30	40	50 megacycles
Percentage of Maximum Rated Plate Voltage and Plate Input	100	80	50 per cent

PULSE SERVICE OPERATIONS

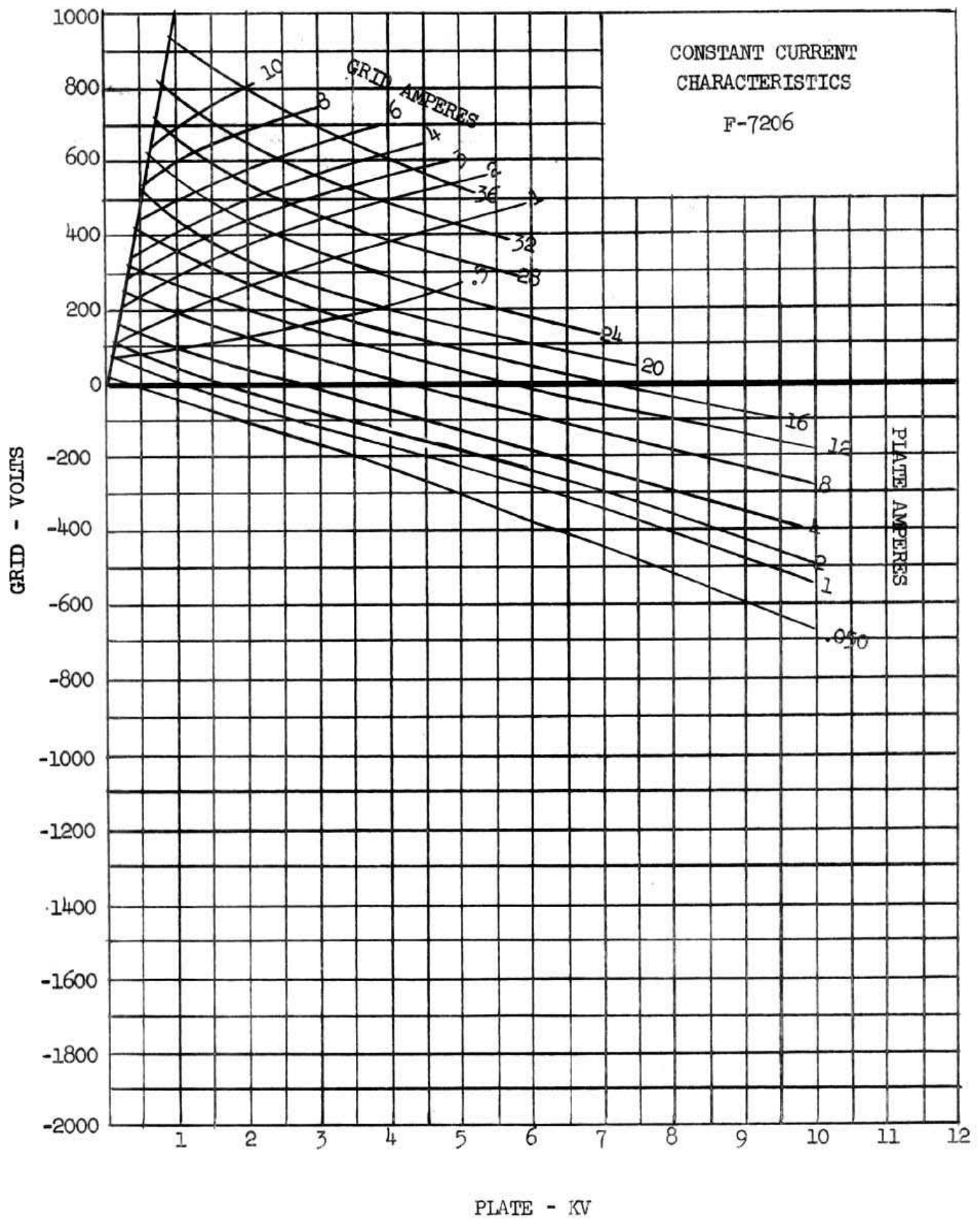
In pulse service, it is possible to operate the tube under conditions not permissible in CW operation. Because of the wide variety of operating conditions, it is advisable that tube operation recommendations be obtained from our Engineering Department for specific conditions.

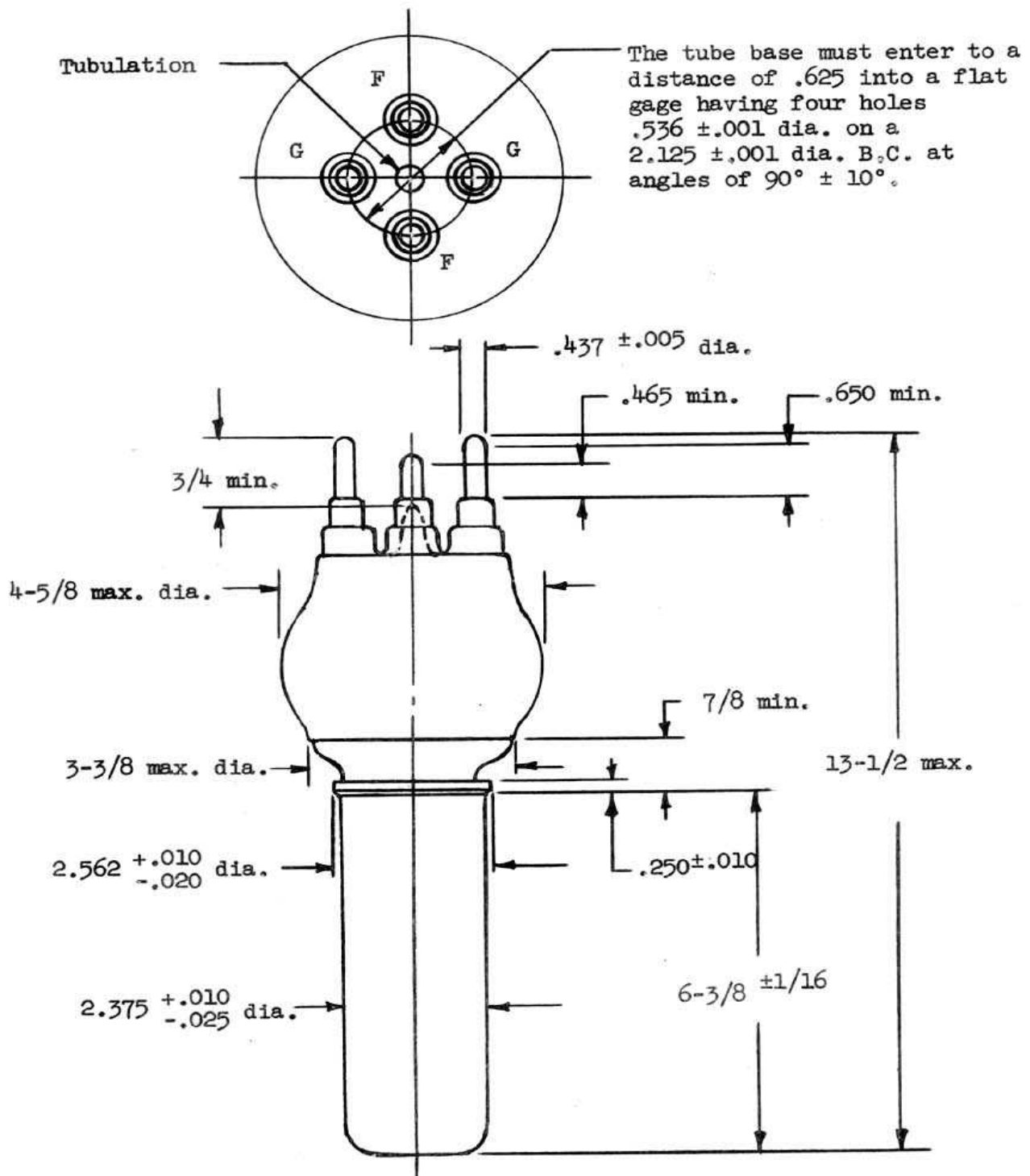
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OUTLINE
F-7206 POWER TRIODE



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