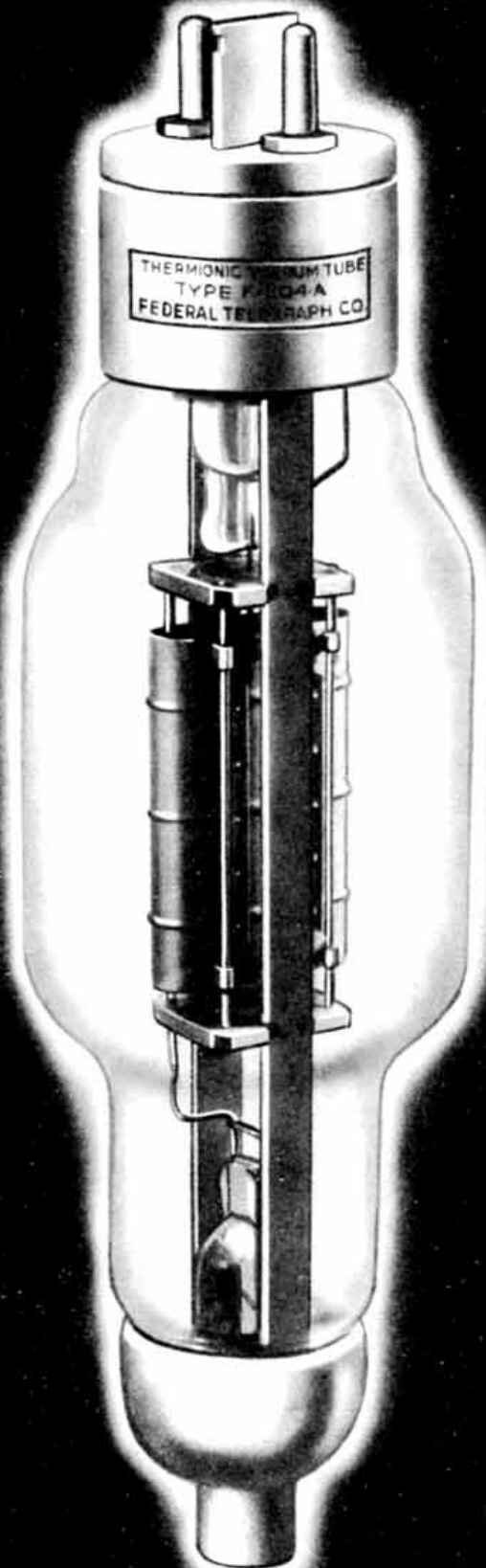


# **FEDERAL**

## **F-204-A TRANSMITTING TUBE**



### **TECHNICAL DATA**

|                                                                                                     |                                                       |  |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------|--|
| Main Use                                                                                            | R-F Power Amplifier, Oscillator,<br>Class B Modulator |  |
| Number of Electrodes                                                                                | 3                                                     |  |
| Filament Voltage                                                                                    | 11 volts                                              |  |
| Filament Current                                                                                    | 3.85 amperes                                          |  |
| Filament Type                                                                                       | Thoriated Tungsten                                    |  |
| Available Thermionic Emission                                                                       | 2.0 amperes                                           |  |
| Average Characteristic Values calculated at<br>$E_b=2000$ , $I_b=0.125$ ampere, $E_f=11$ A-C volts. |                                                       |  |
| Grid Voltage<br>(approximate)                                                                       | -32 volts                                             |  |
| Amplification Factor                                                                                | 23                                                    |  |
| Mutual Conductance                                                                                  | 3500 micromhos                                        |  |
| Plate Resistance                                                                                    | 6500 ohms                                             |  |
| Approximate Direct Inter-electrode Capacitances                                                     |                                                       |  |
| Plate to Grid                                                                                       | 15 mmf.                                               |  |
| Grid to Filament                                                                                    | 12 mmf.                                               |  |
| Plate to Filament                                                                                   | 4 mmf.                                                |  |
| Type of Cooling                                                                                     | Air                                                   |  |
| Type Base                                                                                           | Standard 250 watt                                     |  |
| Mounting Socket                                                                                     | Standard 250 watt                                     |  |

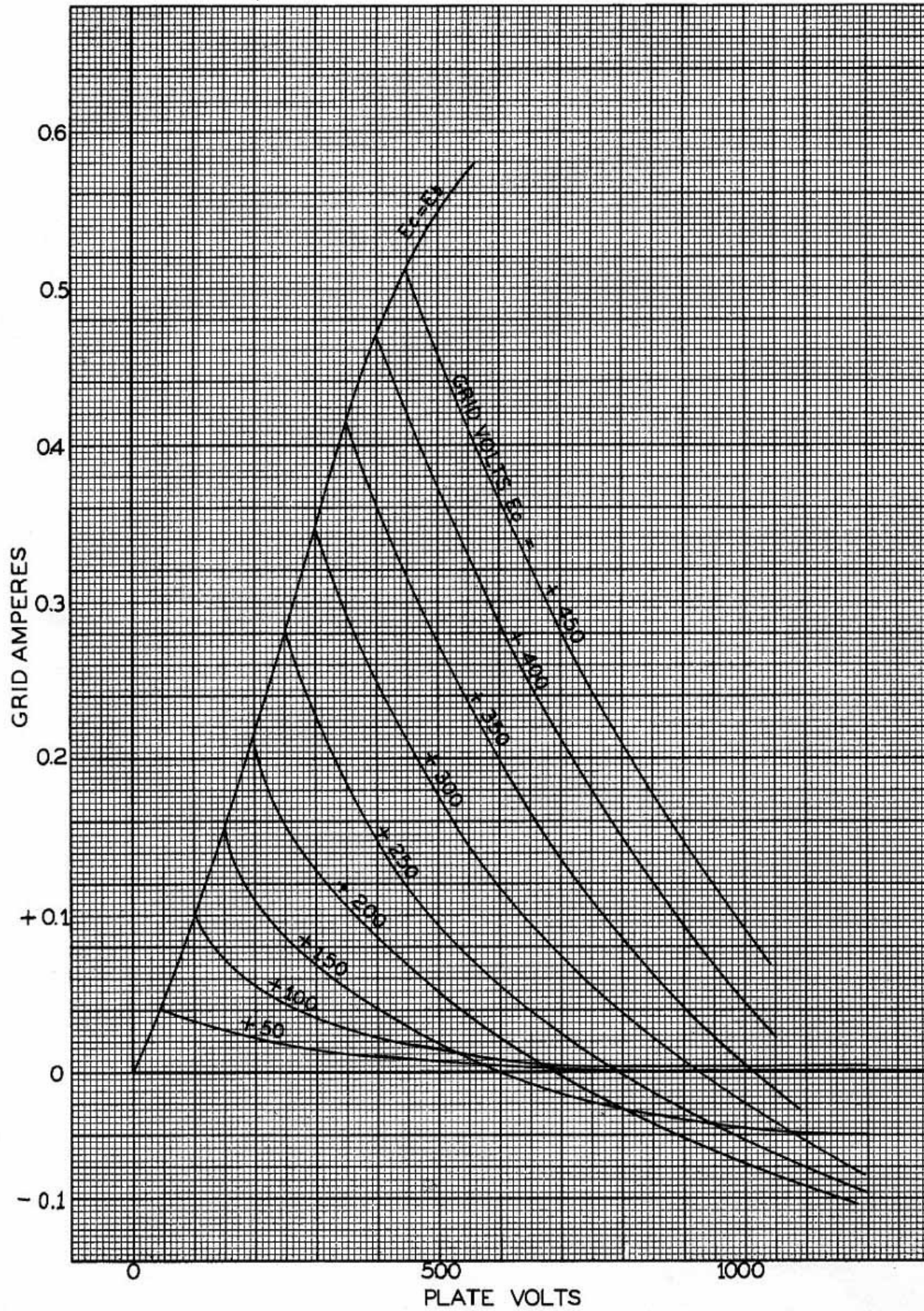
*The information above and in the following pages by no means represents exact conditions of operation to be imposed for any particular situation. Since tubes are used under many widely different conditions the manufacturer will gladly furnish information regarding characteristics for design purposes.*

*Manufactured by*

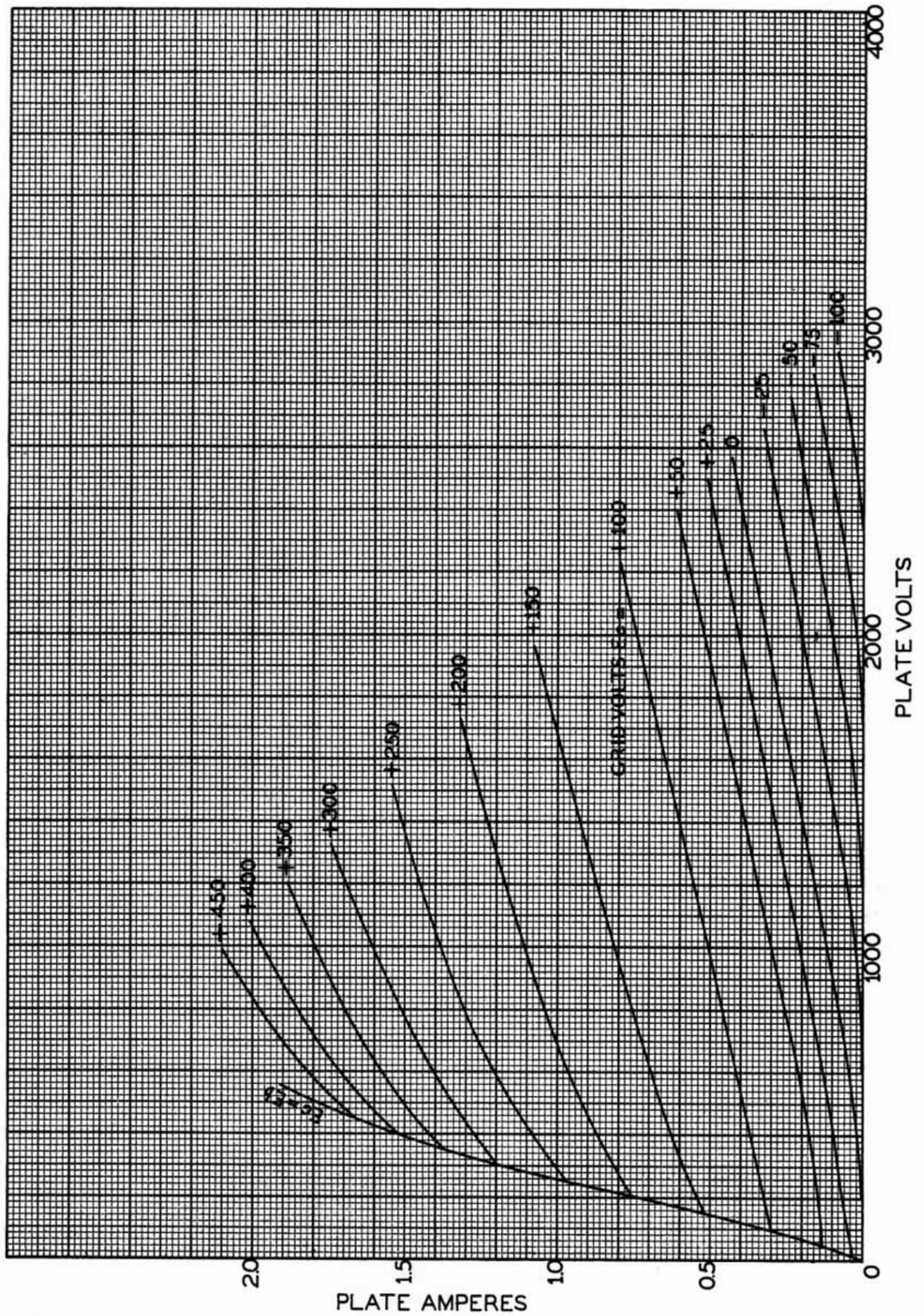
**FEDERAL TELEGRAPH CO.**

200 Mt. Pleasant Avenue Newark, N. J., U. S. A.

# AVERAGE GRID CHARACTERISTICS F-204-A Transmitting Tube



AVERAGE PLATE CHARACTERISTICS F-204-A Transmitting Tube





# Maximum Ratings

F-204-A Transmitting Tube

For maximum frequency of 3.0 megacycles

## CLASS B AUDIO AMPLIFIER OR MODULATOR

|                               |              |
|-------------------------------|--------------|
| D-C Plate Voltage             | 3000 volts   |
| Max. Signal D-C Plate Current | 0.275 ampere |
| Max. Signal Plate Input       | 600 watts    |
| Plate Dissipation             | 250 watts    |

## CLASS C R-F POWER AMPLIFIER— TELEPHONY — PLATE MODULATED

(Carrier conditions per tube for use with  
modulation factor up to 1.0)

|                   |              |
|-------------------|--------------|
| D-C Plate Voltage | 2000 volts   |
| D-C Plate Current | 0.275 ampere |
| D-C Grid Current  | 0.080 ampere |
| R-F Grid Current  | 8.0 amperes  |
| Plate Input       | 550 watts    |
| Plate Dissipation | 167 watts    |

## CLASS B R-F POWER AMPLIFIER—TELEPHONY

(Carrier conditions per tube for use with  
modulation factor up to 1.0)

|                   |              |
|-------------------|--------------|
| D-C Plate Voltage | 2500 volts   |
| D-C Plate Current | 0.225 ampere |
| R-F Grid Current  | 8.0 amperes  |
| Plate Input       | 400 watts    |
| Plate Dissipation | 250 watts    |

## CLASS C R-F POWER AMPLIFIER AND OSCILLATOR — TELEGRAPHY

(Key-down conditions per tube without modulation)\*

|                   |              |
|-------------------|--------------|
| D-C Plate Voltage | 2500 volts   |
| D-C Grid Voltage  | —500 volts   |
| D-C Plate Current | 0.275 ampere |
| D-C Grid Current  | 0.080 ampere |
| R-F Grid Current  | 10 amperes   |
| Plate Input       | 690 watts    |
| Plate Dissipation | 250 watts    |

\* Modulation essentially negative, may be used if the positive peak of the audio frequency envelope does not exceed 115% of the carrier condition value.

## Typical Operation Data

F-204-A Transmitting Tube

### CLASS B R-F POWER AMPLIFIER :

(Carrier conditions per tube for use with a  
modulation factor up to 1.0)

|                             |                     |
|-----------------------------|---------------------|
| Filament Voltage            | 11 volts            |
| D-C Plate Voltage           | 2000 volts          |
| D-C Grid Voltage            | —75 volts (approx.) |
| Peak R-F Grid Input Voltage | 175 volts (approx.) |
| D-C Plate Current           | 0.175 ampere        |
| D-C Grid Current            | 0.002 ampere        |
| Driving Power *             | 19 watts (approx.)  |
| Load Impedance              | 3090 ohms           |
| Power Output                | 117 watts (approx.) |

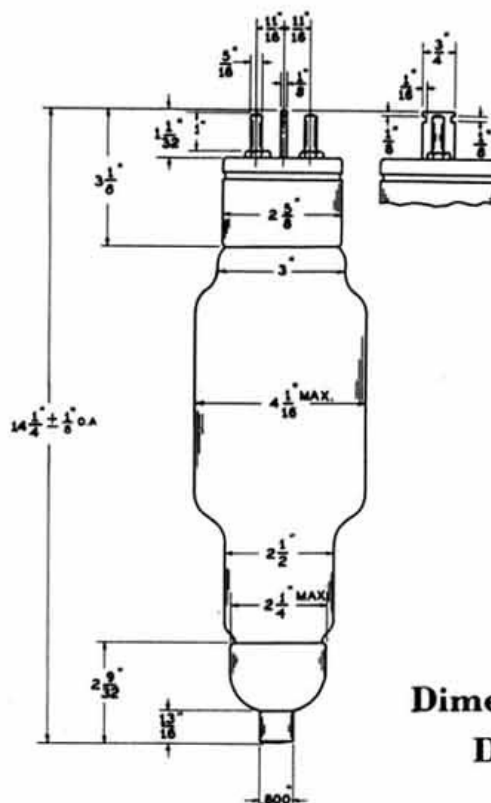
\* At crest of A-F cycle.

### CLASS C R-F POWER AMPLIFIER AND OSCILLATOR — PLATE MODULATED

(Carrier conditions per tube for use with a  
modulation factor up to 1.0)

|                             |                      |
|-----------------------------|----------------------|
| Filament Voltage            | 11 volts             |
| D-C Plate Voltage           | 2000 volts           |
| D-C Grid Voltage            | —300 volts (approx.) |
| Peak R-F Grid Input Voltage | 555 volts (approx.)  |
| D-C Plate Current           | 0.250 ampere         |
| D-C Grid Current            | 0.029 ampere         |
| Driving Power               | 15 watts (approx.)   |
| Power Output                | 354 watts (approx.)  |

\* At crest of A-F cycle.



Dimensional  
Data