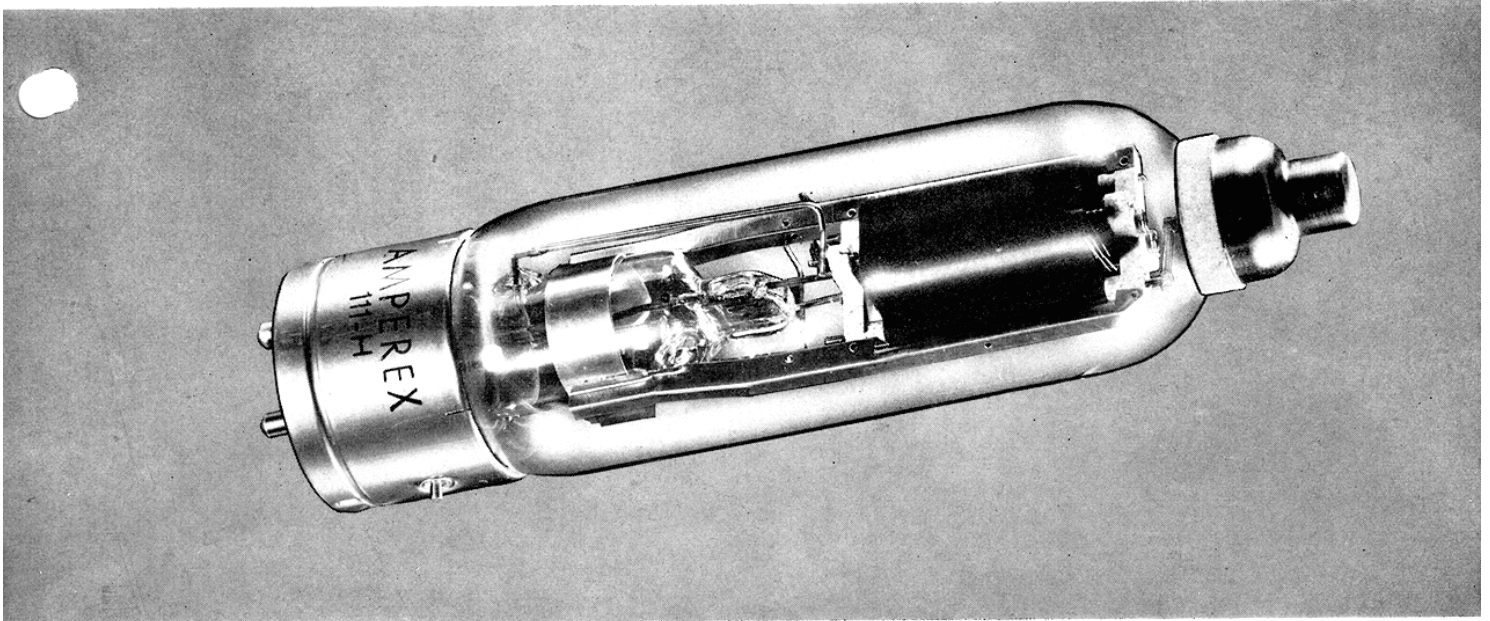


AMPEREX TRANSMITTING TUBE 111-H



R.F. Power Amplifier and Oscillator Class B Audio Amplifier or Modulator

The 111-H is one of a distinctive group of low voltage high current tubes, an original development of the Amperex Engineering Laboratories. It is in addition characterized by an extraordinarily high ratio of transconductance to interelectrode capacitance, a characteristic which is responsible for its outstanding efficiency in high frequency circuits.

GENERAL CHARACTERISTICS

RADIATION COOLED TRIODE

ELECTRICAL

| | |
|---|----------------------|
| Filament | Thoriated Tungsten |
| Voltage | 10 to 10.5 volts |
| Current | 2.5 amperes |
| Amplification Factor | 23 |
| Transconductance (grid to plate) $I_p = 100$ ma | 4200 micromhos |
| Direct Interelectrode Capacitances | |
| Grid to Plate | 4.6 $\mu\mu\text{f}$ |
| Grid to Filament | 5.0 $\mu\mu\text{f}$ |
| Plate to Filament | 2.9 $\mu\mu\text{f}$ |
| Frequency for Maximum Ratings | 30 megacycles |

MECHANICAL

| | |
|--|------------------------------|
| Maximum Overall Dimensions | |
| Length | 8½ inches |
| Greatest Radius | 2¼ inches |
| Base | Standard Jumbo 4-pin Bayonet |
| Mounting Position—Vertical Base up or down | |
| Horizontal | Plane of electrodes vertical |
| Net Weight (approx.) | 5 ounces |
| Shipping Weight (approx.) (one tube) | 2 pounds |

111-H

111-H—AMPEREX TRANSMITTING TUBE

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Audio Frequency Power Amplifier or Modulator—Class B

| | Maximum Rating per Tube | Typical Operation Two Tubes | |
|---|-------------------------|-----------------------------|-------|
| A.C. Filament Voltage | 10 | 10 | 10 |
| D.C. Plate Voltage | 1750 | 1500 | 1750 |
| D.C. Grid Voltage | —52 | —52 | —62 |
| Load Resistance (per tube) (ohms) | 3000 | 3000 | 4000 |
| Effective Load Resistance (Plate to Plate) (ohms) | 12000 | 12000 | 16000 |
| Zero-Signal Plate Current (ma) | 50 | 50 | 40 |
| Peak A.F. Grid to Grid Voltage | 254 | 254 | 324 |
| Max. Signal Plate Current (ma) | 150 | 270 | 270 |
| Max. Signal Plate Input (watts) | 240 | 240 | 270 |
| Plate Dissipation (watts) | 75 | 75 | 75 |
| Max. Signal Driving Power (approx.) (watts) | 2 | 2 | 9 |
| Max. Signal Power Output (approx.) (watts) | 260 | 260 | 350 |

R.F. Power Amplifier—Class B—Telephony

(Carrier conditions for use with modulation factors up to 1.0)

| | Maximum Rating per Tube | Typical Operation One Tube | |
|---|-------------------------|----------------------------|------|
| A.C. Filament Voltage | 10 | 10 | 10 |
| D.C. Plate Voltage | 1500 | 1500 | 1500 |
| D.C. Grid Voltage | —55 | —55 | —55 |
| Peak R.F. Grid Voltage | 80 | 80 | 80 |
| D.C. Plate Current (ma) | 100 | 100 | 75 |
| Plate Input (watts) | 115 | 115 | 115 |
| D.C. Grid Current (approx.) (ma) | 75 | 75 | 1.5 |
| Plate Dissipation (watts) | 75 | 70 | 70 |
| Grid Driving Power at Modulation Peak (approx.) (watts) | 3 | 3 | 3 |
| Power Output (approx.) (watts) | 42 | 42 | 42 |

R.F. Power Amplifier—Class C—Telegraphy

| | Maximum Rating per Tube | Typical Operation One Tube | |
|---|-------------------------|----------------------------|------|
| A.C. Filament Voltage | 10 | 10 | 10 |
| D.C. Plate Voltage | 1500 | 1000 | 1250 |
| D.C. Grid Voltage | —500 | —120 | —200 |
| Peak R.F. Grid Voltage | 250 | 330 | 340 |
| D.C. Plate Current (ma) | 160 | 150 | 130 |
| Plate Input (watts) | 225 | 150 | 162 |
| D.C. Grid Current (approx.) (ma) | 30 | 21 | 18 |
| Plate Dissipation (watts) | 75 | 44 | 42 |
| Driving Power (approx.) (watts) | 5 | 6 | 6 |
| Power Output (approx.) (watts) | 106 | 120 | 170 |
| Frequency Limit for Above Operation (mc.) | 30 | 30 | 30 |

Plate Modulated R.F. Power Amplifier—Class C

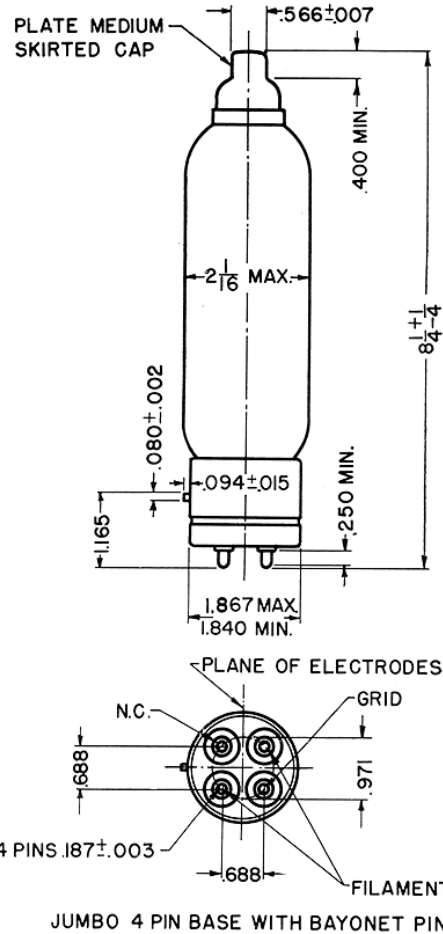
(Carrier conditions for use with modulation factor of 1.0)

| | Maximum Rating per Tube | Typical Operation One Tube | |
|--|-------------------------|----------------------------|-------|
| A.C. Filament Voltage | 10.5 | 10.5 | 10.5 |
| D.C. Plate Voltage | 1250 | 1000 | 1250 |
| D.C. Grid Voltage (Total) | —300 | —200 | —250 |
| Fixed Bias (approx.) (Voltage) | —30 | —30 | —40 |
| Grid Resistor (approx.) (ohms) | 8500 | 8500 | 10000 |
| Peak R.F. Grid Voltage | 330 | 330 | 380 |
| D.C. Plate Current (ma) | 120 | 120 | 110 |
| Plate Input (watts) | 140 | 120 | 137 |
| D.C. Grid Current (approx.) (ma) | 30 | 20 | 21 |
| Plate Dissipation (watts) | 50 | 30 | 32 |
| Driving Power (approx.) (watts) | 6.5 | 6.5 | 8 |
| Plate Power Output (approx.) (watts) | 90 | 90 | 105 |
| Frequency Limit for Above Operation (mc.) | 30 | 30 | 30 |
| F.C.C. Broadcast Rating (watts) | 75 | 75 | 75 |
| (Nearest Classification for Final Stage Use) | | | |

Grid Modulated R.F. Power Amplifier—Class C

(Carrier conditions for use with modulation factor of 1.0)

| | Maximum Rating per Tube | Typical Operation One Tube | |
|---|-------------------------|----------------------------|------|
| A.C. Filament Voltage | 10.0 | 10.0 | 10.0 |
| D.C. Plate Voltage | 1500 | 1500 | 1500 |
| D.C. Grid Voltage (Fixed Voltage) | —300 | —280 | —280 |
| Peak R.F. Grid Voltage | 340 | 340 | 340 |
| D.C. Plate Current (ma) | 100 | 72 | 72 |
| Plate Input (watts) | 110 | 108 | 108 |
| D.C. Grid Current (approx.) (ma) | 75 | 1.5 | 1.5 |
| Plate Dissipation (watts) | 75 | 66 | 66 |
| Grid Driving Power at Modulation Peak (approx.) (watts) | 6 | 6 | 6 |
| Power Output (approx.) (watts) | 42 | 42 | 42 |
| Frequency Limit for Above Operation (mc) | 30 | 30 | 30 |



Self-Excited High Frequency Oscillator or Power Amplifier
Class C

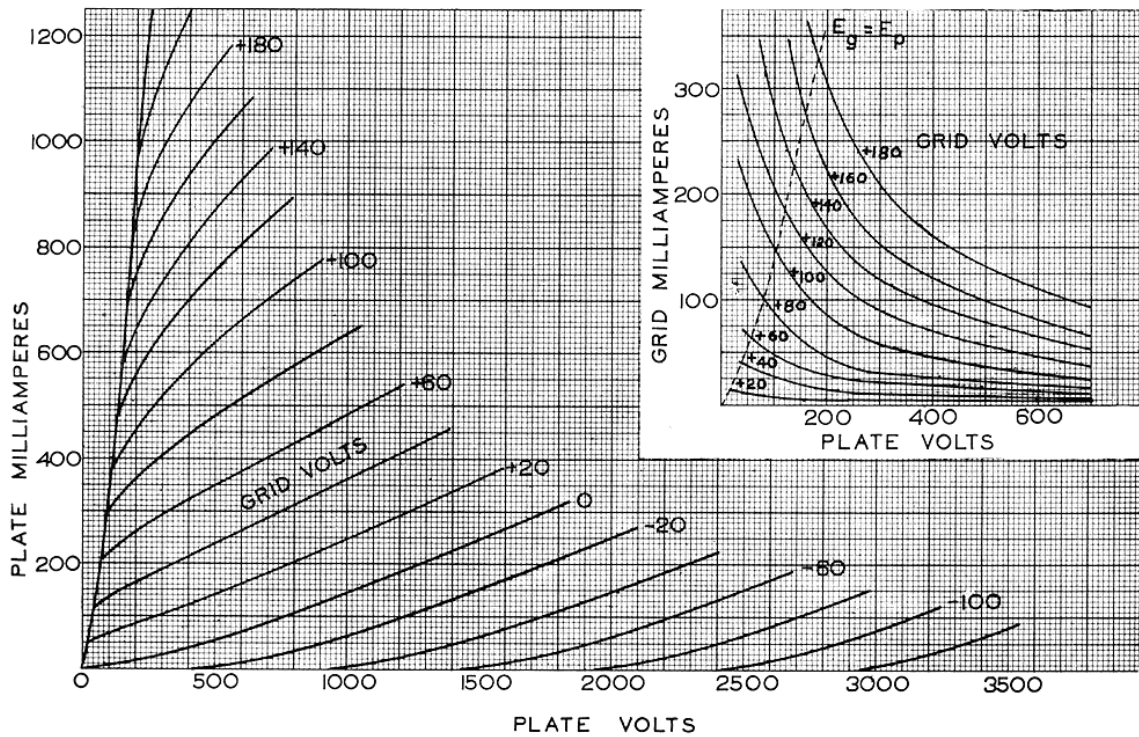
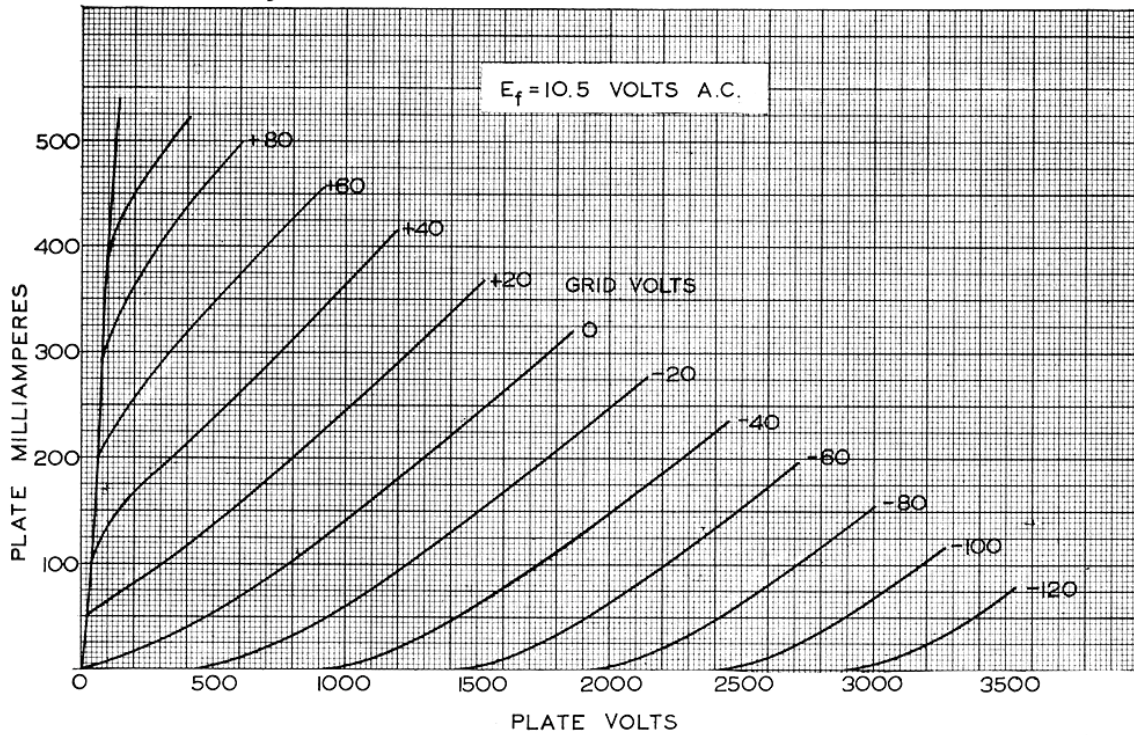
| | Maximum Ratings for Operation at | |
|------------------------------|----------------------------------|--------|
| | 30 mc. | 60 mc. |
| D.C. Plate Voltage | 1500 | 1200 |
| Modulated D.C. Plate Voltage | 1250 | 1000 |
| A.C. Plate Voltage | 1500 | 1500 |
| D.C. Plate Current (ma) | 160 | 160 |
| D.C. Grid Bias Voltage | —500 | —250 |
| D.C. Grid Current (ma) | 30 | 30 |
| Plate Dissipation (watts) | 75 | 60 |

Typical High Frequency Performance of 2 Tubes in Tuned-Grid Tuned-Plate Push-Pull Circuits

| Frequency | 30 mc. | 60 mc. |
|---------------------------------|-----------|-----------|
| Plate Voltage | 1500 A.C. | 1200 D.C. |
| Plate Current | 280 ma | 260 ma |
| Power Delivered to Load Circuit | 260 watts | 220 watts |

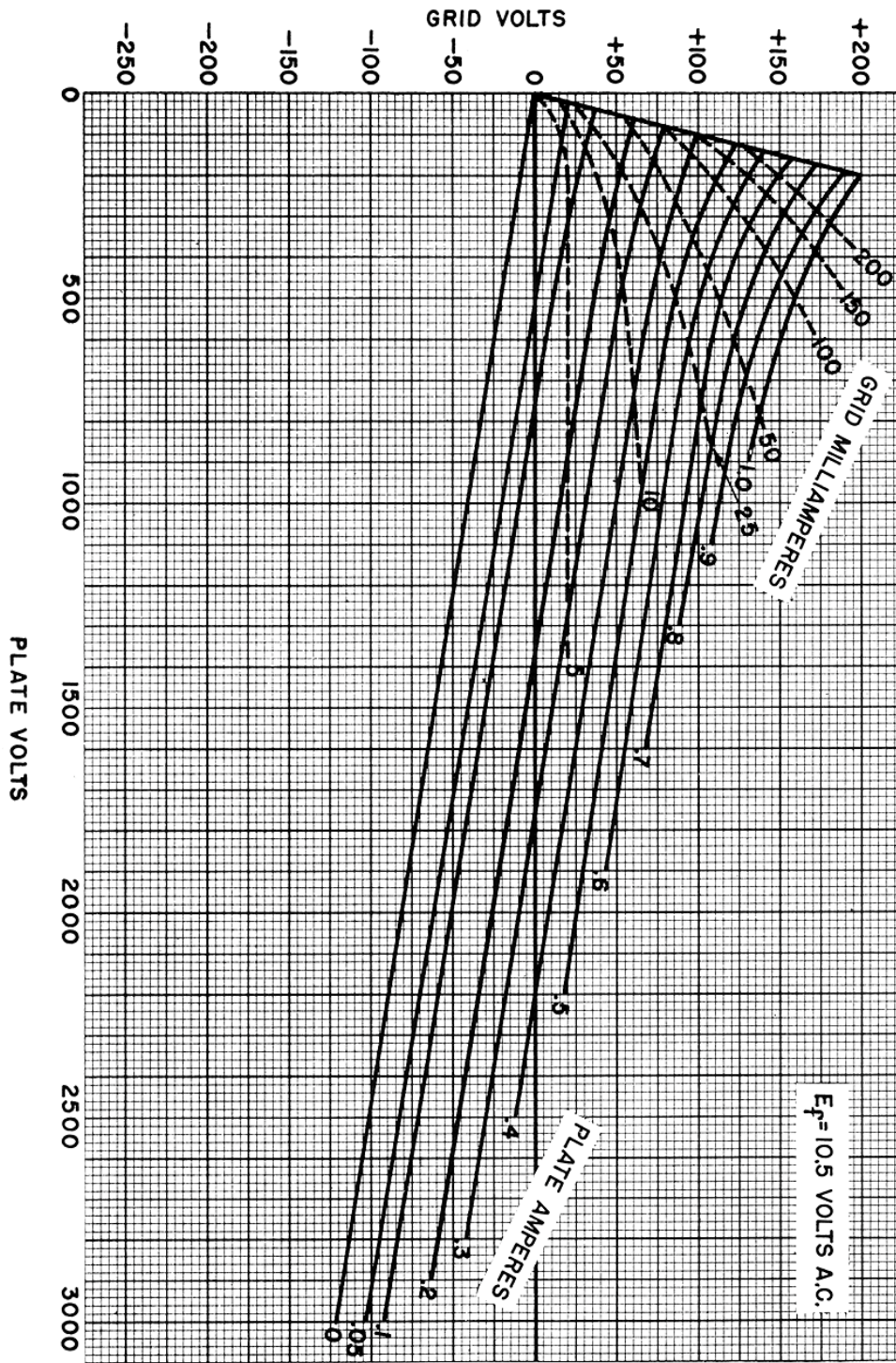
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AMPEREX TRANSMITTING TUBE 111-H



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111-H-AMPEREX TRANSMITTING TUBE



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