



849

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# MODULATOR, A-F POWER AMPLIFIER, R-F POWER AMPLIFIER, OSCILLATOR

|                                     |                    |                        |                  |
|-------------------------------------|--------------------|------------------------|------------------|
| Filament                            | Thoriated Tungsten |                        |                  |
| Voltage                             | 11                 |                        | a-c or d-c volts |
| Current                             | 5                  |                        | amp.             |
| Amplification Factor                | 19                 |                        |                  |
| Direct Interelectrode Capacitances: |                    |                        |                  |
| Grid to Plate                       | 33.5               |                        | $\mu\text{f}$    |
| Grid to Filament                    | 17                 |                        | $\mu\text{f}$    |
| Plate to Filament                   | 3                  |                        | $\mu\text{f}$    |
| Overall Length                      |                    | 14-1/4"                | $\pm 1/8"$       |
| Maximum Diameter                    |                    | 4-1/16"                |                  |
| Bulb                                |                    | T-32                   |                  |
| Cap                                 |                    | No.1904                |                  |
| Base                                |                    | No.3503                |                  |
| RCA End-Mountings                   |                    | Types UT-1085, UT-1086 |                  |

## MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

### A-F POWER AMPLIFIER & MODULATOR - Class A

|                                                                                                                          |       |           |                       |
|--------------------------------------------------------------------------------------------------------------------------|-------|-----------|-----------------------|
| D-C Plate Voltage                                                                                                        |       | 3000 max. | volts                 |
| Plate Dissipation                                                                                                        |       | 300 max.  | watts                 |
| Typical Operation:                                                                                                       |       |           |                       |
| D-C Plate Voltage                                                                                                        | 2000  | 2500      | 3000 volts            |
| D-C Grid Voltage                                                                                                         | -74   | -104      | -132 volts            |
| Peak A-F Grid Voltage                                                                                                    | 68    | 98        | 126 volts             |
| D-C Plate Current                                                                                                        | 0.135 | 0.110     | 0.100 amp.            |
| Mutual Conductance                                                                                                       | 6500  | 6050      | 5850 $\mu\text{mhos}$ |
| Plate Resistance                                                                                                         | 2950  | 3150      | 3250 ohms             |
| Load Resistance                                                                                                          | 6000  | 12000     | 18000 ohms            |
| U.P.O. (5% second harmonic)                                                                                              | 58    | 81        | 100 watts             |
| The d-c resistance in the grid circuit should not exceed 0.25 megohm with cathode bias; 25000 ohms without cathode bias. |       |           |                       |

### A-F POWER AMPLIFIER & MODULATOR - Class B

|                                                           |       |           |                   |
|-----------------------------------------------------------|-------|-----------|-------------------|
| D-C Plate Voltage                                         |       | 3000 max. | volts             |
| Max.-Signal D-C Plate Current *                           |       | 0.35 max. | amp.              |
| Max.-Signal Plate Input *                                 |       | 825 max.  | watts             |
| Plate Dissipation *                                       |       | 300 max.  | watts             |
| Typical Operation:                                        |       |           |                   |
| <i>Unless otherwise specified, values are for 2 tubes</i> |       |           |                   |
| D-C Plate Voltage                                         | 2000  | 2500      | 3000 volts        |
| D-C Grid Voltage                                          | -105  | -130      | -155 volts        |
| Peak A-F Grid-to-Grid Volt.                               | 450   | 480       | 500 volts         |
| Zero-Sig. D-C Plate Cur.                                  | 0.014 | 0.02      | 0.024 amp.        |
| Max.-Sig. D-C Plate Cur.                                  | 0.65  | 0.56      | 0.52 amp.         |
| Load Resistance (per tube)                                | 1600  | 2600      | 3200 ohms         |
| Effective Load Resistance                                 |       |           |                   |
| (plate to plate)                                          | 6400  | 10400     | 12800 ohms        |
| Max.-Signal Driving Power                                 | 16    | 14        | 12 approx.watts   |
| Max.-Signal Power Output                                  | 900   | 1000      | 1100 approx.watts |

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

← Indicates a change.

SEPT. 23, 1935 (7-38)

RCA RADOTRON DIVISION  
RCA MANUFACTURING COMPANY, INC.

DATA



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# MODULATOR, A-F POWER AMPLIFIER, R-F POWER AMPLIFIER, OSCILLATOR

(continued from preceding page)

## R-F POWER AMPLIFIER - Class B Telephony

Carrier conditions per tube for use with a max. modulation fact. of 1.0

|                   |           |       |
|-------------------|-----------|-------|
| D-C Plate Voltage | 2500 max. | volts |
| D-C Plate Current | 0.35 max. | amp.  |
| Plate Input       | 600 max.  | watts |
| Plate Dissipation | 400 max.  | watts |

### Typical Operation:

|                       |       |       |       |              |
|-----------------------|-------|-------|-------|--------------|
| D-C Plate Voltage     | 1500  | 2000  | 2500  | volts        |
| D-C Grid Voltage      | -70   | -95   | -125  | volts        |
| Peak R-F Grid Voltage | 140   | 140   | 140   | volts        |
| D-C Plate Current     | 0.320 | 0.265 | 0.216 | amp.         |
| D-C Grid Current **   | 5     | 3     | 1     | approx.ma.   |
| Driving Power ** 0    | 18    | 15    | 12    | approx.watts |
| Power Output          | 150   | 170   | 180   | approx.watts |

0 At crest of a-f cycle with modulation factor of 1.0.

## PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

|                   |            |       |
|-------------------|------------|-------|
| D-C Plate Voltage | 2000 max.  | volts |
| D-C Grid Voltage  | -500 max.  | volts |
| D-C Plate Current | 0.35 max.  | amp.  |
| D-C Grid Current  | 0.125 max. | amp.  |
| Plate Input       | 700 max.   | watts |
| Plate Dissipation | 270 max.   | watts |

### Typical Operation:

|                       |        |       |              |
|-----------------------|--------|-------|--------------|
| D-C Plate Voltage     | 1500   | 2000  | volts        |
| D-C Grid Voltage ¶    | { 7100 | 10000 | ohms         |
|                       | { -250 | -300  | volts        |
| Peak R-F Grid Voltage | 400    | 450   | volts        |
| D-C Plate Current     | 0.3    | 0.3   | amp.         |
| D-C Grid Current **   | 0.035  | 0.03  | approx.amp.  |
| Driving Power **      | 14     | 14    | approx.watts |
| Power Output          | 300    | 425   | approx.watts |

¶ Obtained by grid leak or partial self-bias methods.

## R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

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

|                   |            |       |
|-------------------|------------|-------|
| D-C Plate Voltage | 2500 max.  | volts |
| D-C Grid Voltage  | -500 max.  | volts |
| D-C Plate Current | 0.35 max.  | amp.  |
| D-C Grid Current  | 0.125 max. | amp.  |
| Plate Input       | 875 max.   | watts |
| Plate Dissipation | 400 max.   | watts |

### Typical Operation:

|                       |        |      |       |       |
|-----------------------|--------|------|-------|-------|
| D-C Plate Voltage     | 1500   | 2000 | 2500  | volts |
| D-C Grid Voltage Δ    | { 5000 | 8000 | 12500 | ohms  |
|                       | { -175 | -200 | -250  | volts |
| Peak R-F Grid Voltage | 310    | 325  | 360   | volts |
| D-C Plate Current     | 0.3    | 0.3  | 0.3   | amp.  |

\*\*, \*\*, Δ: See next page.

← Indicates a change.



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# MODULATOR, A-F POWER AMPLIFIER, R-F POWER AMPLIFIER, OSCILLATOR

(continued from preceding page)

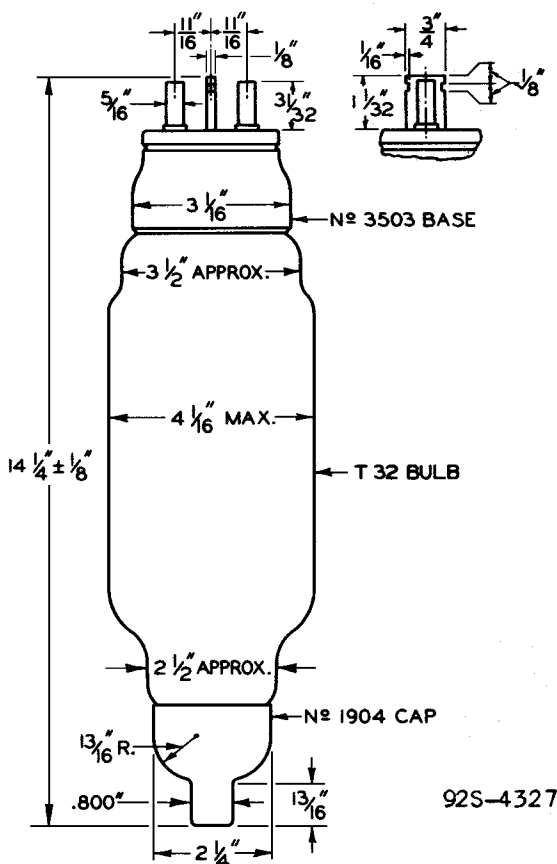
|                     |       |       |      |               |
|---------------------|-------|-------|------|---------------|
| D-C Grid Current ** | 0.035 | 0.025 | 0.02 | approx. amp.  |
| Driving Power **    | 11    | 9     | 8    | approx. watts |
| Power Output        | 300   | 425   | 560  | approx. watts |

Δ Obtained by grid-leak resistor or other self- or fixed-bias method.

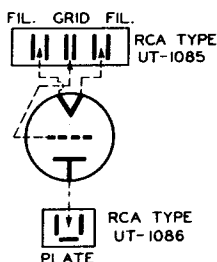
## Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

\*\* Subject to wide variations as explained on sheet TRANS. TUBE RATINGS.

For use of the 849 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.



## TUBE SYMBOL & CONNECTIONS TO END-MOUNTINGS

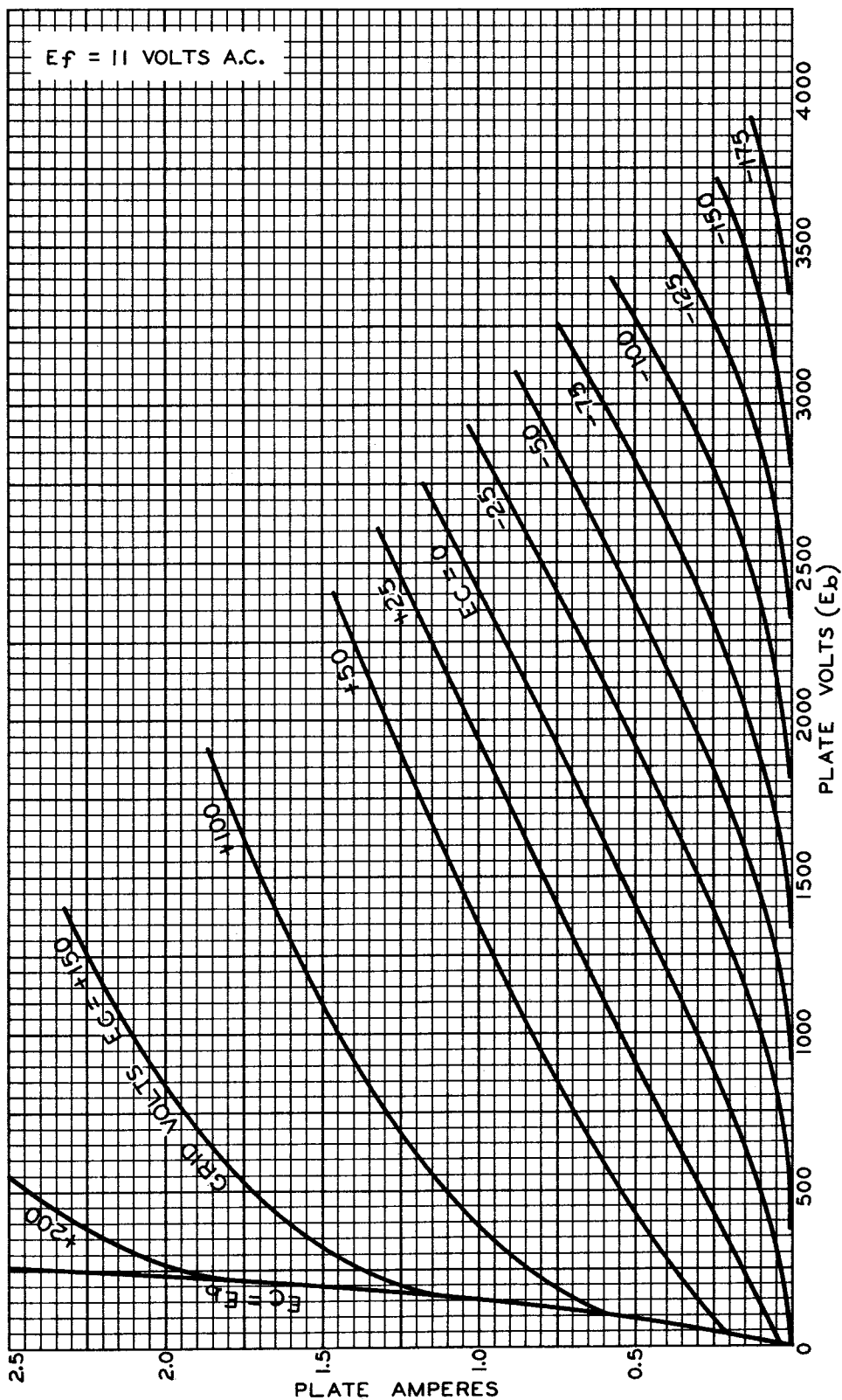


## TUBE MOUNTING POSITION

VERTICAL: Filament base (large) up.  
HORIZONTAL: Filament in vertical plane (on edge).



## AVERAGE PLATE CHARACTERISTICS

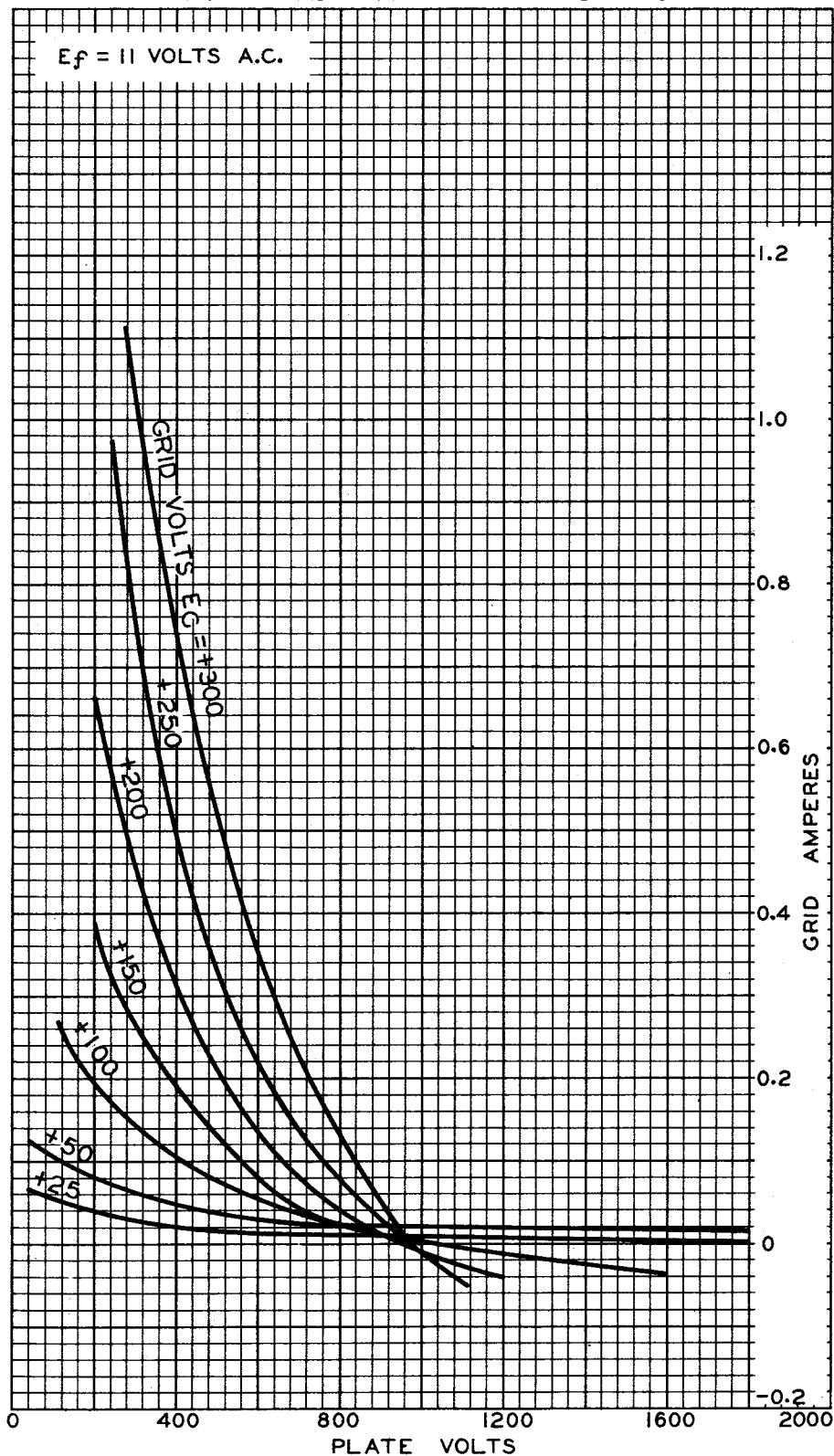




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# TYPICAL CHARACTERISTICS

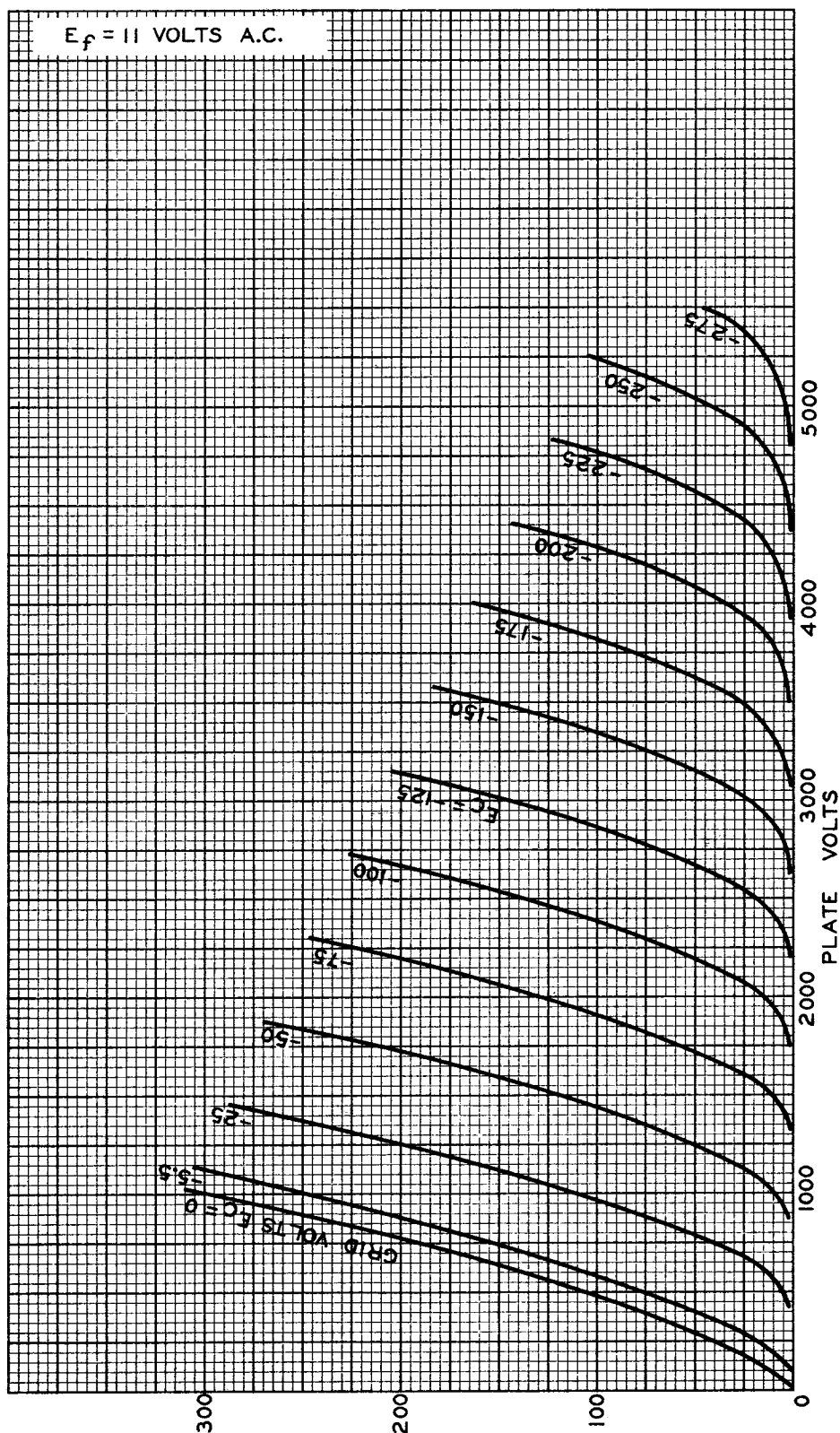


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## AVERAGE PLATE CHARACTERISTICS



APRIL 24, 1928

RCA RADOTRON DIVISION  
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