

# EITEL-McCULLOUGH, INC.

SAN BRUNO, CALIFORNIA

## 304TH

MEDIUM-MU TRIODE

MODULATOR  
OSCILLATOR  
AMPLIFIER

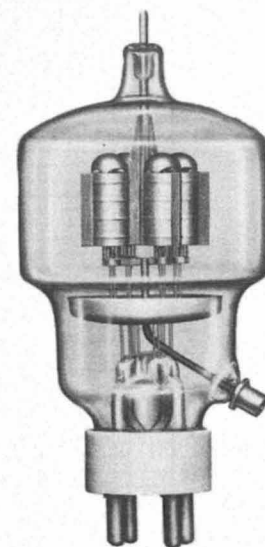
### GENERAL CHARACTERISTICS

#### ELECTRICAL

|                                                             |                         |
|-------------------------------------------------------------|-------------------------|
| Filament: Thoriated tungsten                                |                         |
| Voltage - - - - -                                           | 5.0 or 10.0 volts       |
| Current - - - - -                                           | 25.0 or 12.5 amperes    |
| Amplification Factor (Average) - - - - -                    | 20                      |
| Direct Interelectrode Capacitances (Average)                |                         |
| Grid-Plate - - - - -                                        | 10.2 $\mu\mu\text{f}$   |
| Grid-Filament - - - - -                                     | 13.5 $\mu\mu\text{f}$   |
| Plate-Filament - - - - -                                    | 0.7 $\mu\mu\text{f}$    |
| Transconductance ( $I_b=1.0$ amp., $E_b=3000$ , $e_c=-40$ ) | 16,700 $\mu\text{mhos}$ |
| Frequency for Maximum Ratings - - - - -                     | 40 mc                   |

#### MECHANICAL

|                                     |                          |
|-------------------------------------|--------------------------|
| Base - - - - -                      | Special 4 pin, No. 5000B |
| Basing - - - - -                    | RMA type 4BC             |
| Maximum Overall Dimensions:         |                          |
| Length - - - - -                    | 7.625 inches             |
| Diameter - - - - -                  | 3.563 inches             |
| Net weight - - - - -                | 12 ounces                |
| Shipping weight (Average) - - - - - | 3.0 pounds               |



### AUDIO FREQUENCY POWER AMPLIFIER AND MODULATOR

#### Class B

|                                              | TYPICAL OPERATION—2 TUBES |      |       | MAX. RATING |       |
|----------------------------------------------|---------------------------|------|-------|-------------|-------|
| D-C Plate Voltage - - - - -                  | 1500                      | 2000 | 3000  | 3000        | volts |
| Max.-Signal D-C Plate Current, per tube* - - | •                         | •    | •     | 900         | ma.   |
| Plate Dissipation, per tube* - - - - -       | •                         | •    | •     | 300         | watts |
| D-C Grid Voltage (approx.) - - - - -         | -65                       | -90  | -150  |             | volts |
| Peak A-F Grid Input Voltage - - - - -        | 330                       | 350  | 420   |             | volts |
| Zero-Signal D-C Plate Current - - - - -      | 267                       | 200  | 134   |             | ma.   |
| Max.-Signal D-C Plate Current - - - - -      | 1066                      | 900  | 667   |             | ma.   |
| Max.-Signal Driving Power (approx.) - - - -  | 17                        | 12   | 6     |             | watts |
| Effective Load, Plate-to-Plate - - - - -     | 2840                      | 4820 | 10200 |             | ohms  |
| Max.-Signal Plate Power Output - - - - -     | 1000                      | 1200 | 1400  |             | watts |

\*Averaged over any sinusoidal audio frequency cycle.

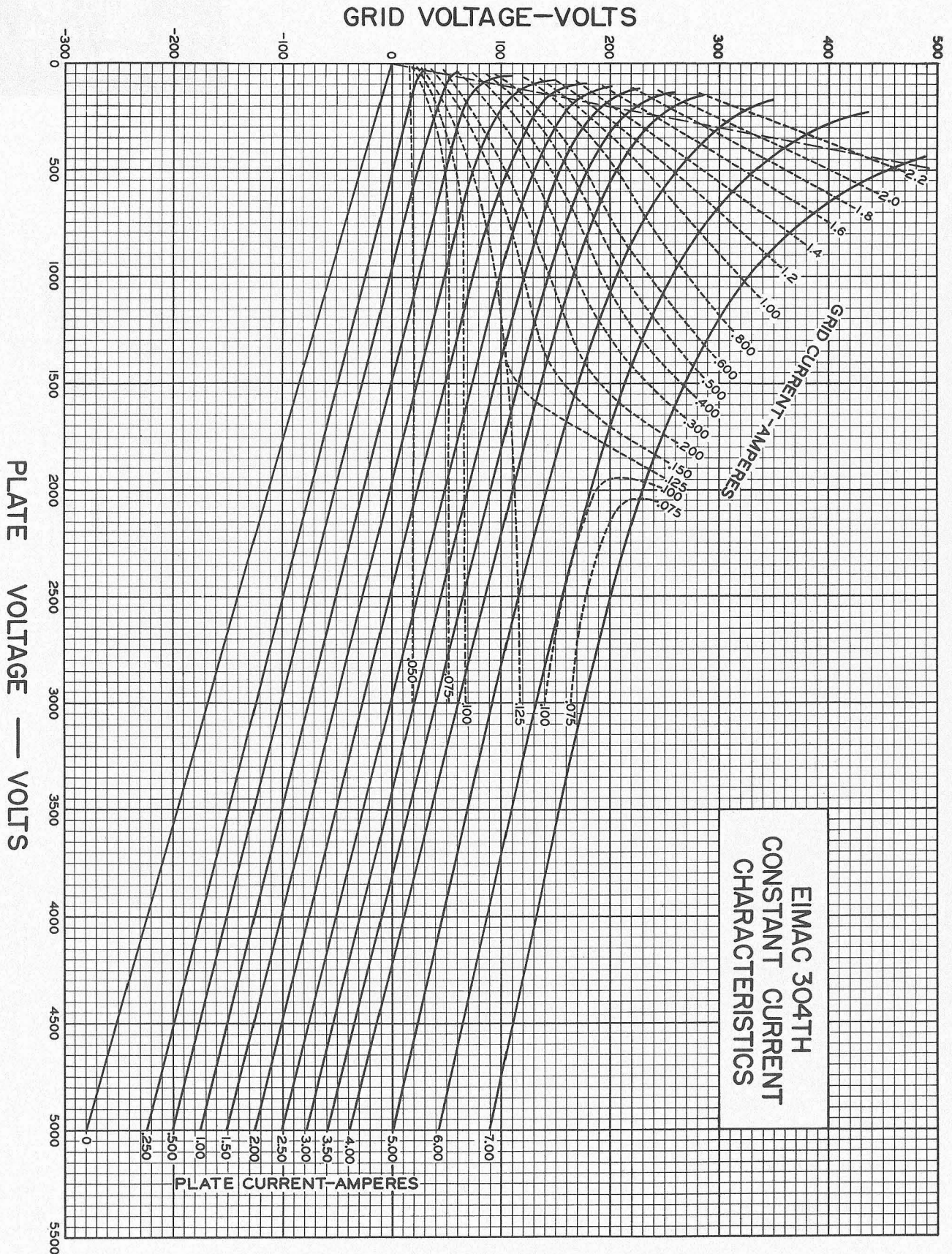
### RADIO FREQUENCY POWER AMPLIFIER AND OSCILLATOR

#### Class-C \*Telegraphy

(Key down conditions without modulation)

|                                              | TYPICAL OPERATION—1 TUBE |      |      | MAX. RATING |       |
|----------------------------------------------|--------------------------|------|------|-------------|-------|
| D-C Plate Voltage - - - - -                  | 1500                     | 2000 | 3000 | 3000        | volts |
| D-C Plate Current - - - - -                  | 667                      | 600  | 500  | 900         | ma.   |
| D-C Grid Current - - - - -                   | 115                      | 125  | 135  | 170         | ma.   |
| D-C Grid Voltage - - - - -                   | -125                     | -200 | -300 |             | volts |
| Plate Power Output - - - - -                 | 700                      | 900  | 1200 |             | watts |
| Plate Input - - - - -                        | 1000                     | 1200 | 1500 |             | watts |
| Plate Dissipation - - - - -                  | 300                      | 300  | 300  | 300         | watts |
| Peak R. F. Grid Input Voltage, (approx.) - - | 250                      | 325  | 395  |             | volts |
| Driving Power, (approx.) - - - - -           | 25                       | 39   | 53   |             | watts |

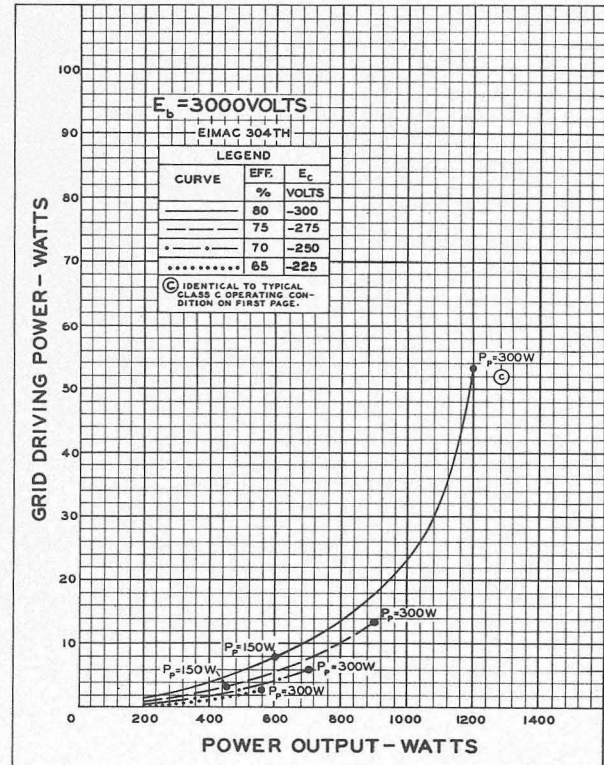
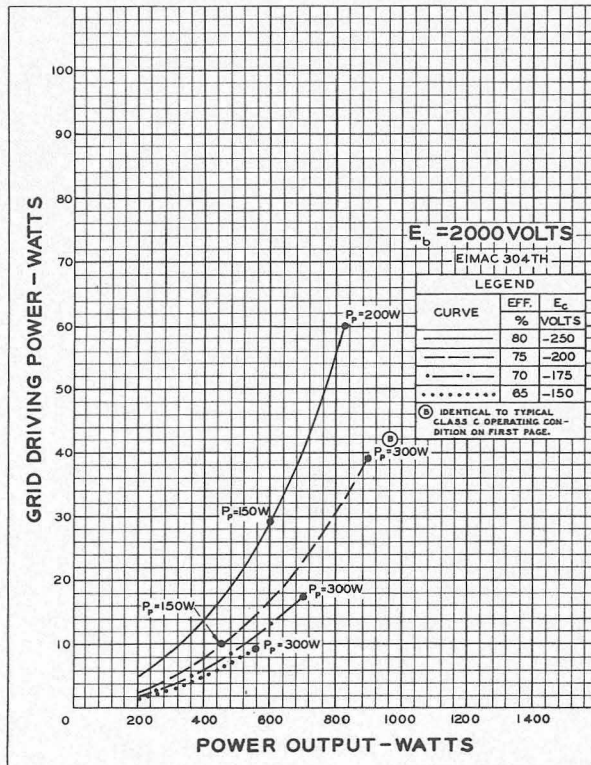
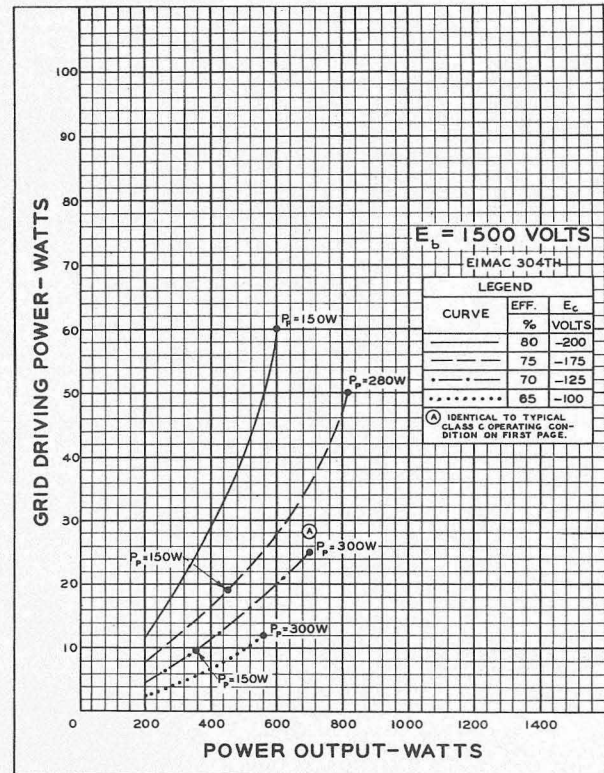
\*The above figures show actual measured tube performance, and do not allow for variations in circuit losses.



## DRIVING POWER vs. POWER OUTPUT

The three charts on this page show the relationship of plate efficiency, power output and grid driving power at plate voltages of 1500, 2000 and 3000 volts. These charts show combined grid and bias losses only. The driving power and power output figures do not include circuit losses. The plate dissipation in watts is indicated by  $P_p$ .

Points A, B, and C are identical to the typical Class C operating conditions shown on the first page under 1500, 2000, and 3000 volts respectively.



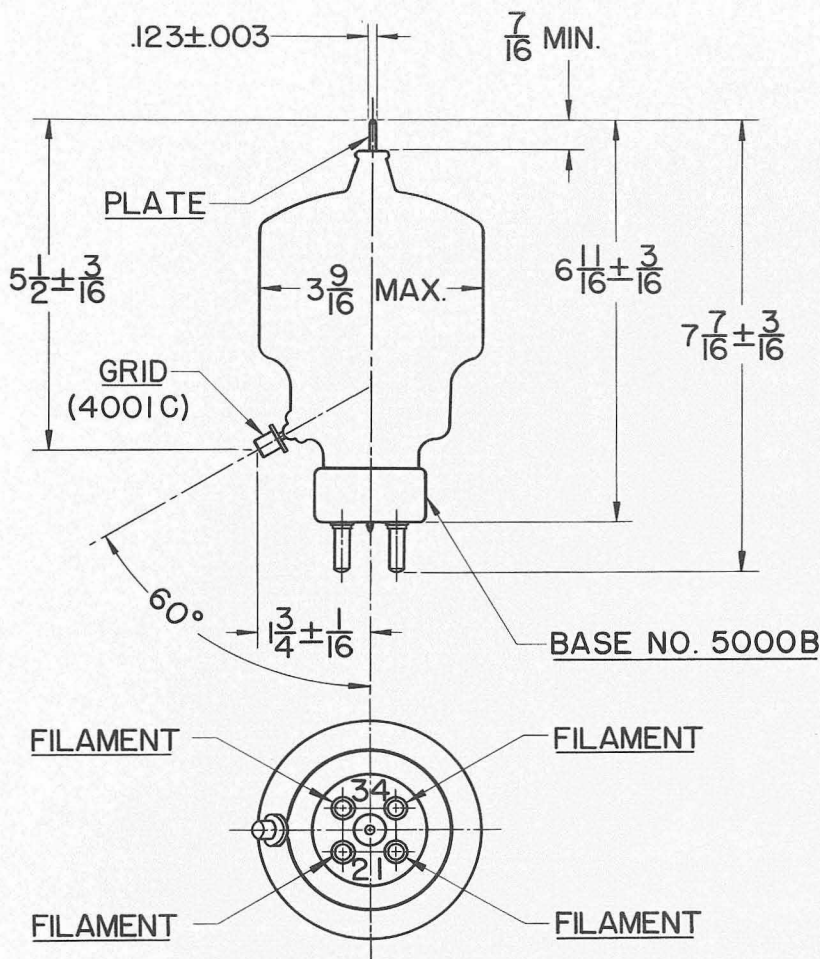
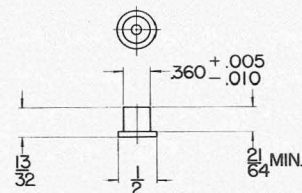
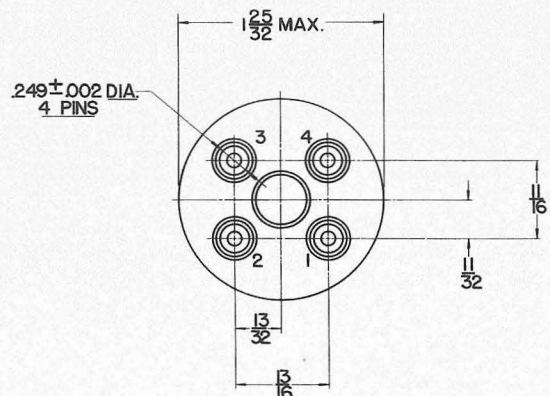
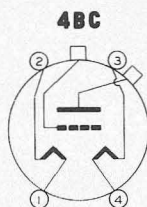
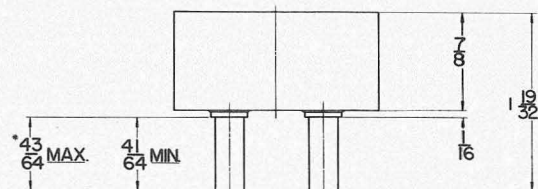


PLATE CAP  
(SEE TUBE OUTLINE DRAWING)

GRID CAP  
NO. 4001C



BASE NO. 5000B



\*ON FINISHED TUBE ADD .060 FOR SOLDER