TECHNICAL INFORMATION

WESTERN ELECTRIC

350A, 350B and 367A VACUUM TUBES

Classification

Beam power tetrodes with indirectly heated cathodes.

The 350A, 350B and 367A tubes have essentially identical static characteristics. The tubes differ in the way the leads are brought out and in basing arrangements.

Applications

The 350A tube is suitable for use as an audio frequency amplifier, radio frequency amplifier, oscillator, modulator or frequency multiplier.

The 350B tube may be used as an audio frequency amplifier or as a radio frequency oscillator.

The 367A tube is particularly intended for use as an amplifier or oscillator at frequencies above those for which the 350A tube is satisfactory.

Dimensions and Connections

Figures 1, 2 and 3 show dimensions, outline diagrams of the tubes and the arrangements of the electrode connections.

Basing

The 350A tube is provided with a medium, five-pin thrust type base.

The 350B tube is provided with a medium shell, seven-pin octal base.

The 367A tube is provided with a short, intermediate shell, six-pin octal base with silver-plated pins.

Sockets

350A - Western Electric 141A or similar socket.
350B and 367A - Standard octal type socket.

Mounting Positions

These tubes may be mounted in any position. Provision should be made for free circulation of air to avoid overheating the glass.

Direct Interelectrode Capacitances

	350A	350B	367A
Control-grid to plate (maximum).	0.3	0.5	0.15 μμf
Control-grid to heater, cathode and screen-grid. . . .	18	18	17 "
Plate to heater, cathode and screen-grid	8	9	9 "

Heater Rating

Heater voltage.	6.3 volts, a-c or d-c
Nominal heater current. .	1.6 amperes

The heaters of these tubes are designed to operate on a voltage basis and should be operated as near the rated voltage as possible.

The voltage between the cathode and heater should not exceed 150 volts.

Ratings

The 350A tube, having the plate terminal at the top of the bulb, is capable of withstanding higher plate voltages than the 350B or 367A tubes. The 350A tube may withstand instantaneous voltages between plate and cathode as high as 7000 volts, provided the tube is operated in special circuits where its rated dissipations are not exceeded. The 350A and 367A tubes may be used at maximum ratings at frequencies up to 60 megacycles.

The maximum operating conditions are given in Table 1.

Characteristics

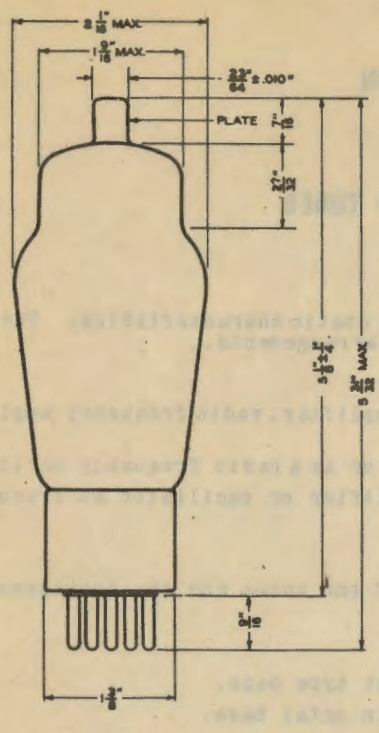
Figures 4 and 5 show typical curves of plate current and screen-grid current as functions of control-grid voltage for several values of screen-grid and plate voltage. For these curves the screen-grid voltage is equal to the plate voltage.

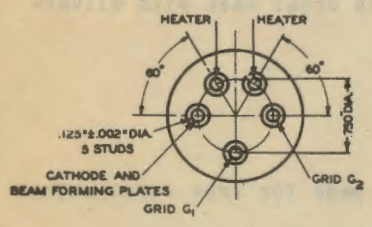
Figures 6 and 7 show typical curves of plate current and screen-grid current as functions of plate voltage for a number of control-grid voltages. For these curves the screen-grid voltage was held constant at 250 volts.

Operating Conditions and Output

Nominal performance data are given in Tables 2 and 3 for a number of typical operating conditions. Less severe operating conditions should be selected in preference to maximum conditions wherever possible. The lives of the tubes at maximum conditions will be shorter than at the less severe conditions.

The performance data include the fundamental power output for the indicated values of load resistance and input voltage, and the corresponding second and third harmonic levels. The power output is given in watts and the harmonic levels in decibels below the fundamental.

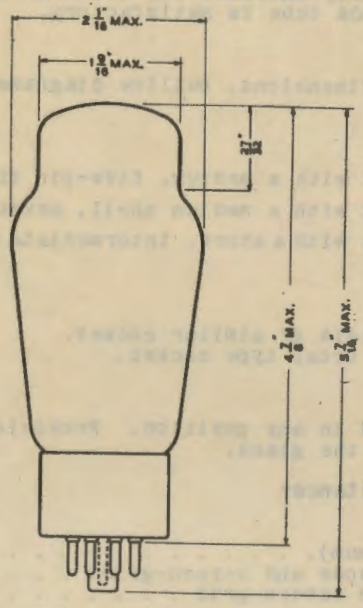


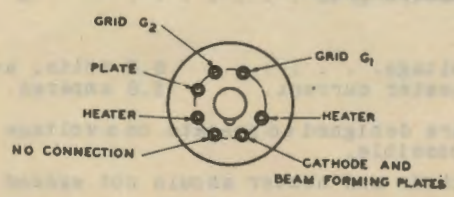


MEDIUM FIVE PIN
THRUST TYPE BASE

BOTTOM VIEW

Figure 1
350A

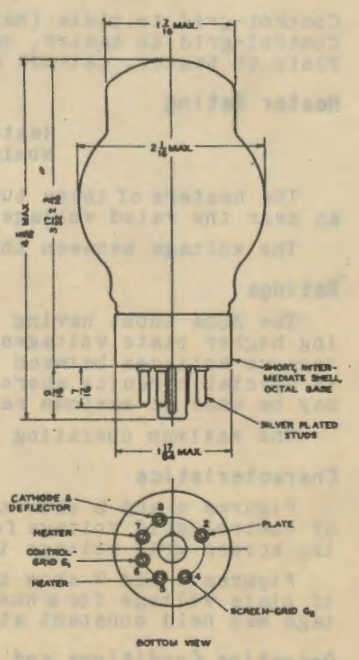




STANDARD MEDIUM
OCTAL BASE

BOTTOM VIEW

Figure 2
350B



BOTTOM VIEW

Figure 3
367A

TABLE I

Maximum Operating Conditions

	A.F.Amp. and Mod. Class A	R.F.Amp. Class B	R.F.AMP. Plate Mod. Class C	R.F.Amp. and Osc. Class C
			350A	
Direct plate voltage. .	600	600	475	600 volts
Direct screen voltage .	300	300	300	300 "
Negative direct grid voltage	–	–	200	200 "
Direct plate current. .	*125	85	90	**105 ma
Direct grid current . .	0	5	5	5 ma
Plate input	65	45	45	62.5 watts
Screen dissipation. . .	4	2.8	2.8	4 "
Plate dissipation . . .	30	30	20	30 "
			350B	
Direct plate voltage. .	400	Not	Not	400 volts
Direct screen voltage .	250	Suitable	Suitable	250 "
Negative direct grid voltage	–			200 "
Direct plate current. .	*125			**105 ma
Direct grid current . .	0			5 ma
Plate input	50			50 watts
Screen dissipation. . .	4			4 "
Plate dissipation . . .	25			25 "
			367A	
Direct plate voltage. .	400	400	Not	400 volts
Direct screen voltage .	250	250	Suitable	250 "
Negative direct grid voltage	–	–		200 "
Direct plate current. .	*125	85		**105 ma
Direct grid current . .	0	5		5 ma
Plate input	50	35		50 watts
Screen dissipation. . .	4	2.8		4 "
Plate dissipation . . .	25	25		25 "

** At maximum signal.*

***Key down condition for intermittent service such as telegraphy. For continuous operation the direct plate current should be limited to 85 milliamperes.*

TABLE 2

Single Tube

Plate Voltage	Screen-Grid Voltage	Control-Grid Voltage	Plate Current	Amplification Factor	Plate Resistance	Transconductance	Load Resistance	Input Voltage	Power Output	Second Harmonic	Third Harmonic
Volts	Volts	Volts	Ma		Ohms	Micromhos	Ohms	Peak Volts	Watts	db	db
250	250	-14	94	287	35,000	8,200	1,500	14	8	17	35
							2,000	14	10	19	26
							2,500	14	10	21	21
300	250	-16	80	339	44,000	7,700	1,500	16	9	14	40
							2,000	16	12	15	31
							2,500	16	13	17	24
350	250	-18	65	364	52,000	7,000	2,000	18	13	13	35
							3,000	18	15	16	22
							4,000	18	15	19	18
400	250	-20	53	400	64,000	6,250	2,000	20	15	11	40
							3,000	20	18	13	26
							4,000	20	18	15	19
500*	250	-20	55	430	67,000	6,400	2,500	20	18	11	40
							3,500	20	22	12	29
							5,000	20	24	15	19

**Applies to 350A tube only. Maximum plate voltage for the 350B and 367A tubes is 400 volts.*

TABLE 3

2 Tubes

Push-Pull Amplifier - Class AB

Plate voltage.....400 volts
Screen voltage.....250 volts
Grid voltage.....-22 volts
Input voltage -
grid to grid....44 peak volts

Plate current.....82 ma
Load resistance.....6000 ohms
Power output.....40 watts

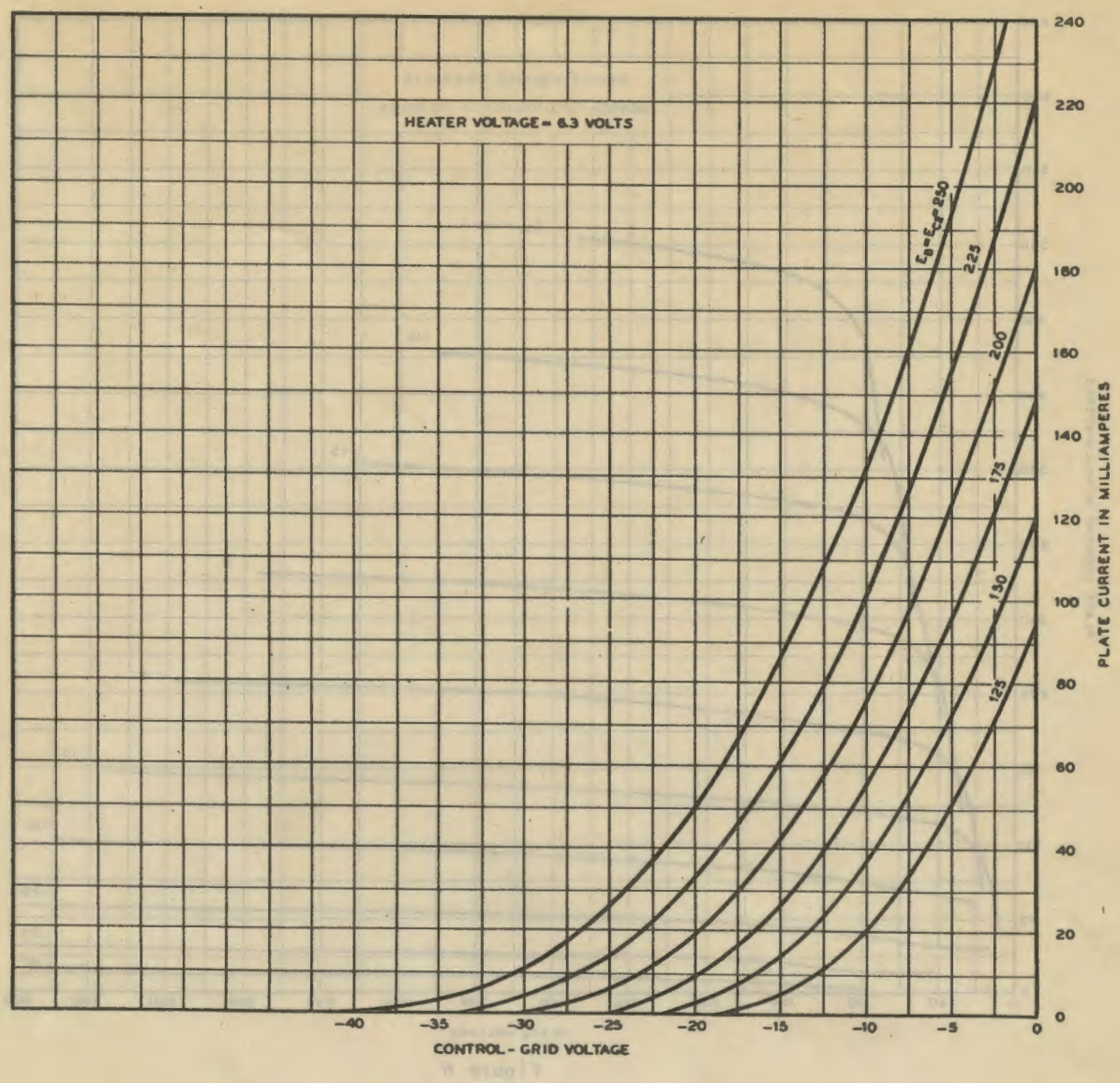


Figure 4

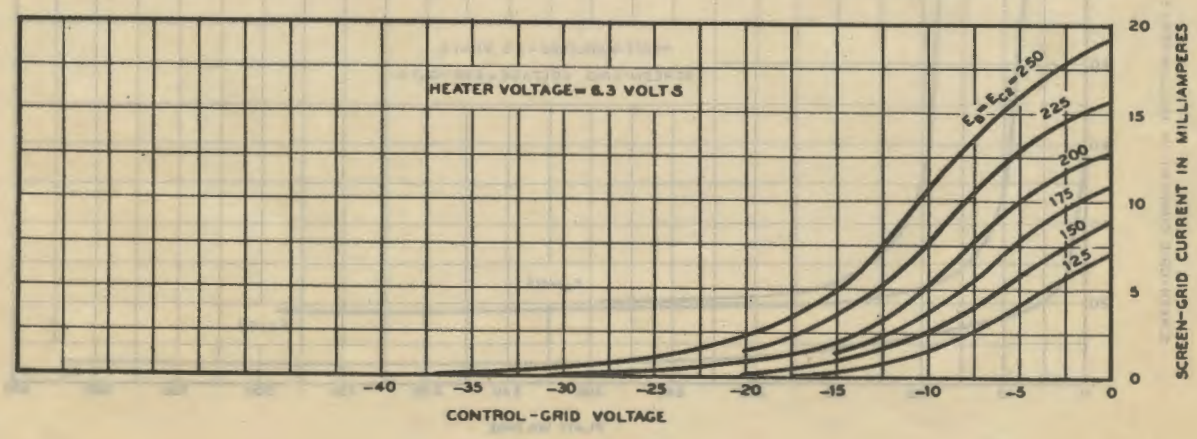


Figure 5

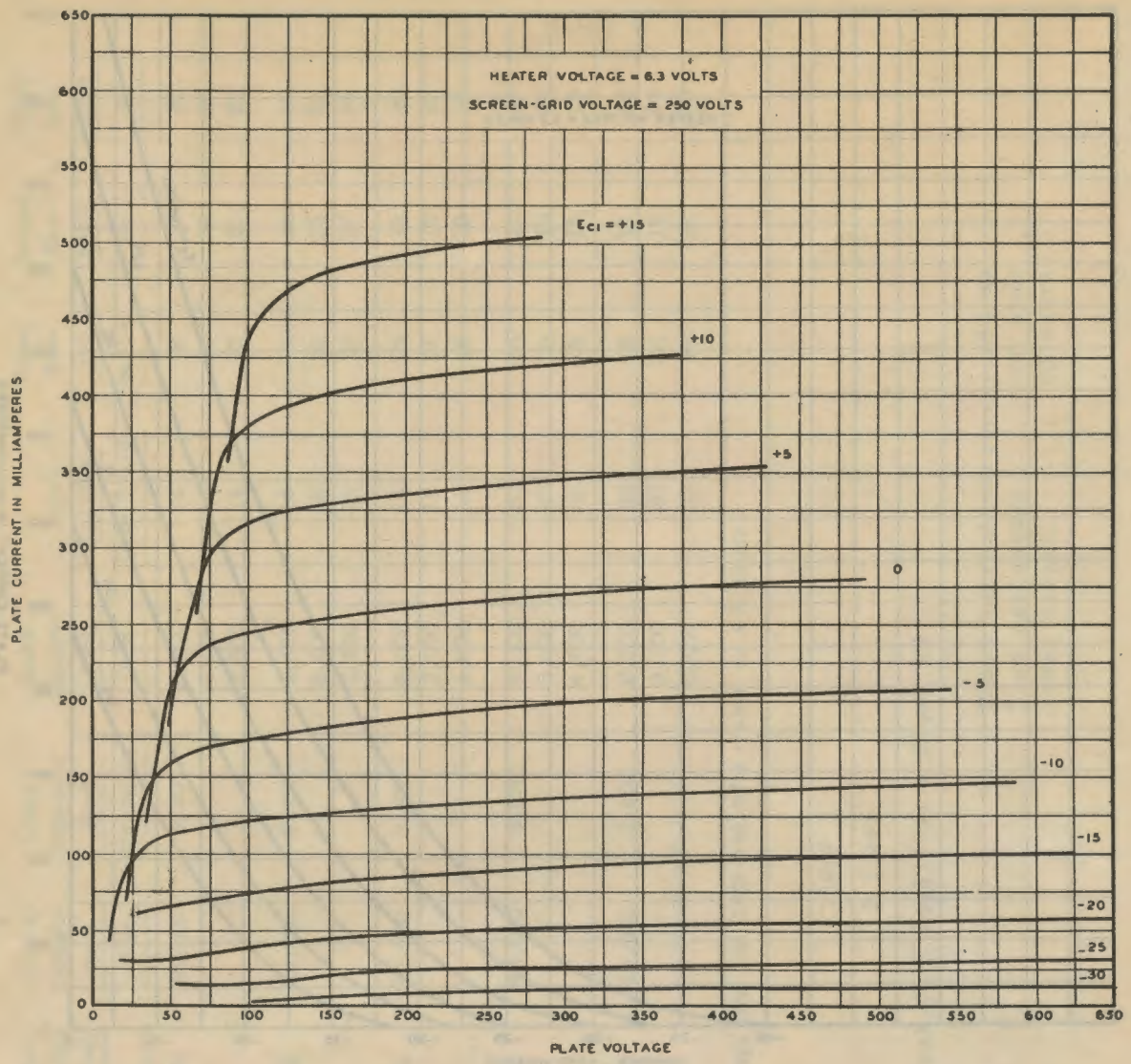


Figure 6

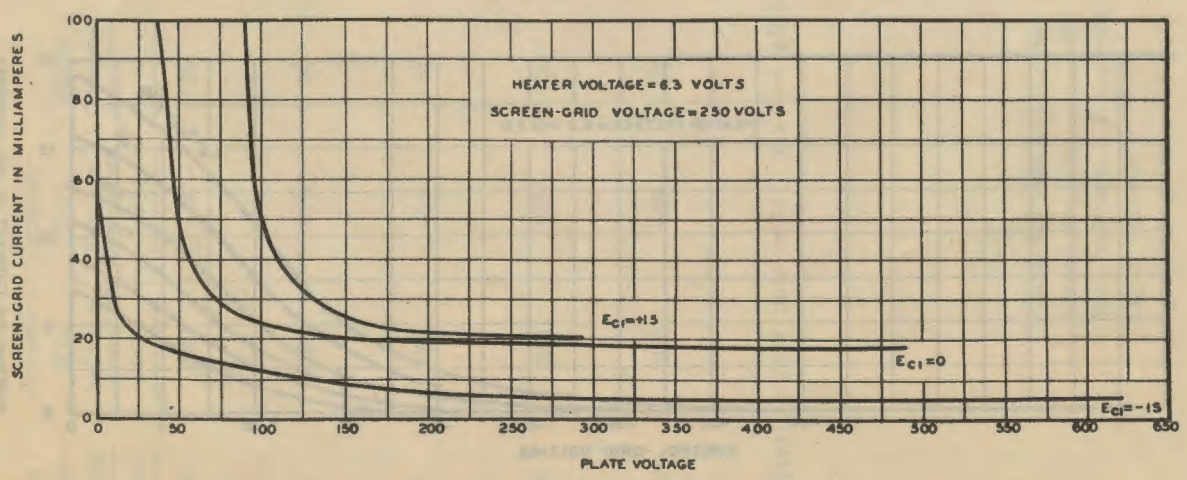


Figure 7