

ELECTRON TUBE DATA SHEET
WESTERN ELECTRIC 311B ELECTRON TUBE



DESCRIPTION

The 311B is a suppressor grid power pentode having an indirectly heated cathode. It is designed for use as an audio, carrier or radio-frequency amplifier.

CHARACTERISTICS

Heater Voltage	9.0	10.0 volts
Plate Current	30	33 milliamperes
Transconductance	2800	2900 micromhos
Power Output	2.5	2.5 watts

$\left(\begin{array}{l} E_b = E_{c2} = 135 \text{ volts} \\ E_{c1} = -15 \text{ volts} \end{array} \right)$

File: General Purpose Section
 Data Sheet Issue 1, 10-60

GENERAL CHARACTERISTICS

Electrical Data

Heater Voltage, A-C or D-C (Note 1)	9.0	10.0 volts
Heater Current	0.60	0.64 ampere
Direct Interelectrode Capacitances	without	with
	external shield	external shield
		(RMA #311)
Grid to Plate	0.32	0.09 μf
Input	8.0	9.5 μf
Output	8.5	10.4 μf

Mechanical Data

Cathode	Coated unipotential
Bulb	ST12
Base	Small, 5 pin
Mounting Position	Any
Dimensions and pin connections shown in outline drawing on Page 4	

Maximum Ratings, Absolute System (Note 2)

Plate Voltage	200 volts
Screen Grid Voltage	150 volts
Plate Dissipation	9.0 watts
Screen Grid Dissipation	1.8 watts
Cathode Current	60 milliamperes
Heater-Cathode Voltage	150 volts

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

Single Tube Amplifier - Class A

Heater Voltage	9.0	10.0	10.0 volts
Plate Voltage	135	135	180 volts
Screen Grid Voltage	135	135	135 volts
Control Grid Voltage	-15	-15	-15 volts
Peak A-F Grid Voltage	15	15	15 volts
Zero Signal Plate Current	30	33	34 milliamperes
Maximum Signal Plate Current	33	36	38 milliamperes
Zero Signal Screen Grid Current	6.3	6.5	6.0 milliamperes
Maximum Signal Screen Grid Current	11.5	11.0	10.0 milliamperes
Transconductance	2800	2900	3000 micromhos
Plate Resistance	45000	40000	47000 ohms
Load Resistance	3500	3500	4000 ohms
Maximum Signal Power Output	2.0	2.0	2.8 watts
Total Harmonic Distortion	10.0	9.0	10.5 per cent

Note 1: For optimum tube life, a heater voltage of 9 volts is recommended. However, when 9 volts is used, it must be regulated to $\pm 1\%$.

Note 2: In the "Absolute System" the maximum ratings specified are limiting values above which the serviceability of the device may be impaired from the viewpoint of life and satisfactory performance. Maximum ratings, as such, do not constitute a set of operating conditions and all values may not, therefore, be attained simultaneously.

TYPICAL CHARACTERISTIC CURVES

These curves are representative of the characteristics of typical tubes when 9.0 volts are applied to the heater. However, these characteristics do not differ significantly when 10.0 volts are applied to the heater.

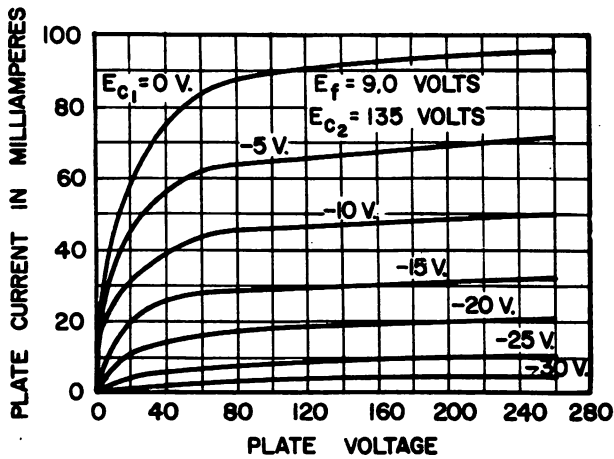


FIG. 1

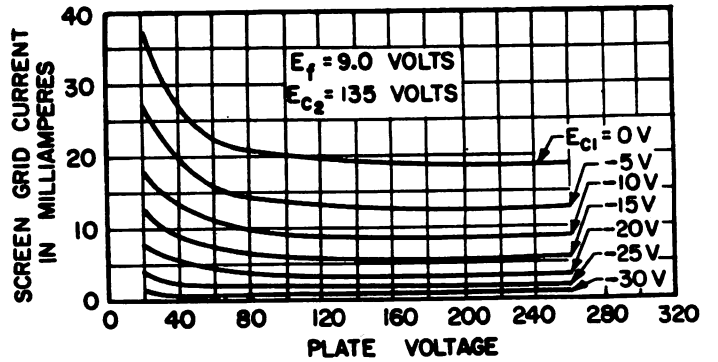


FIG. 2

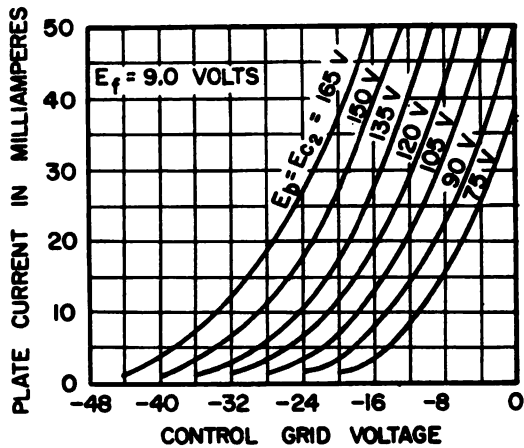


FIG. 3

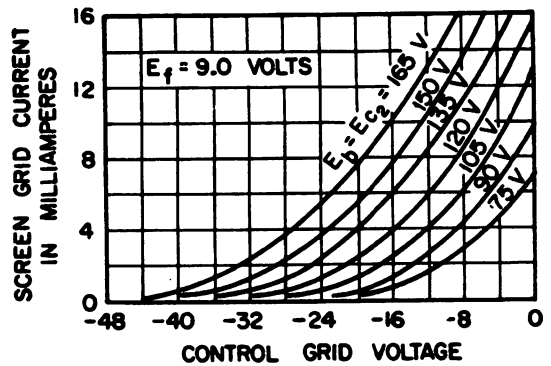


FIG. 4

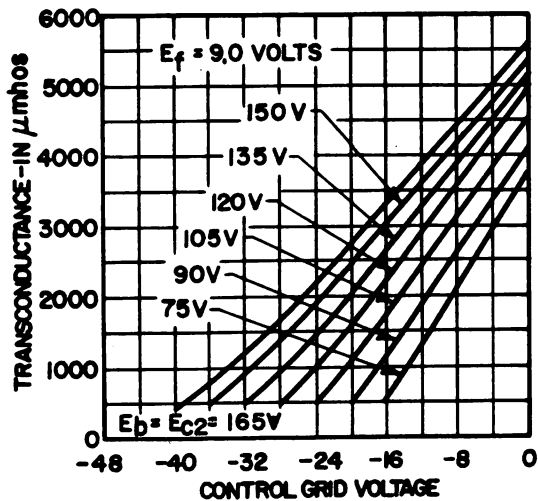


FIG. 5

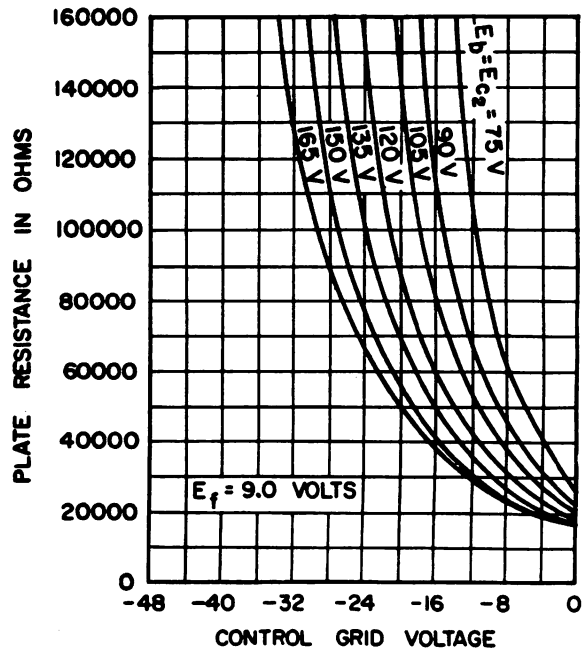


FIG. 6

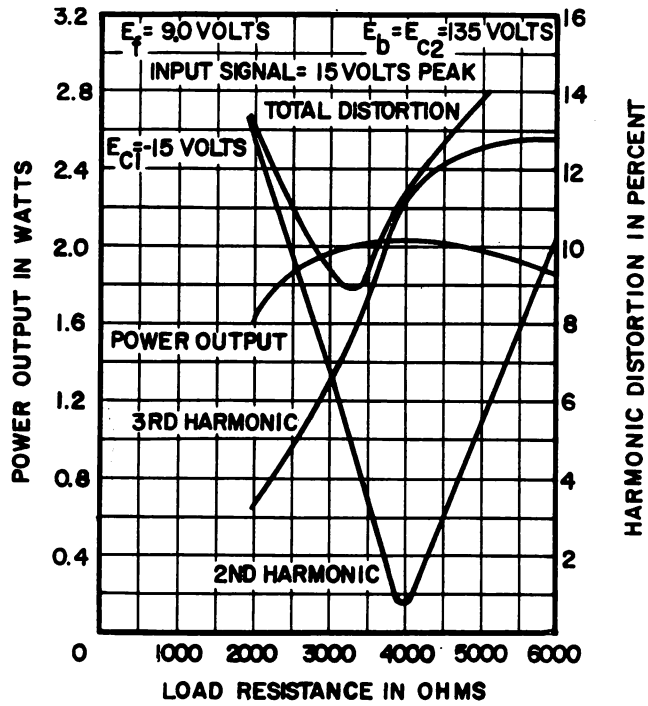
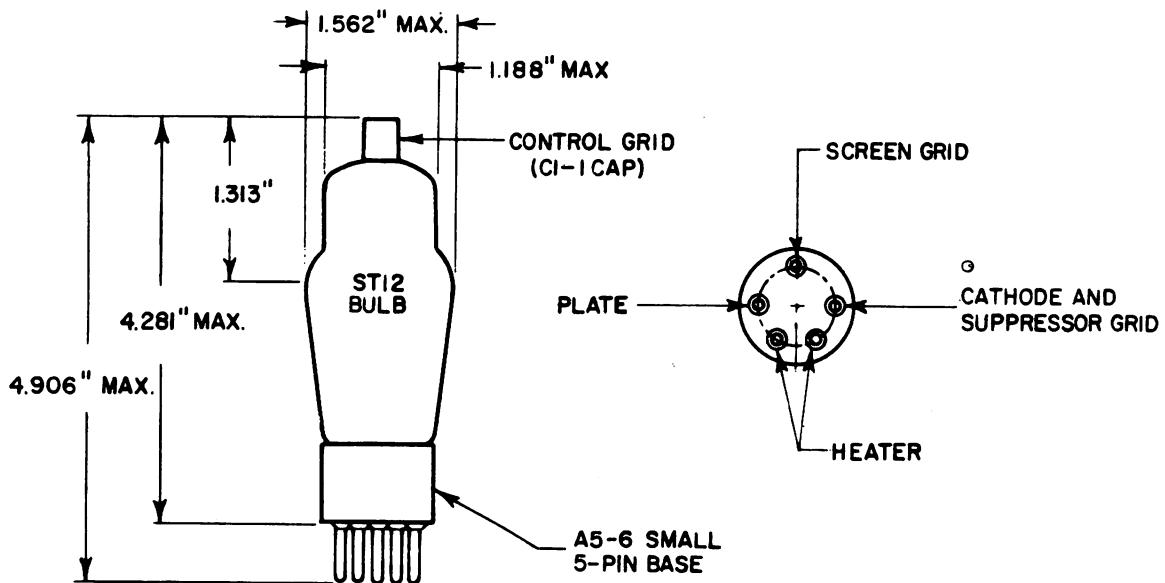


FIG. 7



A development of Bell Telephone Laboratories, the research laboratories of the American Telephone and Telegraph Company and the Western Electric Company.