ELECTRON TUBE DATA SHEET
WESTERN ELECTRIC 404A ELECTRON TUBE

DESCRIPTION

The 404A electron tube is an indirectly heated cathode type miniature pentode. It is intended primarily for use in high-gain amplifiers at high and very high frequencies.

CHARACTERISTICS

Heater Voltage		6.3 volts
Cathode Current	E_b = 150 volts; E_{c2} = 150 volts	17.5 milliamperes
Transconductance	E_{cc1} = 0; R_k = 110 ohms	13500 micromhos

File: Miniature Section
Issue 3, 11-55

404A

GENERAL CHARACTERISTICS

ELECTRICAL DATA

Heater Voltage	6.3 volts	
Heater Current	300 milliamperes	
Direct Interelectrode Capacitances	Without External Shield	With External Shield (RETMA #315)
Grid to Plate (maximum)	0.05	0.04 μμf
Input: g1 to (h+k+g2+g3+i.s.)	7.0	7.1 μμf
Output: p to (h+k+g2+g3+i.s.)	2.5	2.9 μμf

MECHANICAL DATA

Cathode	Coated Unipotential
Bulb	T6 1/2
Base	Small Button, 9-Pin
Mounting Position	Any
Dimensions and Pin Connections	See Outline Drawing-Page 4

MAXIMUM RATINGS, Design-Center Values

Plate Voltage	250 volts
Screen Grid Voltage	150 volts
Plate Dissipation	3 watts
Screen Grid Dissipation	0.75 watt
Control Grid Dissipation	See footnote *
Cathode Current	35 milliamperes
Heater-Cathode Voltage	50 volts
Bulb Temperature	120° centigrade

MAXIMUM CIRCUIT VALUES

Grid Circuit Resistance:

For Fixed Bias	50000 ohms
For Cathode Bias	100000 ohms

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

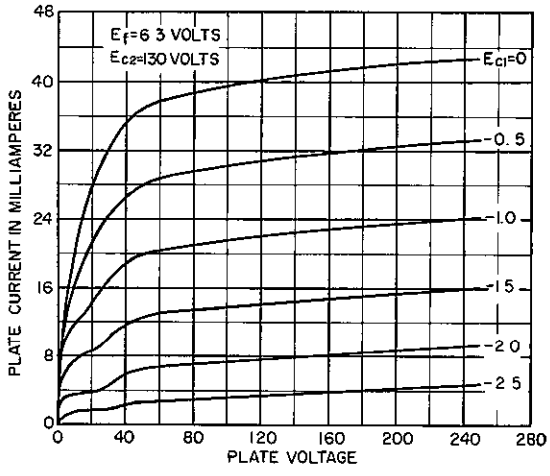
Plate Voltage	130	150 volts
Screen Grid Voltage	130	150 volts
Control Grid Supply Voltage[1]	+7.5	--- volts
Cathode Bias Resistor[1]	430	110 ohms
Plate Current	15.5	14.0 milliamperes
Screen Grid Current	4.5	3.5 milliamperes
Plate Resistance	95000	90000 ohms
Transconductance	14700	13500 micromhos
Control Grid Voltage (approximate) for Plate Current of 10 Microamperes	- 4.3	-5.0 volts
Modulation:		
Second Order (2F)**	43	46 db
Third Order (3F)***	21	28 db
Load Resistance	200	200 ohms

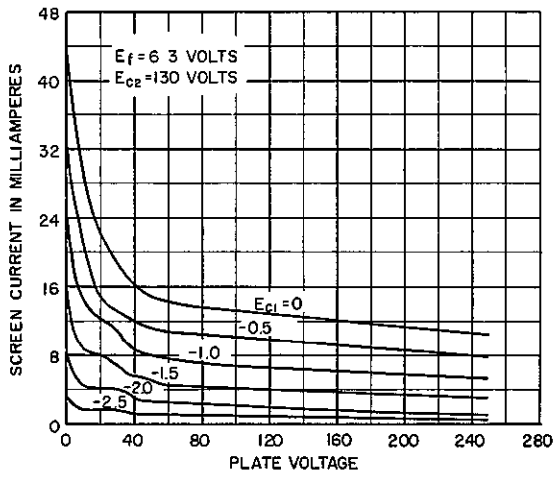
* Operation with the control grid positive with respect to the cathode is not recommended.

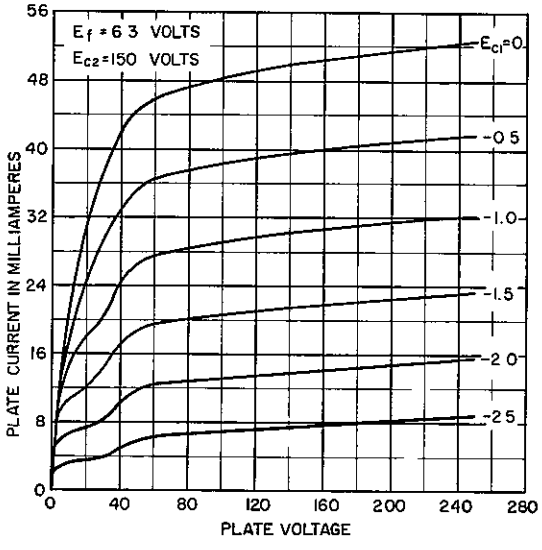
** Ratio of product to fundamental at output for 0.1 volt rms signal from grid to cathode.

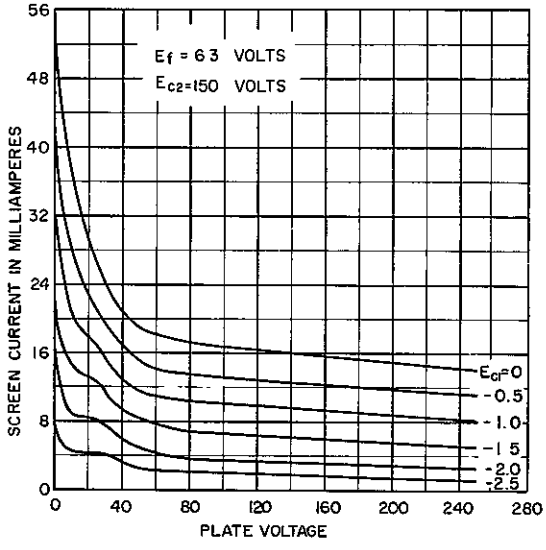
*** Ratio of product to fundamental at output for a 0.2 volt rms signal from grid to cathode.

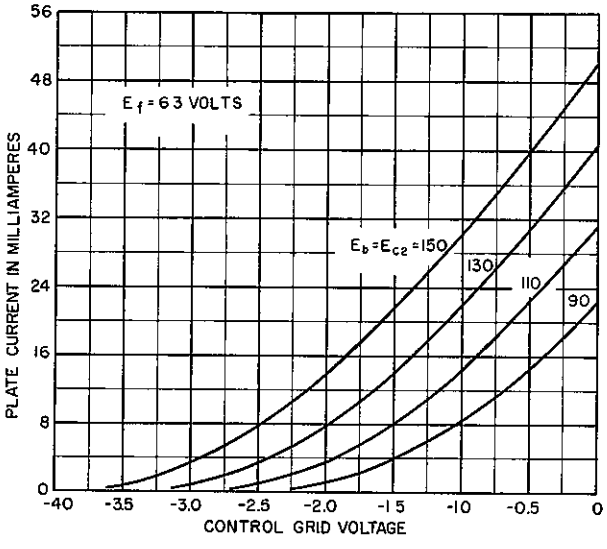
Note 1: Reference point for control grid voltage is the negative end of the cathode bias resistor.

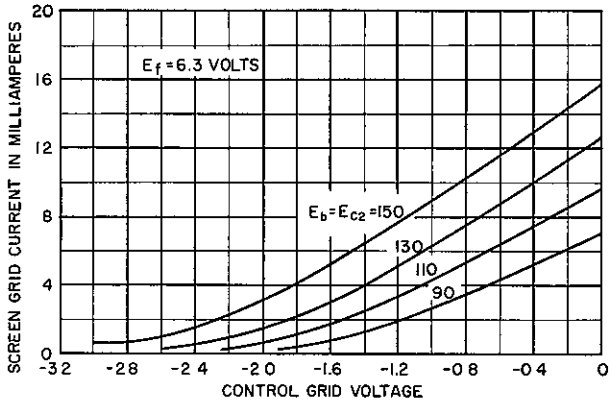

Ef=6 3 VOLTS
Ec2=130 VOLTS
Ec1=0
-0.5
-1.0
-1.5
-2.0
-2.5
PLATE CURRENT IN MILLIAMPERES
PLATE VOLTAGE

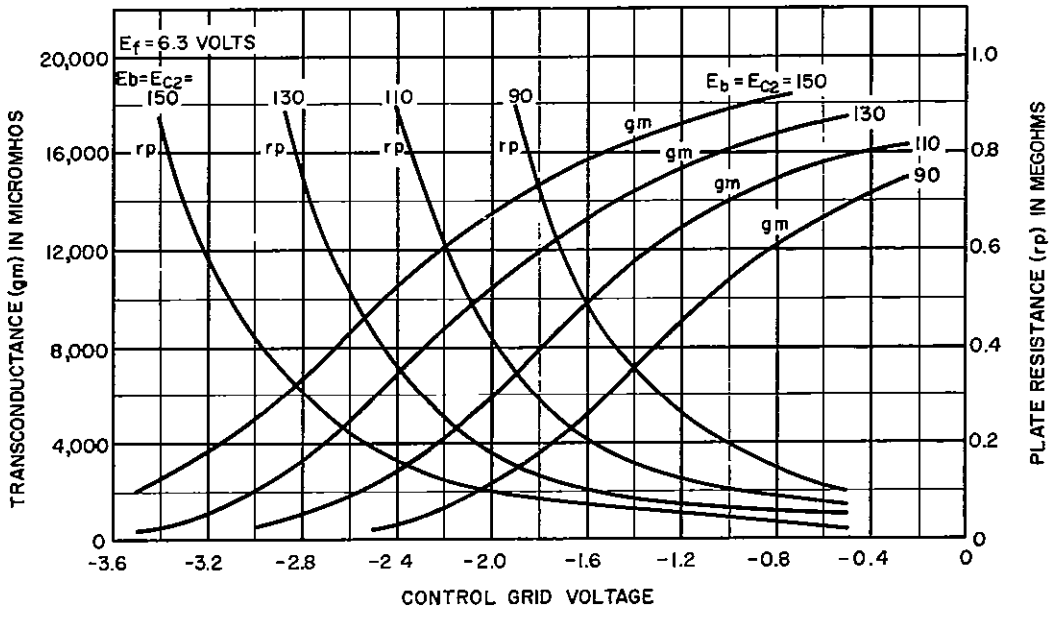

Ef=6 3 VOLTS
Ec2=130 VOLTS
Ec1=0
-0.5
-1.0
-1.5
-2.0
-2.5
SCREEN CURRENT IN MILLIAMPERES
PLATE VOLTAGE

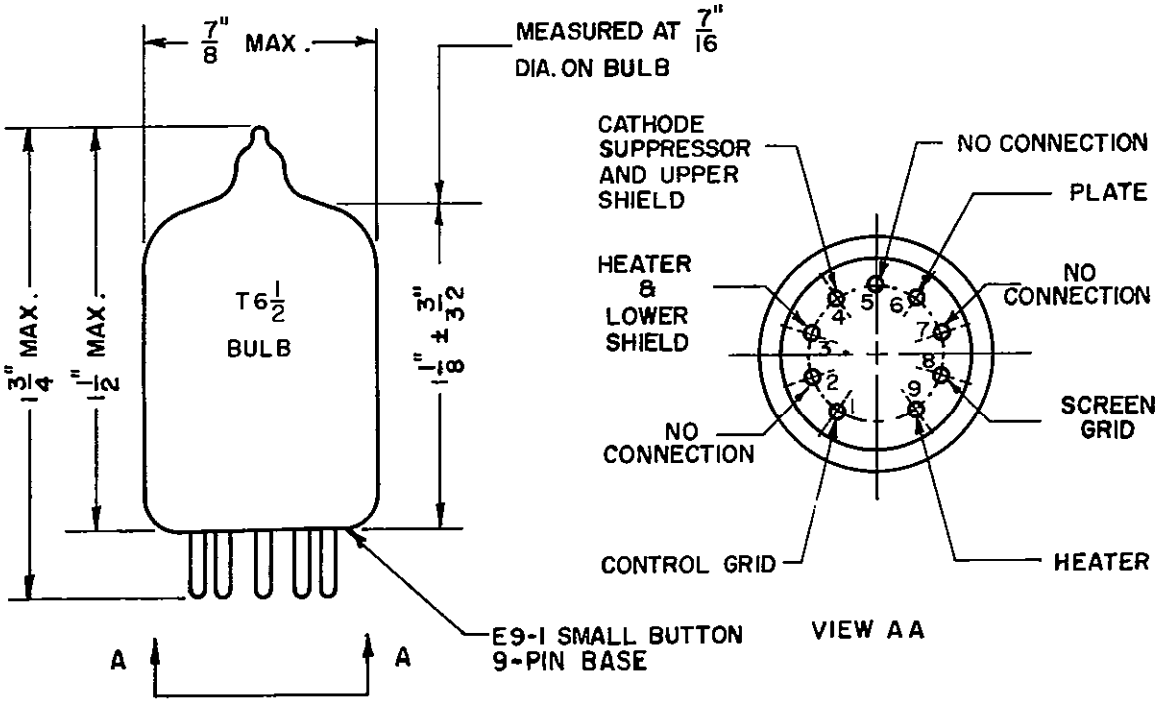

Ef=6 3 VOLTS
Ec2=150 VOLTS
Ec1=0
-0.5
-1.0
-1.5
-2.0
-2.5
PLATE CURRENT IN MILLIAMPERES
PLATE VOLTAGE


Ef=6 3 VOLTS
Ec2=150 VOLTS
Ec1=0
-0.5
-1.0
-1.5
-2.0
-2.5
SCREEN CURRENT IN MILLIAMPERES
PLATE VOLTAGE


Ef=6 3 VOLTS
Eb=Ec2=150
130
110
90
PLATE CURRENT IN MILLIAMPERES
CONTROL GRID VOLTAGE


Ef=6.3 VOLTS
Eb=Ec2=150
130
110
90
SCREEN GRID CURRENT IN MILLIAMPERES
CONTROL GRID VOLTAGE





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