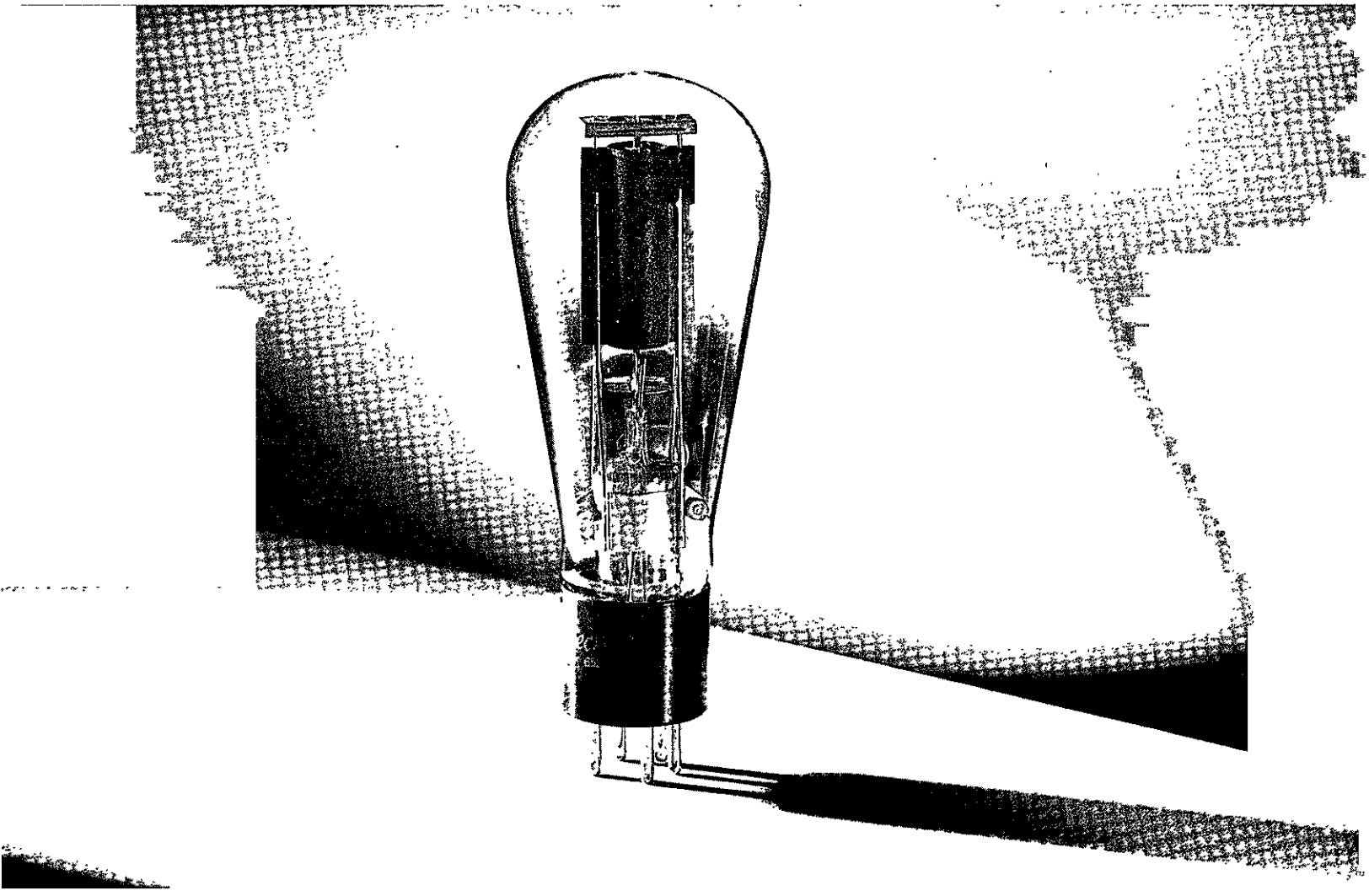
SECTION AB46.271A
ISSUE 1, AUGUST 1948
A.T.&T. CO. STANDARD



TRIODE
POWER AMPLIFIER

Western Electric

DESCRIPTION

The 271A is a power amplifier triode having an indirectly heated cathode. It is designed for use in amplifier, modulator, or oscillator circuits for both audio and radio frequencies.

CHARACTERISTICS

Heater Voltage	5.0 volts
Maximum Plate Voltage	450 volts
Power Output	3.0 watts

GENERAL CHARACTERISTICS

ELECTRICAL DATA

Heater Voltage, A-C or D-C	5.0 volts
Heater Current	2.0 amperes
Direct Interelectrode Capacitances (without external shield)	
Grid to Plate	4.2 uuf
Input	6.7 uuf
Output	3.1 uuf

MECHANICAL DATA

Cathode	Coated Unipotential
Bulb	S19
Base	Medium 5-pin
Mounting Position	Any

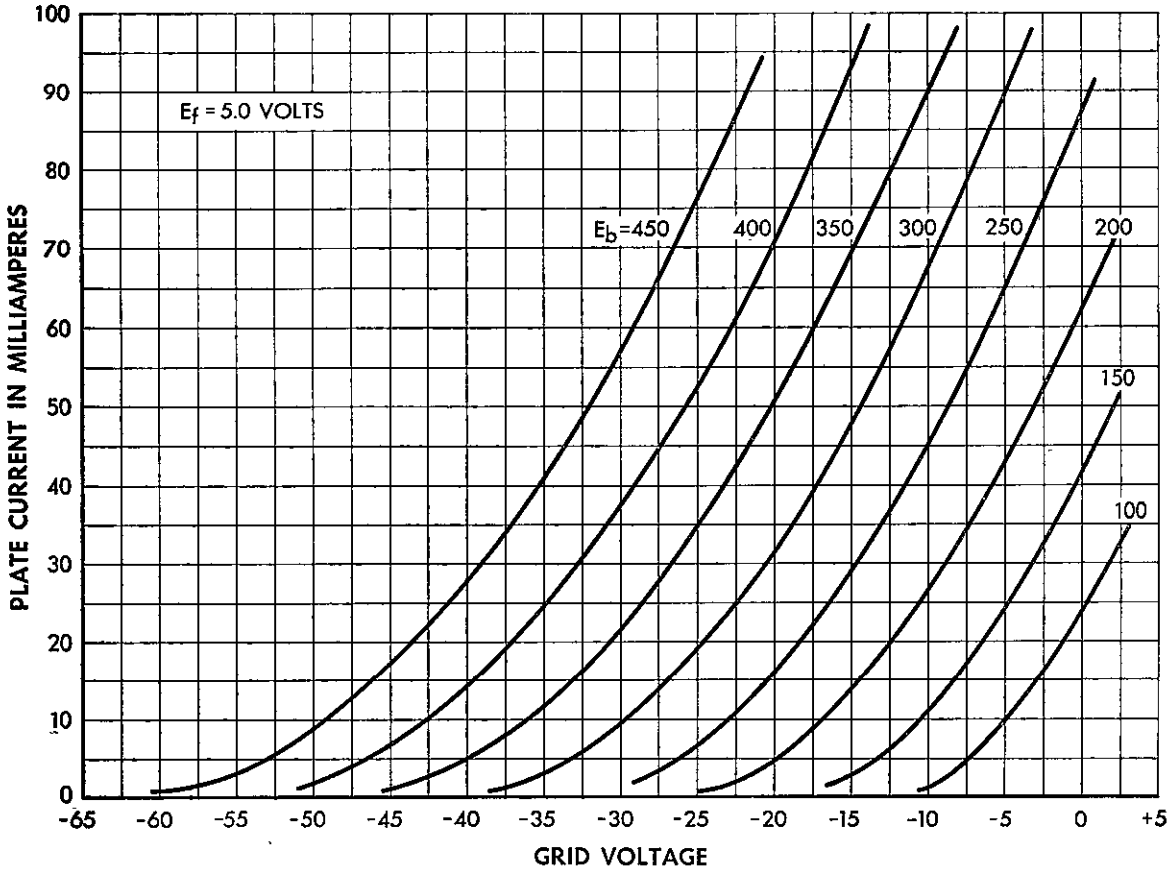
Dimensions and pin connections shown in outline drawing on Page 5

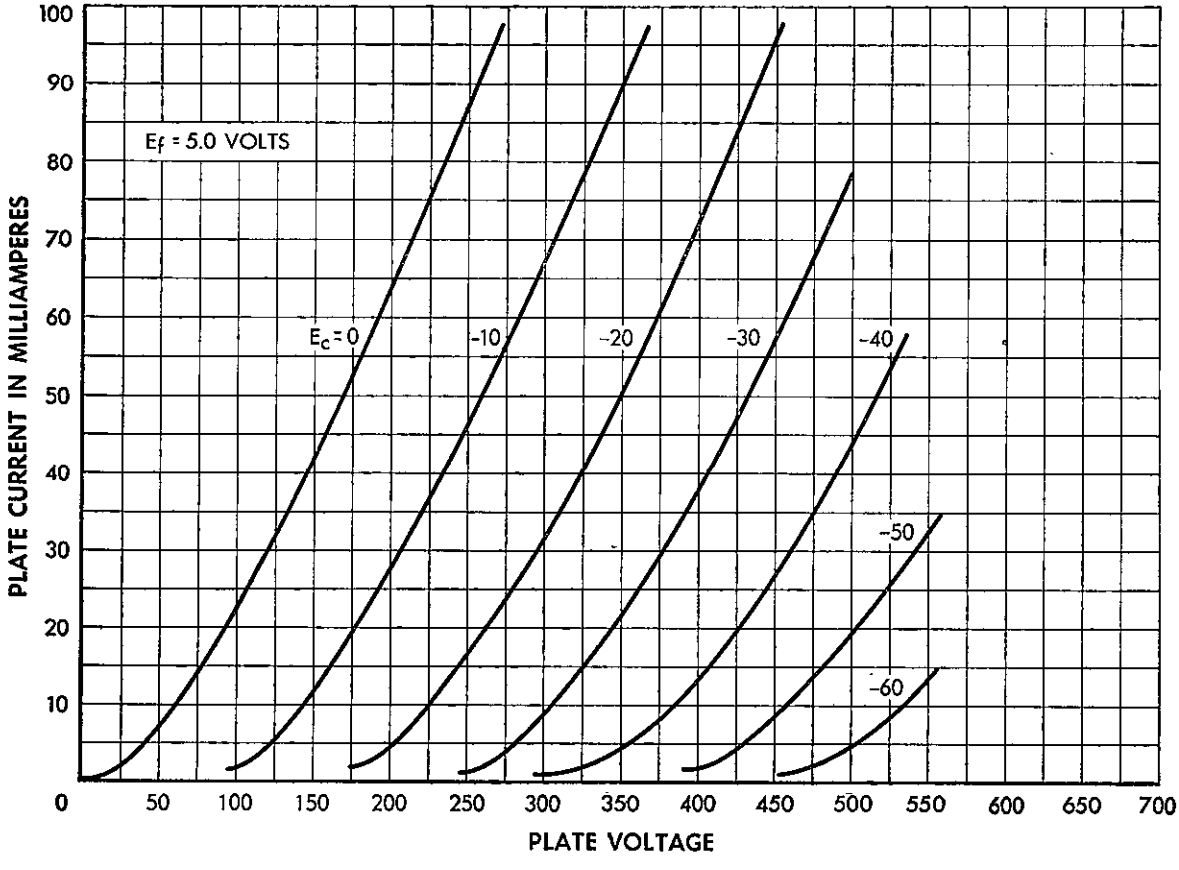
MAXIMUM RATINGS, Design-Center Values

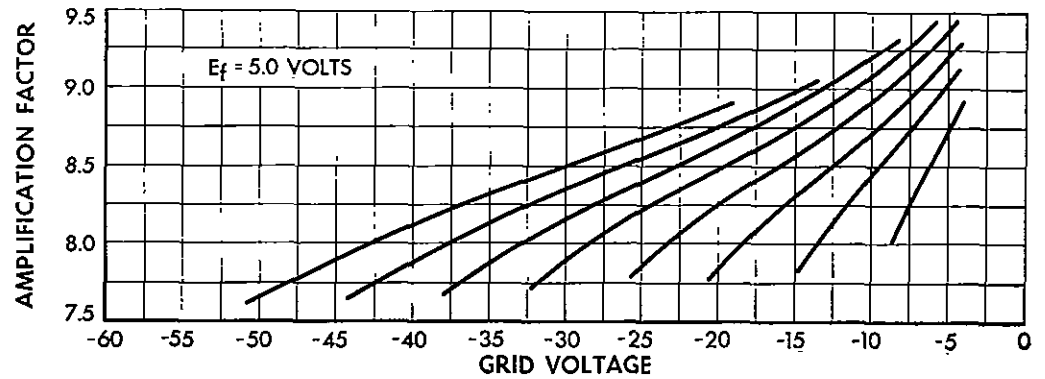
Plate Voltage	450 volts
Plate Dissipation	27 watts
Plate Current	60 milliamperes
Heater-Cathode Voltage	100 volts

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS – CLASS A_1 AMPLIFIER

Plate Voltage	300	350	400	450	volts
Grid Voltage	−25	−25	−30	−30	volts
Peak A-F Grid Voltage	25	25	30	30	volts
Plate Current	19.5	34.5	37.5	57.5	milliamperes
Transconductance	2250	2930	2920	3480	micromhos
Amplification Factor	8.2	8.4	8.3	8.5	
Plate Resistance	3650	2850	2830	2450	ohms
Load Resistance	14600	5700	6000	4900	ohms
Maximum Signal Power Output	0.9	1.7	2.4	3.1	watts
Total Harmonic Distortion	4.5	6	6	3.1	per cent


Ef = 5.0 VOLTS
Eb=450
400
350
300
250
200
150
100
PLATE CURRENT IN MILLIAMPERES
GRID VOLTAGE
0
10
20
30
40
50
60
70
80
90
100
-65
-60
-55
-50
-45
-40
-35
-30
-25
-20
-15
-10
-5
0
+5


Ef = 5.0 VOLTS
Ec = 0
-10
-20
-30
-40
-50
-60
PLATE CURRENT IN MILLIAMPERES
PLATE VOLTAGE
0
10
20
30
40
50
60
70
80
90
100
50
100
150
200
250
300
350
400
450
500
550
600
650
700


AMPLIFICATION FACTOR
9.5
9.0
8.5
8.0
7.5
E_f = 5.0 VOLTS
-60 -55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5 0
GRID VOLTAGE

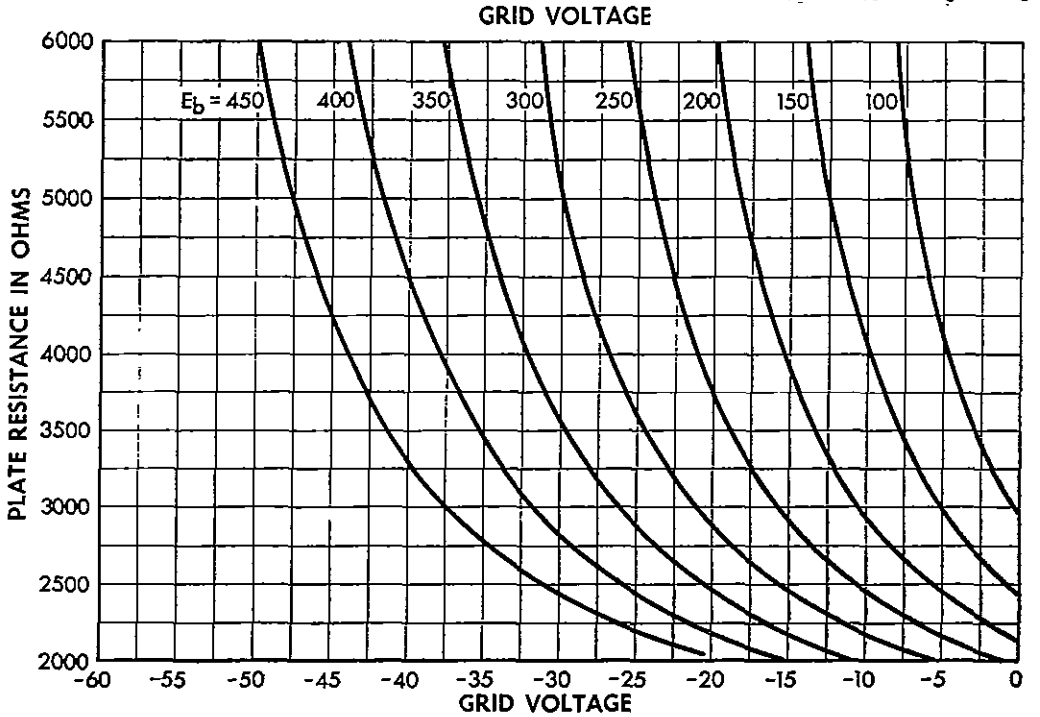
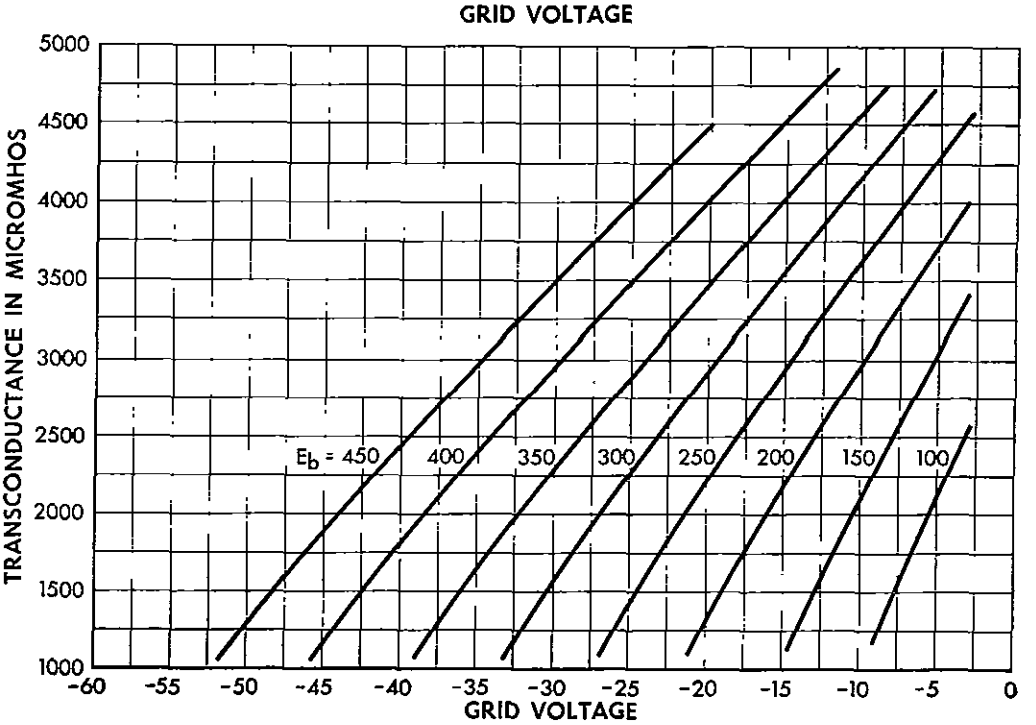
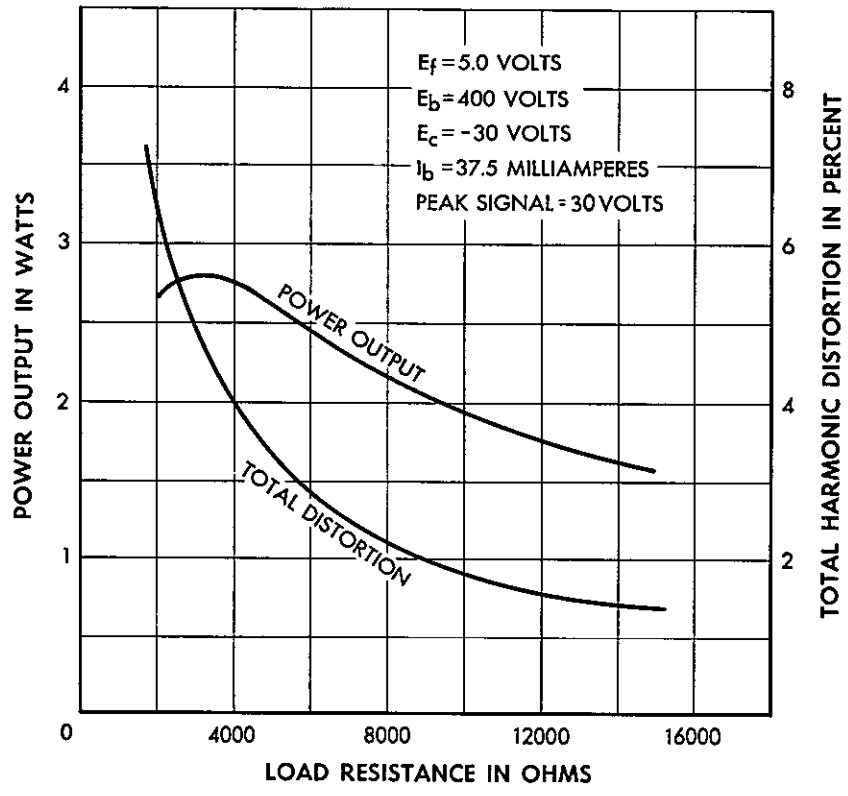
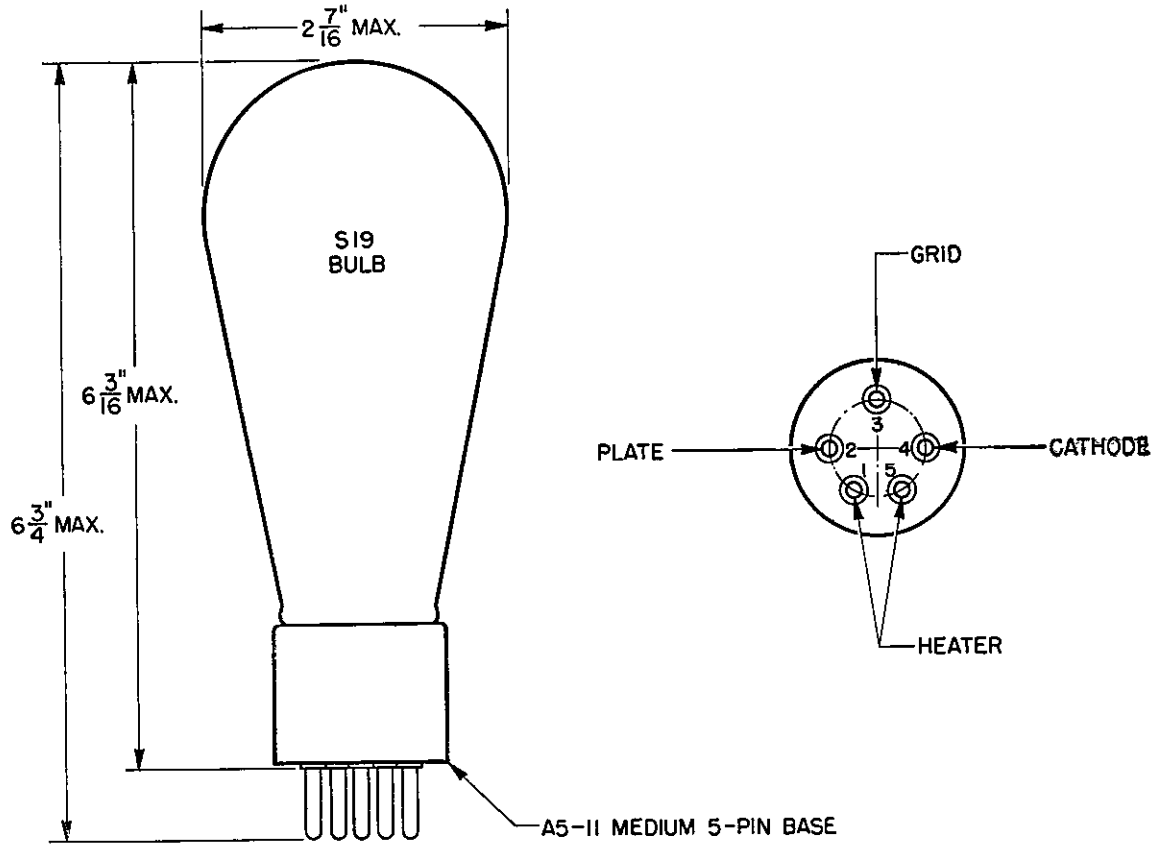


PLATE RESISTANCE IN OHMS
6000
5500
5000
4500
4000
3500
3000
2500
2000
E_b = 450 400 350 300 250 200 150 100
-60 -55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5 0
GRID VOLTAGE


TRANSCONDUCTANCE IN MICROMHOS
5000
4500
4000
3500
3000
2500
2000
1500
1000
E_b = 450 400 350 300 250 200 150 100
-60 -55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5 0
GRID VOLTAGE


E_f = 5.0 VOLTS
E_b = 400 VOLTS
E_c = -30 VOLTS
I_b = 37.5 MILLIAMPERES
PEAK SIGNAL = 30 VOLTS
POWER OUTPUT
TOTAL DISTORTION
POWER OUTPUT IN WATTS
TOTAL HARMONIC DISTORTION IN PERCENT
LOAD RESISTANCE IN OHMS
0
1
2
3
4
2
4
6
8
4000
8000
12000
16000


2 7/16" MAX.
S19
BULB
6 3/16" MAX.
6 3/4" MAX.
A5-11 MEDIUM 5-PIN BASE
GRID
PLATE
CATHODE
HEATER
1
2
3
4
5

Western Electric

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

1-D—48 PRINTED IN U.S.A. WECO—T2451