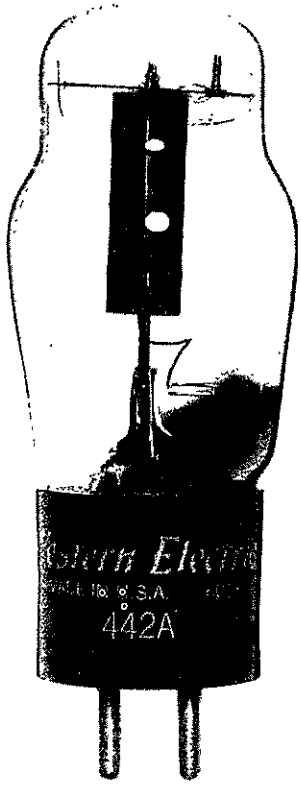
ELECTRON TUBE DATA SHEET

WESTERN ELECTRIC 442A ELECTRON TUBE



TRIODE
POWER AMPLIFIER

DESCRIPTION

The 442A is a filamentary triode designed for use as an audio-frequency power amplifier or modulator. The 442A is identical to the 205F electron tube except that it is fitted with a standard A4-9 medium 4-pin push type base.

CHARACTERISTICS

Filament Voltage		4.5	volts
Plate Current	E_b = 350 volts, E_c = -22.5 volts	35	milliamperes
Power Output	E_b = 350 volts, E_c = -22.5 volts	880	milliwatts

File: General Purpose Section

GENERAL CHARACTERISTICS

Electrical Data

Filament Voltage (A-C) or (D-C)	4.5	volts
Filament Current	1.6	amperes
Direct Interelectrode Capacitances		
Grid To Plate	5.9	μμf
Input	4.1	μμf
Output	2.2	μμf

Mechanical Data

Cathode	Coated Filament
Bulb	ST 14
Base	A4-9 medium 4-pin
Mounting Position	Preferably vertical; if horizontal, pins #1 and #2 must lie in same vertical plane

Dimensions and pin connections shown in outline drawing on page 6.

MAXIMUM RATINGS, Absolute System

Plate Voltage	400	volts
Plate Current	55	milliamperes
Plate Dissipation	14	watts

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

Filament Voltage (A-C)	4.5	4.5	4.5	4.5	volts
Plate Voltage	250	300	350	350	volts
Grid Voltage *	-22	-18	-22.5	-22.5	volts
Peak A-F Signal Voltage	22	18	22.5	22.5	volts
Zero Signal Plate Current	11.5	30	35	35	milliamperes
Maximum Signal Plate Current	12	30.5	36	36	milliamperes
Transconductance	1350	1880	1950	1950	micromhos
Plate Resistance	5300	3800	3700	3700	ohms
Load Resistance	12000	8000	4000	8000	ohms
Amplification Factor	7.2	7.2	7.2	7.2	
Maximum Signal Power Output	550	450	880	760	milliwatts
Total Harmonic Distortion	4.6	1.6	2.8	1.4	per cent

* If filament is operated on D-C the characteristics will be approximately the same if the grid voltage, measured from the negative filament, is decreased by 2.3 volts.

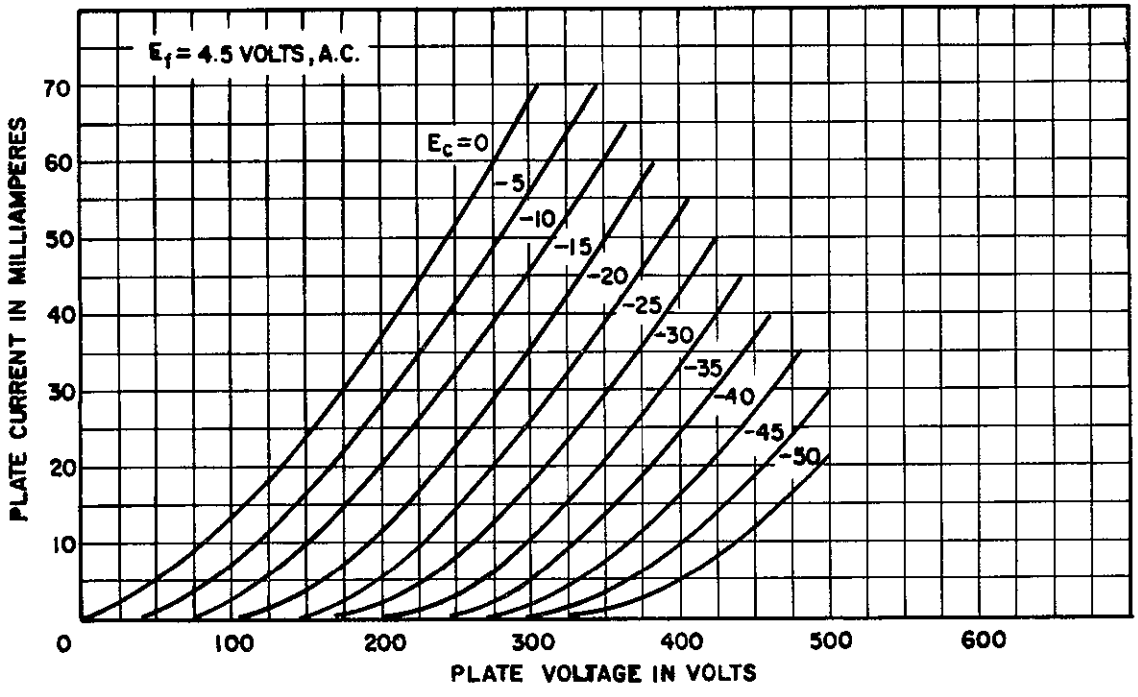

E_f = 4.5 VOLTS, A.C.
E_c = 0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50
PLATE CURRENT IN MILLIAMPERES
0
10
20
30
40
50
60
70
100
200
300
400
500
600
PLATE VOLTAGE IN VOLTS

FIG. 1

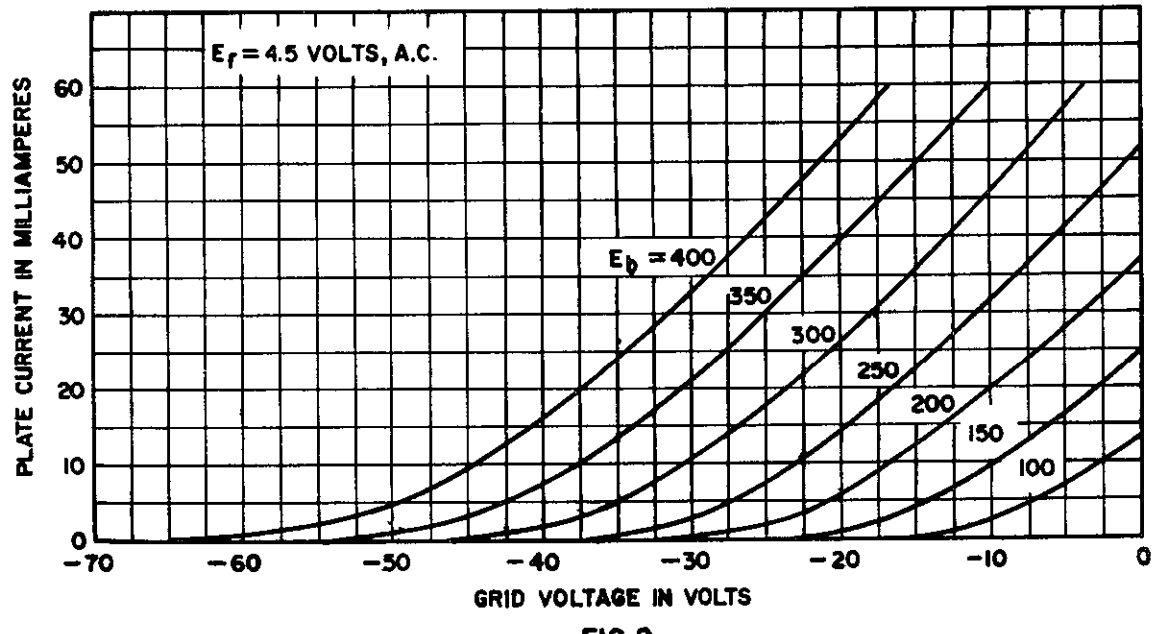

E_f = 4.5 VOLTS, A.C.
E_b = 400
350
300
250
200
150
100
PLATE CURRENT IN MILLIAMPERES
0
10
20
30
40
50
60
-70
-60
-50
-40
-30
-20
-10
0
GRID VOLTAGE IN VOLTS

FIG. 2

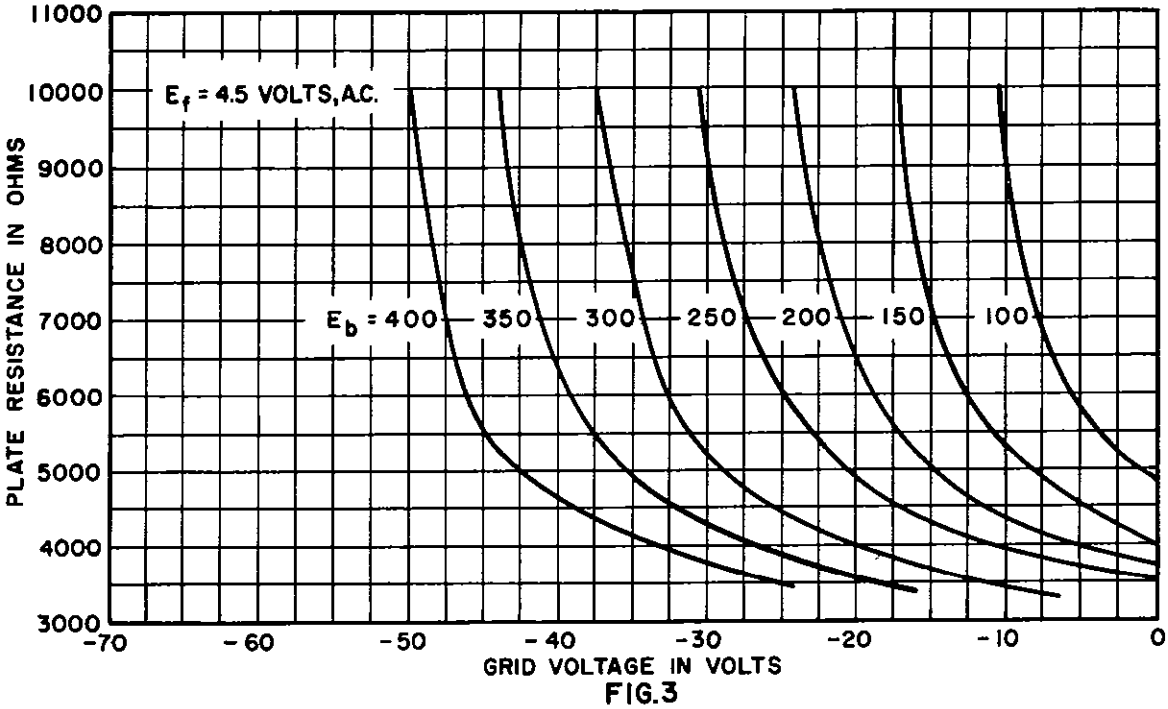

11000
10000
9000
8000
7000
6000
5000
4000
3000
PLATE RESISTANCE IN OHMS
E_f = 4.5 VOLTS, A.C.
E_b = 400
350
300
250
200
150
100
-70
-60
-50
-40
-30
-20
-10
0
GRID VOLTAGE IN VOLTS

FIG.3

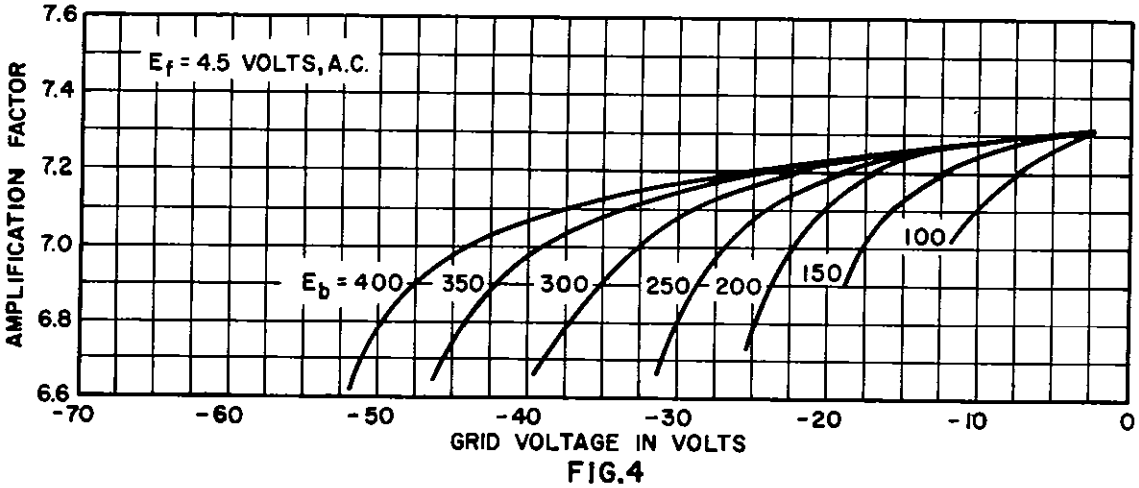

7.6
7.4
7.2
7.0
6.8
6.6
AMPLIFICATION FACTOR
E_f = 4.5 VOLTS, A.C.
E_b = 400
350
300
250
200
150
100
-70
-60
-50
-40
-30
-20
-10
0
GRID VOLTAGE IN VOLTS

FIG.4

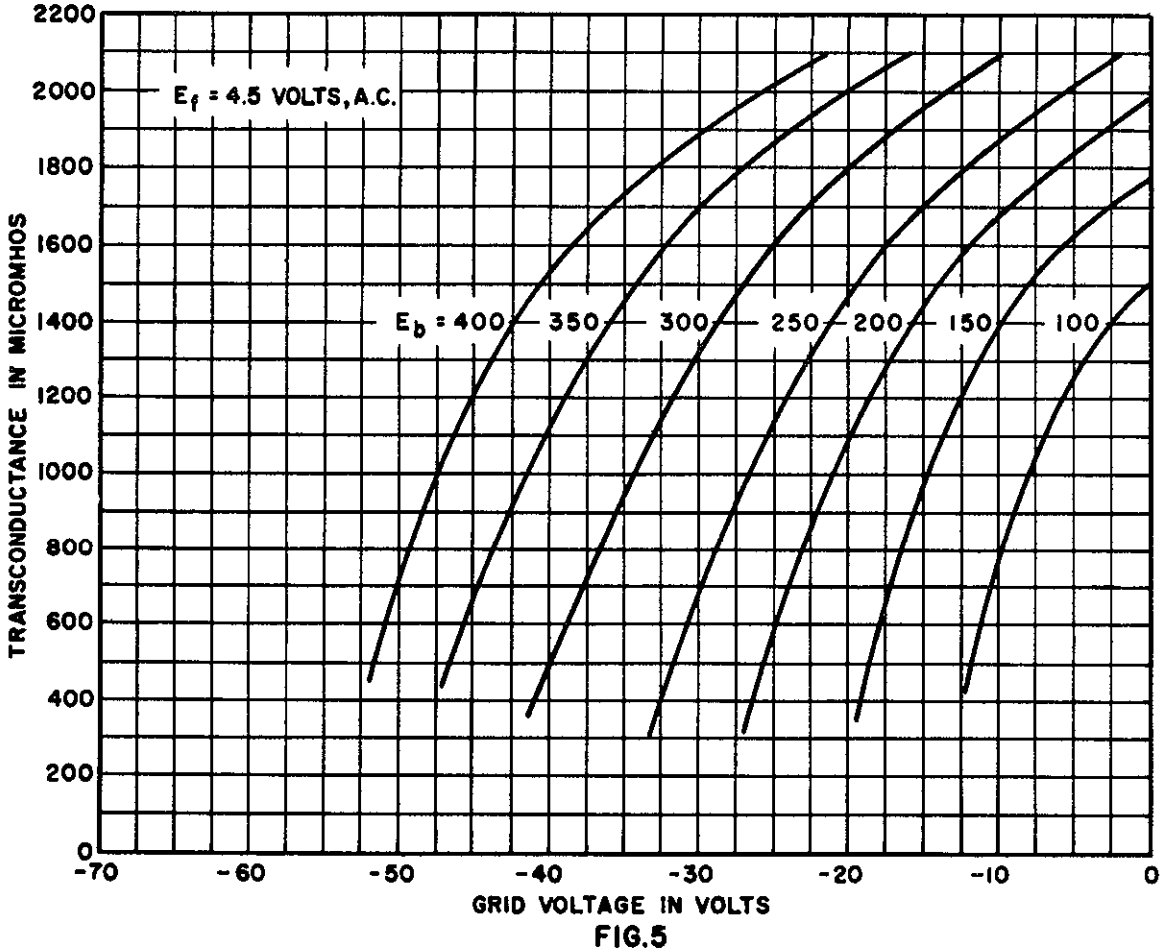
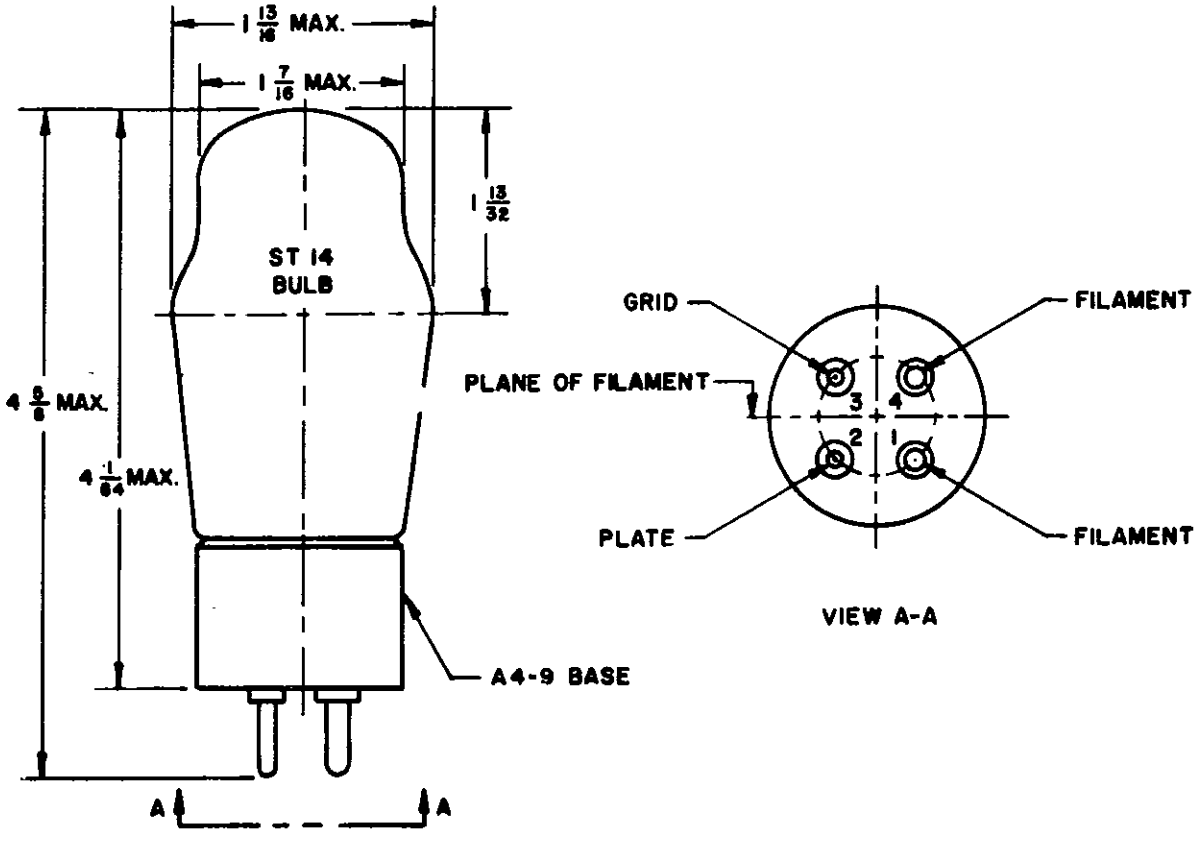

2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
TRANSCONDUCTANCE IN MICROMHOS
E_f = 4.5 VOLTS, A.C.
E_b = 400
350
300
250
200
150
100
-70
-60
-50
-40
-30
-20
-10
0
GRID VOLTAGE IN VOLTS

FIG.5


1 13/16 MAX.
1 7/16 MAX.
1 13/32
ST 14
BULB
4 5/8 MAX.
4 1/64 MAX.
A4-9 BASE
A
A
GRID
FILAMENT
PLANE OF FILAMENT
3
4
2
1
PLATE
FILAMENT
VIEW A-A