845

845

MODULATOR, A-F POWER AMPLIFIER

Filament	Thoriated Tungsten	
Voltage	10	a-c or d-c volts
Current	3.25	amp.
Amplification Factor	5.3	
Direct Interelectrode Capacitances:		
Grid to Plate	13.5	μμf
Grid to Filament	6	μμf
Plate to Filament	6.5	μμf
Maximum Overall Length		7-7/8"
Maximum Diameter		2-5/16"
Bulb		T-18
Base		Jumbo 4-Large Pin
RCA Socket		Type UT-541 ←

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

A-F POWER AMPLIFIER & MODULATOR - Class A_1

D-C Plate Voltage			1250 max.	volts
Plate Dissipation			100 max.	watts ←
Typical Operation: ←				
D-C Plate Voltage	750	1000	1250	volts
D-C Grid Voltage*	-98	-145	-195	volts
Peak A-F Grid Voltage	93	140	190	volts
D-C Plate Current	95	90	80	ma.
Transconductance	3100	3100	3100	μmhos
Plate Resistance	1700	1700	1700	ohms
Load Resistance	3400	6000	11000	ohms
U.P.O. (5% second harmonic)	15	24	30	watts

NOTE: In cases where the input circuit to the 845 is resistance coupled, the resistance in the grid circuit should not exceed 0.5 megohm when cathode bias is used. Without cathode bias, the d-c resistance in the grid-coupling circuit should not exceed 0.1 megohm.

A-F POWER AMPLIFIER & MODULATOR - Class AB_1 ←

D-C Plate Voltage		1250 max.	volts
D-C Grid Voltage		-400 max.	volts
D-C Plate Current		120 max.	ma.
Plate Input		150 max.	watts
Plate Dissipation		100 max.	watts
Typical Operation:			
Unless otherwise specified, values are for 2 tubes			
D-C Plate Voltage	1000	1250	volts
D-C Grid Voltage*	-175	-225	volts
Peak A-F Grid-to-Grid Voltage	340	440	volts
Zero-Signal D-C Plate Current	40	40	ma.
Max.-Signal D-C Plate Current	230	240	ma.
Load Resistance (per tube)	1150	1650	ohms
Effective Load Res. (plate to plate)	4600	6600	ohms
Max.-Signal Power Output	75	115	approx. watts

* With a-c filament supply.

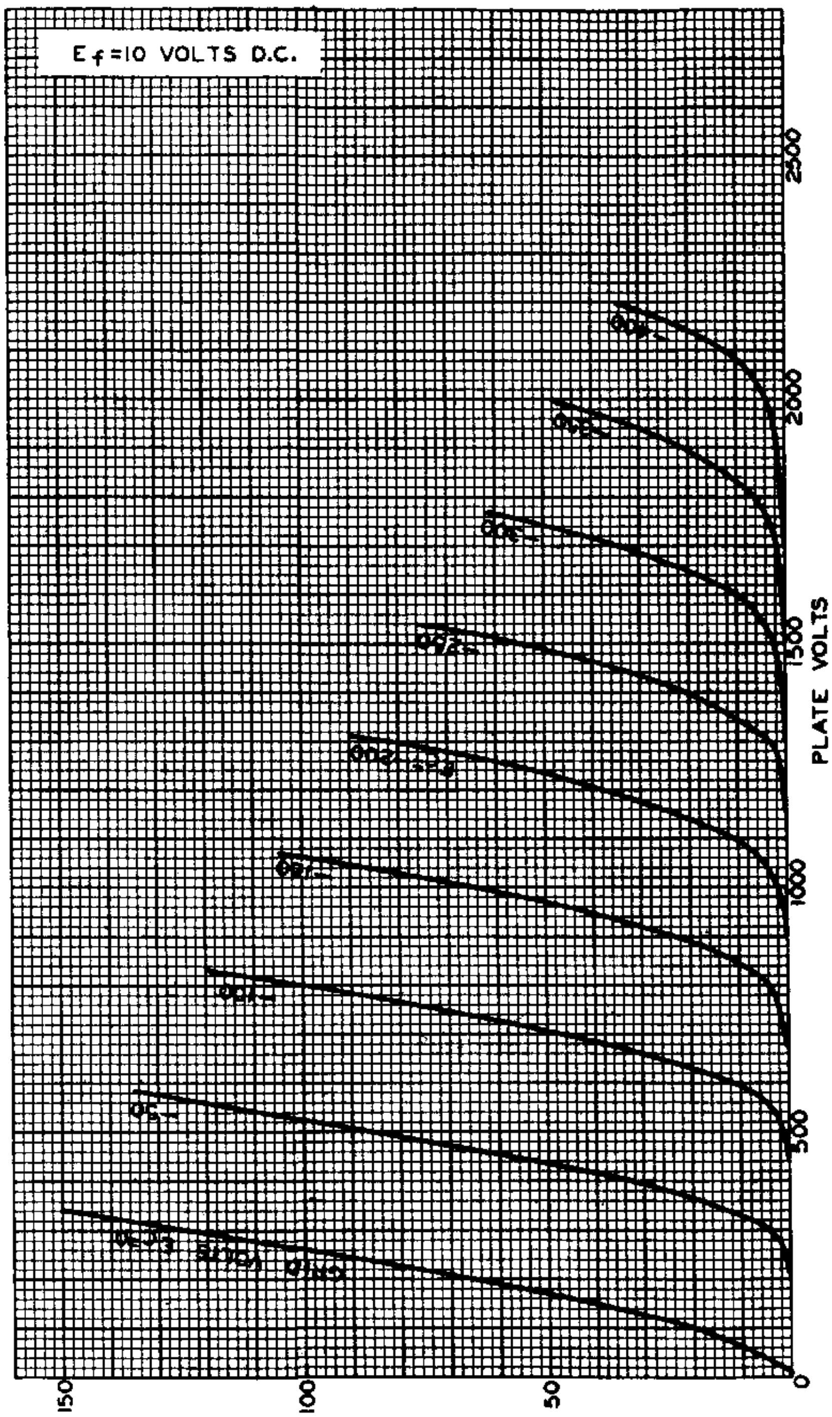
OUTLINE DIMENSIONS, TUBE SYMBOL, and SOCKET CONNECTIONS for the 845 are the same as for the 211.

← Indicates a change.

845

845

AVERAGE PLATE CHARACTERISTICS



NOV. 1, 1933

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

92C-5310

Tubes

845

EXACT REPLACEMENT FOR W.E.284-A

100 WATTS PLATE DISSIPATION

$10.00

CLASS "A" AUDIO TUBE

GENERAL CHARACTERISTICS
TYPE 845

Filament Voltage	10
Filament Current, amps	3.25
Mutual Conductance, uMhos	3000
Amplification Factor	5
Maximum Length	7½
Maximum Diameter	2 1/16
Plate to Grid, mmf	14
Grid to Filament, mmf	6.5
Plate to Filament	6

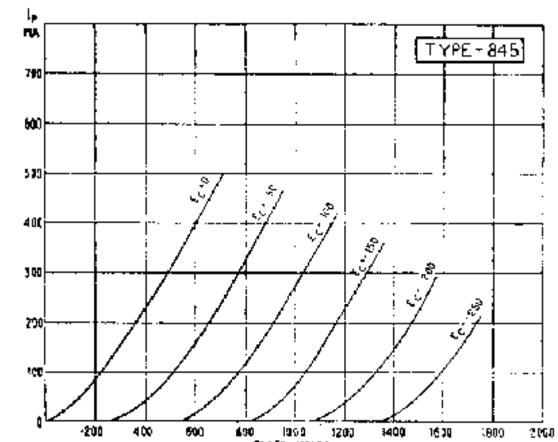
Nonex Glass **50 Watt Base**

CLASS A-A-F POWER AMP. AND MOD., TYPICAL OPERATING CONDITIONS

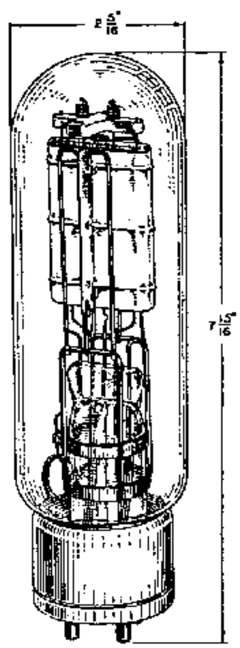
Plate Volts, D-C	750	1000	1250
Plate Current, D-C, milliamperes	95	90	80
Plate Resistance, ohms	1700	1700	1700
Grid Volts, D-C	—98	—145	—195
From Cathode Resistor of (ohms)	1030	1610	2435
Grid Swing, Peak A-F, volts	93	140	190
Transconductance, umhos	3100	3100	3100
Load Resistance, ohms	3400	6000	11000
Undistorted Power Output, watts	15	24	30

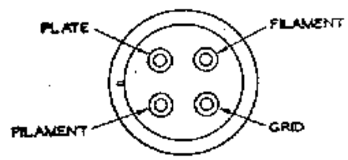
A-F POWER AMP. AND MOD., CLASS AB
Unless Otherwise Specified, Values Are for 2 Tubes

Plate Volts, D-C	1000	1250
Plate Current, Zero-Signal, D-C, ma	40	40
Plate Current, Max. Signal, D-C, ma	230	240
Grid Volts, D-C	—175	—225
Grid-to-Grid, Peak A-F, volts	340	440
Load Resistance, ohms (per tube)	1150	1650
Load Resistance, Effective, ohms (plate to plate)	4600	6600
Max.-Signal Power Output, watts	75	115



284A Vacuum Tube





Classification

The No. 284A Vacuum Tube is a 3 element tube for use as an audio-frequency amplifier, modulator, oscillator, or radio-frequency amplifier.

Base and Socket

The No. 284A Vacuum Tube employs a standard four prong bayonet pin type base suitable for use in a Western Electric 112A or similar type socket. The arrangement of electrode connections to the base terminals is shown above.

General Ratings and Information

Filament Voltage	10 Volts AC.
Nominal Filament Current	3.25 Amperes
Maximum Plate Voltage	1250 Volts
Maximum Plate Current	0.150 Ampere
Average Plate Resistance	1900 Ohms
Average Amplification Factor	4.7

Approximate Direct Interelectrode Capacities

Plate to Grid	8.2 MMF
Plate to Filament	7.8 MMF
Grid to Filament	7.0 MMF

Audio Amplifier or Modulator Rating—Peak Grid Drive equal to or less than the bias—Class A Service.

Maximum Plate Voltage	1000
Maximum Plate Current	0.85 Ampere
Maximum Plate Dissipation	85 Watts
Grid Bias Voltage	—165

Typical outputs obtainable within recommended operating conditions for different resistance loads, R, and for inputs on the grid equal to the grid bias:

Plate Volts	Plate Current (Milli-amperes)	Approx. Grid Volts	Approx. Plate Resist-ance, Rp, (Ohms)	R, Load Resist-ance	Funda-mental Power Output (Watts)	Second Har-monic % of Funda.	Third Har-monic % of Funda.
750	100	—106	1600	R=2Rp	16.6	4.5	.8
				R=5Rp	10.5	1.1	.03
750	75	—116	1760	R=2Rp	16.9	7.5	2.0
				R=5Rp	10.8	2.0	.16
1000	85	—165	1700	R=2Rp	33.3	10.0	3.2
				R=5Rp	22.5	2.4	.4
1000	50	—178	2100	R=5Rp	20.6	5.0	1.8
1250	60	—228	2000	R=2Rp	52.5	15.8	5.6
				R=5Rp	41.5	5.1	2.2
1250	40	—238	2440	R=5Rp	31.3	7.0	2.8

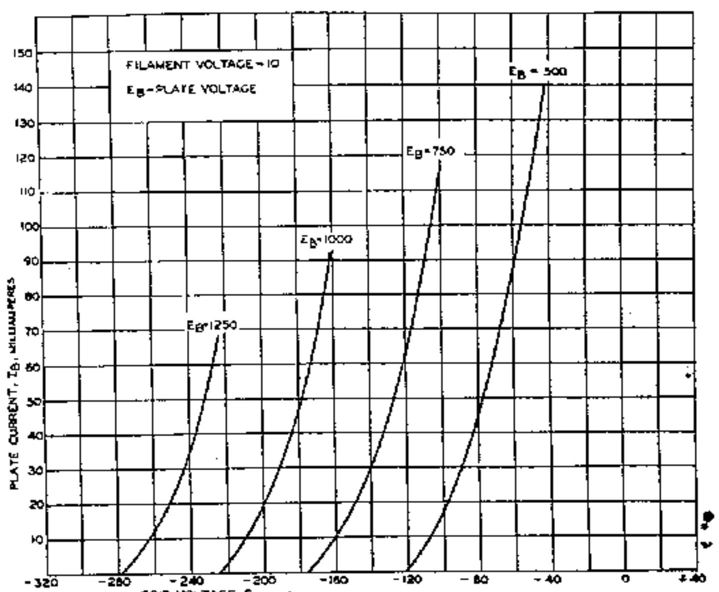
It is possible to obtain very substantial reduction in 2nd harmonic output by the use of the push-pull circuit. With resistance loads greater than twice the plate resistance of the tube, improved levels of harmonic outputs are obtained with relatively little sacrifice in the level of the fundamental power outputs.

Radio Frequency, Oscillator, or Amplifier—Grid Bias practically at or greater than cut-off, grid drive higher than the bias—Class B or C Service.

Maximum Plate Voltage	1250
Maximum Plate Current	0.150 Ampere
Maximum Plate Dissipation	100 Watts
Grid Bias Voltage	—300 Volts
Maximum R.F. Charging Current in Grid or Plate Leads	5 Amperes
Peak Output	100 Watts

Average Static Characteristics

The accompanying curves give the average static characteristics of the No. 284A Vacuum Tube. These curves are taken with the filament operating on alternating current and with the plate and grid returns connected to a center point on the filament transformer.



General Features

The electrical characteristics of the No. 284A Vacuum Tube make it especially suitable for audio-frequency power amplifier or modulator. In the design of the No. 284A Vacuum Tube, special attention has been given to obtain low interelectrode capacities, low plate resistance and uniform heating of the plate. Thoriated tungsten is used for the filament.

This vacuum tube has an unusually rugged type of structure which insures it against breakage in shipment and service and makes possible the maintenance of uniform electrical characteristics.