

NOTED
R

RADIO MANUFACTURERS ASSOCIATION

SUITE 701-4 AMERICAN BUILDING
1317 F STREET, N.W.
WASHINGTON, D. C.



R.M.A. DATA BUREAU
90 West Street
New York, N. Y.

Release No. 744

March 30, 1949

To
Tube Engineers:

Registration has been made by the
RMA Data Bureau of the vacuum tube type designa-
tion

5736 (Registration No. 1651)

as defined by the characteristics and ratings
given in the attached data on application of

Westinghouse Electric Corporation
Bloomfield, New Jersey.

Respectfully yours,

RMA DATA BUREAU

By

LCFHorle/cap
Enc.

WESTINGHOUSE ELECTRIC CORPORATION

E I A
REGISTRATION
FILE

Tube Type

5736

The 5736 is a three-electrode tube designed for use as an oscillator, amplifier, and modulator. The anode is forced air-cooled and is capable of dissipating 2.5 kilowatts. The cathode is a thoriated tungsten filament. Maximum ratings apply up to 60 megacycles.

Mechanical Data

Mounting Position - Vertical, Anode Up or Down

Type of Cooling - Forced Air

Maximum Incoming Air Temperature

45 °C

Minimum Required Air Flow on Anode

(Except Television Ratings) Except as otherwise noted.

	100 % Rating	80% Rating	60% Rating
Plate Dissipation			
Air Flow - Cubic Feet Per Minute	150	100	50
Pressure - Inches of Water	2.8	1.25	0.7

Required Air Flow on Filament and Grid Seals:

Air Flow through radiator normally is sufficient.

Maximum Glass Temperature

160 °C

GENERALElectrical Data

	Minimum	Bogey	Maximum	
Filament Voltage	5.7	6.0	6.3	Volts
Filament Current at Bogey Voltage	57	60	63	Amperes
Filament Starting Current	-	-	120	Amperes
Filament Cold Resistance	-	0.016	-	Ohms
Amplification Factor	18	22	26	
Interelectrode Capacitances:				
Grid-Plate	12	14.5	21	uuf
Grid-Filament	15	17.5	22	uuf
Plate-Filament	0.2	0.5	1.0	uuf

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONSAudio-Frequency Power Amplifier and Modulator - Class B

Maximum Ratings, Absolute Values

D-C Plate Voltage

603*

Volts Max.

Maximum Signal D-C Plate Current**

3000

Amps. Max.

Maximum Signal Plate Input**

1.4

Watts Max.

Plate Dissipation**

4200

Watts Max.

2500

(Continued)

March 17, 1949

**Typical Operation (Unless Otherwise Specified,
Values are for Two Tubes)**

D-C Plate Voltage	3000	Volts
D-C Grid Voltage	-160	Volts
Peak A-F Grid-to-Grid Voltage	820	Volts
Zero Signal D-C Plate Current	0.66	Amps.
Maximum Signal D-C Plate Current	2.80	Amps.
Effective Load Resistance Plate-to-Plate	3060	Ohms
Maximum Signal Driving Power, Approximate	140	Watts
Maximum Signal Power Output, Approximate	4350	Watts
Load Resistance (Per Tube)	765	Ohms

- * Continuous Commercial Service.
- ** Averaged over any audio-frequency cycle of sine-wave form.

Radio-Frequency Power Amplifier - Class B
(Carrier Conditions per Tube For Use With A Maximum
Modulation Factor of 1.0)

Maximum Ratings, Absolute Values		CCS*	
D-C Plate Voltage	3500		Volts, Max.
D-C Plate Current	1.75		Amps., Max.
Plate Input	3500		Watts Max.
Plate Dissipation	2500		Watts Max.
Typical Operation		CCS*	
D-C Plate Voltage	3000		Volts
D-C Grid Voltage	-160		Volts
Peak A-F Grid Voltage	280		Volts
D-C Plate Current	1.1		Amps.
D-C Grid Current, Approximate	0.050		Amps.
Driving Power, Approximate**	15		Watts
Power Output Approximate	800		Watts

- * Continuous Commercial Service.
- ** At crest of audio-frequency cycle with modulation factor of 1.0

Radio-Frequency Power Amplifier - Class B
(Grounded-Grid, Wide-Band Television Service,
Maximum Frequency = 88 Megacycles)

Maximum Ratings, Absolute Values			
D-C Plate Voltage	3500		Volts Max.
D-C Plate Current	1.75		Amps. Max.
Plate Input	4000		Watts Max.
Plate Dissipation (1)	2800		Watts Max.
Typical Operation			
D-C Plate Voltage	2600		Volts
D-C Plate Current:			
Synchronizing Level	2.32		Amps.
Block Level	1.47		Amps.
D-C Grid Voltage	-160		Volts
Peak A-F Grid Voltage:			
Synchronizing Level	535		Volts
Block Level	400		Volts
D-C Grid Current:			
Synchronizing Level	0.430		Amps.
Block Level	0.136		Amps.
Driving Power, Approximate:			
Synchronizing Level	1160		Watts
Block Level	535		Watts
Power Output, Approximate: (2)			
Synchronizing Level	3680		Watts
Block Level	1690		Watts

(1) Requires 180 CFM of cooling air at 1/4 inches static pressure.

(2) Includes power transferred from driver stage.

Radio-Frequency Power Amplifier and Oscillator - Class C Telegraphy
(Key-Down Conditions Per Tube Without Amplitude Modulation) (1)

Maximum Ratings, Absolute Values

	CCS(2)		
	60 Mcs.	110 Mcs.	
Plate Voltage	5000	3500	Volts Max.
Plate Current	1.4	1.4	Amps. Max.
Plate Input	5000	3500	Watts Max.
Plate Dissipation	2500	2500	Watts Max.
D-C Grid Voltage	-1000	-700	Volts Max.
D-C Grid Current	0.5	0.5	Amps. Max.

Typical Operation

	60 Mcs.	110 Mcs.		
D-C Plate Voltage	5000	3500	3500	Volts
D-C Grid Voltage	-850	-600	-300	Volts
Peak R-F Grid Voltage	1200	940	555	Volts
D-C Plate Current	1.0	1.0	1.0	Amps.
D-C Grid Current	0.210	0.250	0.155	Amps.
Driving Power, Approximate	250	235	85	Watts
Power Output, Approximate	4100	2800	2550	Watts

- (1) Modulation essentially negative may be used if the positive peak of the carrier envelope does not exceed 115% of the carrier conditions.
 (2) Continuous commercial service.

Plate-Modulated Radio-Frequency Power Amplifier - Class C Telephony
(Carrier Conditions Per Tube For Use With A Maximum Modulation Factor of 1.0)

Maximum Ratings, Absolute Values

	CCS(1)	
D-C Plate Voltage	3500	Volts Max.
D-C Grid Voltage	-1000	Volts Max.
D-C Plate Current	1.4	Amps. Max.
D-C Grid Current	0.5	Amps. Max.
Plate Input	4000	Watts Max.
Plate Dissipation	1650	Watts Max.

Typical Operation

D-C Plate Voltage	3500	Volts
D-C Grid Voltage	-600	Volts
Peak R-F Grid Voltage	950	Volts
D-C Plate Current	1.14	Amps.
D-C Grid Current, Approximate	0.28	Amps.
Driving Power, Approximate	270	Watts
Power Output, Approximate	3200	Watts

- (1) Continuous Commercial Service.

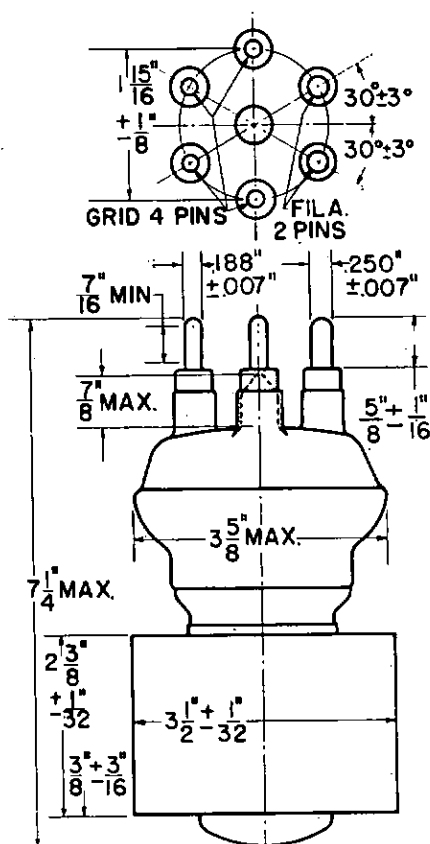
Maximum ratings apply up to 60 megacycles. The tube may be operated at higher frequencies provided the maximum values of the plate voltage and power input are reduced according to the tabulation below. All other maximum ratings remain as shown above. Special attention should be given to adequate ventilation of the bulb at these frequencies.

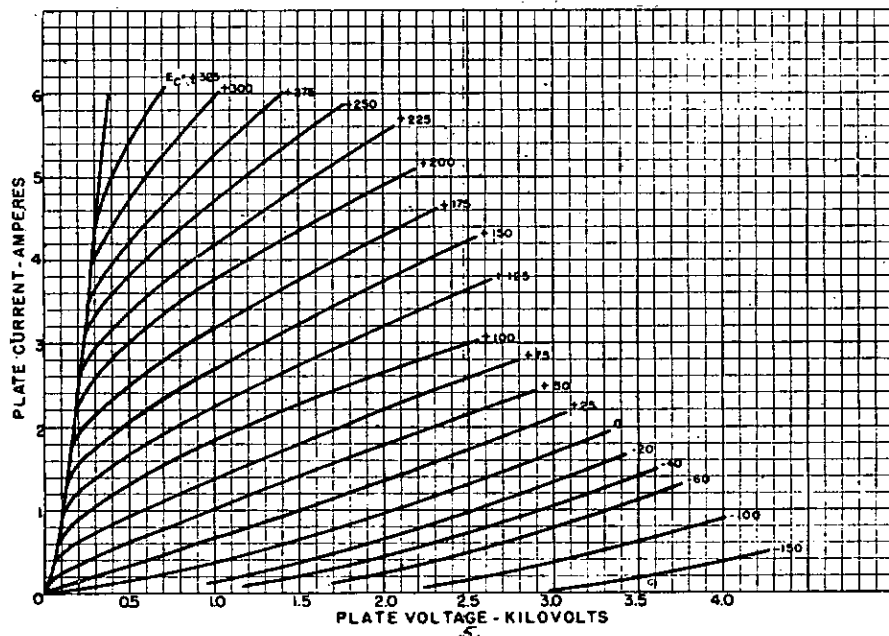
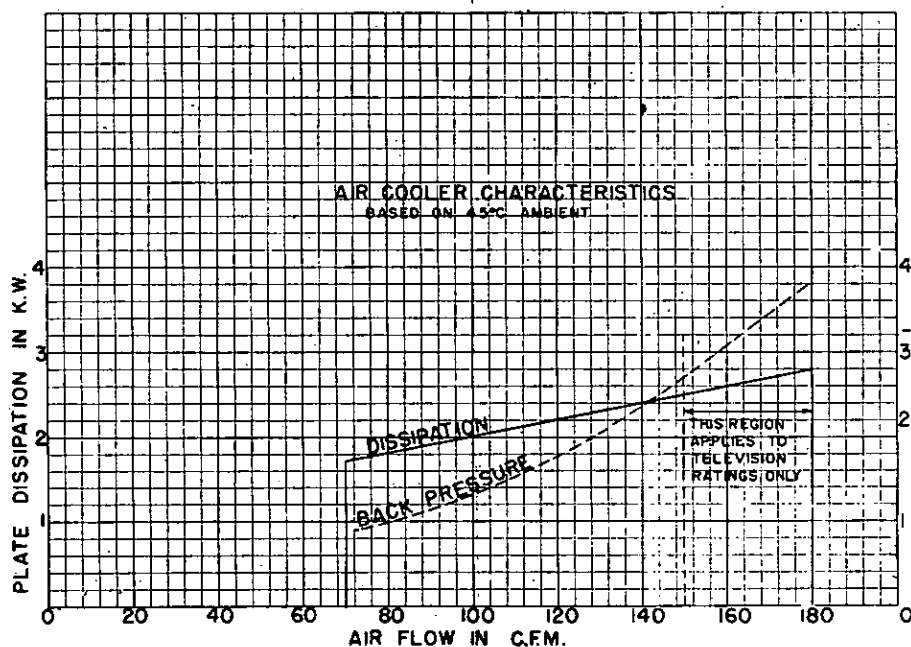
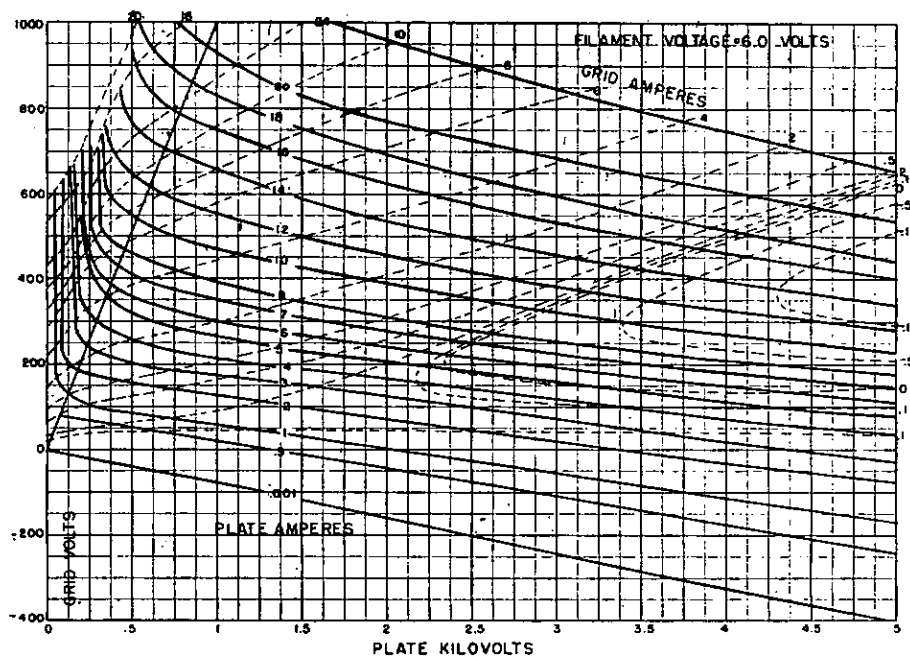
Percentage of Maximum Rated Plate Voltage and Plate Input:

Frequency	60	100	200	Mcs.
Class B	100	85	60	%
Class C Plate Modulated	100	80	50	%
Class C Unmodulated	100	80	50	%

ELECTRICAL DATA AND LIMITS

Characteristics:	Conditions:	Limits:		
		Minimum	Bogey	Maximum
Grid Voltage:	$I_b = 6$ Amperes. $E_b = 1000$ Volts	-	-	360 Volts
Grid Current:	$I_b = 6$ Amperes. $E_b = 1000$ Volts	-	-	2.2 Amps.
Plate Voltage:	$I_b = 0.40$ Amperes. $E_c = -20$ Volts	1150	1400	1650 Volts
Plate Voltage:	$I_b = 0.40$ Amperes. $E_c = -30$ Volts	1370	1620	1870 Volts
Peak Cathode Current: (Useable cathode current for tube as plate current plus grid current for any condition of operation.)	I_{k1}	10	-	- Amps.
Power Output:	$E_b = 5000$, $I_b = 1.0$, $E_c = -850$, $I_g = 0.3$, $f = 60$ Megacycles	$P_o = 3600$		Watts





744

JOINT ELECTRON TUBE ENGINEERING COUNCIL

J1-5736
Page 1
October 18, 1948

DATA SHEET

ELECTRON TUBE TYPE 5736

The 5736 is a three-electrode tube designed for use as an oscillator, amplifier, and modulator. The anode is forced air-cooled and is capable of dissipating 2.5 kilowatts. The cathode is a thoriated tungsten filament. Maximum ratings apply up to 60 megacycles.

GENERAL

Electrical Data:	Minimum	Bogey	Maximum	
Filament Voltage	5.7	6.0	6.3	Volts
Filament Current at Bogey Voltage	57	60	63	Amperes
Filament Starting Current	-	-	120	Amperes
Filament Cold Resistance	-	0.016	-	Ohms
Amplification Factor: $E_c = -20$; $I_b = 0.4$	18	22	26	
Interelectrode Capacitances:				
Grid-Plate	12	14.5	21	puf
Grid-Filament	15	17.5	22	puf
Plate-Filament	0.2	0.5	1.0	puf

Mechanical Data:

Mounting Position - Vertical, Anode Up or Down

Type of Cooling - Forced Air

Maximum Incoming Air Temperature

Minimum Required Air Flow on Anode

(Except Television Ratings)

45 °C

Plate Dissipation:	(1)		
	100% Rating	80% Rating	60% Rating
Air Flow - Cubic Feet Per Minute:	150	100	50
Pressure - Inches of Water:	2.8	1.25	0.7

Required Air Flow on Filament and Grid Seals:

Air flow through radiator normally is sufficient.

Maximum Glass Temperature

160 °C

Net Weight, Approximate

3-1/4 Pounds

(1) Except as otherwise noted.



REGIONAL

FILE

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONSAudio-Frequency Power Amplifier and Modulator - Class B

Maximum Ratings, Absolute Values

D-C Plate Voltage

Maximum Signal D-C Plate Current**

Maximum Signal Plate Input**

Plate Dissipation**

CCS*

3,000

Volts, Max.

1.4

Amps. Max.

4,200

Watts Max.

2,500

Watts Max.

Typical Operation (Unless Otherwise Specified
Values are for Two Tubes).

D-C Plate Voltage

D-C Grid Voltage

Peak A-F Grid-to-Grid Voltage

Zero Signal D-C Plate Current

Maximum Signal D-C Plate Current

Effective Load Resistance, Plate-to-Plate

Maximum Signal Driving Power, Approximate

Maximum Signal Power Output, Approximate

Load Resistance (Per Tube)

CCS*

3,000

Volts

-160

Volts

820

Volts

0.66

Amps.

2.80

Amps.

3,060

Ohms

140

Watts

4,350

Watts

765

Ohms

* Continuous Commercial Service.

** Averaged over any audio-frequency cycle of sine-wave form.

Radio-Frequency Power Amplifier - Class B(Carrier Conditions per Tube For Use With a Maximum
Modulation Factor of 1.0)

Maximum Ratings, Absolute Values

D-C Plate Voltage

D-C Plate Current

Plate Output

Plate Dissipation

CCS*

3,500

Volts Max.

1.75

Amps. Max.

3,500

Watts Max.

2,500

Watts Max.

Typical Operation

D-C Plate Voltage

D-C Grid Voltage

Peak R-F Grid Voltage

D-C Plate Current

D-C Grid Current, Approximate

Driving Power, Approximate**

Power Output, Approximate

CCS*

3,000

Volts

-160

Volts

280

Volts

1.1

Amps.

0.050

Amps.

15

Watts

800

Watts

* Continuous Commercial Service.

** At crest of audio-frequency cycle with modulation factor of 1.0



Radio-Frequency Power Amplifier - Class B
(Grounded-Grid, Wide-Band Television Service,
Maximum Frequency = 88 Megacycles).

Maximum Ratings, Absolute Values (1)	3,500	Volts Max.
D-C Plate Voltage	1.75	Amps. Max.
D-C Plate Current	4,000	Watts Max.
Plate Input	2,800	Watts Max.
Plate Dissipation (2)		
Typical Operation		
D-C Plate Voltage	2,600	Volts
D-C Plate Current:		
Synchronizing Level	2.32	Amps.
Black Level	1.47	Amps.
D-C Grid Voltage	-160	Volts
Peak R-F Grid Voltage:		
Synchronizing Level	535	Volts
Black Level	400	Volts
D-C Grid Current:		
Synchronizing Level	0.430	Amps.
Black Level	0.136	Amps.
Driving Power, Approximate:		
Synchronizing Level	1,160	Watts
Black Level	535	Watts
Power Output, Approximate: (3)		
Synchronizing Level	3,680	Watts
Black Level	1,690	Watts

- (1) Applies to black level operation including standard synchronizing peaks.
(2) Requires 180 CFM of cooling air at 4 inches static pressure.
(3) Includes power transferred from driver stage.



Radio-Frequency Power Amplifier and Oscillator - Class C Telegraphy
(Key-Down Conditions Per Tube Without Amplitude Modulation) (1)

Maximum Ratings, Absolute Values	(2)			
	CCS			
	<u>50 Mcs.</u>	<u>110 Mcs.</u>		
Plate Voltage	5,000	3,500	Volts Max.	
Plate Current	1.4	1.4	Amps. Max.	
Plate Input	5,000	3,500	Watts Max.	
Plate Dissipation	2,500	2,500	Watts Max.	
D-C Grid Voltage	-1,000	-700	Volts Max.	
D-C Grid Current	0.5	0.5	Amps. Max.	
Typical Operation	<u>50 Mcs.</u>	<u>110 Mcs.</u>		
D-C Plate Voltage	5,000	3,500	3,500	Volts
D-C Grid Voltage	-850	-600	-300	Volts
Peak R-F Grid Voltage	1,200	940	555	Volts
D-C Plate Current	1.0	1.0	1.0	Amps.
D-C Grid Current	0.210	0.250	0.155	Amps.
Driving Power, Approximate	250	235	85	Watts
Power Output, Approximate	4,100	2,800	2,550	Watts

- (1) Modulation essentially negative may be used if the positive peak of the carrier envelope does not exceed 115% of the carrier conditions.
- (2) Continuous commercial service.

Plate-Modulated Radio-Frequency Power Amplifier - Class C Telephony
(Carrier Conditions Per Tube For Use With a Maximum Modulation Factor of 1.0)

(1)		
Maximum Ratings, Absolute Values	CCS	
D-C Plate Voltage	3,500	Volts Max.
D-C Grid Voltage	-3,000	Volts Max.
D-C Plate Current	1.4	Amps. Max.
D-C Grid Current	0.5	Amps. Max.
Plate Input	4,000	Watts Max.
Plate Dissipation	1,650	Watts Max.
Typical Operation		
D-C Plate Voltage	3,500	Volts
D-C Grid Voltage	600	Volts
Peak R-F Grid Voltage	950	Volts
D-C Plate Current	1.14	Amps.
D-C Grid Current, Approximate	0.28	Amps.
Driving Power, Approximate	270	Watts
Power Output, Approximate	3,200	Watts

- (1) Continuous Commercial Service.



Maximum ratings apply up to 60 megacycles. The tube may be operated at higher frequencies provided the maximum values of the plate voltage and power input are reduced according to the tabulation below. All other maximum ratings remain as shown above. Special attention should be given to adequate ventilation of the bulb at these frequencies.

Percentage of Maximum Rated Plate
Voltage and Plate Input:

Frequency	60	100	200	Mos.
Class B	100	85	60	%
Class C Plate Modulated	100	80	50	%
Class C Unmodulated	100	80	50	%

ELECTRICAL AND MECHANICAL DATA AND LIMITS

Characteristics:	Conditions:	Limits:		
		Minimum	Bogey	Maximum
Grid Voltage:	$I_b = 6$ amperes $E_b = 1,000$ volts	$E_g:$ -	-	360 Volts
Grid Current:	$I_b = 6$ amperes $E_b = 1,000$ volts	I_{g1} -	-	2.2 Amps.
Plate Voltage:	$I_b = 0.40$ amperes $E_g = 0$ volts	$A_b:$ 850	1,050	1,250 Volts
Plate Voltage:	$I_b = 0.40$ amperes $E_g = -30$ volts	$E_b:$ 1,370	1,620	1,870 Volts
Grid Voltage:	$I_b = 0.020$ amperes $E_b = 4,000$ volts	$-E_g:$ 180	215	250 Volts
Peak Cathode Current:	(1)	I_{k1} 10	-	- Amps.
Power Output:	$E_b = 5,000$, $I_b = 1.0$ $E_g = -850$, $I_g = 0.3$ $f = 60$ megacycles	$P_o:$ 3,800	-	- Watts

- (1) Represents maximum useable cathode current for tube as plate current plus grid current for any condition of operation.



