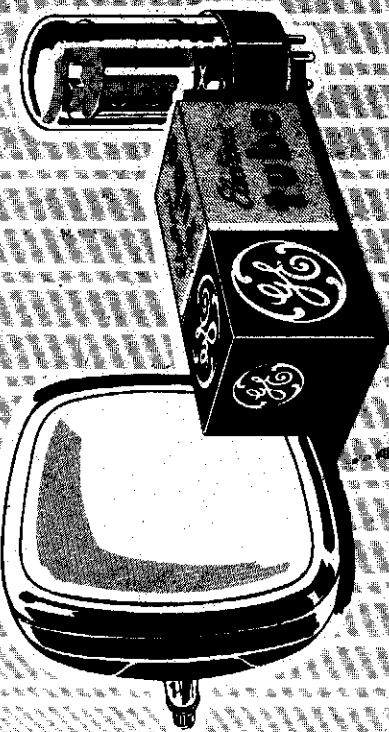


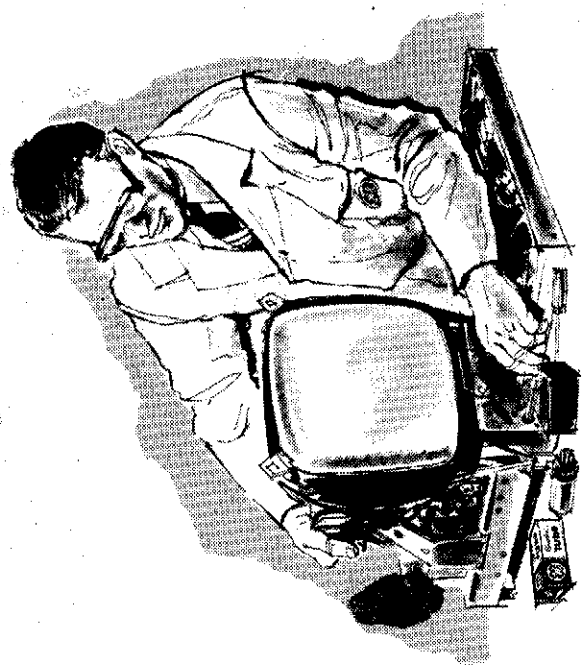



• RECEIVING TUBES

• PICTURE TUBES

• SPECIAL-PURPOSE TUBES

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ESSENTIAL CHARACTERISTICS is especially prepared to provide the Service Technician with a single source of reference containing data on every tube likely to be found in any home receiver—AM, FM, or television—as well as on some other special-purpose and industrial tubes.

Data presented include those characteristics and ratings essential to fast, efficient trouble-shooting. Basing diagrams for each type are shown on the page with the data.

The electronics engineer, amateur, and experimenter will also find this a valuable quick-reference for tubes currently in use.

Included in the present edition of this handbook are the many new receiving tubes recently announced for use in television applications and a section listing the essential physical and electrical characteristics of television picture tubes. For reference purposes and for the convenience of the user this handbook also contains a section devoted to special-purpose tubes.

A section entitled "Interpretation of Technical Data—Receiving and Special-Purpose Tubes" is included to aid in the proper evaluation of the information presented in this handbook. Following this section are tube classification charts arranged to provide a quick and convenient reference to the tubes that are available for specific classes of service in which the reader may be interested. The tube listings follow this section.

Requests for additional information will receive prompt attention if addressed to:

**RECEIVING TUBE ENGINEERING
RECEIVING TUBE DEPARTMENT
GENERAL ELECTRIC COMPANY
OWENSBORO, KENTUCKY**

TABLE OF CONTENTS

TITLE	PAGE
Receiving Tubes	
Interpretation of Technical Data—Receiving and Special-Purpose Tubes	2
Classification Charts	8
Characteristics and Ratings	14
Domestic Near-Equivalents to Foreign Tube Types	134
Special-Purpose Tubes	
Classification Chart—Five-Star Tubes	135
—Special-Purpose Tubes	135
Characteristics and Ratings	136
Television Picture Tubes	
Characteristics and Ratings	170
Outline Drawings	
Standard Configurations	208
T-X Table (see page 6)	222
Characteristic Curves	228
Typical Circuits	240

Since the information presented in this handbook is industry-wide in scope, the inclusion of a tube in this publication does not necessarily imply its availability from the General Electric Co.

INTERPRETATION OF TECHNICAL DATA RECEIVING AND SPECIAL-PURPOSE TUBES

RATINGS AND CHARACTERISTICS

The words "rating" and "characteristic" as used in this handbook are defined in the following manner: a rating is a limiting value of voltage, current, frequency, etc., beyond which tube life may be seriously impaired, while a characteristic is a property of the tube, inherent in its design, such as its ability to deliver a certain power output with specific electrode voltages applied. Thus, a tube has *rated* plate and screen voltages which define, according to the rating system used, the maximum permissible values; and *characteristic* plate and screen voltages, within the maximum ratings, which are chosen for satisfactory tube performance in a specific class of service. These *characteristic* voltages allow the tube to exhibit its *characteristic* values of transconductance, plate current, plate resistance, etc. The *characteristic* values are average figures, often referred to as *bogey* values, and represent the values that the tube manufacturer tries to achieve; individual tubes may vary from these values within controlled limits.

RATING SYSTEMS

Three systems are in use for defining maximum tube ratings. Unless otherwise indicated, the tubes listed herein are rated in the first of these to be defined, the Design-Center system.

1. Design-Center ratings are limiting values of operating and environmental conditions applicable to a bogey* tube of a specified type as defined by its published data, and should not be exceeded under normal conditions.

The tube manufacturer chooses these values to provide acceptable service-ability of the tube in average applications, taking responsibility for normal changes in operating conditions due to rated supply-voltage variation (for an alternating-current power source, 117 volts plus or minus 10 percent is accepted USA practice), equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in tube characteristics.

The equipment manufacturer should design so that initially no design-center value for the intended service is exceeded with a bogey tube in equipment operating at the stated normal supply voltage.

2. Absolute-Maximum ratings are limiting values of operating and environmental conditions applicable to any tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable service-ability of the tube, taking no responsibility for equipment variations, environmental variations, and the effects of changes in operating conditions due to variations in tube characteristics.

The equipment manufacturer should design so that initially and throughout life no absolute-maximum value for the intended service is exceeded with any tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in tube characteristics.

3. Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable service-ability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in tube characteristics.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, and environmental conditions.

* A bogey tube is one that exhibits the characteristics given in the published data; in practice, all of the bogey values are seldom combined in one tube.

ELECTRODE VOLTAGES

Electrode voltages indicated as "Max" in the tables are maximum ratings, and are measured with respect to the following reference points:

1. For cathode types, the reference point is the cathode terminal.
 2. For filamentary types operated on direct current, the reference point is the negative terminal of the filament.
 3. For filamentary types operated on alternating current, the reference point is the electrical center of the filament, usually located at the center-tap of the heater-supply transformer, rather than at the physical center of the filament.
- The other electrode voltages listed in the data are characteristic voltages and, with the two exceptions listed below, are measured with respect to the same reference points as the "Max" voltages.
1. For cathode types operated with cathode bias, the reference point is the negative terminal of the cathode-bias resistor.
 2. Filament or heater voltages are measured between the filament or heater terminals.

POWER DISSIPATION

1. Plate Dissipation

A. Class A Amplifiers

The maximum plate dissipation occurs at the zero-signal condition. For Class A operation the maximum peak input signal voltage should not exceed the bias voltage.

B. Class B Amplifiers

The maximum plate dissipation theoretically occurs at approximately 63 percent of the maximum-signal conditions, but practically may occur at any signal-voltage value.

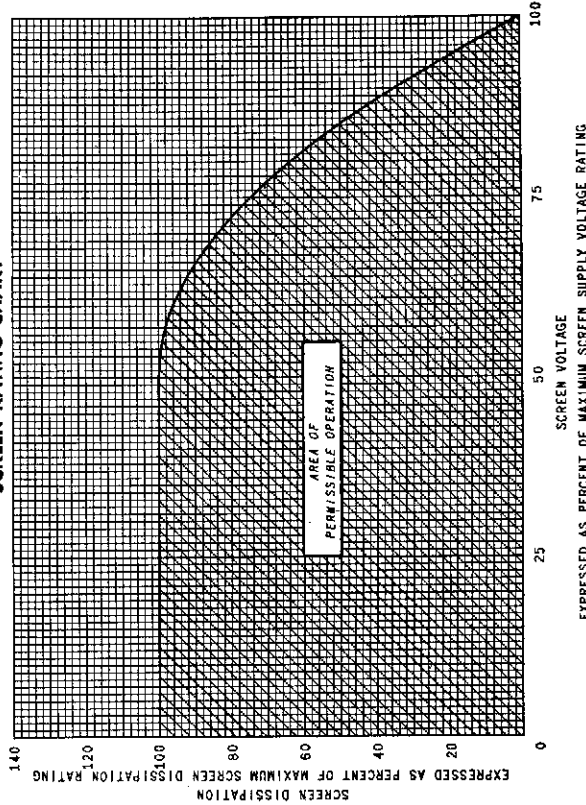
C. Converters

The maximum plate dissipation occurs at the zero-signal condition and at the frequency at which the oscillator-developed bias is a minimum.

2. Screen Dissipation

When a maximum screen voltage is shown in the data, the full rated screen dissipation is allowable at any screen voltage within the screen-voltage rating. When a maximum screen-supply voltage is shown, the allowable screen dissipation must be decreased, according to the accompanying screen-rating chart, if the screen voltage is greater than 50 percent of the rated screen-supply voltage.

SCREEN RATING CHART



APPLICATION OF MAXIMUM RATINGS

1. Design-Center System

Most of the tubes in this handbook are rated in the design-center system, and the following material is of assistance in determining compliance with these ratings.

A. Heater or Filament Voltages

(1) Cathode and AC-Operated Filament-Type Tubes

The heater or filament voltage is given as a normal value unless stated otherwise. This means that transformers or resistances in the heater or filament circuit should be designed to operate the heater or filament at rated value for full-load operating conditions under average supply-voltage conditions. A reasonable amount of leeway is incorporated in the cathode or filament design so that moderate fluctuations of heater or filament voltage downward will not cause marked falling off in response; also, moderate voltage fluctuations upward will not reduce the life of the cathode or filament to an unsatisfactory degree.

(2) 1.4-Volt Battery-Type Tubes

The filament power supply may be obtained from dry-cell batteries, from storage batteries, or from a power line. With dry-cell battery supply the filament may be connected either directly across a battery rated at a terminal potential of 1.5 volts, or in series with the filaments of similar tubes across a power supply consisting of dry cells in series. In either case, the voltage across each 1.4-volt section of filament should not exceed 1.6 volts.

With power-line or storage-battery supply, the filament may be operated in series with the filaments of similar tubes. For such operation, design adjustments should be made so that, with tubes of average characteristics (bogey tubes) operating with all electrode voltages applied and on a normal line voltage of 117 volts, or on a normal storage-battery voltage of 2.0 volts per cell (without a charger), or 2.2 volts per cell (with a charger), the voltage drop across each 1.4-volt section of filament will be maintained within a range of 1.25 to 1.4 volts with a nominal center of 1.3 volts.

In order to meet the recommended conditions for operating filaments in series from dry batteries, storage batteries, or power-line sources it may be necessary to use shunting resistors across the individual 1.4-volt sections of filament.

(3) Positive Electrode Voltages

The power sources for the operation of radio equipment are subject to variations in their terminal potential. Consequently, the maximum ratings given have been established for certain design-center voltages which experience has shown to be representative. The design-center voltages to be used for the various power supplies together with other rating considerations follow.

a. AC or DC Power-Line Service in U.S.A.

The design-center voltage for this type of power supply is 117 volts. The maximum ratings of plate voltages, screen-supply voltages, dissipations, and rectifier output currents should not be exceeded in equipment operated at a line voltage of 117 volts.

b. Storage-Battery Service

When storage-battery equipment is operated without a charger, it should be so designed that the published maximum values of plate voltages, screen-supply voltages, dissipations, and rectifier output currents are never exceeded for a terminal potential at the battery source of 2.0 volts per cell. When storage-battery equipment is operated with a charger, it should be so designed that 90 percent of the same values are never exceeded for a terminal potential at the battery source of 2.2 volts per cell.

c. B-Battery Service

The design-center voltage for B-batteries is the normal voltage rating of the battery block, such as 45 volts, 90 volts, etc. Equipment should be so designed that under no condition of battery voltage will the plate voltages, the screen-supply voltages, or dissipations ever exceed the maximum values shown in the tube data by more than 10 percent.

2. Design-Maximum System

An increasing number of tubes are being rated in the design-maximum system. The procedures used to determine compliance with this rating system differ from those used with the design-center system. A summary of these differences is given here.

Both rating systems require the use of a tube with average characteristics (bogey tube) for determination of compliance. However, in the design-center system procedure the tube is checked for conformance to ratings at values of supply voltage that are representative, component values at the center of their tolerance ranges, and circuit controls adjusted for normal operation. In the procedure for the design-maximum system, conformance is checked at the worst probable combinations of supply-voltage values, component values, and control adjustments. The worst probable combination for a specific rating is the combination having the greatest tendency to cause the tube to exceed that rating. Control adjustments are not carried to the point where the circuit becomes inoperative, as this is not considered a probable condition.

ARRANGEMENT OF DATA

1. Tube Type

- Within each of the data sections, tubes are arranged in numerical-alphabetical order.
- Within the receiving tube section, types having the same basic designation, but differing in suffix (e.g., 6BG6-G and 6BG6-GA) are grouped together when the types have equivalent electrical characteristics. All of the information presented applies to each type in the group with the possible exception of the information under the outline drawing, capacitance, or heater voltage and current columns. When this information differs, the values are horizontally aligned with the type designations to which they apply.
- The use of the suffix GT/G on small glass receiving tubes has been eliminated, and this suffix does not appear in this handbook. Data on GT/G types may be obtained by referring to the data under the GT listing (e.g., characteristics of the 6J5-GT/G will be found under the 6J5-GT listing).
- The following suffix letters are in common use in tube designations and have the indicated significance:
 - G signifies a glass bulb and an octal base.
 - GT signifies a T-9, straight-sided glass bulb and an octal base.
 - A, B, C, D, E, and F assigned in that order signify a later and modified version which can be substituted for any previous version but not vice-versa. The assignment of a suffix in this series does not convey any information as to the nature of the modification incorporated.
 - X signifies a base composed of special low-loss material.
 - Y signifies a base composed of special intermediate-loss material.

2. Classification by Construction

The column "Classification by Construction" presents a descriptive title for each tube. When, in the Special-Purpose-Tube section, the tube represents an improved or modified version of an older type, this basic prototype is given in parenthesis following the descriptive title. The inclusion of the prototype in the parenthesis is given as an aid in identifying the general characteristics of the tube under consideration and does not necessarily imply direct interchangeability between this version and the prototype. Whether or not the tubes can be used interchangeably depends on the particular characteristics and requirements of each individual application.

3. Base Connections

- The basing diagrams are shown on the same page as the data of the type to which they refer and are shown as bottom views. These diagrams are schematic representations of the terminal connections and do not necessarily indicate internal tube construction.
- Pin number 1 on metal receiving tubes is usually connected to the outer shell of the tube. Certain glass tubes with octal bases have internal shields connected to this pin. For correct operation of octal-based tubes, pin number 1 should never be used as a terminal for any voltage or portion of the electrical circuit, but should be connected to ground whenever possible.

C. In tubes having more than one grid, the grids are numbered consecutively in accordance with their location proceeding from the cathode to the plate. Thus, grid number 1 is the grid which is physically located nearest the cathode. In pentodes, grid number 2 is generally referred to as the screen grid, and grid number 3 is generally referred to as the suppressor grid.

D. In multisection tubes that contain two or more structurally similar sections, the similar sections are designated as section 1, section 2, etc., depending upon the connection of the electrodes to the terminal pins. The highest section number is assigned to that section having an electrode connected to the lowest-numbered base pin, and successively lower numbers are assigned to additional sections according to the sequence in which the connections of the same type of electrode in all sections are made to successively higher-numbered base pins. When similar sections have one or more electrodes in common, the assignment of section designations is determined by whichever independent electrode is connected to the lowest-numbered base pin.

4. Outline Drawings

This column presents information on the physical characteristics of each tube. When the physical characteristics of a tube conform to standard or commonly used configurations, an outline drawing number is shown which refers to tube drawings presented in the section "Outline Drawings." If the physical characteristics of a tube do not conform to any of the standard outline drawings, the designation "T-X" is shown. In this case, reference should be made to the T-X Table in the Outline Drawings Section which presents data relative to the physical characteristics of these special tubes.

5. Filament Voltage

Unless otherwise specified under the column "Filament Volts," the heater or filament of any tube may be operated with either alternating or direct current. If two values of filament voltage are given, the tube has a center-tapped heater and may be operated with the halves in series or parallel.

6. Filament Current

The "Filament Amp" column lists the heater currents. If the heater is center-tapped, the currents are aligned with the corresponding voltages for series and parallel operation.

7. Maximum Ratings

Maximum values of plate dissipation, plate voltage, screen voltage, and screen dissipation are listed in that order. These ratings have been interpreted in previous paragraphs of this section of the handbook. As noted in the paragraph "Rating Systems" the values shown are in the Design-Center system unless otherwise specified; footnote symbols indicate the use of other rating systems.

8. Capacitances

A. Unless otherwise noted, all capacitance values in this publication are average values, and those for glass tubes are measured with an external close-fitting metal shield connected to the cathode terminal.

B. All capacitance values indicated herein are measured with the filament or heater cold and with no direct voltages applied.

C. In measuring the capacitances listed below, all metal parts except the input and output electrodes are connected to the cathode. These metal parts include internal and external shields, base sleeves, and unused pins. In multisection tubes, the electrodes of the sections not common to the section under test are connected to ground.

- (1) Input capacitance is measured from the input grid to all other electrodes except the plate, which is connected to ground.
- (2) Output capacitance is measured from the plate to all other electrodes except the input grid, which is connected to ground.
- (3) Grid-plate capacitance is measured from the input grid to the plate with all other electrodes connected to ground.
- D. The capacitance values for twin-section tubes refer to each section unless otherwise specified.

9. Typical Operating Conditions

A. The column headed "Service," indicates the principal application of the type. The columns to the right of this show average tube characteristics or typical operating conditions for the service indicated. These values are presented to show concisely some guiding information as to the use and characteristics of each type. They are not to be considered as maximum ratings because the tube can be used under any suitable conditions within its rating limitations.

B. The classes of amplifier service indicated are defined as follows:

(1) A Class A Amplifier is an amplifier in which the grid bias and applied alternating grid voltage are such that plate current in a specific tube flows at all times.

(2) A Class AB Amplifier is an amplifier in which the grid bias and applied alternating grid voltage are such that plate current in a specific tube flows for appreciably more than half but less than the entire electrical cycle.

(3) A Class B Amplifier is an amplifier in which the grid bias is approximately equal to the cutoff value so that the plate current is approximately zero when no exciting grid voltage is applied, and so that plate current in a specific tube flows for approximately one half of each cycle when an alternating grid voltage is applied.

(4) A Class C Amplifier is an amplifier in which the grid bias is appreciably greater than the cutoff value so that the plate current in each tube is zero when no alternating grid voltage is applied, and so that plate current in a specific tube flows for appreciably less than one half of each cycle when an alternating grid voltage is applied.

(5) To denote that grid current does not flow during any part of the input cycle, the suffix 1 may be added to the letter or letters of the class identification. The suffix 2 may be used to denote that grid current flows during some part of the cycle.

C. The values of the tube characteristics presented are the average values, sometimes called "bogey" values, and are based on large groups of tubes. Any individual tube may vary from these over-all averages.

D. Unless otherwise noted, all ratings and characteristics for rectifier tubes apply to operation with a capacitor-input filter. In general, operation with a choke-input filter allows the use of a slightly higher RMS supply voltage.

E. For power-output tubes, the value under the column "Power Output, Watts" refers to the average tube power output (plate input power minus plate dissipation) for the indicated operating conditions. The useful power output is the tube output less the circuit losses. In Class-A operation, the rated tube power output is measured with an audio-frequency sinusoidal input signal whose peak value is equal to the d-c grid-number-one bias voltage applied to the tube.

F. (1) The plate resistance (R_p) of an electronic tube is the ratio of a small change in plate voltage to the corresponding change in plate current, with all other electrode voltages maintained constant.

(2) The transconductance (G_m) of an electronic tube is the ratio of a small change in plate current to the small change in grid voltage that produces it, with all other electrode voltages maintained constant. Unless otherwise noted all transconductance values in this handbook are grid 1-to-plate transconductances.

(3) The amplification factor (μ) of an electronic tube is the ratio of a small change in plate voltage to the small change in grid voltage when the plate current and all other electrode voltages are maintained constant.

(4) The conversion transconductance of a converter or mixer tube is the ratio of a small change in the output intermediate-frequency current to the small change in input radio-frequency voltage producing it.

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

CLASSIFICATION CHART

Receiving Types

Type designations of miniature tubes are shown in *italics*.
Type designations of metal tubes are shown in **boldface** type.

DIODES

Service	Max. Output Current in Ma.	Single		Twin		Triple
		Fil	Cath	Fil	Cath	
TV High-Voltage Rectifiers	0.5	1AX2 1B3-GT 1G3-GT 1J3 1K3 1V2 1X2-A 1X2-B	1H2			
		1S2-A				
		3A2 3A3 3B2				
						6BJ7
Low-Current Rectifiers	1.0 to 1.5					
Power Rectifiers	100 to 149					
Power Rectifier Doubblers	60 to 75 per Plate					
TV Damping Diodes	135					

TRIODES

μ	Single Heater Current in Milliamperes				Twin or Double Heater Current in Milliamperes			
	600	450	300	150	600	450	300	150
2.0 to 9.0	12B4-A	12B4-A	12B4-A	2A3 6CK4	1/2 10DE7 1/2 11CY7 1/2 13DE7	1/2 10DE7 1/2 11CY7 1/2 13DE7	1/2 10DE7 1/2 11CY7 1/2 13DE7	1/2 10DE7 1/2 11CY7 1/2 13DE7
10 to 19	2AF4 2AF4-B 6SA4	3AF4-A	6C4	6AF4 6AF4-A 6T4	1/2 6CM7 1/2 6CS7 1/2 6DE7 1/2 6DH7-A 1/2 6DN7 1/2 6DU7	1/2 6CM7 1/2 6CS7 1/2 6DE7 1/2 6DH7-A 1/2 6DN7 1/2 6DU7	1/2 6CM7 1/2 6CS7 1/2 6DE7 1/2 6DH7-A 1/2 6DN7 1/2 6DU7	1/2 6CM7 1/2 6CS7 1/2 6DE7 1/2 6DH7-A 1/2 6DN7 1/2 6DU7
20 to 29			6C5 6J5 7A4	12J5	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7
30 to 39					1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7
40 to 49	2BN4	3BN4		6BN4	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7
60 to 69				6AB4	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7
70 to 79				6AN4	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7
80 to 89				6AM4	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7
100			6P5 6SP5		1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7	1/2 6CM7 1/2 6DN7 1/2 6DT7 1/2 6DV7

TRIODES WITH DIODES

μ	Heater Current in Milliamperes				Heater Current in Milliamperes			
	600	450	300	150	600	450	300	150
10 to 40	6B7 6BY8	6B7 6BY8	6B7 6BY8	6B7 6BY8	6B7 6BY8	6B7 6BY8	6B7 6BY8	6B7 6BY8
50 to 80	6BN7 6CN7 6ER7	6BN7 6CN7 6ER7	6BN7 6CN7 6ER7	6BN7 6CN7 6ER7	6BN7 6CN7 6ER7	6BN7 6CN7 6ER7	6BN7 6CN7 6ER7	6BN7 6CN7 6ER7
100	6T8	6T8-A	6T8	6T8	6T8	6T8-A	6T8	6T8

PENTODE POWER AMPLIFIERS

Service	Power Output in Watts	Heater Current in Milliamperes				Heater Current in Milliamperes			
		600	450	300	150	600	450	300	150
Output Amplifiers	Less than 0.1								
	0.1 to 0.4								
	1.0 to 1.9	12CA6	12ED6	26CA6	6AK6 6BE6 6CA6				

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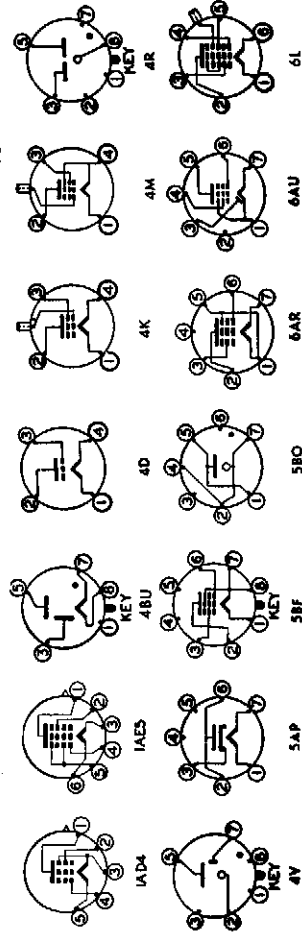
MULTISECTION AND MISCELLANEOUS TYPES

Classification	Heater Current in Milliamperes				
	800	450	300	150	Other
Beam Triode					6BK4
Tetrodes	8CY5	8CY5	4CY5		6CY5
Duplex Diode Tetrode					12DK7
Duplex Diode Space-Charge-Grid Tetrodes					12DL8 12DS7 12DV8
Triode-Hexodes			658		
Twin Pentodes	8BU8	4BU8	6BU8		28D7
Space-Charge-Grid Tetrode					12K5
Triode Space-Charge-Grid Tetrode	5CL8-A 5CQ8	6CL8-A 6CQ8	9CL8		12AL8
Triode Tetrodes				7A8	
Octodes			6E5 6U5 6DA5	6AL7-GT	
Electron-Ray Indicators					
Gated-Beam Tubes	8BN6	4BN6	6BN6	12BN6	
Sheet-Beam Tubes			6AR8		

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Watts	Capacitance in Micromicrofarads	
								Input	Output
00A	Triode Detector	4D	14-1	5.0 DC	0.25	—	45	3.2	2.0
01-A	Low-Mu Triode	4D	14-1	5.0 DC	0.25	—	135	3.1	2.2
0A4-G	Gas Triode	4V	12-7	—	—	—	—	—	—
0C2	Glow-Discharge Diode Voltage Regulator	5B0	5-3	—	—	—	—	—	—
0Y4 0Y4-G	Half-Wave Gas Rectifier	4BU	8-1 T-X	—	—	—	—	—	—
0Z4 0Z4-G	Full-Wave Gas Rectifier	4R	8-3 T-X	—	—	—	—	—	—
0Z4-A	Full-Wave Gas Rectifier	4R	8-1	—	—	—	—	—	—
1A5	High-Frequency Diode	5AP	5-2	1.4 DC	0.15	—	—	—	—
1A4-P 1A4-t	Remote-Cutoff RF Pentode	4M 4K	12-6	2.0 DC	0.06	—	180	5.0	11.0
1A5-GT	Power Amplifier Pentode	6X	9-11	1.4 DC	0.05	—	110	—	—
1A6	Pentagrid Converter	6L4	12-6	2.0 DC	0.06	—	180	5.0	11.0
1A7-G 1A7-GT	Pentagrid Converter	7Z4	9-28 9-18	1.4 DC	0.05	—	110	—	—
1AB5	Remote-Cutoff RF Pentode	5BP	9-32	1.2 DC	0.130	1.0	150	2.8	4.2
1AC5	Power Amplifier Pentode	8CP	3-5	1.25 DC	0.04	—	67.5	—	—
1AD4	Sharp-Cutoff RF/AF Pentode	1AD4	2-1	1.25 DC	0.1	—	45	4.5	0.01
1AD5	Sharp-Cutoff RF Pentode	8CP	3-5	1.25 DC	0.04	—	67.5	1.9	3.0
1AE4	Sharp-Cutoff RF Pentode	6AR	5-2	1.25 DC	0.1	—	90	3.6	4.4
1AE5	Heptode Mixer	1AE5	T-X	1.25 DC	0.06	—	45	—	—
1AF4	Sharp-Cutoff Pentode	6AR	5-2	1.4 DC	0.025	—	110	3.8	7.6
1AF5	Diode, Sharp-Cutoff Pentode	6AU	5-2	1.4 DC	0.025	—	110	2.5	4.8

Metal tubes are shown in bold-face type, miniature tubes in italics.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-amps	Screen Milli-amps	R _p Ohms	G _m μmhos	μ Factor	Load for Rated Output, Ohms	Power Out-put, Watts	Tube Type
Detector	45	—	0	1.5	—	30,000	666	20	—	—	00A
Class A Amplifier	135	—	9.0	3.0	—	10,000	800	8	—	—	01-A
Peak cathode current = 100 ma max; d-c cathode current = 25 ma max; Starter anode drop = 55 volts; anode drop = 70 volts											
(d-c operating current = 5.0 ma min) Ionization voltage = 105 volts d-c; (d-c operating current = 30 ma max) Operating voltage = 75 volts d-c; Regulation (5 to 30 milliamperes) = 3.0 volts											
Peak current = 500 ma max; d-c output current = 75 ma max, 40 ma min; max starting voltage = 95 volts d-c; peak inverse voltage = 300 volts max											
Starter supply voltage per plate = 300 peak volts min; max d-c output = 75 milliamperes; peak current per plate = 200 milliamperes											
Full-Wave Rectifier	Max d-c output current = 110 ma; minimum d-c output current = 30 ma; max peak inverse voltage = 880 volts; minimum starter supply voltage per plate = 300 volts; max peak plate current per plate = 330 ma										
Half-Wave Rectifier	Max d-c output current = 0.5 ma; max peak inverse voltage = 330 volts; rms supply voltage = 117 volts; max peak current = 5.0 ma										
Class A Amplifier	180	67.5	3	2.3	0.8	1,000,000	750	—	—	—	1A4-p 1A4-t
Class A Amplifier	90	90	4.5	4.0†	0.8†	300,000	850	—	25,000	0.115	1A5-GT
Converter	180	67.5	3.0	1.3	2.4	500,000	300 #	E _{at} (Osc Plate) = 180 thru 20,000 ohms I _{at} = 2.3 ma	25,000	0.100	1A6
Converter	90	45	0	0.6	0.7	600,000	250 #	E _{at} (Osc Plate) = 90 I _{at} = 1.2 ma	—	—	1A7-G 1A7-GT
Class A Amplifier	150	150	1.5	6.8	2.0	125,000	1350	—	—	—	1AB5
Class A Amplifier	67.5	45	4.5	2.0	0.4	150,000	750	—	25,000	0.050	1AC5
Class A Amplifier	45	30	2.0	1.0	0.2	170,000	600	—	40,000	0.015	1AD4
Class A Amplifier	45	45	2.0	0.5	0.1	200,000	450	—	50,000	0.005	1AD5
Class A Amplifier	67.5	45	4.5	3.0	0.8	500,000	2000	—	—	—	1AE4
Class A Amplifier	67.5	30	0	1.85	0.75	700,000	735	—	—	—	1AE5
Mixer	90	90	0	0.45	0.16	700,000	430	—	—	—	1AF4
Class A Amplifier	45	45	0	3.5	1.2	500,000	1550	—	—	—	1AF5
Class A Amplifier	90	67.5	0	0.9	2.0	200,000	200 #	—	—	—	1AF5
Class A Amplifier	90	67.5	0	1.8	0.55	1,800,000	1080	—	—	—	1AF5
Class A Amplifier	90	67.5	0	1.2	0.32	2,200,000	925	—	—	—	1AF5
Class A Amplifier	90	67.5	0	1.1	0.4	2,000,000	600	—	—	—	1AF5

given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

† Plate-to-plate.

‡ Per section.

§ Design maximum rating.

¶ For both sections.

* Minimum.

† Heater warm-up time controlled for series-parallel service.

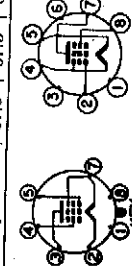
‡ Supply plate.

§ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

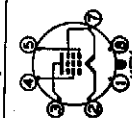
¶ Section 1.

‡ Section 2.

* A resistor of 3 ohms must be put in series with heater.



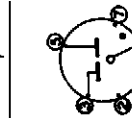
6X



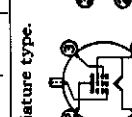
6Y



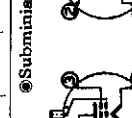
6Z



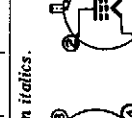
6A



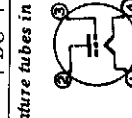
6B



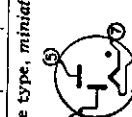
6C



6D



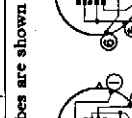
6E



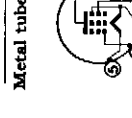
6F



6G



6H

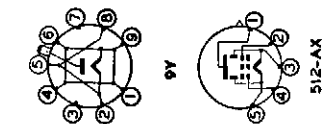


6I

Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	F_p , Ohms	G_m , μmhos	μ Fac- tor	Load for Rated Out- put, Ohms	Power Out- put, Watts	Tube Type	
Class A Amplifier	41.4	41.4	3.6	2.4†	0.6†	180,000	1,000	—	12,000	0.035	1AG4Ⓢ	
Class A Amplifier	45 22.5	45 22.5	2.0 0	0.28 0.17	0.12 0.043	2,500,000 700,000	250 235	—	—	—	1AG5Ⓢ	
Class A Amplifier	45	45	$R_{g1} = 5 \text{ meg}$	0.75	0.2	1,500,000	750	—	—	—	1AH4Ⓢ	
Class A Amplifier	45	45	$R_{g1} = 5 \text{ meg}$	1.0	0.3	300,000	425	—	—	—	1AJ5Ⓢ	
Class A Amplifier	45	45	$R_{g1} = 5 \text{ meg}$	0.75	0.2	1,500,000	750	—	—	—	1AK1Ⓢ	
Class A Amplifier	45	45	$R_{g1} = 5 \text{ meg}$	0.5	0.2	400,000	280	—	—	—	1AK5Ⓢ	
Class A Amplifier	90	67.5	0	2.4	0.9	500,000‡	350	—	—	—	1AM4	
Converter	90	45	0	0.64	—	800,000‡	250 #	—	—	—	1AO6	
Class A Amplifier	67.5	67.5	0	0.9	0.25	800,000‡	500	—	—	—	1AR6	
Class A Amplifier	67.5	67.5	0	0.9	0.25	800,000‡	500	—	—	—	1AS6	
TV Flyback Rectifiers	Max d-c output current = 0.5 ma; max inverse voltage (d-c component) = 20,000 volts; max peak current = 45 ma											1AX2
TV Flyback Rectifiers	Max d-c output current = 0.5 ma; max inverse voltage (d-c component) = 21,000 volts; max peak current = 50 ma. Terminals 4 and 6 may be used as the points at filament potential. Socket terminals 1, 3, 4, 5, 6, and 8 may be connected to terminal 7.											1B3-GT
Class A Amplifier	180 90	67.5 67.5	3.0 3.0	1.7 1.6	0.6 0.7	1,500,000 1,000,000	650 600	—	—	—	1B4-p	
Class A Amplifier	135	—	3.0	0.8	—	35,000	575	20	—	—	1B6/25-S	
Converter	90	45	0	1.5	1.3	350,000‡	350 #	E_{c1} (Osc Plate) = 90 $I_{c1} = 1.6 \text{ ma}$			1B7-GT 1B7-GT	
Class A Amplifier	90	90	6.0	6.3†	1.4†	—	1,150	—	14,000	0.210	1B8-GT	
Class A Amplifier	90	—	0	0.15	—	240,000	275	—	—	—	1C3	
Class A Amplifier	90 90	— —	3.0 0	1.4 4.5	—	19,000 11,200	760 1,300	14.5 14.5	—	—	1C5	
Class A Amplifier	90 83	90 83	7.5 7.0	7.5† 7.0†	1.6† 1.6†	115,000 110,000	1,550 1,500	—	8,000 9,000	0.240 0.200	1C5-GT	
Converter	180	67.5	3.0	1.5	2.0	700,000‡	325 #	E_{c1} (Osc Plate) = 180 thru 20,000 ohms $I_{c1} = 4.0 \text{ ma}$			1C6	

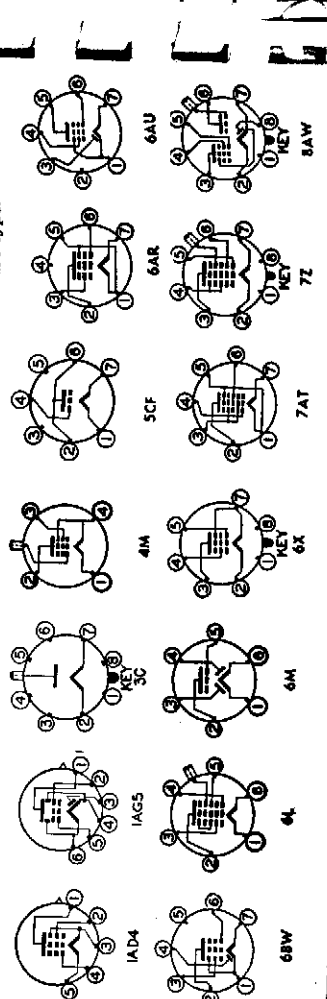
- ◆ Per section.
- ◆◆ Design maximum rating.
- ⊕ For both sections.
- ⊖ Min./max.
- ⊕ Heater warm-up time controlled for series-string service.
- ⊕ Supply voltage.
- ⊕ Input plate.
- The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
- Section 1.
- Section 2.
- A resistor of 3 ohms must be put in series with heater.

§ Approximate.
† Without external shield.
‡ Zero signal.
§ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
Conversion transconductance.
◆ Maximum.
◆ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
◆ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
■ Absolute maximum rating.
‡ Plate-to-plate.



Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
1AG4	Power Amplifier Pentode	512AX	2-1	1.25 DC	0.04	—	90	—	—
1AG5	Diode-Pentode	1AG5	2-1	1.25	0.03	—	50	—	—
1AH4	RF Pentode	1AD4	2-1	1.25 DC	0.04	—	90	3.5	4.5
1AJ5	Diode Sharp-Cutoff Pentode	1AG5	2-1	1.25 DC	0.04	—	90	1.7	2.4
1AK4	Sharp-Cutoff RF Pentode	1AD4	2-1	1.25 DC	0.02	—	90	3.5	4.5
1AK5	Diode Sharp-Cutoff Pentode	1AG5	2-1	1.25 DC	0.02	—	90	2.0	2.7
1AM4	Remote-Cutoff RF Pentode	6AR	5-2	1.4 DC	0.025	—	90	3.6	7.5
1AQ5	Pentagrid Converter	7AT	5-2	1.4 DC	0.025	—	90	—	—
1AR5	Diode Sharp-Cutoff Pentode	6AU	5-2	1.4 DC	0.025	—	90	—	—
1AS5	Diode Sharp-Cutoff Pentode	6BW	5-2	1.4 DC	0.025	—	90	—	—
1AX2	Half-Wave High-Voltage Rectifier	9Y	6-7	1.4	0.65	—	—	—	—
1B3-GT	Half-Wave High-Voltage Rectifier	3C	9-51 or 9-52	1.25	0.2	—	—	—	—
1B4-p	Sharp-Cutoff RF Pentode	4M	12-6	2.0 DC	0.06	—	67.5	5.0	11
1B5/25-S	Duplex-Diode Medium-Mu Triode	6M	12-5 or 9-26	2.0 DC	0.06	—	135	1.6	1.9
1B7-G	Pentagrid Converter	7Z	9-28 or 9-18	1.4 DC	0.1	—	65	—	—
1B7-GT	Diode-Triode Power Amplifier Pentode	8AW	9-17	1.4 DC	0.1	—	110	—	—
1B8-GT	Medium-Mu Triode	5CF	5-2	1.4 DC	0.05	—	110	—	—
C3	Power Amplifier Pentode	6X	9-11	1.4 DC	0.1	—	110	—	—
C5-GT	Pentagrid Converter	6L	12-6	2.0 DC	0.12	0.3	180	67.5	0.2

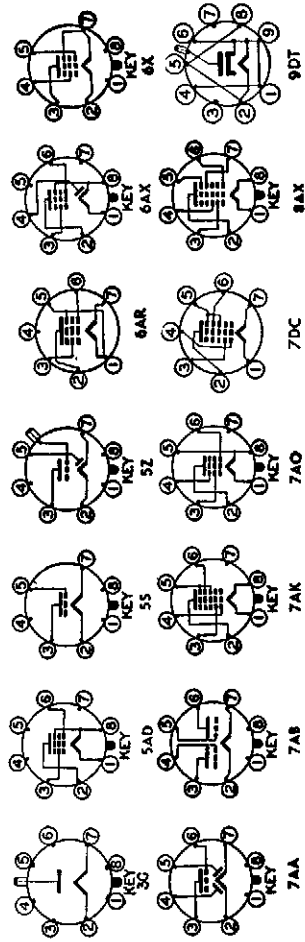
Metal tubes are shown in bold-face type, *miniature tubes in italics*. ●Subminiature type.



Tube Type	Classification by Construction	Base Connections	Outline Dwg	Fila-ment Volts	Fila-ment DC	Max Plate Volts	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
									Input	Output
1G6-GT	Twin-Triode Power Amplifier	7AB	9-11 or 9-41	1.4 DC	0.1	110	—	—	—	—
1H2	Half-Wave High-Voltage Rectifier	9DT	6-9	1.4	0.55	—	—	Tube Voltage Drop: 100 volts at 7.0 ma d-c	—	—
1H4-G 1H4-GT	Medium-Mu Triode	5S	12-7 or 9-41	2.0 DC	0.06	180	—	—	Single Tube	—
1H5-G 1H5-GT	Diode High-Mu Triode	5Z	9-28 or 9-18	1.4 DC	0.05	110	—	—	2 Tubes Push-pull	—
1H6-G 1H6-GT	Duplex-Diode Medium-Mu Triode	7AA	12-7 or 9-41	2.0 DC	0.06	135	—	—	0.75 4.6 1.1	—
1J3	Half-Wave High-Voltage Rectifier	3C	9-51 or 9-52	1.25	0.2	—	—	Tube Voltage Drop: 225 volts at 7.0 ma d-c	—	—
1J5-G	Power Amplifier Pentode	6X	14-3	2.0 DC	0.12	135	—	—	—	—
1J6-G 1J6-GT	Twin-Triode Power Amplifier	7AB	12-7 or 9-46	2.0 DC	0.24	135	—	—	Both Sections in push-pull	—
1K3	Half-Wave High-Voltage Rectifier	3C	9-53 or 9-54	1.25	0.2	—	—	Tube Voltage Drop: 225 volts at 7.0 ma d-c	—	—
1L4	Sharp-Cutoff RF Pentode	6AR	5-2	1.4 DC	0.05	110	—	—	3.6 7.5 0.008	—
1L6	Pentagrid Converter	7DC	5-2	1.4 DC	0.05	110	—	—	Osc $I_{g1} = 0.035$ ma $R_{g1} = 200,000$ ohms	—
1LA4	Power Amplifier Pentode	5AD	9-30	1.4 DC	0.05	110	—	—	—	—
1LA6	Pentagrid Converter	7AK	9-30	1.4 DC	0.05	110	—	—	Osc $I_{g1} = 0.035$ ma $R_{g1} = 200,000$ ohms	—
1LB4	Power Amplifier Pentode	5AD	9-30	1.4 DC	0.05	110	—	—	—	—
1LB6	Pentagrid Mixer	8AX	9-30	1.4 DC	0.05	90	—	—	E_{g2} (Injection) = 10 v peak	—
1LC5	Sharp-Cutoff RF Pentode	7AO	9-30	1.4 DC	0.05	110	—	—	3.2 7.0 0.007	—
1LC6	Pentagrid Converter	7AK	9-30	1.4 DC	0.05	110	—	—	Osc $I_{g1} = 0.035$ ma $R_{g1} = 200,000$ ohms	—
1LD5	Diode Sharp-Cutoff Pentode	6AX	9-30	1.4 DC	0.05	90	—	—	3.2 6.0 0.18	—

Metal tubes are shown in bold-face type, miniature tubes in italics.

©Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R_{pp} Ohms	G_m μ amhos	μ Fac-tor	Load for Rated Out-put Ohms	Power Out-put Watts	Tube Type
Class A Amplifier	90	—	0	1.0	—	—	825	33	—	—	1G6-GT
Class B Amplifier	90	—	0	2.0†	—	—	—	—	12,000	0.675	1G6-GT
TV Flyback Rectifiers	Max d-c output current = 0.5 ma; max inverse voltage (d-c component) = 24,000 volts; max peak current = 50 ma. Socket terminals 3 and 7 should not be used as tie points.										
Class A Amplifier	180	—	13.5	3.1	—	10,300	900	9.3	—	—	1H4-G
Class B Amplifier	157.5	—	4.5	2.5	—	11,000	850	9.3	—	—	1H4-GT
Class A Amplifier	90	—	0	0.15	—	240,000	275	65	—	—	1H6-G
Class A Amplifier	135	—	3.0	0.8	—	35,000†	575	20	—	—	1H6-GT
TV Flyback Rectifiers	Max d-c output current = 0.5 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 50 ma. Socket terminals 1, 3, 4, 5, 6, and 8 may be connected to terminal 7. Terminals 4 and 6 may be used as tie points at filament potential.										
Class A Amplifier	135	135	16.5	7.0	2.0	105,300†	950	—	135,000	0.45	1J5-G
Class B Amplifier	135	—	0	5.0†	—	—	—	—	Input Signal = 170 watt† 10,000†	2.1†	1J6-G 1J6-GT
TV Flyback Rectifiers	Max d-c output current = 0.5 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 50 ma. Socket terminals 1, 3, 4, 5, 6, and 8 may be connected to terminal 7. Terminals 4 and 6 may be used as tie points at filament potential.										
Class A Amplifier	90	90	0	4.5	2.0	350,000	1,025	—	—	—	1L4
Converter	90	45	0	0.5	0.6	650,000†	300 #	—	E_{c2} (Osc Plate) = 90 $I_{c2} = 1.2$ ma	—	1L6
Class A Amplifier	90	85	4.5	4.0†	0.8†	300,000	850	—	—	25,000 [0.115 25,000 [0.100	1LA4
Converter	90	45	0	0.55	0.6	750,000†	250 #	—	E_{c2} (Osc Plate) = 90 $I_{c2} = 1.2$ ma	—	1LA6
Class A Amplifier	90	90	9.0	5.0†	1.0†	250,000†	925	—	—	12,000 [0.20	1LB4
Mixer	90	67.5	0	0.4	2.2	2,000,000†	100 #	—	G_a & G_s are screen; G_1 is signal grid	—	1LB6
Class A Amplifier	90	45	0	1.15	0.30	1,000,000*	775	—	—	—	1LC5
Converter	90	35	0	0.75	0.7	650,000†	275 #	—	E_{c2} (Osc Plate) = 45 $I_{c2} = 1.4$ ma	—	1LC6
Class A Amplifier	90	45	0	0.6	0.1	750,000	575	—	—	—	1LD5

§ Approximate.

▲ Without external shield.

† Zero signal.

* Design maximum rating.

† Minimum.

‡ Heater warm-up time controlled for series-string voltage.

§ Supply voltage.

|| Input plate.

† The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

— Section 1.

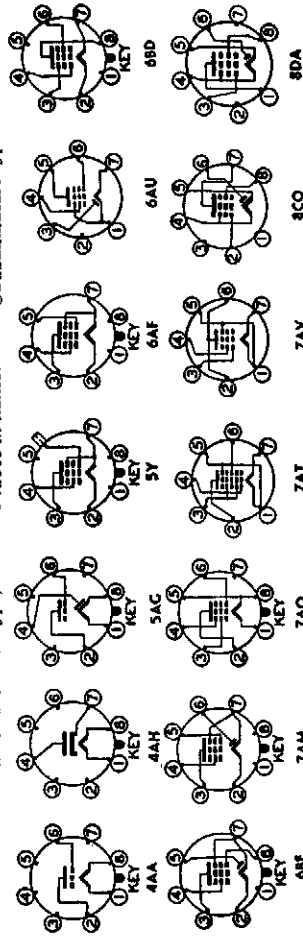
— Section 2.

— A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
1LE3	Medium-Mu Triode	4AA	9-30	1.4 DC	0.05	—	110	1.7	3.0
1LP3	Medium-Mu Triode	4AA	9-30	1.4 DC	0.05	—	110	1.7	3.0
1LG5	Semi-Remote Cutoff RF Pentode	7AO	9-30	1.4 DC	0.05	—	110	3.2	7.0
1LH4	Diode High-Mu Triode	5AG	9-30	1.4 DC	0.05	—	110	2.0	2.4
1LN5	Sharp-Cutoff RF Pentode	7AO	9-30	1.4 DC	0.05	—	110	3.0	8.0
1N5-G 1N5-GT	Sharp-Cutoff RF Pentode	5Y	9-28 9-18	1.4 DC	0.05	—	110	3.0	10.0
1N6-G 1N6-GT	Diode Power-Amplifier Pentode	7AM	T-X 9-11	1.4 DC	0.05	—	110	—	—
1P5-G 1P5-GT	Remote-Cutoff RF Pentode	5Y	9-28 9-18	1.4 DC	0.05	—	110	3.0	10.0
1Q5-GT	Beam Power Amplifier	6AP	9-11 9-41	1.4 DC	0.1	—	110	—	—
1Q6	Diode Pentode	8CO	3-2	1.25 DC	0.04	—	100	1.8	4.2
1R4	High-Frequency Diode	4AH	9-30	1.4	0.15	—	—	Tube Voltage Drop: 8 v at 2 ma d-c	
1R5	Pentagrid Converter	7AT	5-2	1.4 DC	0.05	—	90	67.5	—
1S2 1S2-A	Half-Wave High-Voltage Rectifier	9DT	T-X	1.4	0.55	—	—	—	—
1S4	Power Amplifier Pentode	7AV	5-2	1.4 DC	0.1	—	90	67.5	—
1S6	Diode Sharp-Cutoff Pentode	6AU	5-2	1.4 DC	0.05	—	90	—	—
1S8	Diode-Pentode	8DA	3-2	1.25 DC	0.04	—	100	—	—
1SA6-GT	RF Pentode	6BD	9-12	1.4 DC	0.05	—	90	5.2	8.6
1SB6-GT	Diode Pentode	6BE	9-11	1.4 DC	0.05	—	90	67.5	3.0

Metal tubes are shown in bold-face type, miniature tubes in italics.

⑧ Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-amps	Screen Milli-amps	R _p Ohms	G _m μmhos	μ Fac- tor	Load for Out-put, Ohms	Power for Out-put, Watts	Tube Type
Class A Amplifier	90	—	0	4.5	—	11,200	1,300	14.5	—	—	1LE3
Class A Amplifier	90	—	3.0	1.4	—	19,000	760	14.5	—	—	1LP3
Class A Amplifier	90	—	0	4.5	—	11,200	1,300	14.5	—	—	1LG5
Class A Amplifier	90	45	0	1.7	0.4	1,000,000*	800	—	—	—	1LH4
Class A Amplifier	90	90	1.5	3.7	0.9	500,000	1,150	—	—	—	1LN5
Class A Amplifier	90	—	0	0.15	—	240,000	275	65	—	—	1N5-G 1N5-GT
Class A Amplifier	90	90	0	1.6	0.35	1,100,000	800	—	—	—	1N6-G 1N6-GT
Class A Amplifier	90	90	0	1.2	0.3	1,500,000	750	—	—	—	1P5-G 1P5-GT
Class A Amplifier	90	90	0	2.3	0.7	800,000	750	—	—	—	1Q5-GT
Class A Amplifier	90	85	4.5	9.5†	1.3†	90,000	2,200	—	8,000	0.27	1Q6
Class A Amplifier	90	85	5.0	7.0†	0.8†	70,000	1,950	—	9,000	0.25	1R4
Class A Amplifier	67.5	67.5	0	1.6	0.40	400,000	600	—	—	—	1R5
Half-Wave Rectifier	30	30	0	0.33	0.09	500,000	330	—	—	—	1S2 1S2-A
Converter	90	67.5	0	1.5	3.5	400,000	280	—	—	—	1S4
Converter	45	45	0	0.7	2.1	500,000	210	—	—	—	1S5
TV Flyback Rectifier	Max d-c output current = 0.8 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 40 ma	Max d-c output current = 1.0 ma; max rms supply voltage = 117 volts	Max d-c output current = 0.8 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 40 ma	Max d-c output current = 0.8 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 40 ma	Max d-c output current = 0.8 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 40 ma	Max d-c output current = 0.8 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 40 ma	Max d-c output current = 0.8 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 40 ma	Max d-c output current = 0.8 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 40 ma	Max d-c output current = 0.8 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 40 ma	Max d-c output current = 0.8 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 40 ma	1S6
Class A Amplifier	90	67.5	7.0	7.4†	1.4†	100,000	1,575	—	8,000	0.270	1S8
Class A Amplifier	67.5	67.5	7.0	7.4†	1.4†	100,000	1,560	—	5,000	0.180	1S8
Class A Amplifier	45	45.0	4.5	3.8†	0.8†	100,000	1,250	—	8,000	0.065	1SA6-GT
Class A Amplifier	67.5	67.5	0	1.6	0.4	600,000	625	—	—	—	1SB6-GT
Class A Amplifier	67.5	67.5	0	1.6	0.4	400,000	600	—	—	—	1SB6-GT
Class A Amplifier	90	67.5	0	2.45	0.68	800,000	970	—	—	—	1SB6-GT
Class A Amplifier	90	67.5	0	1.45	0.38	700,000	665	—	—	—	1SB6-GT

§ Approximate.

▲ Without external shield.

† Zero signal.

‡ Grids 3 and 5 are screen. Grid 4 is signal.

Conversion transconductance.

* Maximum.

†† Grids 2 and 4 are screen. Grid 3 is signal.

‡‡ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

§ Absolute maximum rating.

† Plate-to-plate.

◆ Per section.

◆ Design maximum rating.

◆ For both sections.

◆ Heater warm-up time controlled for series-string service.

◆ Supply voltage.

◆ Input plate.

◆ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

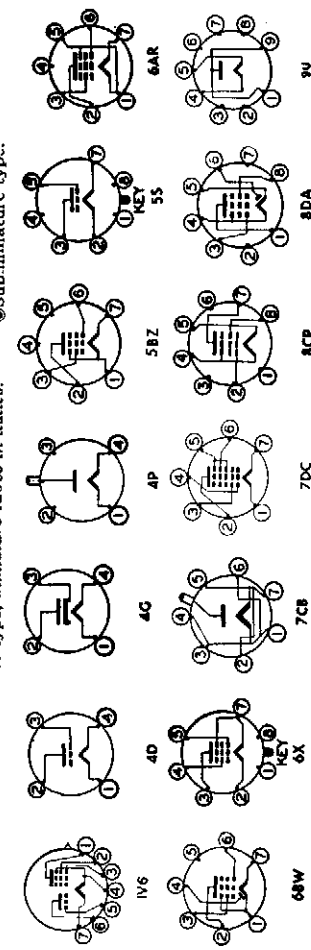
◆ Section 1.

◆ Section 2.

◆ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
1T4	Remote-Cut-off Pentode	6AK	5-2	1.4 DC	0.05	90	90	3.6	7.5
1T5-GT	Beam Power Amplifier	6X	9-11	1.4 DC	0.05	110	110	4.8	8.0
1T6	Diode-Pentode	8DA	3-5	1.25 DC	0.04	67.5	67.5	—	—
1U4	Sharp-Cutoff RF Pentode	6AR	5-2	1.4 DC	0.05	110	110	3.6	7.5
1U5	Diode Sharp-Cutoff Pentode	6BW	5-2	1.4 DC	0.05	90	90	—	—
1U6	Pentagrid Converter	7DC	5-2	1.4 DC	0.025	110	65	Osc $I_{d1}=0.028$ ma $R_{d1}=200,000$ ohms	—
1V	Half-Wave High-Vacuum Rectifier	4G	12-5	6.3	0.3	—	—	Tube Voltage Drop: 20 v at 90 ma d-c	—
1V2	Half-Wave High-Voltage Rectifier	9U	6-2	0.625 DC	0.3	—	—	Tube Voltage Drop: 135 v at 7 ma d-c	—
1V5	Power Amplifier Pentode	8CP	3-2	1.25 DC	0.04	100	100	—	—
1V6	Triode-Pentode Converter	1V6	2-3	1.25 DC	0.04	90	90	Osc $I_{d1}=12$ μ a $R_{d1}=1$ meg	—
1W4	Power Amplifier Pentode	5BZ	5-2	1.4 DC	0.05	110	110	3.6	7.0
1W5	Sharp-Cutoff RF Pentode	8CP	3-2	1.25 DC	0.04	100	100	2.3	3.0
1X	Half-Wave High-Voltage Rectifier	9Y	6-7	1.25	0.2	—	—	Tube Voltage Drop: 100 v at 7 ma d-c	—
1X2-A	Half-Wave High-Voltage Rectifier	9Y	6-7	1.25	0.2	—	—	Tube Voltage Drop: 100 v at 7 ma d-c	—
1X2-B	Half-Wave High-Voltage Rectifier	9Y	6-7	1.25	0.2	—	—	Tube Voltage Drop: 100 v at 7 ma d-c	—
1Y2	Half-Wave High-Voltage Rectifier	4P	T-X	1.5	0.29	—	—	Tube Voltage Drop: 100 v at 8 ma d-c	—
1Z	Half-Wave High-Voltage Rectifier	7CB	T-X	1.5	0.3	—	—	Tube Voltage Drop: 50 v at 5.0 ma d-c	—
2A3	Power-Amplifier Triode	4D	16-1	2.5	2.5	15	300	7.5 Δ 5.5 Δ 16.5 Δ 2 tubes, push-pull	—
2A4-G	Thyratron	5S	12-7	2.5	2.5	—	—	Anode Voltage Drop = 15 volts	—

Metal tubes are shown in bold-face type, miniature tubes in italics.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μ mhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	90	67.5	0	3.5	1.4	500,000	900	—	—	—	1T4
	90	45	0	1.8	0.67	800,000	750	—	—	—	
	67.5	67.5	0	3.4	1.5	250,000	875	—	—	—	
	45	45	0	1.7	0.7	350,000	700	—	—	—	
Class A Amplifier	90	90	6.0	6.5†	0.88†	250,000	1,150	—	14,000	0.170	1T5-GT
Class A Amplifier	67.5	67.5	0	1.6	0.4	400,000	600	—	—	—	1T6
	30	30	0	0.33	0.10	500,000	330	—	—	—	
Class A Amplifier	90	90	0	1.6	0.5	1,000,000	900	—	—	—	1U4
Class A Amplifier	67.5	67.5	0	1.6	0.4	600,000	625	—	—	—	1U5
Converter	90	45	0	0.6	0.6	500,000	300 #	—	E _{at} (Osc Plate) = 90 I _{c3} = 1.1 ma	—	1U6
Max d-c output current = 45 ma; max peak inverse voltage = 1000 volts; max rms supply voltage = 325 v; max peak current = 270 ma											
Max d-c output current = 0.5 ma; max inverse voltage (d-c component) = 6,000 volts; max peak current = 10 ma											
Class A Amplifier	67.5	67.5	4.5	2.0	0.4	150,000	700	—	25,000	0.050	1V5
	45	45	3.0	1.0	0.2	175,000	600	—	40,000	0.015	
	30	30	2.0	0.5	0.1	200,000	450	—	50,000	0.005	
	45	45	R _g = 5 meg	0.4	0.15	1,000,000	200 #	—	E _b (Triode Osc) = 45 I _b (Triode) = 0.4 ma	—	
Converter	90	67.5	9.0	5.0†	1.0†	250,000	925	—	12,000	0.20	1W4
Class A Amplifier	67.5	67.5	6.0	3.8†	0.8†	300,000	875	—	16,000	0.10	
	45	45	4.5	1.6†	0.3†	400,000	650	—	20,000	0.035	
Class A Amplifier	67.5	67.5	0	1.85	0.75	700,000	735	—	—	—	1W5
	30.0	30.0	0	0.45	0.16	700,000	430	—	—	—	
Max d-c output current = 1.0 ma; max peak inverse voltage = 15,000 volts; max peak current = 10 ma											
TV Flyback Rectifiers	Max d-c output current = 0.5 ma; max inverse voltage (d-c component) = 16,000 volts; max peak current = 45 ma										
TV Flyback Rectifiers	Max d-c output current = 0.5 ma; max inverse voltage (d-c component) = 18,000 volts; max peak current = 45 ma										
Half-Wave Rectifier	Max d-c output current = 2 ma; max peak inverse voltage = 50,000 volts; max peak current = 10 ma										
Half-Wave Rectifier	Max d-c output current = 2.0 ma; max peak inverse voltage = 20,000 volts; max peak current = 10 ma										
Class A Amplifier Class AB ₁ Amplifier	250	—	45	60†	—	800	5,250	4.2	2,500	3.5	2A3
	300	—	62	80†	—	—	—	—	3,000†	15	
Relay Control	Max d-c anode current = 100 ma; max peak inverse voltage = 200 volts; max peak anode current = 1.25 amperes										

§ Approximate.

* Without external shield.

† Zero signal.

‡ Grids 3 and 5 are screen. Grid 4 is signal.

§ Conversion transconductance.

¶ Maximum.

‡ Grids 2 and 4 are screen. Grid 3 is signal.

* Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

† Absolute maximum rating.

‡ Plate-to-plate.

◆ Per section.

◆ Design maximum rating.

◆ For both sections.

◆ Minimum.

◆ Heater warm-up time controlled for series-string service.

◆ Supply voltage.

◆ Input plate.

◆ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

◆ Section 1.

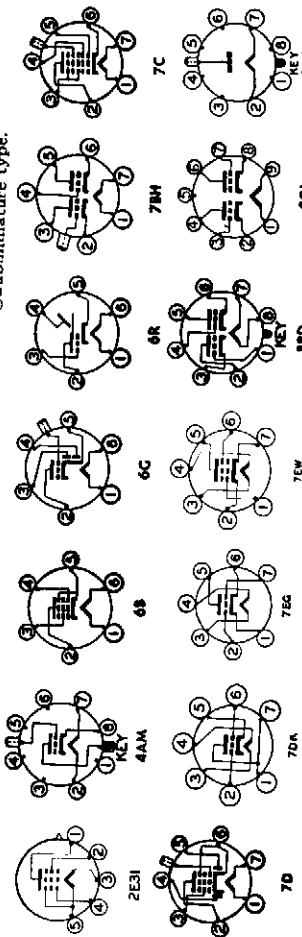
◆ Section 2.

◆ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts	Max Plate Watts	Max Screen Watts	Capacitance in Micromicrofarads	Grid-plate	Out-put	Input
2A5	Power Amplifier Pentode	6B	14-1	2.5	1.75	11	375	11	375	Triode Connection			
2A6	Duplex-Diode High-Mu Triode	6G	12-6	2.5	0.8	—	350	—	350	Triode Connection (G2 & P tied)			
2A7	Pentagrid Converter	7C	12-6	2.5	0.8	1.0	250	—	250	Triode Connection (G2 & P tied)	1.7	3.8	1.7
2AF4	UHF Triode Oscillator	7DK	5-2	2.35	0.6	2.5	150	—	100	Osc 1st = 0.4 ma R _{g1} = 50,000 ohms	2.2	1.4	1.9
2AF4-A	UHF Triode Oscillator	7DK	5-1	2.35	0.6	2.5	150	—	100	Osc 1st = 0.4 ma R _{g1} = 50,000 ohms	2.2	1.4	1.9
2B3	Half-Wave High-Voltage Rectifier	8HC	T-X	1.75	0.25	—	—	—	—	Tube Voltage Drop: 50 v at 7 ma d-c			
2B7	Duplex-Diode Semi-Rectifier-Cutoff Pentode	7D	12-6	2.5	0.8	2.25	300	2.25	300	Triode Connection (G2 & P tied)	3.5	9.5	0.007
2BN4	High Frequency Triode	7EG	5-2	2.3	0.6	2.2	275	2.2	275	Triode Connection (G2 & P tied)	3.2	1.4	1.2
2BN4-A	High Frequency Triode	7EG	5-2	2.35	0.6	2.2	275	2.2	275	Triode Connection (G2 & P tied)	3.2	1.4	1.2
2C21/1642	Medium-Mu Twin Triode	7BH	12-6	6.3	0.6	2.1	250	2.1	250	Triode Connection (G2 & P tied)	—	—	—
2C22	Medium-Mu Twin Triode	4AM	T-X	6.3	0.3	3.3	300	3.3	300	Triode Connection (G2 & P tied)	2.2	0.7	3.6
2C30	Medium-Mu Twin Triode	8BD	T-X	12.6	0.3	3.85	—	—	—	Triode Connection (G2 & P tied)	—	—	—
2C61	High-Frequency Twin Triode	8CJ	6-1	6.3	0.3	1.5	300	1.5	300	Triode Connection (G2 & P tied)	2.3	1.3	1.3
2C52	High-Mu Twin Triode	8BD	9-12	12.6	0.3	1.0	300	1.0	300	Triode Connection (G2 & P tied)	2.3	0.75	2.7
2CY6	Sharp-Cutoff RF Pentode	7EW	5-2	2.4	0.6	2.0	180	2.0	180	Triode Connection (G2 & P tied)	4.5	3.0	0.03
2E5	Electron-Ray Indicator	6R	9-26 or 12-5	2.5	0.8	—	250	—	250	Triode Connection (G2 & P tied)	—	—	—
2E31	Sharp-Cutoff RF Pentode	2E31	T-X	1.25 DC	0.05	—	45	4.2	45	Triode Connection (G2 & P tied)	4.0	0.018	—
2E32	Sharp-Cutoff RF Pentode	2E31	T-X	1.25 DC	0.05	—	45	4.2	45	Triode Connection (G2 & P tied)	4.0	0.018	—
2E35	Power Amplifier Pentode	2E31	T-X	1.25 DC	0.03	—	45	4.2	45	Triode Connection (G2 & P tied)	5.7	0.2	—
2E36	Power Amplifier Pentode	2E31	T-X	1.25 DC	0.03	—	45	4.2	45	Triode Connection (G2 & P tied)	5.7	0.2	—

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

©Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μmhos	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	285	285	20.0	38	7.0	78,000	2,500	7,000	4.8	2A5
Class A Amplifier	250	—	20.0	31	—	2,600	2,600	4,000	0.85	—
Class A Amplifier	250	—	2.0	0.9	—	91,000	1,100	—	—	2A6
Converter	250	100	3.0	3.5	2.7	360,000	550 #	E ₂ (Osc Plate) = 250 thru 20,000 ohms I _g = 4.0 ma	—	2A7
Class A Amplifier	80	—	R _g = 150	17.5	—	2,100	6,500	13.5	—	2AF4
Class A Amplifier	80	—	R _g = 150	17.5	—	2,100	6,500	13.5	—	2AF4-A
TV Flyback Rectifier	Max d-c output current = 0.5 ma; max inverse voltage (d-c component) = 22,000 volts; max peak current = 50 ma Socket terminals 3 and 5 may be used as tie point at filament potential.	—	—	—	—	—	—	—	—	2B3
Class A Amplifier	250	125	3.0	9.0	2.3	600,000	1,125	—	—	2B7
Class A Amplifier	250	100	3.0	6.0	1.5	800,000	1,000	—	—	—
Class A Amplifier	150	—	R _g = 220	9.0	—	6,300	6,800	43	—	2BN4
Class A Amplifier	150	—	R _g = 220	9.0	—	5,400	8,000	43	—	2BN4-A
Class A Amplifier	250	—	16.5	8.3	—	7,600	1,375	10.4	—	2C21/1642
Class A Amplifier	300	—	10.5	11	—	6,600	3,000	20	—	2C22
Class A Amplifier	200	—	11	18	—	3,450	2,900	10	—	2C30
Class A Amplifier	150	—	R _g = 240	8.2	—	6,500	5,500	35	—	2C61
Class A Amplifier	250	—	2.0	1.3	—	—	1,900	100	—	2C52
Class A Amplifier	125	80	1.0	10	1.5	100,000	8,000	—	—	2CY6
Tuning Indicator	Plate voltage = 250 thru 1 meg, target voltage = 250 (E ₂ = -8 volts, shadow = 0) (E ₂ = 0 volt, shadow = 90°, plate current = 0.24 ma, target current = 4 ma)	—	—	—	—	—	—	—	—	2E5
Class A Amplifier	22.5	22.5	R _g = 5 meg	0.4	0.3	350,000	500	—	—	2E31
Class A Amplifier	22.5	22.5	R _g = 5 meg	0.4	0.3	350,000	500	—	—	2E32
Class A Amplifier	45	45	1.25	0.45	0.11	250,000	500	100,000	0.006	2E35
Class A Amplifier	45	45	1.25	0.45	0.11	250,000	500	100,000	0.006	2E36

Absolute maximum rating.

Plate-to-plate.

Approximate.

Without external shield.

Zero signal.

Grids 3 and 5 are screen. Grid 4 is signal-input grid.

Conversion transconductance.

Maximum.

Grids 2 and 4 are screen. Grid 3 is signal-input grid.

Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

Section 1.

Section 2.

A resistor of 3 ohms must be put in series with heater.

Per section.

Design maximum rating.

For both sections.

Minimum.

Heater warm-up time controlled for series-string service.

Supply voltage.

Input plate.

The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

Section 1.

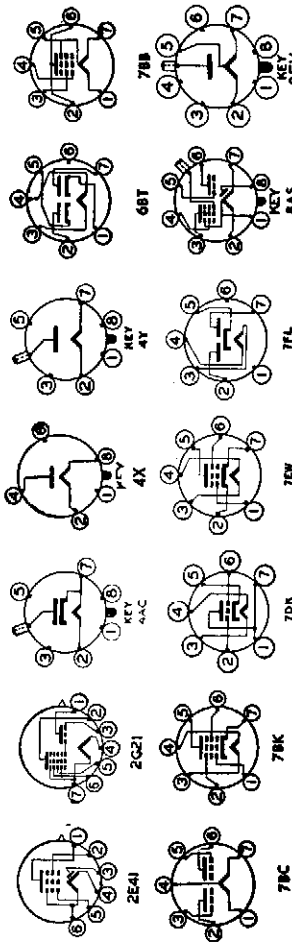
Section 2.

A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts and Watts	Capacitance in Micromicrofarads			
								Input	Out-put	Grid-plate	
2E41	Diode Pentode	2E41	T-X	1.25 DC	0.03	—	45	45	2.7	4.3	0.10
2E42	Diode Pentode	2E41	T-X	1.25 DC	0.03	—	45	45	2.7	4.3	0.10
2E45	Sharp-Cutoff RF Tetrode	7EW	5-2	2.3	0.6	3.25	250	150	4.5	3.0	0.05
2EN5	Twin Diode	7FL	5-2	2.1	0.45	—	—	0.5	—	—	—
2G21	Triode-Heptode Converter	2G21	T-X	1.25 DC	0.05	—	45	45	Tube Voltage Drop: 5.0 volts at 20 ma d-c		
2G22	Triode-Heptode Converter	2G21	T-X	1.25 DC	0.05	—	45	45	Osc I _{g1} = 0.030 ma R _{g1} = 50,000 ohms		
2T4	UHF Triode Oscillator	7DK	5-1	2.35	0.6	3.5	200	—	2.6	0.4	1.7
2V2	Half-Wave High-Voltage Rectifier	8FV	T-X	2.5 { 1.25 2.5 }	0.2 { 0.2 0.4 }	—	—	—	Tube Voltage Drop: 150 v at 7.0 ma d-c		
2V3-G	Half-Wave High-Voltage Rectifier	4Y	12-8	2.5	5	—	—	—	—	—	—
2W3	Half-Wave High-Voltage Rectifier	4X	8-6	2.5	1.5	—	—	—	—	—	—
2W3-GT	Half-Wave High-Voltage Rectifier	9DT	6-7	3.15	0.22	—	—	—	—	—	—
3A2	Half-Wave High-Voltage Rectifier	4AC	9-52	3.15	0.22	—	—	—	—	—	—
3A3	Half-Wave High-Voltage Rectifier	7BB	5-2	2.8 { 1.4 2.8 }	0.1 { 0.1 0.2 }	2.3	150	90	4.8	4.2	0.20
3A4	Power Amplifier Pentode	7BC	5-2	2.8 { 1.4 2.8 }	0.11 { 0.11 0.22 }	0.5	135	—	0.9	1.0	3.2
3A5	High-Frequency Twin Triode	8AS	9-17	2.8 { 1.4 2.8 }	0.05 { 0.05 0.1 }	—	110	—	Triode Section		
3A8-GT	Diode-Triode Sharp-Cutoff RF Pentode	7DK	5-1	3.2	0.45	2.5	150	110	Pentode Section		
3AF4-A	UHF Triode Oscillator	6BT	5-1	3.15	0.6	—	—	—	2.2	1.4	1.9
3AL5	Twin Diode	7BK	5-2	3.15	0.6	3.0	300	300	Tube Voltage Drop: 10 v at 80 ma d-c		
3AU6	Sharp-Cutoff RF Pentode	7BK	5-2	3.15	0.6	3.2	250	—	Pentode Connection		
									Triode Connection		

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milliamperes	Screen Milliamperes	R _p , Ohms	G _m , μmhos	Load for Rated Output, Ohms	Power Output, Watts	Tube Type
Class A Amplifier	22.5	22.5	R _g = 5 meg	0.35	0.12	250,000	375	—	—	2E41
Class A Amplifier	22.5	22.5	R _g = 5 meg	0.35	0.12	250,000	375	—	—	2E42
Class A Amplifier	250	140	1.0	10	0.95	150,000	8,000	—	—	2E45
Half-Wave Rectifier	Max d-c output current per plate	—	—	—	—	—	—	—	—	2EN5
Converter	22.5	22.5	0	0.2	0.3	500,000	60	E _b (Triode) = 22.5 V _b (Triode) = 1.0 ma	—	2G21
Converter	22.5	22.5	0	0.2	0.3	500,000	60	E _b (Triode) = 22.5 V _b (Triode) = 1.0 ma	—	2G22
Class A Amplifier	80	—	R _g = 150	—	—	1,860	7,000	13	—	2T4
TV Flyback Rectifier	Max d-c output current = 1.0 ma; max inverse voltage = 21,000 volts; max peak current = 80 ma	—	—	—	—	—	—	—	—	2V2
Half-Wave Rectifier	Max d-c output current = 2 ma; max peak inverse voltage = 16,500 volts; max peak current = 12 ma	—	—	—	—	—	—	—	—	2V3-G
Half-Wave Rectifier	Max d-c output current = 55 ma; max rms supply voltage = 350 volts	—	—	—	—	—	—	—	—	2W3
TV Flyback Rectifier	Max d-c output current = 1.5 ma; max peak inverse voltage = 18,000 volts; max peak current = 80 ma	—	—	—	—	—	—	—	—	2W3-GT
TV Flyback Rectifier	Max d-c output current = 1.5 ma; max peak inverse voltage = 30,000 volts; max peak current = 80 ma	—	—	—	—	—	—	—	—	3A2
Class A Amplifier	150	90	8.4	13.3	2.2	100,000	1,900	—	8,000 0.7	3A4
Class A Amplifier	90	—	2.5	3.7	—	8,300	1,800	15	—	3A6
Class A Amplifier	90	—	0	0.2	—	200,000	275	—	—	3A8-GT
Class A Amplifier	90	90	0	1.5	0.5	800,000	750	—	—	3A8-GT
Class A Amplifier	80	—	R _g = 150	17.5	—	2,100	6,500	13.5	—	3AF4-A
Half-Wave Rectifier	Max d-c output current per plate = 9 ma; max peak inverse voltage = 330 volts; max rms supply voltage per plate = 117 volts; max peak current per plate = 54 ma	—	—	—	—	—	—	—	—	3AL5
Class A Amplifier	250	150	R _g = 68	10.6	4.3	1,000,000	5,200	—	—	3AU6
Class A Amplifier	100	100	R _g = 150	5.0	2.1	500,000	3,900	—	—	3AU6
Class A Amplifier	250	—	R _g = 330	12.2	—	—	4,800	36	—	3AU6

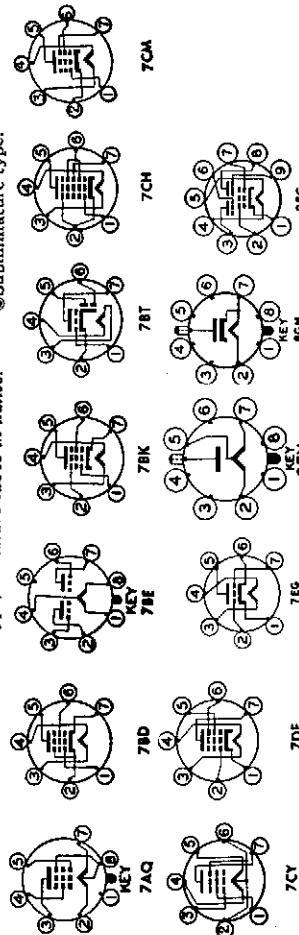
Approximate.
 Without external shield.
 Zero signal.
 Grids 3 and 5 are screen. Grid 4 is signal input grid.
 Conversion transconductance.
 Maximum.
 Grids 2 and 4 are screen. Grid 3 is signal input grid.
 Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 Absolute maximum rating.
 Plate-to-plate.

Per section.
 Design maximum rating.
 For both sections.
 Minimum.
 Heater warm-up time controlled for series-string service.
 Supply voltage.
 Input plate.
 The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 Section 1.
 Section 2.
 A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
5AV6 [¶]	Duplex-Diode High-Mu Triode	7BT	5-2	3.15	0.6	0.5	300	2.2	1.2
3B2	Half-Wave High-Vacuum Rectifier	SGH	T-X	3.15	0.22	—	—	Drop: 3	
3B4	Beam Power Amplifier	7CY	5-2	1.25 2.50 DC	0.33 0.165	3.0	135	4.5	7.5
3B5-GT	Beam Power Amplifier	7AQ	9-12	1.4	0.1	—	67.5	Parallel Filaments	
3B7	High-Frequency Twin Triode	7BE	9-30	2.8 DC	0.11	2.7	180	Series Filaments	
3BA6 [¶]	Remote-Cutoff RF Pentode	7BK	5-2	3.15	0.6	3.0	300	5.5	0.0035
3BC5 [¶]	Sharp-Cutoff RF Pentode	7BD	5-2	3.15	0.6	2.0	300	Pentode Connection	
3BE6 [¶]	Pentagrid Converter	7CH	5-2	3.15	0.6	1.0	300	Triode Connection (G ₂ & P tied)	
3BN4 [¶]	High-Frequency Triode	7BG	5-2	3.0	0.45	2.2	275	3.2	1.4
3BN4-A [¶]	High-Frequency Triode	7EG	5-2	3.0	0.45	2.2	275	3.2	1.4
3BN6 [¶]	Gated Beam Discriminator	7DF	5-3	3.15	0.6	—	300	E _{g1} = 1.25 volts RMS*	
3BU8 [¶]	Twin Pentode	9FG	6-3	3.15	0.6	1.1	300	—	—
3BY6 [¶]	Dual-Control Heptode	7CH	5-2	3.15	0.6	2.0	300	—	—
3BZ6 [¶]	Semi-Remote-Cutoff RF Pentode	7CM	5-2	3.15	0.6	2.3	330	7.0	0.015
3C2	Half-Wave High-Voltage Rectifier	8FV	12-19	3.15 1.58	0.21 0.42	—	—	Drop: 3	

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

*Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-amp-peres	Screen Milli-amp-peres	R _p Ohms	Gm. amhos	μ Factor	Load for Rated Out-put, Ohms	Power for Out-put, Watts	Tube Type
Class A Amplifier	250	—	2.0	1.2	—	62,500	1,600	100	—	—	3AV6 [¶]
TV Flyback Rectifiers	100	—	1.0	0.5	—	80,000	1,250	100	—	—	3B2
Max d-c output current = 1.1 ma; max inverse voltage (d-c component) = 25,000 volts; max peak current = 80 ma											
Class C Amplifier	150	135	38	25	6.2	Input Signal = 0.07 watt					
Class A Amplifier	67.5	67.5	7.0	8.0	0.6	100,000	1,650	—	5,000	0.2	3B5-GT
Class A Amplifier	67.5	67.5	7.0	6.7	0.5	100,000	1,500	—	5,000	0.18	3B7
Class AB ₂ Amplifier	135	—	0	18.2	—	—	1,900	20	16,000	1.5	3B4
Class A Amplifier	250	100	R _k = 68	11	4.2	1,000,000	4,400	—	—	—	3BA6 [¶]
Class A Amplifier	100	100	R _k = 68	10.8	4.4	250,000	4,300	—	—	—	3BC5 [¶]
Class A Amplifier	250	150	R _k = 180	7.5	2.1	800,000	5,700	—	—	—	3BE6 [¶]
Class A Amplifier	125	125	R _k = 100	8.0	2.4	500,000	6,100	—	—	—	3BN4 [¶]
Class A Amplifier	100	100	R _k = 180	4.7	1.4	600,000	4,900	—	—	—	3BN4-A [¶]
Class A Amplifier	250	—	R _k = 820	6.0	—	9,000	4,400	40	—	—	3BN6 [¶]
Class A Amplifier	180	—	R _k = 330	8.0	—	6,000	6,000	42	—	—	3BU8 [¶]
Converter	250	100	1.5	2.9	6.8	1,000,000	475	—	—	—	3BY6 [¶]
Class A Amplifier	100	100	1.5	2.6	7.0	400,000	455	—	—	—	3BZ6 [¶]
Class A Amplifier	150	—	R _k = 220	9.0	—	6,300	6,800	43	—	—	3C2
Class A Amplifier	150	—	R _k = 220	9.0	—	5,400	8,000	43	—	—	3C2
FM Limiter-Discriminator	285	100	R _k = 200 to 400	0.49	9.8	—	—	—	330,000	—	3C2
Sync Separator and AGC Keyer	100	67.5	1.5	2.2	5.0	—	—	—	—	—	3C2
Class A Amplifier	100	67.5	0	—	—	—	1,500	—	—	—	3C2
(Characteristics given are for each section separately with plate and grid number 3 of opposite section grounded)											
Gated Amplifier	250	100	2.5	6.5	9	—	1,900	E _{g3} = -2.5 volts	—	—	3C2
Class A Amplifier	125	125	R _k = 56	14	3.6	260,000	8,000	—	—	—	3C2
Class A Amplifier	125	125	R _k = 4.5	—	—	—	700	—	—	—	3C2
Max d-c output current = 1.1 ma; max inverse voltage (d-c component) = 28,000 volts; max peak current = 80 ma											
TV Flyback Rectifiers	100	—	—	—	—	—	—	—	—	—	3C2

§ Approximate.

▲ Without external shield.

† Zero signal.

‡ Grids 3 and 5 are screen. Grid 4 is signal.

Conversion transconductance.

* Maximum.

†† Grids 2 and 4 are screen. Grid 3 is signal.

‡‡ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

§ Absolute maximum rating.

††† Plate-to-plate.

§ Per section.

§§ Design maximum rating.

§§§ For both sections.

* Minimum.

† Heater warm-up time controlled for series-string service.

‡ Supply voltage.

†† Input plate.

‡‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

§ Section 1.

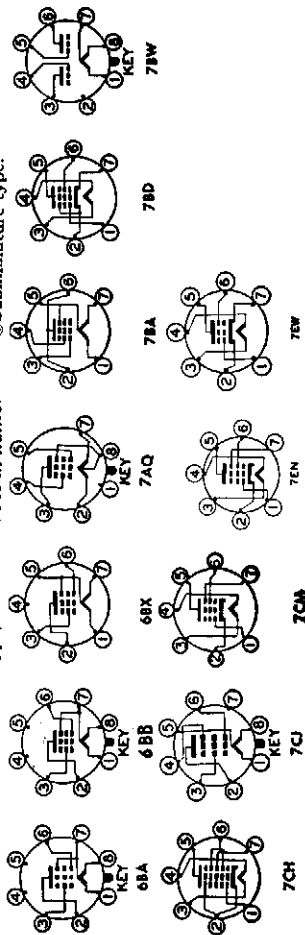
†† Section 2.

‡‡ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
3C5-GT	Power Amplifier Pentode	7AQ	9-12	1.4	0.1	—	110	Parallel Filaments	Grid-plate
				2.8 DC	0.05	—	110	Series Filaments	
3C6	Medium-Mu Twin Triode	7BW	9-30	1.4	0.1	—	110	Section 1 (Parallel Filaments)	
				2.8 DC	0.05	—	110	Section 2 (Series Filaments)	
3CB6 [†]	Sharp-Cutoff RF Pentode	7CM	5-2	3.15	0.6	2.3	330	6.5	3.0
							330	0.55	0.015
3CE5 [†]	Sharp-Cutoff RF Pentode	7BD	5-2	3.15	0.6	2.0	300	6.5	1.9
							330	0.5	0.03
3CF6 [†]	Sharp-Cutoff RF Pentode	7CM	5-2	3.15	0.6	2.3	330	6.5	3.0
							330	0.55	0.015
3CS6 [†]	Dual-Control Heptode	7CH	5-2	3.15	0.6	1.0	300	5.5	7.5
							100	1.0	0.07
3CV2 [†]	Sharp-Cutoff RF Tetrode	7EW	5-2	2.9	0.45	2.0	180	4.5	3.0
							180	0.5	0.03
3D6	Beam Power Amplifier	6BA	9-30	1.4 DC	0.22	4.5	180	7.5	6.5
							135	0.9	0.30
3DK6 [†]	Sharp-Cutoff Pentode	7CM	5-2	3.15	0.6	2.0	300	6.3	1.9
							150	0.5	0.02
3DT6 [†]	Sharp-Cutoff Pentode	7EN	5-2	3.15	0.6	1.5	300	—	—
							300	1.0	—
								I _{C1} = 0.6 ma	
3E5	Beam Power Amplifier	6BX	5-2	1.4	0.05	—	135	Parallel Filaments	
							90	Series Filaments	
3B6	Sharp-Cutoff RF Pentode	7CJ	9-30	2.8	0.05	—	110	Series Filaments	
							110	Parallel Filaments	
3E4 [†]	Sharp-Cutoff RF Tetrode	7EW	5-2	3.0	0.45	3.25	250	4.5	3.0
							150	0.5	0.05
3LE4	Power Amplifier Pentode	6BA	9-30	1.4	0.1	—	110	Parallel Filaments	
							110	Series Filaments	
3LP4	Beam Power Amplifier	6BB	9-30	2.8	0.05	—	110	Series Filaments	
							110	Parallel Filaments	
3Q4	Power Amplifier Pentode	7BA	5-2	1.4	0.1	—	90	Parallel Filaments	
							90	Series Filaments	

Metal tubes shown in bold-face type, miniature tubes in italics.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μmhos	μ Fac-tor	Load for Rated Out-put Ohms	Power Out-put Watts	Tube Type
Class A Amplifier	90	90	9.0	6.0†	1.4†	—	1.550	—	8,000	0.24	3C5-GT
Class A Amplifier	90	90	9.0	6.0†	1.4†	—	1.450	—	10,000	0.26	
Class A Amplifier	90	—	0	4.5	—	11,200	1.300	14.5	—	—	3C6
Class A Amplifier	90	—	0	4.5	—	11,200	1.300	14.5	—	—	
Class A Amplifier	90	—	0	4.5	—	11,200	1.300	14.5	—	—	
Class A Amplifier	90	—	0	3.2	—	12,800	1.100	14.1	—	—	
Class A Amplifier	125	125	R _k = 56	13	3.7	280,000§	8,000	—	—	—	3CB6 [†]
Class A Amplifier	125	125	3.0	2.8	—	—	—	—	—	—	
Class A Amplifier	125	125	1.0	11	2.8	300,000§	7,600	—	—	—	3CE5 [†]
Class A Amplifier	125	125	R _k = 56	12.5	3.7	300,000§	7,800	—	—	—	3CF6 [†]
Class A Amplifier	125	125	3.0	2.2	—	—	—	—	—	—	
Gated Amplifier	100	30	1.0	1.0	1.3	1,000,000§	1,100	E _{cs} = 0 volts	—	—	3CS6 [†]
	100	30	0.8	0.8	5.5	700,000§	—	E _{cs} = -1.0 volts	—	—	
	10	30	0	2.0	4.5	—	—	E _{cs} = 0 volts	—	—	
Class A Amplifier	125	80	1.0	10	1.5	100,000§	8,000	—	—	—	3CV2 [†]
Class A Amplifier	150	90	4.5	9.8†	1.0†	—	2,400	—	14,000	0.60	3D6
Class A Amplifier	125	125	R _k = 56	12	3.8	—	9,800	—	—	—	3DK6 [†]
Class A Amplifier	150	100	R _k = 560	1.1	2.1	150,000§	800	E _{cs} = 0 volt	—	—	3DT6 [†]
Class A Amplifier	250	100	R _k = 560	0.22	5.5	—	—	270,000	—	—	
Class A Amplifier	90	67.5	7.0	8.0	1.6	100,000	1,550	—	8,000	0.250	3E5
Class A Amplifier	90	67.5	5.0	5.5	1.1	120,000	1,400	—	8,000	0.125	
Class A Amplifier	90	67.5	7.0	6.8	1.4	120,000	1,450	—	9,000	0.225	
Class A Amplifier	90	67.5	5.0	4.4	0.9	130,000	1,300	—	11,000	0.115	
Class A Amplifier	90	90	R _k = 2 meg	2.9	1.2	325,000§	1,700	—	—	—	3B6
Class A Amplifier	90	90	R _k = 2 meg	4.2	1.7	250,000§	2,000	—	—	—	
Class A Amplifier	250	140	1.0	10	0.95	150,000§	8,000	—	—	—	3E4 [†]
Class A Amplifier	90	90	9.0	10†	2.0†	100,000§	1,700	—	6,000	0.325	3LE4
Class A Amplifier	90	90	9.0	8.8†	1.8†	110,000§	1,600	—	6,000	0.300	
Class A Amplifier	110	110	6.6	8.5	1.1	110,000§	2,000	—	8,000	0.33	3LP4
Class A Amplifier	90	90	4.5	8.0	1.0	80,000§	2,000	—	8,000	0.23	
Class A Amplifier	110	110	6.6	10	1.4	100,000§	2,200	—	8,000	0.40	
Class A Amplifier	90	90	4.5	9.5	1.3	90,000§	2,200	—	8,000	0.27	
Class A Amplifier	90	90	4.5	9.5†	2.1†	100,000§	2,150	—	10,000	0.27	3Q4
Class A Amplifier	90	90	4.5	7.7†	1.7†	120,000§	2,000	—	10,000	0.24	

§ Approximate.

† Without external shield.

‡ Zero signal.

* Grids 3 and 5 are screen. Grid 4 is signal.

† Heater warm-up time controlled for series-string service.

‡ Supply voltage.

§ Input plate.

¶ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

‡ Section 1.

§ Section 2.

‡ A resistor of 3 ohms must be put in series with heater.

◆ Per section.

◆ Design maximum rating.

◆ For both sections.

◆ Minimum.

◆ Heater warm-up time controlled for series-string service.

◆ Supply voltage.

◆ Input plate.

◆ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

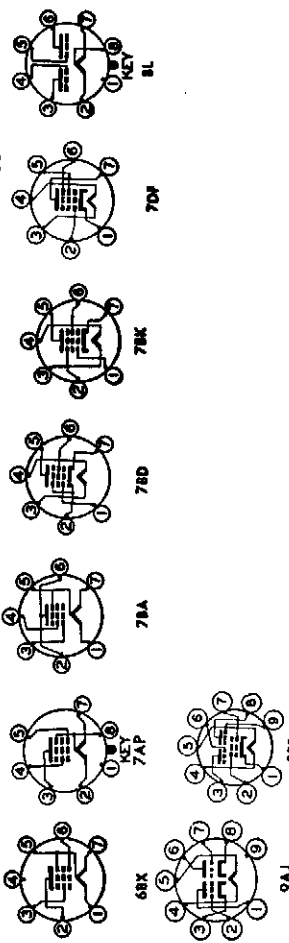
◆ Section 1.

◆ Section 2.

◆ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts	Capacitance in Micromicrofarads	
									Input	Output
3Q5-GT	Beam Power Amplifier	7AP	9-11 or 9-41	1.4 DC	0.1	—	110	110	Parallel Filaments	
				2.8 DC	0.05	—	110	110	Series Filaments	
5S4	Power Amplifier Pentode	7BA	5-2	1.4 DC	0.1	—	90	67.5	Parallel Filaments	
				2.8 DC	0.05	—	90	67.5	Series Filaments	
5V4	Power Amplifier Pentode	6BX	5-2	1.4 DC	0.1	—	90	90	Parallel Filaments	
				2.8 DC	0.05	—	90	90	Series Filaments	
5W4	Power Amplifier Pentode	7B _A	5-2	1.4 { 2.8 } DC	0.05 { 0.025 }	—	90	90	—	—
4A6-G	Twin Triode Power Amplifier	8L	12-7	4.0 { 2.0 } DC	0.06 { 0.12 }	—	90	—	—	—
4AU6†	Sharp-Cutoff RF Pentode	7BK	5-2	4.2	0.45	3.0	300	150 0.65	Pentode Connection	
4BA6†	Remote-Cutoff RF Pentode	7BK	5-2	4.2	0.45	3.0	300	300‡ 0.6	Triode Connection (G ₂ , G ₃ , and P tied)	
4BC6†	Sharp-Cutoff RF Pentode	7BD	5-2	4.2	0.45	2.0	300	300 0.5	Pentode Connection	
						2.5	300	—	Triode Connection (G ₂ and P tied)	
4BC8†	High-Frequency Twin Triode	9AJ	6-2	4.2	0.6	2.0 †	250	—	2.5	1.3 1.4
4BN6†	Gated-Beam Discriminator	7DF	5-3	4.2	0.45	—	300‡	100	E _a = 1.25 volts RMS*	
4BQ7-A†	High-Frequency Twin Triode	9AJ	6-2	4.2	0.6	2.0 †	250	—	2.6 _t	1.2 _i 1.2
4BS8†	Medium-mu Twin Triode	9AJ	6-2	4.5	0.6	2.0 †	150	—	2.6 _i	1.2 _i 1.15
4BU8†	Twin Pentode	9FG	6-3	4.2	0.45	1.1 †	300 †	150 † 0.75 †	—	—
4BX8†	High-Frequency Twin Triode	9AJ	6-2	4.5	0.6	2.0 †	150 †	—	2.4 _i	1.25 _i 1.4

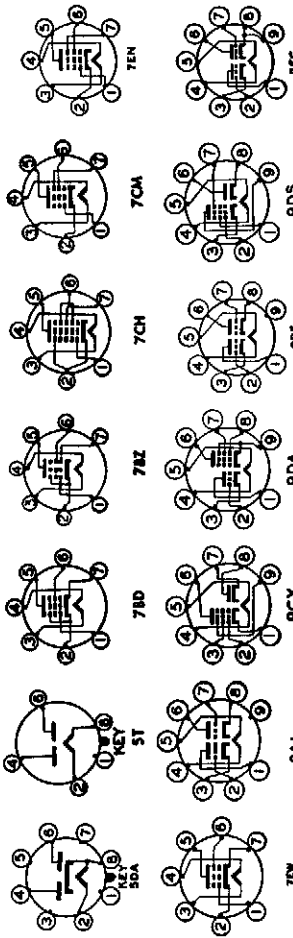
Metal tubes are shown in bold-face type, miniature tubes in italics.



Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts and Watts	Capacitance in Micromicrofarads		
								Input	Out-put	Grid-plate
4BZ6	Semi-Remote-Cutoff RF Pentode	7CM	5-2	4.2	0.45	2.3	330	7.0	3.0	0.015
4BZ7	High-Frequency Twin Triode	9AJ	6-2	4.2	0.6	2.0	250	2.6	1.2	1.2
4BZ8	High-Frequency Twin Triode	9AJ	6-2	4.2	0.6	2.2	250	—	—	—
4CB6	Sharp-Cutoff RF Pentode	7CM	5-2	4.2	0.45	2.3	330	6.5	3.0	0.015
4CE5	Sharp-Cutoff RF Pentode	7BD	5-2	4.2	0.45	2.0	300	6.5	1.9	0.03
4CS8	Dual-Control Heptode	7CH	5-2	4.2	0.45	1.0	300	5.5	7.5	0.07
4CX7	Medium-mu Twin Triode	9FC	6-2	4.2	0.6	2.0	250	2.4	1.3	1.2
4CY6	Sharp-Cutoff RF Tetraode	7EW	5-2	4.5	0.3	2.0	180	4.5	3.0	0.03
4DE6	Sharp-Cutoff RF Pentode	7CM	5-2	4.2	0.45	2.3	330	6.5	3.0	0.015
4DK6	Sharp-Cutoff Pentode	7CM	5-2	4.2	0.45	2.0	300	6.3	1.9	0.02
4DT6	Sharp-Cutoff Pentode	7EN	5-2	4.2	0.45	1.5	300	—	—	—
4ES8	Twin Triode	9DE	6-2	4.0	0.6	1.8	130	—	—	—
6AM8	Diode Sharp-Cutoff RF Pentode	9CY	6-2	4.7	0.6	3.2	330	6.5	2.6	0.015
6AN6	Triode-Pentode	9DA	6-2	4.7	0.6	2.0	300	Diode Section	Pentode Section	Triode Section
6AQ6	Beam Power Amplifier	7BZ	5-3	4.7	0.6	12	250	Pentode Connection	Triode Connection (G ₁ & P tied)	—
6AR4	Full-Wave High-Vacuum Rectifier	5DA	T-X	5.0	1.9	—	—	—	—	—
6AS4-A	Full-Wave High-Vacuum Rectifier	5T	12-15	5.0	3.0	—	Tube Voltage Drop: 50 volts at 275 ma d-c	—	—	—
6AS8	Diode Sharp-Cutoff RF Pentode	9DS	6-2	4.7	0.6	2.5	300	Pentode Section	Diode Section	—

Metal tubes are shown in bold-face type. *miniature tubes in italics.*

● **Subminiature type:**



& Approximate.

▲ Without external shield.

Grids 3 and 5 are screen. Grid 4 is signal.

input grid.

♣ Conversion transconductance.
♣ Maximum.

♥ Grids 2 and 4 are screen. Grid 3 is signal.

*Maximum input grid. screen dissipation where

given, appears immediately below the

maximum screen voltage and always has a numerical value less than 10.

⑤ Absolute maximum rating.

4. Finite- α -rate.

Appendix

◆ Design maximum rating

⊕ For both sections.

Heater warm-up time

series-string service.

Supply voltage.
Input plate.

3—The duration of the pulse

not exceed 13 percent of cycle.

Section 1.

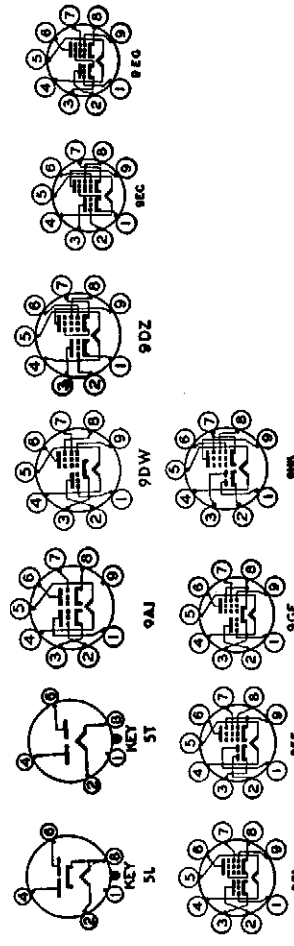
—A resistor of 3 ohms must

with heater.

Tube Type	Classification by Construction	Base Connections	Outline Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts and Watts	Max Plate Volts	Capacitance in Micromicrofarads		
									Input	Out-put	Grid-plate
6AT8†	Triode-Pentode	9DW	6-2	4.7	0.6	2.3 ♦	275 ♦ 275 ♦ 0.45 ♦	275 ♦	Pentode Section Triode Section		
5AU4	Full-Wave High-Vacuum Rectifier	5T	T-X	5.0	3.75	1.7 ♦	—	275 ♦	Triode Section		
6AV8†	Triode-Pentode	9DZ	6-2	4.7	0.6	2.0	300 300 0.5	300	Pentode Section Triode Section		
5AW4	Full-Wave High-Vacuum Rectifier	5T	T-X	5.0	3.7	—	—	—	Tube Voltage Drop: ♦ 50 v at 350 ma d-c		
5AX4-GT	Full-Wave, High-Vacuum Rectifier	5T	9-13	5.0	2.5	—	—	—	Tube Voltage Drop: ♦ 65 v at 175 ma d-c		
5AZ4	Full-Wave High-Vacuum Rectifier	5T	9-31	5.0	2.0	—	—	—	Tube Voltage Drop: ♦ 60 v at 125 ma d-c		
6B8†	Triode-Pentode	9EC	6-2	4.7	0.6	2.0	300 300 0.5	300	Pentode Section Triode Section		
6BE8†	Triode-Pentode	9EG	6-2	4.7	0.6	2.8	300 300 0.5	300	Pentode Section Triode Section		
6BK7-A†	High-Frequency Twin Triode	9AJ	6-2	4.7	0.6	2.7 ♦	300	300	3.0 ▲	1.0 ▲ 0.9 ▲	1.8 ▲
6BQ7-A†	High-Frequency Twin Triode	9AJ	6-2	5.6	0.45	2.0 ♦	250	250	2.6 †	1.2 †	1.2
6BR8†	Triode-Pentode	9FA	6-2	4.7	0.6	2.8	300 300 0.5	300	Pentode Section Triode Section		
6BS8†	Medium- μ Twin Triode	9AJ	6-2	5.6	0.45	2.0 ♦	150	150	2.6 †	1.2 †	1.15
6BT8†	Duplex-Diode Pentode	9FE	6-2	4.7	0.6	2.0	300 300 0.5	300	7.0 ▲	2.3 ▲	0.04 ▲
6BW8†	Duplex-Diode Pentode	9HK	6-2	4.7	0.6	3.0 ♦	330 ♦ 330 ♦ 0.55 ♦	330	Diode Sections		
6BZ7†	High-Frequency Twin Triode	9AJ	6-2	5.6	0.45	2.5 ♦	250	250	2.6 †	1.2 †	1.2
5CG4	Full-Wave High-Vacuum Rectifier	5L	9-13	5.0	2.0	—	—	—	—	—	—
6CG8†	Triode-Pentode	9GF	6-2	4.7	0.6	2.3 ♦	275 ♦ 275 ♦ 0.45 ♦	275 ♦	Pentode Section Triode Section		

Metal tubes are shown in bold-face type, miniature tubes in italics.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μ mhos	Fac- tor	Load for Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	125	125	1.0	9.0	2.2	300,000 Ω	5,300	—	—	—	6AT8 [†]
Class A Amplifier	125	—	1.0	12	—	6,000 Ω	6,500	40	—	—	5AU4
Full-Wave Rectifier	200	150	R _k = 180	9.5	2.8	300,000 Ω	6,200	—	—	—	6AV8 [†]
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	5AW4
Full-Wave Rectifier	200	150	R _k = 180	9.5	2.8	300,000 Ω	6,200	—	—	—	5AX4-GT
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	5AZ4
Full-Wave Rectifier	200	150	R _k = 180	9.5	2.8	300,000 Ω	6,200	—	—	—	6B8 [†]
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	6BE8 [†]
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	6BK7-A [†]
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	6BQ7-A [†]
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	6BR8 [†]
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	6BS8 [†]
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	6BT8 [†]
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	6BW8 [†]
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	6BZ7 [†]
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	5CG4
Class A Amplifier	200	—	6.0	13	—	5,750 Ω	3,300	19	—	—	6CG8 [†]

Approximate.

Without external shield.

Zero signal.

Grids 3 and 5 are screen. Grid 4 is signal input grid.

Conversion transconductance.

Maximum.

Grids 2 and 4 are screen. Grid 3 is signal input grid.

Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

Absolute maximum rating.

Plate-to-plate.

Per section.

Design maximum rating.

For both sections.

Minimum.

Heater warm-up time controlled for series string service.

Supply voltage.

The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

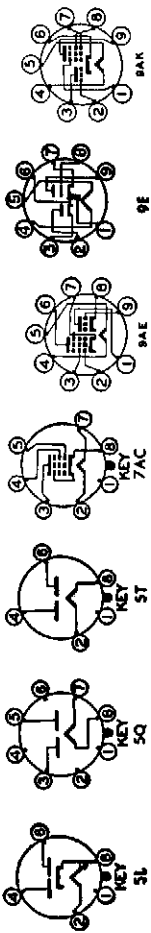
Section 1.

Section 2.

A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Drawing	Filament Volts	Filament Amp	Max Plate Watts	Capacitance in Micromicrofarads	
							Max Screen Volts and Watts	Input
6X4	Full-Wave High-Vacuum Rectifier	5T	10-1	5.0	2.0	—	Tube Voltage Drop: ♦ 45 v at 225 ma d-c	—
6X5	Triode-Pentode	9E	6-2	4.7	0.6	1.0	300	1.7 2.4 1.7
6X6	Full-Wave High-Vacuum Rectifier	5T	16-3	5.0	3.0	—	Tube Voltage Drop: ♦ 44 v at 225 ma d-c	—
6X7	Full-Wave High-Vacuum Rectifier	5T	T-X	5.0	3.0	—	Tube Voltage Drop: ♦ 44 v at 225 ma d-c	—
6X8	Full-Wave High-Vacuum Rectifier	5T	12-16	5.0	3.0	—	Tube Voltage Drop: ♦ 50 v at 275 ma d-c	—
6X9	Triode-Pentode	9AE	6-2	4.7	0.6	3.0 ♦ 2.5 ♦	330 ♦ 330 ♦ 0.55 ♦	Pentode Section Triode Section
6X10	Full-Wave High-Vacuum Rectifier	5T	12-16	5.0	3.8	—	Tube Voltage Drop: ♦ 47 v at 330 ma d-c	—
6X11	Full-Wave High-Vacuum Rectifier	5L	14-3 12-14	5.0	2.0	—	Tube Voltage Drop: ♦ 25 v at 175 ma d-c	—
6X12	Beam Power Amplifier	7AC	9-11 or 9-41	4.7	0.6	12	315 285	Single Tube
6X13	Full-Wave High-Vacuum Rectifier	5T	8-6 9-13	5.0	1.5	—	Tube Voltage Drop: ♦ 45 v at 100 ma d-c	—
6X14	Full-Wave High-Vacuum Rectifier	5Q	16-3	5.0	3.0	—	Tube Voltage Drop: ♦ 38 v at 225 ma d-c	—
6X15	Full-Wave High-Vacuum Rectifier	5Q	12-16	5.0	3.0	—	Tube Voltage Drop: ♦ 47 v at 250 ma d-c	—
6X16	Triode-Pentode Converter	9AK	6-2	4.7	0.6	2.3 ♦ 1.7 ♦	275 ♦ 275 ♦ 0.45 ♦	Pentode Section Triode Section
6X17	Full-Wave High-Vacuum Rectifier	5T	14-3	5.0	2.0	—	Tube Voltage Drop: ♦ 60 v at 125 ma d-c	—
6X18	Full-Wave High-Vacuum Rectifier	5T	12-16 9-13 or 9-42	5.0	2.0	—	Tube Voltage Drop: ♦ 60 v at 125 ma d-c	—
6X19	Full-Wave High-Vacuum Rectifier	5Q	14-3	5.0	2.0	—	Tube Voltage Drop: ♦ 60 v at 125 ma d-c	—
6X20	Full-Wave High-Vacuum Rectifier	5Q	12-16 9-13 or 9-42	5.0	2.0	—	Tube Voltage Drop: ♦ 60 v at 125 ma d-c	—

Metal tubes are shown in bold-face type, miniature tubes in italics.



●Subminiature type.

[illegible]

Approximate.

▲ Without external shield.

Zero signal.

Grids 3 and 5 are screen, Grid 1 input grid.

Conversion transconductance.

♣ Maximum.

♥ Grids 2 and 4 are screen. Grid 3 is signal-
grid.

Maximum screen dissection where input grid.

Maximum screen dissipation, where given, appears immediately below the

maximum screen voltage and always has

a numerical value less than 10.

■ Absolute maximum rating.
† Plate-to-plate

† Plate-to-plate.

♠ Per section.

◆ Design maximum rating.

⊕ For both sections.
* Minimum

* Minimum.	Heater warm-up time
1	10
2	15
3	20
4	25
5	30
6	35
7	40
8	45
9	50
10	55
11	60
12	65
13	70
14	75
15	80
16	85
17	90
18	95
19	100
20	105
21	110
22	115
23	120
24	125
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148	745
149	750
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151	760
152	765
153	770
154	775
155	780
156	785
157	790
158	795
159	800
160	805
161	810
162	815
163	820
164	825
165	830
166	835
167	840
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|| Treater warm-up time series-string service.

Supply voltage.

Input plate.

33—The duration of the pulse not exceed 15 percent of

not exceed 13 percent of cycle-

—Section 1.

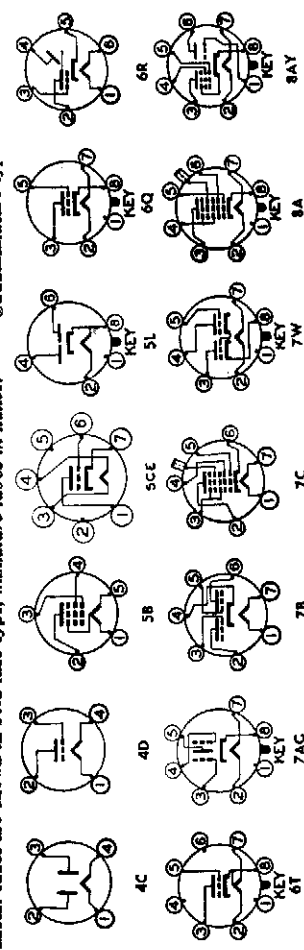
Section 2.

—A resistor of 3 ohms must
with heat

with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Volts and Watts *	Capacitance in Micromicrofarads	
								Input	Output
55Z3	Full-Wave High-Vacuum Rectifier	4C	16-1	5.0	3.0	—	—	Tube Voltage Drop: ♦ 58 v at 225 ma d-c	
55Z4	Full-Wave High-Vacuum Rectifier	5L	8-6	5.0	2.0	—	—	Tube Voltage Drop: ♦ 20 v at 125 ma	
55Z4-GT		5L	9-11	5.0	2.0	—	—		
6A3	Power Amplifier Triode	4D	16-1	6.3	1.0	—	325	Single tube 2 tubes, push-pull	
6A4/LA	Power Amplifier Pentode	5B	14-1	6.3	0.3	—	180	—	—
6A5-G	Power Amplifier Triode	6T	16-3	6.3	1.25	—	250	Single Tube 2 tubes, push-pull	
6A6	Twin Triode Power Amplifier	7B	14-1	6.3	0.8	1.0 ♦	300	Both Sections in push-pull Both Sections in Parallel	
6A7	Pentagrid Converter	7C ♦	12-6	6.3	0.3	1.0	300 0.3	Osc I_{g1} = 0.4 ma R_{g1} = 50,000 ohms	
6A8 6A8-G 6A8-GT	Pentagrid Converter	8A ♦	8-4 12-8 9-18	6.3	0.3	1.0	300 0.3	Osc I_{g1} = 0.4 ma R_{g1} = 50,000 ohms	
6AB4	High-Frequency Triode	5CE	5-2	6.3	0.15	2.5	300	2.2	1.4 1.5
6AB5/6N5	Electron-Ray Indicator	6R	9-26	6.3	0.15	—	180 ♦	Max target voltage = 180 Min target voltage = 125	
6AB7/18B3	Remote-Cutoff RF Pentode	8N	8-1	6.3	0.45	3.75	300 0.65	8.0	5.0 0.015 ♦
6AC5-GT	Triode Power Amplifier	6Q	9-11	6.3	0.4	10	250	2 tubes, Push-pull	
6AC6-GT	Dynamic-Coupled Power Amplifier	7W	9-11	6.3	1.1 1.3 †	8.5 1.3 †	180 †	—	—
6AC7	RF Pentode	8N	8-1	6.3	0.45	3.0	300 0.38	11	5 0.015 ♦
6AD4 ♦	High-Mu Triode	8DK	3-1	6.3	0.15	0.3	150	1.9	2.2 0.7
6AD6-G	Twin Electron-Ray Indicator	7AG	9-3	6.3	0.15	—	Max target voltage = 150 Min target voltage = 100		
6AD7-G	Triode-Power Amplifier Pentode	8AY	14-3	6.3	0.85	1.0	285	Triode section Pentode section	

Metal tubes are shown in bold-face type. miniature tubes in italics.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	R _p Ohms	G _m μmhos	μ Fac- tor	Load for Rated Out- put Ohms	Power Out- put Watts	Tube Type	
Full-Wave Rectifier	Max d-c output current = 225 ma; max peak inverse voltage = 1550 volts; max rms supply voltage per plate = 450 volts; max peak current per plate = 675 ma											5Z3
Full-Wave Rectifier	Max d-c output current = 125 ma; max peak inverse voltage = 1400 volts; max rms supply voltage per plate = 350 volts; max peak current per plate = 375 ma											5Z4
												5Z4-GT
Class A Amplifier	250	—	45	60†	—	800	3,250	4.2	2,500	3.2	6A3	
Class A ₁ Class A ₂ Amplifier	325	—	68	80†	—	—	—	—	3,000†	15	6A4/LA	
Class A Amplifier	180	180	12	22†	3.9†	45,400‡	2,200	—	8,000	1.4	6A5-G	
Class A Amplifier	230	—	45	60†	—	800	3,250	4.2	2,500	3.75	6A6	
Class A Amplifier	325	—	68	80†	—	—	—	—	3,000	15	6A7	
Class B Amplifier	300	—	0	35†	—	—	—	—	8,000	10‡	6AB	
Class A Amplifier	294	—	6.0	7.0	—	11,000	3,200	35	†	—	6AB-GT	
Converter	250	100	3.0	3.5	2.7	360,000‡	550 #	E _{cc} (Osc Plate) = 250 thru 20,000 ohms I _c = 4.0 ma			6AB4	
Converter	250	100	3.0	3.5	2.7	360,000‡	550 #	E _{cc} (Osc Plate) = 250 thru 20,000 ohms I _c = 4.0 ma			6AB5/6N5	
Class A Amplifier	250	—	R _k = 200	10	—	10,900	5500	60	—	—	6AB7/18B5	
	100	—	R _k = 270	3.7	—	15,000	4000	60	—	—	6AC5-GT	
Tuning Indicator	Plate voltage = 135 thru 0.25 meg; target voltage = 135 (E _g = -10, shadow = 0°) (E _g = 0 volt, shadow = 90°, plate current = 0.5 ma, target current I _t = 2 ma)											6AC6-GT
Class A Amplifier	300	200	3.0	12.5	3.2	700,000‡	5000	—	—	—	6AC7	
Class B Amplifier	250	—	0	5.0†	—	Input signal = .950 watt			10,000	8.0‡	6AD4	
Class A Amplifier	180	180	0	45.0	7.0	18,000‡	3,000	—	3,500	3.6	6AD6-G	
Class A Amplifier	300	150	R _k = 160	10	2.5	1,000,000‡	9,000	—	—	—	6AD7-G	
Class A Amplifier	100	—	R _k = 820	1.4	—	35,000	2000	70	—	—		
Tuning Indicator ♦	Target voltage = 150 (Ray control = +75 volts, shadow = 0°) (Ray control = +8 volts, shadow = 90°)											
Class A Amplifier	250	—	25	3.7	—	19,000‡	325	6.0	—	—		
Class A Amplifier	250	250	16.5	34†	6.5†	80,000‡	2,500	—	7,000	3.2		

§ Approximate.

▲ Without external shield.

‡ Zero signal.

Grids 3 and 5 are screen. Grid 4 is signal.

Grids 3 and 4 are screen. Grid 4 is signal input grid.

Conversion transconductance.

♣ **Maximum.**

♥ Grids 2 and 4 are screen. Grid 3 is signal-
ing equipment.

input grid,

Maximum screen dissipation, where

given, appears immediately below the

8. cm; appears immediately below Life maximum screen voltage and always has

a numerical value less than 10.

● Absolute maximum rating.

Plate-to-plate.

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Per section

◆ Per section.
◆ Design maximum entire

◆ Design maximum rating.
⊕ For both sections

* Minimum
† For both sections.

Minimum.	Heater warm-up time
100	10
200	15
300	20
400	25
500	30
600	35
700	40
800	45
900	50
1000	55
1100	60
1200	65
1300	70
1400	75
1500	80
1600	85
1700	90
1800	95
1900	100
2000	105
2100	110
2200	115
2300	120
2400	125
2500	130
2600	135
2700	140
2800	145
2900	150
3000	155
3100	160
3200	165
3300	170
3400	175
3500	180
3600	185
3700	190
3800	195
3900	200
4000	205
4100	210
4200	215
4300	220
4400	225
4500	230
4600	235
4700	240
4800	245
4900	250
5000	255
5100	260
5200	265
5300	270
5400	275
5500	280
5600	285
5700	290
5800	295
5900	300
6000	305
6100	310
6200	315
6300	320
6400	325
6500	330
6600	335
6700	340
6800	345
6900	350
7000	355
7100	360
7200	365
7300	370
7400	375
7500	380
7600	385
7700	390
7800	395
7900	400
8000	405
8100	410
8200	415
8300	420
8400	425
8500	430
8600	435
8700	440
8800	445
8900	450
9000	455
9100	460
9200	465
9300	470
9400	475
9500	480
9600	485
9700	490
9800	495
9900	500
10000	505

Heater warm-up time
series string service

Series-string service.
Supply voltage

Supply voltage.
Input plate.

—The duration of the mile

—The duration of the pulse not exceed 15 percent of

not exceed 15 percent of cycle.

—Section 1.
cycle.

—Section 1.
—Section 2.

—Section 2.
—A resistor of 3 ohms must

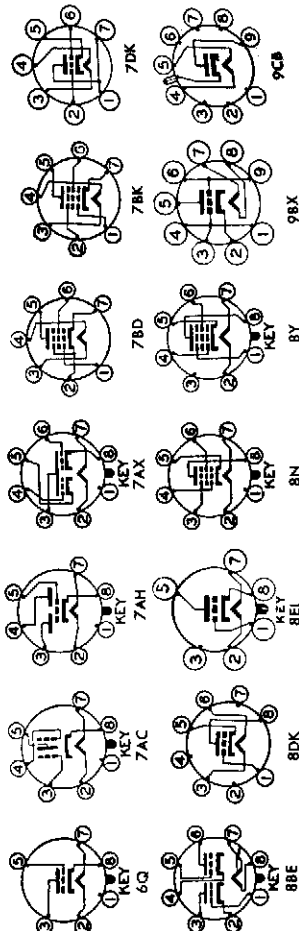
1—A resistor of 3 ohms must
with heater.

1. JSTPIL NIM

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts	Capacitance in Microfarads	Max Plate Volts	Max Screen Volts	Input	Output	Grid-plate
6AE5-GT	Low-Mu Triode	6Q	9-11	6.3	0.3	2.5	300	—	—	—	—	—	—
6AE6-G	Single-Grid Twin-Plate Control Tube	7AH	12-7	6.3	0.15	—	250	Remote-cut-off plate (Pin 3) Sharp-cut-off plate (Pin 4)	—	—	—	—	—
6AE7-GT	Twin-Input Triode	7AX	9-11	6.3	0.5	5.0	300	—	—	—	—	—	—
6AF3	Half-Wave High-Vacuum Rectifier	9CB	6-8	6.3	1.2	6.0	300	Tube Voltage Drop: 30 volts at 340 ma d-c	—	—	—	—	—
6AF4 6AF4-A	UHF Triode Oscillator	7DK	5-2 5-1	6.3	0.225	2.5	150	—	2.2	1.4	1.9	—	—
6AF5-G	Low-Mu Triode	6Q	12-7	6.3	0.3	—	180	—	—	—	—	—	—
6AF6-G	Twin Electron-Ray Indicator	7AG	9-1 or 9-36	6.3	0.15	—	—	Max target voltage = 250 Min target voltage = 125	—	—	—	—	—
6AG5	Sharp-Cutoff RF Pentode	7BD	5-2	6.3	0.3	2.0	300	Pentode Connection	300	0.5	—	—	—
6AG7	Power Amplifier Pentode	8Y	8-6	6.3	0.65	9.0	300	Triode Connection (G ₂ & P tied)	300	1.5	13	7.5	0.06
6AH4-GT	Low-Mu Triode	8EL	9-41	6.3	0.75	7.5	500	—	—	—	7.0	1.7	4.4
6AH6	Sharp-Cutoff RF Pentode	7BK	5-2	6.3	0.45	3.2	300	Pentode Connection	300	0.4	—	—	—
6AH7-GT	Medium-Mu Twin-Triode	8BE	9-7	6.3	0.3	1.5	180	—	—	—	—	—	—
6AJ4	UHF High-Mu Triode	9BX	6-1	6.3	0.225	2.0	150	—	—	—	—	—	—
6AJ5	Sharp-Cutoff RF Pentode	7BD	5-1	6.3	0.175	1.7	180	—	180	0.5	4.0	2.8	0.02
6AJ7	RF Pentode	8N	8-1	6.3	0.45	3.0	300	—	300	0.38	11	5	0.015
6AK4	Medium-Mu Triode	8DK	3-1	6.3	0.15	3.0	250	—	—	—	2.2	2.2	1.3
6AK5	Sharp-Cutoff RF Pentode	7BD	5-1	6.3	0.175	1.7	180	—	180	0.5	4.0	2.8	0.02
6AK6	Power Amplifier Pentode	7BK	5-2	6.3	0.15	2.75	300	—	300	0.75	3.6	4.2	0.12
6AK7	Power Amplifier Pentode	8Y	8-6	6.3	0.65	9.0	300	—	300	1.5	13	7.5	0.06

Metal tubes are shown in bold-face type, miniature tubes in italics.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milliamperes	Screen Milliamperes	R _p , Ohms	G _m , μmhos	Fac- tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	95	—	15	7.0	—	3,500	1,200	4.2	—	—	6AE5-GT
Class A Amplifier	250	—	1.5	6.5	—	25,000	1,000	25	—	—	6AE6-G
Class A Amplifier	250	—	1.5	4.5	—	35,000	950	33	—	—	6AE7-GT
Class A Amplifier	250	—	13.5	5	—	9,300	1,500	1.4	—	—	6AE7-GT
TV Damper Services	Max d-c output current = 185 ma; max peak inverse voltage = 4,500 volts; max peak current = 750 ma										
Class A Amplifier	80	—	R _k = 17.5	17.5	—	2,100	6,500	13.5	—	—	6AF3
Class A Amplifier	180	—	18	7.0	—	4,900	1,500	7.4	—	—	6AF4 6AF4-A 6AF5-G
Tuning Indicator	Target voltage = 250 (Ray control = +155 volts, shadow = 0°) (Ray control = 0 v, shadow = 100°, target current = 3.75 ma)										
Class A Amplifier	250	150	R _k = 180	6.5	2.0	800,000	5,000	—	—	—	6AG5
Class A Amplifier	250	—	R _k = 820	5.5	—	10,000	3,800	42	—	—	6AG7
Class A Amplifier	300	150	3.0	30	7.0	130,000	11,000	—	10,000	3.0	6AH4-GT
Vertical Deflection Amplifier	250	—	23	30	—	1,780	4,500	8.0	—	—	6AH6
Class A Amplifier	300	150	R _k = 160	10	2.5	500,000	9,000	—	—	—	6AH7-GT
Class A Amplifier	150	—	R _k = 160	12.5	—	3,600	11,000	40	—	—	6AJ4
Class A Amplifier	180	—	6.5	7.6	—	8,400	1,900	16	—	—	6AJ5
Class A Amplifier	125	—	R _k = 68	16	—	4,200	10,000	42	—	—	6AJ7
Class A Amplifier	28	28	1.0	2.7	1.0	100,000	2,500	—	—	—	6AK4
Class A Amplifier	300	150	R _k = 160	10	2.5	1,000,000	9,000	—	—	—	6AK5
Class A Amplifier	200	—	R _k = 680	9.5	—	5,300	3,800	20	—	—	6AK6
Class A Amplifier	180	120	R _k = 180	7.7	2.4	500,000	5,100	—	—	—	6AK7
Class A Amplifier	120	120	R _k = 180	7.5	2.5	300,000	5,000	—	—	—	6AK7
Class A Amplifier	180	180	9.0	15	2.5	200,000	2,300	—	10,000	1.1	6AK7
Class A Amplifier	300	150	3.0	30	7.0	130,000	11,000	—	10,000	3.0	6AK7

Approximate.

Without external shield.

Zero signal.

Grids 3 and 5 are screen. Grid 4 is signal.

Conversion transconductance.

Maximum.

Grids 2 and 4 are screen. Grid 3 is signal.

Maximum screen dissipation, where given, appears immediately below the numerical value less than 10.

Absolute maximum rating.

Plate-to-plate.

Per section.

Design maximum rating.

For both sections.

Minimum.

Heater warm-up time controlled for series-string service.

Supply voltage.

Input plate.

The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

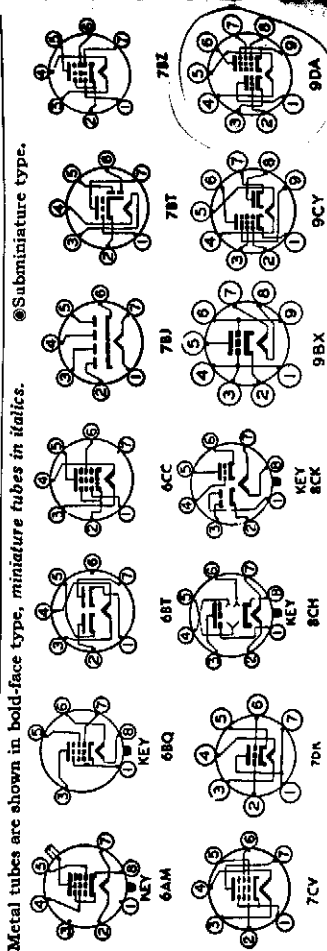
Section 1.

Section 2.

A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	File-ment Volts	File-ment Amp	Max Plate Watts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
6AL5	Twin Diode	6BT	5-1	6.3	0.3	—	Tube Voltage Drop: 10 v at 60 ma d-c	—	Grid-plate
6AL6-G	Beam Power Amplifier	6AM	T-X	6.3	0.9	18.5	350	—	—
6AL7-GT	Electron-Ray Indicator	8CH	9-7 or 9-39	6.3	0.15	—	Max target voltage = 365 Min target voltage = 220	—	—
6AM4	UHP High-Mu Triode	9BX	6-1	6.3	0.225	2.0	200	—	—
6AM8	Diode Sharp-Cutoff RF Pentode	9CY	6-2	6.3	0.45	3.2	330	6.5	2.6
6AM8-A†						—	—	Diode Section	+
6AN4	UHF High-Mu Triode	7DK	5-1	6.3	0.225	4.0	300	—	—
6AN6	Quadruple Diode	7BJ	5-2	6.3	0.2	—	Tube Voltage Drop: 9.0 v at 6.5 ma	—	—
6AN8	Triode-Pentode	9DA	6-2	6.3	0.45	2.3	330	—	—
6AN8-A†						2.8	330	—	—
6AQ6	Beam Power Amplifier	7BZ	5-3	6.3	0.45	12	250	—	—
6AQ6-A†						9.0	250	—	—
6AQ6	Duplex-Diode High-Mu Triode	7BT	5-2	6.3	0.15	—	300	1.7	1.5
6AQ7-GT	Duplex-Diode High-Mu Triode	8CK	9-11 or 9-41	6.3	0.3	1.0	250	—	1.8
6AR6	Power Amplifier Pentode	6CC	5-3	6.3	0.4	8.5	250	—	—
6AR6	Beam Power Amplifier	6BQ	T-X	6.3	1.2	21	680	11.0	7.0
6AR8	Double Plate Sheet-Beam Tube	9DP	6-3	6.3	0.3	2.0	300	—	0.8
6AS6	Beam Power Amplifier	7CV	5-3	6.3	0.8	5.5	150	12	6.2

Metal tubes are shown in bold-face type, miniature tubes in italics.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-amp-eres	R _p Ohms	G _m μ mbhos	Load for Rated Output, Watts	Tube Type
Half-Wave Rectifier	250	250	14	72†	5.0†	22,500	6,000	6AL5
Class A Amplifier	250	250	14	72†	5.0†	22,500	6,000	6AL6-G
PM/AM Tuning Indicator	200	—	R _k = 10	—	—	8,700§	9,800	6AL7-GT
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AM4
Class A Amplifier Video Detector	200	—	R _k = 100	—	—	8,700§	9,800	6AM8
Class A Amplifier	200	—	R _k = 100	—	—	8,700§	9,800	6AM8-A†
Half-Wave Rectifier	250	250	14	72†	5.0†	22,500	6,000	6AN4
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AN6
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AN8
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AN8-A†
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AQ6
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AQ6-A†
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AQ6
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AQ7-GT
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AR6
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AR6
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AR8
Class A Amplifier	125	125	R _k = 56	12.5	3.2	300,000§	7,800	6AS6

‡ Approximate.
 † Without external shield.
 ‡ Zero signal.
 † Grids 3 and 5 are screen. Grid 4 is signal input grid.
 ‡ Conversion transconductance.
 ‡ Maximum.
 ‡ Grids 2 and 4 are screen. Grid 3 is signal input grid.
 ‡ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 ‡ Absolute maximum rating.
 ‡ Plate-to-plate.

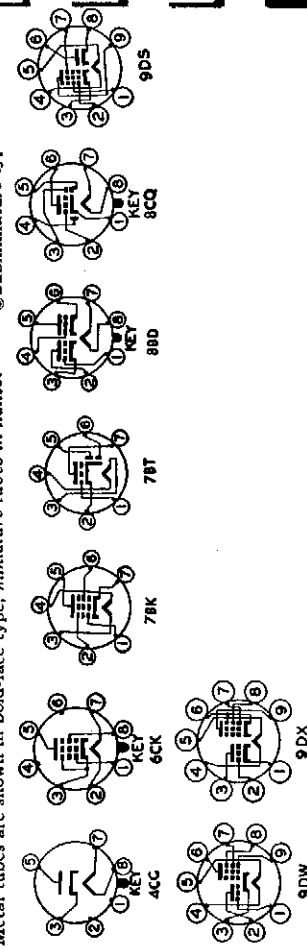
‡ Per section.
 ‡ Design maximum rating.
 ‡ For both sections.
 ‡ Minimum.
 ‡ Heater warm-up time controlled for series-string service.
 ‡ Supply plate.
 ‡ Input plate.
 ‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ‡ Section 1.
 ‡ Section 2.
 ‡ A resistor of 3 ohms must be put in series with heater.

‡ Per section.
 ‡ Design maximum rating.
 ‡ For both sections.
 ‡ Minimum.
 ‡ Heater warm-up time controlled for series-string service.
 ‡ Supply plate.
 ‡ Input plate.
 ‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ‡ Section 1.
 ‡ Section 2.
 ‡ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Outline Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts	Capacitance in Micromicrofarads	
									Input	Output
6AS7-G	Low-Mu Twin Triode	8BD	16-3	6.3	2.5	13.4	250	—	—	—
6AS8	Diode Sharp-Cutoff RF Pentode	9DS	6-2	6.3	0.45	2.5	300	300	Pentode Section	Diode Section
6A76	Duplex Diode High-Mu Triode	7BT	5-2	6.3	0.3	0.5	300	—	2.2	0.8
6A78	Triode-Pentode Converter	9DW	6-2	6.3	0.45	2.3	275	275	Pentode Section	Triode Section
6A78-A						1.7	275	—		
6AU4-GT	Half-Wave High-Vacuum Rectifier	4CG	9-44	6.3	1.8	6.0	25	25	Tube Voltage Drop: 25 v at 350 ma d-c	
6AU4-GTA	Half-Wave High-Vacuum Rectifier	4CG	9-44	6.3	1.8	6.0	25	25	Tube Voltage Drop: 25 v at 350 ma d-c	
6AU5-GT	Beam Power Amplifier	6CK	9-1, or 9-41	6.3	1.25	10	550	200	11.3	7.0
6AU6										
6AU6-A	Sharp-Cutoff RF Pentode	7BK	5-2	6.3	0.3	3.0	300	300	Pentode Connection	
6AU8	Triode-Pentode	9DX	6-3	6.3	0.6	3.0	300	300	Triode Connection (G ₂ , G ₃ , & P tied)	
6AU8-A	Triode-Pentode	9DX	6-3	6.3	0.6	2.5	300	300	Pentode Section	Triode Section
6AV5-GA	Beam Power Amplifier	6CK	T-X	6.3	1.2	11	550	175	14	7.0
6AV5-GT	Beam Power Amplifier	6CK	9-11 or 9-41	6.3	1.2	11	550	175	14	7.0
6AV6	Duplex Diode High-Mu Triode	7BT	5-2	6.3	0.3	0.5	300	—	2.2	1.2
6AW7-GT	Duplex Diode High-Mu Triode	8CQ	9-16	6.3	0.3	—	300	—	—	—
6AW8	Triode-Pentode	9DX	6-3	6.3	0.6	3.25	300	300	Pentode Section	Triode Section
6AW8-A	Triode-Pentode	9DX	6-3	6.3	0.6	3.25	300	300	Pentode Section	Triode Section

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milliamperes	R _p Ohms	G _m μmhos	Load for Rated Output, Ohms	Power Out, Watts	Tube Type
DC Amplifier	135	—	R _k = 250	125	280	7,000	2.0	—	6AS7-G
Class A Amplifier	200	150	R _k = 180	9.5	300,000	6,200	—	—	6AS8
Detector	Max d-c output current = 5 ma; max peak inverse voltage = 330 volts; max peak current = 50 ma								
Class A Amplifier	250	—	3.0	1.0	58,000	1,200	70	—	6A76
Class A Amplifier	100	—	1.0	0.8	54,000	1,300	70	—	6A78
Class A Amplifier	125	125	1.0	9.0	300,000	5,500	—	—	6A78-A
Class A Amplifier	125	—	1.0	12	6,000	6,500	40	—	6A78-A
TV Damp-Service	Max d-c output current = 175 ma; max peak inverse voltage = 4,500 volts; max peak current = 1050 ma								6AU4-GT
TV Damp-Service	Max d-c output current = 190 ma; max peak inverse voltage = 4,500 volts; max peak current = 1,150 ma								6AU4-GTA
Horizontal Deflection Amplifier	115	175	20	60	6,000	5,600	—	—	6AU5-GT
	60	175	0	210	—	—	—	—	
Max positive pulse plate voltage = 5,500 v; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma									
Class A Amplifier	250	150	R _k = 68	10.6	4.3	1,000,000	5,200	—	6AU6
Class A Amplifier	100	100	R _k = 150	5.0	2.1	500,000	3,900	—	6AU6-A
Class A Amplifier	250	—	R _k = 330	12.2	—	—	4,800	36	
Class A Amplifier	200	125	R _k = 82	1.5	3.4	150,000	7,000	—	6AU8
Class A Amplifier	150	—	R _k = 130	9.0	—	8,200	4,900	40	
Class A Amplifier	200	125	R _k = 82	17	3.4	100,000	8,000	—	6AU8-A
Class A Amplifier	40	125	R _k = 0	28	10	—	—	—	
Class A Amplifier	150	—	R _k = 130	9.5	—	8,100	5,300	43	
Horizontal Deflection Amplifier	250	150	22.5	57	2.1	14,500	5,900	—	6AV5-GA
	60	150	0	260	26	—	—	—	
Max positive pulse plate voltage = 5,500 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma									
Horizontal Deflection Amplifier	250	150	22.5	55	2.1	20,000	5,500	—	6AV5-GT
	60	150	0	225	23	—	—	—	
Max positive pulse plate voltage = 5,500 v; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma									
Class A Amplifier	250	—	2.0	1.2	—	62,500	1,600	100	6AV6
Class A Amplifier	100	—	1.0	0.5	—	80,000	1,250	100	
Class A Amplifier	100	—	0	1.4	—	—	1,200	80	6AW7-GT
Class A Amplifier	200	150	R _k = 13	13	3.5	400,000	9,000	—	6AW8
Class A Amplifier	200	—	2.0	4.0	—	17,500	4,000	70	
Class A Amplifier	200	150	R _k = 13	13	3.5	230,000	9,000	—	6AW8-A
Class A Amplifier	65	150	180	42	12.5	—	—	—	
Class A Amplifier	200	—	2.0	4.0	—	17,500	4,000	70	

§ Approximate.

▲ Without external shield.

† Zero signal.

‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.

Conversion transconductance.

* Maximum.

▲ Grids 2 and 4 are screen. Grid 3 is signal-input grid.

* Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

§ Absolute maximum rating.

‡ Plate-to-plate.

† Section 1.

‡ Section 2.

* A resistor of 3 ohms must be put in series with heater.

◆ Per section.

◆ Design maximum rating.

◆ For both sections.

* Minimum.

* Heater warm-up time controlled for series-string service.

* Supply voltage.

* Input plate.

* The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

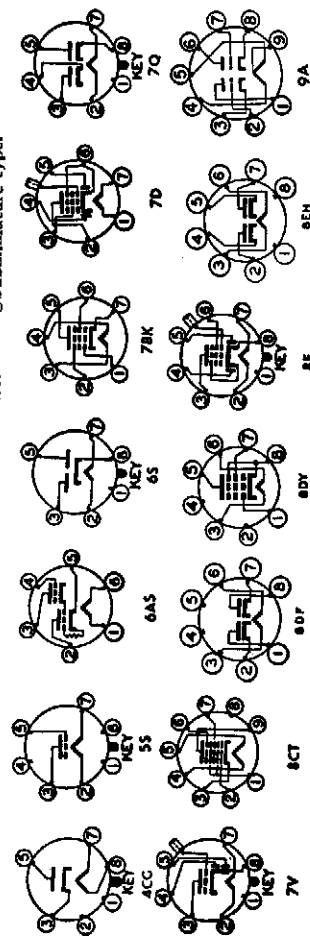
* Section 1.

* Section 2.

* A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads		
									Input	Out-put	Grid-plate
6AX4-GT	Half-Wave High-Vacuum Rectifier	4CG	9-11 or 9-41	6.3	1.2	4.8		Tube Voltage Drop: 32 v at 250 ma d-c			
6AX5-GT	Full-Wave High-Vacuum Rectifier	6S	9-41	6.3	1.2	—		Tube Voltage Drop: 50 v at 125 ma d-c			
6AX6-G	Full-Wave High-Vacuum Rectifier	7Q	14-3	6.3	2.5	—		Tube Voltage Drop: 21 v at 250 ma d-c			
6AX7	High-Mu Twin Triode	9A	6-2	6.3 3.15	0.3 0.6	1.0	300	—	1.8	1.9	1.7
6AX8	Triode-Pentode	9AE	6-2	6.3	0.45	2.8	300	200 0.5	Pentode Section		
6AZ5	Twin Diode	8DF	3-1	6.3	0.15	—		Tube Voltage Drop: 10 v at 15 ma d-c			
6AZ6	Twin Diode	8EH	3-11	6.3	0.15	—		Tube Voltage Drop: 3.5 v at 8 ma d-c			
6AZ8	Triode-Pentode	9ED	6-2	6.3	0.45	2.0	300	300 0.5	Pentode Section		
8B4-G	Power Amplifier Triode	5S	16-3	6.3	1.0	15	325	—	Single tube 2 tubes, Push-pull		
8B5	Direct-Coupled Power Amplifier Triode	6AS	14-1	6.3	0.8	13.5 2.5	300	300	—	—	—
8B6-G	Duplex Diode High-Mu Triode	7V	12-8	6.3	0.3	—	250	—	—	—	—
8B7	Duplex Diode Remote-Cutoff Pentode	7D	12-6	6.3	0.3	2.25	300	125 0.3	3.5	9.5	.007
8B8-G	Duplex Diode Remote-Cutoff Pentode	8E	8-4 12-8 9-20	6.3	0.3	3.0 2.25 3.0	300	125 0.3	6.0 3.6 4.5	9.0 9.5 10.0	.005 .01 0.005
8BA4	High-Mu Planar Triode	—	T-X	6.3	0.4	2.0	200	—	—	—	—
8BA5	Sharp-Cutoff Pentode	8DY	3-1	6.3	0.15	0.7	150	140 0.3	3.4	3.6	0.065
8BA6	Remote-Cutoff RF Pentode	7BK	5-2	6.3	0.3	3.0	300	300 0.6	5.5	5.5	0.0035
8BA7	Pentagrid Converter	8CT	6-3	6.3	0.3	2.0	300	100 1.5	Osc I _{at} = 0.35 ma R _{at} = 20,000 ohms		

Metal tubes are shown in bold-face type, miniature tubes in italics.



Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	R _p , Ohms	Gm, μmbos	μ Fac- tor	Load for Rated Out- put, Ohms	Power for Out- put, Watts	Tube Type
TV Damper Services											6AX4-GT
Full-Wave Rectifier											6AX5-GT
Full-Wave Rectifier											6AX6-G
TV Damp- er Services											
Class A Amplifier ♦	100 250	— —	1.0 2.0	0.5 1.2	— —	80,000\$ 62,000\$	1,250 1,600	100 100	— —	— —	6AX7†
Class A Amplifier	250	110	R _k = 120	10	3.5	400,000\$	4,800	—	—	—	6AX8
Class A Amplifier	150	—	R _k = 56	18	—	5,000\$	8,500	40	—	—	6AZ5 ●
Half-Wave Rectifier											
Full-Wave Rectifier											6AZ6 ●
Class A Amplifier	200	150	R _k = 180	9.5	3.0	300,000\$	6,000	—	—	—	6AZ8
Class A Amplifier	200	—	6.0	13	—	5,750\$	3,300	19	—	—	
Class A Amplifier	250	—	45	60†	—	800	5,250	4.2	2,500	3.2	6B4-G
Class A Amplifier	325	—	68	80†	—	—	—	—	3,000 ‡	15.0	
Class A Amplifier	300	300	0	45	8.0	24,000\$	2,400	—	7,000	4.0	6B5
Class A Amplifier	250	—	2.0	0.9	—	91,000	1,100	100	—	—	6B6-G
Class A Amplifier	250	125	3.0	9.0	2.3	600,000\$	1,125	—	—	—	6B7
Class A Amplifier	250	125	3.0	10	2.3	600,000\$	1,325	—	—	—	6B8 6B8-G 6B8-GT
Class A Amplifier	150	—	R _k = 100	10	—	8,700\$	8,000	70	—	—	6BA4
Class A Amplifier	100	100	R _k = 270	5.5	2.0	175,000	2,150	—	—	—	6BA5 ●
Class A Amplifier	250	100	R _k = 68	11	4.2	1,000,000\$	4,400	—	—	—	6BA6
Class A Amplifier	100	100	R _k = 68	10.8	4.4	250,000\$	4,300	—	—	—	
Converter	250	100	1.0	3.8	10.0	1,000,000\$	950 #	—	—	—	6BA7

§ Approximate.

▲ Without external shield.
† Zero signal.

Grids 3 and 5 are screen. Grid 4 is signal-in-out grid

Conversion transconductance.

Grids 2 and 4 are screen. Grid 3 is signal.

input grid. Maximum screen dissipation, where

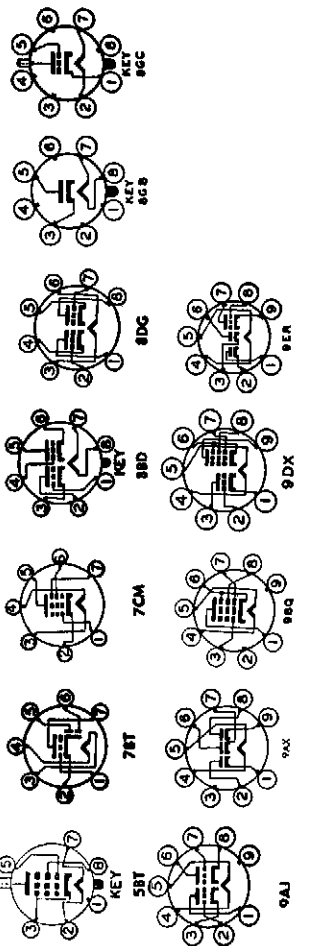
given, appears immediately below the maximum screen voltage and always has

● Absolute maximum rating.

† Plate-to-plate.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads		
									Input	Out-put	
6BF6	Duplex-Diode Medium-Mu Triode	7BT	5-2	6.3	0.3	2.5	300	—	1.8	0.7	1.9
6BF7	Medium-Mu Twin Triode	8DG	3-2	6.3	0.3	1.0	110	—	2.0	1.6 ₁ 2.0 ₂	1.5
6BF7-A	Medium-Mu Twin Triode	8DG	3-2	6.3	0.3	1.1	120	—	2.0	1.6 ₁ 2.0 ₂	1.5
6BG6-G 6BG6-GA	Beam Power Amplifier	5BT	16-5 12-21	6.3	0.9	20	700	350 3.2	12	6.5	0.34
6BG7	Medium-Mu Twin Triode	8DG	3-5	6.3	0.3	1.0	110	—	2.0	1.6 ₁ 2.0 ₂	1.5
6BH6	Sharp-Cutoff RF Pentode	7CM	5-2	6.3	0.15	3.0	300	300 0.5	5.4	4.4	0.0035
6BH8	Triode-Pentode	9DX	6-3	6.3	0.6	3.0	300	300 0.8	Pentode Section		
6BJ6	Remote-Cutoff RF Pentode	7CM	5-2	6.3	0.15	3.0	300	300 0.8	4.5	5.5	0.0035
6BJ6-A	Remote-Cutoff RF Pentode	7CM	5-2	6.3	0.15	3.0	300	300 0.8	4.5	5.5	0.0035
6BJ7	Triode Diode	9AX	6-2	6.3	0.45	—	—	—	Tube Voltage Drop: 2.7 v at 10 ma d-c		
6BJ8	Duplex-Diode Triode	9ER	6-3	6.3	0.6	3.5	300	—	2.8	0.31	2.6
6BK4	Sharp-Cutoff Beam Triode	8GC	12-21 or 12-36	6.3	0.2	25	25,000	—	2.6	1.0	0.03
6BK5	Beam Power Amplifier	9BQ	6-3	6.3	1.2	9.0	250	250 2.5	13	5.0	0.6
6BK6	Duplex-Diode High-mu Triode	7BT	5-3	6.3	0.3	—	300	—	—	—	—
6BK7	High-Frequency Twin Triode	9AJ	6-2	6.3	0.45	2.7	300	—	3.0	1.1 1.0	1.9
6BK7-A 6BK7-B	High-Frequency Twin Triode	9AJ	6-2	6.3	0.45	2.7	300	—	3.0	1.0 0.9	1.8
6BL4	Half-Wave High-Vacuum Rectifier	8GB	12-26	6.3	3.0	8.0	Tube Voltage Drop: 20 v at 400 ma d-c				
6BL7-GT	Medium-mu Twin Triode	8BD	9-41	6.3	1.5	10 12	500	—	4.2 4.6	0.9	6.0

Metal tubes are shown in bold-face type, miniature tubes in italics.



● **Subminiature type.**

ture tubes in italics.

bold-face type, min

Metal tubes are shown:

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Section 1.

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Approximate.

▲ Without external shield,

Grids 3 and 5 are screen.

input grid. Conversion transconductance

♣ **Maximum.**

▼Grids 2 and 4 are screen.
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† Plate-to-plate.

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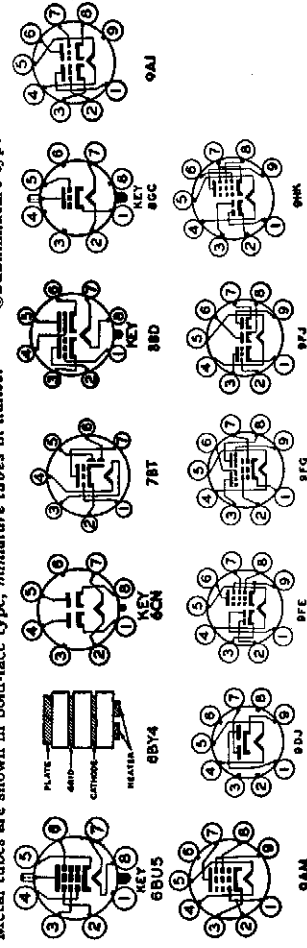
Metal tubes are shown in bold-face type, miniature tubes in *italics*. @Subminiature type.

Metal tubes are shown in bold-face type, *miniature tubes in italics*. ● Subminiature type.

§ Approximate.
 † Zero signal.
 ‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 # Conversion transconductance.
 ◆ Maximum.
 ♥ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
 ★ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 ⊕ Absolute maximum rating.
 ‡ Plate-to-plate.

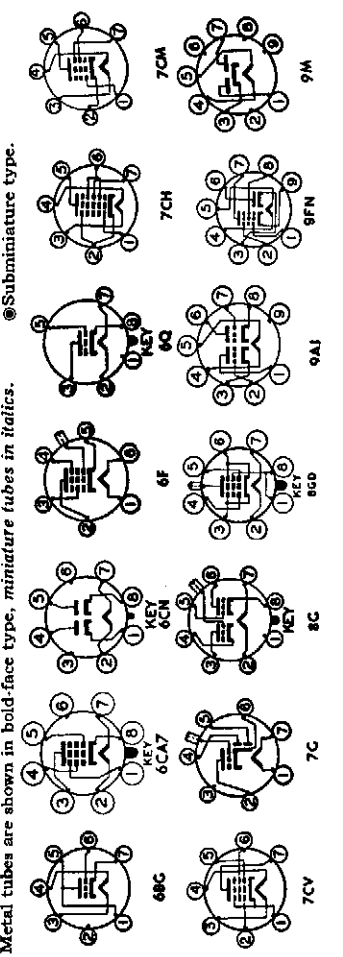
Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Watts	Capacitance in Micromicrofarads	
								Input	Output
6BS8	Medium-mu Twin Triode	9AJ	6-2	6.3	0.4	2.0	150	2.6	1.2
6BT8	Duplex-Diode, High-Mu Triode	7BT	5-3	6.3	0.3	—	300	—	—
6BT8	Duplex-Diode Pentode	9PE	6-2	6.3	0.45	2.0	300	7.0	2.3
6BU4	Sharp-Cutoff Beam Triode	8GC	T-X	6.3	0.45	25	25,000	—	—
6BU5	Sharp-Cutoff Beam Pentode	6BU5	T-X	6.3	0.15	20	20,000	3.0	0.9
6BU6	Duplex-Diode Medium-Mu Triode	7BT	5-3	6.3	0.3	—	300	—	—
6BU8	Twin Pentode	9FG	6-3	6.3	0.3	1.1	300	—	—
6BV8	Duplex-Diode Triode	9FJ	6-2	6.3	0.6	2.7	330	3.6	0.4
6BW4	Full-Wave High-Vacuum Rectifier	9DJ	6-3	6.3	0.9	—	—	—	—
6BW6	Beam Power Amplifier	9AM	6-3	6.3	0.45	12	315	2.5	2.0
6BW8	Duplex-Diode Pentode	9HK	6-2	6.3	0.45	3.0	330	4.8	2.6
6BX7-GT	Medium-Mu Twin Triode	8BD	9-41	6.3	1.5	10	500	—	—
6BX8	High-Frequency Twin Triode	9AJ	6-2	6.3	0.4	2.0	150	—	—
6BY4	High-mu Triode	6BY4	T-X	6.3	0.2	1.1	300	—	—
6BY5-G	Full-Wave High-Vacuum Rectifier	6CN	14-3	6.3	1.6	—	—	—	—

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli-amperes	Screen Milli-amperes	R _p , Ohms	G _m , μ hos	μ Factor	Load for Rated Output, Ohms	Power Out, Watts	Tube Type
Class A Amplifier	150	—	R _k = 220	10	—	5,000	7,200	36	—	—	6BS8
Class A Amplifier	250	—	3.0	1.0	—	58,000	1,200	70	—	—	6BT8
Class A Amplifier	100	—	1.0	0.8	—	54,000	1,300	70	—	—	6BT8
Class A Amplifier	200	150	R _k = 180	9.5	2.8	300,000	6,200	—	—	—	6BT8
Horizontal Phase Detector	Max d-c output current = 1.0 ma; voltage drop = 10 volts at 8.0 ma d-c	—	—	—	—	—	—	—	—	—	6BU4
High-Voltage Shunt Regulator	Max unregulated d-c supply voltage = 55,000 volts; max d-c cathode current = 10 ma	—	—	—	—	—	—	—	—	—	6BU5
High-Voltage Shunt Regulator	20,000	70	2.4	1.0	0.4	—	—	—	—	—	6BU5
Class A Amplifier	250	—	9.0	9.5	—	8,500	1,900	16	10,000	0.30	6BU6
Sync Separator and AGC Keyer	100	67.5	I _{g1} = 0.1 ma	2.2	5.0	—	—	—	—	—	6BU8
(Characteristics given are for each section separately with plate and grid number 3 of opposite section grounded)	100	67.5	0	—	—	1,500	—	—	—	—	6BU8
Class A Amplifier	200	—	R _k = 330	11	—	5,900	5,600	33	—	—	6BV8
Synchronous Detector	75	—	0	14	—	—	—	—	—	—	6BV8
Max d-c output current = 10 ma; voltage drop = 5.0 volts at 23 ma d-c	—	—	—	—	—	—	—	—	—	—	6BW4
Full-Wave Rectifier	Max d-c output current = 100 ma; max peak inverse voltage = 1,275 volts; rms supply voltage per plate = 325 volts; max peak current per plate = 350 ma	—	—	—	—	—	—	—	—	—	6BW4
Class A Amplifier	315	225	13.0	34	2.2	77,000	3,750	—	8,500	5.5	6BW6
Class A Amplifier	250	250	12.5	45	4.5	52,000	3,100	—	3,000	4.5	6BW6
Class A Amplifier	180	180	8.5	29	3	58,000	3,700	—	5,500	2.0	6BW6
Class A Amplifier	250	110	R _k = 68	10	3.5	250,000	5,200	—	—	—	6BW8
Horizontal Phase Detector	Max d-c output current = 5.0 ma; voltage drop = 5 volts at 20 ma d-c	—	—	—	—	—	—	—	—	—	6BX7-GT
Vertical Deflection Amplifier	250	—	R _k = 390	42	—	1,300	7,600	10	—	—	6BX7-GT
Max positive pulse plate voltage = 2000 volts; max d-c cathode current = 60 ma	100	—	0	80	—	—	—	—	—	—	6BX7-GT
Class A Amplifier	65	—	1.0	9.0	—	3,750	6,700	25	—	—	6BX8
Class A Amplifier	200	—	R _k = 200	5.0	—	16,700	6,000	100	—	—	6BY4
Full-Wave Rectifier	Max d-c output current = 175 ma; max peak inverse voltage = 1400 volts; rms supply voltage per plate = 375 volts; max peak current per plate = 525 ma; max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 625 ma	—	—	—	—	—	—	—	—	—	6BY5-G

- § Approximate.
 † Without external shield.
 ‡ Zero signal.
 †† Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 ‡ Conversion transconductance.
 ‡ Maximum.
 ‡ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
 ‡ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 ‡ Absolute maximum rating.
 ‡ Plate-to-plate.
- ◆ Per section.
 ◆ Design maximum rating.
 ◆ For both sections.
 † Heater warm-up time controlled for series-string service.
 ‡ Supply voltage.
 ‡ Input plate voltage.
 ‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ‡ Section 1.
 ‡ Section 2.
 ‡ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Outline Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
									Input	Output
6BY5-GA	Full-Wave High-Vacuum Rectifier	6CN	12-14	6.3	1.6	—	—	(Tube Voltage Drop: 32 volts at 175 ma d-c)	—	—
6BY6	Dual-Control Heptode	7CH	5-2	6.3	0.3	300	2.0	300	—	—
6BY8	Diode-Pentode	9FN	6-3	6.3	0.6	300	3.0	300	5.5	0.0035
6BZ6	Semi-Remote-Cutoff RF Pentode	7CM	5-2	6.3	0.3	330	2.3	330	7.0	0.015
6BZ7	High-Frequency Twin Triode	9AJ	6-2	6.3	0.4	250	2.0	—	2.6	1.2
6BZ8	High-Frequency Twin Triode	9AJ	6-2	6.3	0.4	250	2.2	—	—	—
6C4	Medium-Mu Triode	6BG	5-2	6.3	0.15	300	3.5	—	1.8	1.3
6C5	Medium-Mu Triode	6Q	8-1	6.3	0.3	300	2.5	—	3.0	2.0
6C5-GT	Medium-Mu Triode	6Q	9-12	6.3	0.3	300	2.5	—	4.4	2.2
6C6	Sharp-Cutoff Pentode	6P	12-2	6.3	0.3	300	0.75	125	5.0	6.5
6C7	Duplex-Diode Medium-Mu Triode	7G	12-2	6.3	0.3	250	—	—	—	—
6C8-G	Medium-Mu Twin Triode	8G	12-8	6.3	0.3	250	1.0	—	—	—
6CA4	Full-Wave High-Vacuum Rectifier	9M	6-4	6.3	1.0	—	—	—	—	—
6CA5	Beam Power Amplifier	7CV	5-3	6.3	1.2	130	5.0	130	15	9
6CA7	Power Amplifier Pentode	6CA7	T-X	6.3	1.5	800	25	425	—	—
6CB5	Beam Power Amplifier	8GD	T-X	6.3	2.5	700	23	700	24	10
6CB5-A	Beam Power Amplifier	8GD	12-36	6.3	2.5	800	23	800	22	10
6CB6	Sharp-Cutoff	7CM	5-2	6.3	0.3	330	2.3	330	6.5	3.0
6CB6-A	RF Pentode	7CM	5-2	6.3	0.3	330	2.3	330	6.5	3.0



Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μmhos	Factor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Full-Wave Rectifier	Max d-c output current = 175 ma; max peak inverse voltage = 400 volts; max peak current per plate = 525 ma	250	100	2.5	6.5	9	1,900	—	—	—	6BY5-GA
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6BY6
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6BY8
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6BY8
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6BZ6
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6BZ7
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6BZ8
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6C4
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6C5
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6C5-GT
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6C6
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6C7
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6C8-G
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6CA4
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6CA5
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6CA7
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6CB5
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6CB5-A
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6CB6
Class A Amplifier	Max d-c output current = 175 ma; max peak inverse voltage = 3000 volts; max peak current per plate = 525 ma	250	150	10.6	4.3	1,000,000	5,200	—	—	—	6CB6-A

◆ Per section.
◆ Design maximum rating.
◆ For both sections.
◆ Minimum.
◆ Heater warm-up time controlled for series-string service.
◆ Supply voltage.
◆ Input plate.
◆ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
◆ Section 1.
◆ Section 2.
◆ A resistor of 3 ohms must be put in series with heater.

§ Approximate.
▲ Without external shield.
† Zero signal.
‡ Grids 3 and 5 are screen. Grid 4 is signal input grid.
Conversion transconductance.
◆ Maximum.
◆ Grids 2 and 4 are screen. Grid 3 is signal input grid.
◆ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
◆ Absolute maximum rating.
† Plate-to-plate.

Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	R _p , Ohms	G _m , μmhos	Fac- tor	Load for Rated Out- put Ohms	Power Out- put, Watts	Tube Type
Horizontal Deflection Amplifier	175 60	175 100	30 0	75 230	5.5 21	7,200§	7,700	—	—	—	6CD6-G
	Max positive pulse plate voltages = 6600 volts; max screen dissipation = 3.0 watts; max d-c cathode current = 200 ma										
Horizontal Deflection Amplifier	175 60	175 100	30 0	75 230	5.5 21	7,200§	7,700	—	—	—	6CD6-GA
	Max positive pulse plate voltages = 7,000 volts; max screen dissipation = 3.0 watts; max d-c cathode current = 200 ma										
Class A Amplifier	125	125	1.0	11	2.8	300,000§	7,600	—	—	—	6CE5¶
Class A Amplifier	125	125	R _k = 56 3.0	12.5	3.7	300,000§	7,800	—	—	—	6CF8
Class A Amplifier	125	125	3.0	2.2	—	—	—	—	—	—	6CG8
Class A Amplifier ♦	250	150	8.0	9.0	2.3	720,000	2,000	—	—	—	6CG7¶
	250 250 90	— — —	8.0 12.5 0	9.0 1.3 10	— — —	7,700§ 6,700§	2,600 3,000	20 20	— — —	— — —	6CG8 6CG8-A¶
Class A Amplifier	125	125	1.0	9.0	2.2	300,000§	5,500	—	—	—	6CH7
	125	—	1.0	12	—	6,000§	6,500	40	—	—	6CH8
Class A Amplifier ♦	150	—	R _k = 220	10	—	5,300§	6,800	36	—	—	6CK4
Class A Amplifier	200	150	R _k = 180	9.5	2.8	300,000§	6,200	—	—	—	6CL5
	200	—	6.0	13	—	5,750§	3,300	19	—	—	6CL8¶
Vertical Deflection Amplifier	250 100	— —	28.0 0	40 125	— —	1,200§	5,500	6.6	—	—	6CL8-A¶
Max positive pulse plate voltage = 2,000 volts; max d-c cathode current = 100 ma											
Horizontal Deflection Amplifier	175 80	175 100	40 0	90 280	7.0 20	6,000§	6,500	—	—	—	6CL5
	Max positive pulse voltages = 7,000 volts; max screen dissipation = 4.0 watts; max d-c cathode current = 240 ma										
Class A Amplifier	250	150	3.0	30†	7.0†	150,000§	11,000	—	7,500	2.8	6CL8
Class A Amplifier	125	125	1.0	12	4.0	100,000§	5,800	—	—	—	6CL8¶
Class A Amplifier	125	—	R _k = 56	15	—	5,000§	8,000	40	—	—	6CL8-A¶
Class A Amplifier	125 100	125 100	1.0 0	12 —	4.0 —	100,000§	6,400	—	—	—	6CL8-A¶
	125	—	R _k = 56	15	—	5,000§	8,000	40	—	—	6CL8-A¶
Class A Amplifier	250	250	12.5	45†	4.5†	50,000§	4,100	—	5,000	4.5	6CM6
Max positive pulse plate voltage = 2000 volts; max screen dissipation (pentode connection only) = 1.75 watts; max d-c cathode current = 40 ma											

- § Approximate.
- ▲ Without external shield.
- † Zero signal.
- ◆ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
- # Conversion transconductance.
- ♣ Maximum.
- ♠ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
- * Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
- ⊗ Absolute maximum rating.
- ⊠ Plate-to-plate.
- ♣ Per section.
- ◆ Design maximum rating.
- ⊕ For both sections.
- * Minimum.
- † Heater warm-up time controlled for series-string service.
- ♣ Supply voltage.
- ♠ Input plate.
- The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
- 1 Section 1.
- 2 Section 2.
- ⊠ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Outline Drawing	Filament Volts	Filament Amps	Max Plate Watts	Max Plate Volts	Max Screen Watts	Capacitance in Micromicrofarads	
									Input	Output
6CD6-G	Beam Power Amplifier	5BT	16-5	6.3	2.5	15	700	175 3.0	24	9.5
6CD6-GA	Beam Power Amplifier	5BT	12-21	6.3	2.5	20	700	175 3.0	22	8.5
6CE5	Sharp Cutoff RF Pentode	7BD	5-2	6.3	0.3	2.0	300	150 0.5	6.5	1.9
6CF6	Sharp Cutoff RF Pentode	7CM	5-2	6.3	0.3	2.3	330	330 0.55	6.5	3.0
6CG6	Remote-Cutoff Pentode	7BK	5-2	6.3	0.3	4.0	300	150 0.75	5.0	5.0
6CG7	Medium- μ Twin Triode	9AJ	6-3	6.3	0.6	3.5 5.0	300	—	2.3	2.2
6CG8	Triode Pentode	9CF	6-2	6.3	0.45	2.3	275	275 0.45	Pentode Section	
6CH7	High-Frequency Twin Triode	9PC	6-2	6.3	0.4	2.0	250	—	2.4	0.8
6CH8	Triode Pentode	9PT	6-2	6.3	0.45	2.0	300	300 0.5	Pentode Section	
6CK4	Low- μ Triode	8JB	9-43	6.3	1.25	12	550	—	8.0	1.8
6CL5	Beam Power Amplifier	8GD	12-21	6.3	2.5	25	700	200 4.0	20	11.5
6CL6	Power Amplifier Pentode	9BV	6-3	6.3	0.65	7.5	300	300 1.7	11	5.5
6CL8	Triode-Tetrode	9FX	6-2	6.3	0.45	2.8	300	300 0.5	Tetrode Section	
6CL8-A	Triode-Tetrode	9FX	6-2	6.3	0.45	2.7	300	—	Triode Section	
6CM6	Beam Power Amplifier	9CK	6-3	6.3	0.45	12	315	285 2.0	Pentode Connection	

Metal tubes are shown in bold-face type, *miniature tubes in italics*.

● Subminiature type.

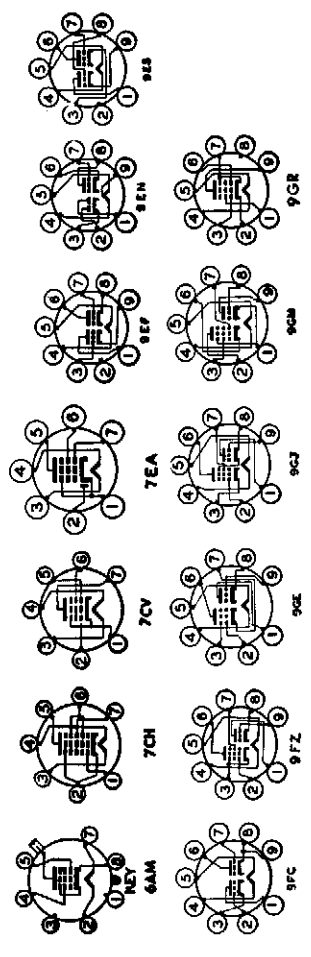
Connection	2J0	2J1	2J2	2J3	2J4	2J5	2J6	2J7	2J8	2J9	2J10	2J11	2J12	2J13	2J14	2J15	2J16	2J17	2J18	2J19	2J20	2J21	2J22	2J23	2J24	2J25	2J26	2J27	2J28	2J29	2J30	2J31	2J32	2J33	2J34	2J35	2J36	2J37	2J38	2J39	2J40	2J41	2J42	2J43	2J44	2J45	2J46	2J47	2J48	2J49	2J50	2J51	2J52	2J53	2J54	2J55	2J56	2J57	2J58	2J59	2J60	2J61	2J62	2J63	2J64	2J65	2J66	2J67	2J68	2J69	2J70	2J71	2J72	2J73	2J74	2J75	2J76	2J77	2J78	2J79	2J80	2J81	2J82	2J83	2J84	2J85	2J86	2J87	2J88	2J89	2J90	2J91	2J92	2J93	2J94	2J95	2J96	2J97	2J98	2J99	2J100	2J101	2J102	2J103	2J104	2J105	2J106	2J107	2J108	2J109	2J110	2J111	2J112	2J113	2J114	2J115	2J116	2J117	2J118	2J119	2J120	2J121	2J122	2J123	2J124	2J125	2J126	2J127	2J128	2J129	2J130	2J131	2J132	2J133	2J134	2J135	2J136	2J137	2J138	2J139	2J140	2J141	2J142	2J143	2J144	2J145	2J146	2J147	2J148	2J149	2J150	2J151	2J152	2J153	2J154	2J155	2J156	2J157	2J158	2J159	2J160	2J161	2J162	2J163	2J164	2J165	2J166	2J167	2J168	2J169	2J170	2J171	2J172	2J173	2J174	2J175	2J176	2J177	2J178	2J179	2J180	2J181	2J182	2J183	2J184	2J185	2J186	2J187	2J188	2J189	2J190	2J191	2J192	2J193	2J194	2J195	2J196	2J197	2J198	2J199	2J200	2J201	2J202	2J203	2J204	2J205	2J206	2J207	2J208	2J209	2J210	2J211	2J212	2J213	2J214	2J215	2J216	2J217	2J218	2J219	2J220	2J221	2J222	2J223	2J224	2J225	2J226	2J227	2J228	2J229	2J230	2J231	2J232	2J233	2J234	2J235	2J236	2J237	2J238	2J239	2J240	2J241	2J242	2J243	2J244	2J245	2J246	2J247	2J248	2J249	2J250	2J251	2J252	2J253	2J254	2J255	2J256	2J257	2J258	2J259	2J260	2J261	2J262	2J263	2J264	2J265	2J266	2J267	2J268	2J269	2J270	2J271	2J272	2J273	2J274	2J275	2J276	2J277	2J278	2J279	2J280	2J281	2J282	2J283	2J284	2J285	2J286	2J287	2J288	2J289	2J290	2J291	2J292	2J293	2J294	2J295	2J296	2J297	2J298	2J299	2J300	2J301	2J302	2J303	2J304	2J305	2J306	2J307	2J308	2J309	2J310	2J311	2J312	2J313	2J314	2J315	2J316	2J317	2J318	2J319	2J320	2J321	2J322	2J323	2J324	2J325	2J326	2J327	2J328	2J329	2J330	2J331	2J332	2J333	2J334	2J335	2J336	2J337	2J338	2J339	2J340	2J341	2J342	2J343	2J344	2J345	2J346	2J347	2J348	2J349	2J350	2J351	2J352	2J353	2J354	2J355	2J356	2J357	2J358	2J359	2J360	2J361	2J362	2J363	2J364	2J365	2J366	2J367	2J368	2J369	2J370	2J371	2J372	2J373	2J374	2J375	2J376	2
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Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	R _p , Ohms	G _m , μmhos	μ Fac- tor	Load for Rated Out- put, Ohms	Power for Out- put, Watts	Tube Type
Vertical Deflection Oscillator	200	—	7.0	5.0	—	10,500§	2,000	21	—	—	6CM7¶
	Max d-c cathode current = 15 ma										
	250	—	8.0	20	—	4,100§	4,400	18	—	—	
Vertical Deflection Amplifier	Max positive pulse plate voltages □ = 2,200 volts; max d-c cathode current = 20 ma										
Class A Amplifier	200	150	R _k = 180	9.5	2.8	600,000§	6,200	—	—	—	6CM8¶
	250	—	2.0	1.8	—	50,000§	2,000	100	—	—	
Class A Amplifier Horizontal Phase Detector	250	—	3.0	1.0	—	58,000§	1,200	70	—	—	6CN7¶
	100	—	1.0	0.8	—	54,000§	1,300	70	—	—	
	Max d-c output current ♦ = 5.0 ma; voltage drop ♣ = 5 volts at 20 ma d-c										
Class A Amplifier	125	125	1.0	12	4.2	140,000§	5,800	—	—	—	6CO8¶
	125	—	R _k = 56	15	—	5,000§	8,000	40	—	—	
Class A Amplifier	250	100	2.0	9.6	2.6	800,000§	2,200	—	—	—	6CR6
Class A Amplifier	125	125	R _k = 56	13	3.0	300,000§	7,700	—	—	—	6CR8¶
	125	—	2.0	12	—	5,500§	4,000	22	—	—	
Class A Amplifier	200	125	R _k = 180	46†	2.2†	28,000§	8,000	—	4,000	3.8	6CS5
	110	110	7.5	49†	4.0†	13,000§	8,000	—	2,000	2.1	
Gated Amplifier	100	30	1.0	1.0	1.3	1,000,000§	1,100	E _{cc} = 0 volts			6CS6
	100	30	0	0.8	5.5	700,000§	—	E _{cc} = -1.0 volts			
	10	30	0	2.0	4.5	—	—	E _{cc} = 0 volts			
Vertical Deflection Oscillator	250	—	8.5	10.5	—	7,700§	2,200	17	—	—	6CS7¶
	Max d-c cathode current = 20 ma										
Vertical Deflection Amplifier	250	—	10.5	19	—	3,450§	4,500	15.5	—	—	6CS8¶
	Max positive pulse plate voltages □ = 2,200 volts; max d-c cathode current = 30 ma										
Class A Amplifier	125	125	R _k = 56	13	3.0	300,000§	7,700	—	—	—	6CS8¶
	125	—	2.0	12	—	5,500§	4,000	22	—	—	
Class A Amplifier	120	110	8.0	49†	4.0†	10,000§	7,500	—	2,500	2.3	6CU5
Horizontal Deflection Amplifier	250	150	22.5	57	2.1	14,500	5,900	—	—	—	6CU6
	60	150	0	260	26	—	—	—	—	—	
	Max positive pulse plate voltages □ = 6000 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma										
Class A Amplifier	200	150	R _k = 180	9.5	2.8	300,000§	6,200	—	—	—	6CU8¶
	200	—	6.0	13	—	5,750§	3,300	19	—	—	
Class A Amplifier	150	—	R _k = 220†	9.0	—	6,100§	6,400	39	—	—	6CX7

§ Approximate.
 ▲ Without external shield.
 † Zero signal.
 ‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 # Conversion transconductance.
 ◆ Maximum.
 ◆ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
 ◆ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 ⊕ Absolute maximum rating.
 ‡ Plate-to-plate.
 ◆ Per section.
 ◆ Design maximum rating.
 ⊕ For both sections.
 ⊕ Minimum.
 ‡ Heater warm-up time controlled for series-string voltage.
 ◆ Supply voltage.
 ‡ Input plate.
 ‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ‡ Section 1.
 ‡ Section 2.
 ‡ A resistor of 3 ohms must be put in series with heater.

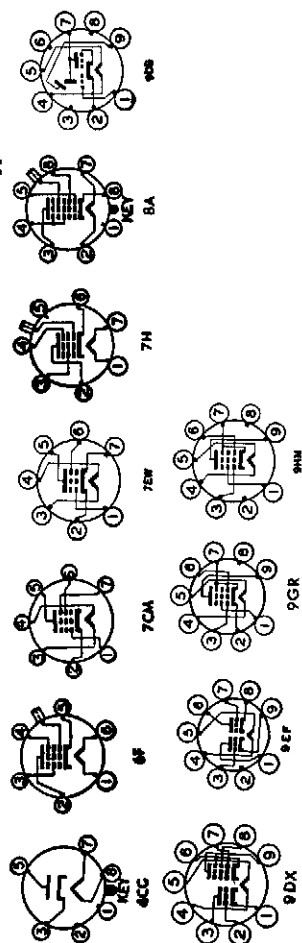
Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts and Watts *	Capacitance in Micromicrofarads		
									Input	Out-put	Grid-plate
6CM7 [†]	Double Triode	9ES	6-3	6.3	0.6	1.25	500	—	Section 1 (Pins 3, 6, 7)		
						5.5	500	—	Section 2 (Pins 1, 8, 9)		
6CM8 [†]	Triode-Pentode	9FZ	6-2	6.3	0.45	2.0	300	300 [‡]	Pentode Section		
						1.0	300	0.5	Triode Section		
6CN7 [†]	Duplex-Diode Triode	9EN	6-2	$\left\{ \begin{matrix} 6.3 \\ 3.15 \end{matrix} \right\}$	$\left\{ \begin{matrix} 0.3 \\ 0.6 \end{matrix} \right\}$	1.0	300	—	1.5 [▲]	0.5 [▲]	1.8 [▲]
									Diode Sections		
6CQ8 [†]	Triode-Tetrode	9GE	6-2	6.3	0.45	2.8	300	300 [‡]	Tetrode Section		
						2.7	300	—	Triode Section		
6CR6	Diode Remote-Cutoff Pentode	7EA	5-2	6.3	0.3	2.5	300	150	—	—	—
6CR8 [†]	Triode-Pentode	9GJ	6-2	6.3	0.45	2.3 [◆]	330 [◆]	330 [◆]	Pentode Section		
						2.75 [◆]	330 [◆]	—	Triode Section		
6CS5	Beam Power Amplifier	9GR	6-3	6.3	1.2	10	300	150	15 [▲]	9.0 [▲]	0.5 [▲]
								1.25			
6CS6	Dual-Control Heptode	7CH	5-2	6.3	0.3	1.0	300	100	5.5	7.5	0.07 [♣]
								1.0			
6CS7 [†]	Twin Triode	9EF	6-3	6.3	0.6	1.25	500	—	Section 1 (Pins 6, 7, 8)		
						6.5	500	—	Section 2 (Pins 1, 3, 9)		
6CS8 [†]	Triode-Pentode	9FZ	6-2	6.3	0.45	2.3 [◆]	330 [◆]	330 [◆]	Pentode Section		
						2.75 [◆]	330 [◆]	—	Triode Section		
6CU5	Beam Power Amplifier	7CV	5-3	6.3	1.2	6.0	135	117	13 [▲]	8.5 [▲]	0.6 [▲]
								1.25			
6CU6	Beam Power Amplifier	6AM	T-X	6.3	1.2	11	600 [‡]	200	15 [▲]	7.0 [▲]	0.6 [▲]
								2.5			
6CU8 [†]	Triode-Pentode	9GM	6-2	6.3	0.45	2.0	300	300 [‡]	Pentode Section		
						2.6	300	—	Triode Section		
6CX7	Medium-mu Twin Triode	9FC	6-2	6.3	0.4	2.0 [♣]	250	—	2.4 ₁	1.3 ₁	1.2 ₁

Metal tubes are shown in bold-face type; miniature tubes in italics.



Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts and Watts	Max Voids	Capacitance in micromicrofarads	
									Input	Grid-plate
6CX8	Triode-Pentode	9DX	6-3	6.3	0.75	5.0	330	330	Pentode Section 1.1	
6CY6	Sharp-Cutoff RF Tetrode	7EW	5-2	6.3	0.2	2.0	330	—	Triode Section	
6CY7	Double Triode	9EF	6-3	6.3	0.75	1.0	180	180	4.5	3.0
						5.5	350	0.5	Section 1 (Pins 6, 7, 8)	0.03
6CZ6	Beam Power Amplifier	9HN	6-4	6.3	0.45	12	350	—	Section 2 (Pins 1, 3, 9)	
6D6	Remote-Cutoff RF Pentode	6F	12-2	6.3	0.3	2.25	300	300	4.7	6.5
6D7	Sharp-Cutoff Pentode	7H	12-2	6.3	0.3	—	300	125	5.2	6.8
6D8-G	Pentagrid Converter	8A	12-8	6.3	0.15	1.0	300	100	Osc I _g = 0.4 ma R _{g1} = 80,000 ohms	0.01
6DA4	Half-Wave High-Vacuum Rectifier	4CG	9-11 or 9-41	6.3	1.2	5.5	—	—	—	—
6DA6	Electron-Ray Indicator	9DB	6-3	6.3	0.3	0.2	300	—	Max Target Volt-age = 300 Min Target Volt-age = 165	
6DA7	Double Triode	9EF	6-3	6.3	1.0	2.0	300	—	Section 1 (Pins 6, 7, 8)	
						6.0	500	—	Section 2 (Pins 1, 3, 9)	
6DB6	Beam Power Amplifier	9GR	T-X	6.3	1.2	10	300	150	13	8.0
								1.25		0.2
6DB6	Dual-Control Pentode	7CM	5-2	6.3	0.3	3.0	300	300	6.0	5.0
6DC6	Semi-Remote-Cutoff Pentode	7CM	5-2	6.3	0.3	2.0	300	300	6.5	2.0
6DE8	Sharp-Cutoff RF Pentode	7CM	5-2	6.3	0.3	2.3	330	330	6.5	3.0
								0.55		0.015

Metal tubes are shown in bold-face type, miniature tubes in *italics*. ©Subminiature type.



Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	R _p , Ohms	Gm, μmhos	μ Fac- tor	Load for Rated Out- put, Ohms	Power Out- put, Watts	Tube Type
Class A Amplifier	200	125	R _k = 68	24	5.2	70,000§	10,000	—	—	—	6CX8
Class A Amplifier	40	125	R _k = 150	40	15.5	—	—	—	—	—	
Class A Amplifier	150	—	R _k = 150	9.2	—	8,700§	4,600	40	—	—	
Class A Amplifier	125	80	1.0	10	1.5	100,000§	8,000	—	—	—	6CY5
Vertical Deflection Oscillator	250	—	3.0	1.2	—	52,000§	1,300	88	—	—	6CY7
Vertical Deflection Amplifier	150	—	R _k = 620	30	—	920§	5,400	5.0	—	—	
Vertical Deflection Amplifier	60	—	0	80	—	—	—	—	—	—	
Vertical Deflection Amplifier	35 ma	—	Max positive pulse plate voltages = 1800 volts; max d-c cathode current = 35 ma	—	—	—	—	—	—	—	
Class A Amplifier	250	250	14	46†	4.6†	73,000§	4,800	—	5000	5.4	6CZ5†
Class AB ₁ Amplifier	75	250	0	130	16	—	—	—	—	—	
Class AB ₁ Amplifier	350	280	23.5	46†	3.0†	—	—	—	7500†	21.5	
Vertical Deflection Amplifier	40 ma	—	Max positive pulse plate voltages = 2,200 volts; max d-c cathode current = 40 ma	—	—	—	—	—	—	—	
Class A Amplifier	250	100	3.0	8.2	2.0	800,000§	1,600	—	—	—	6D6
Class A Amplifier	250	100	3.0	2.0	0.5	1,000,000*	1,225	—	—	—	6D7
Converter	250	100	3.0	3.5	2.6	400,000§	550 #	—	—	—	6D8-G
TV Damper Services	—	—	—	—	—	—	—	—	—	—	6DA4
Tuning Indicator	—	—	—	—	—	—	—	—	—	—	6DA5
Vertical Deflection Oscillator	250	—	8.0	9.0	—	7,700§	2,600	20	—	—	6DA7
Vertical Deflection Amplifier	150	—	17.5	40	—	1,100§	5,700	6.3	—	—	
Vertical Deflection Amplifier	60	—	0	80	—	—	—	—	—	—	
Vertical Deflection Amplifier	40 ma	—	Max positive pulse plate voltages = 1,800 volts; max d-c cathode current = 40 ma	—	—	—	—	—	—	—	
Class A Amplifier	200	125	R _k = 180	46†	2.2†	28,000§	8,000	—	4,000	3.8	6DB5
Vertical Deflection Amplifier	110	110	7.5	49†	4.0†	13,000§	8,000	—	2,000	2.1	
Vertical Deflection Amplifier	—	—	Max positive pulse plate voltages = 2,000 volts; max d-c cathode current = 55 ma	—	—	—	—	—	—	—	
Class A Amplifier	150	150	1.0	5.8	6.6	50,000§	2,050	—	—	—	6DB6
Class A Amplifier	200	150	R _k = 180	9.0	3.0	500,000§	5,500	—	—	—	6DC8
Class A Amplifier	125	125	R _k = 56	15.5	4.2	250,000§	8,000	—	—	—	6DE6
Class A Amplifier	125	125	5.5	—	—	—	700	—	—	—	

♦ Per section.
 ♦♦ Design maximum rating.
 ♦♦♦ For both sections.
 ♣ Minimum.
 ¶ Heater warm-up time controlled for series-string service.
 § Supply voltage.
 § Input plate.
 § The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 Section 1.
 Section 2.
 A resistor of 3 ohms must be put in series with heater.

Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	R _p Ohms	G _m μmhos	μ Fac- tor	Load for Rated Out- put, Ohms	Power Out- put, Watts	Tube Type
Vertical Deflection Oscillator	250	—	11	5.5	—	8,750§	2,000	17.5	—	—	6DE7
	Max d-c cathode current = 22 ma	—	—	—	—	—	—	—	—	—	
	150	—	17.5	35	—	925§	6,500	6.0	—	—	
Vertical Deflection Amplifier	60	—	0	80	—	—	—	—	—	—	6DG6-CT
	Max positive pulse plate voltages = 50 ma	—	—	—	—	—	—	—	—	—	
Class A Amplifier	200	125	R _k = 180	46†	2.2†	28,000§	8,000	—	4,000	3.8	
	110	110	7.5	49†	4.0†	13,000§	8,000	—	2,000	2.1	
Class A Amplifier	90	—	1.3	15	—	—	12,500	33	—	—	6DK6
	125	125	R _k = 56	12	3.8	—	9,800	—	—	—	
Horizontal Deflection Amplifier	125	125	18	70	6.3	4,000§	9,000	—	—	—	6DN6
	50	100	0	240	30	—	—	—	—	—	
	Max positive pulse plate voltages = 3.0 watts; max d-c cathode current = 200 ma	—	—	—	—	—	—	—	—	—	
Vertical Deflection Oscillator	250	—	8.0	8.0	—	9,000§	2,500	22.5	—	—	6DN7
	Max peak negative grid voltage = 400 volts	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	
Vertical Deflection Amplifier	250	—	9.5	41	—	2,000§	7,700	15.4	—	—	6DQ5
	150	—	0	68	—	—	—	—	—	—	
	Max positive pulse plate voltages = 50 ma	—	—	—	—	—	—	—	—	—	
Horizontal Deflection Amplifier	175	125	25	110	5.0	5,500§	10,500	—	—	—	6DQ6
	70	125	0	550	42	—	—	—	—	—	
	Max positive pulse plate voltages = 285 ma	—	—	—	—	—	—	—	—	—	
Horizontal Deflection Amplifier	250	150	22.5	75	2.4	20,000§	6,000	—	—	—	6DQ6-A
	60	150	0	300	27	—	—	—	—	—	
	Max positive pulse plate voltages = 2.5 watts; max d-c cathode current = 120 ma	—	—	—	—	—	—	—	—	—	
Horizontal Deflection Amplifier	250	150	22.5	75	2.4	20,000	6,600	—	—	—	6DR7
	60	150	0	300	27	—	—	—	—	—	
	Max positive pulse plate voltages = 3.0 watts; max d-c cathode current = 140 ma	—	—	—	—	—	—	—	—	—	
Vertical Deflection Oscillator	250	—	3.0	1.4	—	40,000§	1,600	68	—	—	6DS5
	Max d-c cathode current = 20 ma	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	
Vertical Deflection Amplifier	150	—	17.5	35	—	925§	6,500	6.0	—	—	6DT5
	60	—	0	80	—	—	—	—	—	—	
	Max positive pulse plate voltages = 50 ma	—	—	—	—	—	—	—	—	—	
Class A Amplifier	250	200	8.5	29†	3.0†	28,000§	5,800	—	8,000	3.8	6DT6
	200	200	7.5	35†	3.0†	28,000§	6,000	—	6,000	3.0	
Vertical Deflection Amplifier	250	250	16.5	38	2.0	—	6,200	—	—	—	6DT6
	75	250	0	180	35	—	—	—	—	—	
	Max positive pulse plate voltages = 55 ma	—	—	—	—	—	—	—	—	—	
Class A Amplifier FM Limiter Discrimina- tor	160	100	R _k = 560	1.1	2.1	150,000§	800 E _{cs} = 0 volts	—	—	—	6DT6
	250§	100	R _k = 560	0.22	5.5	E _{cs} = -6.0 volts	—	—	270,- 000	—	

- ◆ Per section.
- ◆◆ Design maximum rating.
- ⊕ For both sections.
- * Minimum.
- † Heater warm-up time controlled for series-starting service.
- Supply voltage.
- ① Input plate.
- ② The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
- ③ Section 1.
- ④ Section 2.
- ⑤ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts and Watts *	Capacitance in Micromicrofarads		
									Input	Out-put	Grid-plate
6DE7	Double Triode	9HF	6-3	6.3	0.90	1.5	330	—	Section 1 (Pins 6, 7, 8)		
6DG6-GT	Beam Power Amplifier	7S	9-11 or 9-41	6.3		7.0	275	—	Section 2 (Pins 1, 2, 3, 9)		
6DJ8	Twin Triode	9DE	6-2	6.3	0.365	1.8	130	—	—	—	—
6DK6	Sharp-Cutoff Pentode	7CM	5-2	6.3	0.3	2.0	300	150	6.3	1.9	0.02
6DN6	Beam Power Amplifier	5BT	12-21	6.3	2.5	15	700	175	22	11.5	0.8
6DN7	Double Triode	8BD	9-5	6.3	0.9	1.0	350	—	Section 1 (Pins 4, 5, 6)		
6DQ5	Beam Power Amplifier	8JC	12-21	6.3	2.5	24	900	175	Section 2 (Pins 1, 2, 3)		
6DQ6	Beam Power Amplifier	6AM	T-X	6.3	1.2	15	550	175	15	7.0	0.55
6DQ6-A	Beam Power Amplifier	6AM	T-X	6.3	1.2	15	700	200	15	7.0	0.55
6DR7	Double Triode	9HF	6-3	6.3	0.9	1.0	330	—	Section 1 (Pins 6, 7, 8)		
6DS5	Beam Power Amplifier	7BZ	5-3	6.3	0.8	8.0	250	250	Section 2 (Pins 1, 2, 3, 9)		
6DT5	Beam Power Pentode	9HN	6-3	6.3	1.2	9.0	315	285	12.5	4.9	0.57
6DT6	Sharp-Cutoff Pentode	7EN	5-2	6.3	0.3	1.5	300	300	—	—	—

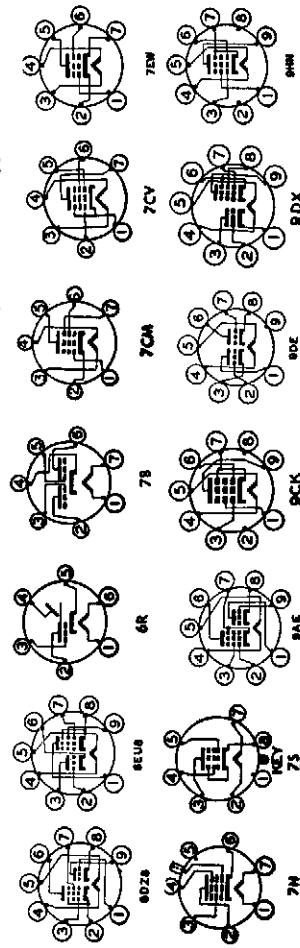
I_a = 0.6 ma

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Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Watts	Capacitance in Micromicrofarads	
								Input	Output
6DT8	High- μ Twin Triode	9DE	6-2	6.3	0.3	2.5	—	2.7	1.6
6DW5	Beam Power Amplifier	9CK	6-4	6.3	1.2	11	220 2.5	14	9.0
6DZ8	Triode-Pentode	6DZ8	T-X	6.3	0.9	6.5	135 1.5	Pentode Section Triode Section	
6E5	Electron-Ray Indicator	6R	9-26	6.3	0.3	—	250	Max target voltage = 250 Min target voltage = 125	
6E6	Twin-Triode Power Amplifier	7B	14-1	6.3	0.6	—	250	Both Sections in Push-pull	
6E7	Remote-Cutoff RF Pentode	7H	12-2	6.3	0.3	—	100	5.2	6.8
6EA5	Sharp-Cutoff RF Tetrode	7EW	5-2	6.3	0.2	3.25	150 0.5	4.5	3.0
6EA8	Triode-Pentode	9AE	6-2	6.3	0.45	3.1	330 0.55	Pentode Section Triode Section	
6EB8	Triode-Pentode	9DX	6-3	6.3	0.75	5.0	330 1.1	Pentode Section Triode Section	
6EP6	Beam Power Amplifier	7S	9-13 or 9-42	6.3	0.9	10	250 2.0	11.5	9.0
6EH5	Power Amplifier Pentode	7CV	5-3	6.3	1.2	5.0	117 1.75	17	9.0
6EH8	Triode-Pentode	9JG	6-2	6.3	0.45	2.8	300 0.5	Pentode Section Triode Section	
6EM5	Beam Power Amplifier	9HN	6-4	6.3	0.8	10	255 1.5	10	5.1
6ES8	Twin Triode	9DE	6-2	6.3	0.365	1.8	—	—	—
6EU8	Triode-Pentode	6EU8	6-2	6.3	0.45	3.1	330 0.55	Pentode Section Triode Section	
6EW6	Sharp-Cutoff RF Pentode	7CM	5-2	6.3	0.4	3.1	330 0.65	10	3.4

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-amperes	Screen Milli-amperes	R _p Ohms	G _m μmhos	Load for Rated Output, Ohms	Power for Rated Output, Watts	Tube Type
Class A Amplifier	250	—	R _k = 200	10	—	10,000	5,500	60	—	6DT8
Vertical Deflection Amplifier	100	—	R _k = 270	3.7	—	15,000	4,000	60	—	6DT8
Class A Amplifier	200	150	22.5	55	2.0	15,000	5,500	—	—	6DW5
Class A Amplifier	145	120	R _k = 180	45	6.0	—	7,500	2,500	2.0	6DZ8
Tuning Indicator	120	—	R _k = 1,500	0.8	—	—	1,400	100	—	6E5
Class A Amplifier	250	—	27.5	18	—	3,500	1,700	14,000	1.6	6E6
Class A Amplifier	250	100	3.0	8.2	2.0	800,000	1,600	—	—	6E7
Class A Amplifier	250	140	1.0	10	0.95	150,000	8,000	—	—	6EA5
Class A Amplifier	125	125	1.0	12	4.0	80,000	6,400	—	—	6EA8
Class A Amplifier	150	—	R _k = 56	18	—	5,000	8,500	40	—	6EA8
Class A Amplifier	200	125	R _k = 68	25	7.0	75,000	12,500	—	—	6EB8
Class A Amplifier	250	—	2.0	2.0	—	37,000	2,700	100	—	6EB8
Vertical Deflection Amplifier	250	250	18	50	2.0	—	5,000	—	—	6EP6
Class A Amplifier	110	115	R _k = 62	42	11.5	11,000	14,600	8,000	1.4	6EH5
Class A Amplifier	125	125	1.0	12	4.0	170,000	6,000	—	—	6EH8
Class A Amplifier	250	250	18	35	3.0	—	5,100	—	—	6EM5
Class A Amplifier	90	—	1.2	15	—	—	12,500	—	—	6ES8
Class A Amplifier	125	125	1.0	12	4.0	80,000	6,400	—	—	6EU8
Class A Amplifier	125	—	R _k = 56	18	—	5,000	8,500	40	—	6EU8
Class A Amplifier	125	125	R _k = 56	11	3.2	200,000	14,000	—	—	6EW6

Approximate.

Without external shield.

Zero signal.

Grids 3 and 5 are screen. Grid 4 is signal-input grid.

Conversion transconductance.

Maximum.

Grids 2 and 4 are screen. Grid 3 is signal-input grid.

Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

Absolute maximum rating.

Plate-to-plate.

Per section.

Design maximum rating.

Both sections.

Minimum.

Heater warm-up time controlled for series-acting service.

Supply voltage.

Input plate.

The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

Section 1.

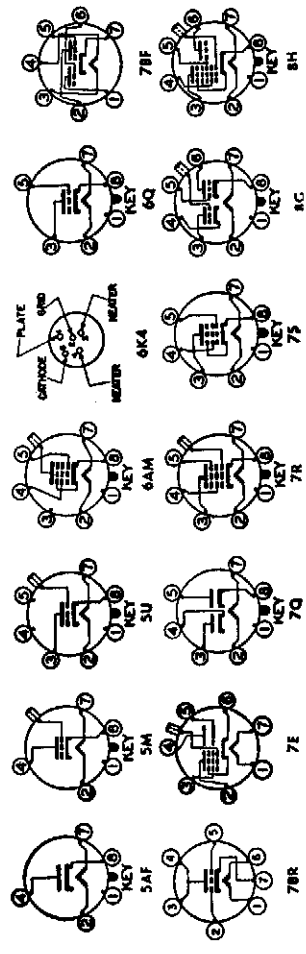
Section 2.

A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
6F4	High-Frequency Triode (Acorn)	7BR	4-2	6.3	0.225	2.0	150	1.9	0.6
6F5-G 6F5-GT	High-Mu Triode	5M	8-4 12-8 9-17 or 9-47	6.3	0.3	—	300	—	—
6F6-G 6F6-GT	Power Amplifier Pentode	7S	8-6 14-3 9-15	6.3	0.7	11	375	Single Tube 2 Tubes, Push-pull	1.8
6F7	Triode-Remote-Cutoff Pentode	7E	12-6	6.3	0.3	1.7 0.4	250 100	Pentode section Triode section	—
6F8-G	Medium-Mu Twin Triode	8G	12-8	6.3	0.6	2.5	300	—	—
6FH6	Beam Power Amplifier	6AM	12-19	6.3	1.2	17	770	33	8.0
6G6-G 6G6-GT	Power Amplifier Pentode	7S	12-7 9-11 or 9-41	6.3	0.15	2.75	300	Pentode connection (G ₂ & P tied)	0.4
6H4-GT	Diode	5AF	9-11	6.3	0.15	—	—	—	—
6H6 6H6-GT	Twin Diode	7Q	8-5 9-11	6.3	0.3	—	—	Tube Voltage Drop: ♦ 11 v at 16 ma d-c	—
6J5 6J5-GT	Medium-Mu Triode	6Q	8-1 9-12	6.3	0.3	2.5	300	3.4 4.2 5.0	3.4 3.6 3.8
6J6 6J6-A	Medium-Mu Twin Triode	7BF	5-2	6.3	0.45	1.5 1.5	300	2.6 1.6 1.0	1.5
6J7 6J7-G 6J7-GT	Sharp-Cutoff Pentode	7R	8-4 12-8 9-18	6.3	0.3	0.75 1.75	300 250	Pentode connection Triode connection (G ₂ , G ₃ & P tied)	—
6J8-G	Triode-Heptode Converter	8H	12-8	6.3	0.3	0.4	300	Osc I _{g1} = 0.4 ma R _{g1} = 50,000 ohms	—
6K4	Medium-Mu Triode	6K4	3-2	6.3	0.15	0.75	150	Triode Section	2.4
6K5-G 6K5-GT	High-Mu Triode	5U	12-8 9-17	6.3	0.3	—	250	2.4 3.6	2.0

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

Ⓜ Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Multiplier	Screen Multiplier	R _p Ohms	G _m μmhos	Load for Rated Output, Ohms	Power Output, Watts	Tube Type
Class A Amplifier	80	—	R _k = 106	13	—	2,900	5,300	17	—	6F4
Class A Amplifier	250	—	2.0	0.9	—	66,000	1,500	—	—	6F5-G 6F5-GT
Class A Amplifier	100	—	1.0	0.4	—	85,000	1,150	100	—	6F5-GT
Class A Amplifier	285	285	20	38†	7.0†	78,000	2,550	7,000	4.8	6F6-G 6F6-GT
Class A Amplifier	250	250	16.5	34†	6.5†	80,000	2,500	7,000	3.2	6F6-G 6F6-GT
Class A Amplifier	315	285	24	62†	12†	—	—	10,000	11	6F6-G 6F6-GT
Class A Amplifier	250	100	3.0	6.5	1.5	850,000	1,100	—	—	6F7
Class A Amplifier	100	—	3.0	3.5	—	16,000	500	8.0	—	6F8-G
Class A Amplifier	250	—	8.0	9.0	—	7,700	2,600	20	—	6F8-G
Horizontal Deflection Amplifier	250	150	22.5	75	1.7	12,000	6,000	—	—	6FH6
Horizontal Deflection Amplifier	60	150	0	300	15	—	—	—	—	6FH6
Class A Amplifier	180	180	9.0	15†	2.5†	175,000	2,300	10,000	1.1	6G4-G 6G4-GT
Class A Amplifier	180	—	12	11†	—	4,750	2,000	9.5	0.25	6G4-G 6G4-GT
Half-Wave Rectifier	—	—	—	—	—	—	—	—	—	6H4-GT
Half-Wave Rectifier	—	—	—	—	—	—	—	—	—	6H4-GT
Class A Amplifier	250	90	8.0	9.0	—	7,700	2,600	20	—	6J5 6J5-GT
Class A Amplifier	100	—	R _k = 50	8.5	—	7,100	5300	38	—	6J6 6J6-A
Class A Amplifier	150	—	10	30	—	Input Signal = 0.35 watt I _{g1} = 16 ma d-c	—	—	3.5	6J6 6J6-A
Class A Amplifier	250	100	3.0	2.0	0.5	1,000,000*	1,225	—	—	6J7 6J7-G 6J7-GT
Class A Amplifier	100	100	3.0	2.0	0.5	1,000,000	1,185	—	—	6J7 6J7-G 6J7-GT
Class A Amplifier	250	—	8.0	6.5	—	10,500	1,900	20	—	6J7 6J7-G 6J7-GT
Converter	250	100	3.0	1.3	3.5	2,500,000	290	E _b (Triode Osc) = 250 thru 20,000 ohms I _b (Triode) = 5.8 ma	—	6J8-G
Class A Amplifier	200	—	R _k = 680	11.5	—	4,650	3,450	16	—	6K4
Class A Amplifier	250	—	3.0	1.1	—	50,000	1,400	70	—	6K5-G 6K5-GT

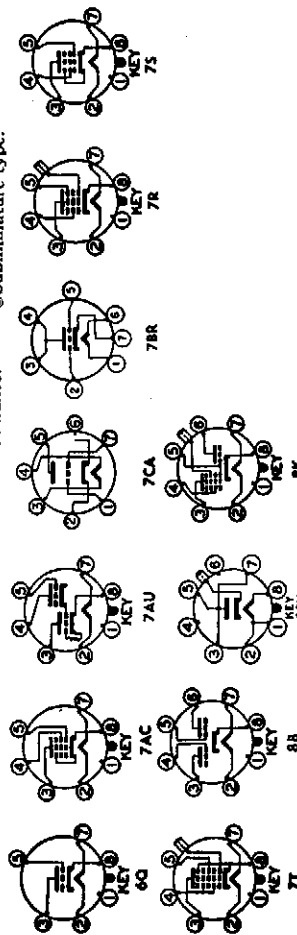
§ Approximate.
▲ Without external shield.
† Zero signal.
‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
Conversion transconductance.
♦ Maximum.
♦♦ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
♦♦♦ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
Ⓜ Absolute maximum rating.
†† Plate-to-plate.

◆ Per section.
◆◆ Design maximum rating.
◆◆◆ For both sections.
† Heater warm-up time controlled for series-string service.
‡ Supply voltage.
‡† Input plate.
‡†† The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
— Section 1.
— Section 2.
— A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
6K6-GT	Power Amplifier Pentode	7S	9-11 or 9-41	6.3	0.4	315	285 2.8	Single Tube	Grid-plate
								2 Tubes, Push-Pull	
								Triode Connection (G ₁ & P tied)	
6K7-G 6K7-GT	Remote-Cutoff RF Pentode	7R	8-4 12-8 9-18	6.3	0.3	300	300 0.35	7.0 12.0 0.005 5.0 12.0 0.007 4.6 12.0 0.005	
6K8 6K8-G 6K8-GT	Triode-Hexode Converter	8K	8-2 12-8 9-24	6.3	0.3	300	150 0.7	Osc I _{st} = 0.15 ma R _{st} = 50,000 ohms	
6L4	Medium-Mu Triode (Acorn)	7BR	4-2	6.3	0.225	500	—	0.5▲ 1.8▲ 1.6▲	
6L5-G	Medium-Mu Triode	6Q	12-7	6.3	0.15	250	—	3.0 5.0 2.7	
6L6 6L6-G 6L6-GA 6L6-GB	Beam Power Amplifier	7AC	10-1 16-3 14-3 12-15	6.3	0.9	360	270 2.5	Single Tube	
								2 Tubes, Push-pull	
								2 Tubes, Push-pull	
								2 Tubes, Push-pull	
6L7 6L7-G	Pentagrid Mixer	7T	8-4 12-8	6.3	0.3	300	100 1.0 150 1.0	E _{g3} (Injection) = 18 v peak*	
6M3	Half-Wave High-Vacuum Rectifier	8GV	T-X	6.3	3.0	8.0	Tube Voltage Drop: 22 v at 640 ma d-c		
6N4	Medium-Mu Triode	7CA	5-1	6.3	0.2	180	—	3.0 1.6 1.1	
6N6-G	Direct-Coupled Power Amplifier Triode	7AU	14-3	6.3	0.8	300	300	—	
6N7 6N7-G 6N7-GT	Twin-Triode Power Amplifier	8B	8-6 14-3 9-11	6.3	0.8	300	—	Both Sections in Push-pull Both Sections in Parallel	
6P5-GT	Medium-Mu Triode	6Q	9-11	6.3	0.3	250	—	3.4 5.5 2.6	

Metal tubes are shown in bold-face type, miniature tubes in italics.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-peres	Screen Milli-peres	R _p Ohms	G _m μmhos	Load for Rated Output, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	315	250	21	25.5†	4.0†	110,000§	2,100	9,000	4.5	6K6-GT
Class A Amplifier	250	230	18	32†	5.5†	90,000§	2,300	7,600	3.4	6K7-G
Class A Amplifier	285	285	R _g = 400	55†	9.0†	104,000§	1,500	12,000	9.8	6K7-GT
Class A Amplifier	285	285	25.5	55†	9.0†	—	—	12,000	10.5	6K6-GT
Vertical Deflection Amplifier	250	—	18	37.5	—	2,500§	2,700	6.8	—	6K7-GT
Max positive pulse plate voltage = 1,200 volts; max d-c cathode current = 25 ma										
Class A Amplifier	250	125	3.0	10.5	2.6	600,000§	1,650	—	—	6K7
Class A Amplifier	250	100	3.0	7.0	1.7	800,000§	1,450	—	—	6K7-G
Class A Amplifier	100	100	1.0	9.5	2.7	150,000§	1,650	—	—	6K7-GT
Converter	250	100	3.0	2.5	6.0	600,000§	350 #	E _g (Triode) = 3.8 ma	—	6K8
Class A Amplifier	80	—	R _g = 150	9.5	—	4,400	6400	28	—	6L4
Class A Amplifier	250	—	9.0	8.0	—	9,000	1,900	17	—	6L5-G
Class A Amplifier	250	250	14	72†	5.0†	22,500	6,000	2,500	6.5	6L6
Class A Amplifier	350	250	18	54†	2.5†	33,000	5,200	4,200	10.8	6L6-GA
Class A Amplifier	270	270	17.5	134†	11†	23,500	5,700	5,000	17.5	6L6-GB
Class AB ₁ Amplifier	360	270	22.5	88†	5.0†	—	—	3,800	18	6L7
Class AB ₂ Amplifier	360	270	22.5	88†	5.0†	—	—	3,800	47	6L7-G
Class A Amplifier	250	—	20	40†	—	1,700	4,700	8.0	5,000 1.4	6L7-G
Class A Amplifier	250	100	3.0	5.3	6.5	600,000§	1,100	E _g = -3.0 volts	—	6M3
Class A Amplifier	250	150	6.0*	3.3	9.2	1,000,000*	350 #	E _g = -15 volts	—	6N4
Max d-c output current = 320 ma; max peak inverse voltage = 6,000 volts; max peak current = 1,100 ma										
Class A Amplifier	180	—	3.5	12	—	5,400§	6,000	32	—	6N4
Class A Amplifier	300	300	0	45	8.0	24,000§	2,400	7,000	4.0	6N6-G
Class B Amplifier	300	—	0	35†	—	—	—	8,000‡	10§	6N7
Class A Amplifier	294	—	8.0	7.0	—	11,000	3,200	35	—	6N7-GT
Class A Amplifier	250	—	13.5	5.0	—	9,500	1,450	13.8	—	6P5-GT

Approximate.

Without external shield.

Zero signal.

Grids 3 and 5 are screen. Grid 4 is signal-input grid.

Conversion transconductance.

Maximum.

Grids 2 and 4 are screen. Grid 3 is signal-input grid.

Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

Absolute maximum rating.

Plate-to-plate.

Per section.

Design maximum rating.

For both sections.

Minimum.

Heater warm-up time controlled for series-string service.

Supply voltage.

Input plate.

The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

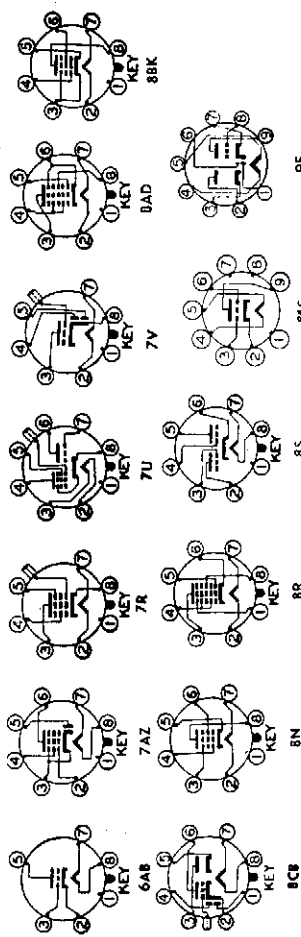
Section 1.

Section 2.

A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Plate Volts	Screen Volts and Watts	Capacitance in Micromicrofarads		
									Input	Output	Grid-plate
6P7-G	Triode-Pentode	7U	12-8	6.3	0.3	1.7	250	100	Pentode Section		
						0.4	100	—	Triode Section		
6O7	Duplex-Diode High-Mu Triode	7V	8-4 12-8	6.3	0.3	—	300	—	—	—	—
6O7-GT			12-8 9-18								
6R7	Duplex-Diode Medium-Mu Triode	7V	8-4 12-8	6.3	0.3	2.5	250	—	4.8	3.8	2.4
6R7-GT			9-17								
6R8	Triple-Diode, Low-Mu Triode	9E	6-2	6.3	0.45	2.5	250	—	—	—	—
6S4	Medium-Mu Triode	9AC	6-3	6.3	0.6	8.5	550	—	4.2	0.6	2.4
6S4-A†	Medium-Mu Triode	9AC	6-3	6.3	0.6	8.5	550	—	4.2	0.6	2.4
6S7	Remote-Cutoff RP Pentode	7R	8-2 12-8	6.3	0.15	2.25	300	300 0.25	6.5	10.5	0.005
6S7-G									4.4	8.0	0.008
6S8-GT	Triple-Diode, High-Mu Triode	8CB	9-23 or 9-48	6.3	0.3	0.5	300	—	—	—	—
6SA7	Pentagrid Converter	8R▼ 8AD▼	8-1 9-11 or 9-41	6.3	0.3	1.0	300	100 1.0	Osc $I_{s1} = 0.5$ ma $R_{s1} = 20,000$ ohms		
6SB7-Y	Pentagrid Converter	8R▼	8-1	6.3	0.3	2.0	300	100 1.5	Osc $I_{s1} = 0.35$ ma $R_{s1} = 20,000$ ohms		
6SC7	High-Mu Twin-Triode	8S	8-1 9-11	6.3	0.3	—	250	—	—	—	—
6SD7-GT	Semi-Remote-Cutoff Pentode	8N	9-12	6.3	0.3	4.0	300	125 0.4	9.0	7.5	0.0035
6SE7-GT	Sharp-Cutoff Pentode	8N	9-12	6.3	0.3	4.0	300	125 0.4	8.0	7.5	0.005
6SF6	High-Mu Triode	6AB	8-1 9-11	6.3	0.3	—	300	—	—	—	—
6SF6-GT											
6SF7	Diode Remote-Cutoff Pentode	7AZ	8-1	6.3	0.3	3.5	300	100	5.5	6.0	0.004
6SG7	Semi-Remote-Cutoff RP Pentode	8BK	8-1 9-12	6.3	0.3	3.0	300	300 0.6	8.5	7.0	0.003
6SG7-GT									8.5	7.0	0.0035
6SH7	Sharp-Cutoff RP Pentode	8BK	8-1 9-12	6.3	0.3	3.0	300	300 0.7	8.5	7.0	0.003
6SH7-GT											
6SJ7	Sharp-Cutoff Pentode	8N	8-1 9-12	6.3	0.3	2.5	300	300 0.4	Pentode Connection		
6SJ7-GT						2.5	250	—	Triode Connection (C & B Grid)		

Metal tubes are shown in bold-face type; miniature tubes in italics.



Subminiature tube

§ Approximate.
 † Without external shield.
 ‡ Zero signal.
 § Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 # Conversion transconductance.
 * Maximum.
 †† Grids 2 and 4 are screen. Grid 3 is signal-input grid.
 ‡‡ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 §§ Absolute maximum rating.
 ¶ Plate-to-plate.

♦ Per section.
◆ Design maximum rating.
⊕ For both sections.

- * Minimum.
- † Heater warm-up time controlled for series-string service.
- ‡ Supply voltage.
- § Input plate.
- || The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
- Section 1.
- Section 2.
- A resistor of 3 ohms must be put in series with heater.

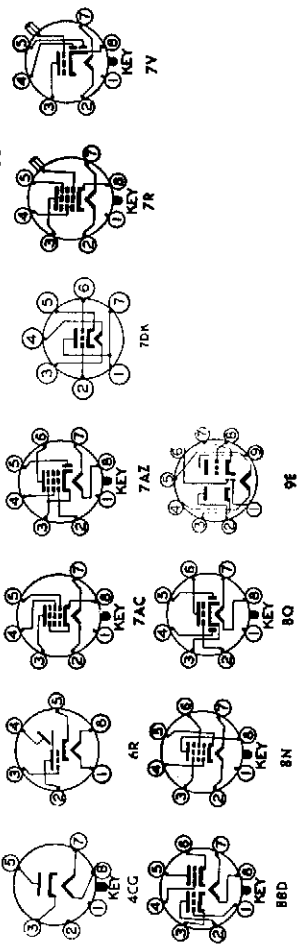
Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Picofarads	
									Input	Out-put
6SK7 6SK7-GT	Remote-Cutoff RF Pentode	8N	8-1 9-12	6.3	0.3	4.0	300	300 $\frac{1}{2}$ 0.4	6.0	7.0
6SL7-GT	High-Mu Twin-Triode	8BD	9-11 or 9-41	6.3	0.3	1.0 $\frac{1}{2}$	300	—	6.5	7.5
6SN7-GT	Medium-Mu Twin Triode	8BD	9-11 or 9-41	6.3	0.6	3.5 $\frac{1}{2}$ 5.0 $\frac{1}{2}$	300	—	—	—
6SN7-GTA 6SN7-GTB $\frac{1}{2}$	Medium-Mu Twin Triode	8BD	9-11 or 9-41	6.3	0.6	5.0 $\frac{1}{2}$ 7.5 $\frac{1}{2}$	450	—	2.8 $\frac{1}{2}$ 3.0 $\frac{1}{2}$	0.8 $\frac{1}{2}$ 1.2 $\frac{1}{2}$
6SO7 6SO7-GT	Duplex-Diode, High-Mu Triode	8Q	8-1 9-12	6.3	0.3	0.5	300	—	—	—
6SR7 6SR7-GT	Duplex-Diode, Medium-Mu Triode	8Q	8-1 9-11	6.3	0.3	2.5	250	—	3.2 4.2 $\frac{1}{2}$	3.0 3.4 $\frac{1}{2}$
6SS7	Remote-Cutoff RF Pentode	8N	8-1	6.3	0.15	2.25	300	100 0.35	5.5	7.0
6ST7	Duplex-Diode, Medium-Mu Triode	8Q	8-1	6.3	0.15	2.5	250	—	2.8	3.0
6SU7-GTY	High-Mu Twin-Triode	8BD	9-11	6.3	0.3	1.0 $\frac{1}{2}$	250	—	—	—
6SV7	Diode Sharp-Cutoff RF Pentode	7AZ	8-1	6.3	0.3	2.3	300	300 $\frac{1}{2}$ 0.6	6.5	6.0
6SZ7	Duplex-Diode High-Mu Triode	8Q	8-1	6.3	0.15	—	300	—	2.6	2.8
6T4	UHF Triode Oscillator	7DK	5-1	6.3	0.225	3.5	200	—	2.6 $\frac{1}{2}$	0.4 $\frac{1}{2}$
6T5	Electron-Ray Indicator	6R	9-26	6.3	0.3	—	250 $\frac{1}{2}$	—	—	—
6T7-G	Duplex-Diode High-Mu Triode	7V	12-8	6.3	0.15	—	250	—	1.8	3.1
6T8 6T8-A $\frac{1}{2}$	Triode-Diode High-Mu Triode	9E	6-2	6.3	0.45	1.0	300	—	1.7	1.7
6U4-GT	Half-Wave High-Vacuum Rectifier	4CG	9-13	6.3	1.2	—	—	—	—	—
6U5	Electron-Ray Indicator	6R	9-26	6.3	0.3	—	—	—	—	—
6U6-GT	Beam Power Amplifier	7AC	9-11	6.3	0.75	11	200	135 2.0	—	—
6U7-G	Remote-Cutoff RF Pentode	7R	12-4	6.3	0.3	2.25	300	100 0.25	5.0	9.0

Tube Voltage Drop:
21 v at 250 ma d-c

Max target voltage = 285
Min target voltage = 125

Metal tubes are shown in bold-face type, miniature tubes in italics.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	R _p , Ohms	G _m , μmhos	Load for Rated Out- put, Ohms	Power Out- put, Watts	Tube Type
Class A Amplifier	250	100	3.0	9.2	2.5	800,000	2,000	—	—	6SK7
	100	100	1.0	13	4.0	120,000	2,350	—	—	6SK7-GT
Class A Amplifier ♦	250	—	2.0	2.3	—	44,000	1600	70	—	6SL7-GT
Class A Amplifier ♦	250	—	8.0	9.0	—	7,700	2600	20	—	6SN7-GT
	90	—	0	10	—	6,700	3000	20	—	—
Class A Amplifier ♦	250	—	8.0	9.0	—	7,700	2,600	20	—	6SN7-GTA
	90	—	0	10	—	6,700	3,000	20	—	6SN7-GTB ¶
Vertical Deflection Amplifier ♦	Max positive pulse plate voltage, E _b = 1500 volts; max plate dissipation Φ = 7.5 watts; max d-c cathode current = 20 ma									
Class A Amplifier	250	—	2.0	1.1	—	85,000	1175	100	—	6S07
Class A Amplifier	100	—	1.0	0.5	—	110,000	925	100	—	6S07-GT
Class A Amplifier	250	—	9.0	9.5	—	8,500	1,900	16	—	6SR7
Class A Amplifier	250	100	3.0	9.0	2.0	1,000,000	1,850	—	—	6SR7-GT
Class A Amplifier	250	—	9.0	9.5	—	8,500	1,900	16	—	6SS7
Class A Amplifier ♦	250	—	2.0	2.3	—	44,000	1,600	70	—	6ST7
Class A Amplifier	250	150	1.0	7.5	2.8	1,500,000	3,600	—	—	6SU7-GTY
Class A Amplifier	100	100	1.0	3.7	1.4	700,000	2,800	—	—	6SV7
Class A Amplifier	250	—	3.0	1.0	—	58,000	1,200	70	—	6SZ7
Class A Amplifier	80	—	R _k = 150	18	—	1,860	7,000	13	—	6T4
Tuning Indicator	Plate voltage = 250 thru 1 meg, target voltage = 250 (E _g = -22 volts for max illumination) (E _g = 0 volts for min illumination)									
Class A Amplifier	250	—	3.0	1.2	—	62,000	1,050	65	—	6T7-G
Class A Amplifier	250	—	3.0	1.0	—	58,000	1,200	70	—	6T8
Class A Amplifier	100	—	1.0	0.8	—	54,000	1,300	70	—	6T8-A ¶
Half-Wave Rectifier TV Damp- ing Service	Max d-c output current = 125 ma; max peak inverse voltage = 1250 volts; rms supply voltage = 350 volts; max peak current = 600 ma Max d-c output current = 125 ma; max peak inverse voltage Φ = 3850 volts; max peak current = 600 ma									
Tuning Indicator	Plate voltage = 250 thru 1 meg, target voltage = 250 (E _g = -22 volts, shadow = 0°) (E _g = 0 volt, shadow = 90°; plate current = 0.24 ma, target current Φ = 4 ma)									
Class A Amplifier	200	135	14.0	155	3.0	20,000	6,200	—	3,000	5.5
Class A Amplifier	250	100	3.0	8.2	2.0	800,000	1,600	—	—	6U6-GT
Class A Amplifier	250	100	3.0	8.2	2.0	800,000	1,600	—	—	6U7-G

§ Approximate.

▲ Without external shield.
† Zero signal.

Grids 3 and 5 are screen.

Conversion transconduct

♣ Maximum.
♥ Grids 2 and 4 are screen.

input grid.

Maximum screen size given, appears immediately.

maximum screen voltage
a numerical value less than

⊙ Absolute maximum rating
† Plate-to-plate.

1

♣ Per Section.

◆ Design maxi

* Minimum.

Heater wall series-string

Supply voltage
Input plate

—The duration not exceed

not exceed
cycle.

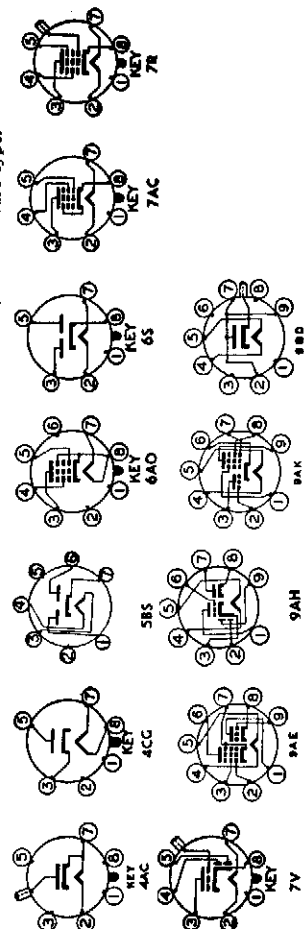
Section 1.
Section 2.

—A resistor of
with heater.

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Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Element Volts	Element Amp	Max Plate Watts	Max Screen Watts	Capacitance in Micromicrofarads	Input	Output	Grid-plate
6U8 6U8-A ∇	Triode-Pentode	9AE	6-2	6.3	0.45	3.0 $\diamond$	330 $\diamond$	330 $\diamond$	330 $\diamond$	Pentode Section 0.55 $\diamond$	Triode Section
6V3 6V3-A	Half-Wave High-Vacuum Rectifier	9HD	6-7 T-X	6.3	1.75	2.7	—	Tube Voltage Drop: 19 v at 250 ma d-c	—	—	—
6V5-GT	Beam Power Amplifier	6AO	9-11	6.3	0.45	12	285	2.0	—	—	—
6V6	Beam Power Amplifier	7AC	8-6	6.3	0.45	12	315	2.0	Single Tube	—	—
6V6-GT 6V6-GTA ∇	Beam Power Amplifier	7AC	9-11 or 9-41	6.3	0.45	12	315	2.0	Single Tube	—	—
6V7-G	Duplex-Diode Medium-Mu Triode	7V	12-8	6.3	0.3	—	250	—	2.0	3.5	1.7
6V8	Triode-Diode, High-Mu Triode	9AH	6-2	6.3	0.45	1.0	300	—	—	—	—
6W4-GT	Half-Wave High-Vacuum Rectifier	4CG	9-11 or 9-41	6.3	1.2	3.5	—	Tube Voltage Drop: 21 v at 250 ma d-c	—	—	—
6W5-G	Full-Wave High-Vacuum Rectifier	6S	12-7	6.3	0.9	—	—	Tube Voltage Drop: 24 v at 90 ma d-c	—	—	—
6W6-GT	Beam Power Amplifier	7AC	9-11 or 9-41	6.3	1.2	10	300	1.25	Pentode Connection	—	—
6W7-G	Sharp-Cutoff Pentode	7R	12-8	6.3	0.15	0.5	300	0.1	Triode Connection (G ₂ & P tied)	8.5	0.007 $\diamond$
6X4	Full-Wave High-Vacuum Rectifier	5BS	5-3	6.3	0.6	—	—	Tube Voltage Drop: 22 v at 70 ma d-c	—	—	—
6X5 6X5-GT	Full-Wave High-Vacuum Rectifier	6S	8-6 9-11	6.3	0.6	—	—	Tube Voltage Drop: 22 v at 70 ma d-c	—	—	—
6X8	Triode-Pentode Converter	9AK	6-2	6.3	0.45	2.3 $\diamond$	275 $\diamond$	0.45 $\diamond$	Pentode Section	—	—
6X8-A ∇	—	—	—	—	—	1.7 $\diamond$	275 $\diamond$	—	Triode Section	—	—
6Y3-G	Half-Wave High-Voltage Rectifier	4AC	12-8	6.3	0.7	—	—	—	—	—	—

Metal tubes are shown in bold-face type, miniature tubes in italics.

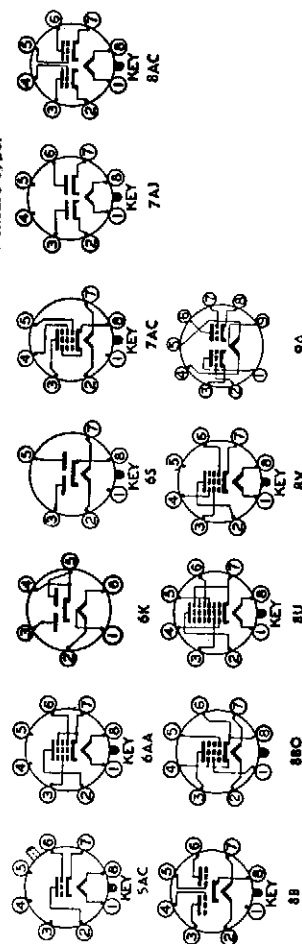


Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	R _p , Ohms	G _m , μmhos	" Fac- tor	Load for Rated Out- put, Ohms	Power Out- put, Watts	Tube Type
Class A Amplifier	125	110	1.0	9.5	3.5	200,000Ω	5,000	—	—	—	6U8 6U8-A¶
Class A Amplifier	125	—	1.0	13.5	—	—	7,500	40	—	—	—
Max d-c output current = 135 ma; max peak inverse voltage □ = 6000 volts; max peak current = 800 ma											
TV Damp- er Services	315 250	225 250	13 12.5	34½ 45½	2.2½ 4.5½	77,000Ω 52,000Ω	3,750 4,100	—	8,500 5,000	5.5 4.5	6V5-GT
Class A Amplifier	315	225	13	34½	2.2½	80,000Ω	3,750	—	8,500	5.5	6V6
Class A Amplifier	250	250	12.5	45½	4.5½	50,000Ω	4,100	—	5,000	4.5	—
Class AB ₁ Amplifier	180 250	180 250	8.5 15	29½ 70½	3½ 5½	50,000Ω 60,000Ω	3,700 3,750	—	5,500 10,000½	2.0 1.0	—
Class A Amplifier	315	225	13	34½	2.2½	80,000Ω	3,750	—	8,500	5.5	6V6-GT
Class A Amplifier	250	250	12.5	45½	4.5½	50,000Ω	4,100	—	5,000	4.5	6V6- GTA¶
Class AB ₁ Amplifier	180 250	180 250	8.5 15	29½ 70½	3½ 5½	50,000Ω 60,000Ω	3,700 3,750	—	5,500 10,000½	2.0 1.0	—
Class A Amplifier	315	225	13	34½	2.2½	80,000Ω	3,750	9.8	8,500	5.5	—
Class A Amplifier	250	250	12.5	49.5	4.5	1,960Ω	5,000	—	10,000½	10	—
Max positive pulse plate voltages □ = 1200 volts; max d-c cathode current = 35 ma											
Class A Amplifier	250	—	20	8.0	—	7,500	1,100	8.3	20,000	0.350	6V7-G
Class A Amplifier	250	—	3.0	1.0	—	58,000Ω	1,200	70	—	—	6V8
Class A Amplifier	100	—	1.0	0.8	—	54,000Ω	1,300	70	—	—	—
Max d-c output current = 125 ma; max peak inverse voltage □ = 3850 volts; max peak current = 750 ma											
TV Damp- er Services	200	125	R _g = 180	46½	2.2½	28,000Ω	8,000	—	4,000	3.8	6W4-GT
Full-Wave Rectifier	110	110	7.5	49½	4.0½	13,000Ω	8,000	—	2,000	2.1	6W5-G
Class A Amplifier	225	110	30	22	—	1,600Ω	3,800	6.2	—	—	6W6-GT
Class A Amplifier	250	100	3.0	2.0	0.5	1,500,000Ω	1,225	—	—	—	6W7-G
Class A Amplifier	250	100	3.0	2.0	0.5	1,500,000Ω	1,225	—	—	—	6X4
Full-Wave Rectifier	125	125	1.0	9.0	2.2	300,000Ω	5,500	—	—	—	6X5 6X5-GT
Full-Wave Rectifier	125	125	1.0	12	—	6,000Ω	6,500	40	—	—	6X8 6X8-A¶
Class A Amplifier	125	125	1.0	9.0	2.2	300,000Ω	5,500	—	—	—	—
Class A Amplifier	125	125	1.0	12	—	6,000Ω	6,500	40	—	—	—
Max d-c output current = 7.5 ma; max peak inverse voltage = 14,000 volts; max rms supply voltage = 5,000 volts; max peak current = 100 ma											

Tube Type	Classification by Construction	Base Connections	Out- line Dwg No.	Fila- ment Volts	Fila- ment Amp	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
6Y6-G 6Y6-GT	Beam Power Amplifier	7AC	14-3 12-14 9-11	6.3	1.25	112.5	200 1.75	15.0 Δ	11.0 Δ
6Y7-G	Twin-Triode Power Amplifier	8B	12-7	6.3	0.6	11.5 Φ	—	Both Sections in Push-pull	
6Z5	Full-Wave High-Vacuum Rectifier	6K	12-5	6.3 12.6	0.8 0.4	—	—	—	—
6Z7-G	Twin-Triode Power Amplifier	8B	12-7	6.3	0.3	4.0 Φ	—	Both Sections in Push-pull	
6ZY5-G	Full-Wave High-Vacuum Rectifier	6S	12-7	6.3	0.3	—	—	Tube Voltage Drop: Φ 18 v at 40 ma d-c	
7A4	Medium-Mu Triode	5AC	9-30	6.3	0.3	2.5	300	3.4	3.0
7A5	Beam Power Amplifier	6AA	9-31	6.3	0.75	5.5	125	—	—
7A6	Twin Diode	7AJ	9-30	6.3	0.15	—	—	Tube Voltage Drop: Φ 11 v at 16 ma d-c	
7A7	Remote-Cutoff RF Pentode	8V	9-30	6.3	0.3	4.0	250	6.0	7.0
7A8	Octode Converter	8U Φ	9-30	6.3	0.15	1.0	300	0.4	0.005
7AB7	Sharp-Cutoff RF Pentode	8BO	9-32	6.3	0.15	1.2	300	100	7.0
7AD7	Power Amplifier Pentode	8V	9-31	6.3	0.6	10	300	0.15	0.06
7AF7	Medium-Mu Twin Triode	8AC	9-30	6.3	0.3	2.5 Φ	300	11.5	7.5
7AG7	Sharp-Cutoff RF Pentode	8V	9-30	6.3	0.15	2.0	300	—	2.3
7AH7	Remote-Cutoff RF Pentode	8V	9-30	6.3	0.15	2.0	300	7.0	6.0
7AJ7	Sharp-Cutoff RF Pentode	8V	9-30	6.3	0.3	1.0	300	0.75	0.005
7AK7	Sharp-Cutoff Dual-Control Pentode	8V	9-31	6.3	0.8	8.5	100	6.0	6.5
7AU7 ∇	Medium-Mu Twin Triode	9A	6-2	7.0 3.5	0.3 0.6	2.75 Φ	300	12.0	9.5
7B4	High-Mu Triode	5AC	9-30	6.3	0.3	—	—	1.8	2.0

Metal tubes are shown in bold-face type, miniature tubes in italics.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	R _p Ohms	G _m μmhos	Load for Rated Out- put, Ohms	Power for Out- put, Watts	Tube Type
Class A Amplifier	200	135	14	61 ∇	2.23 ∇	18,300 ∇	7,100	—	2,600	6.0
Class B Amplifier	260	—	0	5.3 ∇	—	—	—	—	14,000 ∇	8.0 ∇
Full-Wave Rectifier	Max d-c output current = 60 ma; max peak inverse voltage = 1500 volts	—	—	—	—	—	—	—	—	—
Class B Amplifier	180	—	0	4.2 ∇	—	—	—	Input signal = 0.320 watts	12,000 ∇	4.2
Full-Wave Rectifier	Max d-c output current = 40 ma; max peak inverse voltage = 1250 volts; max rms supply voltage per plate = 325 volts; max peak current per plate = 120 ma	—	—	—	—	—	—	—	—	—
Class A Amplifier	250	—	8.0	9.0	—	7,700 ∇	2,600	—	—	—
Class A Amplifier	110	110	7.5	40 ∇	3.0 ∇	16,000 ∇	5,800	—	2,500	1.5
Half-Wave Rectifier	Max d-c output current per plate = 8 ma; max rms supply voltage per plate = 150 volts; max peak current per plate = 45 ma	—	—	—	—	—	—	—	—	—
Class A Amplifier	250	100	3.0	9.2	2.6	800,000	2,000	—	—	—
Converter	250	100	3.0	3.0	3.2	700,000 ∇	550 ∇	—	—	—
Class A Amplifier	250	100	2.0	4.0	1.3	500,000 ∇	1,800	—	—	—
Class A Amplifier	300	150	R _k = 28 68	28	7.0	300,000 ∇	9,500	—	—	—
Class A Amplifier	250	—	10	9.0	—	7,600	2,100	—	—	—
Class A Amplifier	250	250	R _k = 250	6.0	2.0	1,000,000 ∇	4,200	—	—	—
Class A Amplifier	250	250	R _k = 250	6.8	1.9	1,000,000 ∇	3,300	—	—	—
Class A Amplifier	100	100	1.0	5.7	1.8	400,000 ∇	2,275	—	—	—
Class A Amplifier	150	150	0	40	21	11,500 ∇	6,000	—	—	—
Class A Amplifier	150	150	0	2.5 Φ	0.45	—	—	—	—	—
Class A Amplifier	250	—	8.5	10.5	—	7,700 ∇	2,200	—	—	—
Vertical Deflection Amplifier	100	—	0	11.8	—	6,500 ∇	3,100	—	—	—
Class A Amplifier	250	—	2.0	0.9	—	66,000	1,500	—	—	—

Approximate.

Without external shield.

Zero signal.

Grids 3 and 5 are screen. Grid 4 is signal.

Input grid.

Conversion transconductance.

Maximum.

Grids 2 and 4 are screen. Grid 3 is signal.

Input grid.

Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

Absolute maximum rating.

Plate-to-plate.

Per section.

Design maximum rating.

For both sections.

Minimum.

Heater warm-up time controlled for series-string service.

Supply voltage.

Input plate.

The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

Section 1.

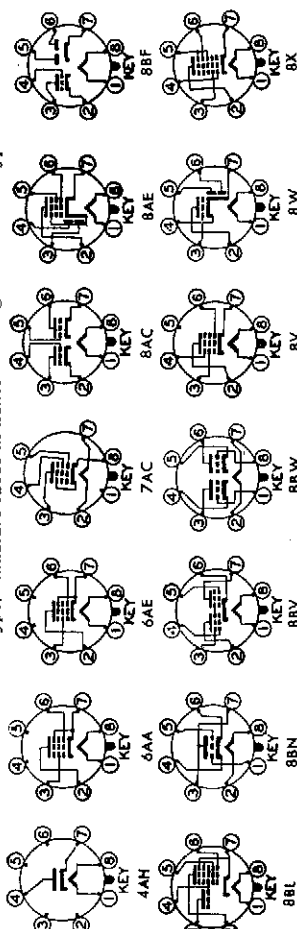
Section 2.

A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
7B5	Power Amplifier Pentode	6AE	9-31	6.3	0.4	8.5	315	285	—
7B6	Duplex-Diode High-Mu Triode	8W	9-30	6.3	0.3	0.5	300	—	—
7B7	Remote-Cutoff RF Pentode	8V	9-30	6.3	0.15	2.25	300	100	6.0
7B8	Pentagrid Converter	8X	9-30	6.3	0.3	1.0	300	100	0.004
								Osc $I_{a1} = 0.4$ ma $R_{a1} = 50,000$ ohms	
7C4	High-Frequency Diode	4AH	9-30	6.3	0.15	—	—	—	—
								Tube Voltage Drop: 11 v at 10 ma d-c	
7C5	Beam Power Amplifier	6AA	9-31	6.3	0.45	12	315	285	—
7C6	Duplex-Diode High-Mu Triode	8W	9-30	6.3	0.15	0.6	300	—	—
7C7	Sharp-Cutoff Pentode	8V	9-30	6.3	0.15	1.0	300	100	0.007
								5.5	6.5
7E5	High-Frequency Triode	8BN	9-30	6.3	0.15	4.0	250	—	1.5
7E6	Duplex-Diode Medium-Mu Triode	8W	9-30	6.3	0.3	2.5	250	—	—
7E7	Duplex-Diode Remote-Cutoff Pentode	8AE	9-30	6.3	0.3	2.0	250	100	0.005
7EY6	Beam Pentode	7AC	9-15	7.2	0.6	11	350	300	0.7
								8.5	7.0
7F7	High-Mu Twin Triode	8AC	9-30	6.3	0.3	1.0	250	—	—
7F8	High-Frequency Twin Triode	8BW	9-32	6.3	0.3	3.5	300	—	1.6
7G7	Sharp-Cutoff Pentode	8V	9-30	6.3	0.45	1.5	250	100	0.007
7G8	Sharp-Cutoff Twin Tetra	8BV	9-32	6.3	0.3	1.5	300	300	0.15
7H7	Semi-Remote-Cutoff RF Pentode	8V	9-30	6.3	0.3	2.5	300	300	0.004
7J7	Triode Heptode Converter	8BL	9-30	6.3	0.3	0.5	300	100	—
								Osc $I_{a1} = 0.4$ ma $R_{a1} = 50,000$ ohms	
7K7	Duplex-Diode High-Mu Triode	8BP	9-30	6.3	0.3	—	250	—	—
7L7	Sharp-Cutoff Pentode	8V	9-30	6.3	0.3	4.0	300	125	0.01

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

⑥ Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p , Ohms	Gm, μ mhos	Load for Rated Output, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	315	250	21	25.3†	4.0†	75,000	2,100	9,000	4.5	7B5
	250	250	18	32†	5.5†	68,000	2,500	7,600	3.4	
Class A Amplifier	250	—	2.0	0.9	—	91,000†	1,100	—	—	7B6
	100	—	1.0	0.4	—	110,000†	900	—	—	
Class A Amplifier	250	100	3.0	8.5	1.7	750,000	1,750	—	—	7B7
	100	100	3.0	8.2	1.8	300,000	1,675	—	—	
Converter	250	100	3.0	3.5	2.7	360,000†	550 #	E _{b2} (Osc Plate) = 250 thru 20,000 ohms $I_{a2} = 4.0$ ma	—	7B8
Half-Wave Rectifier	Max d-c output current = 5.0 ma; max rms supply voltage = 117 volts									
Class A Amplifier	315	225	13.0	34†	2.2†	77,000†	3,750	8,500	5.5	7C5
	250	250	12.5	45†	4.5†	52,000†	4,100	5,000	4.5	
Class A Amplifier	250	—	1.0	1.3	—	100,000†	1,000	—	—	7C6
	100	—	0	1.0	—	100,000†	850	—	—	
Class A Amplifier	250	100	3.0	2.0	0.5	2,000,000†	1,300	—	—	7C7
Class A Amplifier	180	—	3.0	5.5	—	12,000	3,000	36	—	7E5
Class A Amplifier	250	—	9.0	9.5	—	8,500	1,900	16	—	7E6
Class A Amplifier	250	100	3.0	7.5	1.6	700,000†	1,300	—	—	7E7
Vertical Deflection Amplifier	250	250	17.5	44	3.0	60,000†	4,400	—	—	7BY6
	30	250	0	133	21	—	—	—	—	
	Max positive pulse plate voltage = 2.500 volts; max d-c cathode current = 60 ma									
Class A Amplifier	250	—	2.0	2.3	—	44,000†	1,600	70	—	7F7
Class A Amplifier	250	—	R _k = 500	6.0	—	—	3,300	48	—	7F8
Class A Amplifier	250	100	2.0	6.0	2.0	800,000†	4,500	—	—	7G7
Class A Amplifier	250	100	2.5	4.5	0.8	225,000†	2,100	—	—	7G8
Class A Amplifier	250	150	R _k = 180	10	3.2	800,000†	4,000	—	—	7H7
	100	100	1.5	7.5	2.6	350,000†	4,000	—	—	
Converter	250	100	3.0	1.4	2.8	1,500,000†	290 #	E _b (Triode Osc) = 250 thru 20,000 ohms I_{b} (Triode) = 5.0 ma	—	7J7
Class A Amplifier	250	—	2.0	2.3	—	44,000	1,600	70	—	7K7
Class A Amplifier	250	100	1.5	4.5	1.5	1,000,000†	3,100	—	—	7L7

§ Approximate.

† Without external shield.

‡ Zero signal.

§ Grids 3 and 5 are screen. Grid 4 is signal-input grid.

Conversion transconductance.

♦ Maximum.

♦♦ Grids 2 and 4 are screen. Grid 3 is signal-input grid.

♦♦♦ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

Ⓔ Absolute maximum rating.

‡ Plate-to-plate.

♦ Per section.

♦♦ Design maximum rating.

♦♦♦ For both sections.

† Heater warm-up time controlled for series-string service.

‡ Supply voltage.

♦ Input plate.

♦♦ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

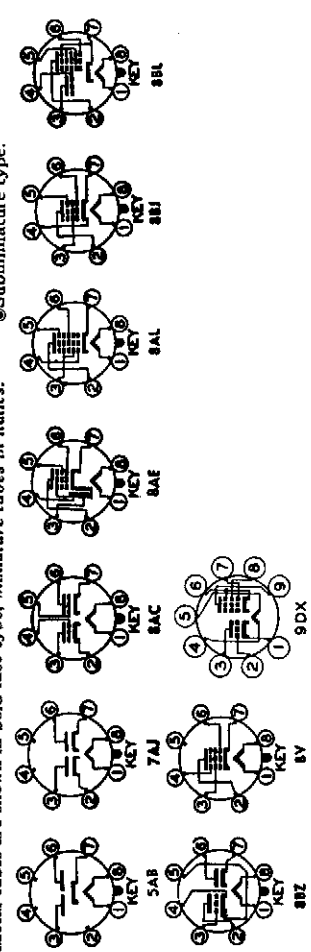
1—Section 1.

2—Section 2.

† A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Plate Volts	Max Screen and Control Grid Volts	Capacitance in Micromicrofarads	
									Input	Output
7N7	Medium-Mu Triode	8AC	9-31	6.3	0.6	2.5	300	—	—	—
7Q7	Pentagrid Converter	8AL	9-30	6.3	0.3	1.0	300	100	Osc $I_{a1}=0.5$ ma $R_{g1}=20,000$ ohms	—
7R7	Duplex-Diode Remote-Cutoff Pentode	8AE	9-30	6.3	0.3	2.0	250	250	5.6	5.3
7S7	Triode-Heptode Converter	8BL	9-30	6.3	0.3	0.6	300	100	0.25	0.004
7T7	Sharp-Cutoff RF Pentode	8V	9-30	6.3	0.3	3.0	300	100	Osc $I_{a1}=0.4$ ma $R_{g1}=50,000$ ohms	—
7V7	Sharp-Cutoff RF Pentode	8V	9-30	6.3	0.45	4.0	300	300	0.7	—
7W7	Sharp-Cutoff RF Pentode	8BJ	9-30	6.3	0.45	4.0	300	300	0.8	—
7X6	High-Vacuum Rectifier-Doubler	7AJ	9-31	6.3	1.2	—	Tube Voltage Drop: 22 v at 150 ma d-c	—	—	—
7X7	Duplex-Diode High-Mu Triode	8BZ	9-31	6.3	0.3	—	300	—	—	—
7Y4	Full-Wave High-Vacuum Rectifier	5AB	9-30	6.3	0.5	—	Tube Voltage Drop: 22 v at 70 ma d-c	—	—	—
7Z4	Full-Wave High-Vacuum Rectifier	5AB	9-31	6.3	0.9	—	Tube Voltage Drop: 40 v at 100 ma	—	—	—
8AU6	Triode-Pentode	9DX	6-3	8.4	0.45	3.0	300	300	Pentode Section 1.0	Triode Section
8AU6-A	Triode-Pentode	9DX	6-3	8.4	0.45	3.0	300	300	Triode Section 1.0	Pentode Section
8AW8	Triode-Pentode	9DX	6-3	8.4	0.45	3.25	300	300	Pentode Section 1.0	Triode Section
8BB8	Triode-Pentode	9DX	6-3	8.4	0.45	2.0	300	300	Triode Section 1.0	Pentode Section

Metal tubes are shown in bold-face type. miniature tubes in italics



Subminiature tube

8 Approximate.

◆ Per section

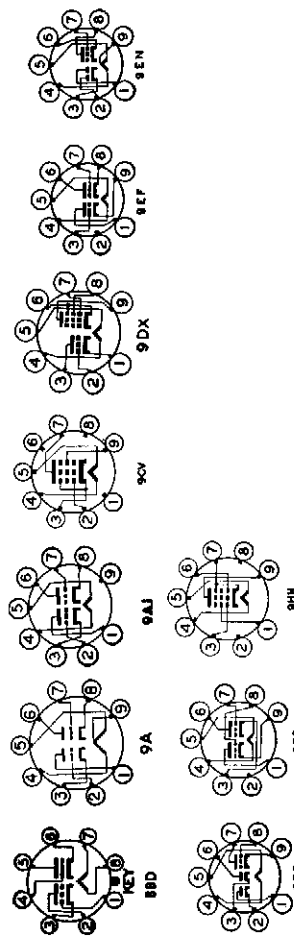
▲ Without external shield.
 † Zero signal.
 ♦ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 # Conversion transconductance.
 * Maximum.
 ♦ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
 * Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 @ Absolute maximum rating.
 ‡ Plate-to-plate.

- * Design maximum rating.
- * For both sections.
- * Minimum.
- † Heater warm-up time series-string service.
- ‡ Supply voltage.
- § Input plate.
- || The duration of the pulse not exceed 15 percent cycle.
- 1—Section 1.
- 2—Section 2.
- 4—A resistor of 3 ohms must be used in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
							Input	Output
8BN8 ∇	Duplex-Diode High-mu Triode	9ER	6-3	8.4	1.5	300	3.6 Δ 0.32 Δ	2.5 Δ
							Diode Sections	
8BQ5 ∇	Beam Power Amplifier	9CV	6-4	8.0	12	300	—	—
8CG7 ∇	Medium-mu Twin Triode	9AJ	6-3	8.4	3.5 Φ 5.0 Φ	300	2.3 Δ	2.2 Δ 4.0 Δ
8CM7 ∇	Medium-mu Twin Triode	9ES	6-3	8.4	1.25	500	Section 1 (Pins 3, 6, 7)	
							Section 2 (Pins 1, 8, 9)	
8CN7 ∇	Duplex-Diode Triode	9EN	6-2	8.4 4.2	1.0 0.225 0.45	300	1.5 Δ 0.5 Δ 1.8 Δ	1.8 Δ
8CS7 ∇	Twin Triode	9EF	6-3	3.4	1.25	500	Section 1 (Pins 6, 7, 8)	
							Section 2 (Pins 1, 3, 9)	
8CX8 ∇	Triode-Pentode	9DX	6-3	8.0	5.0 Φ 2.0 Φ	330 Φ 330 Φ	Pentode Section	
							Triode Section	
8CY7 ∇	Double Triode	9EF	6-3	7.9	1.0 Φ 5.5 Φ	350 Φ 350 Φ	Section 1 (Pins 6, 7, 8)	
							Section 2 (Pins 1, 3, 9)	
8EB8 ∇	Triode-Pentode	9DX	6-3	8.0	5.0 Φ 1.0 Φ	330 Φ 330 Φ	Pentode Section	
							Triode Section	
8EM5 ∇	Beam Power Amplifier	9HN	6-4	8.4	10	285 1.5	10 Δ 5.1 Δ 0.7 Δ	0.7 Δ
8SN7-GTB ∇	Medium-mu Twin Triode	8BD	9-11 or 9-41	8.4	5.0 Φ 7.5 Φ	450	2.2 Δ 2.6 Δ	4.0 Δ 3.8 Δ

Metal tubes are shown in bold-face type, miniature tubes in italics.

⑥ Subminiature type.

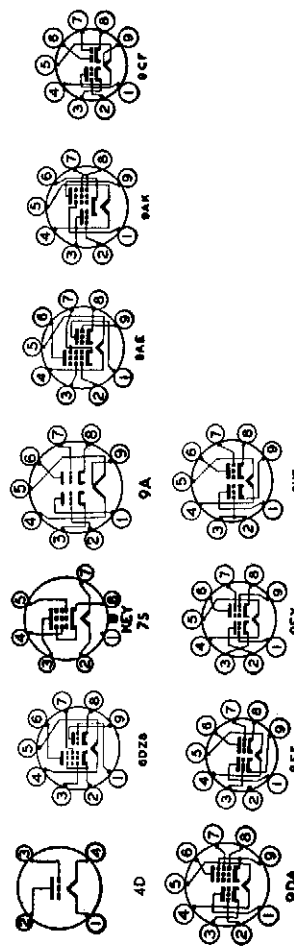


Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μ hos	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier Horizontal Phase Detector	250	—	3.0	1.6	—	28,000 $\S$	2,500	70	—	8BN8 ∇
	100	—	1.0	1.5	—	21,000 $\S$	3,500	75	—	
Max d-c output current Φ = 9.0 ma; voltage drop Φ = 2.6 volts at 9.0 ma d-c										
Class A Amplifier	250	250	R _k = 135	48 $\dagger$	5.5 $\dagger$	40,000	11,300	—	4,500	5.7
Class A Amplifier Φ	250	—	8.0	9.0	—	7,700 $\S$	2,600	20	—	8CG7 ∇
	250	—	12.5	1.3	—	6,700 $\S$	3,000	20	—	
Vertical Deflection Oscillator	200	—	7.0	5.0	—	10,500 $\S$	2,000	21	—	8CM7 ∇
	Max d-c cathode current = 15 ma									
Vertical Deflection Oscillator	250	—	8.0	20	—	4,100 $\S$	4,400	18	—	
Max positive pulse plate voltage, Φ = 2,200 volts;										
Max d-c cathode current = 20 ma										
Class A Amplifier Horizontal Phase Detector	250	—	3.0	1.0	—	58,000 $\S$	1,200	70	—	8CN7 ∇
	100	—	1.0	0.8	—	54,000 $\S$	1,300	70	—	
	Max d-c output current Φ = 5.0 ma; voltage drop Φ = 5 volts at 20 ma d-c									
Vertical Deflection Oscillator	250	—	8.5	10.5	—	7,700	2,200	17	—	8CS7 ∇
Max d-c cathode current = 20 ma										
Class A Amplifier	250	—	10.5	19	—	3,450	4,500	15.5	—	
Max positive pulse plate voltage Φ = 2,200 volts; max d-c cathode current = 30 ma										
Class A Amplifier	200	125	R _k = 68	24	5.2	70,000 $\S$	10,000	—	—	8CX8 ∇
Class A Amplifier	40	125	0	40	15.5	—	—	—	—	
	150	—	R _k = 150	9.2	—	8,700 $\S$	4,600	40	—	
Vertical Deflection Amplifier	250	—	3	1.2	—	52,000 $\S$	1,300	68	—	8CY7 ∇
Max peak negative grid voltage Φ = 400										
Class A Amplifier	150	—	R _k = 620	30	—	920 $\S$	5,400	5.0	—	
Vertical Deflection Amplifier	60	—	0	80	—	—	—	—	—	
	Max positive pulse plate voltage Φ = 1,800 volts; max d-c cathode current = 35 ma									
Class A Amplifier	200	125	R _k = 68	25	7.0	75,000 $\S$	12,500	—	—	8EB8 ∇
Class A Amplifier	40	125	0	2.0	—	37,000 $\S$	2,700	100	—	
	250	—	—	—	—	—	—	—	—	
Vertical Deflection Amplifier	250	250	18	35	3.0	—	5,100	—	—	8EM5 ∇
	60	250	0	180	30	—	—	—	—	
	Max positive pulse plate voltage Φ = 2,200 volts; max d-c cathode current = 60 ma									
Class A Amplifier	250	—	8.0	9.0	—	7,700 $\S$	2,600	20	—	8SN7-GTB ∇
Class A Amplifier	90	—	0	10	—	6,700 $\S$	3,000	20	—	
	Max positive pulse plate voltage Φ = 1,600 volts; max d-c cathode current = 20 ma									

 $\S$ Approximate. Δ Without external shield. $\dagger$ Zero signal. Φ Grids 3 and 5 are screen. Grid 4 is signal. Φ Conversion transconductance. Φ Maximum. Φ Grids 2 and 4 are screen. Grid 3 is signal. Φ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10. Φ Absolute maximum rating. Φ Plate-to-plate. Φ Per section. Φ Design maximum rating. Φ For both sections. Φ Minimum. Φ Heater warm-up time controlled for series-string service. Φ Supply voltage. Φ Input plate. Φ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle. Φ Section 1. Φ Section 2. Φ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Outline Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts and Watts	Capacity in Micromicrofarads		
									Input	Output	Grid-plate
6AU6	Medium-mu Twin Triode	9A	6-2	$\begin{Bmatrix} 9.4 \\ 4.7 \end{Bmatrix}$	$\begin{Bmatrix} 0.225 \\ 0.45 \end{Bmatrix}$	2.75	300	—	1.8	2.0	1.5
6BR7	Duplex-Diode Triode	9CF	6-2	$\begin{Bmatrix} 9.4 \\ 4.7 \end{Bmatrix}$	$\begin{Bmatrix} 0.3 \\ 0.6 \end{Bmatrix}$	2.5	300	—	2.8	1.0	1.9
6CL8	Triode-Tetrode	9FX	6-2	9.5	0.3	2.8 2.7	300 300	300 0.5	Diode Sections		
6DZ8	Triode-Pentode	6DZ8	T-X	9.0	0.6	6.5 0.75	150 150	135 1.5	Tetrode Section Triode Section		
6EP6	Beam Power Amplifier	7S	9-13 or 9-42	9.4	0.6	10	250	250 2.0	Pentode Section Triode Section	11.5	9.0
6U8-A	Triode-Pentode	9AE	6-2	9.45	0.3	3.0 2.5	330 330	330 0.55	Pentode Section Triode Section		
6X8	Triode-Pentode Converter	9AK	6-2	9.5	0.3	2.0 1.5	250 250	250 0.4	Pentode Section Triode Section		
10	Power Amplifier Triode	4D	T-X	7.5	1.25	12	425	—	4.0	3.0	7.0
10C8	Triode-Pentode	9DA	6-2	10.5	0.3	2.2 2.0	300 300	300 0.55	Pentode Section Triode Section		
10DA7	Double Triode	9EF	6-3	10.5	0.6	2.0	300	—	Pentode Section—Triode Connection		
10DE7	Double Triode	9HF	6-3	9.7	0.6	1.5 7.0	330 275	—	Triode Section		
									Section 1 (Pins 6, 7, 8)		
						6.0	500	—	Section 2 (Pins 1, 3, 9)		
									Section 1 (Pins 6, 7, 8)		
									Section 2 (Pins 1, 2, 3, 9)		

Metal tubes are shown in bold-face type, miniature tubes in italics.



©Subminiature type.

[illegible]

5 Approximate.

▲ Without external shield.

† Zero signal.

◆ Grids 3 and 5 are screen. Grid 4 is signal.

input grid.
Conversion transconductance.

♣ Maximum.

♥Grids 2 and 4 are screen. Grid 3 is signal-
input grid.

Maximum screen dissipation, where input grid.

given, appears immediately below the

maximum screen voltage and always has

☒ Absolute maximum rating.

† Plate-to-plate.

Per section.

◆◆ Design maximum rating.

⊕ For both sections.

* Minimum.

Heater warm-up series-string service

Supply voltage.

Input plate.

not exceed 15 per

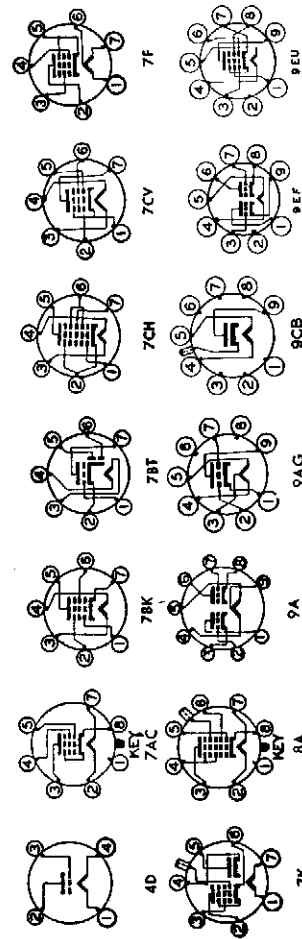
cycle.

Section 1.

—A resistor of 3 ohms.

with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	File-ment Volts	File-ment Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
									Input	Grid-plate
11C5	Beam Power Amplifier	7CV	5-3	11.6	0.45	4.5	135	117 1.0	12A 9.0A 10.6A	
11CY7	Double Triode	9EF	6-3	11.0	0.45	1.0	350	—	Section 1 (Pins 6, 7, 8)	
						5.5	350	—	Section 2 (Pins 1, 3, 9)	
12A	Detector Amplifier Triode	4D	14-1	5.0 DC	0.25	—	180	—	4.0A 2.0A 8.5A	
12A4	Medium-Mu Triode	9AG	6-3	12.6 { 6.3	0.3 { 0.6	5.9	450	—	4.9A 0.9A 5.6A	
12A5	Power Amplifier Pentode	7F	12-5	12.6 { 6.3	0.3 { 0.6	8.25	180	180 2.5	—	
12A6	Beam Power Amplifier	7AC	8-6 9-9	12.6	0.15	7.5	250	250 1.5	—	
12A7	Half-Wave Rectifier Power Amplifier Pentode	7K	12-6	12.6	0.3	—	135	135	—	
12A8-G 12A8-GT	Pentagrid Converter	8A	12-8 9-18	12.6	0.15	1.0	300	100 0.3	Osc. $I_{g1} = 0.4$ ma $R_{g1} = 50,000$ ohms	
12AB5	Beam Power Amplifier	9EU	6-3	12.6	0.2	12	315	285 2.0	8.0A 8.5A 0.7A	
12AC6	Remote-Cutoff RF Pentode	7BK	5-2	12.6	0.15	—	30	30	4.3 5.0 0.004	
12AD6	Pentagrid Converter	7CH	5-2	12.6	0.15	—	30	30	Osc. $I_{g1} = 0.075$ ma $R_{g1} = 33,000$ ohms	
12AD7	High-mu Twin Triode	9A	6-2	12.6 { 6.3	0.225 { 0.45	1.0	300	—	1.6A 0.5A 1.8A 0.45A	
12AE6	Duplex-Diode Triode	7BT	5-2	12.6	0.15	—	30	—	1.8A 1.1A 2.0A	
12AE6-A	Duplex-Diode Triode	7BT	5-2	12.6	0.15	—	30	—	Diode Sections 1.8A 1.1A 2.0A Diode Sections	
12AE7	Double Triode	9A	6-2	12.6	0.45	1.0	16	—	Section 1 (Pins 6, 7, 8)	
12AF3	Half-Wave High-Vacuum Rectifier	9CB	6-8	12.6	0.6	6.0	30	30	Section 2 (Pins 1, 2, 3)	

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R_p Ohms	G_m μ mhos	Load for Rated Out-put, Ohms	Power for Out-put, Watts	Tube Type
Class A Amplifier	110	110	7.5	40†	3.0†	—	5,800	2,500	1.5	11C5
Vertical Deflection Oscillator	250	—	3.0	1.2	—	52,000§	1,300	68	—	11CY7
Vertical Deflection Amplifier	150	—	$R_g = 630$	30	—	920§	5,400	5.0	—	
	60	—	0	80	—	—	—	—	—	
	Max positive pulse plate voltage = 1,800 volts; max d-c cathode current = 35 ma									
Class A Amplifier	180	—	13.5	7.7†	—	4,700	1,800	8.5	0.285	12A
Vertical Deflection Amplifier	250	—	9.0	23	—	2,500§	8,000	20	—	12A4
	Max positive pulse plate voltage = 1,000 volts; max d-c cathode current = 30 ma									
Class A Amplifier	180	180	25	45†	8†	35,000§	2,400	3,300	3.4	12A5
	100	100	15	17†	3†	50,000§	1,700	4,500	0.8	
Class A Amplifier	250	250	12.5	30†	3.5†	70,000§	3,000	7,500	3.4	12A6 12A6-GT
Class A Amplifier	135	135	13.5	9.0†	2.5†	102,000	975	13,500	0.55	12A7
	Max d-c output current = 30 ma; max rms supply voltage = 125 v									
Converter	250	100	3.0	3.5	2.7	360,000§	550 #	E_{sc} (Osc Plate) = 250 thru 20,000 ohms $I_{sc} = 4.0$ ma	—	12A8-G 12A8-GT
Class A Amplifier	250	250	12.5	45†	4.5†	50,000§	4,100	5,000	4.5	12AB5
	250	200	$R_g = 270$	33.5†	1.6†	—	4,000	6,000	3.3	
Class A Amplifier	12.6	12.6	$E_{sc} = 0$	0.6	0.2	600,000§	750	$R_{g1} = 2.2$ meg	—	12AC6
Converter	12.6	12.6	$E_{sc} = 0$	0.34	1.27	1,000,000§	260†	$R_{g2} = 2.2$ meg	—	12AD6
Class A Amplifier	250	—	2.0	1.25	—	62,500§	1,600	100	—	12AD7
Class A Amplifier	12.6	—	0	0.75	—	15,000§	1,000	15	—	12AE6
	Max d-c output current = 1.0 ma; voltage drop = 10 volts at 2.0 ma d-c									
Class A Amplifier	12.6	—	0	1.0	—	13,000	1,300	16.7	—	12AE6-A
	Max d-c output current = 1.0 ma; voltage drop = 10 volts at 2.0 ma d-c									
Class A Amplifier	12.6	—	$E_{sc} = 0$	1.9	—	3,150	4,000	13	$R_g = 1.5$ meg	12AE7
	12.6	—	$E_{sc} = 0$	7.5	—	985	6,500	6.4	$R_g = 1.0$ meg	
	Max d-c output current = 185 ma; max peak inverse voltage = 4,500 volts; max peak current = 750 ma									
TV Damper Service										

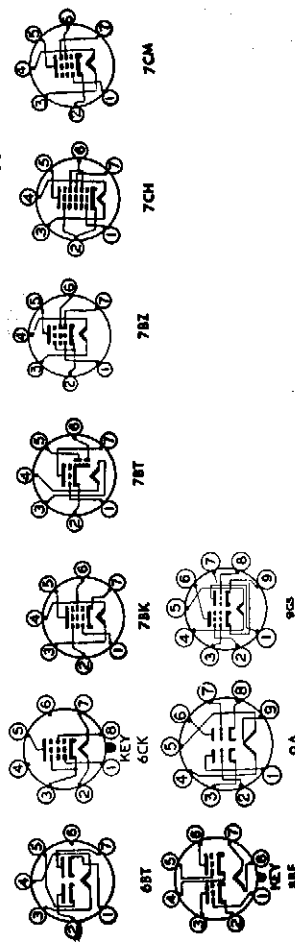
§ Approximate.
 ‡ Without external shield.
 † Zero signal.
 ‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 # Conversion transconductance.
 ‡ Maximum.
 ‡ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
 ‡ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 ‡ Absolute maximum rating.
 ‡ Plate-to-plate.

◆ Per section.
 ◆ Design maximum rating.
 ‡ For both sections.
 ‡ Minimum.
 ‡ Heater warm-up time controlled for series-string service.
 ‡ Supply voltage.
 ‡ Input plate.
 ‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ‡ Section 1.
 ‡ Section 2.
 ‡ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
12AF6	RF Pentode	7BK	5-2	12.6	0.15	—	16	5.5	4.8
12AG6	Heptode	7CH	5-2	12.6	0.15	—	16	Osc. $I_{p1} = 0.05$ ma $R_{g1} = 20,000$ ohms	0.006
12AH7-GT	Medium-Mu Twin Triode	8BE	9-7	12.6	0.15	1.5	180	—	—
12AJ6	Duplex-Diode-Triode	7BT	5-2	12.6	0.15	—	30	2.2	0.8
12AL5	Twin Diode	6BT	5-1	12.6	0.15	—	—	Diode Sections	2.0
12AL8	Triode Space-Charge-Grid Tetrode	9GS	6-3	12.6	0.55	—	30	Tube Voltage Drop: Φ (0 v at 60 ma d-c)	—
12AQ5	Beam Power Amplifier	7BZ	5-3	12.6	0.225	12	250	Tetrode Section	0.35
12AT6	Duplex-Diode High-Mu Triode	7BT	5-2	12.6	0.15	0.5	300	Triode Section	2.0
12AT7	High-Frequency Twin Triode	9A	6-2	12.6	0.15	2.5	300	2.2	1.5
12AU6	Sharp-Cutoff RF Pentode	7BK	5-2	12.6	0.15	3.0	300	Pentode Connection	1.5
12AU7	Medium-Mu Twin Triode	9A	6-2	12.6	0.15	2.75	300	Triode Connection (G_2 , G_3 , & P tied)	1.5
12AV5-GA	Beam Power Amplifier	6CK	T-X	12.6	0.6	11	550	14	7.0
12AV6	Duplex-Diode High-Mu Triode	7BT	5-2	12.6	0.15	0.5	300	2.2	1.2
12AV7	Twin Triode	9A	6-2	12.6	0.15	2.7	300	3.2	1.3
12AW6	Sharp-Cutoff RF Pentode	7CM	5-2	12.6	0.15	2.0	300	Pentode Connection (G_2 , & P tied)	2.0

Metal tubes are shown in bold-face type, miniature tubes in italics.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R_p Ohms	G_m amhos	μ Factor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	12.6	12.6	$E_{c1} = 0$	1.1	0.45	350,000	1,500	$R_{g1} = 2.2$ meg	—	—	12AF6
Converter	12.6	12.6	—	0.55	1.4	—	300	$E_{c2} = 0$ volts $R_{g2} = 2.2$ meg	—	—	12AG6
Class A Amplifier	180	—	6.5	7.6	—	8,400	1,900	16	—	—	12AH7-GT
Class A Amplifier	12.6	—	0	0.75	—	45,000	1,200	55	—	—	12AJ6
Half-Wave Rectifier	Max d-c output current = 1.0 ma; voltage drop = 10 volts at 2.0 ma	Max d-c output current per plate = 9 ma; max peak inverse voltage = 330 volts; max rms supply voltage per plate = 117 volts; max peak current per plate = 54 ma	Max d-c output current = 1.0 ma; voltage drop = 10 volts at 2.0 ma	Max d-c output current per plate = 9 ma; max peak inverse voltage = 330 volts; max rms supply voltage per plate = 117 volts; max peak current per plate = 54 ma	Max d-c output current per plate = 9 ma; max peak inverse voltage = 330 volts; max rms supply voltage per plate = 117 volts; max peak current per plate = 54 ma	Max d-c output current per plate = 9 ma; max peak inverse voltage = 330 volts; max rms supply voltage per plate = 117 volts; max peak current per plate = 54 ma	Max d-c output current per plate = 9 ma; max peak inverse voltage = 330 volts; max rms supply voltage per plate = 117 volts; max peak current per plate = 54 ma	Max d-c output current per plate = 9 ma; max peak inverse voltage = 330 volts; max rms supply voltage per plate = 117 volts; max peak current per plate = 54 ma	Max d-c output current per plate = 9 ma; max peak inverse voltage = 330 volts; max rms supply voltage per plate = 117 volts; max peak current per plate = 54 ma	Max d-c output current per plate = 9 ma; max peak inverse voltage = 330 volts; max rms supply voltage per plate = 117 volts; max peak current per plate = 54 ma	12AL5
Class A Amplifier	12.6	12.6	$E_{c1} = 0$	40	—	480	15,000	—	—	—	12AL8
Class A Amplifier	180	180	8.5	29	3.0	58,000	3,700	—	—	2.0	12AQ5
Class A Amplifier	250	250	12.5	45	4.5	52,000	4,100	—	—	4.5	12AT6
Class A Amplifier	250	250	3.0	1.0	—	58,000	1,200	70	—	—	12AT7
Class A Amplifier	250	250	1.0	0.8	—	54,000	1,300	60	—	—	12AT7
Class A Amplifier	250	250	10	3.7	—	10,900	5,500	60	—	—	12AU6
Class A Amplifier	250	250	10.6	10.6	4.3	1,000,000	5,200	—	—	—	12AU7
Class A Amplifier	100	100	8	5.0	2.1	500,000	3,900	—	—	—	12AU7-A
Class A Amplifier	250	250	12.2	12.2	—	—	4,800	36	—	—	12AV5-GA
Class A Amplifier	250	250	8.5	10.5	—	7,700	2,200	17	—	—	12AV6
Class A Amplifier	250	250	11.8	11.8	—	6,500	3,100	20	—	—	12AV7
Class A Amplifier	250	250	—	—	—	—	—	—	—	—	12AW6
Class A Amplifier	250	250	—	—	—	—	—	—	—	—	12AW6

Approximate.

Without external shield.

Zero signal.

Grids 3 and 5 are screen. Grid 4 is signal.

Conversion transconductance.

Maximum.

Grids 2 and 4 are screen. Grid 3 is signal.

Maximum screen dissipation, where given, appears immediately below the maximum value less than 10.

Absolute maximum rating.

Plate-to-plate.

Per section.

Design maximum rating.

On both sections.

Minimum.

Heater warm-up time controlled for series-string service.

Supply voltage.

Input plate.

The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

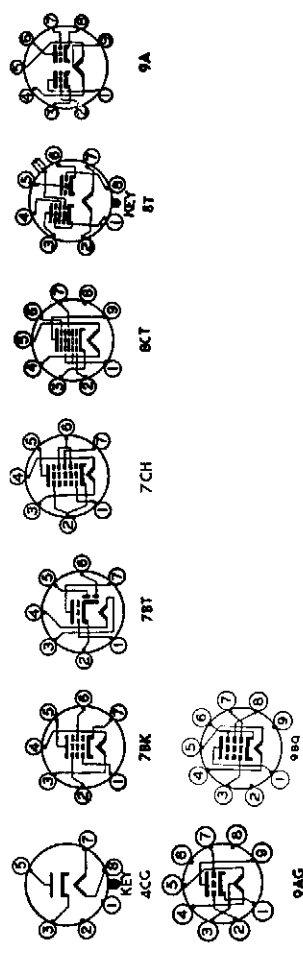
Section 1.

Section 2.

A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
12AX4-GT 12AX4-GTA†	Half-Wave High-Vacuum Rectifier	4CG	9-11 or 9-41	12.6	0.6	4.8	Tube Voltage Drop: 32 v at 250 ma d-c		
12AX7	High-Mu Twin Triode	9A	6-2	{12.6 6.3}	{0.15 0.3}	1.0	300	1.8	1.9
12AX7-A	High-mu Twin Triode	9A	6-2	{12.6 6.3}	{0.15 0.3}	1.0	300	1.8	1.7
12AZ7	Twin Triode	9A	6-2	{12.6 6.3}	{0.225 0.45}	2.5	330	3.2	1.9
12B4	Low-Mu Triode	9AG	6-3	{12.6 6.3}	{0.3 0.6}	5.5	550	5.0	4.8
12B8-GT	Remote-Cutoff Pentode Triode	8T	9-24	12.6	0.3	—	90	Pentode Section	Triode Section
12BA6	Remote-Cutoff RP Pentode	7BK	5-2	12.6	0.15	3.0	300	3.5	5.0
12BA7	Pentagrid Converter	8CT	6-3	12.6	0.15	2.0	300	3.5	0.0035
12BD6	Remote-Cutoff RP Pentode	7BK	5-2	12.6	0.15	3.0	300	4.3	5.0
12BE6	Pentagrid Converter	7CH	5-2	12.6	0.15	1.0	300	1.0	0.005
12BF6	Duplex-Diode Medium-Mu Triode	7BT	5-2	12.6	0.15	2.5	300	1.8	1.9
12BH7	Medium-Mu Twin Triode	9A	6-3	{12.6 6.3}	{0.3 0.6}	3.5	300	3.2	2.6
12BH7-A†	Medium-mu Twin Triode	9A	6-3	{12.6 6.3}	{0.3 0.6}	3.5	300	3.3	2.4
12BK5	Beam Power Amplifier	9BQ	6-3	12.6	0.6	9.0	250	13	5.0
12BK6	Duplex-Diode High-Mu Triode	7BT	5-3	12.6	0.15	—	300	—	—
12BL6	Sharp-Cutoff Pentode	7BK	5-2	12.6	0.15	—	30	5.5	4.8

Metal tubes are shown in bold-face type, miniature tubes in *italics*. ©Subminiature type.



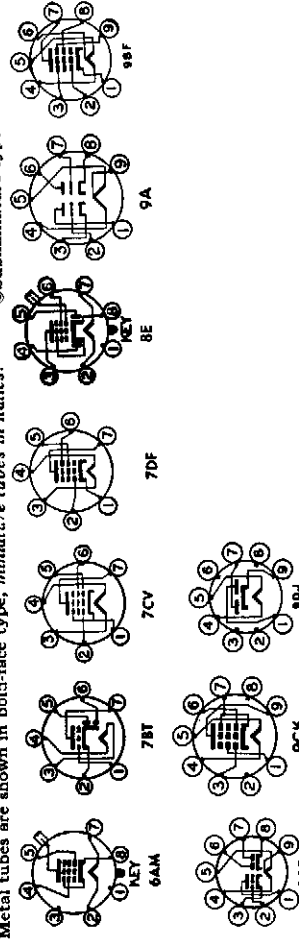
Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-ampere	Screen Milli-ampere	R _p Ohms	G _m μmhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
TV Damp-er Services	Max d-c output current = 125 ma; max peak inverse voltage = 4400 volts; max peak current = 750 ma										12AX4-GT 12AX4-GTA†
Class A Amplifier	100	—	1.0	0.5	—	80,000	1,250	100	—	—	12AX7
Class A Amplifier	250	—	2.0	1.2	—	62,500	1,600	100	—	—	12AX7
Class A Amplifier	100	—	1.0	0.5	—	80,000	1,250	100	—	—	12AX7-A
Class A Amplifier	250	—	2.0	1.2	—	62,500	1,600	100	—	—	12AX7-A
Class A Amplifier	250	—	R _k = 10	—	—	10,900	5,500	60	—	—	12AZ7
Class A Amplifier	100	—	R _k = 270	3.7	—	15,000	4,000	60	—	—	12AZ7
Vertical Deflection Amplifier	150	—	17.5	34	—	1,030	6,300	6.5	—	—	12B4 12B4-A†
Class A Amplifier	90	90	3.0	7.0	2.0	200,000	1,800	—	—	—	12B8-GT
Class A Amplifier	90	—	0	2.8	—	37,000	2,400	90	—	—	12B8-GT
Class A Amplifier	250	100	R _k = 68	11	4.2	1,000,000	4,400	—	—	—	12BA6
Class A Amplifier	100	100	R _k = 68	10.8	4.4	250,000	4,300	—	—	—	12BA6
Converter	250	100	1.0	3.8	10	1,000,000	950 #	—	—	—	12BA7
Class A Amplifier	250	100	3.0	9.0	3.5	700,000	2,000	—	—	—	12BD6
Converter	250	100	1.5	2.9	6.8	1,000,000	475 #	—	—	—	12BE6
Class A Amplifier	250	100	9.0	9.5	—	8,500	1,900	16	10,000	0.3	12BR6
Class A Amplifier	250	—	10.5	11.5	—	5,300	3,100	16.5	—	—	12BH7
Vertical Deflection Amplifier	Max positive pulse plate voltages = 1500 volts; max d-c cathode current = 20 ma										12BH7-A†
Class A Amplifier	250	—	10.5	11.5	—	5,500	3,100	17	—	—	12BH7-A†
Class A Amplifier	250	—	Max positive pulse plate voltages = 1,350 volts; max d-c cathode current = 20 ma								12BK5
Class A Amplifier	250	250	5.0	35†	3.5†	100,000	8,500	—	6,500	3.5	12BK6
Class A Amplifier	250	—	2.0	1.2	—	62,500	1,600	100	—	—	12BK6
Class A Amplifier	12.6	12.6	E _{cat} = 0	1.35	0.5	500,000	1,350	R _g = 2.2 meg	—	—	12BL6

§ Approximate.
▲ Without external shield.
† Zero signal.
‡ Grids 3 and 5 are screen. Grid 4 is signal input grid.
Conversion transconductance.
◆ Maximum.
◆◆ Grids 2 and 4 are screen. Grid 3 is signal input grid.
◆◆◆ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
⊗ Absolute maximum rating.
† Plate-to-plate.
◆ Per section.
◆◆ Design maximum rating.
◆◆◆ For both sections.
* Minimum.
†† Heater warm-up time controlled for series-string service.
‡ Supply voltage.
‡†† Plate voltage.
‡††† Duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
1—Section 1.
2—Section 2.
†††† A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Outline Dwg	File-ment Volts	File-ment Amp	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
12BN6	Gated-Beam Discriminator	7DF	5-3	12.6	0.15	—	100	$E_{b1} = 1.25$ volts rms*	
12BQ6-GTA†	Beam Power Amplifier	6AM	9-49 or 9-50	12.6	0.6	11	175	—	—
12BQ6-GA†	Beam Power Amplifier	6AM	T-X	12.6	0.6	11	200	15▲	7.0▲
12BQ6-GTB†	Duplex-Diode Triode	9CF	6-2	12.6 { 6.3	0.225 { 0.45	2.5	300	2.8	1.0
12BR7	Duplex-Diode Triode	9CF	6-2	12.6 { 6.3	0.225 { 0.45	2.5	300	2.8	1.0
12BR7-A†	Duplex-Diode Triode	9CF	6-2	12.6 { 6.3	0.225 { 0.45	2.5	300	2.8	1.0
12BT6	Duplex-Diode High-Mu Triode	7BT	5-3	12.6	0.15	—	300	—	—
12BU6	Duplex-Diode Medium-Mu Triode	7BT	5-3	12.6	0.15	—	300	—	—
12BV7	Sharp-Cutoff Pentode	9BF	6-3	12.6 { 6.3	0.3 { 0.6	6.25	175	11▲	3.0▲
12BW4	Full-Wave High-Vacuum Rectifier	9DJ	6-3	12.6	0.45	—	—	Tube Voltage Drop: 40 v at 100 ma d-c	
12BY7	Sharp-Cutoff Pentode	9BF	6-3	12.6 { 6.3	0.3 { 0.6	6.5	300	10.2▲	3.5▲
12BZ7	High-Mu Twin Triode	9A	6-3	12.6 { 6.3	0.3 { 0.6	1.5	300	6.5▲	0.7▲
12C5†	Beam Power Amplifier	7CV	5-3	12.6	0.6	6.0	135	13▲	8.5▲
12C8	Duplex-Diode Semi-Remote-Cutoff Pentode	8E	8-4	12.6	0.15	2.25	300	6.0	9.0
12CA5†	Beam Power Amplifier	7CV	5-3	12.6	0.6	5.0	130	15▲	9▲
12CM6	Beam Power Amplifier	9CK	6-3	12.6	0.225	12	315	Pentode Connection	

Metal tubes are shown in bold-face type, miniature tubes in italics.

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Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R_p Ohms	G_m μ mhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
FM Limiter-Discriminator	285	100	$R_k = 200$ to 400	0.49	9.8	—	—	—	390,000	—	12BN6
Horizontal Deflection Amplifier	250	150	22.5	55	21	20,000	5,500	—	—	—	12BQ6-GTA†
	60	150	0	225	25	—	—	—	—	—	12BQ6-GTB†
	Max positive pulse plate voltage = 6000 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma										
Horizontal Deflection Amplifier	250	150	22.5	57	21	14,500	5,900	—	—	—	12BQ6-GA†
	60	150	0	260	26	—	—	—	—	—	12BQ6-GTB†
	Max positive pulse plate voltage = 6,000 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma										
Class A Amplifier	250	—	$R_k = 200$ to 270	10	—	10,900	5,500	60	—	—	12BR7
	100	—	$R_k = 270$	3.7	—	15,000	4,000	60	—	—	
	Max peak output current = 60 ma; voltage drop = 5 volts at 17 ma d-c										
Horizontal Phase Detector Class A Amplifier	250	—	$R_k = 200$ to 270	10	—	10,900	5,500	60	—	—	12BR7-A†
	100	—	$R_k = 270$	3.7	—	15,000	4,000	60	—	—	
	Max peak output current = 60 ma; voltage drop = 5 volts at 17 ma										
Class A Amplifier	250	—	$R_k = 3.0$ to 1.0	1.0	—	58,000	1,200	70	—	—	12BT6
	100	—	1.0	0.8	—	54,000	1,300	70	—	—	
Class A Amplifier	250	—	9.0	9.5	—	8,500	1,900	16	10,000	0.30	12BU6
Class A Amplifier	250	150	$R_k = 68$	27	6.0	85,000	13,000	—	—	—	12BV7
Full-Wave Rectifier	Max d-c output current = 100 ma; max peak inverse voltage = 1,275 volts; rms supply voltage per plate = 325 volts; max peak current per plate = 350 ma										
Class A Amplifier	250	180	$R_k = 100$	26	5.75	93,000	11,000	—	—	—	12BW4
Class A Amplifier	250	—	2	2.5	—	31,800	3,200	100	—	—	12BY7
Class A Amplifier	120	110	8.0	49†	4.0†	10,000	7,500	—	2,500	2.3	12BZ7
Class A Amplifier	250	125	3.0	10	2.3	600,000	1,325	—	—	—	12C5†
Class A Amplifier	125	125	4.5	37†	4.0†	15,000	9,200	—	4,500	1.5	12C8
	110	110	4.0	32†	3.5†	16,000	8,100	—	3,500	1.1	12CA5†
Class A Amplifier	250	250	12.5	45†	4.5†	50,000	4,100	—	5,000	4.5	12CM6
	Max positive pulse plate voltage = 2000 volts; max screen dissipation (pentode connection only) = 1.75 watts; max d-c cathode current = 40 ma										

§ Approximate.

▲ Without external shield.

† Zero signal.

‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.

§ Conversion transconductance.

¶ Maximum.

‡ Grids 2 and 4 are screen. Grid 3 is signal-input grid.

§ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

‡ Absolute maximum rating.

† Plate-to-plate.

◆ Per section.

◆ Design maximum rating.

◆ For both sections.

◆ Heater warm-up time controlled for series-string service.

◆ Supply voltage.

◆ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

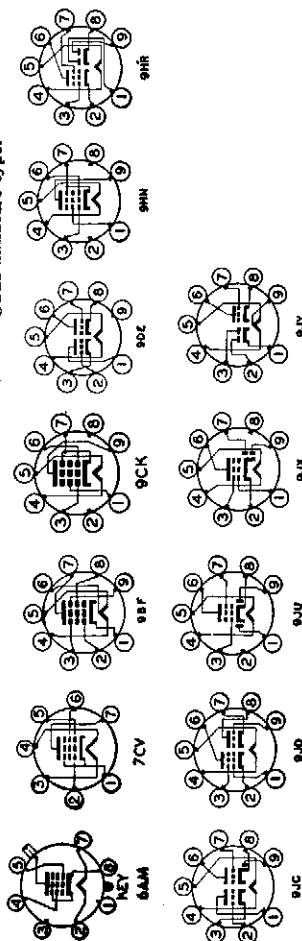
◆ Section 1.

◆ Section 2.

◆ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads		
									Input	Out-put	Grid-plate
12DM6	Beam Power Amplifier	7CV	5-3	12.6	0.45	5.5	135	117 1.25	13	9.0	0.55
12DQ6	Beam Power Amplifier	6AM	T-X	12.6	0.6	15	550	175 2.5	15	7.0	0.55
12DQ6-A	Beam Power Amplifier	6AM	T-X	12.6	0.6	15	700	200 3.0	15	7.0	0.55
12DQ7	Sharp-Cutoff Pentode	9BF	6-3	12.6 { 6.3	0.3 0.6	6.5	330	330 1.1	10.0	3.8	0.1
12DS7	Duplex-Diode Space-Charge-Grid Tetrode	9JU	6-3	12.6	0.4	—	16	—	—	—	—
12DT5	Beam Power Pentode	9HN	6-3	12.6	0.6	9.0	315	285 2.0	12.5	4.9	0.57
12DT8	High- μ Twin Triode	9DE	6-2	12.6	0.15	2.5	300	—	2.7	1.6	1.6
12DU7	Duplex-Diode-Tetrode	9JX	6-2	12.6	0.275	—	16	16	11	3.6	0.6
12DV7	Duplex-Diode-Triode	9JY	6-2	12.6	0.15	—	16	—	1.3	0.38	1.6
12DV8	Duplex-Diode Space-Charge-Grid Tetrode	9HR	6-3	12.6	0.375	—	16	—	9.0	1.0	12
12DW6	Beam Power Amplifier	9CK	6-4	12.6	0.6	11	330	220 2.5	14	9.0	0.5
12DW8	Diode Double Triode	9JC	6-2	12.6	0.45	0.5	16	—	Section 1 (Pins 6, 7, 8) Section 2 (Pins 1, 2, 3)		
12DY8	Triode-Tetrode	9JD	6-2	12.6	0.35	—	16	16	Tetrode Section Triode Section		

Metal tubes are shown in bold-face type, miniature tubes in italics.



Subminiature type.

Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	Rp, Ohms	Gm, μ ambos	Load for Rated Out- put, Ohms	Power Out- put, Watts	Tube Type
Class A Amplifier	110	110	7.5	49†	4.0†	14,000§	7,500	—	2,500	12DM5¶
Horizontal Deflection Amplifier	250 60 150	150 150 0	22.5 0 300	75 300 27	2.4 27	20,000§	6,000	—	—	12DQ6¶
	Max positive pulse plate voltages, □ = 6,000 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 120 ma									
Horizontal Deflection Amplifier	250 60 150	150 150 0	22.5 0 300	75 300 27	2.4 27	20,000§	6,000	—	—	12DQ6-A¶
	Max positive pulse plate voltages, □ = 6,000 volts; max screen dissipation = 3.0 watts; max d-c cathode current = 140 ma									
Class A Amplifier	200 40	125 125	R _k = 68	26 45	5.6 16	53,000§	10,500	—	—	12DQ7¶
	12.6	—	E _{cc} = 0	40	—	480	15,000	—	—	12DS7
Class A Amplifier	250 75 100	250 250 0	16.5 0 180	38 180 35	2.0 35	—	6,200	—	—	12DT6¶
	Max positive pulse plate voltages, □ = 2,200 volts; max d-c cathode current = 55 ma									
Class A Amplifier	250 100	—	R _k = 200 R _k = 270	10 3.7	—	10,900§	5,500	60	—	12DT8
Class A Amplifier	12.6	12.6	E _{cc} = 0	12	1.5	6,000§	6,200	R _g = 2.2 meg	2,700	12DU7
	Maximum d-c output current ♦♦ = 1 ma; voltage drop: ♦ 10 volts at 1.3 ma d-c									
Class A Amplifier	12.6	—	E _{cc} = 0	0.04	—	19,000	750	14	R _g = 2.2 meg	12DV7
	Maximum d-c output current ♦♦ = 1 ma; voltage drop: ♦ 10 volts at 1.3 ma d-c									
Class A Amplifier	12.6	—	E _{cc} = 0	9.0	—	900	8,500	—	—	12DV8
	E _{cc} = 12.6 volts; R _k = 18 ohms, I _{c1} = 53 ma (Note: grid 1 is space-charge grid, grid 2 is control grid)									
Class A Amplifier	200 60 150	150 150 0	22.5 0 280	55 280 20	2.0 20	15,000§	5,500	—	—	12DW5¶
	Max positive pulse plate voltages, □ = 2,200 volts; max d-c cathode current ♦♦ = 65 ma									
Class A Amplifier	12.6	—	E _{cc} = 0	1.9	—	—	2,700	9.5	R _g = 1.5 meg	12DW8
Class A Amplifier	12.6	—	E _{cc} = 0	7.5	—	—	6,500	6.4	R _g = 1.0 meg	12DY8
	Average Diode current at 10 volts = 20 ma									
Class A Amplifier	12.6	12.6	E _{cc} = 0	14	2.0	5,000§	6,000	R _g = 2.2 meg	—	12DY8
Class A Amplifier	12.6	—	—	1.2	—	10,000§	2,000	20	—	12DY8

§ Approximate.

♣ Per section.
♦ Design max

◆ Design maximum
⊕ For both sections

⊕ For both sections.
* Minimum.

* Minimum.
† Heater warm-up

Heater warm-up series-string service

Series-string service
Supply voltage.

Supply voltage.
Input plate.

|| Input plate.

3—The duration of the not exceed 15 per

not exceed 15 per cycle.

cycle.
1—Section 1.

1—Section 1.
2—Section 2.

4—A resistor of 3 ohms.

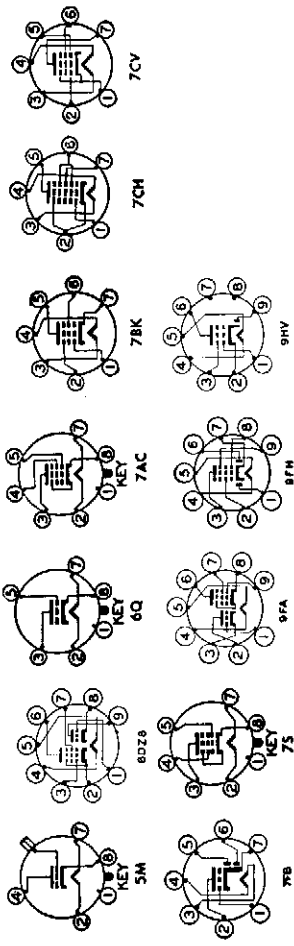
4—A resistor of 3 ohms with heater.

with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Plate Watts	Max Screen Volts	Max Screen Watts	Capacitance in Micromicrofarads	
										Input	Output
12DZ6	Remote-Cutoff RF Pentode	7BK	5-2	12.6	0.190	16	—	16	—	9.5	4.0
12DZ8	Triode-Pentode	6DZ8	T-X	12.0	0.45	150	6.5	135	1.5	Pentode Section	
						150	0.75	150	—	Triode Section	
12E5-GT	Medium-Mu Triode	6Q	9-11	12.6	0.15	250	1.25	—	—	3.4	5.5
12EA6	Remote-Cutoff Pentode	7BK	5-2	12.6	0.190	16	—	16	—	11	4.0
12EC8	Triode-Pentode	9FA	6-2	12.6	0.225	16	—	16	—	Pentode Section	
						16	—	16	—	Triode Section	
12ED6	Beam Power Amplifier	7CV	5-3	12.6	0.45	150	6.25	150	1.5	14	8.5
12EF6	Beam Power Amplifier	7S	9-13 or 9-42	12.6	0.45	250	10	250	2.0	11.5	9.0
						250	—	250	—	9.0	0.8
12EG6	Dual-Control Heptode	7CH	5-2	12.6	0.15	30	—	30	—	—	—
12EH6	Power-Amplifier Pentode	7CV	5-3	12.6	0.6	135	5.0	117	1.75	17	9
12EK6	Sharp-Cutoff RF Pentode	7BK	5-2	12.6	0.190	16	—	16	—	10	5.5
12EL6	Duplex-Diode High-mu Triode	7FB	5-2	12.6	0.15	30	—	30	—	2.2	1.0
						—	—	—	—	1.8	1.8
12EM6	Diode-Tetrode	9HV	6-3	12.6	0.5	30	0.5	30	—	Diode Sections	
						—	—	—	—	Diode Section	
12EN6	Beam Power Amplifier	7AC	9-11 or 9-41	12.6	0.6	300	7.0	150	1.25	14	8.0
						—	—	—	—	0.65	0.65
12EZ6	Sharp-Cutoff RF Pentode	7BK	5-2	12.6	0.175	30	—	30	—	7.8	5.5
12F5-GT	High-Mu Triode	5M	9-17	12.6	0.15	300	—	300	—	1.9	3.4
						—	—	—	—	2.4	2.4
12F8	Duplex-Diode-Pentode	9FH	6-2	12.6	0.15	30	—	30	—	4.5	3.0
						—	—	—	—	Diode Sections	
12FA6	Pentagrid Converter	7CH	5-2	12.6	0.15	30	—	30	—	Osc. $I_{a1} = 0.045$ ma $R_{g1} = 53,000$ ohms	

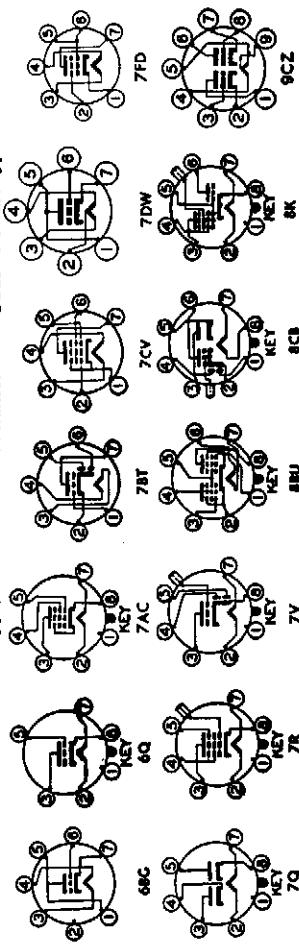
Metal tubes are shown in bold-face type, miniature tubes in italics.

Subminiature type.



Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Watts	Capacitance in Micromicrofarads	
								Input	Output
12FK6	Duplex-Diode Triode	7BT	5-2	12.6	0.15	—	16	1.8▲ 0.7▲ 1.6▲	Grid-plate
12FM6	Duplex-Diode Triode	7BT	5-2	12.6	0.15	—	30	2.7▲ 1.7▲ 1.7▲	Diode Sections
12G4	Medium-Mu Triode	6BG	5-3	12.6	0.15	2.5	300	2.6 3.2 3.4	Diode Sections
12G8	Dissimilar Double Triode	9CZ	6-3	12.6	0.4	—	16	Section 1 (Pins 6, 7, 8) Section 2 (Pins 1, 2, 3)	
12H4	Medium-Mu Triode	7DW	5-3	12.6	0.15	2.5	300	2.6 3.2 3.4	
12H6	Twin Diode	7Q	8-5	12.6	0.15	—	—	Tube Voltage Drop: 4.5 v at 16 ma d-c	
12J5 12J5-GT	Medium-Mu Triode	6Q	8-11 9-11 or 9-41	12.6	0.15	2.5	300	3.4 3.6 3.4 4.2 5.0 3.8	
12J7-GT	Sharp-Cutoff Pentode	7R	9-18	12.6	0.15	0.75	300	Pentode Connected	
12J8	Duplex-Diode Tetrode	9GC	6-2	12.6	0.325	—	30	Triode Connected (G ₂ , G ₃ & P Tied)	
12K5	Space-Charge-Grid Tetrode	7FD	5-3	12.6	0.4	—	30	Diode Sections	
12K7-GT	Remote-Cutoff RF Pentode	7R	9-18	12.6	0.15	2.75	300	4.6 12.0 0.005	
12K8 12K8-GT	Triode Hexode Converter	8K	8-2 9-24	12.6	0.15	0.75	300	Osc I _b = 0.15 ma R _{g1} = 50,000 ohms	
12L6-GT	Beam Power Amplifier	7AC	9-11 or 9-41	12.6	0.6	10	200	15▲ 10▲ 0.8▲	
12L8-GT	Twin-Pentode Power Amplifier	8BU	9-11	12.6	0.15	2.5	180	5.0▲ 6.0▲ 0.7▲	
12Q7-GT	Duplex-Diode High-Mu Triode	7V	9-18	12.6	0.15	—	300	2.2 5.0 1.6	
12R6	Beam Power Amplifier	7CV	5-3	12.6	0.6	4.5	150	13▲ 9.0▲ 0.55▲	
12S8-GT	Triode-Diode High-Mu Triode	8CB	9-23	12.6	0.15	0.5	300	1.2 5.0 2.0	

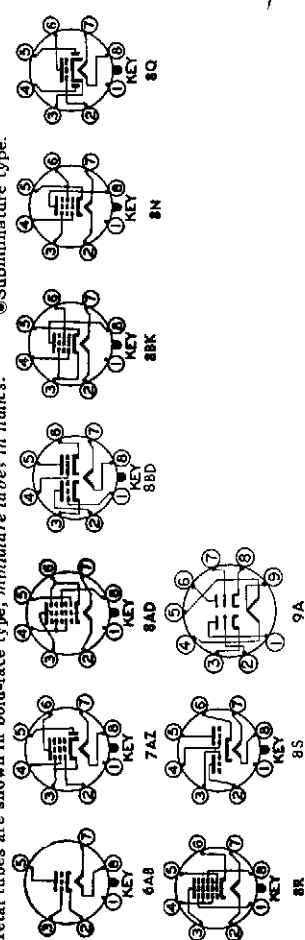
Metal tubes are shown in bold-face type, miniature tubes in italics.



Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts	Capacitance in Micromicrofarads		
								Input	Out-put	Grid-plate
12SA7 12SA7-GT	Pentagrid Converter	8R 8AD	8-1 9-11 or 9-41	12.6	0.15	1.0	100	Osc $I_{g1} = 0.5$ ma $R_{g1} = 20,000$ ohms	—	—
12SC7	High-Mu Twin Triode	8S	8-1	12.6	0.15	250	—	4.0	3.6	2.4
12SF5 12SF5-GT	High-Mu Triode	6AB	8-1 9-11	12.6	0.15	300	—	5.5	6.0	0.004
12SF7 12SF7-GT	Diode Remote-Cutoff Pentode	7AZ	8-1 9-18	12.6	0.15	300	300	5.5	6.0	0.004
12SG7	Semi-Remote-Cutoff RF Pentode	8BK	8-1	12.6	0.15	300	300	8.5	7.0	0.003
12SH7	Sharp-Cutoff RF Pentode	8BK	8-1	12.6	0.15	300	300	8.5	7.0	0.003
12SJ7 12SJ7-GT	Sharp-Cutoff Pentode	8N	8-1 9-12	12.6	0.15	300	300	Pentode Connection	—	—
12SK7 12SK7-GT	Remote-Cutoff RF Pentode	8N	8-1 9-12	12.6	0.15	4.0	300	Triode Connection (G_2 & P tied)	6.0 7.0 7.5	0.003 0.004 0.005
12SL7-GT	High-Mu Twin Triode	8BD	9-11	12.6	0.15	1.0	300	—	—	—
12SN7-GT	Medium-Mu Twin Triode	8BD	9-11	12.6	0.3	3.5	300	2.8 3.0	0.8 1.2	3.8 4.0
12SN7-GT	Medium-Mu Twin Triode	8BD	9-11 or 9-41	12.6	0.3	5.0 5.0 7.5	450	2.2 2.6	0.7 0.8	4.0 3.8
12SQ7 12SQ7-GT	Duplex-Diode High-Mu Triode	8Q	8-1 9-12	12.6	0.15	0.5	300	3.2 4.2	3.0 3.4	1.6 1.8
12SR7 12SR7-GT	Duplex-Diode Medium-Mu Triode	8Q	8-1 9-11	12.6	0.15	2.5	250	3.6 3.5	2.8 3.8	2.4 2.3
12SW7	Duplex-Diode Medium-Mu Triode	8Q	8-1	12.6	0.15	2.5	250	3.0	2.8	2.4
12SX7-GT	Medium-Mu Twin Triode	8BD	9-11	12.6	0.3	2.5	300	3.0 2.8	0.8 1.2	3.6
12SY7 12SY7-GT	Pentagrid Converter	8R 8AD	8-1 9-12	12.6	0.15	—	300	Osc $I_{g1} = 0.5$ ma $R_{g1} = 20,000$ ohms Osc $I_{g1} = 0.1$ ma $R_{g1} = 20,000$ ohms	—	—
12U7	Twin Triode	9A	6-2	12.6	0.15	—	30	1.8	2.0	1.5

Metal tubes are shown in bold-face type, miniature tubes in italics.

Ⓢ Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R_p Ohms	G_m μ amhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Converter	250 100	100 100	2.0 2.0	3.5 3.3	8.5 8.5	1,000,000 500,000	450 # 425 #	—	—	—	12SA7 12SA7-GT
Class A Amplifier	250	—	2.0	2.0	—	53,000	1,325	70	—	—	12SC7
Class A Amplifier	250	—	2.0	0.9	—	66,000	1,500	100	—	—	12SF5 12SF5-GT
Class A Amplifier	250 100	100 100	1.0 1.0	12.4 12	3.3 3.4	700,000 200,000	2,050 1,975	—	—	—	12SF7 12SF7-GT
Class A Amplifier	250 100	150 125 100	2.5 1.0 1.0	9.2 11.8 8.2	3.4 4.4 3.2	1,000,000 900,000 250,000	4,000 4,700 4,100	—	—	—	12SG7
Class A Amplifier	250	150	1.0	10.8	4.1	900,000	4,900	—	—	—	12SH7
Class A Amplifier	250	100	3.0	3.0	0.8	1,000,000	1,650	—	—	—	12SJ7
Class A Amplifier	250	—	8.5	9.2	—	7,600	2,500	19	—	—	12SJ7-GT
Class A Amplifier	250 100	100 100	3.0 1.0	9.2 13	2.6 4.0	800,000 120,000	2,000 2,350	—	—	—	12SK7 12SK7-GT
Class A Amplifier	250	—	2.0	2.3	—	44,000	1,600	70	—	—	12SL7-GT
Class A Amplifier	250	—	8.0 0	9.0 10	—	7,700 6,700	2,600 3,000	20 20	—	—	12SN7-GT
Class A Amplifier	250	—	8.0 0	9.0 10	—	7,700 6,700	2,600 3,000	20 20	—	—	12SN7-GTA
Vertical Deflection Amplifier	250 100	—	—	—	—	—	—	—	—	—	12SQ7 12SQ7-GT
Class A Amplifier	250 100	—	2.0 1.0	1.1 0.5	—	85,000 110,000	1,175 925	100 100	—	—	12SR7 12SR7-GT
Class A Amplifier	250	—	9.0	9.5†	—	8,500	1,900	16	10,000	0.3	12SW7
Class A Amplifier	250 26.5	—	9.0 $R_g = 2$ meg	9.5 1.1	—	8,500 15,500	1,900 1,100	16 17	—	—	12SX7-GT
Class A Amplifier	250 26.5	—	8.0 $R_g = 0.05$ meg	9.0 1.8	—	7,700 11,500	2,600 1,800	20 21	—	—	12SY7 12SY7-GT
Converter	250 28	100 28	2.0 1.0	3.5 0.5	8.5 1.8	1,000,000	450 # 250 #	—	—	—	12U7
Class A Amplifier	12.6	—	0	1.0	—	12,500	1,600	20	—	—	12U7

Max positive pulse plate voltages = 1,500 volts; max d-c cathode current = 20 ma

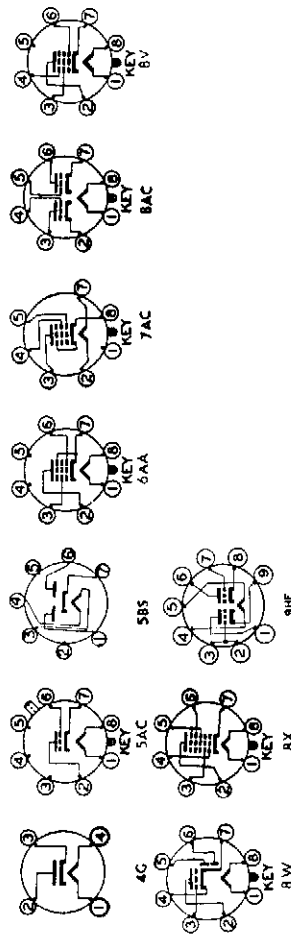
Ⓢ Approximate.
 † Without external shield.
 ‡ Zero signal.
 †† Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 # Conversion transconductance.
 ‡ Maximum.
 ‡† Grids 2 and 4 are screen. Grid 3 is signal-input grid.
 ‡†† Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 ‡††† Absolute maximum rating.
 ‡†††† Plate-to-plate.

◆ Per section.
 ◆ Design maximum rating.
 ◆ For both sections.
 ◆ Minimum.
 † Heater warm-up time controlled for series-string service.
 ‡ Supply voltage.
 ‡† Input plate.
 ‡†† The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ‡††† Section 1.
 ‡†††† Section 2.
 ‡††††† A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
12V6-GT	Beam Power Amplifier	7AC	9-11 or 9-41	12.6	0.225	315	285 2.0	Single Tube	Grid-plate
12W6-GT	Beam Power Amplifier	7AC	9-11 or 9-41	12.6	0.6	300	150 1.25	2 Tubes, Push-Pull	Grid-plate
12X4	Full-Wave High-Vacuum Rectifier	5BS	5-3	12.6	0.3	—	—	Pentode Connection	—
12Z3	Half-Wave High-Vacuum Rectifier	4G	12-5	12.6	0.3	—	—	Triode Connection (G ₁ & P tied)	—
18DE7	Double Triode	9HF	6-3	13.0	0.45	330	—	Tube Voltage Drop: ♦ 22 v at 70 ma d-c	—
18DR7	Double Triode	9HF	6-3	13.0	0.45	330	—	Tube Voltage Drop: ♦ 17 v at 110 ma d-c	—
14A4	Medium-Mu Triode	5AC	9-30	12.6	0.15	300	—	Section 1 (Pins 6, 7, 8)	—
14A5	Beam Power Amplifier	6AA	9-30	12.6	0.15	250	1.5	Section 2 (Pins 1, 2, 3, 9)	—
14A7/12B7	Remote-Cutoff Pentode	8V	9-30	12.6	0.15	300	1.5	Section 1 (Pins 6, 7, 8)	—
14AF7	Medium-Mu Twin Triode	8AC	9-30	12.6	0.15	300	—	Section 2 (Pins 1, 2, 3, 9)	—
14B6	Duplex-Diode High-Mu Triode	8W	9-30	12.6	0.15	300	—	Section 1 (Pins 6, 7, 8)	—
14B8	Pentagrid Converter	8X4	9-30	12.6	0.15	300	—	Section 2 (Pins 1, 2, 3, 9)	—
14C5	Beam Power Amplifier	6AA	9-31	12.6	0.225	315	—	Osc I _{g1} = 0.4 ma R _{g1} = 50,000 ohms	—
14C7	Sharp-Cutoff Pentode	8V	9-30	12.6	0.15	300	—	—	—
14E6	Duplex-Diode High-Mu Triode	8W	9-30	12.6	0.15	250	—	—	—

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

⑧ Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p ' Ohms	G _m ' μmhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	315	225	13	34†	2.2†	80,000	3,750	—	8,500	5.5	12V6-GT
Class AB ₁ Amplifier	250	250	12.5	45†	4.5†	50,000	4,100	—	5,000	4.5	
Class AB ₁ Amplifier	180	180	8.5	20†	3.0†	50,000	3,700	—	5,000	2.0	
Class AB ₁ Amplifier	285	285	19	70†	4.0†	70,000	3,400	—	8,000	1.4	
Class AB ₁ Amplifier	250	250	13	70†	5.0†	60,000	3,750	—	10,000	1.0	
Class A Amplifier	200	125	R _g = 180	48†	2.2†	28,000	8,000	—	4,000	3.8	12W6-GT
Class A Amplifier	110	110	7.5	49†	4.0†	13,000	8,000	—	2,000	2.1	
Vertical Deflection Amplifier	225	225	30	22	—	1,800	3,800	6.2	—	—	
Vertical Deflection Amplifier	250	250	30	22	—	1,800	3,800	6.2	—	—	
Full-Wave Rectifier	245 ma	—	—	—	—	—	—	—	—	—	12X4
Half-Wave Rectifier	245 ma	—	—	—	—	—	—	—	—	—	12Z3
Vertical Deflection Oscillator	250	—	11	5.5	—	8,750	2,000	17.5	—	—	18DE7
Vertical Deflection Amplifier	150	—	17.5	35	—	925	6,500	6.0	—	—	
Vertical Deflection Amplifier	150	—	0	80	—	—	—	—	—	—	
Vertical Deflection Amplifier	250	—	3.0	1.4	—	40,000	1,600	68	—	—	18DR7
Vertical Deflection Oscillator	150	—	17.5	35	—	925	6,500	6.0	—	—	
Vertical Deflection Amplifier	60	—	0	80	—	—	—	—	—	—	
Class A Amplifier	250	—	8.0	9.0	—	7,700	2,800	20	—	—	14A4
Class A Amplifier	250	250	12.5	30†	3.5†	70,000	3,000	—	7,500	2.8	14A5
Class A Amplifier	250	100	3.0	9.2	2.6	800,000	2,000	—	—	—	14A7/12B7
Class A Amplifier	250	—	10	9.0	—	7,600	2,100	16	—	—	14AF7
Class A Amplifier	250	—	2.0	0.9	—	91,000	1,100	100	—	—	14B6
Class A Amplifier	100	—	1.0	0.4	—	110,000	900	100	—	—	
Converter	250	100	3.0	3.5	2.7	360,000	550 #	—	—	—	14B8
Class A Amplifier	315	225	13	34†	2.2†	77,000	3,750	—	8,500	5.5	14C5
Class A Amplifier	250	100	3.0	2.2	0.7	1,000,000	1,575	—	—	—	14C7
Class A Amplifier	250	—	9.0	9.5	—	8,500	1,900	16	—	—	14E6

§ Approximate.

▲ Without external shield.

† Zero signal.

‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.

Conversion transconductance.

♦ Maximum.

♦ Grids 2 and 4 are screen. Grid 3 is signal-input grid.

* Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

□ Absolute maximum rating.

‡ Plate-to-plate.

◆ Per section.

◆ Design maximum rating.

◆ For both sections.

* Minimum.

† Heater warm-up time controlled for series-string service.

‡ Supply voltage.

‡ Input plate.

‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

‡ Section 1.

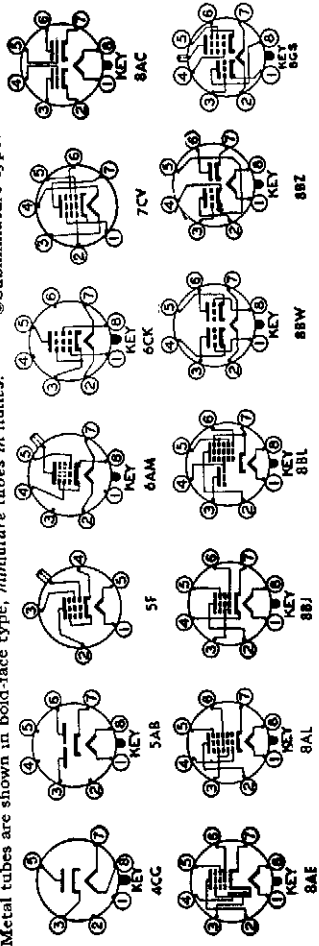
‡ Section 2.

‡ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max plate Watts	Max Plate Volts	Max Screen Volts	Capacitance in Micromicrofarads	
									Input	Output
14E7	Duplex-Diode Remote-Cutoff Pentode	8AE	9-30	12.6	0.15	2.0	250	100 0.3	4.6	5.3 0.005 $\clubsuit$
14F7	High-Mu Twin Triode	8AC	9-30	12.6	0.15	1.0 $\clubsuit$	250	—	—	—
14F8	High-Frequency Twin Triode	8BW	9-32	12.6	0.15	3.5 $\clubsuit$ 3.5 $\clubsuit$	300	—	2.8	1.4 1.6
14H7	Semi-Remote-Cutoff RF Pentode	8V	9-30	12.6	0.15	2.5	300	300 $\clubsuit$ 0.5	8.0	7.0 0.004 $\clubsuit$
14J7	Triode-Heptode Converter	8BL	9-30	12.6	0.15	0.5 1.25	300 150	100 0.4	Osc I_{a1} = 0.4 ma R_{a1} = 50,000 ohms Triode Section	
14N7	Medium-Mu Twin Triode	8AC	9-31	12.6	0.3	2.5 $\clubsuit$	300	—	—	—
14Q7	Pentagrid Converter	8AL $\heartsuit$	9-30	12.6	0.15	1.0	300	100 1.0	Osc I_{a1} = 0.5 ma R_{a1} = 20,000 ohms	
14R7	Duplex-Diode Remote-Cutoff Pentode	8AE	9-30	12.6	0.15	2.0	250	250 $\clubsuit$ 0.25	5.6	5.3 0.004 $\clubsuit$
14S7	Triode-Heptode Converter	8BL	9-30	12.6	0.15	0.6 1.0	300 175	100 0.4	Osc I_{a1} = 0.4 ma R_{a1} = 50,000 ohms Triode Section	
14W7	Sharp-Cutoff RF Pentode	8BJ	9-30	12.6	0.225	—	300	150 0.8	—	—
14X7	Duplex-Diode High-Mu Triode	8BZ	9-31	12.6	0.15	—	300	—	—	—
14Y4	Full-Wave High-Vacuum Rectifier	5AB	9-30	12.6	0.3	—	Tube Voltage Drop: $\clubsuit$ 22 v at 70 ma d-c			
15	Sharp-Cutoff RF Pentode	5F	12-6	20 DC	0.22	—	135	67.5	2.35 $\blacktriangle$	7.80 $\blacktriangle$ 0.01
15A8 $\dagger$	Triode-Pentode	8GS	9-49	15.0	0.6	10 2.5 7.5	300 300	150 1.25	Pentode Section Triode Section Pentode Section-Triode Connection G and P tied	
17AV5-GA $\dagger$	Beam Power Amplifier	6CK	T-X	16.8	0.45	11	550 $\clubsuit$	175 2.5	14 $\blacktriangle$	7.0 $\blacktriangle$ 0.5 $\blacktriangle$
17AX4-GT $\dagger$	Half-Wave High-Vacuum Rectifier	4CG	9-11 or 9-41	16.8	0.45	4.8	Tube Voltage Drop: 32 v at 250 ma d-c			
17BQ6-GT $\dagger$	Beam Power Amplifier	6AM	9-49 or 9-30	16.8	0.45	11	600 $\clubsuit$	200 2.5	15 $\blacktriangle$	7.0 $\blacktriangle$ 0.6 $\blacktriangle$
17C6 $\dagger$	Beam Power Amplifier	7CV	5-3	16.8	0.45	6.0	135	117 1.25	13 $\blacktriangle$	8.5 $\blacktriangle$ 0.6 $\blacktriangle$

Metal tubes are shown in bold-face type, miniature tubes in italics.

● Subminiature type.



- § Approximate.
- ▲ Without external shield.
- ♦ Zero signal.
- ▲ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
- # Conversion transconductance.
- ♦ Maximum.
- ▲ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
- ✕ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
- Ⓢ Absolute maximum rating.
- † Plate-to-plate.

♣ Per section.
♦ Design maximum.
* For both sections.
⊕ Minimum.
¶ Heater was series-string.
§ Supply voltage.
|| Input plate.
! The duration not exceed cycle.
1—Section 1.
2—Section 2.
3—A resistor with heater.

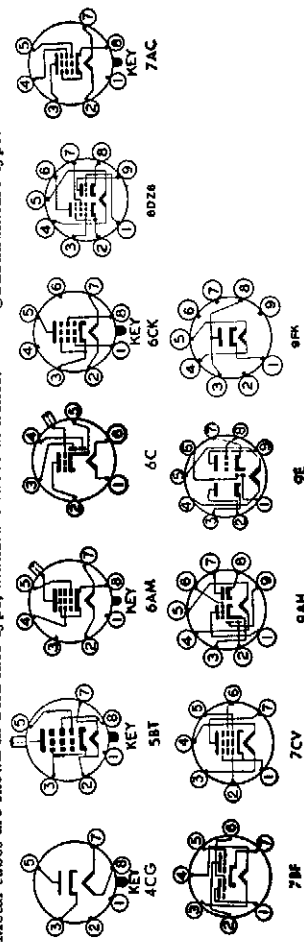
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Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
17CA6	Beam Power Amplifier	7CV	5-3	16.8	0.45	5.0	130	1.5	9.0
17CU6	Beam Power Amplifier	7CV	5-3	16.8	0.45	6.0	135	1.25	8.6
17D4	Half-Wave High-Vacuum Rectifier	4CG	9-11 or 9-41	16.8	0.45	5.5	—	—	—
17DQ6	Beam Power Amplifier	6AM	T-X	16.8	0.45	15	550	1.5	7.0
17HS	Half-Wave High-Vacuum Rectifier	9FK	6-3	17.5	0.3	3.0	—	—	—
17L6-GT	Beam Power Amplifier	7AC	9-11 or 9-41	16.8	0.45	10	200	1.25	10
17R6	Beam Power Amplifier	7CV	5-3	16.8	0.45	4.5	150	1.0	9.0
18A5	Beam Power Amplifier	6CK	9-15 or 9-43	18.5	0.3	9.0	350	2.5	7.0
18D28	Triode-Pentode	6D28	T-X	18.0	0.3	6.5	135	—	—
19	Twin-Triode Power Amplifier	6C	12-5	2.0 DC	0.26	—	135	—	—
19AU4	Half-Wave High-Vacuum Rectifier	4CG	9-44	18.9	0.6	6.0	—	—	—
19AU4-GTA	Half-Wave High-Vacuum Rectifier	4CG	9-44	18.9	0.6	6.0	—	—	—
19BG6-G	Beam Power Amplifier	5BT	16-5	18.9	0.3	20	700	3.2	6.5
19BG6-GA	Beam Power Amplifier	5BT	12-21	18.9	0.3	20	700	3.2	6.5
19C8	Triode-Diode, High-Mu Triode	9E	6-2	18.9	0.15	1.0	250	—	—
19T6	Medium-Mu Twin Triode	7BF	5-2	18.9	0.15	1.5	300	—	—
19T8	Triode-Diode, High-Mu Triode	9E	6-2	18.9	0.15	1.0	300	—	—
19V8	Triode-Diode, High-Mu Triode	9AH	6-2	18.9	0.15	1.0	300	—	—

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

©Subminiature type.



Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli-am-peres	Screen Milli-peres	R _p Ohms	Gm. μ hos	μ Factor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	125	125	4.5	37	4.0	15,000	9,200	—	4,500	1.5	17CA6
Class A Amplifier	110	110	4.0	32	4.5	16,000	8,100	—	3,500	1.1	17CU6
Class A Amplifier	120	110	8.0	49	4.0	10,000	7,500	—	2,500	2.3	17DQ6
TV Damper Service	Max d-c output current = 155 ma; max peak inverse voltage = 4,400 volts; max peak current = 900 ma										
Horizontal Deflection Amplifier	250	150	22.5	75	2.4	20,000	6,000	—	—	—	17DQ6
Horizontal Deflection Amplifier	60	150	0	300	27	—	—	—	—	—	17DQ6
Horizontal Deflection Amplifier	Max positive pulse plate voltage = 6,000 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 120 ma										
TV Damper Service	Max d-c output current = 75 ma; max peak inverse voltage = 2,000 volts; max peak current = 450 ma										
Class A Amplifier	200	125	R _k = 180	46	2.2	28,000	8,000	—	4,000	3.8	17L6-GT
Class A Amplifier	110	110	7.5	49	4.0	13,000	8,000	—	2,000	2.1	17R6
Vertical Deflection Amplifier	110	110	8.5	40	3.3	13,000	7,000	—	—	—	17R6
Vertical Deflection Amplifier	45	110	0	120	17	—	—	—	—	—	17R6
Vertical Deflection Amplifier	Max positive pulse plate voltage = 1,500 volts; max d-c cathode current = 45 ma										
Horizontal Deflection Amplifier	200	125	17	40	1.1	27,000	4,800	—	—	—	18A5
Horizontal Deflection Amplifier	60	125	0	165	15	—	—	—	—	—	18A5
Horizontal Deflection Amplifier	Max positive pulse plate voltage = 3,000 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 90 ma										
Class A Amplifier	145	120	R _k = 180	45	6.0	—	7,500	—	2,500	2.0	18D28
Class A Amplifier	120	—	R _k = 1500	0.8	—	—	1,400	100	—	—	18D28
Class B Amplifier	135	—	0	5.0	—	Input Signal = 0.170 watt	—	—	10,000	2.1	19
TV Damper Service	Max d-c output current = 175 ma; max peak inverse voltage = 4,500 volts; max peak current = 1,050 ma										
TV Damper Service	Max d-c output current = 190 ma; max peak inverse voltage = 4,500 volts; max peak current = 1,150 ma										
Horizontal Deflection Amplifier	250	250	15	75	4	25,000	6,000	—	—	—	19AU4
Horizontal Deflection Amplifier	60	250	0	180	18	—	—	—	—	—	19AU4-GTA
Horizontal Deflection Amplifier	Max positive pulse plate voltage = 6,600 volts; max screen dissipation = 3.2 watts; max d-c cathode current = 110 ma										
Class A Amplifier	100	—	1.0	0.5	—	80,000	1,250	100	—	—	19C8
Class A Amplifier	100	—	R _k = 150	8.5	—	7,100	5,300	38	—	—	19T6
Class A Amplifier	250	—	3.0	1.0	—	58,000	1,200	70	—	—	19T8
Class A Amplifier	100	—	1.0	0.8	—	54,000	1,300	70	—	—	19T8
Class A Amplifier	250	—	3.0	1.0	—	58,000	1,200	70	—	—	19V8
Class A Amplifier	100	—	1.0	0.8	—	54,000	1,300	70	—	—	19V8

§ Approximate.

▲ Without external shield.

▲ Zero signal.

▲ Grids 3 and 5 are screen. Grid 4 is signal.

▲ Conversion transconductance.

▲ Maximum.

▲ Grids 2 and 4 are screen. Grid 3 is signal.

▲ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

▲ Absolute maximum rating.

▲ Plate-to-plate.

▲ Per section.

▲ Design maximum rating.

▲ For both sections.

▲ Minimum.

▲ Heater warm-up time controlled for series-acting service.

▲ Supply voltage.

▲ Input plate.

▲ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

▲ Section 1.

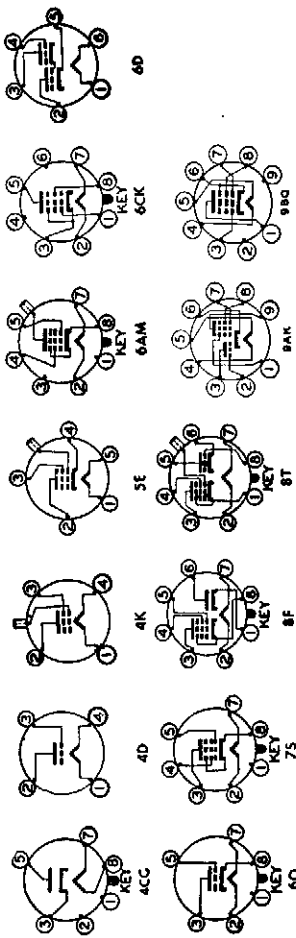
▲ Section 2.

▲ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
19X8	Triode-Pentode Converter	9AK	6-2	18.9	0.15	2.0	250	Pentode Section 0.4	
20	Power-Amplifier Triode	4D	9-25	3.3 DC	0.132	—	135	2.0	2.3
22	Sharp-Cutoff RF Tetrode	4K	14-2	3.3 DC	0.132	—	135	3.5	10.0
24A	Sharp-Cutoff RF Tetrode	5E	14-2	2.5	1.75	—	250	5.3	10.5
25A6 25A6-GT	Power-Amplifier Pentode	7S	8-6	25.0	0.3	5.3	160	8.5	12.5
25A7-GT	Half-Wave Rectifier Power Amplifier Pentode	8F	9-11	25.0	0.3	2.25	117	1.9	—
25AC5-GT	Triode Power Amplifier	6Q	9-11	25.0	0.3	10	180	—	—
25AV5-GA	Beam Power Amplifier	6CK	T-X	25.0	0.3	11	550	14	7.0
25AV5-GT	Beam Power Amplifier	6CK	9-11 or 9-41	25.0	0.3	11	550	14	7.0
25AX4-GT	Half-Wave High-Vacuum Rectifier	4CG	9-11 or 9-41	25.0	0.3	4.8	—	Tube Voltage Drop: 32 v at 250 ma d-c	
25B5	Direct-Coupled Power Amplifier	6D	12-1	25.0	0.3	8.5	180	—	—
25B6-G	Power Amplifier Pentode	7S	14-3	25.0	0.3	12.5	200	135	—
25B8-GT	Triode Remote-Cutoff Pentode	8T	9-24	25.0	0.15	—	100	Pentode Section Triode Section	
25BK5	Beam Power Amplifier	9BQ	6-3	25.0	0.3	9.0	250	13	5.0
25BQ6-GA 25BQ6-GTB	Beam Power Amplifier	6AM	T-X 9-49 or 9-50	25.0	0.3	11	600	200	7.0
25BQ6-GT	Beam Power Amplifier	6AM	9-49 or 9-50	25.0	0.3	11	550	175	7.5

Metal tubes are shown in bold-face type, miniature tubes in italics.

Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μ mbhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	250	150	R _k = 200	7.7	1.6	750,000	4,600	—	—	—	19X8
Class A Amplifier	100	—	R _k = 100	8.5	—	6,900	5,800	40	—	—	20
Class A Amplifier	135	—	22.5	6.5	—	6,300	525	3.3	6,500	0.110	22
Class A Amplifier	135	67.5	1.5	3.7	1.3	325,000	500	—	—	—	24A
Class A Amplifier	250	90	3.0	4.0	1.7	600,000	1,050	—	—	—	25A6 25A6-GT
Class A Amplifier	160	120	18	33	6.5	42,000	2,375	—	5,000	2.2	25A7-GT
Class A Amplifier	100	100	1.5	20.5	4.0	50,000	1,800	—	4,500	0.77	25AC5-GT
Max d-c output current = 75 ma; max peak inverse voltage = 350 v; max rms supply voltage = 117 v; max peak current = 450 ma	180	—	0	4.0	—	Peak Input Signal = 0.810 watt	—	—	4,800	6.0	25AV5-GA
Class B Amplifier	250	150	22.5	57	2.1	14,500	5,900	—	—	—	25AV5-GT
Horizontal Deflection Amplifier	60	150	0	260	26	Max positive pulse plate voltages = 5,500 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma	—	—	—	—	25BK5
Horizontal Deflection Amplifier	250	150	22.5	55	2.1	20,000	5,500	—	—	—	25BQ6-GA 25BQ6-GTB
Max positive pulse plate voltages = 5,500 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma	180	100	—	0.6	—	75,000	1,500	112	—	—	25B8-GT
TV Damp-er Services	180	100	0	46	5.8	15,000	2,300	—	4,000	3.8	25B5
Class A Amplifier	200	135	23	62	1.8	18,000	5,000	—	2,500	7.1	25B6-G
Class A Amplifier	100	100	3.0	7.6	2.0	185,000	2,000	—	—	—	25B8-GT
Class A Amplifier	250	250	5.0	35	3.5	100,000	8,500	—	6,500	3.5	25BK5
Horizontal Deflection Amplifier	250	150	22.5	57	2.1	14,500	5,900	—	—	—	25BQ6-GA 25BQ6-GTB
Max positive pulse plate voltages = 6,000 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma	180	150	0	260	26	Max positive pulse plate voltages = 6,000 volts; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma	—	—	—	—	25BQ6-GT

Per section.

Design maximum rating.

For both sections.

Heater warm-up time controlled for series-string service.

Supply plate.

Input plate.

The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

Section 1.

Section 2.

A resistor of 3 ohms must be put in series with heater.

Approximate.

Without external shield.

Zero signal.

Grids 3 and 5 are screen. Grid 4 is signal-input grid.

Conversion transconductance.

Maximum.

Grids 2 and 4 are screen. Grid 3 is signal-input grid.

Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

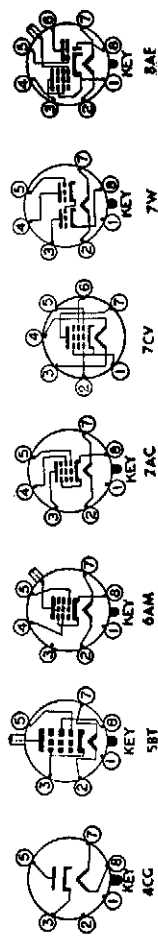
Absolute maximum rating.

Plate-to-plate.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts & Watts	Capacitance in Micromicrofarads	
									Input	Output
25C5	Beam Power Amplifier	7CV	5-3	25.0	0.3	6.0	135	117 1.25	13	8.5
25C6-G 25C6-GA	Beam Power Amplifier	7AC	14-3 12-16	25.0	0.3	12.5	200	135 1.75	—	—
25C6S	Beam Power Amplifier	7CV	5-3	25.0	0.3	5.0	130	130 1.4	15	9.0
25C6G 25C6G-GA	Beam Power Amplifier	5BT	16-5	25.0	0.6	15	700	175 3.0	25	9.5
25C6G-GB	Beam Power Amplifier	5BT	12-17	25.0	0.6	20	700	175 3.0	22	8.5
25C6G	Beam Power Amplifier	6AM	T-X	25.0	0.3	11	600	200 2.5	15	7.0
25D8-GT	Diode-Triode-Pentode	8AF	9-23	25.0	0.15	—	100	100	Pentode Section Triode Section	
25DN6	Beam Power Amplifier	5BT	12-21	25.0	0.6	15	700	175 3.0	22	11.5
25DQ6	Beam Power Amplifier	6AM	T-X	25.0	0.3	15	550	175 2.5	15	7.0
25EC6	Beam Power Amplifier	5BT	T-X	25	0.6	10	700	175 4.0	24	10
25EH5	Power-Amplifier Pentode	7CV	5-3	25	0.3	5.0	135	117 1.75	17	9.0
25F5	Beam Power Amplifier	7CV	5-3	25.0	0.15	4.5	135	117 1.0	—	—
25L6	Beam Power Amplifier	7AC	8-6	25.0	0.3	10	200	117 1.25	16.0	13.5
25L6-GT	Beam Power Amplifier	7AC	9-11 or 9-11	25.0	0.3	10	200	125 1.25	15	10
25N6-G	Direct-Coupled Power Amplifier	7W	12-3	25.0	0.3	8.5 1.1	180 180	—	—	—
25W4-GT	Half-Wave High-Voltage Rectifier	4CG	9-11 or 9-11	25.0	0.3	3.5	Tube Voltage Drop: 21 v at 250 ma d-c	—	—	—

Metal tubes are shown in bold-face type, miniature tubes in italics.

⑨ Subminiature type.



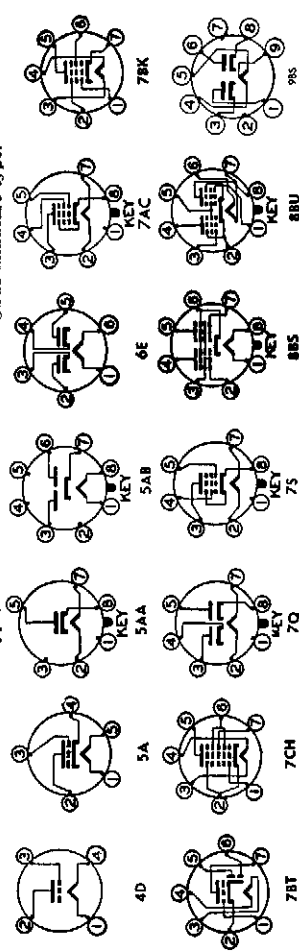
Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-amp-peres	Screen Milli-amp-peres	R _p Ohms	G _m μmhos	Load for Rated Out-put, Ohms	Power for Out-put, Watts	Tube Type
Class A Amplifier	120	110	8.0	40†	4.0†	10,000§	7,500	2,500	2.3	25C6
Class A Amplifier	200	135	14	61†	2.2†	18,300†	7,100	2,600	6.0	25C6-G 25C6-GA
Class A Amplifier	125	125	4.5	37†	4.0†	15,000§	9,200	4,500	1.5	25C6S
Horizontal Deflection Amplifier	175	175	30	75	5.5	7,200§	7,700	3,500	1.1	25C6G-G 25C6G-GA
Horizontal Deflection Amplifier	175	175	30	75	5.5	7,200§	7,700	3,500	1.1	25C6G-GB
Horizontal Deflection Amplifier	175	175	30	75	5.5	7,200§	7,700	3,500	1.1	25C6G
Horizontal Deflection Amplifier	250	150	22.5	57	2.1	14,500§	5,900	—	—	25C6G
Class A Amplifier	100	100	3.0	8.5	2.7	200,000	1,900	—	—	25D8-GT
Horizontal Deflection Amplifier	125	125	18	70	6.3	4,000§	9,000	—	—	25DN6
Horizontal Deflection Amplifier	250	150	22.5	75	2.4	20,000§	6,000	—	—	25DQ6
Horizontal Deflection Amplifier	135	135	22.5	70	4.5	4,700§	7,500	—	—	25EC6
Class A Amplifier	110	115	R _k = 62	42†	11.5†	11,000	14,600	8,000	1.4	25EH5
Class A Amplifier	110	110	7.5	36†	3.0†	16,000§	5,800	2,500	1.2	25F5
Class A Amplifier	200	110	8.0	50†	2.0†	30,000§	9,500	3,000	4.3	25L6
Class A Amplifier	200	125	R _k = 180	46†	2.2†	28,000§	8,000	4,000	3.8	25L6-GT
Class A Amplifier	180	100	0	46	5.8	15,000	2,300	4,000	3.8	25N6-G
TV Damp-er Services	Max d-c output current = 125 ma; max peak inverse voltage = 3850 volts; max peak current = 750 ma									

- † Approximate.
 ‡ Without external shield.
 § Design maximum rating.
 ¶ For both sections.
 * Minimum.
 † Heater warm-up time controlled for series-string service.
 ‡ Supply voltage.
 † Input plate.
 † The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 † Section 1.
 † Section 2.
 † A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
25W6-GT	Beam Power Amplifier	7AC	9-11 or 9-41	25.0	0.3	10 7.5	150 1.25	Pentode Connection	—
25X6-GT	High-Vacuum Rectifier Doubler	7Q	9-11	25.0	0.15	—	—	Triode Connection (G ₂ & P tied)	—
25Y5	High-Vacuum Rectifier Doubler	6E	12-5	25.0	0.3	—	—	—	—
25Z4	Half-Wave High-Vacuum Rectifier	5AA	8-1	25.0	0.3	—	—	Tube Voltage Drop: 25 v at 250 ma d-c	—
25Z5	High-Vacuum Rectifier Doubler	6E	12-5	25.0	0.3	—	—	Tube Voltage Drop: 22 v at 150 ma d-c	—
25Z6	High-Vacuum Rectifier Doubler	7Q	8-6 or 9-11	25.0	0.3	—	—	Tube Voltage Drop: 22 v at 150 ma d-c	—
26	Medium-Mu Triode	4D	14-1	1.5	1.05	—	180	2.8	2.5
26A6	Remote-Cutoff RF Pentode	7BK	5-2	26.5	0.07	5.3	250 0.4	6.0	0.0035
26A7-GT	Twin-Pentode Power Amplifier	8BU	9-33 or 9-44	26.5	0.6	2.0	50 0.5	16.0	13.0
26C6	Duplex Diode Medium-Mu Triode	7BT	5-2	26.5	0.07	2.5	250	1.8	1.4
26CG6	Remote-Cutoff Pentode	7BK	5-2	26.5	0.07	4.0	150 0.75	5.0	0.008
26D6	Pentagrid Converter	7CH	5-2	26.5	0.07	1.0	300	Osc I _{g1} = 0.5 ma R _{g1} = 20,000 ohms	—
26E6-G	Beam Power Amplifier	7S	T-X	26.5	0.3	12.5	200 1.5	—	—
26Z5	Full-Wave High-Vacuum Rectifier	9BS	6-2	26.5	0.2	—	—	Tube Voltage Drop: 22 v at 100 ma d-c	—
27	Medium-Mu Triode	5A	12-5	2.5	1.75	—	275	3.1	2.3
28D7	Double Beam Power Amplifier	8BS	9-31	28.0	0.4	3.0	100 0.5	—	—
28Z5	Full-Wave High-Vacuum Rectifier	5AB	9-31	28.0	0.24	—	—	Tube Voltage Drop: 40 v at 100 ma d-c	—

Metal tubes are shown in bold-face type, miniature tubes in italics.

©Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-amp. per sec	R _p Ohms	G _m μmhos	μ Fac- tor	Load Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	200	125	R _k = 180	46†	28,000§	8,000	—	4,000	3.8	25W6-GT
Vertical Deflection Amplifier	110	110	7.5	49†	13,000§	8,000	—	2,000	2.1	25Y5
Rectifier or Doubler	225	—	30	22	1,600§	3,900	6.2	—	—	25Z4
Rectifier or Doubler	200	125	4.5	20†	1.9†	—	—	—	—	26
Rectifier or Doubler	250	100	R _k = 125	10.5	4.0	1,000,000	4,000	—	—	26A6
Class A Amplifier	250	26.5	R _k = 2 meg	1.7	0.7	250,000	2,000	—	—	26A7-GT
Class A Amplifier	250	26.5	9.0	9.5	—	8,500	1,900	—	—	26C6
Class A Amplifier	250	150	8.0	9.0	2.3	720,000	2,000	—	—	26CG6
Converter	250	100	1.5	3.0	7.8	1,000,000§	475 #	—	—	26D6
Class A Amplifier	200	135	14	61†	3.0†	18,000	7,100	2,500	6.0	26E6-G
Full-Wave Rectifier	250	28	3.5	12.5†	1.0†	4,200	3,400	4,000	0.100	28D7
Full-Wave Rectifier	250	28	3.5	12.5†	1.0†	4,200	3,400	4,000	0.100	28Z5

§ Approximate.

† Without external shield.

‡ Zero signal.

§ Grids 3 and 5 are screen. Grid 4 is signal-input grid.

Conversion transconductance.

Maximum.

Grids 2 and 4 are screen. Grid 3 is signal-input grid.

Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

Absolute maximum rating.

Plate-to-plate.

Per section.

Design maximum rating.

For both sections.

Minimum.

Heater warm-up time controlled for series-string service.

Supply voltage.

Input plate.

The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

Section 1.

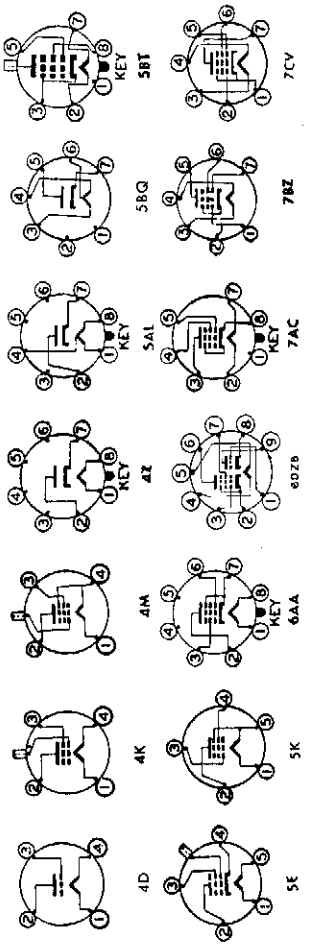
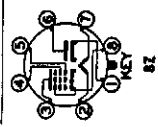
Section 2.

A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Out-put
30	Medium-Mu Triode	4D	12-5 or 9-26	2.0 DC	0.06	—	180	3.0 ▲	2.2 ▲ 6.0 ▲
31	Power-Amplifier Triode	4D	12-5	2.0 DC	0.13	—	180	3.5	2.7 5.7
32	Sharp-Cutoff RF Tetrode	4K	14-2	2.0 DC	0.06	—	180	5.3 ▲	10.5 ▲ 0.015
32L7-GT	Half-Wave Rectifier Beam Power Amplifier	8Z	9-11	32.5	0.3	—	90	—	— —
33	Power-Amplifier Pentode	5K	14-1	2.0 DC	0.26	—	180	8.0	12.0 1.0
34	Remote-Cutoff RF Pentode	4M	14-2	2.0 DC	0.06	—	180	6.0 ▲	11.0 ▲ 0.015
35/51	Remote-Cutoff RF Tetraode	5E	14-2	2.5	1.75	—	275	5.3 ▲	10.5 ▲ 0.007
35A5	Beam Power Amplifier	6A	9-31	35.0	0.15	8.5	200	—	— —
35B5	Beam Power Amplifier	7BZ	5-3	35.0	0.15	4.5	117	11 ▲	6.5 ▲ 0.4 ▲
35C5	Beam Power Amplifier	7CV	5-3	35.0	0.15	4.5	117	12 ▲	9.0 ▲ 0.6 ▲
35CD6-GA	Beam Power Amplifier	5BT	12-21	35.0	0.45	20	700	22 ▲	8.5 ▲ 1.1 ▲
35DZ8	Triode-Pentode	6DZ8	T-X	35.0	0.15	6.5	135	Periodic Section 1.5	Triode Section
35L6-GT	Beam Power Amplifier	7AC	9-11 or 9-41	35.0	0.15	0.75	150	—	— —
35W4	Half-Wave High-Vacuum Rectifier	5BQ	5-3	35.0	0.15	8.5	200	125	1.0
35Y4	Half-Wave High-Vacuum Rectifier	5AL	9-31	35.0	0.15	—	Tube Voltage Drop: 18 v at 200 ma d-c	—	—
35Z3	Half-Wave High-Vacuum Rectifier	4Z	9-31	35.0	0.15	—	Tube Voltage Drop: 18 v at 200 ma d-c	—	—

Metal tubes are shown in bold-face type, miniature tubes in italics.

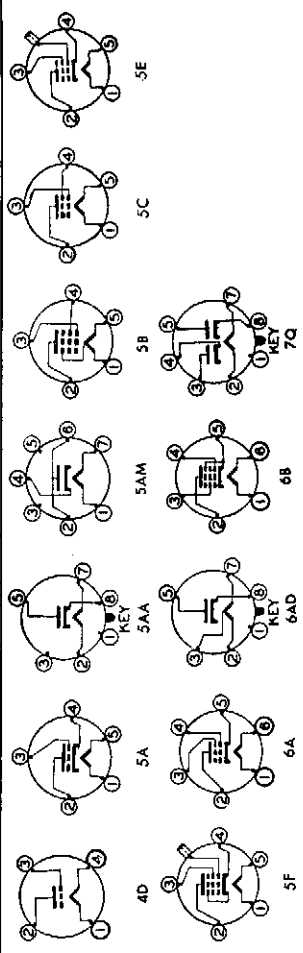
©Subminiature type.

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- 5. Approximate.
- † Without external shield.
- ‡ Zero signal.
- § Grids 3 and 5 are screen. Grid 4 is signal-input grid.
- ¶ Conversion transconductance.
- * Maximum.
- ‡ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
- § Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
- ¶ Absolute maximum rating.
- † Plate-to-plate.
- ‡ Per section.
- § Design maximum rating.
- ¶ For both sections.
- * Minimum.
- ‡ Heater warm-up time controlled for series-string service.
- § Supply voltage.
- ¶ Input plate.
- ‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
- § Section 1.
- ¶ Section 2.
- ‡ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
35Z4-GT	Half-Wave High-Vacuum Rectifier	5AA	9-11	35.0	0.15	—	—	Tube Voltage Drop: 18 v at 200 ma d-c	
35Z5-GT	Half-Wave High-Vacuum Rectifier	6AD	9-11 or 9-41	35.0	0.15	—	—	Tube Voltage Drop: 18 v at 200 ma d-c	
35Z6-G	High-Vacuum Rectifier Doubler	7Q	14-3	35.0	0.3	—	—	Tube Voltage Drop: 20 v at 220 ma d-c	
36	Sharp-Cutoff RF Tetrode	5E	12-6	6.3	0.3	0.8	90.0 0.16	3.8 ▲	9.0 ▲ 0.007
37	Medium-Mu Triode	5A	12-5	6.3	0.3	—	—	3.5	2.9 2.0
38	Power-Amplifier Pentode	5F	12-6	6.3	0.3	—	250	3.5	7.5 0.30
39/44	Remote-Cutoff RF Pentode	5F	12-6	6.3	0.3	1.5	90 0.15	3.8 ▲	10.0 ▲ 0.007
40	Medium-Mu Triode	4D	14-1	5.0 DC	0.25	—	—	2.8	2.2 2.0
41	Power-Amplifier Pentode	6B	12-5	6.3	0.4	8.5	285 2.8	—	—
42	Power-Amplifier Pentode	6B	14-1	6.3	0.7	11	285 3.75	—	—
43	Power-Amplifier Pentode	6B	14-1	25.0	0.3	5.3	180 1.9	8.5	12.5 0.2
45	Power-Amplifier Triode	4D	14-1	2.5	1.5	10	—	4.0	3.0 7.0
46Z3	Half-Wave High-Vacuum Rectifier	5AM	5-2	45.0	0.075	—	—	Tube Voltage Drop: 23 v at 130 ma d-c	
45Z5-GT	Half-Wave High-Vacuum Rectifier	6AD	9-11	45.0	0.15	—	—	Tube Voltage Drop: 16 v at 200 ma d-c	
46	Dual-Grid Power-Amplifier	5C	10-1	2.5	1.75	10	—	Single tube (G ₂ & P tied)	
47	Power-Amplifier Pentode	5B	16-1	2.5	1.75	—	250	8.6	13.0 1.2
48	Power-Amplifier Tetrode	6A	16-1	30.0 DC	0.4	—	125	—	—
49	Dual-Grid Power-Amplifier	5C	14-1	2.0 DC	0.12	—	135	Single tube (G ₂ & P tied)	
50	Power-Amplifier Triode	4D	T-X	7.5	1.25	25	450	4.2	3.4 7.1

Metal tubes are shown in bold-face type, miniature tubes in *italics*. ⓈSubminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p ' Ohms	G _m ' μmhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Half-Wave Rectifier	250	90	3.0	3.2	1.7	550,000	1,080	—	—	—	35Z4-GT
Half-Wave Rectifier	250	—	18	7.5	—	8,400	1,100	9.2	—	—	35Z5-GT
Rectifier or Doubler	250	250	25	22	3.8	100,000	1,200	—	10,000	2.5	35Z6-G
Class A Amplifier	250	90	3.0*	5.8	1.4	1,000,000	1,050	—	—	—	36
Class A Amplifier	180	—	3.0	0.2	—	150,000	200	30	250,000	—	37
Class A Amplifier	250	250	18	32†	5.5†	90,000	2,300	—	7,600	3.4	38
Class A Amplifier	285	285	20	38†	7.0†	78,000	2,550	—	7,000	4.8	39/44
Class A Amplifier	160	120	18	33†	6.5†	42,000	2,375	—	5,000	2.2	40
Class A Amplifier	275	—	56	36†	—	1,700	2,050	3.5	4,600	2.0	41
Half-Wave Rectifier	250	—	—	—	—	—	—	—	—	—	42
Half-Wave Rectifier	250	250	16.5	31†	6.0†	60,000	2,500	—	7,000	2.7	43
Class A Amplifier	125	100	20	56	9.5	—	3,900	—	1,500	2.5	44
Class A Amplifier	135	—	20	6.0	—	4,175	1,125	4.7	11,000	0.170	45
Class A Amplifier	450	—	84	55	—	1,800	2,100	3.8	4,350	4.6	46
Class A Amplifier	250	—	33	22†	—	2,350	2,350	5.6	6,400	1.25	47
Class A Amplifier	250	250	16.5	31†	6.0†	60,000	2,500	—	7,000	2.7	48
Class A Amplifier	125	100	20	56	9.5	—	3,900	—	1,500	2.5	49
Class A Amplifier	135	—	20	6.0	—	4,175	1,125	4.7	11,000	0.170	50

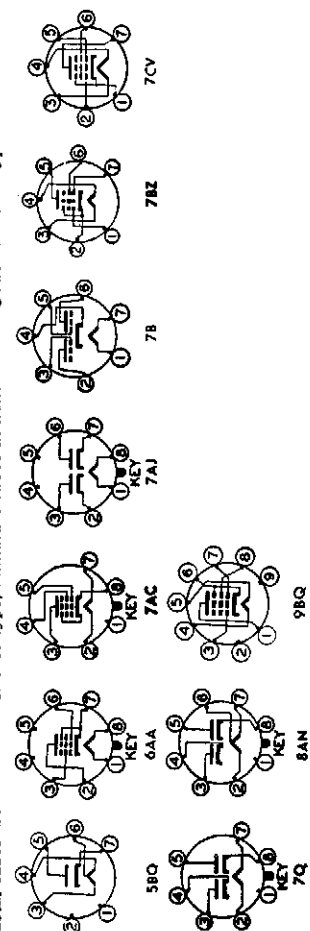
Ⓢ Approximate.
▲ Without external shield.
† Zero signal.
‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
Conversion transconductance.
* Maximum.
*† Grids 2 and 4 are screen. Grid 3 is signal-input grid.
* Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
‡ Absolute maximum rating.
† Plate-to-plate.

◆ Per section.
◆ Design maximum rating.
◆ For both sections.
* Heater warm-up time controlled for series-string service.
‡ Supply voltage.
‡ Input plate.
‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
‡ Section 1.
‡ Section 2.
‡ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Outline Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
50A5	Beam Power Amplifier	6AA	9-31	50.0	0.15	10	200	125 1.25	—
50AX6-G	Full-Wave High-Vacuum Rectifier	7Q	14-3	50.0	0.3	—	Tube Voltage Drop: ♦ 21 v at 250 ma d-c		
50B5	Beam Power Amplifier	7BZ	5-3	50.0	0.15	6.0	135	117 1.25	8.5▲
50BK5	Beam Power Amplifier	9BQ	6-3	50.0	0.15	9.0	250	250 2.5	13▲
50C5	Beam Power Amplifier	7CV	5-3	50.0	0.15	6.0	135	117 1.25	13.0▲
50C6-G 50C6-GA	Beam Power Amplifier	7AC	14-3 12-16	50	0.15	12.5	200	200 1.75	—
50CA5	Beam Power Amplifier	7CV	5-3	50.0	0.15	5.0	130	130 1.4	15▲
50DC4	Half-Wave High-Vacuum Rectifier	5BQ	5-3	50.0	0.15	—	Tube Voltage Drop: ♦ 21 volts at 240 ma d-c		
50EH5	Power-Amplifier Pentode	7CV	5-3	50	0.15	5.0	200	117 1.75	17▲
50L6-GT	Beam Power Amplifier	7AC	9-11 or 9-41	50.0	0.15	10	135	125 1.25	—
50X6	High-Vacuum Rectifier-Doubler	7AJ	9-31	50.0	0.15	—	Tube Voltage Drop: ♦ 22 v at 150 ma d-c		
50Y6-GT	High-Vacuum Rectifier-Doubler	7Q	9-11	50.0	0.15	—	Tube Voltage Drop: ♦ 22 v at 150 ma d-c		
50Y7-GT	High-Vacuum Rectifier-Doubler	8AN	9-11 or 9-41	50.0	0.15	—	Tube Voltage Drop: ♦ 22 v at 150 ma d-c		
50Z6-G	High-Vacuum Rectifier-Doubler	7Q	14-3	50.0	0.3	—	—	—	—
50Z7-G	High-Vacuum Rectifier-Doubler	8AN	12-7	50.0	0.15	—	Tube Voltage Drop: ♦ 21 v at 130 ma d-c		
53	Twin-Triode Power Amplifier	7B	14-1	2.5	2.0	1.0♦	300	—	Both Sections in Push-pull Both Sections in Parallel

Metal tubes are shown in bold-face type, miniature tubes in italics.

©Subminiature type.



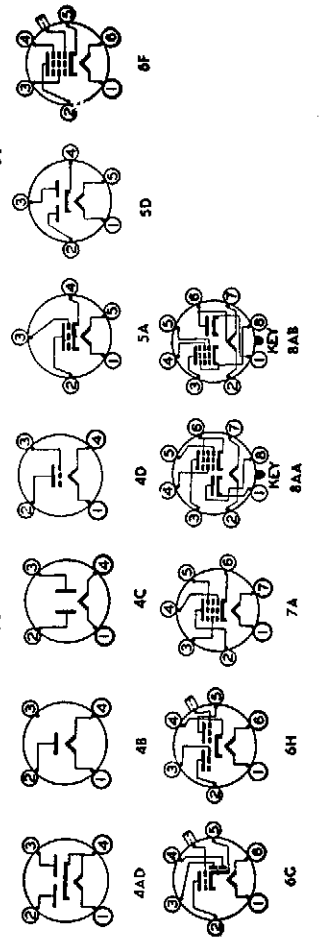
Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	R_p , Ohms	G_m , μ mbos	μ Fac- tor	Load for Rated Out- put, Ohms	Power for Out- put, Watts	Tube Type
Class A Amplifier	200	125	$R_k = 146\frac{1}{2}$ 180	46†	2.2†	28,000§	8,000	—	4,000	3.8	50A5
	110	110	7.5	49†	4.0†	13,000§	8,000	—	2,000	2.1	
Full-Wave Rectifier	Max d-c output current = 250 ma; max peak inverse voltage = 1250 volts; rms supply voltage per plate = 350 volts; max peak current per plate = 600 ma										
	Max d-c output current per plate = 125 ma; max peak inverse voltage = 2000 volts; max peak current per plate = 600 ma										
Class A Amplifier	120	110	8.0	49†	4.0†	10,000§	7,500	—	2,500	2.3	50B5
Class A Amplifier	250	250	5.0	35†	3.5†	100,000§	8,500	—	6,500	3.5	50BK5
Class A Amplifier	120	110	8.0	49†	4.0†	10,000§	7,500	—	2,500	2.3	50C5
Class A Amplifier	135	135	13.5	58†	3.5†	9,300§	7,000	—	2,000	3.6	50C6-G
	200	135	14	61†	2.2†	18,300§	7,100	—	2,600	6.0	50C6-GA
Class A Amplifier	125	125	4.5	37†	4.0†	15,000§	9,200	—	4,500	1.5	50CA5
	110	110	4.0	32†	3.5†	16,000§	8,100	—	3,500	1.1	
Half-Wave Rectifier	Max d-c output current $\diamond = 120$ ma; max peak inverse voltage $\diamond = 330$ volts; max rms supply voltage $\diamond = 117$ volts; max peak current $\diamond = 720$ ma. With panel lamp #40 or #47 between pins 1 and 4 and no shunting resistor, max d-c output current $\diamond = 70$ ma										
Class A Amplifier	110	115	$R_k = 62$	42†	11.5†	11,000	14,600	—	8,000	1.4	50EH5
Class A Amplifier	200	125	$R_k = 180$	46†	2.2†	28,000§	8,000	—	4,000	3.8	50L6-GT
	110	110	7.5	49†	4.0†	13,000§	8,000	—	2,000	2.1	50X6
Rectifier or Doubler	Max d-c output current per plate = 75 ma; max peak inverse voltage = 700 volts; rms supply voltage per plate = 235 volts; max peak current per plate = 450 ma										
Rectifier or Doubler	Max d-c output current per plate = 75 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 450 ma										50Y6-GT
Rectifier or Doubler	Max d-c output current per plate = 75 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 450 ma										50Y7-GT
	With panel lamp #40 or #47 between pins 6 and 7 and no shunting resistor, max d-c output current per plate = 60 ma. With panel lamp and 250 ohm shunting resistor (max), max d-c output per plate = 65 ma.										
Rectifier or Doubler	Max d-c output current per plate = 125 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 750 ma										50Z6-G
Rectifier or Doubler	Max d-c output current per plate = 65 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 400 ma. Ratings also apply with panel lamp 292 or 292A between pins 6 and 7.										50Z7-G
Class B Amplifier	300	—	0.0	17.5†	—	—	—	—	8,000	10§	53
Class A Amplifier	294	—	6.0	7.0	—	11,000	3,200	35	†	—	

♦ Approximate.
 ▲ Without external shield.
 ◆ Zero signal.
 * Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 # Conversion trans-conductance.
 ♦ Maximum.
 ♦ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
 * Given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 ♦ Absolute maximum rating.
 Plate-to-plate.
 ♦ Per section.
 ♦ Design maximum rating.
 ♦ For both sections.
 * Minimum.
 * Heater warm-up time controlled for series-string service.
 ♦ Supply voltage.
 ♦ Input plate.
 ! The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ! Section 1.
 ! Section 2.
 ! A resistor of 3 ohms must be put in series with heater.

◆ Per section.
◆◆ Design maximum rating.
◆◆ For both sections.
* Minimum.
* Heater warm-up time controlled for series-string service.
2 Supply voltage.
3 Input plate.
— The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
— Section 1.
— Section 2.
— A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Watts	Capacitance in Micromicrofarads	
								Input	Output
55	Duplex Diode Medium-Mu Triode	6G	12-6	2.5	1.0	250	—	—	—
56	Medium-Mu Triode	5A	12-5	2.5	1.0	250	—	—	—
57	Sharp-Cutoff Pentode	6F	12-2	2.5	1.0	0.75	125	Pentode Connection	
						1.75	250	Triode Connection (Gs, G ₂ , & P Tied)	
58	Remote-Cutoff RF Pentode	6F	12-2	2.5	1.0	2.25	300	—	—
59	Power-Amplifier Pentode	7A	16-1	2.5	2.0	10	250	—	—
70A7-GT	Half-Wave Rectifier Beam Power Amplifier	8AB	9-11	70.0	0.15	—	110	—	—
						—	—	Tube Voltage Drop: 14 v at 120 ma d-c	
70L7-GT	Half-Wave Rectifier Beam Power Amplifier	8AA	9-15	70.0	0.15	—	117	—	—
						—	—	Tube Voltage Drop: 20 v at 140 ma d-c	
71-A	Power-Amplifier Triode	4D	14-1	5.0	0.25	—	180	3.2	2.9
75	Duplex Diode High-Mu Triode	6G	12-6	6.3	0.3	—	250	—	—
76	Medium-Mu Triode	5A	12-5	6.3	0.3	—	250	3.5	2.5
77	Sharp-Cutoff Pentode	6F	12-6	6.3	0.3	0.75	100	4.7	11.0
78	Remote-Cutoff RF Pentode	6F	12-6	6.3	0.3	2.75	300	4.5	11.0
79	Twin-Triode Power Amplifier	6H	12-6	6.3	0.6	11.5	250	Both Sections in Push-pull	
80	Full-Wave High-Vacuum Rectifier	4C	14-1	5.0	2.0	—	—	Tube Voltage Drop: 60 v at 125 ma d-c	
81	Half-Wave High-Vacuum Rectifier	4B	T-X or 16-1	7.5	1.25	—	—	Tube Voltage Drop: 91 v at 170 ma d-c	
82	Full-Wave Mercury-Vapor Rectifier	4C	14-1	2.5	3.0	—	—	Tube Voltage Drop: 15 v	
83	Full-Wave Mercury-Vapor Rectifier	4C	16-1	5.0	3.0	—	—	Tube Voltage Drop: 15 v	
83-V	Full-Wave High-Vacuum Rectifier	4AD	14-1	5.0	2.0	—	—	Tube Voltage Drop: 25 v at 175 ma d-c	
84/6Z4	Full-Wave High-Vacuum Rectifier	5D	12-5	6.3	0.5	—	—	Tube Voltage Drop: 20 v at 60 ma d-c	
85	Duplex Diode Medium-Mu Triode	6G	12-6	6.3	0.3	—	250	1.5	4.3

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

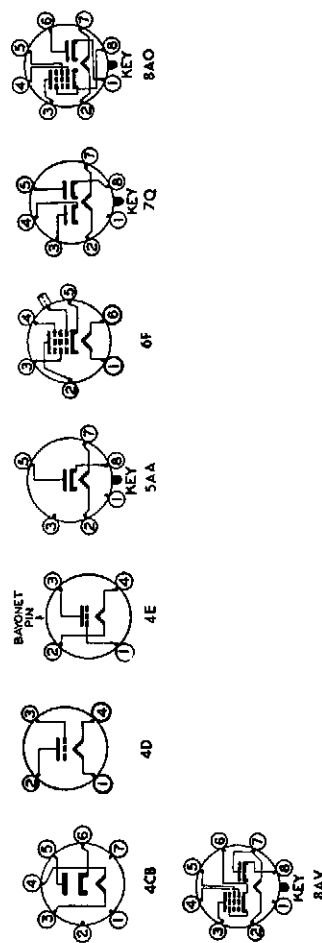


Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μmhos	μ Factor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	250	—	20	8.0†	—	7,500	1,100	8.3	20,000	0.350	55
Class A Amplifier	250	—	13.5	5.0	—	9,500	1,450	13.8	—	—	56
Class A Amplifier	250	100	3.0	2.0	0.5	1,000,000*	1,225	—	—	—	57
Class A Amplifier	250	—	8.0	6.5	—	10,500	1,900	20	—	—	58
Class A Amplifier	250	100	3.0	8.2	2.0	800,000‡	1,600	—	—	—	59
Class A Amplifier	250	250	18	35	9.0	40,000	2,500	—	6,000	3.0	70A7-GT
Class A Amplifier Half-Wave Rectifier	110	110	7.5	40†	3.0†	—	5,800	—	2,500	1.5	70L7-GT
Max d-c output current = 60 ma; max rms supply voltage = 125 volts. A panel lamp must be connected between pins 6 and 7.											
Class A Amplifier Half-Wave Rectifier	110	110	7.5	40†	3.0†	15,000	7,500	—	2,000	1.8	70L7-GT
Max d-c output current = 70 ma; max peak inverse voltage = 350 volts; max rms supply voltage = 117 volts; max peak current = 420 ma											
Class A Amplifier	180	—	40.5	20†	—	1,750	1,700	3.0	4,800	0.790	71-A
Class A Amplifier	250	—	2.0	0.9	—	91,000‡	1,100	100	—	—	75
Class A Amplifier	250	—	13.5	5.0	—	9,500	1,450	13.8	—	—	76
Class A Amplifier	250	100	3.0	2.3	0.5	1,000,000*	1,250	—	—	—	77
Class A Amplifier	250	125	3.0	10.5	2.6	600,000‡	1,650	—	—	—	78
Class B Amplifier	250	—	0	10.5†	—	Input signal = 380 watt			14,000	8.0‡	79
Full-Wave Rectifier	Max d-c output current = 125 ma; max peak inverse voltage = 1400 volts; rms supply voltage per plate = 350 volts; max peak current per plate = 400 ma										
Half-Wave Rectifier	Max d-c output current = 85 ma; max peak inverse voltage = 2000 volts; max rms supply voltage = 700 volts; max peak current = 500 ma										
Full-Wave Rectifier	Max d-c output current = 115 ma; max peak inverse voltage = 1,550 volts; max rms supply voltage per plate = 450 volts; max peak current per plate = 600 ma										
Full-Wave Rectifier	Max d-c output current = 225 ma; max peak inverse voltage = 1,550 volts; max rms supply voltage per plate = 450 volts; max peak current per plate = 1,000 ma										
Full-Wave Rectifier	Max d-c output current = 175 ma; max peak inverse voltage = 1400 volts; max rms supply voltage per plate = 375 volts; max peak current per plate = 525 ma										
Full-Wave Rectifier	Max d-c output current = 60 ma; max peak inverse voltage = 1,250 volts; max rms supply voltage per plate = 325 volts; max peak current per plate = 180 ma										
Class A Amplifier	250	—	20	8†	—	7,500	1,100	8.3	20,000	0.350	85

§ Approximate.
† Without external shield.
‡ Zero signal.
* Grids 3 and 5 are screen. Grid 4 is signal input grid.
Conversion transconductance.
‡ Maximum.
‡ Grids 2 and 4 are screen. Grid 3 is signal input grid.
‡ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
‡ Absolute maximum rating.
‡ Plate-to-plate.

◆ Per section.
◆ Design maximum rating.
◆ For both sections.
‡ Heater warm-up time controlled for series-string service.
‡ Supply plate.
‡ Input plate.
‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
‡ Section 1.
‡ Section 2.
‡ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Outline Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads		
								Input	Output	Grid-plate
89	Power-Amplifier Pentode	6P	12-6	6.3	0.4	—	—	—	—	Triode connection (Gr, G ₁ & P tied) Pentode connection
V99 X99	Low-Mu Triode	4E 4D	T-X 9-25	3.3 DC	0.063	—	—	2.5	2.5	3.3
117L7/ M7-GT	Half-Wave Rectifier Beam Power Amplifier	8AO	9-15	117	0.09	117	117	—	—	—
117N7-GT	Half-Wave Rectifier Beam Power Amplifier	8AV	9-15	117	0.09	117	117	—	—	—
117P7-GT	Half-Wave Rectifier Beam Power Amplifier	8AV	9-15	117	0.09	117	117	—	—	—
117Z3	Half-Wave High-Vacuum Rectifier	4CB	5-3	117	0.04	—	—	—	—	—
117Z4-GT	Half-Wave High-Vacuum Rectifier	5AA	9-5	117	0.04	—	—	—	—	—
117Z6-GT	High-Vacuum Rectifier Doubler	7Q	9-11	117	0.075	—	—	—	—	—



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Sp. Ohms	Gm. μ hos	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	250	—	31	32†	—	1,800	5,500	0.900	89
Class A Amplifier	250	250	25	32†	5.5†	1,800	6,750	3.4	
Class A Amplifier	90	—	4.5	2.5	—	425	—	—	V99 X99
Class A Amplifier	105	105	5.2	43†	4†	5,300	4,000	0.85	117L7/ M7-GT
Class A Amplifier	100	100	6.0	51†	5†	7,000	3,000	1.2	117N7-GT
Class A Amplifier	105	105	5.2	43†	4†	5,300	4,000	0.85	117P7-GT
Half-Wave Rectifier	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	117Z3
Half-Wave Rectifier	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	Max d-c output current = 90 ma; max peak inverse voltage = 330 volts; max rms supply voltage = 117 volts; max peak current = 540 ma	117Z4-GT
Rectifier or Doubler	Max d-c output current per plate = 60 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 360 ma	Max d-c output current per plate = 60 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 360 ma	Max d-c output current per plate = 60 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 360 ma	Max d-c output current per plate = 60 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 360 ma	Max d-c output current per plate = 60 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 360 ma	Max d-c output current per plate = 60 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 360 ma	Max d-c output current per plate = 60 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 360 ma	Max d-c output current per plate = 60 ma; max peak inverse voltage = 700 volts; max rms supply voltage per plate = 235 volts; max peak current per plate = 360 ma	117Z6-GT

§ Approximate.
 † Without external shield.
 ‡ Zero signal.
 †† Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 ‡ Conversion transconductance.
 ‡ Maximum.
 ‡ Grids 2 and 4 are screen Grid 3 is signal-input grid.
 ‡ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 ‡ Absolute maximum rating.
 ‡ Plate-to-plate.

◆ Per section.
 ◆ Design maximum rating.
 ◆ For both sections.
 ◆ Minimum.
 † Heater warm-up time controlled for series-string service.
 ‡ Supply voltage.
 ‡ Input plate.
 ‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ‡ Section 1.
 ‡ Section 2.
 ‡ A resistor of 3 ohms must be put in series with heater.

DOMESTIC NEAR-EQUIVALENTS TO FOREIGN TUBE TYPES

In most cases the domestic tube types shown below are satisfactory replacements for the corresponding foreign types; however, in some circuits a few of the indicated replacements may be unsatisfactory owing to mechanical or electrical differences (which can be more critical in some circuits than in others). The domestic types shown are not necessarily all available at present from domestic sources.

Foreign Type Numbers	Domestic Type Numbers	Foreign Type Numbers	Domestic Type Numbers
B36	12SN7-GTA	EF95	6AK5
B65	6SN7-GTB	EF96	6AG5
B152	12AT7	EH90	6CS6
B309	12AT7	EK90	6BE6
D63	6H6	EL34	6CA7
D77	6AL5	EL84	6BO5
D152	6AL5	EL90	6AO5
DA90	1A3	EM81	6DA5
DAC32	1H5-GT	EZ35	6X5-GT
DAF91	1S5	EZ81	6CA1
DD6	6AL5	EZ90	6X4
DF33	1N5-GT	GZ30	5Z4
DF91	1T4	GZ34	5AR4
DF92	1L4	H63	6F5-GT
DF96	1AF4	HBC90	12AT6
DF904	1U4	HBC91	12AV6
DH63	607	HR93	12BA6
DH77	6AT6	HR94	12AU6
DH149	7C6	HL90	12BE6
DK32	1A7-GT	HY90	50C5
DK91	1R5	KT32	35W4
DL33	3Q5-GT	KT63	25L6-GT
DL35	1C5-GT	KT66	6F6-GT
DL92	3S4	L63	6U6-GB
DL94	3V4	L77	6C4
DY80	1X2-A	N14	1C5-GT
DY86	1S2	N17	3S4
DY87	1S2-A	N19	3V4
E180F	6688	PCF82	908-A
EAA91	6AL5	U50	5Y3-GT
EABC80	6T8	U147	6X5-GT
EB91	6AL5	W17	1T4
EBC90	6AT6	X17	1R5
EBC91	6AV6	X63	6A8
EC90	6C4	Z63	6J7
EC92	6AB4	Z729	6287
ECC81	12AT7	ZD17	1S5
ECC82	12AU7	1C1	1R5
ECC83	12AX7	1D13	1A3
ECC91	6J6	1F2	1L4
ECC189	6ES8	1F3	1T4
ECL82	6BM8	1FD9	1S5
EF86	6287	1P10	3S4
EF93	1U5-SF	1P11	3V4
EF94	6AU6-A	1R5-SF	1AO6
		1S5-SF	1AR5
		1T4-SF	1AM4
		1U5-SF	1AS5
		3S4-SF	3W4

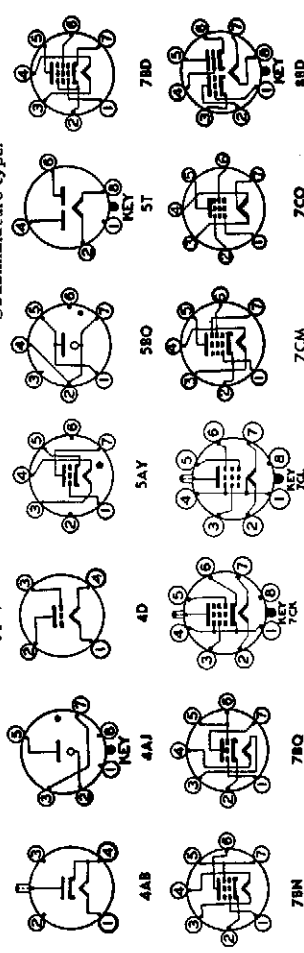
CLASSIFICATION CHART—FIVE-STAR TYPES Special-Quality Tubes for Critical Applications

Classification		Sub-Miniature	7-Pin Miniature	9-Pin Miniature	Metal	Octal
DIODES	Low-Current Rectifiers	5896	5726	6203		6087
	Full-Wave Power Rectifiers		6202			
TRIODES	Single	$\mu < 40$	5718	6135		
		$\mu > 40$	5719			
	Twin	$\mu < 40$	6021 6111	5670 5687 5814-A 6386		6080
PENTODES		$\mu > 40$	6112	5751 6072 6201 6414 6529		
	Voltage Amplifiers	Sharp-Cutoff	5840 6205	5654 6136 6265		6134
		Remote-Cutoff	5899 6206	5749		6137
		Dual-Control	5636	5725		
HEPTODES	Power Amplifiers		5902	6005	5686	
			5750			
THYRATRONS			5727			

Category	DIODES		TRIODES		PENTODES		HEP-TODES	TRI-ODE-RA-TODES	THY-RA-TRONS
	High Voltage	Twin	Single	Twin	Sharp-Cutoff	Re-note-Amplifier			
Ceramic Types			7077						
Computer Types		6919		5844 5963 5964 5965 6211 6350 6463			7036		
Low-Microphonic Types				12A Y7	1620 5879		1612		
Mobile Communications Types		6683		6679 6680 6681	6661 6662 6667		6678		
Low-Power Trans-mitting Types								2E24 2E26 2E30 307 1614 3763 6146 6360 6397	
Miscellaneous Types	2X2-A	5R4 GY4	6J4 9002	6AS7-GA 5691 5692	6AS6 5693 9001	9003	6AN5 5824 5881 6046	2D21 6D4 502-A 884 2050 6663 6696	

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	File-ment Volts	File-ment Amp	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	Input	Output	Grid-plate
OA2	Glow-Discharge Diode Voltage Regulator	5BO	5-3	—	—	—	—	Anode supply = 185 volts d-c min	—	—	—
OA3	Glow-Discharge Diode Voltage Regulator	4AJ	12-7	—	—	—	—	Anode supply = 105 volts d-c min	—	—	—
OB2	Glow-Discharge Diode Voltage Regulator	5BO	5-3	—	—	—	—	Anode supply = 133 volts d-c min	—	—	—
OB3	Glow-Discharge Diode Voltage Regulator	4AJ	12-7	—	—	—	—	Anode supply = 125 volts d-c min	—	—	—
OC3	Glow-Discharge Diode Voltage Regulator	4AJ	12-7	—	—	—	—	Anode supply = 133 volts d-c min	—	—	—
OD3	Glow-Discharge Diode Voltage Regulator	4AJ	12-7	—	—	—	—	Anode supply = 185 volts d-c min	—	—	—
2D21	Thyratron	7BN	5-2	6.3	0.6	—	—	Anode voltage drop = 8 volts	—	—	—
2E24	Beam Pentode	7CL	T-X	6.3	0.65	10	200 300	9.5 7.0 0.12	2.5	2.5	2.5
2E26	Beam Pentode	7CK	T-X	6.3	0.8	10	200 300	Pentode Connection 2.5 Single Tube 2.5 Pentode Connection 2.5 Two Tubes, Push Pull	2.5	2.5	2.5
2E30	Beam Power Amplifier	7CQ	5-3	6.0 3.0	0.65 1.30	10	250 250	9.6 14 0.18	2.5	2.5	2.5
2X2-A	Half-ave High-Voltage Rectifier	4AB	12-6	2.5	1.75	—	—	—	—	—	—
5R4-GYA	Full-Wave High-Vacuum Rectifier	5T	T-X	5.0	2.0	—	—	Tube voltage Drop: 67 v at 250 ma d-c	—	—	—
6AN6	Beam Power Amplifier	7BD	5-2	6.3	0.45	4.2	120 120	9.0 4.8 0.075	1.4	1.4	1.4
6AS6	Dual-Control RF Pentode	7CM	5-1	6.3	0.175	1.7	180 180	4.0 3.0 0.02	0.75	0.75	0.75
6AS7-GA	Low-Mu Twin Triode	8BD	12-16	6.3	2.5	13	250	—	—	—	—
6D4	Gas Triode	5AY	5-2	6.3	0.25	—	—	Tube Voltage Drop: 16 v at 25 ma d-c	—	—	—
6J4	High-Frequency Triode	7BQ	5-2	6.3	0.4	2.25	150	—	—	—	—
12AY7	Twin Triode	9A	6-2	6.3 12.6	0.3 0.15	1.5	300	1.3 0.6 1.3	—	—	—
182-B/482B	Power-Amplifier Triode	4D	14-1	5.0	1.25	—	250	—	—	—	—

Metal tubes are shown in bold-face type, miniature tubes in italics.



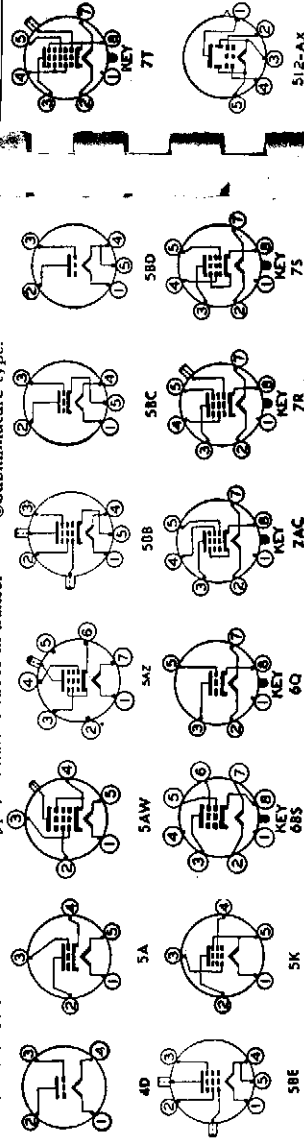
Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μmhos	Load for Rated Out-put Ohms	Power for Out-put Watts	Tube Type
{ d-c operating current = 5 ma min d-c operating current = 30 ma max }	—	—	—	—	—	—	—	Ionization voltage = 155 volts d-c Operating voltage = 150 volts d-c Regulation (5 to 30 milliamperes) = 2.0 volts	—	OA2
{ d-c operating current = 5 ma min d-c operating current = 40 ma max }	—	—	—	—	—	—	—	Ionization voltage = 100 volts d-c Operating voltage = 75 volts d-c Regulation (5 to 40 milliamperes) = 5.0 volts	—	OA3
{ d-c operating current = 5 ma min d-c operating current = 30 ma max }	—	—	—	—	—	—	—	Ionization voltage = 115 volts d-c Operating voltage = 105 volts d-c Regulation (5 to 30 milliamperes) = 1.0 volt	—	OB2
{ d-c operating current = 5 ma min d-c operating current = 40 ma max }	—	—	—	—	—	—	—	Ionization voltage = 110 volts d-c Operating voltage = 90 volts d-c Regulation (5 to 40 milliamperes) = 8.0 volts	—	OB3
{ d-c operating current = 5 ma min d-c operating current = 40 ma max }	—	—	—	—	—	—	—	Ionization voltage = 115 volts d-c Operating voltage = 105 volts d-c Regulation (5 to 40 milliamperes) = 2.0 volts	—	OC3
{ d-c operating current = 5 ma min d-c operating current = 40 ma max }	—	—	—	—	—	—	—	Ionization voltage = 180 volts d-c Operating voltage = 150 volts d-c Regulation (5 to 40 milliamperes) = 4.0 volts	—	OD3
Controlled Rectifier	Max d-c cathode current = 100 ma; max peak cathode current = 500 ma	—	—	—	—	—	—	—	—	2D21
Class A Amplifier	250	160	8.0	35†	2.6†	—	—	6,000	3.9	2E24
Class A Amplifier	250	160	14	35†	7.0†	—	—	5,500	4.0‡	2E26
Class AB Amplifier	400	125	15	20†	—	—	—	6,200‡	42‡	—
Class A Amplifier	250	250	20	40†	3.3†	63,000	3,700	4,500	4.5	2E30
Half-Wave Rectifier	Max d-c output current = 7.5 ma; max peak inverse voltage = 12,500 volts; rms supply voltage = 5,500 volts; max peak current = 60 ma	—	—	—	—	—	—	—	—	2X2-A
Full-Wave Rectifier	Max d-c output current = 250 ma; max peak inverse voltage = 2800 volts; rms supply voltage per plate = 750 volts; max peak current per plate = 650 ma	—	—	—	—	—	—	—	—	5R4-GYA
Class A Amplifier	120	120	R _k = 120	35	12	12,500‡	8,000	2,500	1.3	6AN6
Class A Amplifier	120	120	2.0	5.2	3.5	110,000‡	3,200	E _{cs} = 0 volts	—	6AS6
DC Amplifier	135	—	R _k = 250	125	—	280	7,000	2.0	—	6AS7-GA
Relay Control	Max d-c cathode current = 25 ma; max voltage between elements = 450 volts; max peak cathode current = 100 ma	—	—	—	—	—	—	—	—	6D4
Class A Amplifier	150	—	R _k = 100	15	—	4,500‡	12,000	55	—	6J4
Class A Amplifier	250	—	4.0	3.0	—	25,000‡	1,750	44	—	12AY7
Class A Amplifier	250	—	35	18	—	—	1,500	5.0	—	182-B/482B

§ Approximate.
▲ Without external shield.
† Zero signal.
‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
Conversion transconductance.
‡ Maximum.
* Grids 2 and 4 are screen. Grid 3 is signal-input grid.
* Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
‡ Absolute maximum rating.
† Plate-to-plate.

◆ Per section.
◆ Design maximum rating.
◆ For both sections.
◆ Minimum.
† Heater warm-up time controlled for series-sterling service.
‡ Supply plate.
‡ Input plate.
‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
‡ Section 1.
‡ Section 2.
‡ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
									Input	Output
183/483	Power-Amplifier Triode	4D	14-1	5.0	1.25	—	250	—	—	—
485	Medium-Mu Triode	6A	12-5	3.0	1.25	—	180	—	—	—
502-A	Thyratron	6BS	8-1	6.3	0.6	—	Anode voltage drop = 8 volts			
512AX ●	AF Pentode	512AX	2-2	0.625	0.02	—	45	45	2.0 ▲	1.5 ▲
807	Beam Power Amplifier	5AW	16-2	6.3	0.9	25 □	400 □	—	Triode Connection	
						25 □	600 □	300 □	Two Tubes, Push-Pull Pentode Connection	
884	Thyratron	6Q	12-7	6.3	0.6	—	Anode voltage drop = 16 volts			
950	Power-Amplifier Pentode	5K	14-1	2.0 DC	0.12	—	135	135	—	—
954	Detector Amplifier Pentode (Acorn)	5BB	4-3	6.3	0.15	1.5	250	100	3.4	3.0
955	Medium-Mu Triode (Acorn)	5BC	4-1	6.3	0.15	1.6	250	—	1.0 ▲	0.4 ▲
						—	180	—	—	—
956	Remote-Cutoff RF Pentode (Acorn)	5BB	4-3	6.3	0.15	1.7	250	100	3.1	2.5
957	Medium-Mu Triode (Acorn)	5BD	4-1	1.25 DC	0.05	—	135	—	0.25	0.5
						—	135	—	0.45	0.6
958-A	Medium-Mu Triode (Acorn)	5BD	4-1	1.25 DC	0.1	0.6	135	—	0.45	0.6
959	Sharp-Cutoff Pentode (Acorn)	5BE	4-3	1.25 DC	0.05	—	145	67.5	1.8	2.5
						—	135	—	—	—
1612	Pentagrid Mixer (Special 6L7)	7T	8-4	6.3	0.3	1.5	250	100	—	—
1614	Beam Power Amplifier	7AC	10-1	6.3	0.9	21 □	375 □	300 □	Two tubes, Push-pull	
1620	Sharp-Cutoff Pentode (Special 6J7)	7R	8-4	6.3	0.3	—	250	100	7.0	12.0
1621	Power-Amplifier Pentode (Special 6F6)	7S	8-6	6.3	0.7	7.9	300	300	2 tubes, Push-pull	
1622	Beam Power Amplifier (Special 6L6)	7AC	10-1	6.3	0.9	13.8	300	250	2 tubes, Push-pull.	
1625	Beam Power Amplifier	5AZ	16-2	12.6	0.45	25 □	400 □	—	Triode Connection	
						25 □	600 □	300 □	Two Tubes, Push-Pull Pentode Connection	

Metal tubes are shown in bold-face type, miniature tubes in *italics*.



§ Approximate.
▲ Without external shield.

† Zero signal.
• Grids 3 and 5 are screen Grid 4 is signal.

input grid.

♣ Maximum.
Conversion transconductance.

♥ Grids 2 and 4 are screen. Grid 3 is signal input grid.

✱Maximum screen dissipation, where

given, appears immediately below the maximum screen voltage and always has

a numerical value less than 10.
 [X] Absolute maximum rating.

‡ Plate-to-plate.

♣ Per section.
♦ Design maximum rating.

* Minimum

Heater warm-up time

! Supply voltage.

|| Input plate.

not exceed 15 percent of

cycle.
1. Section 1.

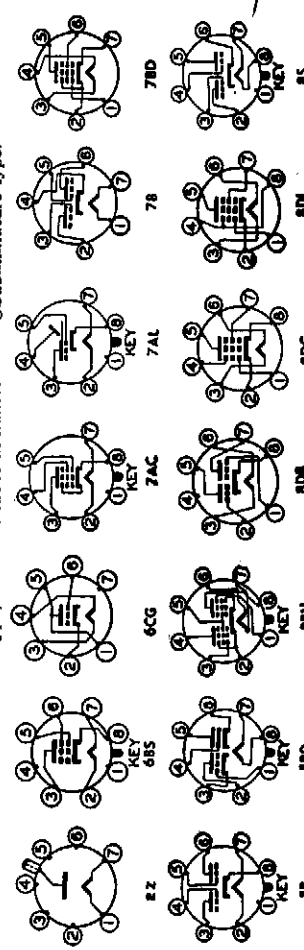
4.—A resistor of 3 ohms must

with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen and Control Watts	Capacitance in Micromicrofarads		
								Input	Out-put	Grid-plate
1629	Electron-Ray Indicator	7AL	T-X	12.6	0.15	—	250	Max target voltage = 250 Min target voltage = 125		
1631	Beam Power Amplifier	7AC	10-1	12.6	0.45	16	360	2 tubes, Push-pull		
1632	Beam Power Amplifier	7AC	8-6	12.6	0.6	5.5	117	—	—	—
1633	Medium-Mu Twin Triode	8BD	9-11	25.0	0.15	2.5	300	—	—	—
1634	High-Mu Twin Triode (Special 12SC7)	8S	8-1	12.6	0.15	—	250	—	—	—
1635	Twin-Triode Power Amplifier	8B	9-11	6.3	0.6	3.0	300	Both sections in push-pull		
1644	Twin-Pentode Power Amplifier (Special 12L8-GT)	8BU	9-11	12.6	0.15	2.5	180	5.0	6.0	0.7
1654	Half-Wave High-Vacuum Rectifier	2Z	T-X	1.4	0.05	—	—	—	—	—
2050	Thyratron	6BS	12-7	6.3	0.6	—	—	Anode voltage drop = 8.0 volts		
5690	RF Pentode	7BD	5-1	6.3	0.15	1.7	180	140	3.40	2.90
5691	Sharp-Cutoff RF Pentode (Special 6AK5)	7BD	5-1	6.3	0.15	1.7	180	180	4.0	2.8
5608-A	Medium-Mu Twin-Triode	7B	14-1	2.5	2.0	5.5	350	—	—	—
5610	Medium-Mu Triode	6CG	5-2	6.3	0.15	3.0	300	—	—	—
5633	Remote-Cutoff RF Pentode	5633	T-X	6.3	0.15	0.8	150	140	4.0	2.2
5634	Sharp-Cutoff RF Pentode	5633	T-X	6.3	0.15	0.8	150	140	4.4	2.2
5635	Medium-Mu Twin Triode	8DB	3-1	6.3	0.45	1.25	150	—	2.6	1.6
5636	Dual-Control Pentode	8DC	3-1	6.3	0.15	0.65	165	155	—	—
5637	High-Mu Triode	5637	3-2	6.3	0.15	0.3	150	—	2.6	0.7
5638	Amplifier Pentode	5638	3-2	6.3	0.15	0.6	150	140	4.0	6.5
5639	Video Pentode	8DL	3-3	6.3	0.45	3.8	165	155	9.5	7.5

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

©Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μmhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Tuning Indicator	360	270	22.5	58†	5†	—	—	—	6,600†	26.5	1629
Class AB ₁ Amplifier	110	110	7.5	49†	4†	13,000‡	9,000	—	2,000	2.1	1631
Class A Amplifier	250	—	8	11.5	—	6,900	2,600	18	—	—	1632
Class A Amplifier	250	—	2	2.0	—	53,000‡	1,325	70	—	—	1633
Class B Amplifier	300	—	0	6.6†	—	—	—	—	12,000	10.4	1634
Class A Amplifier	180	180	9	13†	2.8†	160,000	2,150	—	10,000	1.0	1635
Half-Wave Rectifier	Max d-c output current = 1.0 ma; max peak inverse voltage = 4,300 volts; rms supply voltage = 1,500 volts; max peak current = 6 ma										
Controlled Rectifier	Max d-c cathode current = 100 ma; Max peak inverse voltage = 1,300 volts; Max peak cathode current = 1.0 ampere										
Class A Amplifier	90	90	R _k = 820	3.9	1.4	300,000	2,000	—	—	—	5690
Class A Amplifier	180	120	R _k = 180	7.7	2.4	500,000‡	5,100	—	—	—	5691
Class A Amplifier	120	120	R _k = 180	7.5	2.5	300,000‡	5,000	—	—	—	5608-A
Class A Amplifier	300	—	6.0	6.0	—	13,000	2,450	32	—	—	5610
Class A Amplifier	90	—	1.5	17	—	3,500	4,000	14	—	—	5633
Class A Amplifier	100	100	R _k = 150	7.0	2.8	200,000	3,400	—	—	—	5634
Class A Amplifier	100	100	R _k = 150	6.5	2.5	240,000‡	3,500	—	—	—	5635
Class A Amplifier	100	—	R _k = 100	4.8	—	10,000	3,800	38	—	—	5636
Gated Amplifier	100	100	R _k = 150	5.3	3.6	110,000‡	3,200	G ₁ tied to cathode			5637
Class A Amplifier	100	100	R _k = 150	4.0	5.8	50,000‡	1,950	E _{as} = -1.0 volt			5638
Class A Amplifier	100	—	R _k = 820	1.4	—	26,000	2,700	70	—	—	5639
Class A Amplifier	100	100	R _k = 270	4.8	1.25	150,000	3,300	—	—	—	5639
Class A Amplifier	150	100	R _k = 100	21	4.0	50,000	9,000	—	—	—	5639

given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

† Absolute maximum rating.

‡ Plate-to-plate.

§ Per section.

¶ Design maximum rating.

‡ For both sections.

* Minimum.

† Heater warm-up time controlled for series-string service.

‡ Supply voltage.

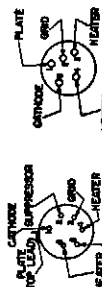
§ Input plate.

¶ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

* Section 1.

† Section 2.

‡ A resistor of 3 ohms must be put in series with heater.



5637



5633

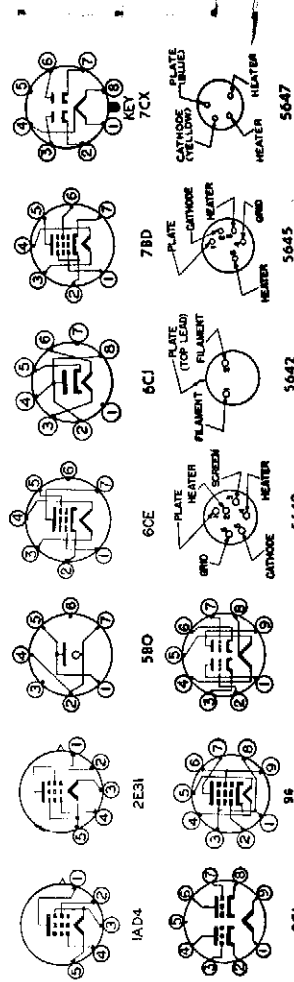


5638

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
5640 ●	Beam Power Amplifier	5640	3-4	6.3	0.45	3.5	150	140 1.0	7.0 0.18
5641 ●	Half-Wave Rectifier	6CJ	3-3	6.3	0.45	—	Tube Voltage Drop: 23 v at 90 ma d-c	—	—
5642 ●	Half-Wave High-Voltage Rectifier	5642	T-X	1.25	0.2	—	Tube Voltage Drop: 30 v at 4.0 ma d-c	—	—
5645 ●	Medium-Mu Triode	5645	T-X	6.3	0.15	1.0	150	— 2.2 3.0	1.7
5646 ●	High-Mu Triode	5645	T-X	6.3	0.15	0.3	150	— 2.2 1.0	1.3
5647 ●	High-Frequency Diode	5647	T-X	6.3	0.15	—	Tube Voltage Drop: 2.8 v at 18 ma d-c	—	—
5651	Glow-Discharge Diode Voltage Reference	5B0	5-2	—	—	—	Anode supply voltage = 150 Volts, max	—	—
5654 5 ★	Sharp-Cutoff RF Pentode (Special 6AK5)	7BD	5-1	6.3	0.175	1.55	200 155 0.55	4.0 2.9	0.02
5663	Thyratron	6CE	T-X	6.3	0.15	—	Anode voltage drop = 11 volts	—	—
5670 5 ★	High-Frequency Twin Triode (Special 2C51)	8CJ	6-1	6.3	0.35	1.4	330	2.2 1.0	1.1
5673 ●	Power Amplifier Pentode	2E31	2-1	1.25 DC	0.05	—	90	—	—
5675	Medium-Mu Triode (Pencil)	5675	T-X	6.3	0.135	5.0	150	2.3 0.09	1.3
5676 ●	Medium-Mu Triode	5676	T-X	1.25 DC	0.12	—	135	1.3 4.0	2.0
5677 ●	Medium-Mu Triode	5676	T-X	1.25 DC	0.06	—	135	1.3 3.8	2.0
5678 ●	Pentode Amplifier	1AD4	T-X	1.25 DC	0.05	—	90	67.5 3.3	0.01
5679	Twin Diode (Special 7A6)	7CX	9-30	6.3	0.15	—	Tube Voltage Drop: 11 v at 16 ma d-c	—	—
5686 5 ★	Beam Power Amplifier	9G	6-2	6.3	0.35	8.25	275 275 3.0	6.5 8.5	0.08
5687 5 ★	Medium-Mu Twin Triode	9H	6-2	6.3 { 12.6	0.9 { 0.45	4.2	300	4.0 0.6	4.0

Metal tubes are shown in bold-face type, miniature tubes in italics.

● Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p ' Ohms	G _m ' μmhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	100	100	9.0	317	2.27	15,000	5,000	—	3,000	1.25	5640 ●
Half-Wave Rectifier	Max d-c output current = 50 ma; rms supply voltage per plate = 275 volts; max peak current = 300 ma										5641 ●
TV Flyback Rectifiers	Max d-c output current = 0.25 ma; max peak inverse voltage = 10,000 volts; max peak current = 5.0 ma										5642 ●
Class A Amplifier	100	—	R _k = 560	5.0	—	7,400	2,700	20	—	—	5645 ●
Class A Amplifier	100	—	R _k = 820	1.4	—	29,000	2,400	70	—	—	5646 ●
Half-Wave Rectifier	Max d-c output current = 10 ma; max peak inverse voltage = 460 volts; max rms supply voltage = 165 volts; max peak current = 60 ma										5647 ●
d-c operating current = 1.5 ma min											5651
d-c operating current = 3.5 ma max											5654
Class A Amplifier	120	120	R _k = 300	7.5	2.5	340,000	5,000	—	—	—	5663
Controlled Rectifier	Max d-c cathode current = 20 ma; Max peak inverse voltage = 500 volts; Max peak cathode current = 60 ma										5670
Class A Amplifier	150	—	R _k = 240	8.2	—	6,400	5,500	35	—	—	5672 ●
Class A Amplifier	300	—	R _k = 800	9.8	—	—	—	—	27,000	1.0	5675
Class A Amplifier	67.5	67.5	6.5	3.25	1.1	—	650	—	20,000	0.065	5676 ●
Class A Amplifier	135	—	R _k = 68	24	—	3,225	6,200	20	—	—	5677 ●
Class A Amplifier	135	—	5.0	4.0	—	—	1,600	15	—	—	5678 ●
Class A Amplifier	135	—	6.0	1.9	—	—	650	13.5	—	—	5679
Class A Amplifier	67.5	67.5	0	1.8	0.48	1,000,000	1,100	—	—	—	5686
Half-Wave Rectifier	Max d-c output current per plate = 8 ma; max rms supply voltage per plate = 150 volts; max peak current per plate = 45 ma										5687
Class A Amplifier	250	250	12.5	277	3.07	45,000	3,100	—	9,000	2.7	5688
Class A Amplifier	250	250	50	40	10.5	Input Signal = 0.15 watt	—	—	—	6.5	5687
Class A Amplifier	180	—	7.0	23	—	2,000	8,500	17	—	—	5687
Class A Amplifier	250	—	12.5	12	—	3,000	5,400	16	—	—	5687

§ Approximate.

▲ Without external shield.

† Zero signal.

‡ Grids 3 and 5 are screen. Grid 4 is signal.

Conversion transconductance.

* Maximum.

†† Grids 2 and 4 are screen. Grid 3 is signal.

‡‡ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.

§ Absolute maximum rating.

† Plate-to-plate.

‡ Per section.

§ Design maximum rating.

¶ For both sections.

* Minimum.

† Heater warm-up time controlled for series-string service.

‡ Supply voltage.

§ Input plate.

† The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

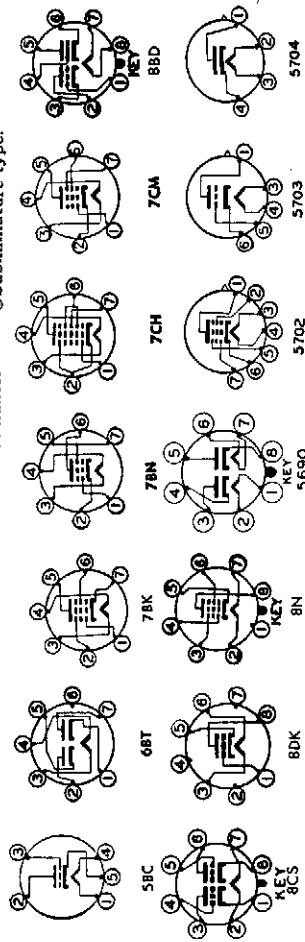
‡ Section 1.

§ Section 2.

† A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
5690	Full-Wave High-Vacuum Rectifier	5690	12-25	12.6 6.3	1.2 2.4	—	—	Tube Voltage Drop: ♦ 17 v at 150 ma d-c	
5691	High-Mu Twin Triode (Special 6SL7-GT)	8BD	9-37	6.3	0.6	1.0	275	—	—
5692	Medium-Mu Twin Triode (Special 6SN7-GT)	8BD	9-37	6.3	0.6	1.75	275	—	—
5693	Sharp-Cutoff Pentode (Special 6SJ7)	8N	8-1	6.3	0.3	2.0	125 0.3	5.3	6.2
5694	Medium-Mu Twin Triode	8CS	14-3	6.3	0.8	5.5	300	Both Sections in Parallel	
5696	Thyratron	7BN	5-1	6.3	0.15	—	—	Anode voltage drop = 10 volts	
5702	RF Pentode	5702	3-7	6.3	0.2	—	180 0.5	4.4	3.5
5703	Medium-Mu Triode	5703	3-6	6.3	0.2	3.0	250	2.6	0.7
5704	Diode	5704	T-X	6.3	0.15	—	—	Tube Voltage Drop: 2 v at 9 ma d-c	
5718	Medium-Mu Triode	8DK	3-1	6.3	0.15	1.0	165	2.4	1.3
5719	High-Mu Triode	8DK	3-1	6.3	0.15	0.3	165	1.9	2.2
5725	Dual-Control RF Pentode (Special 6AS6)	7CM	5-1	6.3	0.175	1.55	200 0.75	4.0	3.0
5726	Twin Diode (Special 6AL5)	6BT	5-1	6.3	0.30	—	—	Tube Voltage Drop: ♦ 10 v at 60 ma d-c	
5727	Thyratron (Special 2D21)	7BN	5-2	6.3	0.6	—	—	Anode voltage drop = 8 volts	
5731	Power Amplifier Triode (Acorn)	5BC	4-1	6.3	0.15	—	250	1.0	0.4
5744	High-Mu Triode	5744	3-6	6.3	0.2	—	250	—	—
5749	Remote-Cutoff RF Pentode (Special 6BA6)	7BK	5-2	6.3	0.3	3.1	330 0.8	5.5	0.0035
5760	Pentagrid Converter (Special 6BE6)	7CH	5-2	6.3	0.3	1.1	330 1.0	—	—

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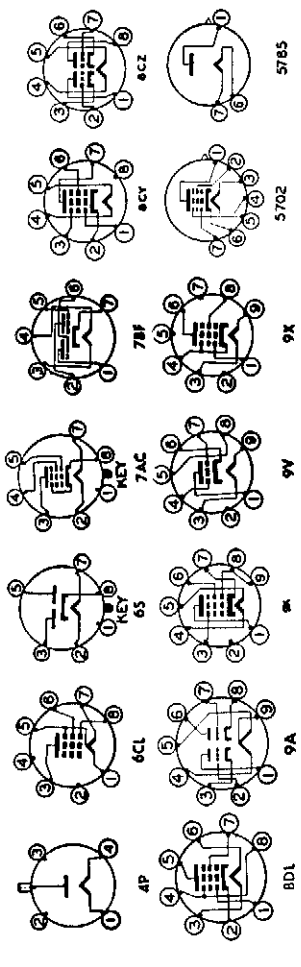
Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milliamperes	Screen Milliamperes	R _p Ohms	G _m μmhos	Load for Rated Output, Ohms	Power Output, Watts	Tube Type
Full-Wave Rectifier	250	—	—	2.3	—	44,000	1,600	70	—	5690
Class A Amplifier	250	—	2.0	6.5	—	9,100	2,200	20	—	5691
Class A Amplifier	250	—	9.0	—	—	—	—	—	—	5692
Class A Amplifier	250	100	3.0	3.0	0.85	1,000,000	1,650	—	—	5693
Class A Amplifier	294	—	6.0	7.0	—	11,000	3,200	35	—	5694
Class A Amplifier	250	—	5.0	6.0	—	11,300	3,100	35	—	5696
Controlled Rectifier	—	—	—	—	—	—	—	—	—	5702
Class A Amplifier	120	120	R _k = 200	7.5	2.5	340,000	5,000	—	—	5703
Class A Amplifier	120	—	R _k = 220	9.0	—	—	5,000	25	—	5704
Half-Wave Rectifier	—	—	—	—	—	—	—	—	—	5718
Class A Amplifier	100	—	R _k = 150	8.5	—	4,650	5,800	27	—	5719
Class A Amplifier	100	—	R _k = 1,500	0.73	—	41,000	1,700	70	—	5725
Class A Amplifier	120	120	2.0	5.2	3.5	—	3,200	E _{cs} = 0 volts	—	5726
Half-Wave Rectifier	—	—	—	—	—	—	—	—	—	5727
Controlled Rectifier	—	—	—	—	—	—	—	—	—	5731
Class A Amplifier	250	—	7.0	6.3	—	11,400	2,200	25	—	5744
Class A Amplifier	250	—	R _k = 500	4.0	—	—	4,000	70	—	5749
Class A Amplifier	250	100	R _k = 11	4.2	1,000,000	4,400	4,400	—	—	5750
Class A Amplifier	100	100	R _k = 68	10.8	4.4	250,000	4,300	—	—	5751
Converter	250	100	1.5	2.6	7.5	1,000,000	475	—	—	5752

§ Approximate.
▲ Without external shield.
♦ Zero signal.
‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
Conversion transconductance.
♦ Maximum.
‡ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
* Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
Ⓢ Absolute maximum rating.
‡ Plate-to-plate.

◆ Per section.
◆ Design maximum rating.
◆ For both sections.
* Minimum.
‡ Heater warm-up time controlled for series-string service.
‡ Supply voltage.
‡ Input plate.
‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
1—Section 1.
2—Section 2.
‡ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Outline Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts	Capacitance in Micromicrofarads	
									Input	Output
5751 5★	High-Mu Twin Triode (Special 12AX7)	9A	6-2	6.3 {12.6	0.35 0.175	0.7 0.175	330	—	1.4 ▲	0.46 0.36
5763	Beam Power Amplifier	9K	6-3	6.0	0.75	8.0 12	250 300	250 1.5 250 2.0	—	—
5784	Dual-Control RF Pentode	5702	3-7	6.3	0.2	1.7	180	140 0.75	3.9	3.0
5785	Half-Wave High-Voltage Rectifier	5785	T-X	1.25 DC	0.015	—	—	Tube Voltage Drop: 17 v at 0.1 ma d-c	—	0.03
5797	Semi-Remote-Cutoff RF Pentode	8CY	3-2	26.5	0.045	0.8	50	50 0.25	4.2	3.2
5798	Medium-Mu Twin Triode	8CZ	3-2	26.5	0.09	0.2	50	—	1.9	1.7
5814 5814-A 5★	Medium-Mu Twin Triode (Special 12AU7)	9A	6-2	6.3 {12.6	0.35 0.175	2.7 0.4	330	—	1.6	0.5 0.4
5824	Beam Power Amplifier (Special 25B6-G)	7AC	14-3 or 9-11	25.0	0.3	12.5	200	135 2.0	—	—
5825	Half-Wave High-Voltage Rectifier	4P	T-X	1.6	1.25	—	—	Tube Voltage Drop: 1,750 v at 40 ma d-c	—	—
5829	Twin Diode	5829	2-3	6.3	0.15	—	—	Tube Voltage Drop: 5 v at 15 ma d-c	—	—
5838	Full-Wave High-Vacuum Rectifier	6S	T-X	12.0	0.6	—	—	—	—	—
5839	Full-Wave High-Vacuum Rectifier	6S	T-X	26.5	0.285	—	—	—	—	—
5840 5★	Sharp-Cutoff RF Pentode	8DL	3-1	6.3	0.15	0.9 0.55	165 155	4.2 0.55	—	3.4
5842	High-Mu Triode	9V	6-1	6.3	0.3	4.0	180	—	—	0.015
5844	Medium-Mu Twin Triode	7BF	5-2	6.3	0.3	1.0 0.4	200	—	2.4	0.5 0.4
5847	Sharp-Cutoff RF Pentode	9X	6-1	6.3	0.3	3.0	180	150 0.75	7.1	2.9
5851	Beam Power Amplifier	6CL	T-X	1.25 {2.50 DC	0.11 0.055	1.5	180	135 0.3	2.5	3.0
5852	Full-Wave High-Vacuum Rectifier	6S	T-X	6.3	1.2	—	—	—	—	—

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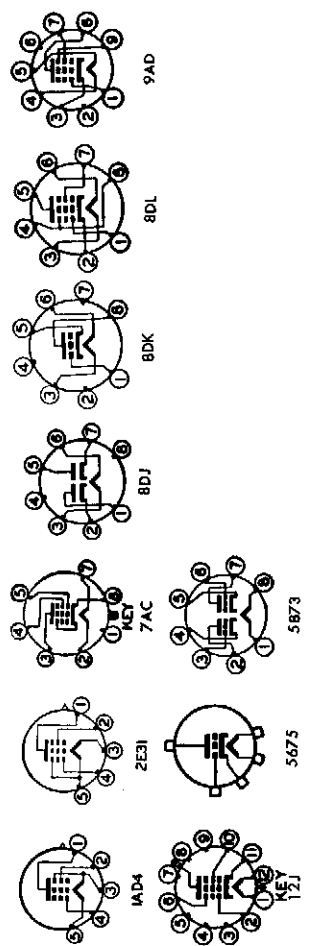
Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	R _p Ohms	G _m μmhos	Load for Rated Output, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	250 100	—	3.0 1.0	1.0 0.8	58,000 58,000	1,200 1,200	70 70	—	5751
Class C Telephony Class C Telegraphy	250 300	230 230	39 28.5	40 50	(bias obtained from R _g = 39,000) (bias obtained from R _g = 18,000)	—	—	6.4 10.3	5763
Class A Amplifier	120 120	120 120	2.0 2.0	5.2 3.6	—	3,200E _{cs} = 0 volts 1,850E _{cs} = -3.0 volts	—	—	5784
Half-Wave Rectifier	—	—	—	—	—	—	—	—	5785
Class A Amplifier	26.5	26.5	0	2.8	70,000	3,450	—	—	5797
Class A Amplifier	26.5	—	0	2.0	7,100	3,400	24	—	5798
Class A Amplifier	250 100	—	8.5 0	10.5 11.8	7,700 6,250	2,200 3,100	17 19.5	—	5814 5814-A
Class A Amplifier	135	135	22	61	15,000	5,000	1,700	4.3	5824
Half-Wave Rectifier	—	—	—	—	—	—	—	—	5825
Half-Wave Rectifier	—	—	—	—	—	—	—	—	5829
Full-Wave Rectifier	—	—	—	—	—	—	—	—	5838
Full-Wave Rectifier	—	—	—	—	—	—	—	—	5839
Class A Amplifier	100	100	R _k = 150	7.5	2.4	280,000	5,000	—	5840
Class A Amplifier	150	—	R _k = 62	26	—	1,800	24,000	43	5842
Class A Amplifier	100	—	R _k = 470 0 10	4.8 0 0.1	—	7,550 R _g = 47,000 ohms R _g = 47,000 ohms	3,700 20,000 20,000	—	5844
Class A Amplifier	150	150	R _k = 110	13	4.5	—	12,500	—	5847
Class A Amplifier	125	125	7.5	5.5	0.9	175,000	1,600	—	5851
Full-Wave Rectifier	—	—	—	—	—	—	—	—	5852

Approximate.
Zero signal.
Grids 3 and 5 are screen. Grid 4 is signal-input grid.
Conversion transconductance.
Maximum.
Grids 2 and 4 are screen. Grid 3 is signal-input grid.
Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
Absolute maximum rating.
Plate-to-plate.

Per section.
Design maximum rating.
For both sections.
Minimum.
Heater warm-up time controlled for series-string service.
Supply voltage.
Input plate.
The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
Section 1.
Section 2.
A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts	Capacitance in Microfarads	
								Input	Out-put
5854 ●	Power Amplifier Pentode	2E31	2-1	1.25	0.03	50	50	—	—
5873 ●	Medium-Mu Twin Triode	5873	3-2	6.3	0.3	1.6	300	—	—
5875 ●	Sharp-Cutoff Pentode	1AD4	2-1	1.25 DC	0.1	90	90	4.0	0.03
5876	High-Mu Triode (Pencil)	5875	T-X	6.3	0.135	300	—	2.5	1.4
5879	Sharp-Cutoff AF Pentode	9AD	6-2	6.3	0.15	1.25	300	Pentode Connection (G ₁ , G ₂ & P Tied)	
5881	Beam Power Amplifier (Special 6L6-G)	7AC	T-X	6.3	0.9	23	360	Single Tube	
5890	Remote-Cutoff Pentode Regulator	12J	T-X	6.3	0.6	10	450	Two tubes, Push-pull	
5896 ● 5★	High-Frequency Twin Diode	8DJ	3-1	6.3	0.3	—	—	E _{as} = 5,500 volts	
5897 ●	Medium-Mu Triode	8DK	3-1	6.3	0.15	3.3	165	E _{as} = 5,500 volts	
5898 ●	High-Mu Triode	8DK	3-1	6.3	0.15	0.55	165	E _{as} = 5,500 volts	
5899 ● 5★	Semi-Remote-Cutoff RF Pentode	8DL	3-1	6.3	0.15	0.85	155	E _{as} = 5,500 volts	
5900 ●	Semi-Remote-Cutoff RF Pentode	8DL	3-1	6.3	0.15	1.1	155	E _{as} = 5,500 volts	
5901 ●	Sharp-Cutoff RF Pentode	8DL	3-1	6.3	0.15	1.1	155	E _{as} = 5,500 volts	
5902 ● 5★	Beam Power Amplifier	8DL	3-3	6.3	0.45	4.1	165	E _{as} = 5,500 volts	
5903 ●	High-Frequency Twin Diode	8DJ	3-1	26.5	0.075	—	—	Tube Voltage Drop: 4.5 v at 18 ma d-c	
5904 ●	Medium-Mu Triode	8DK	3-1	26.5	0.045	—	55	2.4	1.8
5905 ●	Sharp-Cutoff RF Pentode	8DL	3-1	26.5	0.045	—	55	4.4	0.015

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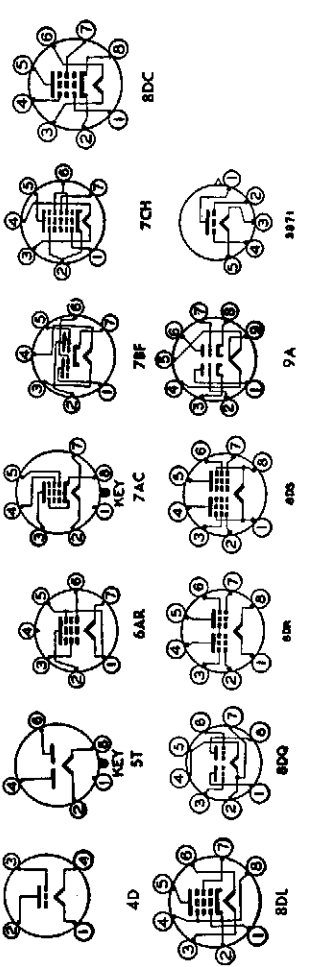
Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μmhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	45	45	2.0	0.8	0.25	350,000	550	—	30,000	0.0095	5854 ●
Class A Amplifier	150	—	3.0	9.0	—	—	2,900	22	—	—	5873 ●
Class A Amplifier	90	90	0	3.5	1.0	—	2,500	—	—	—	5875 ●
Class A Amplifier	250	—	R _k = 75	18	—	8,625	6,500	56	—	—	5876
Class A Amplifier	250	100	3.0	1.8	0.4	2,000,000	1,000	—	—	—	5879
Class A Amplifier	250	—	8.0	5.5	—	13,700	1,530	21	—	—	5881
Class A Amplifier	350	250	18	53	2.5	48,000	5,200	—	4,200	11.3	5890
Class A Amplifier	250	250	14	75	4.3	30,000	6,100	—	2,800	6.7	
Class AB ₁ Amplifier	360	270	22.5	83	5.0	—	—	—	3,800	18	
Shunt Regulator	30,000	200	60	0	0	—	—	—	6,000	26.5	5896 ●
Full-Wave Rectifier	30,000	200	60	0.06	0	—	—	—	—	—	5897 ●
Class A Amplifier	100	—	R _k = 150	8.5	—	—	5,800	27	—	—	
Class A Amplifier	150	—	—	20	—	Frequency = 500 mc	—	—	—	0.9	
Class A Amplifier	150	—	R _k = 680	1.7	—	—	2,700	70	—	—	
Class A Amplifier	100	100	R _k = 120	7.2	2.0	280,000	4,500	—	—	—	
Class A Amplifier	100	100	R _k = 120	7.2	2.2	280,000	4,500	—	—	—	5900 ●
Class A Amplifier	100	100	R _k = 150	7.5	2.4	230,000	5,000	—	—	—	5901 ●
Class A Amplifier	110	110	R _k = 270	30	2.2	15,000	4,200	—	3,000	1.0	5902 ●
Full-Wave Rectifier	Max d-c output current per plate = 10 ma; max peak inverse voltage = 460 volts; rms supply voltage per plate = 150 volts; max peak current per plate = 60 ma	26.5	—	R _k = 2.5 meg	2.75	—	4,250	20	—	—	5903 ●
Class A Amplifier	26.5	—	R _k = 2.5 meg	2.3	0.9	110,000	2,850	—	—	—	5904 ●
Class A Amplifier	26.5	26.5	R _k = 2.2 meg	—	—	—	—	—	—	—	5905 ●

§ Approximate.
▲ Without external shield.
† Zero signal.
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Conversion transconductance.
◆ Maximum.
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† Plate-to-plate.

◆ Per section.
◆ Design maximum rating.
◆ For both sections.
◆ Minimum.
◆ Heater warm-up time controlled for series-string service.
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◆ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
◆ Section 1.
◆ Section 2.
◆ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Outline Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
5906	Sharp-Cutoff RF Pentode	8DL	3-1	26.5	0.045	1.1	165	4.2	3.4
5907	Remote-Cutoff RF Pentode	8DL	3-1	26.5	0.045	—	55	4.0	3.4
5908	Dual-Control RF Pentode	8DC	3-1	26.5	0.045	—	55	Ec ₂ = 0 volts	—
5910	Sharp-Cutoff Pentode	6AR	5-2	1.4 DC	0.05	—	90	3.6	7.5
5915 5915-A	Pentagrid Amplifier	7CH	5-2	6.3	0.3	1.0	250	Ec ₃ = 0.0 volts Ec ₃ = -10 volts Ec ₃ = 0.0 volts	0.008
5916	Dual-Control Pentode	8DC	3-1	26.5	0.045	1.1	165	G ₃ tied to cathode Ec ₃ = -1 volt	—
5930	Low-Mu Power-Amplifier Triode (Special 2A3)	4D	T-X	2.5	2.5	15	360	—	—
5931	Full-Wave High-Vacuum Rectifier (Special 5U4-G)	5T	T-X	5.0	3.0	—	—	—	—
5932	Beam Power Amplifier (Special 6L6-G)	7AC	T-X	6.3	0.9	21	400	Tube Voltage Drop: 58 volts at 225 ma d-c	—
5963	Medium-Mu Twin Triode	9A	6-2	12.6 { 6.3	0.15 { 0.3	2.5	250	1.9	0.5
5964	High-Mu Twin Triode	7BP	5-2	6.3	0.45	1.5	250	2.1	0.4
5965	Twin Triode	9A	6-2	12.6 { 6.3	0.225 { 0.45	2.4	300	3.8	0.5
5967	Medium-Mu Twin Triode	8DQ	3-8	1.25	0.12	—	50	0.9	0.9
5968	Twin Triode	8DQ	3-8	1.25	0.12	—	45	0.9	0.9
5969	Twin Tetrode	8DR	3-8	1.25	0.2	0.96	150	2.5	2.5
5970	Twin Pentode	8DS	3-3	1.25	0.16	—	45	3.3	2.4
5971	Medium-Mu Triode	5971	2-1	1.25 DC	0.08	0.7	135	1.6	1.7

Metal tubes are shown in bold-face type, miniature tubes in italics. ©Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milliamperes	Screen Milliamperes	R _p Ohms	G _m μmhos	Load for Rated Output, Ohms	Power Out, Watts	Tube Type
Class A Amplifier	100	100	R _k = 150	7.5	2.4	260,000	3,000	—	—	5906
Class A Amplifier	26.5	26.5	R _g = 2.2 meg	2.7	1.1	100,000	3,000	—	—	5907
Class A Amplifier	26.5	26.5	R _g = 2.2 meg	3.3	2.0	31,000	2,200	—	—	5908
Class A Amplifier	90	90	0	1.6	0.45	1,500,000	900	—	—	5910
Gated Amplifier	150	75	10	0	0	R _{k1} = R _{k3} = 47,000 R _{k2} = R _{k3} = 47,000 R _{k1} = R _{k3} = 47,000	—	20,000	—	5915 5915-A
Class A Amplifier	100	100	R _k = 150	5.6	4.0	110,000	3,200	—	—	5916
Class A Amplifier	100	100	R _k = 150	4.0	5.8	50,000	1,950	—	—	5930
Class A Amplifier	250	—	45	60†	—	800	5,250	2,500	3.5	5931
Full-Wave Rectifier	250	250	14	7.7	5.0†	22,500	6,000	2,500	6.5	5932
Class A Amplifier	87.5	—	0	8.5	—	6,600	3,200	—	—	5963
Class A Amplifier	150	150	15	0	5.1	R _{k1} = 47,000 R _{k2} = 47,000	—	20,000	—	5964
Class A Amplifier	100	—	R _k = 30	9.5	—	6,500	6,000	—	—	5965
Class A Amplifier	150	150	10	0	5.0	R _{k1} = 47,000 R _{k2} = 47,000	—	20,000	—	5967
Class A Amplifier	150	150	10	8.5	—	7,000	6,700	7,200	—	5968
Class A Amplifier	45	—	R _k = 0	3.0	—	8,500	2,000	R _g = 5.0 meg	—	5969
Class A Amplifier	45	—	0	0.7	—	—	1,300	—	—	5970
Class A Amplifier	135	45	3.0	6.0	0.6	—	1,700	—	—	5971
Class A Amplifier	45	45	0	3.0	0.9	170,000	1,850	—	—	5971
Class A Amplifier	135	—	2.5	4.0	—	—	2,150	23	—	5971

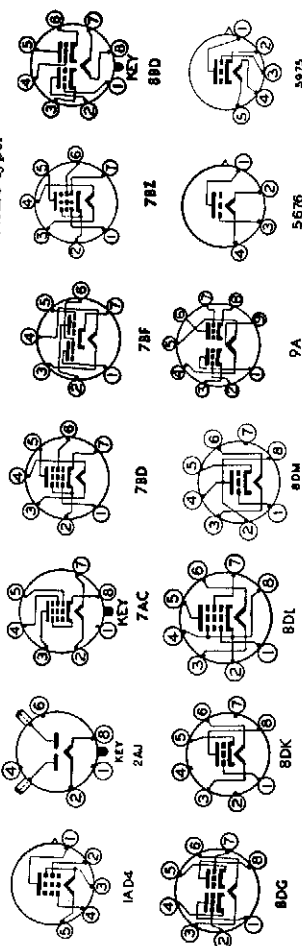
§ Approximate.
▲ Without external shield.
† Zero signal.
‡ Grids 3 and 5 are screen. Grid 4 is signal input grid.
Conversion transconductance.
◆ Maximum.
▼ Grids 2 and 4 are screen. Grid 3 is signal input grid.
✱ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
□ Absolute maximum rating.
‡ Plate-to-plate.

◆ Per section.
◆ Design maximum rating.
◆ For both sections.
◆ Minimum.
◆ Heater warm-up time controlled for series-string service.
◆ Supply voltage.
◆ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
◆ Section 1.
◆ Section 2.
◆ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
5972 ●	Remote-Cutoff RF Pentode	1AD4	2-1	1.25	0.06	—	75 □	4.3 ▲	4.1 ▲ 0.01 ▲
5975 ●	Medium-Mu Triode	5975	3-6	6.3	0.175	3.0	250	—	—
5977 ●	Medium-Mu Triode	8DK	3-1	6.3	0.15	1.2 ◆	180 ◆	2.0	2.2 1.3
5987 ●	Low-Mu Triode	8DM	3-4	6.3	0.45	4.0 □	165 □	3.2	5.0 3.2
5992	Beam Power Amplifier (Special 6V6-GT)	7AC	9-9	6.3	0.6	10	300	—	—
5993	Full-Wave High-Vacuum Rectifier	5993	6-3	6.3	0.8	—	275 2.0	—	—
5995 ●	Half-Wave High-Vacuum Rectifier	5995	T-X	6.3	0.3	—	—	—	—
5998	Low-Mu Twin Triode	8BD	16-3	6.3	2.4	13 ◆	250	—	—
6004	Full-Wave High-Vacuum Rectifier	2AJ	T-X	5.0	2.0	—	—	—	—
6005 5★	Beam Power Amplifier (Special 6AQ5)	7BZ	5-3	6.3	0.45	11 ◆	275 2.0	—	—
6021 ● 5★	Medium-Mu Twin Triode	8DG	3-1	6.3	0.3	0.8 ◆	165 ◆	2.4 ▲ 0.28 ▲	1.5 ▲ 0.32 ▲
6023	Sharp-Cutoff RF Pentode	7BD	5-1	20.0	0.05	1.7	180 0.5	4.0	2.8 0.02
6029 ●	Medium-Mu Triode	5676	2-1	1.25 DC	0.2	1.0	135	1.3 ▲	1.4 ▲ 1.6 ▲
6045	Medium-Mu Twin Triode	7BF	5-2	6.3	0.35	1.6 ◆	330 ◆	2.0 ▲	0.45 ▲ 0.34 ▲
6046	Beam Power Amplifier (Special 25L6-GT)	7AC	9-11	25.0	0.3	10	200	—	—
6049 ●	Semi-remote Cutoff RF Pentode	8DL	3-1	6.3	0.15	1.1 □	165 □	3.6	3.8 0.009
6050 ●	High-Frequency Medium-Mu Triode	5676	2-1	1.25 DC	0.12	—	135	1.3	3.4 1.4
6072 5★	Twin Triode (Special 12AY7)	9A	6-2	12.6 { 6.3	0.175 { 0.35	1.5 ◆	330 ◆	1.4 ▲	0.51 ▲ 0.38 ▲
6080 5★	Low-Mu Twin Triode Power Amplifier (Special 6AS7-G)	8BD	T-X	6.3	2.5	13 ◆	250 □	6.0 ▲	2.2 ▲ 8.0 ▲

Metal tubes are shown in bold-face type, miniature tubes in italics.

● Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p Ohms	G _m μmhos	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	67.5	67.5	0	2.5	0.8	1,000,000	1,300	—	—	5972 ●
Class A Amplifier	45	45	0	1.5	0.4	800,000	1,100	—	—	5975 ●
Class A Amplifier	200	—	R _k = 680	12	—	4,000	4,000	16	—	5977 ●
Class A Amplifier	100	—	R _k = 270	10	—	—	4,500	16	—	5977 ●
Class A Amplifier	100	—	18	9.0	—	—	1,850	4.1	—	5987 ●
Class A Amplifier	250	250	12.5	45†	4.5†	45,000	4,000	—	4.0	5992
Full-Wave Rectifier	Max d-c output current = 60 ma; max peak inverse voltage = 1,250 volts; rms supply voltage per plate = 280 volts; max peak current per plate = 230 ma									
Half-Wave Rectifier	Max d-c output current = 45 ma; max peak inverse voltage = 850 volts; max rms supply voltage = 300 volts; max peak current = 275 ma									
Class A Amplifier	110	—	R _k = 105	—	—	350	15,500	5.4	—	5998
Full-Wave Rectifier	Max d-c output current = 120 ma; max peak inverse voltage = 1,400 volts; rms supply voltage per plate = 375 volts; max peak current per plate = 375 ma									
Class A Amplifier	250	250	12.5	45†	4.5†	52,000	4,100	—	5,000	6003
Class A Amplifier	180	180	8.5	29†	3.0†	58,000	3,700	—	5,500	6003
Class A Amplifier	250	250	15	70†	5†	—	—	—	10,000	6003
Class A Amplifier	100	—	R _k = 150	6.5	—	6,500	5,400	35	—	6021 ●
Class A Amplifier	120	120	R _k = 180	7.5	2.5	300,000	5,000	—	—	6023
Class A Amplifier	90	—	4.0	11	—	4,250	2,000	8.5	—	6029 ●
Class A Amplifier	100	—	R _k = 50	9.0	—	5,900	6,400	38	—	6045
Class A Amplifier	200	125	R _k = 180	46†	2.2†	28,000	8,000	—	4,000	6046
Class A Amplifier	110	110	7.5	49†	4.0†	13,000	8,000	—	2,000	6046
Relay Energizer	115	115	0	105	12.8	R _k = 2 meg	—	—	500	6046
Class A Amplifier	100	100	R _k = 150	7.5	2.5	400,000	3,350	—	—	6049 ●
Class A Amplifier	135	—	5	4.0	—	—	1,600	16	—	6050 ●
Class A Amplifier	250	—	4.0	3.0	—	25,000	1,750	44	—	6072
DC Amplifier	135	—	R _k = 250	125	—	280	7,000	2	—	6080

§ Approximate.

† Without external shield.

‡ Zero signal.

§ Grids 3 and 5 are screen. Grid 4 is signal.

|| Minimum warm-up time controlled for

* Heater warm-up time controlled for

† Screwing service.

‡ Supply voltage.

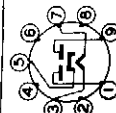
§ Input plate.

|| The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

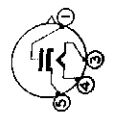
† Section 1.

‡ Section 2.

§ A resistor of 3 ohms must be put in series with heater.

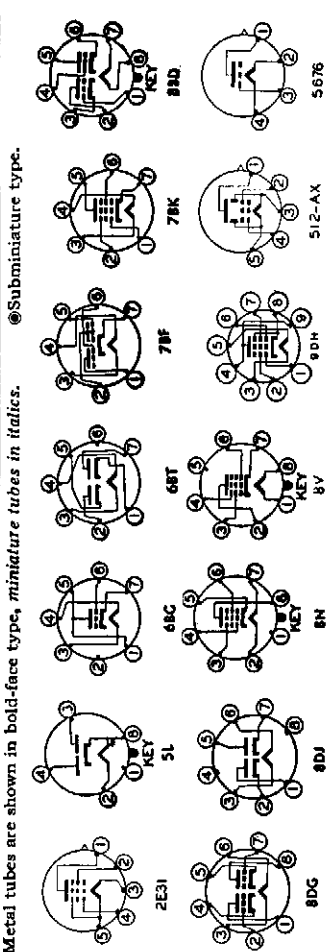


5993



5995

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Out-put
6082	Low-Mu Twin Triode Power Amplifier	SBD	T-X	26.5	0.6	13	—	8.0	2.2
6082-A	Low-Mu Twin Triode	SBD	12-25	26.5	0.6	13	—	—	—
6087	Full-Wave High-Vacuum Rectifier (Special 5Y3-GT)	5L	9-41	5.0	2.0	—	Tube Voltage Drop: 50 v at 125 ma d-c	—	—
6088	Power Amplifier Pentode	512-AX	2-1	1.25 DC	0.02	—	67.5	67.5	—
6092	Power Amplifier Pentode	2E31	2-1	1.25	0.05	—	67.5	67.5	—
6094	Beam Power Amplifier	9DH	T-X	6.3	0.6	12.5	275	8.5	5.3
6097	Twin Diode	6BT	5-1	6.3	0.3	—	275	2.0	1.45
6101	Medium-Mu Twin Triode (Special 6J6)	7BP	5-2	6.3	0.45	0.85	330	2.0	1.5
6106	Full-Wave High-Vacuum Rectifier (Special 6Y3-GT)	5L	T-X	5.0	1.7	—	Tube Voltage Drop: 60 v at 125 ma d-c	—	—
6110	Twin Diode	8DJ	3-1	6.3	0.15	—	Tube Voltage Drop: 10 v at 15 ma d-c	—	—
6111	Medium-Mu Twin Triode	8DG	3-1	6.3	0.3	1.0	165	2.1	1.4
6112	High-Mu Twin Triode	8DG	3-1	6.3	0.3	0.3	165	1.9	1.0
6113	High-Mu Twin Triode (Special 6SL7-GT)	8BD	9-11	6.3	0.3	1.0	250	—	—
6121	Medium-mu Triode	5676	2-1	1.25	0.12	1.1	185	1.4	1.4
6134	Sharp-Cutoff RF Pentode (Special 6AC7)	8N	8-1	6.3	0.45	3.0	330	5.0	0.015
6135	Medium-Mu Triode (Special 6C4)	6BG	5-2	6.3	0.175	3.4	330	1.5	0.7
6136	Sharp-Cutoff RF Pentode	7BK	5-2	6.3	0.3	3.1	330	6.0	0.0035
6137	Remote-Cutoff RF Pentode (Special 6AU6)	8N	8-1	6.3	0.3	3.0	330	5.0	0.003



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Multiplier	Screen Multiplier	R _p Ohms	G _m μmhos	Load for Rated Output Ohms	Power Out-put Watts	Tube Type
DC Amplifier	135	—	R _k = 250	125	—	280	7,000	2	—	6082
Class A Amplifier	135	—	R _k = 250	125	—	280	7,000	2.0	—	6082-A
Full-Wave Rectifier	Max d-c output current = 125 ma; max peak inverse voltage = 1400 volts; rms supply voltage per plate = 350 volts; max peak current per plate = 375 ma									
Class A Amplifier	45	45	1.25	0.65†	0.15†	700,000§	625	—	80,000 0.0105	6088
Class A Amplifier	45	45	4.5	1.4	0.4	—	600	—	30,000 0.025	6092
Class A Amplifier	250	250	12.5	45	3.5	32,000*	4,100	—	4.5	6094
Half-Wave Rectifier	Max d-c output current per plate = 10 ma; max peak inverse voltage = 380 volts; max rms supply voltage per plate = 117 volts; max peak current per plate = 60 ma									
Class A Amplifier	100	—	R _k = 50	8.5	—	6,300	6,000	38	—	6101
Full-Wave Rectifier	Max d-c output current = 125 ma; max peak inverse voltage = 1,550 volts; rms supply voltage per plate = 350 volts; max peak current per plate = 415 ma									
Full-Wave Rectifier	Max d-c output current per plate = 4.4 ma; max peak inverse voltage = 460 volts; max rms supply voltage per plate = 165 volts; max peak current per plate = 26.5 ma									
Class A Amplifier	100	—	R _k = 220	8.5	—	4,000§	5,000	20	—	6111
Class A Amplifier	150	—	R _k = 820	1.75	—	28,000§	2,500	70	—	6112
Class A Amplifier	100	—	R _k = 1,500	0.8	—	39,000§	1,800	70	—	6113
Class A Amplifier	250	—	2.0	2.3	—	44,000	1,600	70	—	6121
Class A Amplifier	135	—	5.0	4.0	—	9,400§	1,600	15	—	6134
Class A Amplifier	300	150	R _k = 160	10	2.5	1,000,000§	9,000	—	—	6135
Class A Amplifier	250	—	8.5	10.5	—	7,700§	2,200	17	—	6136
Class A Amplifier	100	—	0	11.8	—	6,250§	3,100	19.5	—	6137
Class A Amplifier	250	150	R _k = 68	10.6	4.3	1,000,000§	5,200	—	—	6138
Class A Amplifier	100	100	R _k = 150	5.0	2.1	500,000§	3,900	—	—	6139
Class A Amplifier	250	100	3	9.2	2.6	800,000§	2,000	—	—	6140
Class A Amplifier	100	100	1	13	4.0	120,000§	2,350	—	—	6141

§ Approximate.
▲ Without external shield.
† Zero signal.
‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
Conversion transconductance.
* Maximum.
‡ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
* Maximum screen dissipation, where given, appears immediately below the numerical value and always has a numerical value less than 10.
§ Absolute maximum rating.
† Plate-to-plate.

◆ Per section.
◆ Design maximum rating.
◆ For both sections.
◆ Minimum.
◆ Heater warm-up time controlled for series-string service.
◆ Supply voltage.
◆ Input plate.
◆ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
◆ Section 1.
◆ Section 2.
◆ A resistor of 3 ohms must be put in series with heater.

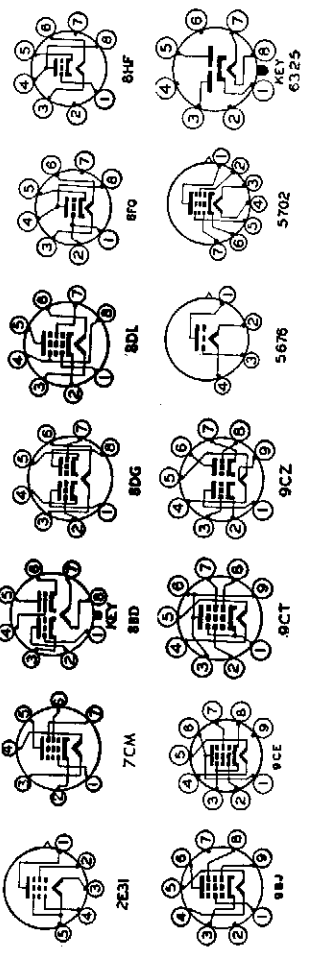
◆ Per section.
 ◆ Design maximum rating.
 ◆ For both sections.
 ◆ Minimum.
 ◆ Heater warm-up time controlled for series-string service.
 ◆ Supply voltage.
 ◆ Input plate.
 ◆ —The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 1—Section 1.
 2—Section 2.
 —A resistor of 3 ohms must be put in series with heater.

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

⊗ Subminiature type.

Tube Type	Classification by Construction	Base Connections	Outline Dwg	Filament Volts	Filament Amp	Max Plate Watts	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
									Input	Output
6216	Beam Power Amplifier	9CE	6-3	6.3	1.2	10	300	200 1.0	13.2▲	6.7▲ 0.37▲
6221●	Medium-mu Triode	8HF	3-1	6.3	0.175	3.3■	165■	—	—	—
6222●	High-mu Triode	8HF	3-1	6.3	0.175	0.55■	165■	—	—	—
6223●	Sharp-Cutoff Pentode	8DL	3-1	6.3	0.175	1.1■	165■	155■ 0.55■	4.2	3.4 0.015
6224●	Beam Power Amplifier	8DL	3-3	6.3	0.45	5.0■	165■	155■ 0.6■	6.5	7.5 0.2
6225●	Semi-remote Cutoff Pentode	8DL	3-1	6.3	0.175	1.1■	165■	155■ 0.55■	4.1	3.4 0.015
6245●	Sharp-Cutoff Pentode	5702	3-6	6.3	0.2	1.85■	200■	155■ 0.55■	4.35	3.15 0.03▲
6247●	High-Mu Triode	8FO	3-2	6.3	0.2	1.6■	275■	—	—	—
6266 5★	Sharp-Cutoff RF Pentode (Special 6BH6)	7CM	5-2	6.3	0.175	2.0	300	300 0.5	5.2▲	4.4▲ 0.004▲
6267	AF Pentode	9BJ	6-2	6.3	0.2	1.0	300	200 0.2	—	—
6281●	Sharp-Cutoff AF Pentode	2E31	2-2	0.625	0.02	—	25■	25■	2.5	3.4 0.01▲
6286●	Medium-mu Triode	5076	2-1	1.25	0.125	0.45■	100■	—	1.3▲	2.1▲ 1.6▲
6287	Beam Power Amplifier	9CT	T-X	6.3	0.6	13.2■	275■	275■ 3.2■	8.0▲	9.0▲ 1.1▲
6320●	High-mu Twin Triode	8DG	T-X	6.3	0.085	0.6▲	150	—	1.0	1.4 0.6
6321●	Low-mu Twin Triode	8DG	T-X	6.3	0.085	0.6▲	150	—	1.0	1.4 0.55
6325	Full-Wave High-Vacuum Rectifier	6325	T-X	6.3	2.7	—	—	—	—	—
6327	Beam Power Amplifier	6327	T-X	6.3	1.8	35■	1,650■	330■ 6.0■	13▲	13▲ 0.6▲
6336	Low-mu Twin Triode	8BD	T-X	6.3	4.75	30■	400■	—	13.7▲	4.7▲ 15.2▲
6336-A	Low-mu Twin Triode	8BD	T-X	6.3	5.0	30■	400■	—	16.7▲	3.8▲ 21.8▲
6350	Medium-Mu Twin Triode	9CZ	6-3	6.3 12.6	0.6 0.3	4.0■	330■	—	3.6▲	0.6▲ 3.2▲

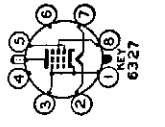
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Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milliamperes	Screen Milliamperes	R _p Ohms	G _m μmhos	Factor	Load for Rated Output, Ohms	Power Output, Watts	Tube Type
Class A Amplifier	200	100	6.0	47†	2.0†	38,000	8,800	—	4,500	3.8	6216
Class A Amplifier	100	100	3.0	72	3.0	18,500	12,500	R _k =0.1 meg	—	—	6221●
Class A Amplifier	100	—	R _k =150	8.5	—	4,700	5,800	27	—	—	6222●
Class A Amplifier	100	—	R _k =150	0.7	—	41,000	1,700	70	—	—	6223●
Class A Amplifier	100	100	R _k =150	7.5	2.4	175,000*	5,000	—	—	—	6224●
Class A Amplifier	110	110	R _k =270	30	2.0	10,000	4,200	—	—	—	6225●
Class A Amplifier	100	100	R _k =120	7.2	2.0	175,000*	4,500	—	—	—	6245●
Class A Amplifier	120	120	R _k =200	7.5	2.6	—	5,000	E _{as} =0 volts	—	—	6247●
Class A Amplifier	20	30	0	2.5	1.5▲	—	3,275	E _{as} =0 volts	—	—	6266
Class A Amplifier	250	—	R _k =500	4.2	—	22,600	2,650	60	—	—	6267
Class A Amplifier	250	150	R _k =100	7.4	2.9	1,000,000	4,600	—	—	—	6281●
Class A Amplifier	250	140	2.0	3.0	0.6	2,500,000	2,000	E _{as} =0 volts	—	—	6286●
Class A Amplifier	15	15	1.0	0.05	0.02	2,000,000	105	—	—	—	6287
Class A Amplifier	67.5	—	2.0	6.0	—	5,500	2,100	11.5	—	—	6320●
Class A Amplifier	250	250	12.5	40†	5.0†	55,000	4,100	—	6,000	4.5	6321●
Class A Amplifier	100	—	R _k =680	—	—	33,000	1,800	60	—	—	6325
Class A Amplifier	100	—	R _k =680	—	—	9,400	1,700	16	—	—	6327
Full-Wave Rectifier	550 ma	Max d-c output current = 250 ma; max peak inverse voltage = 2200 volts; rms supply voltage per plate = 780 volts; max peak current per plate = 550 ma	—	—	—	—	—	—	—	—	6336
Class A Amplifier	400	300	40	7.5	3.5	20,000	5,500	—	—	—	6336-A
Class A Amplifier	230	230	22.5	120	7.0	—	8,000	—	—	—	6350
DC Amplifier	190	—	R _k =185	—	—	250	11,000	2.7	—	—	6327
DC Amplifier	190	—	R _k =185	—	—	—	13,600	2.7	—	—	6336-A
Class A Amplifier	150	—	5.0	11	—	3,900	4,600	18	—	—	6327

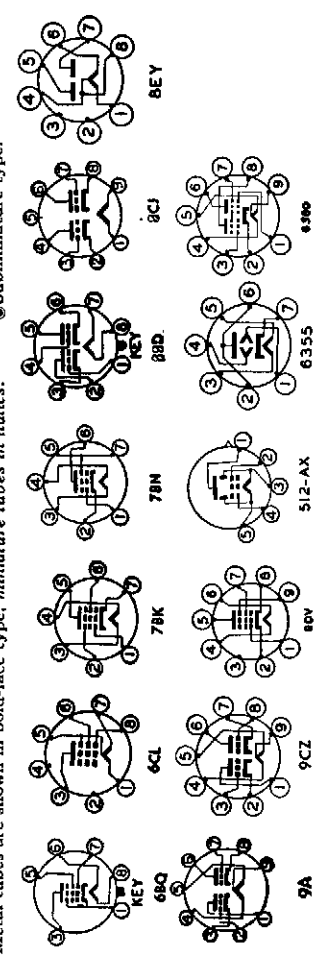
§ Approximate.
† Zero signal.
‡ Grids 3 and 5 are screen. Grid 4 is signal input grid.
Conversion transconductance.
▲ Maximum.
▼ Grids 2 and 4 are screen. Grid 3 is signal input grid.
□ Absolute maximum rating.
★ Maimum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
† Plate-to-plate.

◆ Per section.
◆ Design maximum rating.
◆ For both sections.
* Minimum.
† Heater warm-up time controlled for series-string service.
‡ Supply voltage.
‡ Input plate.
‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
1—Section 1.
2—Section 2.
4—A resistor of 3 ohms must be put in series with heater.



Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts	Capacitance in Micromicrofarads	
								Input	Output
6352	Temperature-Limited Twin Diode	8EY	3-2	3.0 AC	0.36	—	—	Max filament voltage $\square = 4.0$ a-c Max plate voltage $\square = 250$ d-c Max plate current $\square = 1.1$ ma $\oplus$	
6355	Twin Electron-Ray Indicator	6355	T-X	6.3	0.14	—	—	Max target voltage = 275 v	
6360	Twin Tetrode	6360	6-4	12.6 6.3	0.41 0.82	7.0 $\square$	200 $\square$	Two Sections, Push-Pull	—
6384	Beam Power Amplifier	6BQ	T-X	6.3	1.2	30 $\square$	750 $\square$	—	—
6385	High-Frequency Twin Triode	8CJ	6-2	6.3	0.5	1.5 $\diamond$	300	2.4 $\blacktriangle$	1.1 $\blacktriangle$
6386	Medium-Mu Remote-Cutoff Twin Triode	8CJ	6-1	6.3	0.35	1.5 $\diamond$	300	2.0 $\blacktriangle$	1.1 $\blacktriangle$
6394	Low-mu Twin Triode	8BD	T-X	26.5	1.2	30 $\square$	400 $\square$	13.7 $\blacktriangle$	4.7 $\blacktriangle$
6394-A	Low-mu Twin Triode	8BD	T-X	26.5	1.3	30 $\square$	400 $\square$	16.7 $\blacktriangle$	3.8 $\blacktriangle$
6397	Power-Amplifier Pentode	6CL	T-X	2.5 1.25	0.0625 0.125	1.5 $\square$	135 $\square$	2.75	3.0
6414	Twin Triode	9A	6-3	12.6 6.3	0.225 0.45	2.0 $\diamond$	200 $\diamond$	4.0 $\blacktriangle$	0.47 0.38
6418	Power-Amplifier Pentode	512-AX	T-X	1.25	0.01	—	30 $\square$	—	—
6419	Power-Amplifier Pentode	512-AX	T-X	0.625	0.01	—	25 $\square$	—	—
6463	Medium-Mu Twin Triode	9CZ	6-3	12.6 6.3	0.3 0.6	4.0 $\diamond$	300	3.0 $\blacktriangle$	0.6 0.5
6485	Sharp-Cutoff RF Pentode	7BK	5-2	6.3	0.45	3.2	300	10	3.6
6486	Sharp-Cutoff R.F. Pentode	9DV	6-2	6.3	0.25	2.0	180	4.5 $\blacktriangle$	3.3
6486-A	Dual-Control Pentode	9DV	6-2	6.3	0.25	2.0 $\square$	200 $\square$	4.4 $\blacktriangle$	3.7
6519	Power-Amplifier Pentode	512AX	T-X	1.25	0.01	—	30 $\square$	$R_{at} = 10$ meg	
6520	Low-mu Twin Triode	83D	16-3	6.3	2.5	14 $\square$	300 $\square$	8.4 $\blacktriangle$	2.2 $\blacktriangle$
6525	Thyratron	7BN	5-1	6.3	0.15	—	500 $\diamond$	Anode voltage drop = 8 volts	

Metal tubes are shown in bold-face type, miniature tubes in *italics*.



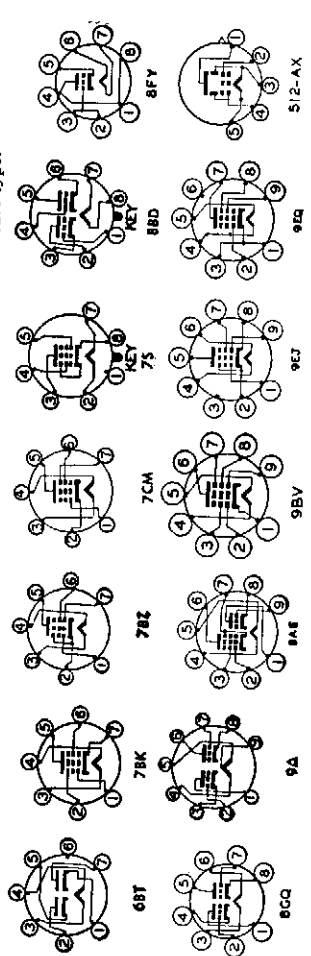
Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Screen Milli-am-peres	Rp, Ohms	Gm, μ hos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Control Service	Plate voltage = 250 d-c thru 1 meg; plate current = 50 μ a $\oplus$									
Tuning Indicator	Target voltage = 250 v; Focus electrode-1 voltage = 120 to 190 v; Focus electrode-2 voltage = 120 to 190 v									
Class AB ₁ Amplifier	250	200	21.5	30 $\dagger$	1.4 $\dagger$	—	—	8,000 $\dagger$	9.3	6352 $\oplus$
Horizontal Deflection Amplifier	250	250	22.5	77	3.5	—	5,400	—	—	6355
Class A Amplifier	150	—	2.0	8.0	—	7,000 $\square$	5,000	35	—	6360
Class A Amplifier	100	—	$R_k = 200$	9.6	—	4,250 $\square$	4,000	17	—	6384
DC Amplifier	190	—	$R_k = 200$	185	—	200	13,500	2.7	—	6394
DC Amplifier	190	—	$R_k = 200$	185	—	—	13,500	2.7	—	6394-A
Class A Amplifier	125	125	7.5	7.25	1.2	—	1,950	—	—	6397 $\oplus$
Class A Amplifier	180	—	2.0	8.0	—	7,650 $\square$	5,550	42.5	—	6414
Class A Amplifier	22.5	22.5	1.2	0.24 $\dagger$	0.06 $\dagger$	420,000	300	100,000	0.0022	6418 $\oplus$
Class A Amplifier	15	15	0.625	0.055	0.02	2,000,000 $\square$	100	—	—	6419 $\oplus$
Class A Amplifier	250	—	$R_k = 620$	14.5	—	3,850 $\square$	5,200	20	—	6463
Class A Amplifier	300	150	$R_k = 160$	10	2.5	500,000	9,000	—	—	6485
Class A Amplifier	120	120	—2.0	3.5	3.3	—	3,250	$E_{ca} = 0$ volts	—	6486
Class A Amplifier	120	120	2.0	3.5	3.3	—	2,250	$E_{ca} = 0$ volts	—	6486-A
Class A Amplifier	22.5	22.5	$E_{ca} = 0$	0.4	0.1	300,000 $\square$	450	100,000	0.0015	6519 $\oplus$
DC Amplifier	135	—	$R_k = 250$	112	—	280	7,000	2.0	—	6520
Relay Energizer	DC control-grid supply voltage for anode conduction: -2.5 volts at $E_{bb} = 105$ volts d-c. $E_{ca} = 0$ volts, $R_L = 22,000$ ohms, $R_{gr} = 1.0$ meg $R_{g1} = 0$									

$\oplus$ Approximate.
 $\dagger$ Without external shield.
 $\diamond$ Zero signal.
 $\square$ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 $\blacktriangle$ Conversion transconductance.
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Per section.
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 $\blacktriangle$ Section 1.
 $\blacktriangle$ Section 2.
 $\blacktriangle$ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Out-put
6526 ●	Power-Amplifier Pentode	512 AX	2-1	1.25	0.125	1.1 □	135 □	—	—
6528	Twin Triode	8BD	T-X	6.3	5.0	30 □	400 □	17.8 ▲	2.9 ▲ 23.8 ▲
6523 ●	High-mu Triode	8FY	3-1	6.3	0.2	0.35 □	150 □	—	1.75 ▲ 0.6 ▲ 1.6 ▲
6550	Beam Power Amplifier	7S	T-X	6.3	1.6	35	600	14 ▲	12 ▲ 0.85 ▲
6582-A	Sharp-Cutoff RF Pentode	9EJ	6-2	6.3	0.25	2.0 □	155 □ 0.85 □	4.5	3.0 0.03 □
6611 ●	RF Pentode	512AX	2-1	1.25	0.02	0.1 □	50 □ 0.02 □	4.0	4.0 0.008 □
6612 ●	RF Pentode	512AX	2-1	1.25	0.08	0.2 □	50 □ 0.05 □	5.5	4.2 0.01 □
6660	Remote-Cutoff RF Pentode (Special 6BA6)	7BK	5-2	6.3	0.3	3.3 □	330 □ 0.65 □	5.5	5.5 0.0035 □
6661	Sharp-Cutoff RF Pentode (Special 6BH6)	7CM	5-2	6.3	0.15	3.3 □	330 □ 0.55 □	5.4	4.4 0.0035 □
6662	Remote-Cutoff RF Pentode (Special 6B16)	7CM	5-2	6.3	0.15	3.3 □	330 □ 0.65 □	4.5	5.5 0.0035 □
6663	Twin Diode (Special 6AL5)	6BT	5-1	6.3	0.3	—	—	Tube Voltage Drop: ♦ 10 v at 60 ma d-c	
6669	Beam Power Amplifier (Special 6AQ5)	7BZ	5-3	6.3	0.45	12 □	250 □ 250 □ 2.0 □	Single Tube 2 Tubes, Push Pull	
6677	Power-Amplifier Pentode (Special 6CL6)	9BV	6-3	6.3	0.65	8.5 □	330 □ 330 □ 2.0 □	11 ▲	5.5 ▲ 0.12 ▲
6678	Triode-Pentode (Special 6U8)	9AE	6-2	6.3	0.45	3.0 □	330 □ 330 □ 0.55 □	Pentode Section Triode Section	
6679	High-mu Twin Triode (Special 12AT7)	9A	6-2	12.6 { 6.3	0.15 { 0.3	2.8 □	330 □	2.2	1.21 1.52
6680	Medium-mu Twin Triode (Special 12AU7)	9A	6-2	12.6 { 6.3	0.15 { 0.3	3.0 □	330 □	1.8	2.0 1.5
6681	High-mu Twin Triode (Special 12AX7)	9A	6-2	12.6 { 6.3	0.15 { 0.3	1.1 □	330 □	1.8	1.9 1.7
6683	RF Pentode	9EQ	6-1	6.3	0.3	3.0 □	210 □ 175 □ 0.9 □	7.5	3.0 0.03 □
6690 ●	Medium-mu Twin Triode	8GQ	T-X	6.3	0.3	1.1 □	120 □	2.6	1.71 1.8

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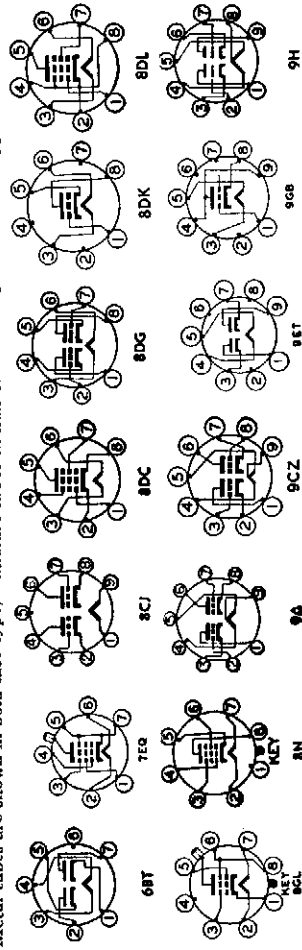


- § Approximate.
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- Section 1.
- Section 2.
- A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Con- nect- ions	Out- line Dwg nec- essary	Fila- ment Volts	Fila- ment Amp	Max Plate Volts	Max Screen Volts	Capacitance in Micromicrofarads		
								Input	Out- put	Grid- plate
6754	Pull-Wave High-Vacuum Rectifier	9ET	T-X	6.3	1.0	—	—	—	—	—
6788	Sharp-Cutoff Pentode	8DL	3-11	6.3	0.175	250	150	2.4	3.3	0.032
6792	High-Vacuum Beam Tetrode	8GL	T-X	6.3	0.45	25,000	—	2.0	4.0	0.03
6814	Medium- μ Triode	8DK	3-1	6.3	0.15	250	—	2.4	2.4	1.3
6829	Twin Triode	9A	6-3	12.6	0.225	275	—	4.0	0.51	3.0
				6.3	0.45	4.0	—	—	0.38	—
6832	Medium- μ Twin Triode	8DG	3-2	6.3	0.4	165	—	—	—	—
6840	Medium- μ Twin Triode	9CZ	6-3	12.6	0.4	300	—	4.0	0.70	5.5
				6.3	0.8	7.0	—	—	0.65	—
6842	High-Voltage Regulator	7EQ	T-X	6.3	0.15	8.0	150	3.35	1.34	0.067
6851	High- μ Twin Triode	9A	6-2	6.3	0.25	1.0	—	1.6	0.46	1.4
6854	Medium- μ Twin Triode	8CJ	6-2	6.3	0.5	300	—	2.4	1.1	1.7
6877	Low- μ Triode	9CB	6-4	6.3	0.8	12	200	—	—	—
6887	Twin Diode	6BT	5-1	6.3	0.2	—	—	—	—	—
				6.3	0.2	—	—	—	—	—
6888	Dual-Control Pentode	8N	9-12	6.3	0.8	8.0	250	150	12	6.5
				6.3	0.8	8.0	250	150	12	6.5
6900	Medium- μ Twin Triode	9H	6-3	12.6	0.5	4.25	—	6.5	1.8	4.0
				6.3	1.0	4.25	—	6.5	0.61	—
6913	Medium- μ Twin Triode	9A	6-3	12.6	0.3	3.5	—	3.6	0.5	3.4
				6.3	0.6	3.5	—	3.6	0.5	3.4
6919	Twin Diode	6BT	5-1	6.3	0.2	—	—	—	—	—
				6.3	0.2	—	—	—	—	—
6943	Sharp-Cutoff RF Pentode	8DC	3-11	6.3	0.175	1.0	250	150	3.0	0.015
6944	Semi-Remote Cutoff RF Pentode	8DC	3-11	6.3	0.175	1.0	250	150	2.9	0.015
6945	Beam Power Amplifier	8DL	3-3	6.3	0.35	3.0	250	150	5.0	0.13

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Subminiature type.



Service	Plate Volts	Screen Volts	Neg. Grid Volts	Plate Milli- am- peres	Screen Milli- am- peres	Rp. Ohms	Gm, μ hos	Fac- tor	Load for Rated Out- put, ohms	Power Out- put, Watts	Tube Type
Full-Wave Rectifier	Max d-c output current = 90 ma; max peak inverse voltage = 1,450 volts; rms supply voltage = 325 volts; max peak current per plate = 330 ma	100	100	R _k = 1500	0.7	0.1	1,200,000	1,100	—	—	6754
Class A Amplifier	100	100	R _k = 1500	0.7	0.1	—	—	—	—	—	6788
High-Voltage Shunt Regulator	25,000	200	18	1.0	0.1	10,000,000	195	—	—	—	6792
	Max screen dissipation = 1.0 watt; max d-c cathode current = 10 ma	—	—	—	—	—	—	—	—	—	—
Class A Amplifier	100	—	R _k = 150	10	—	4,800	6,000	29	—	—	6814
Class A Amplifier	150	—	R _k = 220	8.5	—	7,000	6,700	47	—	—	6829
Class A Amplifier	150	—	4.8	0.15	—	—	—	—	—	—	—
	100	—	—	17	—	—	I _c = 0.2 ma	—	—	—	—
Class A Amplifier	100	—	R _k = 3000	0.8	—	—	—	26	—	—	6832
Class A Amplifier	250	—	R _k = 620	14	—	3,400	5,900	20	—	—	6840
	100	—	6.5	0.1	—	—	—	—	—	—	—
	80	—	—	31	—	—	I _c = 200 μ a	—	—	—	—
Class A Amplifier	1500	100	1.0	4.5	0.5	930,000	2,500	—	—	—	6842
Class A Amplifier	250	—	R _k = 3100	1.0	—	60,000	1,200	70	—	—	6851
Class A Amplifier	150	—	R _k = 240	8.2	—	6,500	5,225	35	—	—	6854
Class A Amplifier	150	—	12	75	—	2,000	6,500	3.75	—	—	6877
Gating and Clamping Service	Max d-c output current per plate = 10 ma; max peak inverse voltage = 360 volts; max peak current per plate = 30 ma	—	—	—	—	—	—	—	—	—	6887
Gated Amplifier	150	90	9.4	37.5	19	I _c = 190 μ a	—	—	—	—	6888
	150	90	13.8	0.03	—	—	—	—	—	—	—
	150	90	0	2.0	—	—	—	—	—	—	—
Class A Amplifier	120	—	2.0	36	—	1,600	11,500	18.5	—	—	6900
Class A Amplifier	150	—	5.0	11	—	3,900	4,600	18	—	—	6913
Gating and Clamping Service	Max d-c output current per plate = 10 ma; max peak inverse voltage = 300 volts; max peak current per plate = 30 ma	—	—	—	—	—	—	—	—	—	6919
Class A Amplifier	100	100	R _k = 150	8.0	2.3	300,000	3,600	—	—	—	6943
Class A Amplifier	100	100	R _k = 150	7.0	2.1	280,000	3,200	—	—	—	6944
Class A Amplifier	100	100	R _k = 270	25	1.5	20,000	3,500	—	—	—	6945

§ Approximate.

▲ Without external shield.

† Zero signal.

‡ Grids 3 and 5 are screen. Grid 4 is signal.

Conversion transconductance.

◆ Maximum.

◆ Grids 2 and 4 are screen. Grid 3 is signal.

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◆ Per section.

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◆ Section 1.

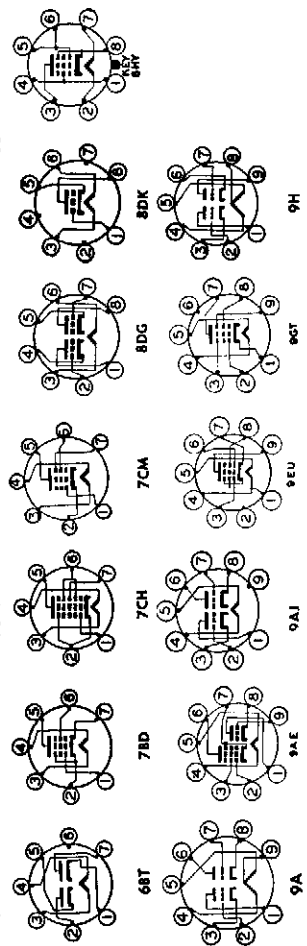
◆ Section 2.

◆ A resistor of 3 ohms must be put in series with heater.

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Watts	Max Screen Volts and Watts	Capacitance in Micromicrofarads	
								Input	Output
6946	Medium- μ Triode	8DK	3-11	6.3	0.175	1.5	250	1.6	0.75
6947	Medium- μ Twin Triode	8DG	3-11	6.3	0.35	0.75	250	1.6	0.20
6948	High- μ Twin Triode	8DG	3-11	6.3	0.35	0.5	250	1.6	0.20
6954	Dual-Control Sharp-Cutoff Pentode	7CM	5-2	6.3	0.3	3.0	300	6.0	5.0
6955	Medium- μ Twin Triode	9A	6-2	12.6	0.175	2.75	300	1.5	0.5
6958	Sharp-Cutoff Pentode	7BD	5-1	6.3	0.175	1.65	200	4.0	2.85
6973	Beam Power Amplifier	9EU	6-4	6.3	0.45	12	400	300	2.0
7025	High- μ Twin Triode	9A	6-2	12.6	0.15	1.0	300	1.8	1.9
7027	Beam Pentode	8HY	T-X	6.3	0.9	25	450	400	3.5
7036	Pentagrid Amplifier	7CH	5-3	6.3	0.3	0.9	250	250	1.35
7044	Medium- μ Twin Triode	9H	6-3	12.6	0.9	4.5	300	4.8	0.65
7054	RP Pentode	9GT	6-3	13.5	0.275	5.0	330	10.2	3.5
7055	Twin Diode	6BT	5-1	13.5	0.155	—	—	—	—
7056	Sharp-Cutoff Pentode	7CM	5-2	13.5	0.15	2.0	330	6.5	3.0
7057	Medium- μ Twin Triode	9AJ	6-2	13.5	0.18	2.2	275	—	—
7058	High- μ Twin Triode	9AJ	6-2	13.5	0.155	1.0	330	1.6	0.48
7059	Triode-Pentode	9AE	6-2	13.5	0.195	2.8	300	300	0.5

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Subminiature type.



Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-am-peres	Screen Milli-am-peres	R _p , Ohms	Gm, μ mhos	μ Fac-tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	100	—	R _k = 270	9.0	—	—	3,800	16.5	—	—	6946
Class A Amplifier	130	—	R _k = 270	6.5	—	—	4,000	35	—	—	6947
Class A Amplifier	100	—	R _k = 1500	0.8	—	—	1,650	70	—	—	6948
Class A Amplifier	130	150	1.0	5.8	6.6	50,000	2,050	E _a = -3.0 volts	—	—	6954
Class A Amplifier	250	—	8.5	11.5	—	7,000	2,350	16.5	—	—	6955
Class A Amplifier	100	—	0	13	—	5,800	3,500	21.3	—	—	6955
Class A Amplifier	120	120	2.0	7.5	2.5	—	5,000	—	—	—	6958
Class A Amplifier	250	250	15	46	3.5	73,000	4,800	—	—	—	6973
Class AB ₁ Amplifier	400	200	25	50	2.5	—	—	8,000	24	—	7025
Class AB ₁ Amplifier	350	250	25	58	2.5	—	—	7,500	20	—	7027
Class AB ₁ Amplifier	250	250	15	92	7.0	—	—	8,000	12.5	—	7027
Class A Amplifier	100	—	1.0	0.5	—	80,000	1,250	100	—	—	7025
Class A Amplifier	250	—	2.0	1.2	—	62,500	1,600	100	—	—	7025
Class AB ₁ Amplifier	450	350	30	95	3.4	—	—	6,000	50	—	7036
Class AB ₁ Amplifier	400	300	25	102	6.0	—	—	6,000	34	—	7036
Class AB ₁ Amplifier	330	330	24	125	5.6	—	—	4,500	31.5	—	7044
Class AB ₁ Amplifier	410	410	R _k = 220	134	—	—	—	8,000	24	—	7044
Gated Amplifier	150	75	10	0	0	R _{k1} = R _{k2} = R _{k3} = 47,000	20,000	—	—	—	7036
Gated Amplifier	150	69	0	0	14	R _{k1} = R _{k2} = R _{k3} = 47,000	20,000	—	—	—	7036
Gated Amplifier	150	71	0	5.8	9.0	R _{k1} = R _{k2} = R _{k3} = 47,000	20,000	—	—	—	7044
Class A Amplifier	120	—	2.0	36	—	1,900	10,000	19	—	—	7044
Class A Amplifier	250	150	R _k = 120	19	3.5	100,000	11,500	—	—	—	7054
Half-Wave Rectifier	250	150	—	—	—	—	—	—	—	—	7055
Class A Amplifier	200	150	R _k = 180	9.5	2.8	600,000	6,200	—	—	—	7056
Class A Amplifier	150	—	R _k = 220	10	—	5,300	6,800	36	—	—	7057
Class A Amplifier	250	—	2.0	1.25	—	61,000	1,650	100	—	—	7058
Class A Amplifier	250	110	R _k = 68	10	3.5	400,000	5,200	—	—	—	7059
Class A Amplifier	150	—	R _k = 56	18	—	4,700	8,500	40	—	—	7059

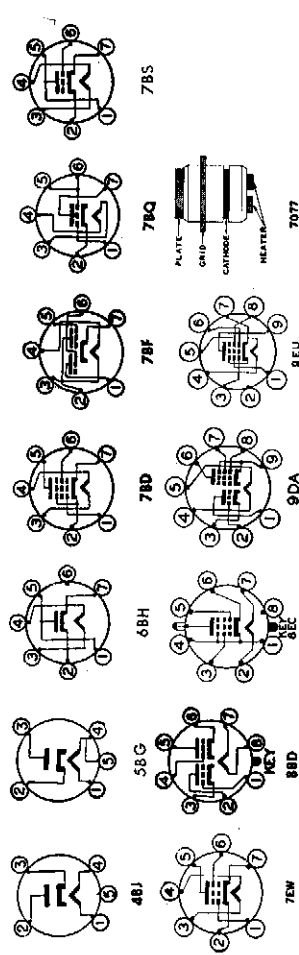
§ Approximate.
 ▲ Without external shield.
 † Zero signal.
 ‡ Grids 3 and 5 are screen. Grid 4 is signal-input grid.
 # Conversion transconductance.
 ◆ Maximum.
 ◆ Grids 2 and 4 are screen. Grid 3 is signal-input grid.
 ◆ Maximum screen dissipation, where given, appears immediately below the maximum screen voltage and always has a numerical value less than 10.
 ◆ Absolute maximum rating.
 ‡ Plate-to-plate.

◆ Per section.
 ◆ Design maximum rating.
 ◆ For both sections.
 * Minimum.
 † Heater warm-up time controlled for series-string service.
 ‡ Supply voltage.
 ‡ Input plate.
 ‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ‡ Section 1.
 ‡ Section 2.
 ‡ A resistor of 3 ohms must be put in series with heater

Tube Type	Classification by Construction	Base Connections	Out-line Dwg	Fila-ment Volts	Fila-ment Amp	Max Plate Volts	Max Plate Watts	Max Screen Volts	Capacitance in Micromicrofarads	
									Input	Output
7060	Triode-Pentode	9DA	6-2	13.5	0.28	3.0	3.0	300	1.0	Pentode Section Triode Section
7061	Beam Power Amplifier	9EU	6-3	13.5	0.21	9.0	345	310	8.0	8.5
7077	High- μ UHF Triode	7077	T-X	6.3	0.24	1.0	250	—	—	—
7105	Low- μ Twin Triode Power Amplifier	8BD	T-X	12.6	1.25	13	250	—	6.2	2.2
7187	Medium- μ Triode	7BQ	5-2	6.3	0.225	2.25	150	—	6.0	4.5
7167	Tetrode	7EW	5-2	13.5	0.09	2.0	180	180	4.4	2.74
7212	Beam Power Amplifier	8EC	T-X	6.3	1.25	20	400	—	Triode Connection Two Tubes, Push-Pull	8.4
7244	Medium- μ Twin Triode	7BF	5-2	6.3	0.45	1.1	300	—	250 3.0	0.03
7268	Triode-Pentode	9DA	6-2	13.5	0.21	2.3	330	330	3.0	1.4
9001	Detector Amplifier Pentode	7BD	5-1	6.3	0.15	—	250	100	3.6	0.01
9002	Medium- μ Triode	7BS	5-1	6.3	0.15	—	250	—	1.2	1.1
9003	Remote-Cutoff Pentode	7BD	5-1	6.3	0.15	—	250	100	3.6	0.01
9004	High-Frequency Diode (Acorn)	4BJ	4-1	6.3	0.15	—	—	—	—	—
9005	High-Frequency Diode (Acorn)	5BG	4-1	3.6	0.165	—	—	—	—	—
9006	High-Frequency Diode	6BH	5-1	6.3	0.15	—	—	—	—	—

Metal tubes are shown in bold-face type, miniature tubes in italics.

©Subminiature type.

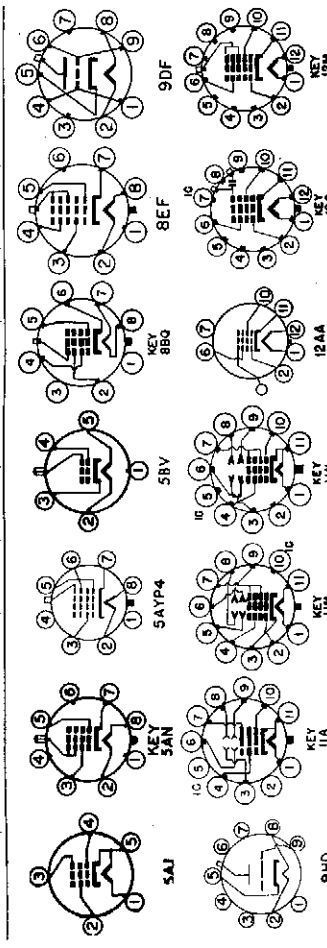


Service	Plate Volts	Screen Volts	Neg Grid Volts	Plate Milli-amp-eres	Screen Milli-amp-eres	Rp, Ohms	Gm, μ mhos	μ Fac- tor	Load for Rated Out-put, Ohms	Power Out-put, Watts	Tube Type
Class A Amplifier	200	125	R _k = 82	15	3.4	150,000	7,000	—	—	—	7060
Class A Amplifier	150	—	R _k = 150	9.0	—	8,200	4,900	40	—	—	7061
Class A Amplifier	200	200	10.0	35.5†	9.0†	60,000	4,200	—	5,000	3.0	7067
Class A Amplifier	250	—	R _k = 82	6.4	—	8,900§	9,000	80	—	—	7077
(With 18,000-ohm bypassed resistor in plate circuit)											
DC Amplifier	135	—	R _k = 250	125	—	—	7,000	2.0	—	—	7105
Class A Amplifier	150	—	R _k = 100	13.5	—	—	8,500	40	—	—	7187
Class A Amplifier	125	80	1.0	10	1.4	125,000	8,000	—	—	—	7167
Class AB ₁ Amplifier	400	—	100	40†	—	—	—	8,000†	22§	—	7212
Class AB ₂ Amplifier	600	165	44	22†	0.6†	—	—	6,800†	90§	—	7244
Class A Amplifier	100	—	R _k = 50 ohms	9.0	—	6,300	6,000	38	—	—	7268
Class A Amplifier	125	125	R _k = 56	12	3.8	170,000§	7,800	—	—	—	9001
Class A Amplifier	150	—	—3	15	—	4,700§	4,500	21	—	—	9002
Class A Amplifier	250	100	3.0	2.0	0.7	1,000,000*	1,400	—	—	—	9003
Class A Amplifier	250	—	7.0	6.3	—	11,400	2,200	25	—	—	9004
Class A Amplifier	250	100	3.0	6.7	2.7	700,000	1,800	—	—	—	9005
Half-Wave Rectifier	Max d-c output current = 5 ma; max rms supply voltage = 117 volts										
Half-Wave Rectifier	Max d-c output current = 1.0 ma; max rms supply voltage = 117 volts										
Half-Wave Rectifier	Max d-c output current = 5 ma; max peak inverse voltage = 750 volts; rms supply voltage = 270 volts; max peak current = 15 ma										

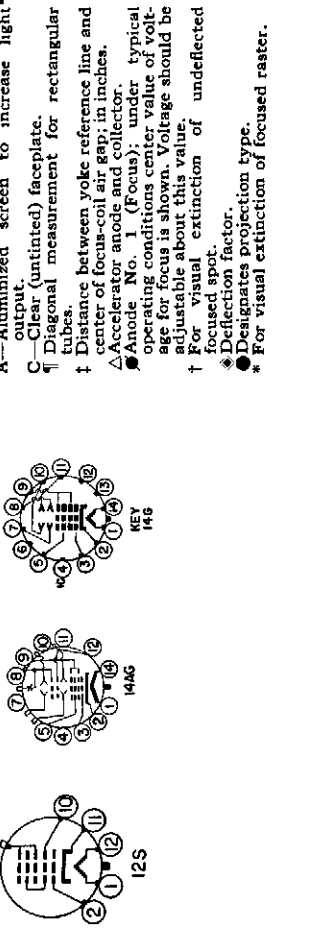
§ Approximate.
 † Without external shield.
 ‡ Zero signal.
 * For both sections.
 † Heater warm-up time controlled for series-string voltage.
 ‡ Supply voltage.
 ‡ Input plate.
 ‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ‡ Section 1.
 ‡ Section 2.
 ‡ A resistor of 3 ohms must be put in series with heater.

§ Per section.
 ‡ Design maximum rating.
 ‡ For both sections.
 ‡ Minimum.
 ‡ Heater warm-up time controlled for series-string voltage.
 ‡ Supply voltage.
 ‡ Input plate.
 ‡ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
 ‡ Section 1.
 ‡ Section 2.
 ‡ A resistor of 3 ohms must be put in series with heater.

Type	Base Connections	Construction	Face-plate Shape	Face-plate Finish	Ext'l Coating	Anode Contact	Focus Method	Defl. Method	Defl. Angle, Degrees	Nom. Overall Length, Inches	Nom. Bulb Diam. Inches
3AKP4-A	Special	Glass	Round	C; A	No	Potted Lead	Elec	Mag	—	6½	3
3KP4	11M	Glass	Round	C	No	Base	Elec	Elec	—	11½	3
3NP4●	5BV	Glass	Round	C; A	Yes	Cavity	Mag	Mag	42	10	2½
5AHP4	8EP	Glass	Round	C	No	Ball	Elec	Mag	53	11½	4½
5AHP4-A	8EP	Glass	Round	C; A	No	Ball	Elec	Mag	53	11½	4½
5ALP4	9DF	Glass	Round	C	No	Ball	Mag	Mag	—	7¼	4¾
5AXP4	12S	Glass	Round	C	No	Cavity	Elec	Mag	53	10¾	4½
5AYP4	5AYP4	Glass	Round	C; A	Yes	Ball	Elec	Mag	53	11½	4½
5AZP4●	12AA	Glass	Round	C; A	No	Cable	Elec	Mag	50	12½	5
5BP4	11A	Glass	Round	C	No	Base	Elec	Elec	—	16¾	5¼
5BCP4	9HD	Glass	Round	C	Yes	Small Ball	Mag	Mag	70	7	4½
5BHP4	14AG	Glass	Round	C	No	Cavity	Elec	Elec	—	18¾	5¼
5PP4-A	5AN	Glass	Round	C	No	Ball	Mag	Mag	53	11½	4½
5QP4	5AN	Glass	Round	C; A	No	Ball	Mag	Mag	53	11½	4½
5QP4-A	5AN	Glass	Round	C; A	No	Ball	Mag	Mag	53	11½	4½
5TP4●	12C	Glass	Round	C; A	Yes	Cavity	Elec	Mag	50	11¾	5
7AP4	5AJ	Glass	Round	C	No	Base	Elec	Mag	55	7½	7
7ABP4	12M	Glass	Round	C	No	Cavity	Elec	Mag	50	13¾	7½
7ARP4	12M	Glass	Round	C; A	Yes	Cavity	Elec	Mag	50	13¾	7½
7CP4	8BQ	Glass	Round	C	No	Ball	Elec	Mag	57	13½	7
7DP4	12C	Glass	Round	C	Yes	Cavity	Elec	Mag	50	14½	7½
7EP4	11N	Glass	Round	C	No	Base	Elec	Elec	—	15½	7
7GP4	14G	Glass	Round	C	No	Base	Elec	Elec	—	14½	7



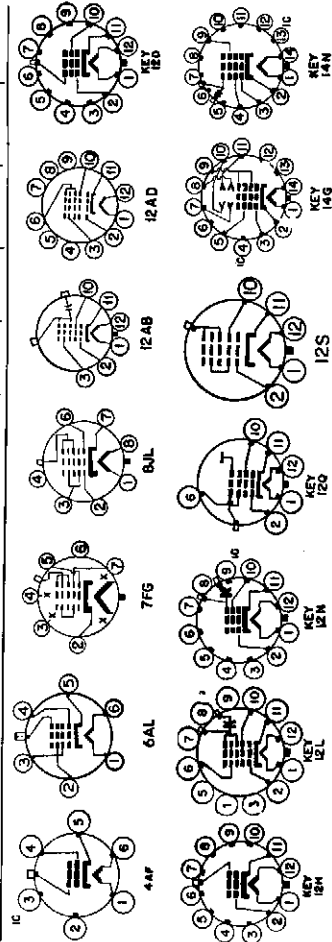
Typical Operating Conditions										
Heater Voltage/ Amp	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg. Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist.	Focus Current in ma	Ion Trap Magnet	Type
6.3/0.3	9,000 +1,000 -500	500	7,000 Δ 175	300	45 to 95*	—	—	—	None	3AKP4-A
6.3/0.6	2,500 Δ 1,000	—	2,000 Δ 460	—	38 to 90†	D1-D2 $\diamond$ = 100 to 136 volts/inch D3-D4 $\diamond$ = 78 to 104 volts/inch	—	—	—	3KP4
6.3/0.6	25,000	—	24,000	—	36 to 84†	—	2.78	120	None	3NP4 ●
6.3/0.6	10,000 Δ +1,000 -500	700	7,000 Δ 125	300	28 to 72*	—	—	—	—	5AHP4
6.3/0.6	10,000 Δ +1,000 -500	700	7,000 Δ 125	300	28 to 72*	—	—	—	—	5AHP4-A
6.3/0.2	10,000	—	8,000	—	50†	—	—	—	—	5ALP4
6.3/0.6	18,000	500	14,000	300	28 to 72*	—	—	—	—	5AXP4
6.3/0.6	10,000 Δ 1,500	410	7,000 Δ 835	200	17 to 47*	—	—	—	—	5ATP4
6.3/0.6	40,000 Δ 9,000	400	36,000 Δ 7,375	200	37 to 93*	—	—	—	—	5AZP4 ●
6.3/0.6	2,000 Δ 1,000	—	2,000 Δ 425	—	40†	D1-D2 $\diamond$ = 85 volts/inch D3-D4 $\diamond$ = 76 volts/inch	—	—	—	5BP4
6.3/0.3	10,100	None	8,000	None	25 to 75*	127	2	80	None	5BCP4
6.3/0.6	12,000 Δ 800	—	10,000 Δ 410	—	50 to 80*	—	—	—	—	5BHP4
6.3/0.6	8,000	410	6,000	250	25 to 70†	106	3 1/4	120	None	5FP4-A
6.3/0.6	12,000	410	10,000	300	28 to 72*	106	2 1/4	137	None	5QP4
6.3/0.6	12,000	700	10,000	300	33 to 77†	106	2 1/4	137	None	5QP4-A
6.3/0.6	27,000 Δ 6,000	350	27,000 Δ 4,900	200	42 to 98†	—	—	—	None	5TP4 ●
2.5/2.1	3,500	1000	3,500	675	67.5†	—	—	—	None	7AP4
6.3/0.6	10,000 +1,000 -500	700	7,000 Δ 125	300	33 to 77*	—	—	—	None	7ABP4
6.3/0.6	11,000 +1,000 -500	700	10,000 Δ 150	330	30 to 67*	—	—	—	None	7ARP4
6.3/0.6	8,000 Δ 2,400	300	6,000 Δ 1,140	250	22 to 68†	—	—	—	None	7CP4
6.3/0.6	8,000 Δ 2,400	410	6,000 Δ 1,430	250	24 to 62*	—	—	—	Double	7DP4
6.3/0.6	3,300 Δ 1,500	—	2,500 Δ 650	—	36 to 84†	D1-D2 $\diamond$ = 88 to 132 volts/inch D3-D4 $\diamond$ = 76 to 114 volts/inch	—	—	—	7EP4
6.3/0.6	4,000 Δ 1,500	—	3,000 Δ 1,000	—	36 to 84†	D1-D2 $\diamond$ = 93 to 123 volts/inch D3-D4 $\diamond$ = 75 to 102 volts/inch	—	—	—	7GP4



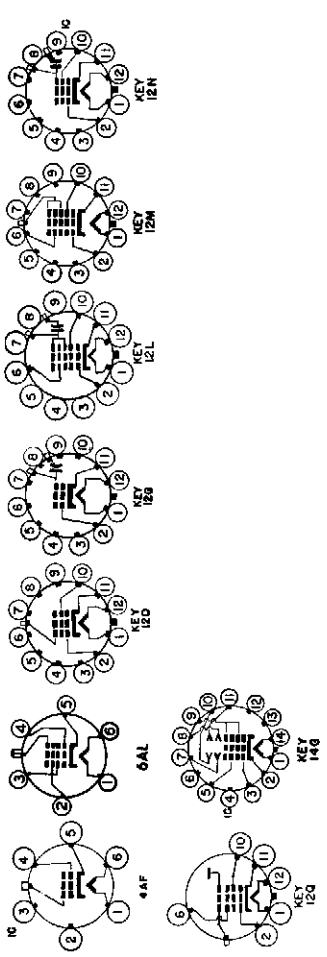
Typical Operating Conditions													Type
Heater Volts/ Amp	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist†	Focus Current in ma	Ion Trap Magnet				Type
6.3/0.6	8,000	410	6,000	250	33 to 77	106	3.5	135	None				7HP4
6.3/0.6	6,000 2,800	—	6,000 2,010	—	72 to 168 †	D1-D2 D3-D4	◆ = 186 to 246 volts/inch ◆ = 150 to 204 volts/inch						7JP4
6.6/0.62	80,000 20,000	600	75,000 16,000	500	155†	—	—	—	None				7NP4●
6.3/0.6	10,000	410	8,000	300	28 to 72*	109	3.0	80	Single				7QP4
6.3/0.6	12,000	410	9,000	250	24 to 62*	106	3¼	120	None				7RP4
6.3/0.6	12,000 2,000	410	10,000 1,370	200	22 to 52†	—	—	—	None				7TP4
6.6/0.62	80,000 20,000	600	75,000 16,000	500	155†	—	—	—	None				7WP4●
6.3/0.6	9,000	—	7,000	—	24 to 62*	106	3¼	115	Single				8AP4
6.3/0.6	6,600 3,100	—	6,000 2,010	—	24 to 62* †	106	3¼	115	Single				8AP4-A
6.3/0.6	8,000 500	400	6,000 165	150	72 to 168 †	D1-D2 D3-D4	◆ = 146 to 198 volts/inch ◆ = 124 to 168 volts/inch						8BP4
					13 to 29*	—	—	—	Single				8DP4
6.3/0.6	18,000	500	16,000	300	35 to 72*	109	3	125	Single				8FP4
6.3/0.6	20,000 +1,000 -500	500	16,000	300	35 to 72*	—	—	—	None				8JP4
6.3/0.6	20,000	500	16,000	300	28 to 72*	—	—	—	None				8XP4
6.3/0.6	20,000	500	16,000	300	35 to 72*	—	—	—	None				8YP4
2.5/2.1	7,000 2,000	250	7,000 1,425	250	75†	—	—	—	None				9AP4
2.5/2.1	7,000	—	6,000	—	90†	—	—	—	None				9CP4
4.7/0.3	6,800 +500 -100	300	5,500 200	200	+28 to +52*	—	—	—	Single				9QP4
4.7/0.3	6,800 +500 -100	300	5,500 200	200	+28 to +52	—	—	—	Single				9QP4-A
6.3/0.6	12,000 +1,000 -500	500	7,500 250	300	38 to 62*	—	—	—	Single				10ABP4
6.3/0.6	12,000 +1,000 -500	500	7,500 250	300	38 to 62*	—	—	—	Single				10ABP4-A
6.3/0.6	12,000 +1,000 -500	500	7,500 250	300	38 to 62*	—	—	—	Single				10ABP4-B

† For visual extinction of undeflected focused spot.
 ♦ Deflection factor.
 ● Designates projection type.
 □ Cathode drive service.
 * For visual extinction of focused raster.
 □ Automatic electrostatic focus. No external focus connection required.

A—Aluminized screen to increase light output.
 C—Clear (unintented) faceplate.
 G—Grey (filter) faceplate.
 † Diagonal measurement for rectangular tubes.
 ‡ Distance between yoke reference line and center of focus-coil air gap; in inches.
 Δ Accelerator anode and collector.
 ● Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.



Type	Base Construction	Face-plate Shape	Face-plate Finish	Ext'l Con-ductive Coating	Anode Contact	Focus Method	Defl. Method	Defl. Angle, Degrees	Nom. Overall Length, Inches	Nom. Bulb Diam. Inches
10ABP4-C	12L	Glass	Rect	G, A	Cavity	Elec	Mag	90	11 3/4	10 3/4
10ADP4	12L	Glass	Rect	G	Cavity	Elec	Mag	90	11 3/4	10 3/4
10AEP4	12L	Glass	Rect	G	Cavity	Elec	Mag	90	11 3/4	10 3/4
10BP4	12N	Glass	Round	C	Cavity	Mag	Mag	50	17 3/4	10 1/4
10BP4-A	12N	Glass	Round	G	Cavity	Mag	Mag	50	17 3/4	10 1/4
10BP4-C	12N	Glass	Round	C, A	Cavity	Mag	Mag	50	17 3/4	10 1/4
10BP4-D	12N	Glass	Round	G, A	Cavity	Mag	Mag	50	17 3/4	10 1/4
10CP4	12N	Glass	Round	C	Ball	Mag	Mag	50	16 3/4	10 1/4
10DP4	12M	Glass	Round	C, A	Cavity	Elec	Mag	50	17 3/4	10 1/4
10FP4	12N	Glass	Round	C, A	Cavity	Mag	Mag	50	17 3/4	10 1/4
10FP4-A	12N	Glass	Round	G, A	Cavity	Mag	Mag	50	17 3/4	10 1/4
10GP4	14G	Glass	Round	C	Base	Elec	Elec	—	18 3/4	10 1/4
10HP4	14G	Glass	Round	C	Base	Elec	Elec	—	19 1/4	10
10MP4	12G	Glass	Round	C	Cavity	Mag	Mag	52	17	10 1/4
10MP4-A	12G	Glass	Round	G	Cavity	Mag	Mag	50	17	10 1/4
10RP4	12L	Glass	Round	C, A	Cavity	Elec	Mag	50	16 3/4	10 1/4
10SP4	12Q	Glass	Round	G, A	Cavity	Elec	Mag	50	16 3/4	10 1/4
12AP4	6AL	Glass	Round	C	Cap	Elec	Mag	35	25	12
12CP4	4AF	Glass	Round	C	Cap	Mag	Mag	—	18 3/4	12
12JP4	12D	Glass	Round	C	Ball	Mag	Mag	56	17 1/4	12
12KP4	12N	Glass	Round	C, A	Cavity	Mag	Mag	54	17 3/4	12 1/4
12KP4-A	12N	Glass	Round	G, A	Cavity	Mag	Mag	54	17 3/4	12 1/4
12LP4	12N	Glass	Round	C	Cavity	Mag	Mag	54	18 3/4	12 1/4
12LP4-A	12N	Glass	Round	G	Cavity	Mag	Mag	54	18 3/4	12 1/4
12LP4-C	12N	Glass	Round	G, A	Cavity	Mag	Mag	54	18 3/4	12 1/4
12QP4	12D	Glass	Round	C	Ball	Mag	Mag	55	17 1/4	12
12QP4-A	12D	Glass	Round	G	Ball	Mag	Mag	54	17 1/4	12

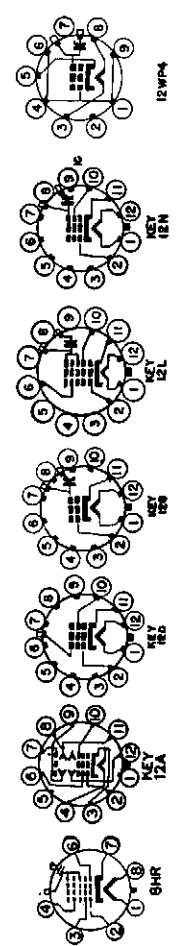


Typical Operating Conditions										Type
Heater Volts/Amp	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg. Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist.	Focus Current in ma	Ion Trap Magnet	Type
6.3/0.6	12,000 Δ +1,000 -500	500	7,500 Δ 250	300	38 to 62*	—	—	—	Single	
8.4/0.45	12,000 Δ +1,000 -500	500	7,500 Δ 250	300	38 to 72*	—	—	—	Single	10ADP4
6.3/0.45	12,000 Δ +1,000 -500	500	7,500 Δ 250	300	38 to 62*	—	—	—	Single	10AEP4
6.3/0.6	12,000	410	11,000	300	28 to 72*	109	4 1/2	100	Double	10BP4
6.3/0.6	12,000	410	11,000	300	28 to 72*	109	4 1/2	100	Double	10BP4-A
6.3/0.6	10,000	410	9,000	300	28 to 72*	106	3 3/4	110	Single	10BP4-C
6.3/0.6	10,000	410	9,000	300	28 to 72*	106	3 3/4	110	Single	10BP4-D
6.3/0.6	12,000	450	9,000	250	30 to 66†	—	—	—	None	10CP4
6.3/0.6	10,000 Δ 3,600	410	9,000 Δ 2,900	250	36 to 84†	—	—	—	None	10DP4
6.3/0.6	12,000	410	11,000	300	8 to 72*	106	3 3/4	110	None	10FP4
6.3/0.6	12,000	410	11,000	300	28 to 72*	106	3 3/4	110	None	10FP4-A
6.3/0.6	5,000 Δ 2,000	—	5,000 Δ 1,550	—	60 to 140†	D1-D2 Δ = 125 to 165 volts/inch D3-D4 Δ = 100 to 135 volts/inch	—	—	185 volts/inch 135 volts/inch	10GP4
6.3/0.6	5,000 Δ 2,000	—	5,000 Δ 1,500	—	60 to 140†	D1-D2 Δ = 110 to 150 volts/inch D3-D4 Δ = 85 to 115 volts/inch	—	—	150 volts/inch	10HP4
6.3/0.6	10,000	—	9,000	—	24 to 62*	—	—	—	Double	10MP4
6.3/0.6	10,000	—	9,000	—	24 to 62*	—	—	—	Double	10MP4-A
6.3/0.6	16,000 Δ +1,000 -500	500	14,000 Δ 123	300	28 to 72*	—	—	—	None	10RP4
6.3/0.6	14,000 Δ 2,700	410	12,000 Δ 1,650	200	18 to 48*	—	—	—	None	10SP4
2.5/2.1	7,000 Δ 1,900	250	7,000 Δ 1,460	250	75†	—	—	—	None	12AP4
2.5/2.1	7,000	—	7,000	—	110†	—	—	—	None	12CP4
6.3/0.6	12,000	410	10,000	250	24 to 62*	106	3.0	146	None	12JP4
6.3/0.6	12,000	410	11,000	300	28 to 72*	106	3 3/4	135	None	12KP4
6.3/0.6	12,000	410	11,000	300	28 to 72*	106	3 3/4	135	None	12KP4-A
6.3/0.6	12,000	410	11,000	300	28 to 72*	106	3 3/4	110	Double	12LP4
6.3/0.6	12,000	410	11,000	300	28 to 72*	106	3 3/4	110	Double	12LP4-A
6.3/0.6	12,000	410	11,000	300	28 to 72*	106	3 3/4	110	Double	12LP4-C
6.3/0.6	12,000	410	10,000	250	24 to 62*	106	3.0	135	Single	12QP4
6.3/0.6	12,000	410	10,000	250	24 to 62*	106	3	135	Single	12QP4-A

A—Aluminized screen to increase light output.
C—Clear (unintegrated) faceplate.
G—Grey (filter) faceplate.
† Diagonal measurement for rectangular tubes.
‡ Distance between yoke reference line and center of focus-coil air gap; in inches.
Δ Accelerator anode and collector.
△ Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.

† For visual extinction of undeflected focused spot.
‡ Deflection factor.
* For visual extinction of focused raster.

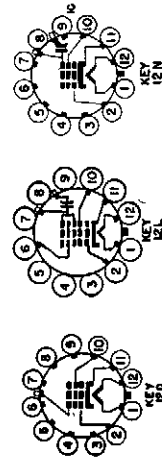
Type	Base Con- struc- tions	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches†
12RP4	12D Glass	Round	C	No	Ball	Mag	Mag	56	17½	12
12TP4	12D Glass	Round	C	No	Cavity	Mag	Mag	54	18½	12
12UP4	12D Metal	Round	C	Metal	Cone	Mag	Mag	54	18½	12½
12UP4-A	12D Metal	Round	G	Metal	Cone	Mag	Mag	54	18½	12½
12UP4-B	12D Metal	Round	G; F	Metal	Cone	Mag	Mag	54	18½	12½
12VP4	12G Glass	Round	C	Yes	Cavity	Mag	Mag	55	18	12½
12VP4-A	12G Glass	Round	G	Yes	Cavity	Mag	Mag	55	18	12½
12WP4	12WP4 Glass	Round	G	Yes	Special	Mag	Mag	55	17½	12½
12XP4	12N Glass	Round	C	Yes	Cavity	Mag	Mag	60	18½	12
12YP4	12N Glass	Round	G	Yes	Cavity	Elec	Mag	54	18½	12½
12ZP4	12N Glass	Round	C; A	Yes	Cavity	Mag	Mag	54	17½	12½
12ZP4-A	12N Glass	Round	G; A	Yes	Cavity	Mag	Mag	54	17½	12½
14AP4	12A Glass	Round	C	No	Base	Elec	Elec	—	24½	13½
14ACP4	12L Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	14½	14
14AEP4	12L Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	13½	14
14AJP4	8HR Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	11½	13½
14ARP4	12L Glass	Rect	G; A	Yes	Cavity	Elec	Mag	99	13½	14
14ASP4	8HR Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	11½	13½
14ATP4	12L Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	13½	14
14AUP4	12L Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	13½	14
14AVP4	8HR Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	11½	13½
14AWP4	12L Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	13½	14
14BP4	12N Glass	Rect	G	Yes	Cavity	Mag	Mag	70	16½	13½
14BP4-A	12N Glass	Rect	G	Yes	Cavity	Mag	Mag	70	16½	13½



Typical Operating Conditions										Type
Heater Volts/ Amps	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist†	Focus Current in ma	Ion Trap Magnet	
6.3/0.6	12,000	410	10,000	250	24 to 62*	106	3.0	135	Single	12RP4
6.3/0.6	12,000	410	11,000	250	24 to 62*	106	3¼	110	Double	12TP4
6.3/0.6	12,000	410	11,000	250	24 to 62*	106	3¼	110	Single	12UP4
6.3/0.6	12,000	410	11,000	250	24 to 62*	106	3¼	110	Single	12UP4-A
6.3/0.6	12,000	410	11,000	250	24 to 62*	106	3¼	130	Single	12UP4-B
6.3/0.6	12,000	—	11,000	—	28 to 72*	—	—	—	Double	12VP4
6.3/0.6	12,000	—	11,000	—	28 to 72*	—	—	—	Double	12VP4-A
6.3/0.6	12,000	—	10,000	—	24 to 62*	Special PM Unit	—	—	Single	12WP4
6.3/0.6	9,000	380	8,000	250	24 to 62*	—	—	—	Single	12XP4
6.3/0.6	12,000	410	11,000	250	33 to 73†	—	—	—	Single	12YP4
6.3/0.6	12,000	410	11,000	300	28 to 72*	106	3¼	135	Single	12ZP4
6.3/0.6	12,000	410	11,000	300	28 to 72*	106	3¼	135	Single	12ZP4-A
2.5/2.1	8,000 4,000	1800	8,000 4,000	1000	40 to 120	D1-D2 = 104 to 156 volts/inch D3-D4 = 104 to 156 volts/inch	—	—	—	14AP4
6.3/0.6	14,000 +500 -500	200	10,000 200	125	40 to 80*	—	—	—	Single	14ACP4
6.3/0.6	14,000 +1000 -500	200	12,000 200	110	+32 to +50*	—	—	—	None	14AEP4
6.3/0.6	11,000 +1000 -500	500	9,000 250	250	24 to 64*	—	—	—	Single	14AJP4
6.3/0.6	14,000 +1000 -500	70	10,000 200	50	0*	—	—	—	None	14ARP4
6.3/0.6	14,000 +1000 -500	500	12,000 200	300	28 to 72*	—	—	—	None	14ASP4
8.4/0.45	14,000 +1000 -500	500	12,000 200	350	28 to 72*	—	—	—	None	14ATP4
6.3/0.45	15,000 +1000 -500	70	12,000 175	50	+30 to +50*	—	—	—	None	14AUP4
6.3/0.6	14,000 +1000 -500	500	12,000 200	300	28 to 72*	—	—	—	None	14AVP4
6.3/0.45	14,000 +1000 -500	68	14,000 200	50	+32 to +47*	—	—	—	None	14AWP4
6.3/0.6	12,000	410	11,000	250	24 to 62*	106	3¼	110	Double	14BP4
6.3/0.6	12,000	410	11,000	250	24 to 62*	106	3¼	95	Double	14BP4-A

A—Aluminized screen to increase light output.
C—Clear (untinted) faceplate.
F—Frosted faceplate surface to reduce reflection.
G—Grey (filter) faceplate.
† Diagonal measurement for rectangular tubes.
‡ Distance between yoke reference line and center of focus-coil air gap; in inches.
Δ Accelerator anode and collector.
◊ Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.
* Deflection factor.
† For visual extinction of focused raster.
‡ Automatic electrostatic focus. No external focus connection required.
Δ Intensifier No. 3 Anode.
◊ Accelerator No. 2 Anode.
‡ Cathode-drive service.

Type	Base Con- struc- tions	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Angle De- grees	Non Over-all Length Inches	Non Bulb Diam Inches
14CP4	12N	Glass	Rect	G	Yes	Cavity	Mag	70	13 1/2
14CP4-A	12N	Glass	Rect	G; A	Yes	Cavity	Mag	70	13 1/2
14DP4	12D	Glass	Rect	G	No	Cavity	Mag	70	13 1/2
14EP4	12N	Glass	Rect	G	Yes	Cavity	Mag	70	13 1/2
14GP4	12L	Glass	Rect	G	Yes	Cavity	Mag	70	13 1/2
14HP4	12L	Glass	Rect	G	Yes	Cavity	Elec	70	13 1/2
14KP4	12N	Glass	Rect	C	Yes	Small Cap	Mag	70	13 1/2
14KP4-A	12N	Glass	Rect	G	Yes	Small Cap	Mag	70	13 1/2
14NP4	12L	Glass	Rect	G	Yes	Cavity	Elec	90	14 1/2
14NP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14 1/2
14QP4	12L	Glass	Rect	G	Yes	Cavity	Elec	70	13 1/2
14QP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	70	13 1/2
14RP4	12L	Glass	Rect	G	Yes	Cavity	Elec	90	14 1/2
14RP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14 1/2
14SP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	85	14 1/2
14UP4	12D	Glass	Rect	G	No	Cavity	Mag	70	13 1/2
14WP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14 1/2
14XP4	12L	Glass	Rect	G	Yes	Cavity	Elec	85	14 1/2
14XP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	85	14 1/2
14ZP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14 1/2

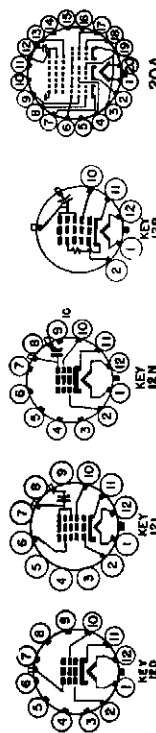


Type	Heater Volts/ Amps	Max Anode Volts	Max Grid 2 Volts	Typical Operating Conditions						Ion Trap Magnet	Type
				Anode Volts	Grid 2 Volts	Neg. Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist.	Focus Current in ma		
14CP4	6.3/0.6	14,000	410	12,000	300	33 to 77*	109	3.0	92	Single	14CP4
14CP4-A	6.3/0.6	14,000	410	12,000	300	33 to 77†	109	3.0	92	Single	14CP4-A
14DP4	6.3/0.6	14,000	410	11,000	250	24 to 62*	109	3.0	100	Double	14DP4
14EP4	6.3/0.6	14,000	410	12,000	300	28 to 72*	109	3.0	110	Single	14EP4
14GP4	6.3/0.6	14,000 Δ 5,000 ●	500	12,000 Δ 2,550 ●	300	28 to 72*	—	—	—	Single	14GP4
14HP4	6.3/0.6	14,000 Δ +1,000 -500 ●	410	12,000 Δ 108 ●	300	28 to 72*	—	—	—	Single	14HP4
14KP4	6.3/0.6	10,000	380	9,000	250	24 to 62*	—	—	—	Single	14KP4
14KP4-A	6.3/0.6	14,000	410	10,000	250	24 to 62*	—	—	—	Single	14KP4-A
14NP4	6.3/0.6	14,000 Δ +1,000 -500 ●	500	12,000 Δ 150 ●	300	28 to 72*	—	—	—	Single	14NP4
14NP4-A	6.3/0.6	14,000 Δ +1,000 -500 ●	500	12,000 Δ 150 ●	300	28 to 72*	—	—	—	Single	14NP4-A
14QP4	6.3/0.6	11,000 Δ +1,000 -500 ●	500	9,000 Δ 100 ●	250	24 to 64*	—	—	—	Single	14QP4
14QP4-A	6.3/0.6	11,000 Δ +1,000 -500 ●	500	9,000 Δ 100 ●	250	24 to 64*	—	—	—	Single	14QP4-A
14RP4	6.3/0.6	14,000 Δ +500 -500 ●	400	10,000 Δ 150 ●	300	26 to 70*	—	—	—	Single	14RP4
14RP4-A	6.3/0.6	14,000 Δ +500 -500 ●	400	10,000 Δ 150 ●	300	26 to 70*	—	—	—	Single	14RP4-A
14SP4	6.3/0.6	14,000 Δ +1,000 -500 ●	500	12,000 Δ 108 ●	300	28 to 72*	—	—	—	Single	14SP4
14UP4	6.3/0.6	14,000	500	12,000	300	28 to 72*	109	3 3/4	105	None	14UP4
14WP4	6.3/0.6	14,000 Δ +1,000 -500 ●	500	12,000 Δ 150 ●	300	28 to 72*	—	—	—	None	14WP4
14XP4	6.3/0.6	15,000 +1,000 -500 ●	400	12,000 Δ 200 ●	300	28 to 72*	—	—	—	Single	14XP4
14XP4-A	6.3/0.6	15,000 +1,000 -500 ●	400	12,000 Δ 200 ●	300	28 to 72*	—	—	—	Single	14XP4-A
14ZP4	6.3/0.6	14,000 Δ +1,000 -500 ●	500	12,000 Δ 225 ●	300	28 to 72*	—	—	—	None	14ZP4

A—Aluminized screen to increase light output.
 C—Clear (unintegrated) faceplate.
 G—Grey (filter) faceplate.
 † For visual extinction of unfocused spot.
 * For visual extinction of focused raster.

† Distance between yoke reference line and center of focus-coil air gap; in inches.
 Δ Accelerator anode and collector.
 ● Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.

Type	Base Con- nec- tions	Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Angle Degrees	Defl Over-all Length Inches	Nom Bulb Diam Inches
15AP4	12D	Glass	Round	C	No	Ball	Mag	57	20 1/4	15 1/2
15CP4	12D	Glass	Round	C	No	Cavity	Mag	57	20 1/4	15 1/2
15DP4	12D	Glass	Round	C	No	Ball	Mag	57	20 1/4	15 1/2
15DP4-A	12D	Glass	Round	G	No	Ball	Mag	57	20 1/4	15 1/2
15EP4	12D	Glass	Round	C	No	Small Cap	Mag	52	22 1/4	15 1/2
15GP22	20A	Tricolor Tube (3-gun shadow-mask type; phosphor-dots on glass plate mounted inside tube)			Yes	Flange	Elec	45	25 1/4	14 1/2
15HP22	20A	Tricolor Tube (3-gun shadow-mask type; phosphor-dots on face- plate)			Yes	Flange	Elec	45	25 1/4	14 1/2
16AP4	12D	Metal	Round	C	Metal	Cone	Mag	53	22 3/4	15 1/2
16AP4-A	12D	Metal	Round	G	Metal	Cone	Mag	53	21 1/4	15 1/2
16BP4	12P	Glass	Rect	G	Yes	Cavity	Elec	70	18 1/4	16 1/2
16ACP4	12P	Glass	Round	G	Yes	Cavity	Elec	60	20 1/4	16 1/2
16EP4	12L	Glass	Rect	G	Yes	Cavity	Elec	70	18 1/4	16 1/2
16APP4	12L	Glass	Rect	G; A	No	Cavity	Elec	70	19 1/4	16 1/2
16CP4	12D	Glass	Round	C	No	Cavity	Mag	52	21 1/4	15 1/2
16DP4	12D	Glass	Round	C	No	Cavity	Mag	60	20 3/4	15 1/2
16DP4-A	12D	Glass	Round	G	No	Cavity	Mag	60	20 3/4	15 1/2
16EP4	12D	Metal	Round	C	Metal	Cone	Mag	60	19 1/4	15 1/2
16EP4-A	12D	Metal	Round	G	Metal	Cone	Mag	60	19 1/4	15 1/2
16EP4-B	12D	Metal	Round	G; F	Metal	Cone	Mag	60	19 1/4	15 1/2
16FP4	12D	Glass	Round	C	No	Ball	Mag	62	20 1/4	16 1/2
16GP4	12D	Metal	Round	G	Metal	Cone	Mag	70	17 1/4	15 1/2
16GP4-A	12D	Metal	Round	C	Metal	Cone	Mag	70	17 1/4	15 1/2
16GP4-B	12D	Metal	Round	G; F	Metal	Cone	Mag	70	17 1/4	15 1/2
16GP4-C	12D	Metal	Round	C; F	Metal	Cone	Mag	70	17 1/4	15 1/2
16HP4	12N	Glass	Round	C	Yes	Cavity	Mag	60	21 1/4	15 1/2
16HP4-A	12N	Glass	Round	G	Yes	Cavity	Mag	60	21 1/4	15 1/2
16JP4	12N	Glass	Round	C	Yes	Cavity	Mag	60	20 1/4	16 1/2



20A

Typical Operating Conditions

Heater Volts/ Amps	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EFA Focus Coil No.	Focus Current in ma	Ion Trap Magnet	Type
6.3/0.6	15,000	410	12,000	250	24 to 62*	106	3 1/4	159	15AP4
6.3/0.6	15,000	410	12,000	250	24 to 62*	106	3.0	115	15CP4
6.3/0.6	15,000	410	12,000	250	24 to 62*	106	3.0	140	15DP4
6.3/0.6	15,000	410	12,000	250	24 to 62*	106	3	140	15DP4-A
6.3/0.6	10,000	380	10,000	250	24 to 62*	—	—	—	15EP4
6.3/1.8	20,000 Δ 5,000	500	20,000 Δ 3,100	200	45 to 100*	Convergence method—Electro- static. Max convergence voltage 11,000. Typical convergence volt- age 9,350 φ.			15GP22
6.3/1.8	20,000 Δ 5,000	500	20,000 Δ 3,100	240	45 to 100*	Convergence method—Electro- static. Max convergence voltage 11,000. Typical convergence volt- age 9,300 φ.			15HP22
6.3/0.6	14,000	410	12,000	300	28 to 72*	109	3.0	80	16AP4
6.3/0.6	14,000	410	13,000	300	28 to 72*	109	3 1/4	107	16AP4-A
6.3/0.6	16,000	500	14,000	300	28 to 72*	—	—	—	16BP4
6.3/0.6	14,000	410	13,000	250	33 to 68†	—	—	—	16ACP4
6.3/0.6	16,000 +1,000, -500	410	14,000 Δ 126	300	28 to 72*	—	—	—	16EP4
6.3/0.6	16,000 +1,000, -500	410	12,000 Δ 108	250	24 to 62*	—	—	—	16APP4
6.3/0.6	15,000	410	12,000	250	24 to 62*	106	3 1/4	110	16CP4
6.3/0.6	15,000	410	12,000	250	24 to 62*	106	3 1/4	115	16DP4
6.3/0.6	15,000	410	12,000	250	24 to 62*	109	3 1/4	115	16DP4-A
6.3/0.6	14,000	410	12,000	300	28 to 72*	109	2 1/4	105	16EP4
6.3/0.6	14,000	410	12,000	300	28 to 72*	109	2 1/4	105	16EP4-A
6.3/0.6	14,000	410	12,000	300	28 to 72*	109	3.0	105	16EP4-B
6.3/0.6	16,000	410	13,000	250	24 to 62*	106	3.0	146	16FP4
6.3/0.6	14,000	410	13,000	300	28 to 72*	109	3 1/4	108	16GP4
6.3/0.6	14,000	410	13,000	250	24 to 62*	109	3 1/4	108	16GP4-A
6.3/0.6	14,000	410	13,000	250	24 to 62*	109	3 1/4	108	16GP4-B
6.3/0.6	14,000	410	12,000	300	28 to 72*	109	3.0	100	16GP4-C
6.3/0.6	14,000	410	12,000	300	28 to 72*	106	3 1/4	110	16HP4
6.3/0.6	14,000	410	12,000	300	28 to 72*	106	3 1/4	110	16HP4-A
6.3/0.6	14,000	410	11,000	250	24 to 62*	106	—	115	16JP4

A—Aluminized screen to increase light output.

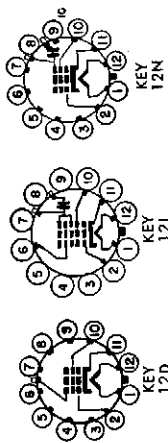
C—Clear (untinted) faceplate.

F—Frosted faceplate surface to reduce re-
flection.G—Grey (filter) faceplate.
Diagonal measurement for rectangular
tubes.† Distance between yoke reference line and
center of focus-coil air gap; in inches.

Δ Accelerator anode and collector.

⊙ Anode No. 1 (Focus); under typical
operating conditions center value of
voltage for focus is shown. Voltage
should be adjustable about this value.+ For visual extinction of undeflected
focused spot.* For visual extinction of focused re-
flected.□ Automatic electrostatic focus. No ex-
ternal focus of section required.⊙ Center value of voltage for convergence
is shown. Modulation should be applied
to improve over-all convergence.

Type	Base Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches
16JP4-A	12N	Glass	Round	G	Yes	Cavity	Mag	60	16 1/4
16KP4	12N	Glass	Rect	G	Yes	Cavity	Mag	70	16 1/4
16KP4-A	12N	Glass	Rect	G; A	Yes	Cavity	Mag	70	16 1/4
16LP4	12N	Glass	Round	C	Yes	Cavity	Mag	52	15 1/2
16LP4-A	12N	Glass	Round	G	Yes	Cavity	Mag	52	15 1/2
16MP4	12N	Glass	Round	C	Yes	Cavity	Mag	60	15 1/2
16MP4-A	12N	Glass	Round	G	Yes	Cavity	Mag	60	15 1/4
16QP4	12D	Glass	Rect	G	No	Cavity	Mag	70	16
16RP4	12N	Glass	Rect	G	Yes	Cavity	Mag	70	16 1/4
16RP4-A	12N	Glass	Rect	G; A	Yes	Cavity	Mag	70	16 1/4
16SP4	12N	Glass	Round	C	Yes	Cavity	Mag	70	15 1/2
16SP4-A	12N	Glass	Round	G	Yes	Cavity	Mag	70	15 1/2
16TP4	12N	Glass	Rect	G	Yes	Cavity	Mag	70	16 1/4
16UP4	12D	Glass	Rect	G	No	Cavity	Mag	70	16 1/4
16VP4	12D	Glass	Round	G	No	Cavity	Mag	70	15 1/2
16WP4	12D	Glass	Round	G	No	Cavity	Mag	70	15 1/2
16WP4-A	12N	Glass	Round	G	Yes	Cavity	Mag	70	15 1/2
16XP4	12D	Glass	Rect	G	No	Cavity	Mag	70	16 1/4
16YP4	12N	Glass	Round	G	Yes	Cavity	Mag	70	15 1/2
16ZP4	12N	Glass	Round	G	Yes	Cavity	Mag	52	15 1/2
17AP4	12N	Glass	Rect	G	Yes	Cavity	Mag	70	16 1/4
17ASP4	12N	Glass	Rect	C	Yes	Small Cap	Mag	70	16 1/4
17ATP4	12L	Glass	Rect	G	Yes	Cavity	Elec	90	16
17ATP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	16
17AVP4	12L	Glass	Rect	G	Yes	Cavity	Elec	90	15 1/2
17AVP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	15 1/2
17BP4	12D	Glass	Rect	G	No	Cavity	Mag	70	19 1/4
17BP4-A	12N	Glass	Rect	G	Yes	Cavity	Mag	70	19 1/4
17BP4-B	12N	Glass	Rect	G; A	Yes	Cavity	Mag	70	19 1/4



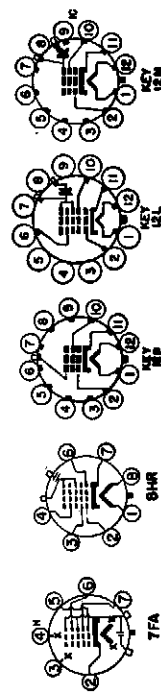
Type	Ion Tra Magnet	Typical Operating Conditions						Max Anode Volts	Max Grid 2 Volts	Hector Volts/ Cutoff Amp
		EIA Focus Coil No.	Neg Grid 1 Volts	Grid 2 Volts	Anode Volts	Focus Coil Dist [†]	Focus Current in ma			
16JP4-A	Double	108	24 to 62*	250	11,000	—	115	410	410	6.3/0.6
16KP4	Single	109	28 to 72*	300	14,000	3 1/4	108	410	410	6.3/0.6
16KP4-A	Single	109	28 to 72*	300	14,000	3 1/4	108	410	410	6.3/0.6
16LP4	Double	106	28 to 72*	300	12,000	3 1/4	110	410	410	6.3/0.6
16LP4-A	Double	106	28 to 72*	300	12,000	3 1/4	110	410	410	6.3/0.6
16MP4	Double	106	28 to 72*	300	12,000	3 1/4	110	410	410	6.3/0.6
16MP4-A	Double	106	28 to 72*	300	12,000	3 1/4	110	410	410	6.3/0.6
16QP4	Double	106	24 to 62*	250	14,000	—	150	410	410	6.3/0.6
16RP4	Single	109	28 to 72*	300	12,000	3 1/4	100	410	410	6.3/0.6
16RP4-A	Single	109	28 to 72*	300	12,000	3 1/4	100	410	410	6.3/0.6
16SP4	Double	106	28 to 72*	300	12,000	3 1/4	110	410	410	6.3/0.6
16SP4-A	Double	106	28 to 72*	300	12,000	3 1/4	110	410	410	6.3/0.6
16TP4	Single	109	28 to 72*	300	12,000	3 1/4	99	410	410	6.3/0.6
16UP4	Single	109	28 to 72*	300	12,000	3.0	100	410	410	6.3/0.6
16VP4	Single	109	24 to 62*	250	12,000	3.0	110	410	410	6.3/0.6
16WP4	Double	109	24 to 62*	250	12,000	3.0	110	410	410	6.3/0.6
16WP4-A	Double	109	24 to 62*	250	12,000	3 1/4	110	410	410	6.3/0.6
16XP4	Double	109	24 to 62*	250	12,000	3.0	100	410	410	6.3/0.6
16YP4	Single	109	28 to 72*	300	12,000	3 1/4	100	410	410	6.3/0.6
16ZP4	Double	109	28 to 72*	300	12,000	3 1/4	110	410	410	6.3/0.6
17AP4	Single	109	28 to 72*	300	12,000	3.0	100	410	410	6.3/0.6
17ASP4	Single	—	24 to 62*	250	12,000	—	—	410	410	6.3/0.6
17ATP4	Single	—	28 to 72*	300	14,000 Δ 126	—	—	500	500	6.3/0.6
17ATP4-A	Single	—	28 to 72*	300	14,000 Δ 126	—	—	500	500	6.3/0.6
17AVP4	Single	—	28 to 72*	300	12,000 Δ 108	—	—	500	500	6.3/0.6
17AVP4-A	Single	—	28 to 72*	300	12,000 Δ 108	—	—	500	500	6.3/0.6
17BP4	Single	109	28 to 72*	300	12,000	3.0	100	410	410	6.3/0.6
17BP4-A	Single	109	28 to 72*	300	14,000	3 1/4	115	410	410	6.3/0.6
17BP4-B	Single	109	28 to 72*	300	14,000	3 1/4	115	410	410	6.3/0.6

A—Aluminized screen to increase light output.
C—Clear (untinted) faceplate.
G—Grey (filter) faceplate.

† Diagonal measurement for rectangular tubes.
‡ Distance between yoke reference line and center of focus-coil air gap; in inches.

Δ Accelerator anode and collector.
Δ Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.

Type	Base Connections	Construction	Face-plate Shape	Face-plate Finish	Ext'l. ductive Coating	Anode Contact	Focus Method	Def. Method	Def. Angle Degrees	Nom. Over-all Length Inches	Nom. Bulb Diam. Inches
17BP4-C	12N	Glass	Rect	G; F	Yes	Cavity	Mag	Mag	70	19 1/2	16 1/2
17BP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	14 1/2	16 1/2
17BKP4	12L	Glass	Rect	G	Yes	Cavity	Elec	Mag	90	15 1/2	16 1/2
17BKP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	15 1/2	16 1/2
17BMP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	15 1/2	16 1/2
17BNP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	15 1/2	16 1/2
17BRP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	12 1/2	16 1/2
17BSP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	14 1/2	16 1/2
17BUP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	15 1/2	16 1/2
17BVP4	7FA	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	13 1/2	16 1/2
17BWP4	7FA	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	12 1/2	16 1/2
17BYP4	7FA	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	12 1/2	16 1/2
17BZP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	12 1/2	16 1/2
17CP4	12D	Metal	Rect	G; F	Metal	Cone	Mag	Mag	70	18 1/2	16 1/2
17CP4-A	12D	Metal	Rect	C	Metal	Cone	Mag	Mag	70	18 1/2	16 1/2
17CAP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	12 1/2	16 1/2
17CBP4	12L	Glass	Rect	G	Yes	Cavity	Elec	Mag	90	15 1/2	16 1/2
17CDP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	12 1/2	16 1/2
17CEP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	15	16 1/2



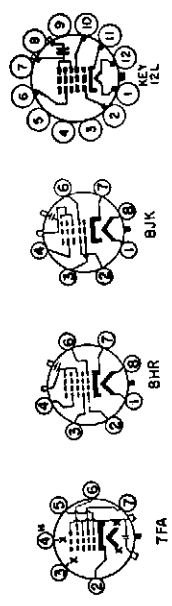
Heater Volts/ Amp	Max Anode Volts	Max Grid 2 Volts	Typical Operating Conditions							Type
			Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist	Focus Current in ma	Ion Trap Magnet	
6.3/0.6	16 000	410	14 000	250	24 to 62*	109	3 3/4	115	Single	17BP4-C
6.3/0.6	16 000 Δ +1 000 Δ -500 ⚡	500	12 000 Δ 108 ⚡	300	28 to 72*	—	—	—	None	17BP4
6.3/0.45	16 000 +1 000 -500 ⚡	500	14 000 Δ 183 ⚡	300	28 to 72*	—	—	—	Single	17BKP4
6.3/0.45	16 000 +1 000 -500 ⚡	500	14 000 Δ 183 ⚡	300	28 to 72*	—	—	—	Single	17BKP4A
6.3/0.6	18 000 +1 000 -500 ⚡	200	14 000 Δ 177 ⚡	110	+32 to +50*	—	—	—	Single	17BMP4
6.3/0.6	18 000 +1 000 -500 ⚡	200	14 000 Δ 200 ⚡	110	+32 to +50*	—	—	—	None	17BNP4
6.3/0.6	15 000 +1 000 -500 ⚡	500	14 000 Δ 250 ⚡	300	28 to 72*	—	—	—	Single	17BRP4
6.3/0.45	16 000 +1 000 -500 ⚡	500	14 000 Δ 200 ⚡	300	28 to 72*	—	—	—	None	17BSP4
6.3/0.6	18 000 +1 000 -500 ⚡	500	12 000 Δ 200 ⚡	300	28 to 72*	—	—	—	Single	17BUP4
6.3/0.6	16 000 +1 000 -500 ⚡	500	14 000 Δ 200 ⚡	300	35 to 72*	—	—	—	Single	17BVP4
6.3/0.6	16 000 +1 000 -500 ⚡	500	14 000 Δ 200 ⚡	300	35 to 72*	—	—	—	None	17BWP4
6.3/0.45	16 000 +1 000 -500 ⚡	500	14 000 Δ 200 ⚡	300	35 to 72*	—	—	—	None	17BYP4
6.3/0.6	16 000 +1 000 -500 ⚡	500	12 000 Δ 200 ⚡	200	28 to 72*	—	—	—	None	17BZP4
6.3/0.5	16 000	410	14 000	300	28 to 72*	109	3.0	104	Single	17CP4
6.3/0.6	16 000	410	14 000	300	28 to 72*	109	3.0	104	Single	17CP4-A
6.3/0.6	16 000 +1 000 -500 ⚡	500	14 000 Δ 200 ⚡	300	35 to 72*	—	—	—	None	17CAP4
6.3/0.6	18 000 +1 000 -500 ⚡	500	12 000 Δ 200 ⚡	300	28 to 72*	—	—	—	Single	17CBP4
8.4/0.45	16 000 +1 000 -500 ⚡	500	12 000 Δ 200 ⚡	200	28 to 72*	—	—	—	None	17CDP4
6.3/0.45	16 000 +1 000 -500 ⚡	500	14 000 Δ 200 ⚡	300	28 to 72*	—	—	—	None	17CEP4

A—Aluminized screen to increase light output;
 F—Frosted faceplate surface to reduce re-
 flection;
 G—Grey (filter) faceplate.
 † Diagonal measurement for rectangular tubes.
 ‡ Distance between yoke reference line and center of focus-coil air gap; in inches.

△Accelerator anode and collector.
 ●Anode No. 1 (focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.
 @ Cathode-drive service.
 * For visual extinction of focused raster.

Typical Operating Conditions											
Type	Base Con- rec- nec- tions	Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches	Type
17CFP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	15	16 1/4	17CFP4
17CGP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	70	17 1/4	16 1/4	17CGP4
17CKP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	110	12 1/4	16 1/4	17CKP4
17CLP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	15 1/4	16 1/4	17CLP4
17CMP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	15	16 1/4	17CMP4
17CNP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14 1/4	16 1/4	17CNP4
17CRP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14 1/4	16 1/4	17CRP4
17CSP4	7FA	Glass	Rect	G; A	Yes	Cavity	Elec	110	12 1/4	16 1/4	17CSP4
17CTP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	110	12 1/4	16 1/4	17CTP4
17CUP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	15	16 1/4	17CUP4
17CVP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	110	12 1/4	16 1/4	17CVP4
17CWP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	110	11 1/4	16 1/4	17CWP4
17CXP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14 1/4	16 1/4	17CXP4
17CYP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14	16 1/4	17CYP4
17CZP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	13 1/4	16 1/4	17CZP4
17DAP4	8JK	Glass	Rect	G; A	Yes	Cavity	Elec	110	10 1/4	16 1/4	17DAP4

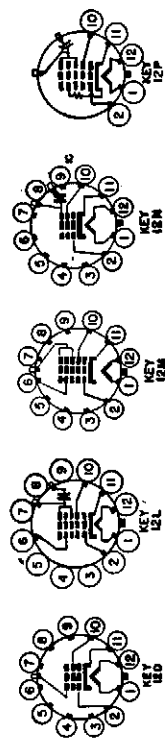
Type	Base Con- rec- nec- tions	Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches
17CFP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	15	16 1/4
17CGP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	70	17 1/4	16 1/4
17CKP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	110	12 1/4	16 1/4
17CLP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	15 1/4	16 1/4
17CMP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	15	16 1/4
17CNP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14 1/4	16 1/4
17CRP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14 1/4	16 1/4
17CSP4	7FA	Glass	Rect	G; A	Yes	Cavity	Elec	110	12 1/4	16 1/4
17CTP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	110	12 1/4	16 1/4
17CUP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	15	16 1/4
17CVP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	110	12 1/4	16 1/4
17CWP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	110	11 1/4	16 1/4
17CXP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14 1/4	16 1/4
17CYP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	14	16 1/4
17CZP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	13 1/4	16 1/4
17DAP4	8JK	Glass	Rect	G; A	Yes	Cavity	Elec	110	10 1/4	16 1/4



A—Aluminized screen to increase light output.
C—Clear (untinted) faceplate.
F—Frosted faceplate surface to reduce re-
flection.
G—Grey (filter) faceplate.
† Diagonal measurement for rectangular tubes.
‡ Distance between yoke reference line and center of focus-coil air gap; in inches.
Δ Accelerator anode and collector.
▲ Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.

* For visual extinction of focused raster.
‡ Cathode-drive service.

Type	Base Con- struc- tions	Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches
17FP4	12L	Glass	Rect	G	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17FP4-A	12L	Glass	Rect	G	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17GP4	12M	Metal	Rect	G; F	Metal	Cone	Elec	Mag	70	18 1/2	16 1/2
17HP4	12L	Glass	Rect	G	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17HP4-A	12L	Glass	Rect	G; F	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17HP4-B	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17JP4	12N	Glass	Rect	G	Yes	Cavity	Mag	Mag	70	19 1/4	16 1/2
17KP4	12P	Glass	Rect	G	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17KP4-A	12P	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17LP4	12L	Glass	Rect	G	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17LP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17QP4	12N	Glass	Rect	G	Yes	Cavity	Mag	Mag	70	19 1/4	16 1/2
17QP4-A	12N	Glass	Rect	G; A	Yes	Cavity	Mag	Mag	70	19 1/4	16 1/2
17RP4	12L	Glass	Rect	G	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17RP4-C	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17SP4	12P	Glass	Rect	G	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17TP4	12M	Metal	Rect	G; F	Metal	Cone	Elec	Mag	70	18 1/2	16 1/2
17UP4	12N	Glass	Rect	G	Yes	Cavity	Mag	Mag	70	19 1/4	16 1/2
17VP4	12L	Glass	Rect	G	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17VP4-B	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	70	19 1/4	16 1/2
17YP4	12N	Glass	Rect	G	Yes	Cavity	Mag	Mag	70	19 1/4	16 1/2
19AP4	12D	Metal	Round	C	Metal	Cone	Mag	Mag	66	21 1/4	18 1/2
19AP4-A	12D	Metal	Round	G	Metal	Cone	Mag	Mag	66	21 1/4	18 1/2



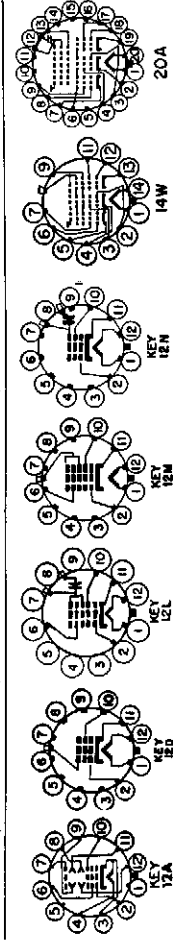
Typical Operating Conditions

Heater Volts/ Amp	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist	Focus Current in ma	Ion Trap Magnet	Type
6.3/0.6	18,000 Δ 5,000	410	18,000 Δ 3,150	300	28 to 72*	—	—	—	Single	17FP4
6.3/0.6	18,000 Δ 5,000	500	18,000 Δ 3,150	300	28 to 72*	—	—	—	Single	17FP4-A
6.3/0.6	16,000 Δ 5,000	500	14,000 Δ 2,800	300	28 to 72*	—	—	—	Single	17GP4
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	17HP4
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	17HP4-A
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	17HP4-B
6.3/0.6	18,000	410	16,000	300	28 to 72*	109	—	100	Single	17JP4
6.3/0.6	16,000	500	12,000	300	28 to 72*	—	—	—	Single	17KP4
6.3/0.6	16,000	500	12,000	300	28 to 72*	—	—	—	Single	17KP4-A
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	17LP4
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	17LP4-A
6.3/0.6	16,000	500	14,000	300	28 to 72*	109	3 1/4	115	Single	17QP4
6.3/0.6	18,000	500	14,000	300	28 to 72*	109	3	95	Single	17QP4-A
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	17RP4
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	17RP4-C
6.3/0.6	14,000	410	12,000	250	33 to 66†	—	—	—	Single	17SP4
6.3/0.6	16,000 Δ 500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	17TP4
6.3/0.6	14,000	410	12,000	250	33 to 66†	109	3.25	110	Single	17UP4
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	17VP4
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	17VP4-B
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	—	100	Single	17YP4
6.3/0.6	19,000	410	15,000	300	28 to 72*	109	3 1/4	115	Single	19AP4
6.3/0.6	19,000	410	15,000	300	28 to 72*	109	3 1/4	115	Single	19AP4-A

A—Aluminized screen to increase light output.
C—Clear (unintended) faceplate.
F—Frosted faceplate surface to reduce re-
flections.
G—Grey (filter) faceplate.
† Diagonal measurement for rectangular tubes.
‡ Distance between yoke reference line and center of focus-coil air gap, in inches.
Δ Accelerator anode and collector.
Anode, No. 1 (Focus); under typical operating conditions, center value of voltage for focus is shown. Voltage should be adjustable about this value.

† For visual extinction of undeflected focused spot.
* For visual extinction of focused raster.
□ Automatic electrostatic focus. No ex-
ternal focus connection required.
‡ With cylindrical contour.

Type	Base Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches
19AP4-B	12D	Metal	Round	G; F	Metal	Mag	Mag	66	21½	18½
19AP4-C	12D	Metal	Round	G; A	No	Mag	Mag	66	21½	18½
19AP4-D	12D	Metal	Round	C; F	Metal	Mag	Mag	66	21½	18½
19DP4	12N	Glass	Round	C	Yes	Mag	Mag	66	21½	18½
19DP4-A	12N	Glass	Round	G	Yes	Mag	Mag	66	21½	18½
19EP4	12D	Glass	Rect	G	Yes	Mag	Mag	70	21½	18½
19FP4	12D	Glass	Round	G	No	Mag	Mag	66	22	18½
19GP4	12D	Glass	Round	G	No	Mag	Mag	66	21½	18½
19JP4	12D	Glass	Rect	G	No	Mag	Mag	70	20½	18½
19QP4	12L	Glass	Rect	G	Yes	Mag	Mag	70	21½	18½
19TP22	20A	Tricolor Tube (3-gun shadow-mask type; phosphor-dots on faceplate)		Yes	Flange	Elec	Mag	60	24½	19½
19VP22	14W	Tricolor Tube (3-gun shadow-mask type; phosphor-dots on faceplate)		Yes	Flange	Elec	Mag	62	26½	19½
20AP4	12A	Glass	Round	C	No	Elec	Elec	—	27½	20
20BP4	12D	Glass	Round	C	No	Mag	Mag	54	28	20
20CP4	12D	Glass	Rect	G	No	Mag	Mag	70	21½	20½
20CP4-A	12N	Glass	Rect	G	Yes	Mag	Mag	70	21½	20½
20CP4-B	12D	Glass	Rect	G; A	No	Mag	Mag	70	21½	20½
20CP4-C	12D	Glass	Rect	G; F	No	Mag	Mag	70	21½	20½
20CP4-D	12N	Glass	Rect	G; A	Yes	Mag	Mag	70	21½	20½
20DP4	12D	Glass	Rect	G	No	Mag	Mag	70	21½	20½
20DP4-A	12N	Glass	Rect	G	Yes	Mag	Mag	70	21½	20½
20DP4-B	12D	Glass	Rect	G; A	No	Mag	Mag	70	21½	20½
20DP4-C	12N	Glass	Rect	G; A	Yes	Mag	Mag	70	21½	20½
20FP4	12M	Glass	Rect	G	No	Elec	Mag	70	21½	20½
20GP4	12L	Glass	Rect	G	Yes	Elec	Mag	70	21½	20½
20HP4	12M	Glass	Rect	G	No	Elec	Mag	70	21½	20½
20HP4-A	12L	Glass	Rect	G	Yes	Elec	Mag	70	21½	20½

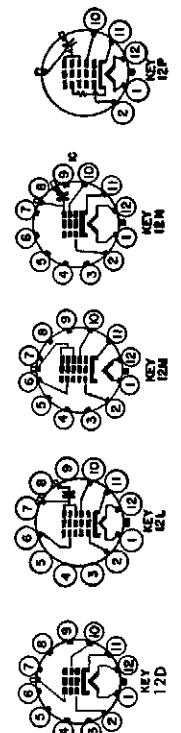


Typical Operating Conditions										Type
Heater Volts/ Amps	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Volts	EIA Focus Coil No.	Focus Coil Dist.	Focus Current in ma	Ion Trap Magnet	
6.3/0.6	19,000	410	15,000	300	28 to 72*	109	3 ¾	115	Single	19AP4-B
6.3/0.6	19,000	410	12,000	300	28 to 72*	106	3	115	Single	19AP4-C
6.3/0.6	19,000	410	14,000	300	28 to 72*	106	3.0	145	Single	19AP4-D
6.3/0.6	17,000	410	13,000	250	26 to 63†	106	3 ¾	146	Single	19DP4
6.3/0.6	17,000	410	13,000	250	26 to 63†	106	3 ¾	146	Single	19DP4-A
6.3/0.6	19,000	410	13,000	250	26 to 63†	109	3 ¾	146	Double	19EP4
6.3/0.6	19,000	410	13,000	250	24 to 62*	109	3.0	115	Double	19FP4
6.3/0.6	19,000	410	13,000	250	24 to 62*	109	3.0	120	Single	19GP4
6.3/0.6	18,000	410	12,000	300	28 to 72*	109	3.0	95	Single	19JP4
6.3/0.6	18,000	410	12,000	300	28 to 72*	—	—	—	Single	19QP4
6.3/1.8	22,000	500	20,000	200	42 to 78*	Convergence method—Electro- static. Max convergence voltage 12000. Typical convergence volt- age 9350 @.				19TP22
6.3/1.8	27,000	500	25,000	200	45 to 100*	Convergence method—Magnetic.				19VP22
2.5/2.1	8,000	1800	8,000	1000	40 to 120	D1-D2 = 88 to 132 volts/inch D3-D4 = 88 to 132 volts/inch	—	—	—	20AP4
6.3/0.6	16,500	750	15,000	250	24 to 62*	106	3.0	135	None	20BP4
6.3/0.6	18,000	410	15,000	300	28 to 72*	109	3 ¾	106	Single	20CP4
6.3/0.6	18,000	410	15,000	300	28 to 72*	109	3 ¾	106	Single	20CP4-A
6.3/0.6	18,000	410	16,000	300	28 to 72*	109	3	110	Single	20CP4-B
6.3/0.6	18,000	410	15,000	300	28 to 72*	109	3 ¾	106	Single	20CP4-C
6.3/0.6	18,000	410	16,000	300	28 to 72*	109	3.0	110	Single	20CP4-D
6.3/0.6	18,000	410	12,000	300	28 to 72*	109	3.0	95	Single	20DP4
6.3/0.6	18,000	410	12,000	300	28 to 72*	109	3.0	95	Single	20DP4-A
6.3/0.6	18,000	410	16,000	300	28 to 72*	109	3.0	95	Single	20DP4-B
6.3/0.6	18,000	410	16,000	300	28 to 72*	109	3.0	95	Single	20DP4-C
6.3/0.6	18,000	410	12,000	300	28 to 72*	—	—	—	Single	20FP4
6.3/0.6	18,000	500	16,000	300	28 to 72*	—	—	—	Single	20GP4
6.3/0.6	18,000	500	14,000	300	28 to 72*	—	—	—	Single	20HP4
6.3/0.6	16,000	500	14,000	300	28 to 72*	—	—	—	Single	20HP4-A

A—Aluminized screen to increase light output.
C—Clear (untinted) faceplate.
F—Frosted faceplate surface to reduce re-
flection.
G—Grey (filter) faceplate.
† Diagonal measurement for rectangular
tubes.
‡ Distance between yoke reference line and
center of focus-coil air gap; in inches.
Δ Accelerator anode and collector.
▲ Accelerator No. 1 (Focus); under typical
operating conditions center value of
voltage for focus is shown. Voltage
should be adjustable about this value.

† For visual extinction of undeflected
focused spot.
‡ Deflection factor.
* For visual extinction of focused raster.
▲ Intensifier No. 3 Anode.
▲ Accelerator No. 2 Anode.
‡ Center value of voltage for convergence
is shown. Modulation should be applied
to improve over-all convergence.

Type	Base Con- nec- tions	Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches
20HP4-B	12L	Glass	Rect	G, F	No	Cavity	Elec	70	21 3/4	20 1/2
20HP4-C	12M	Glass	Rect	G, A	No	Cavity	Elec	70	21 3/4	20 1/2
20HP4-D	12L	Glass	Rect	G, A	Yes	Cavity	Elec	70	21 3/4	20 1/2
20JP4	12P	Glass	Rect	G	Yes	Cavity	Elec	70	21 3/4	20 1/2
20LP4	12L	Glass	Rect	G	Yes	Cavity	Elec	70	21 3/4	20 1/2
20MP4	12L	Glass	Rect	G	Yes	Cavity	Elec	70	21 3/4	20 1/2
21AP4	12D	Metal	Rect	G, F	Metal	Cone	Mag	70	22 3/4	20 3/4
21ACP4	12N	Glass	Rect	G	Yes	Cavity	Mag	90	20	21 1/2
21ACP4-A	12N	Glass	Rect	G, A	Yes	Cavity	Mag	90	20	21 1/2
21AFP4	12M	Glass	Rect	G	No	Cavity	Elec	70	23	21 1/2
21ALP4	12L	Glass	Rect	G	Yes	Cavity	Elec	90	20	21 1/2
21ALP4-A	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	20	21 1/2
21ALP4-B	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	20	21 1/2
21AMP4	12N	Glass	Rect	G	Yes	Cavity	Mag	90	20	21 1/2
21AMP4-A	12N	Glass	Rect	G, A	Yes	Cavity	Mag	90	20	21 1/2
21AMP23-A	12N	Glass	Rect	G, A	Yes	Cavity	Mag	90	20	21 1/2
21ANP4	12M	Glass	Rect	G	Yes	Cavity	Elec	90	20	21 1/2
21ANP4-A	12M	Glass	Rect	G, A	No	Cavity	Elec	90	20	21 1/2
21AQP4	12D	Glass	Rect	G	No	Cavity	Mag	90	20	21 1/2
21AQP4-A	12D	Glass	Rect	G, A	No	Cavity	Mag	90	20	21 1/2
21ARP4	12N	Glass	Rect	G	Yes	Cavity	Inter- nal Mag	70	23 1/2	21 1/2



Typical Operating Conditions										Type	
Heater Volts/ Amp	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist	Focus Current in ma	Ion Trap Magnet		
6.3/0.6	16,000 +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single		20HP4-B
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single		20HP4-C
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single		20HP4-D
6.3/0.6	18,000	500	12,000	300	28 to 72*	—	—	—	Single		20JP4
6.3/0.6	16,000 +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single		20LP4
6.3/0.6	16,000 Δ +1,000, -500	500	16,000 Δ 162	300	28 to 72*	—	—	—	Single		20MP4
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3.0	110	Single		21AP4
6.3/0.6	20,000	500	16,000	300	28 to 72*	109	3 3/4	117	Single		21ACP4
6.3/0.6	20,000	500	16,000	300	28 to 72*	109	3 3/4	117	Single		21ACP4-A
6.3/0.6	18,000 Δ +1,000, -500	500	16,000 Δ 144	300	33 to 77†	—	—	—	Single		21AFP4
6.3/0.6	18,000 +1,000, -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single		21ALP4
6.3/0.6	18,000 +1,000, -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single		21ALP4-A
6.3/0.6	20,000 Δ +1,000, -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single		21ALP4-B
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3	102	Single		21AMP4
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3	102	Single		21AMP4-A
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3	102	Single		21AMP23-A
6.3/0.6	18,000 +1,000, -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single		21ANP4
6.3/0.6	18,000 +1,000, -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single		21ANP4-A
6.3/0.6	18,000 +1,000, -500	500	16,000	300	28 to 72*	109	3	102	Single		21AQP4
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3	102	Single		21AQP4-A
6.3/0.6	20,000	500	13,000 to 19,000	300	28 to 72*	—	—	—	Internal		21ARP4

A—Aluminized screen to increase light output.
F—Frosted faceplate surface to reduce re-
flection.
G—Gray (filter) faceplate.
† Diagonal measurement for rectangular tubes.
‡ Distance between yoke reference line and center of focus-coil air gap; in inches.
Δ Accelerator anode and collector.
● Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.

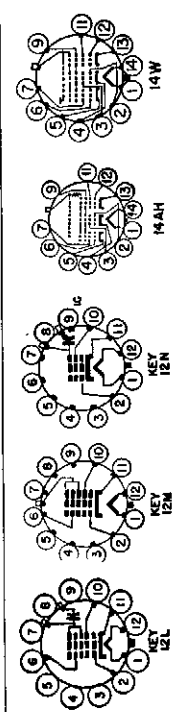
† For visual extinction of undeflected focused spot.
* For visual extinction of focused raster.
□ Automatic electrostatic focus. No external focus connection required.

Typical Operating Conditions										Type
Heater Volts/ Amps	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist	Focus Current in ma	Ion Trap Magnet	
6.3/0.6	20,000	500	13,000 to 19,000	300	28 to 72*	—	—	—	Internal	21ARP4-A
6.3/0.6	18,000 Δ +1,000 -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single	21ASP4
6.3/0.6	18,000 Δ +1,000 -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single	21ATP4
6.3/0.6	20,000 Δ +1,000 -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single	21ATP4-A
6.3/0.6	18,000 Δ +1,000 -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single	21ATP4-B
6.3/0.6	18,000 Δ +1,000 -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	21AUP4
6.3/0.6	18,000 Δ +1,000 -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	21AUP4-A
6.3/0.6	20,000 Δ +1,000 -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	21AUP4-B
6.3/0.6	18,000 Δ +1,000 -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	21AVP4
6.3/0.6	18,000 Δ +1,000 -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	21AVP4-A
6.3/0.6	20,000 Δ +1,000 -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	21AVP4-B
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3	95	Single	21AWP4
6.3/1.8	23,000 Δ 6,000	800	20,000 Δ 3,640	200	45 to 100*	Convergence method—Magnetic		Convergence method—Magnetic		21AXP22
6.3/1.8	25,000 Δ 6,000	800	20,000 Δ 3,640	200	45 to 100*	Convergence method—Magnetic		Convergence method—Magnetic		21AXP22-A
6.3/0.6	18,000 Δ +1,000 -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single	21AYP4
6.3/0.6	20,000 Δ +1,000 -500	500	16,000 Δ 250	300	28 to 72*	—	—	—	None	21BAP4
6.3/0.6	20,000 Δ +1,000 -500	500	16,000 Δ 300	300	28 to 72*	—	—	—	None	21BCP4

A—Aluminized screen to increase light output.
G—Grey (filter) faceplate.
† Diagonal measurement for rectangular tubes.
+ Distance between yoke reference line and center of focus-coil air gap; in inches.

Δ Accelerator anode and collector.
● Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.
* For visual extinction of focused raster.
† Cathode-drive service.

Type	Base Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches
21ARP4-A	12N	Glass	Rect	G; A	Yes	Cavity	Mag	70	21 1/4
21ASP4	12M	Glass	Rect	G	No	Cavity	Mag	70	20 3/4
21ATP4	12L	Glass	Rect	G; A	Yes	Cavity	Mag	90	21 1/4
21ATP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Mag	90	21 1/4
21ATP4-B	12L	Glass	Rect	G	Yes	Cavity	Mag	90	21 1/4
21AUP4	12L	Glass	Rect	G	Yes	Cavity	Mag	72	21 1/4
21AUP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Mag	72	21 1/4
21AUP4-B	12L	Glass	Rect	G; A	Yes	Cavity	Mag	72	21 1/4
21AVP4	12L	Glass	Rect	G	Yes	Cavity	Mag	72	21 1/4
21AVP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Mag	72	21 1/4
21AVP4-B	12L	Glass	Rect	G; A	Yes	Cavity	Mag	72	21 1/4
21AWP4	12N	Glass	Rect	G; A	Yes	Cavity	Mag	72	21 1/4
21AXP22	14W	Tricolor Tube (3-gun shadow-mask type; phosphor dots on face-plate)	Rect	No	Flange	Elec	Mag	70	20 1/2
21AXP22-A	14AH	Tricolor Tube (3-gun shadow-mask type; phosphor dots on face-plate)	Rect	Yes	Flange	Elec	Mag	70	20 1/2
21AYP4	12L	Glass	Rect	G	Yes	Cavity	Mag	70	20 3/4
21BAP4	12L	Glass	Rect	G; A	Yes	Cavity	Mag	90	21 1/4
21BCP4	12L	Glass	Rect	G; A	Yes	Cavity	Mag	70	21 1/4

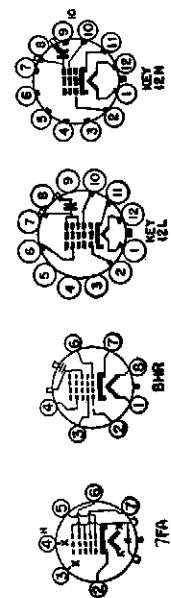


Heater Volts/ Amps	Max Anode Volts	Max Grid 2 Volts	Typical Operating Conditions										Type
			Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist [†]	Focus Current in ma	Ion Trap Magnet				
6.3/0.6	20,000 Δ +1,000 -500	500	16,000 Δ 300	300	28 to 72*	—	—	—	—	None	21BDP4		
6.3/0.6	20,000 Δ +1,000 -500	500	16,000 Δ 250	300	28 to 72*	—	—	—	—	None	21BNP4		
6.3/0.6	20,000	500	16,000	300	28 to 72*	109	3	116	—	Single	21BSP4		
6.3/0.6	20,000 Δ +1,000 -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	—	Single	21BTP4		
6.3/0.6	18,000 Δ +1,000 -500	500	14,000 Δ 123	300	28 to 72*	—	—	—	—	None	21CBP4		
6.3/0.6	20,000 Δ +1,000 -500	500	16,000 Δ 225	300	28 to 72*	—	—	—	—	None	21CBP4-A		
6.3/0.6	20,000 Δ +1,000 -500	500	16,000 Δ 225	300	28 to 72*	—	—	—	—	None	21CBP4-B		
6.3/0.45	20,000 +1,000 -500	500	16,000 Δ 218	300	28 to 72*	—	—	—	—	Single	21CDP4		
6.3/0.45	20,000 +1,000 -500	500	16,000 Δ 218	300	28 to 72*	—	—	—	—	Single	21CDP4-A		
6.3/0.6	18,000 +1,000 -500	500	16,000 Δ 200	300	28 to 72*	—	—	—	—	None	21CEP4		
6.3/0.6	20,000 +1,000 -500	500	18,000 Δ 200	300	36 to 94*	—	—	—	—	None	21CEP4-A		
6.3/0.6	20,000 +1,000 -500	200	18,000 Δ 234	110	+32 to +50*	—	—	—	—	Single	21CGP4		
6.3/0.6	20,000 +1,000 -500	200	18,000 Δ 200	110	+32 to +50*	—	—	—	—	Single	21CHP4		
6.3/0.45	20,000 +1,000 -500	500	16,000 Δ 200	300	28 to 72*	—	—	—	—	None	21CKP4		
6.3/0.6	20,000 +1,000 -500	500	16,000 Δ 200	300	28 to 72*	—	—	—	—	Single	21CMP4		
6.3/0.6	18,000 +1,000 -500	500	16,000 Δ 200	300	35 to 72*	—	—	—	—	None	21CQP4		
6.3/0.45	18,000 +1,000 -500	500	16,000 Δ 200	300	35 to 72*	—	—	—	—	None	21CSP4		
6.3/0.6	20,000	500	16,000	300	28 to 72*	109	3 1/4	117	—	Single	21CUP4		

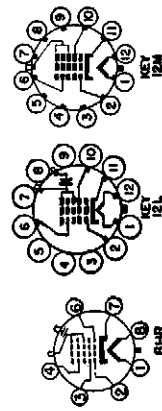
* For visual extinction of focused raster.
 † Cathode-drive service.

A—Aluminized screen to increase light output.
 G—Gray (filter) faceplate.
 † Diagonal measurement for rectangular tubes.
 ‡ Distance between volke reference line and center of focus-coil air gap; in inches.
 Δ Accelerator anode and collector.
 ⚡ Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.

Type	Base Con- nec- tions	Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches
21BDP4	12L	Glass	Rect	G, A	Yes	Cavity	Elec	72	23 1/2	21 1/2
21BNP4	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	20	21 1/2
21BSP4	12N	Glass	Rect	G, A	Yes	Cavity	Mag	90	20	21 1/2
21BTP4	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	20	21 1/2
21CBP4	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	18	21 1/2
21CBP4-A	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	18	21 1/2
21CBP4-B	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	17 1/2	21 1/2
21CDP4	12L	Glass	Rect	G	Yes	Cavity	Elec	90	20	21 1/2
21CDP4-A	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	20	21 1/2
21CEP4	8HR	Glass	Rect	G, A	Yes	Cavity	Elec	110	14 1/2	21 1/2
21CEP4-A	8HR	Glass	Rect	G, A	Yes	Cavity	Elec	110	14 1/2	21 1/2
21CGP4	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	20	21 1/2
21CHP4	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	18	21 1/2
21CKP4	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	18	21 1/2
21CMP4	12L	Glass	Rect	G, A	Yes	Cavity	Elec	90	19	21 1/2
21CQP4	7FA	Glass	Rect	G, A	Yes	Cavity	Elec	110	14 1/2	21 1/2
21CSP4	7FA	Glass	Rect	G, A	Yes	Cavity	Elec	110	14 1/2	21 1/2
21CUP4	12N	Glass	Rect	G, A	Yes	Cavity	Mag	90	20	21 1/2



Type	Base Con- nec- tions	Con- struc- tion	Face- plate Shape	Face- plate finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches
21CVP4 _d	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	20	21 $\frac{1}{4}$
21CWP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	20	21 $\frac{1}{4}$
21CXP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	18	21 $\frac{1}{4}$
21CZP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	14 $\frac{1}{4}$	21 $\frac{1}{4}$
21DP4	12M	Metal	Rect	G; P	Metal	Cone	Elec	Mag	70	22 $\frac{3}{4}$	20 $\frac{3}{4}$
21DAP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	14 $\frac{1}{4}$	21 $\frac{1}{4}$
21DEP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	14 $\frac{1}{4}$	21 $\frac{1}{4}$
21DEP4-A	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	14 $\frac{1}{4}$	21 $\frac{1}{4}$
21DFP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	14 $\frac{1}{4}$	21 $\frac{1}{4}$
21DHP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	14 $\frac{1}{4}$	21 $\frac{1}{4}$
21DJP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	18	21 $\frac{1}{4}$
21DKP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	14 $\frac{1}{4}$	21 $\frac{1}{4}$
21DLP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	17	21 $\frac{1}{4}$
21DMP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	13 $\frac{3}{4}$	21 $\frac{1}{4}$
21DNP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	19	21 $\frac{1}{4}$
21DQP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	17 $\frac{1}{4}$	21 $\frac{1}{4}$
21DRP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	18 $\frac{1}{4}$	21 $\frac{1}{4}$



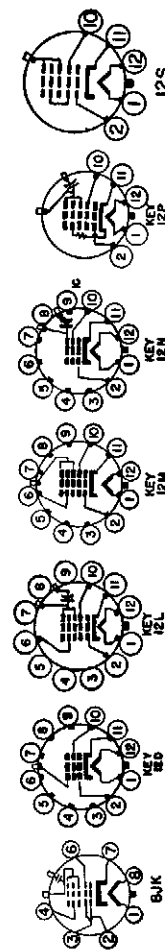
Typical Operating Conditions

Heater Volts/Amp	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist	Focus Current in ma	Ion Trap Magnet	Type
6.3/0.6	20,000 +1,000 -500	500	16,000 Δ 208 Δ	300	28 to 72*	—	—	—	None	21CVP4
6.3/0.6	20,000 +1,000 -500	500	16,000 Δ 208 Δ	300	28 to 72*	—	—	—	None	21CWP4
6.3/0.6	20,000 +1,000 -500	70	18,000 Δ 175 Δ	50	+35 to +70*	—	—	—	None	21CXP4
6.3/0.6	18,000 +1,000 -500	500	17,000 Δ 250 Δ	300	28 to 72*	—	—	—	Single	21CZP4
6.3/0.6	18,000 Δ 5,000 Δ	500	16,000 Δ 3,650 Δ	300	28 to 72*	—	—	—	Single	21DP4
6.3/0.6	18,000 +1,000 -500	500	16,000 Δ 200 Δ	400	36 to 94*	—	—	—	None	21DAP4
6.3/0.6	18,000 +1,000 -500	500	17,000 Δ 250 Δ	300	28 to 72*	—	—	—	None	21DEP4
6.3/0.6	20,000 +1,000 -500	500	17,000 Δ 250 Δ	300	28 to 72*	—	—	—	None	21DEP4-A
6.3/0.6	18,000 +1,000 -500	500	14,000 Δ 200 Δ	300	28 to 72*	—	—	—	None	21DPP4
6.3/0.45	18,000 +1,000 -500	500	16,000 Δ 200 Δ	300	35 to 72*	—	—	—	None	21DHP4
6.3/0.3	20,000 +1,000 -500	500	16,000 Δ 200 Δ	300	35 to 72*	—	—	—	None	21DJP4
6.3/0.3	18,000 +1,000 -500	500	16,000 Δ 200 Δ	300	35 to 72*	—	—	—	None	21DKP4
6.3/0.6	20,000 +1,000 -500	500	16,000 Δ 200 Δ	300	28 to 72*	—	—	—	None	21DLP4
6.3/0.6	20,000 +1,000 -500	500	16,000 Δ 200 Δ	400	36 to 92*	—	—	—	None	21DMP4
6.3/0.6	20,000 +1,000 -500	500	16,000 Δ 210 Δ	300	35 to 72*	—	—	—	Single	21DNP4
6.3/0.6	18,000 +1,000 -500	500	16,000 Δ 200 Δ	300	35 to 72*	—	—	—	None	21DQP4
6.3/0.6	20,000 +1,000 -500	500	16,000 Δ 225 Δ	300	28 to 72*	—	—	—	None	21DRP4

A—Aluminized screen to increase light output.
 F—Frosted faceplate surface to reduce reflection.
 G—Grey (filter) faceplate.
 † Diagonal measurement for rectangular tubes.
 ‡ Distance between yoke reference line and center of focus-coil air gap; in inches.
 Δ Accelerator anode and collector.
 □ Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.

* For visual extinction of focused raster.
 □ Cathode-drive service.

Type	Base Con- rec- tions	Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Angle Degrees	Defl Meth- od	Nom Over-all Length Inches	Nom Bulb Diam Inches
21DSP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	Mag	18	21 3/4
21DVP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	90	Mag	20	21 3/4
21EP4	12D	Glass	Rect 5	G	No	Cavity	Mag	70	Mag	23	21 5/8
21EP4-A	12N	Glass	Rect 5	G	Yes	Cavity	Mag	70	Mag	23	21 5/8
21EP4-B	12N	Glass	Rect 5	G; A	Yes	Cavity	Mag	70	Mag	23	21 5/8
21EAP4	8JK	Glass	Rect	G; A	Yes	Cavity	Elec	110	Mag	12 1/4	21 1/4
21FP4	12M	Glass	Rect 5	G	No	Cavity	Elec	70	Mag	23	21 5/8
21FP4-A	12L	Glass	Rect 5	G	Yes	Cavity	Elec	70	Mag	23	21 5/8
21FP4-C	12L	Glass	Rect 5	G; A	Yes	Cavity	Elec	70	Mag	23 5/8	21 5/8
21JP4	12N	Glass	Rect 5	G	Yes	Cavity	Inter- nal Mag	70	Mag	23 5/8	21 5/8
21JP4-A	12N	Glass	Rect 5	G; A	Yes	Cavity	Inter- nal Mag	70	Mag	23 5/8	21 5/8
21KP4	12S	Glass	Rect 5	G	No	Cavity	Elec	70	Mag	22 3/4	21 5/8
21KP4-A	12P	Glass	Rect 5	G	Yes	Cavity	Elec	70	Mag	23	21 5/8
21MP4	12M	Metal	Rect	G; F	Metal	Cone	Elec	70	Mag	22 5/8	20 3/4
21WP4	12N	Glass	Rect	G	Yes	Cavity	Mag	70	Mag	22 5/8	20 3/4
21WP4-A	12N	Glass	Rect	G; A	Yes	Cavity	Mag	70	Mag	22 5/8	20 3/4
21XP4	12L	Glass	Rect	G	Yes	Cavity	Elec	70	Mag	22 5/8	20 3/4
21XP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	70	Mag	22 5/8	20 3/4
21YP4	12L	Glass	Rect	G	Yes	Cavity	Elec	70	Mag	23 5/8	21 5/8
21YP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	70	Mag	23 5/8	21 5/8
21ZP4	12D	Glass	Rect	G	No	Cavity	Mag	70	Mag	23 5/8	21 5/8

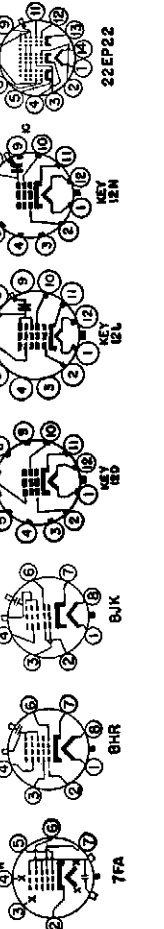
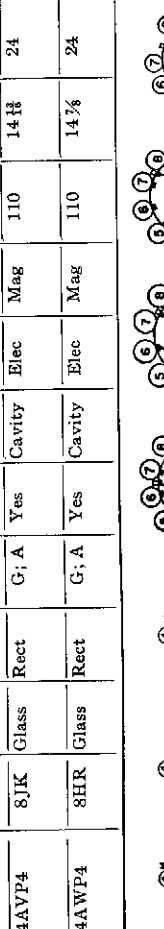
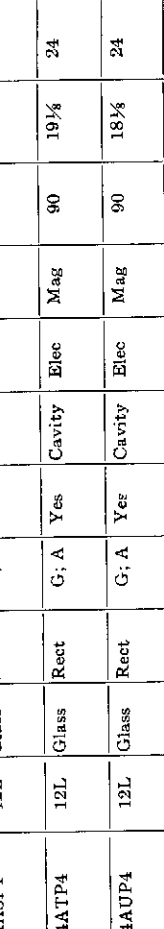
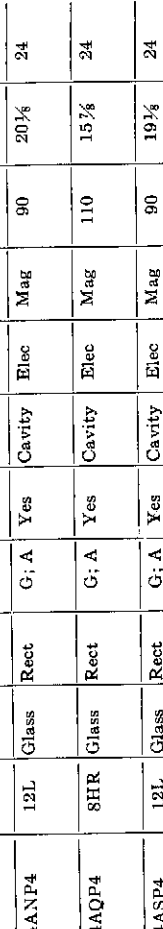
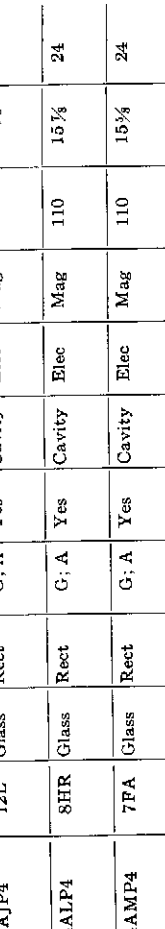
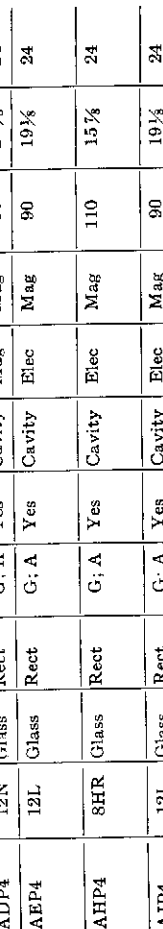
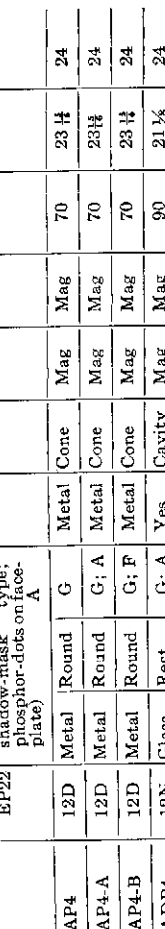
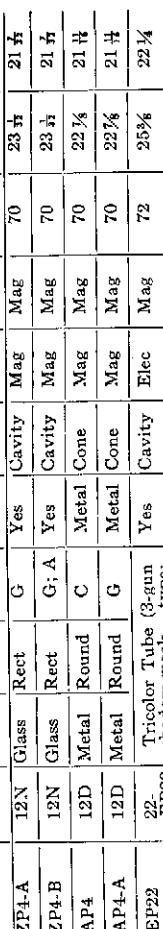
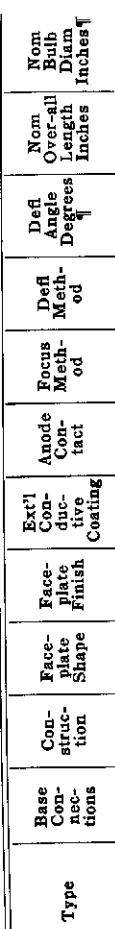
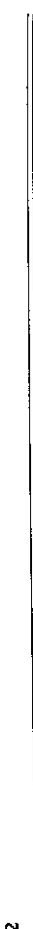
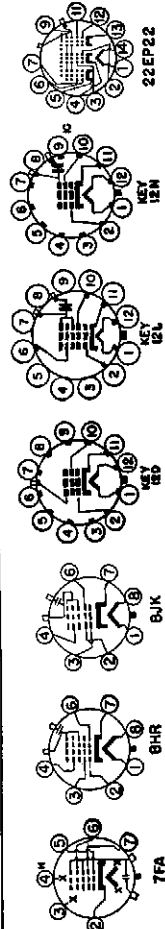


Typical Operating Conditions										Type
Heater Volts/ Amps	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Volts	EIA Focus Coil No.	Focus Coil Dist†	Focus Current in ma	Ion Trap Magnet	
6.3/0.6	20,000 Δ +1,000 -500	68	16,000 Δ 200	50	+32 to +47*	—	—	—	None	21DSP4
6.3/0.3	5000 +1,000 -500	500	18,000 Δ 200	300	28 to 72*	—	—	—	Single	21DVP4
6.3/0.6	18,000	500	12,000	300	28 to 72*	109	3.0	95	Single	21EP4
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3 3/4	116	Single	21EP4-A
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3 3/4	116	Single	21EP4-B
2.34/0.6	18,000 +950 -700	500	16,000 Δ 200	300	35 to 72*	—	—	—	None	21EAP4
6.3/0.6	18,000 Δ +1,000 -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	21FP4
6.3/0.6	18,000 Δ +1,000 -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	21FP4-A
6.3/0.6	18,000 +1,000 -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	21FP4-C
6.3/0.6	20,000	500	13,000 to 19,000	300	28 to 72*	—	—	—	Internal	21JP4
6.3/0.6	20,000	500	13,000 to 19,000	300	28 to 72*	—	—	—	Internal	21JP4-A
6.3/0.6	18,000	410	12,000	300	38 to 77†	—	—	—	Single	21KP4
6.3/0.6	18,000	500	12,000	300	28 to 72*	—	—	—	Single	21KP4-A
6.3/0.6	16,000 Δ +1,000 -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single	21MP4
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3 1/4	100	Single	21WP4
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3 1/4	100	Single	21WP4-A
6.3/0.6	18,000 +1,000 -600	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single	21XP4
6.3/0.6	18,000 +1,000 -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single	21XP4-A
6.3/0.6	18,000 +1,000 -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single	21YP4
6.3/0.6	18,000 +1,000 -500	500	16,000 Δ 144	300	28 to 72*	—	—	—	Single	21YP4-A
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3 3/4	118	Single	21ZP4

A—Aluminized screen to increase light output.
F—Frosted faceplate surface to reduce re-
flection.
G—Grey (filter) faceplate.
† Diagonal measurement for rectangular tubes.
‡ Distance between yoke reference line and center of focus-coil air gap; in inches.
ΔAccelerator anode and collector.
●Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.

† For visual extinction of undeflected focused spot.
* For visual extinction of focused raster.
□ Automatic electrostatic focus. No external focus connection required.
‡ With cylindrical contour.

Type	Base Con- nec- tions	Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches
21ZP4-A	12N	Glass	Rect	G	Yes	Cavity	Mag	Mag	70	23 1/4	21 1/4
21ZP4-B	12N	Glass	Rect	G; A	Yes	Cavity	Mag	Mag	70	23 1/4	21 1/4
22AP4	12D	Metal	Round	C	Metal	Cone	Mag	Mag	70	22 1/4	21 1/4
22AP4-A	12D	Metal	Round	G	Metal	Cone	Mag	Mag	70	22 1/4	21 1/4
22EP22	22- EP22	Tricolor Tube (3-gun shadow-mask type; phosphor dots on face- plate)			Yes	Cavity	Elec	Mag	72	25 1/4	22 1/4
24AP4	12D	Metal	Round	G	Metal	Cone	Mag	Mag	70	23 1/4	24
24AP4-A	12D	Metal	Round	G; A	Metal	Cone	Mag	Mag	70	23 1/4	24
24AP4-B	12D	Metal	Round	G; F	Metal	Cone	Mag	Mag	70	23 1/4	24
24ADP4	12N	Glass	Rect	G; A	Yes	Cavity	Mag	Mag	90	21 1/4	24
24AEP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	19 1/4	24
24AHP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	15 1/4	24
24AJP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	19 1/4	24
24ALP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	15 1/4	24
24AMP4	7PA	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	15 1/4	24
24ANP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	20 1/4	24
24AQP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	15 1/4	24
24ASP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	19 1/4	24
24ATP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	19 1/4	24
24AUP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	18 1/4	24
24AVP4	8JK	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	14 1/4	24
24AWP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	14 1/4	24

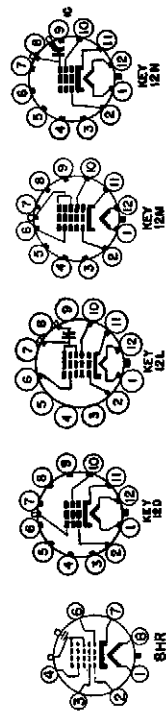


Heater Volts/ Amp	Max Anode Volts	Max Grid 2 Volts	Typical Operating Conditions						Type
			Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist†	Focus Current in ma	Ion Trap Magnet
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3 1/4	118	Single
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3 1/4	118	Single
6.3/0.6	19,000	410	14,000	300	28 to 72*	109	3.0	117	Single
6.3/0.6	19,000	410	14,000	300	28 to 72*	109	3.0	117	Single
6.3/1.8	25,000 Δ 6,000 ●	800	25,000 Δ 4,550 ●	200	55 to 105*	Convergence method—Magnetic			
6.3/0.6	16,000	410	15,000	300	28 to 72*	109	3 1/4	114	Single
6.3/0.6	16,000	410	15,000	300	33 to 77†	109	3 1/4	117	Single
6.3/0.6	16,000	410	15,000	300	28 to 72*	109	3	114	Single
6.3/0.6	22,000	600	18,000	300	28 to 72*	109	3	125	Single
6.3/0.6	20,000 +1,000, -500 ●	500	18,000 Δ 200 ●	300	28 to 72*	—	—	—	None
6.3/0.6	20,000 +1,000, -500 ●	500	16,000 Δ 200 ●	300	28 to 72*	—	—	—	None
6.3/0.6	20,000 +1,000, -500 ●	70	18,000 Δ 175 ●	50	+35 to +50*	—	—	—	None
6.3/0.6	20,000 +1,000, -500 ●	500	17,000 Δ 250 ●	300	28 to 72*	—	—	—	None
6.3/0.6	20,000 +1,000, -500 ●	500	16,000 Δ 200 ●	300	35 to 72*	—	—	—	None
6.3/0.6	20,000 +1,000, -500 ●	500	18,000 Δ 234 ●	300	35 to 72*	—	—	—	Single
6.3/0.45	20,000 +1,000, -500 ●	500	16,000 Δ 200 ●	300	35 to 72*	—	—	—	None
6.3/0.3	20,000 +1,000, -500 ●	500	18,000 Δ 200 ●	300	35 to 72*	—	—	—	None
6.3/0.6	20,000 +1,000, -500 ●	68	18,000 Δ 200 ●	50	+34 to +49*	—	—	—	None
6.3/0.6	20,000 +1,000, -500 ●	500	18,000 Δ 238 ●	300	35 to 72*	—	—	—	None
2.35/0.6	18,000 +1,000, -500 ●	500	16,000 Δ 200 ●	300	35 to 72*	—	—	—	None
6.3/0.6	20,000 +1,000, -500 ●	500	16,000 Δ 200 ●	300	28 to 72*	—	—	—	None

† For visual extinction of focused spot.
* For visual extinction of focused raster.

A—Aluminized screen to increase light output.
C—Clear (uncoated) faceplate.
F—Frosted faceplate surface to reduce re-
flection.
G—Grey (filter) faceplate.
† Diagonal measurement for rectangular tubes.
† Distance between yoke reference line and center of focus-coil air gap; in inches.
Δ Accelerator anode and collector.
● Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.

Type	Base Con- nec- tions	Con- struc- tion	Face- plate Shape	Face- plate Finish	Ext'l Con- duc- tive Coating	Anode Con- tact	Focus Meth- od	Defl Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches	
24AXP4	8HR	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	110	15 1/2	24
24BP4	12M	Metal	Round	G		Cone	Elec	Mag	70	24 1/4	24
24CP4	12N	Glass	Rect	G	Yes	Cavity	Mag	Mag	90	21 1/2	24
24CP4-A	12N	Glass	Rect	G; A	Yes	Cavity	Mag	Mag	90	21 1/2	24
24DP4	12L	Glass	Rect	G	Yes	Cavity	Elec	Mag	90	21 1/2	24
24DP4-A	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	21 1/2	24
24QP4	12N	Glass	Rect	G	Yes	Cavity	Mag	Mag	90	21 1/2	24
24TP4	12N	Glass	Rect	G; A	Yes	Cavity	Mag	Mag	90	21 1/2	24
24VP4	12N	Glass	Rect	G	Yes	Cavity	Mag	Mag	90	21 1/2	24
24VP4-A	12N	Glass	Rect	G; A	Yes	Cavity	Mag	Mag	90	21 1/2	24
24XP4	12D	Glass	Rect	G	No	Cavity	Mag	Mag	90	21 1/2	24
24YP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	21 1/2	24
24ZP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	21 1/2	24
27AP4	12M	Metal	Rect	G; F	Metal	Cone	Elec	Mag	90	21 1/2	26 3/8
27EP4	12D	Glass	Rect	G; A	No	Cavity	Mag	Mag	90	23 1/2	26 1/2
27GP4	12D	Glass	Rect	G	No	Cavity	Mag	Mag	90	23 1/2	26 1/2
27LP4	12N	Glass	Rect	G; A	Yes	Cavity	Mag	Mag	90	23 1/2	26 1/2
27MP4	12D	Metal	Rect	G; F; A	No	Cavity	Mag	Mag	90	23 1/2	26 1/2
27NP4	12N	Glass	Rect	G	Yes	Cavity	Mag	Mag	90	23 1/2	26 1/2
27RP4	12N	Glass	Rect	G; A	Yes	Cavity	Mag	Mag	90	23 1/2	26 1/2
27SP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	23 1/2	26 1/2
27UP4	12L	Glass	Rect	G	Yes	Cavity	Elec	Mag	90	23 1/2	26 1/2
27VP4	12L	Glass	Rect	G; A	Yes	Cavity	Elec	Mag	90	21 1/2	26 1/2

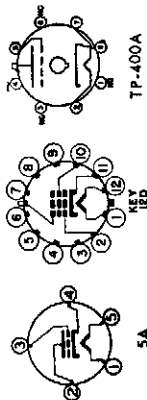


Typical Operating Conditions										Type
Heater Vmps/ Amps	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist	Focus Current in ma	Ion Trap Magnet	Type
6.3/0.3	20,000 +1,000, -500	500	16,000 Δ 200	300	35 to 72*	—	—	—	None	24AXP4
6.3/0.6	16,000 Δ +1,000, -500	500	14,000 Δ 126	300	28 to 72*	—	—	—	Single	24BP4
6.3/0.6	20,000	500	18,000	300	28 to 72*	109	3	115	Single	24CP4
6.3/0.6	20,000	500	18,000	300	28 to 72*	109	3	115	Single	24CP4-A
6.3/0.6	20,000 +1,000, -500	500	18,000 Δ 162	300	28 to 72*	—	—	—	Single	24DP4
6.3/0.6	20,000 +1,000, -500	500	18,000 Δ 162	300	28 to 72*	—	—	—	Single	24DP4-A
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3 1/4	100	Single	24QP4
6.3/0.6	20,000	500	18,000	300	28 to 72*	109	—	125	Single	24TP4
6.3/0.6	22,000	600	20,000	300	28 to 72*	109	3	125	Single	24VP4
6.3/0.6	22,000	600	20,000	300	28 to 72*	109	3	125	Single	24VP4-A
6.3/0.6	20,000	500	18,000	300	28 to 72*	109	3	125	Single	24XP4
6.3/0.6	20,000 Δ +1,000 -500	500	18,000 Δ 162	300	28 to 72*	—	—	—	Single	24YP4
6.3/0.6	20,000 Δ +1,000 -500	500	16,000 Δ 250	300	28 to 72*	—	—	—	None	24ZP4
6.3/0.6	18,000 Δ +1,000, -500	500	15,000 Δ 135	300	28 to 72*	—	—	—	Single	27AP4
6.3/0.6	20,000	500	16,000	300	28 to 72*	109	3 1/4	117	Single	27EP4
6.3/0.6	22,500	500	16,000	300	28 to 72*	109	—	95	Single	27GP4
6.3/0.6	22,000	600	20,000	300	28 to 72*	109	—	148	Single	27LP4
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3	110	Single	27MP4
6.3/0.6	18,000	500	16,000	300	28 to 72*	109	3 1/4	95	Single	27NP4
6.3/0.6	20,000	500	16,000	300	28 to 72*	109	3	105	Single	27RP4
6.3/0.6	20,000 Δ +1,000, -500	500	18,000 Δ 162	300	28 to 72*	—	—	—	Single	27SP4
6.3/0.6	20,000 Δ	500	16,000 Δ 198	300	28 to 72*	—	—	—	Single	27UP4
6.3/0.6	18,000 +1,000, -500	500	16,000 Δ 234	300	28 to 72*	—	—	—	None	27VP4

A—Aluminized screen to increase light output.
F—Frosted faceplate surface to reduce re-
flection.
G—Grey (filter) faceplate.
Q—Diagonal measurement for rectangular tubes.
+ Distance between yoke reference line and center of focus-coil air gap; in inches.
Δ Accelerator anode and collector.
● Anode No. 1 (Focus); under typical operating conditions center value of voltage for focus is shown. Voltage should be adjustable about this value.

* For visual extinction of focused raster.
□ Cathode-drive service.

Type	Base Connections	Construction	Face-plate Shape	Face-plate Finish	Ext'l Con-ductive Coating	Anode Contact	Focus Method	Defl. Method	Defl. Angle Degrees	Nom Over-all Length Inches	Nom Bulb Diam Inches [†]
30BP4	12D	Metal	Round	G	Metal	Cone	Mag	Mag	90	23 $\frac{1}{8}$	30 $\frac{1}{4}$
MW22-2	5A	Glass	Round	C	No	Base	Mag	Mag	50	15 $\frac{3}{4}$	9 $\frac{1}{4}$
MW31-3	5A	Glass	Round	C	No	Base	Mag	Mag	50	18 $\frac{3}{4}$	12 $\frac{1}{4}$
TP400-A	TP400-A	Glass	Round	C	Yes	—	Mag	Mag	50	12 $\frac{1}{8}$	4



			Typical Operating Conditions							Type
Heater Volts/ Amp	Max Anode Volts	Max Grid 2 Volts	Anode Volts	Grid 2 Volts	Neg Grid 1 Cutoff Volts	EIA Focus Coil No.	Focus Coil Dist†	Focus Current in ma	Ion Trap Magnet	
6.3/0.6	30,000	410	22,000	300	28 to 72*	109	3.0	128	Single	30BP4
6.3/0.6	6,000	330	5,000	250	100†	—	—	—	None	MW22-2
6.3/0.6	6,000	330	5,000	250	100†	—	—	—	None	MW31-3
6.3/0.6	22,000	—	20,000	—	70 to 140 †	—	—	144	None	TP400-A

C—Clear (untinted) faceplate.

G—Grey (filter) faceplate.

‡ Diagonal measurement for rectangular tubes.

† Distance between yoke reference line and

center of focus-coil air gap; in inches.

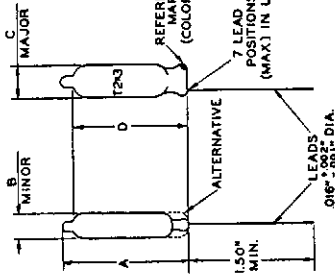
‡ For visual extinction of undeflected focused spot.

● Designates projection type.

* For visual extinction of focused raster.

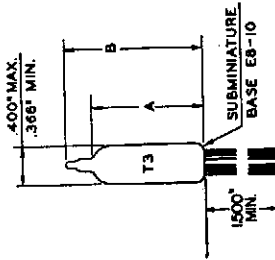
X-RAY RADIATION FROM TV PICTURE TUBES

Cathode-ray tubes rated at anode voltages in excess of 16,000 volts may require x-ray radiation shielding to avert possible danger of personal injury from prolonged exposure at close range. The protective face-viewing window of apparatus using tubes of this type may provide such a safeguard. If the radiation measured in contact with this window is not in excess of 6.25 milliroentgens per hour, the window will normally provide adequate protection.



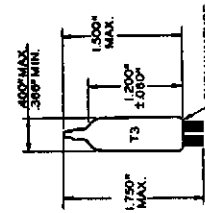
OUTLINE DRAWING NUMBER	DIMENSIONS				
	A	B	C	D	E
2-1	1.50"	2.85"	3.85"	1.20"	1.40"
2-2	1.25"	2.85"	3.85"	0.97"	1.17"
2-3	1.50"	2.85"	4.10"	1.20"	1.40"
2-4	1.25"	2.85"	4.10"	0.97"	1.17"
2-5	1.50"	2.85"	4.00"	1.20"	1.40"
2-6	1.25"	2.85"	4.00"	0.97"	1.17"

2-1 TO 2-6

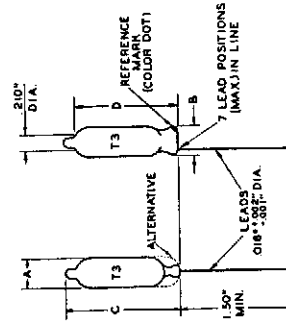


OUTLINE DRAWING NUMBER	DIMENSIONS	
	A	B
3-1	1.075"	1.375"
3-2	1.200"	1.500"
3-3	1.450"	1.750"
3-4	1.700"	2.000"
3-8	1.325"	1.625"
3-11	0.950"	1.250"

3-1 TO 3-4, 3-8, 3-11

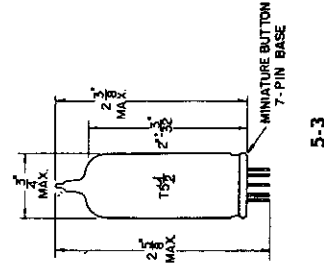
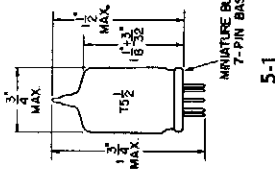
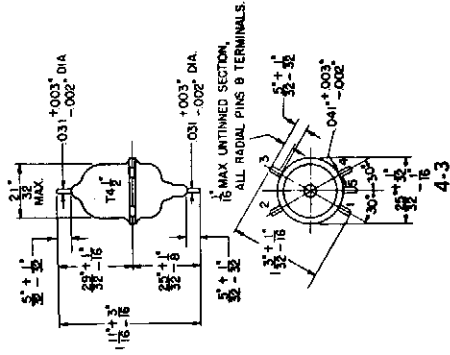
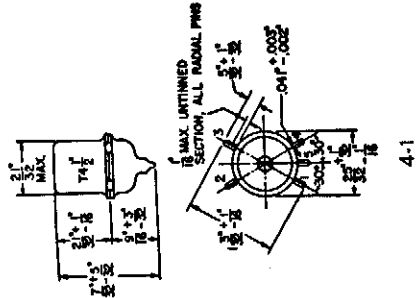
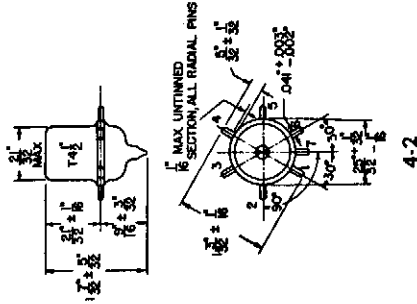


3-5

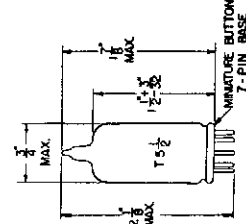


OUTLINE DRAWING NUMBER	DIMENSIONS			
	A	B	C	D
3-6	4.00"	4.00"	1.50"	1.15"
3-7	4.00"	4.10"	1.50"	1.15"

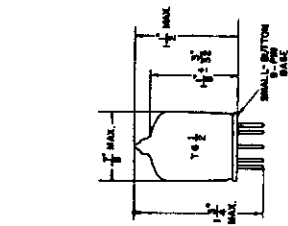
3-6, 3-7



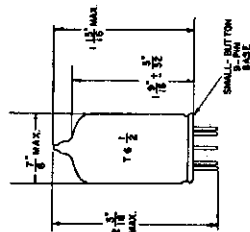
5-2



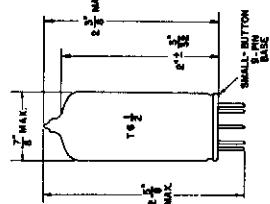
5-3



6-1

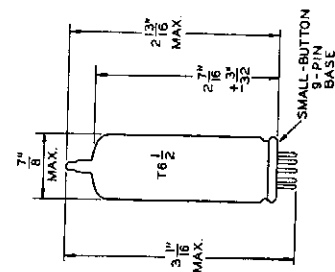


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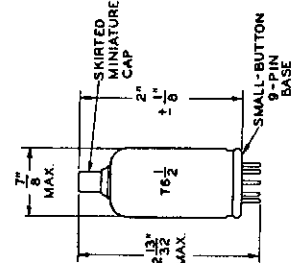


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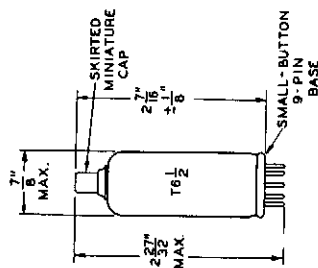
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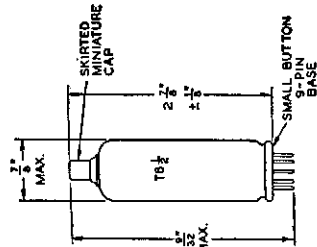
6-4



6-6

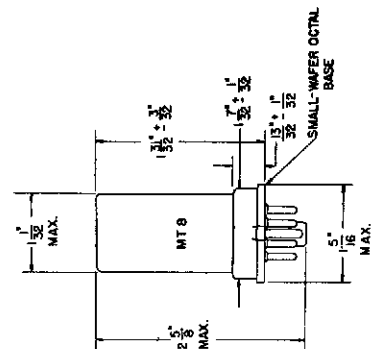
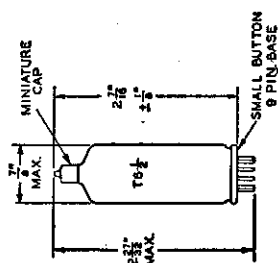


6-7

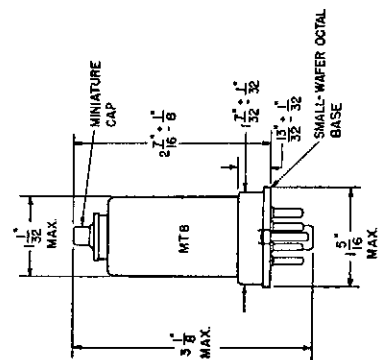


6-8

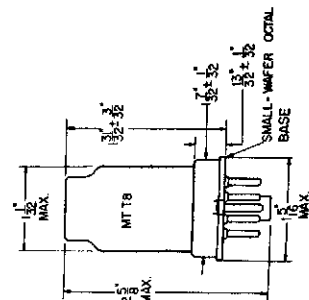
6-9



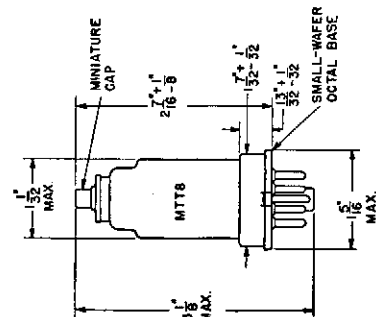
8-1



8-2

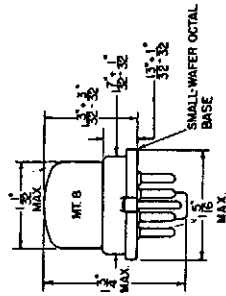


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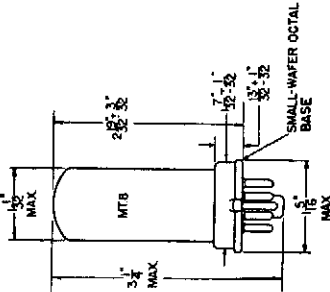


8-4

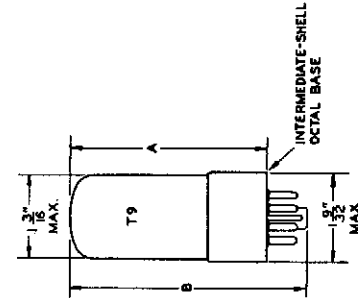
Nominal cap diameters are:
 Miniature or Skirted Miniature—0.250"
 Small—0.360"
 Medium—0.566"



8-5

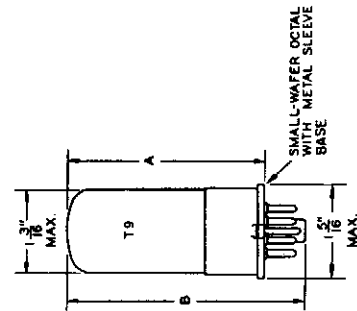


8-6



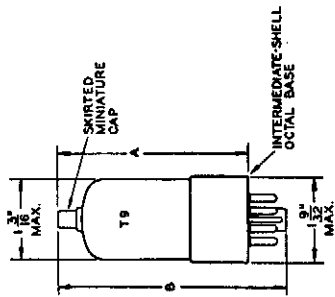
9-1 TO 9-15 (ODD), 9-33

OUTLINE DRAWING NUMBER	DIMENSIONS	A	B
9-1	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-3	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-5	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-7	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-9	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-11	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-13	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-15	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-33	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2



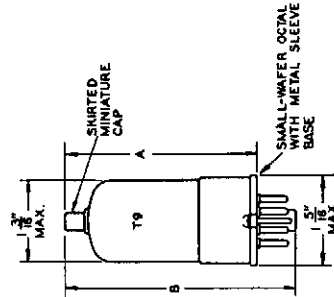
9-2 TO 9-16 (EVEN)

OUTLINE DRAWING NUMBER	DIMENSIONS	A	B
9-2	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-4	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-6	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-8	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-10	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-12	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-14	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-16	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2



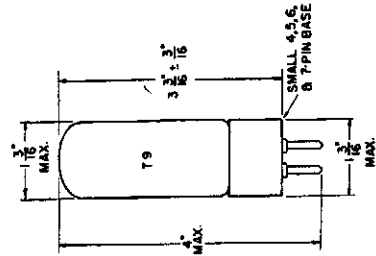
9-17 TO 9-23 (ODD), 9-50

OUTLINE DRAWING NUMBER	DIMENSIONS	A	B
9-17	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-19	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-21	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-23	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-50	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2

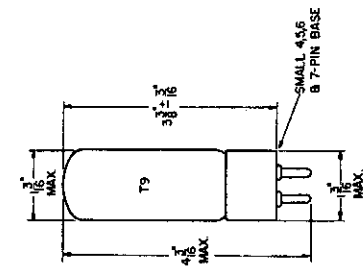


9-18 TO 9-24 (EVEN)

OUTLINE DRAWING NUMBER	DIMENSIONS	A	B
9-18	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-20	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-22	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2
9-24	MIN. MAX.	2 1/8 2 5/8	3 1/4 3 1/2

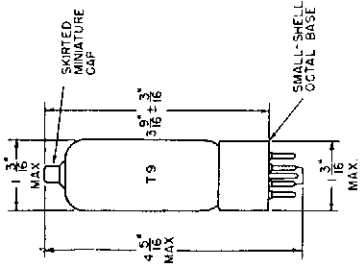


9-25

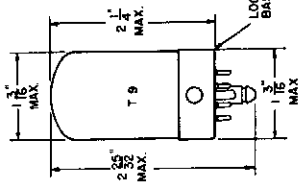


9-26

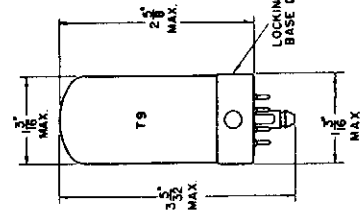
Nominal cap diameters are:
Miniature or Skirted Miniature—0.250"
Small—0.360"
Medium—0.566"



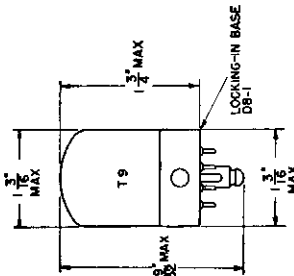
9-28



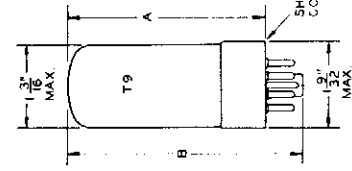
9-30



9-31

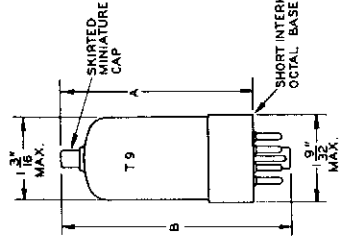


9-32



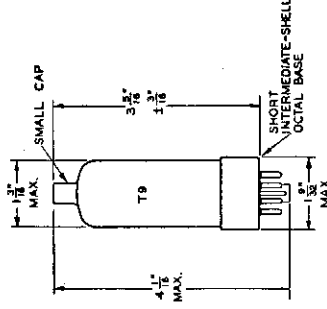
9-36 TO 9-44

OUTLINE DRAWING NUMBER	DIMENSIONS	
	A	B
9-36	1 3/16	2 3/16
9-37	2 3/16	2 3/16
9-38	2 3/16	3 1/16
9-39	2 3/16	3 1/16
9-40	2 3/16	3 1/16
9-41	2 3/16	3 1/16
9-42	2 3/16	3 1/16
9-43	2 3/16	3 1/16
9-44	3 1/16	3 1/16

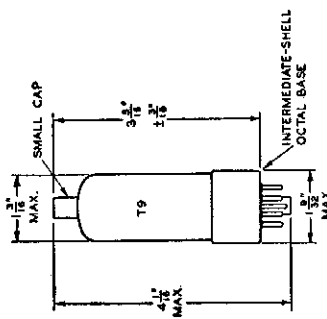


9-45 TO 9-49

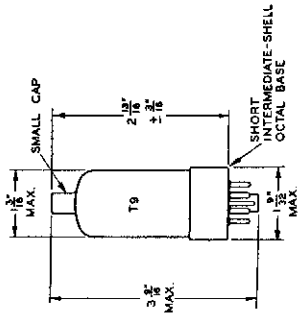
OUTLINE DRAWING NUMBER	DIMENSIONS	
	A	B
9-45	2 3/16	3 1/16
9-46	2 3/16	3 1/16
9-47	2 3/16	3 1/16
9-48	2 3/16	3 1/16
9-49	2 3/16	3 1/16



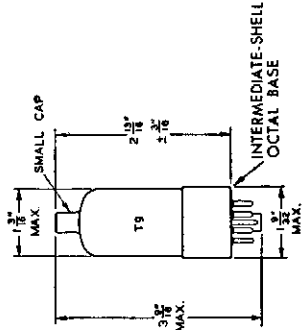
9-51



9-52



9-53



9-54

Nominal cap diameters are:
Miniature or Skirted Miniature—0.250"
Small—0.360"
Medium—0.566"

10-1

OUTLINE DRAWING NUMBER	DIMENSIONS	
	A MAX.	B MAX.
11-2	2 ¹⁵ / ₁₆	3 ¹ / ₂
11-3	3 ⁵ / ₁₆	3 ³ / ₈
11-4	3 ¹¹ / ₁₆	4 ¹ / ₄
11-5	4 ¹ / ₁₆	4 ⁵ / ₈

11-2 TO 11-5

OUTLINE DRAWING NUMBER	DIMENSIONS			
	A		B	
	MIN.	MAX.	MIN.	MAX.
11-6	2 $\frac{15}{16}$ "	3 $\frac{5}{16}$ "	7 $\frac{7}{8}$ "	3 $\frac{7}{8}$ "
11-7	3 $\frac{3}{16}$ "	3 $\frac{11}{16}$ "	4 $\frac{1}{4}$ "	4 $\frac{1}{4}$ "
11-8	3 $\frac{11}{16}$ "	4 $\frac{1}{16}$ "	4 $\frac{5}{8}$ "	4 $\frac{5}{8}$ "
11-9	4 $\frac{1}{16}$ "	4 $\frac{7}{8}$ "	5"	5"

11-6 TO 11-9

12-1

12-3

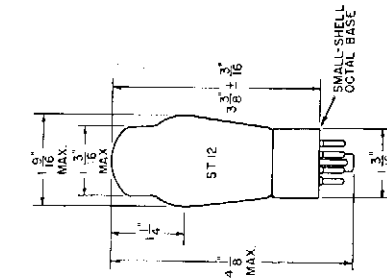
12-5

12-2

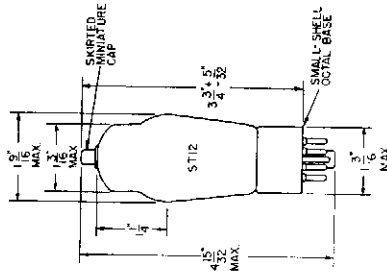
12-4

12-6

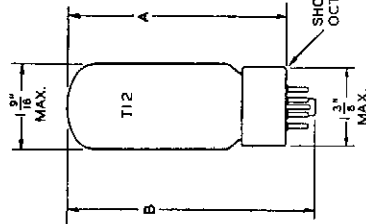
Nominal cap diameters are:
Miniature or Skirted Miniature—0.250"
Small—0.360"
Medium—0.566"



12-7

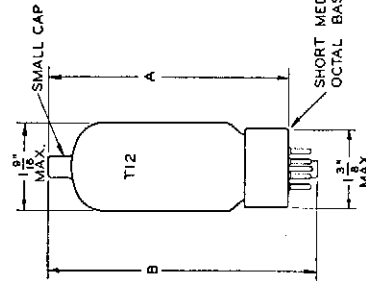


12-8



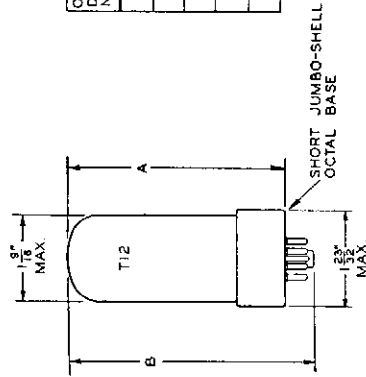
12-13 TO 12-17

OUTLINE DRAWING NUMBER	DIMENSIONS	
	A	B
12-13	2 15/16	3 1/2
12-14	3 5/8	3 7/8
12-15	3 11/16	4 1/4
12-16	4 1/8	4 5/8
12-17	4 7/8	5"



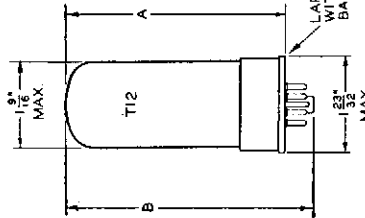
12-18 TO 12-22

OUTLINE DRAWING NUMBER	DIMENSIONS	
	A	B
12-18	2 15/16	3 5/8
12-19	3 5/8	3 7/8
12-20	3 11/16	4 1/4
12-21	4 1/8	4 5/8
12-22	4 7/8	5"

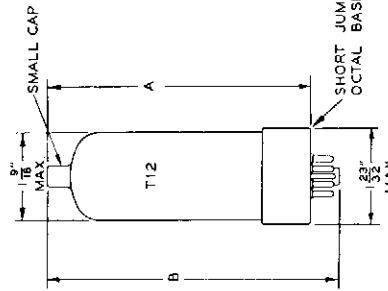


12-23 TO 12-27

OUTLINE DRAWING NUMBER	DIMENSIONS	
	A	B
12-28	2 15/16	3 1/2
12-29	3 5/8	3 7/8
12-30	3 11/16	4 1/4
12-31	4 1/8	4 5/8
12-32	4 7/8	5"



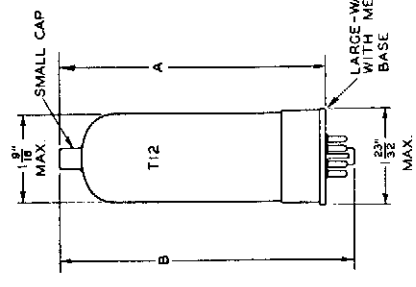
12-28 TO 12-32



12-33 TO 12-37

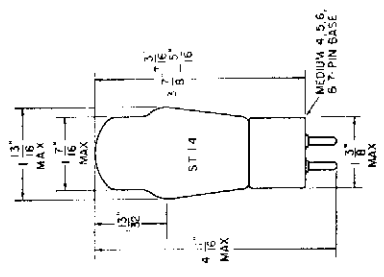
OUTLINE DRAWING NUMBER	DIMENSIONS	
	A	B
12-33	2 15/16	3 5/8
12-34	3 5/8	3 7/8
12-35	3 11/16	4 1/4
12-36	4 1/8	4 5/8
12-37	4 7/8	5"

Nominal cap diameters are:
Miniature or Skirted Miniature—0.250"
Small—0.360"
Medium—0.566"

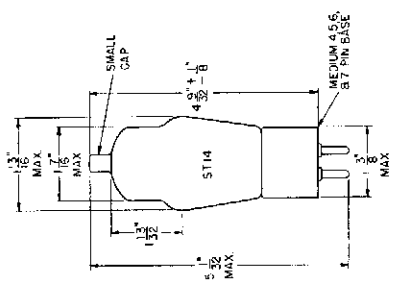


OUTLINE DRAWING NUMBER	DIMENSIONS	
	A	B
	MIN.	MAX.
12-38	2 15/16"	3 7/8"
12-39	3 5/8"	3 11/16"
12-40	3 11/16"	4 1/8"
12-41	4 1/8"	4 7/8"
12-42	4 7/8"	5 3/8"

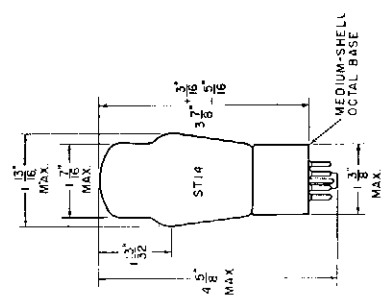
12-38 TO 12-42



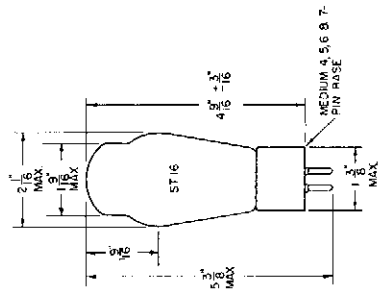
14-1



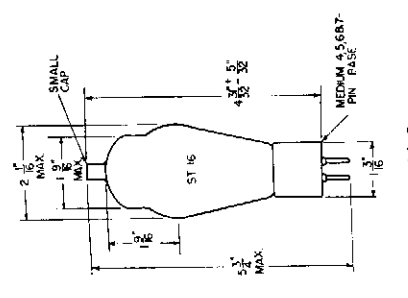
14-2



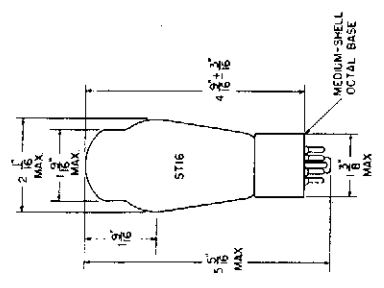
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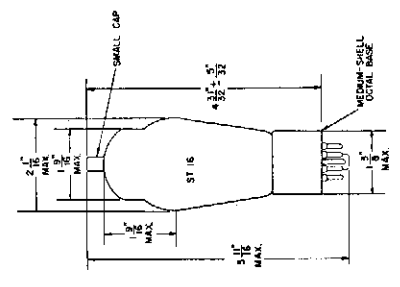
16-1



16-2



16-3



16-5

Nominal cup diameters are:
Miniature or Skirted Miniature--0.250"
Small--0.360"
Medium--0.568"

OUTLINE

T-X TABLE — Physical Characteristics of Types

Tube Type	Envelope	Style	Max Dimensions in Inches		
			Diameter	Over-all Length	Seated Height
0Y4-G	T-7	Octal	1 5/64	2 3/8	2 1/16
0Z4-G	T-7	Octal	1 1/16	2 3/8	2 1/16
1AE5	T-2 x 3	Inline Subm.-FL*	0.400 x 0.300	—	1.5
1N6-G	T-9	Octal	1 1/16	4	3 1/16
1Y2	ST-12	4 Pin†	1 9/16	4 9/32	3 3/32
1Z2	T-5 1/2	7-Pin Miniature§	3/4	2.70	2.45
2B3	T-9	Octal†	1 9/32	4 1/16	3 3/8
2C22	T-9	Octal§	1 5/16	3 3/4	2 1/16
2C50	T-9	Octal	1.315	2 3/4	3 5/16
2E24	T-9	Octal†	1 5/16	3 1/32	3 3/32
2E26	T-9	Octal†	1 5/16	3 1/32	3 3/32
2E31	T-2 x 3	Inline Subm.-FL*	0.400 x 0.300	—	1 9/16
2E32	T-2 x 3	Inline Subm.-SL*	0.400 x 0.300	—	1 9/16
2E35	T-2 x 3	Inline Subm.-FL*	0.390 x 0.290	—	1 9/16
2E36	T-2 x 3	Inline Subm.-SL*	0.390 x 0.290	—	1 9/16
2E41	T-2 x 3	Inline Subm.-FL*	0.390 x 0.290	—	1 9/16
2E42	T-2 x 3	Inline Subm.-SL*	0.390 x 0.290	—	1 9/16
2G21	T-2 x 3	Inline Subm.-FL*	0.400 x 0.300	—	1 9/16
2G22	T-2 x 3	Inline Subm.-SL*	0.400 x 0.300	—	1 9/16
2V2	T-11	Octal†	1 7/16	4 3/8	3 5/16
3B2	T-12	Octal†	1 3/32	5 7/32	4 1/16
5AR4	—	Octal	1 1/2	3 7/16	2 3/8
5AU4	T-12	Octal	1 1/16	4 3/4	4 3/16
5AW4	T-12	Octal	1 1/2	5 1/16	4 3/8
5R4-GYA	T-12	Octal	1 9/16	4 5/16	4 3/8
5U4-GA	T-11	Octal	1 7/16	4 3/4	4 3/16
6AL6-G	ST-16	Octal§	2 1/16	5 1/16	5 1/8
6AR6	T-11	Octal	1 7/16	3 5/32	2 9/32
6AV5-GA	T-11 or T-12	Octal	1 7/16 1 9/16	4 4	3 7/16 3 1/16
6BA4	—	Rocket Type	1.005	2 7/16	—
6BD4	T-12	Octal†	1 3/32	5 1/8	4 3/8
6BD4-A	T-12	Octal†	1 3/32	5 1/8	4 3/8
6BD5-GT	T-9	Octal	1 9/32	3 3/4	3 5/16

* FL—Flying Leads

SL—Short Leads.

† Small Top Cap.

§ Skirted Miniature Top Cap.

DRAWINGS

Not Conforming to Standard Outline Drawings

Tube Type	Envelope	Style	Max Dimensions in Inches		
			Diameter	Over-all Length	Seated Height
6BQ6-GA	T-11 T-12	Octal§	1 7/16 1 9/16	4 3/4 4 3/4	3 1/16 3 1/16
6BU4	T-12	Octal†	1 3/32	5 1/16	4 1/32
6BU5	T-12	Octal†	1 1/16	4 7/8	4 5/16
6BY4	Special	Ceramic	0.33	0.438	—
6CA7	T-10	Octal	1 1/2	4 7/16	3 3/8
6CB5	ST-16	Octal†	2 1/16	5 3/8	4 9/32
6CU6	T-11 T-12	Octal§	1 7/16 1 9/16	4 3/4 4 3/4	3 1/16 3 1/16
6DB5	T-6 1/2	9-Pin Miniature	3/8	2 3/4	2 1/8
6DQ6	T-12	Octal§	1 9/16	4 3/4	3 3/4
6DQ6-A	T-12	Octal§	1 9/16	4 3/4	3 1/16
6DZ8	T-6 1/2	9-Pin Miniature	3/8	3 3/8	2 7/8
6M3	T-12	Octal§	1 9/16	4 7/8	4 5/16
6V3-A	T-6 1/2	9-Pin Miniature§	3/8	3 1/16	2 3/4
9DZ8	T-6 1/2	9-Pin Miniature	3/8	3 3/8	2 7/8
10	ST-16	4-Pin	2 1/16	5 3/8	4 3/4
12AV5-GA	T-11 or T-12	Octal	1 7/16 1 9/16	4 4	3 7/16 3 7/16
12BQ6-GA	T-11 T-12	Octal§	1 7/16 1 9/16	4 3/4 4 3/4	3 1/16 3 1/16
12CU6	T-11 or T-12	Octal§	1 7/16 1 9/16	4 3/4 4 3/4	3 1/16 3 1/16
12DB5	T-6 1/2	9-Pin Miniature	3/8	2 3/4	2 3/8
12DQ6	T-12	Octal§	1 9/16	4 3/4	3 3/4
12DQ6-A	T-12	Octal§	1 9/16	4 3/4	3 1/16
12DZ8	T-6 1/2	9-Pin Miniature	3/8	3 3/8	2 7/8
17AV5-GA	T-11 or T-12	Octal	1 7/16 1 9/16	4 4	3 7/16 3 7/16
17DQ6	T-12	Octal§	1 9/16	4 3/4	3 3/4
17DQ6-A	T-12	Octal§	1 9/16	4 3/4	3 1/16
18DZ8	T-6 1/2	9-Pin Miniature	3/8	3 3/8	2 7/8
25AV5-GA	T-11 or T-12	Octal	1 7/16 1 9/16	4 4	3 7/16 3 7/16
25BQ6-GA	T-11 or T-12	Octal§	1 7/16 1 9/16	4 3/4 4 3/4	3 1/16 3 1/16
25CU6	T-11 or T-12	Octal§	1 7/16 1 9/16	4 3/4 4 3/4	3 1/16 3 1/16

† Small Top Cap.

§ Skirted Miniature Top Cap.

OUTLINE

T-X TABLE - Physical Characteristics of Types

Tube Type	Envelope	Style	Max Dimensions in Inches		
			Diameter	Over-all Length	Seated Height
25DQ6	T-12	Octal§	1 9/16	4 3/4	3 3/4
25EC6	T-12	Octal†	1 9/16	4 3/4	4 1/16
26EE6-G	T-11	Octal	1 7/16	3 3/8	2 9/16
35DZ8	T-6 1/2	9-Pin Miniature	7/8	3 3/8	2 7/8
50	ST-19	4-Pin	2 1/16	6 3/4	5 5/8
81	ST-19	4-Pin	2 1/16	6 3/4	5 5/8
V-99	T-8	Special	1 1/16	3 3/8	—
1829	T-9	Octal	1 3/16	4 3/8	3 1/16
1654	T-5 1/2	7-Pin Miniature†	3/4	2 7/16	2 1/16
5633	T-3	Special Subm-FL*	0.400	—	1.660
5634	T-3	Special Subm-FL*	0.400	—	1.660
5642	T-3	Special Subm-FL*	0.400	—	2.380
5645	T-2	Special Subm-FL*	0.310	—	1.300
5646	T-2	Special Subm-FL*	0.310	—	1.300
5647	T-1	Special Subm-FL*	0.215	—	1.250
5663	T-5 1/2	7-Pin Miniature	3/4	1 1/8	1 1/4
5675	—	Pencil Type	—	2.108	—
5676	T-2 x 3	Inline Subm-FL*	0.400 x 0.300	—	1.500
5677	T-2 x 3	Inline Subm-FL*	0.400 x 0.300	—	1.500
5678	T-2 x 3	Inline Subm-FL*	0.400 x 0.300	—	1.515
5704	T-2	Inline Subm-FL*	0.315	—	1 1/8
5785	T-2 x 3	Inline Subm-FL*	0.400 x 0.300	—	1.500
5825	ST-16	4-Pin¶	2 1/16	5 7/32	5 1/32
5838	T-9	Octal	1 5/16	3 3/8	2 7/8
5839	T-9	Octal	1 5/16	3 3/8	2 7/8
5851	T-3	Button Subm-FL*	0.400	—	1.800
5852	T-9	Octal	1 5/16	3 3/8	2 7/8
5876	—	Pencil Type	—	2.108	—
5881	T-11	Octal	1 1/16	3 15/16	2 9/32
5890	T-11	Duodecal†	1 1/4	6 3/4	6 1/4
5930	T-12	4-Pin	1.70	4 3/8	3 7/8
5931	T-12	Octal	1.70	4 9/32	4 1/32
5932	T-12	Octal	1.70	3 7/32	3 9/32

* FL—Flying Leads.
 SL—Short Leads.
 † Small Top Cap.
 ‡ Skirted Miniature Top Cap.

† Plate terminal extends from top of envelope—dia. .031", length 5/32".
 ¶ Medium Top Cap.

DRAWINGS

Not Conforming to Standard Outline Drawings

Tube Type	Envelope	Style	Max Dimensions in Inches		
			Diameter	Over-all Length	Seated Height
5995	T-3	Inline Subm-FL*	0.400	—	1.75
6004	T-9	Octal#	1 5/16	4 1/16	—
6080	T-12	Octal	1 3/32	4 1/16	3 1/2
6082	T-12	Octal	1 3/32	4 1/16	3 1/2
6094	T-6 1/2	9-Pin Miniature	7/8	3	2 3/4
6106	T-9	Octal	1.320	3.375	2.880
6146	T-12	Octal†	1 3/32	3 1/16	3 1/4
6173	—	Pencil Type	—	1.987	—
6184	T-3	Button Subm-FL*	0.400	—	1.25
6195	T-3	Button Subm-FL*	0.400	—	1.60
6215	T-9	Octal†	1 9/32	4 1/16	3 3/4
6287	T-6 1/2	9-Pin Miniature	7/8	2.47	—
6320	T-3	Button Subm-FL*	0.400	—	1.125
6321	T-3	Button Subm-FL*	0.400	—	1.125
6325	T-9	Octal	1 9/32	—	2 3/8
6327	T-12	Octal†	1 3/4	4 1/2	3 15/16
6336	ST-16	Octal	2.070	4.750	4.175
6336-A	ST-16	Octal	2.070	4.750	4.175
6355	T-5 1/2	7-Pin Miniature	0.750	1.531	1.250
6384	T-11	Octal	1 1/16	3 1/32	2 15/16
6394	T-12	8-Pin Octal	2.070	4.750	4.175
6394-A	T-12	8-Pin Octal	2.070	4.750	4.175
6397	T-3	Button Subm-FL*	0.400	—	1.60
6418	T-1 1/2 x 2	Inline Subm-FL*	0.290 x 0.235	—	1.250
6419	T-1 1/2 x 2	Inline Subm-FL*	0.290 x 0.235	—	1.000
6519	T-1 1/2 x 2	Inline Subm-FL*	0.290 x 0.220	—	1.25
6528	ST-16	Octal	2.070	4.750	4.175
6550	ST-16	Octal	2 1/16	4 3/4	4 3/16
6690	T-3	Button Subm-FL*	0.400	—	1.000
6754	T-6 1/2	9-Pin Miniature	7/8	2 3/4	2 1/4
6792	T-12	Octal†	1 3/32	5 1/16	4 1/32
6842	T-5 1/2	7-Pin Miniature§	3/4	2 1/4	2
7027	T-12	Octal	1 9/16	4 5/8	4 1/16

* FL—Flying Leads.
 SL—Short Leads.
 † Small Top Cap.
 ‡ Skirted Miniature Top Cap.

§ Special insulated miniature Top Cap.

OUTLINE

T-X TABLE-Physical Characteristics of Types

Tube Type	Envelope	Style	Max Dimensions in Inches		
			Diameter	Over-all Length	Seated Height
7077	Special	Ceramic	0.484	0.459	—
7105	T-12	Octal†	$1\frac{3}{32}$	$4\frac{1}{16}$	$3\frac{9}{16}$

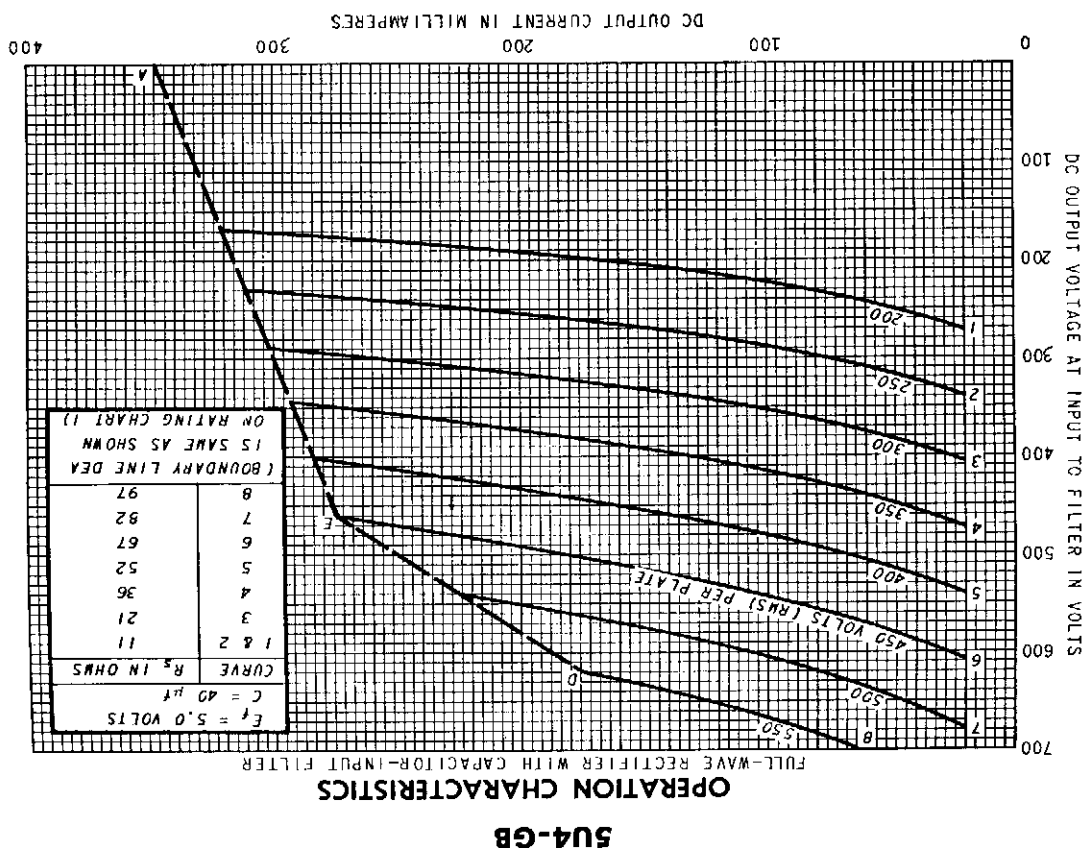
† Small Top Cap.

DRAWINGS

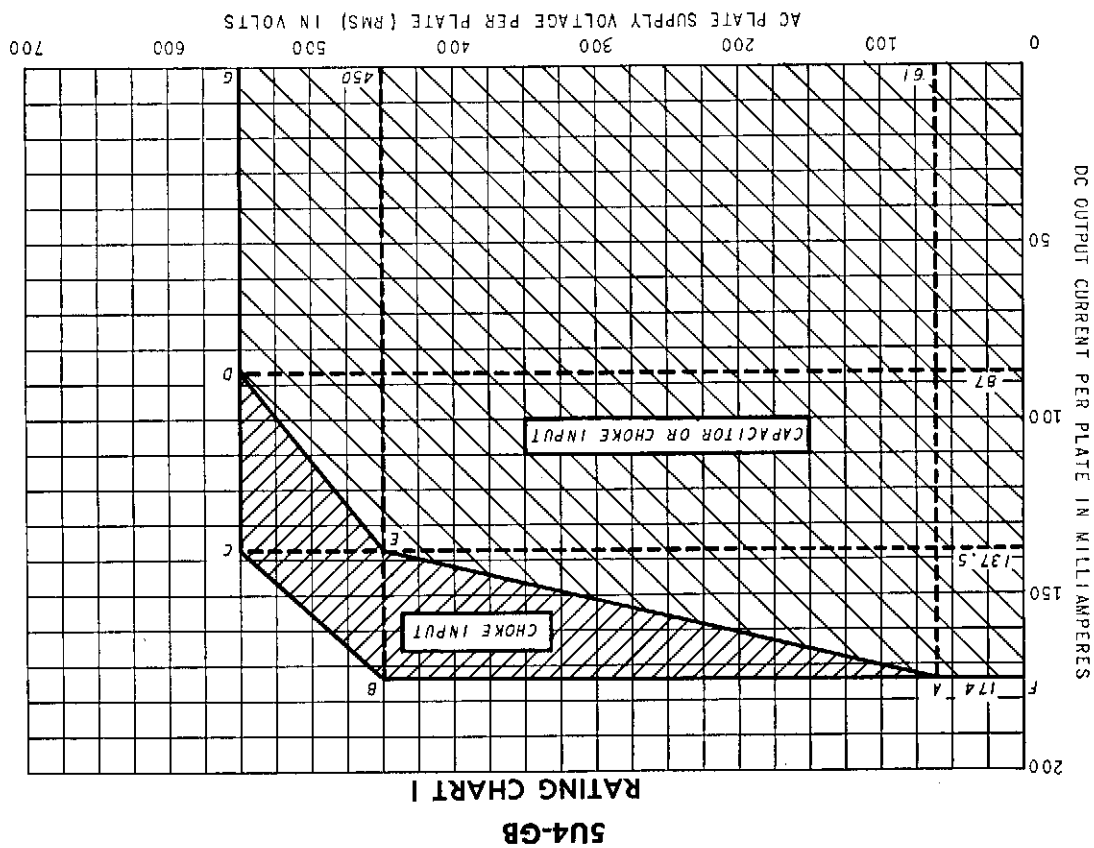
Not Conforming to Standard Outline Drawings

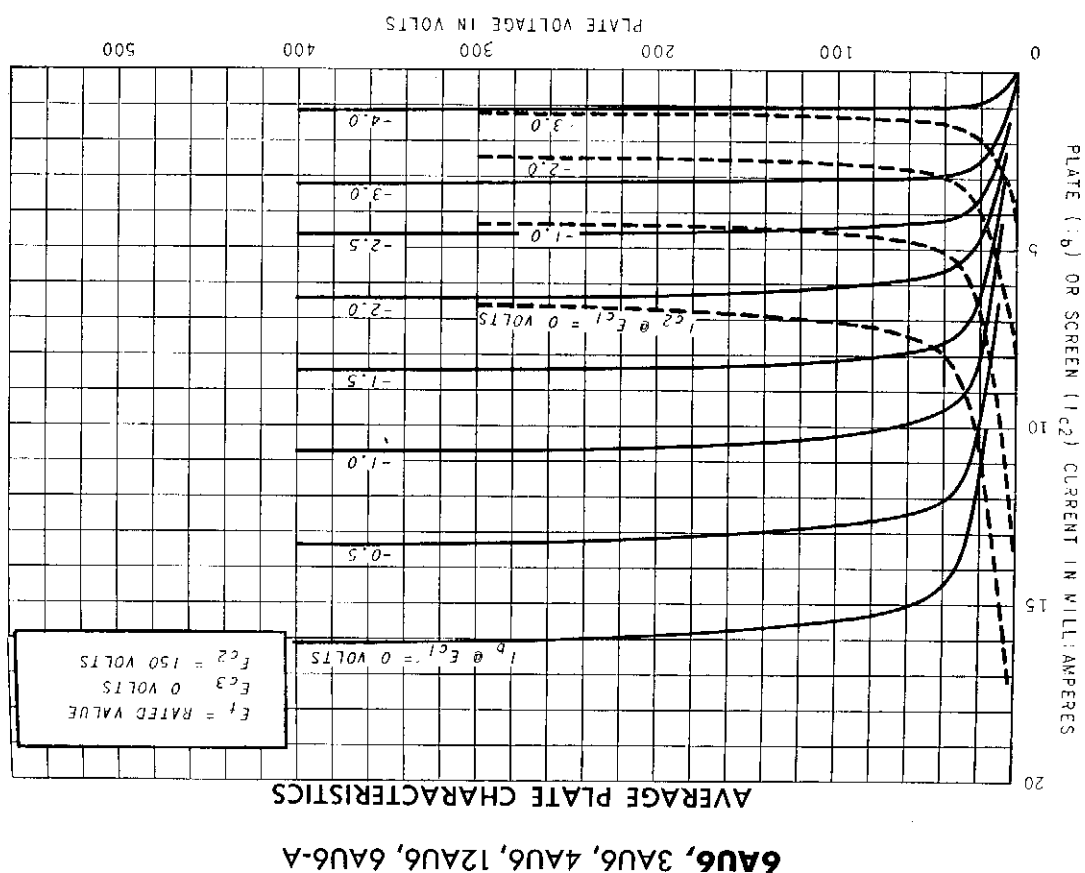
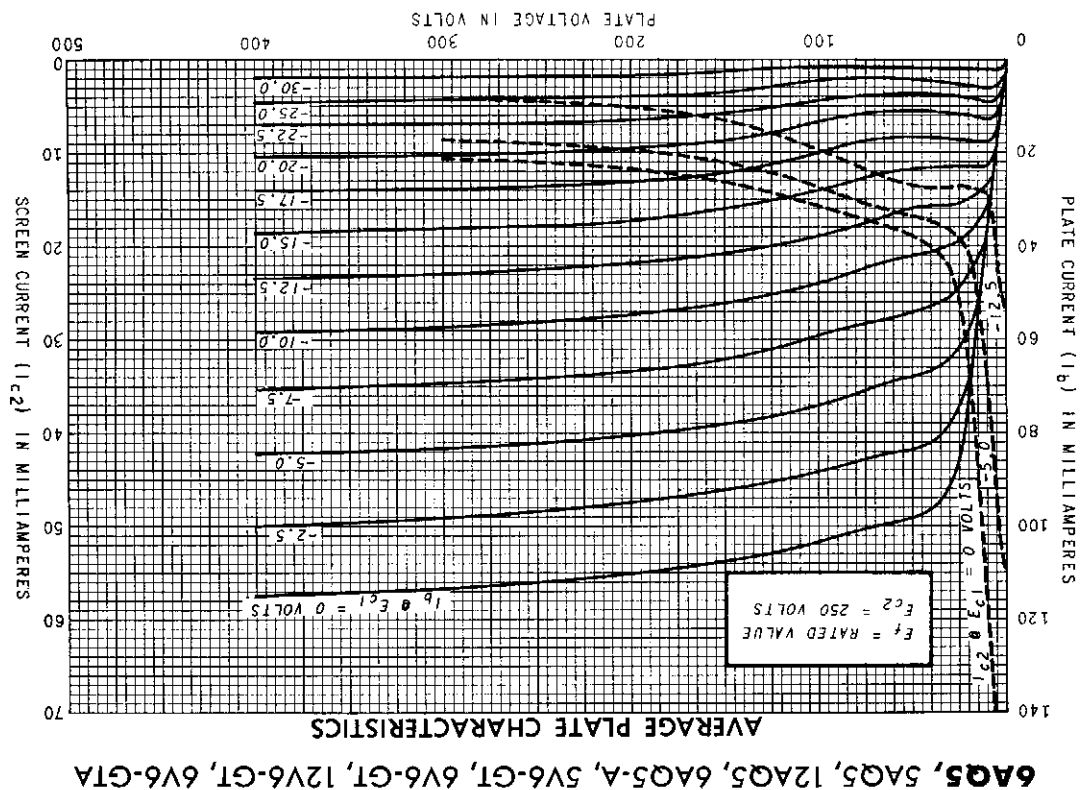
Tube Type	Envelope	Style	Max Dimensions in Inches		
			Diameter	Over-all Length	Seated Height
7212	T-12	Octal†	$1\frac{1}{32}$	$3\frac{3}{16}$	$3\frac{3}{4}$

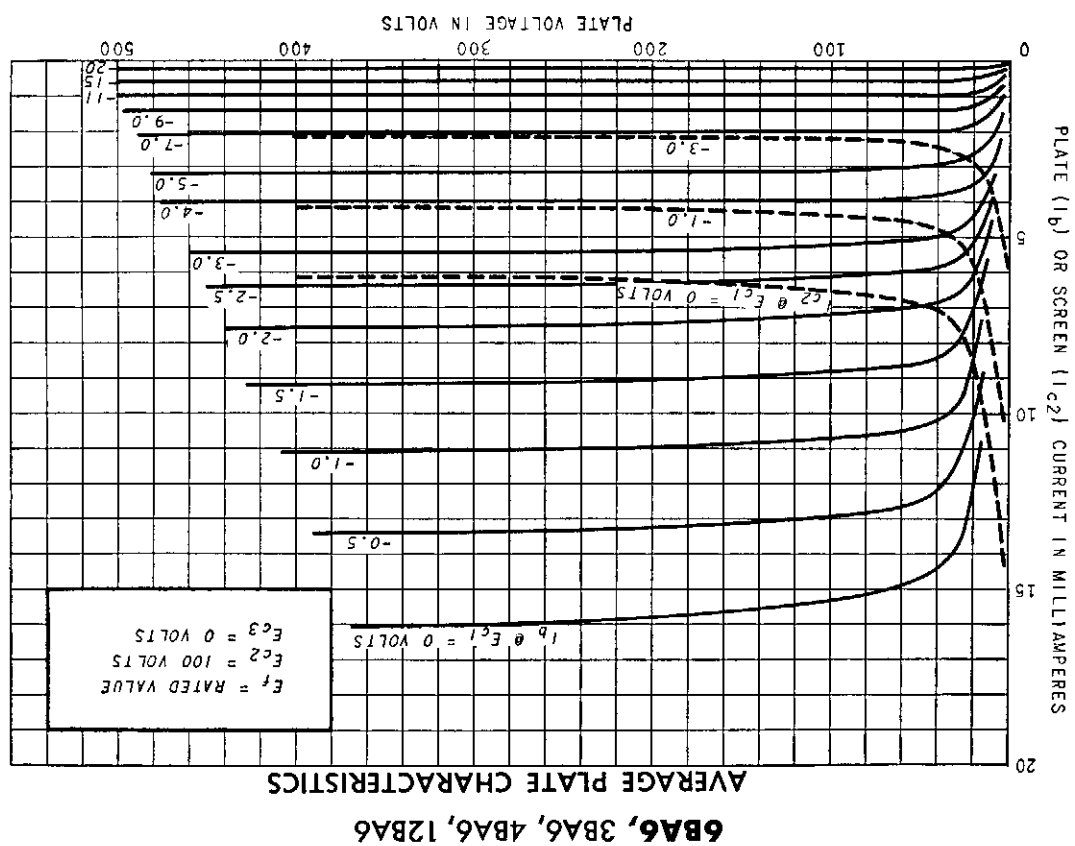
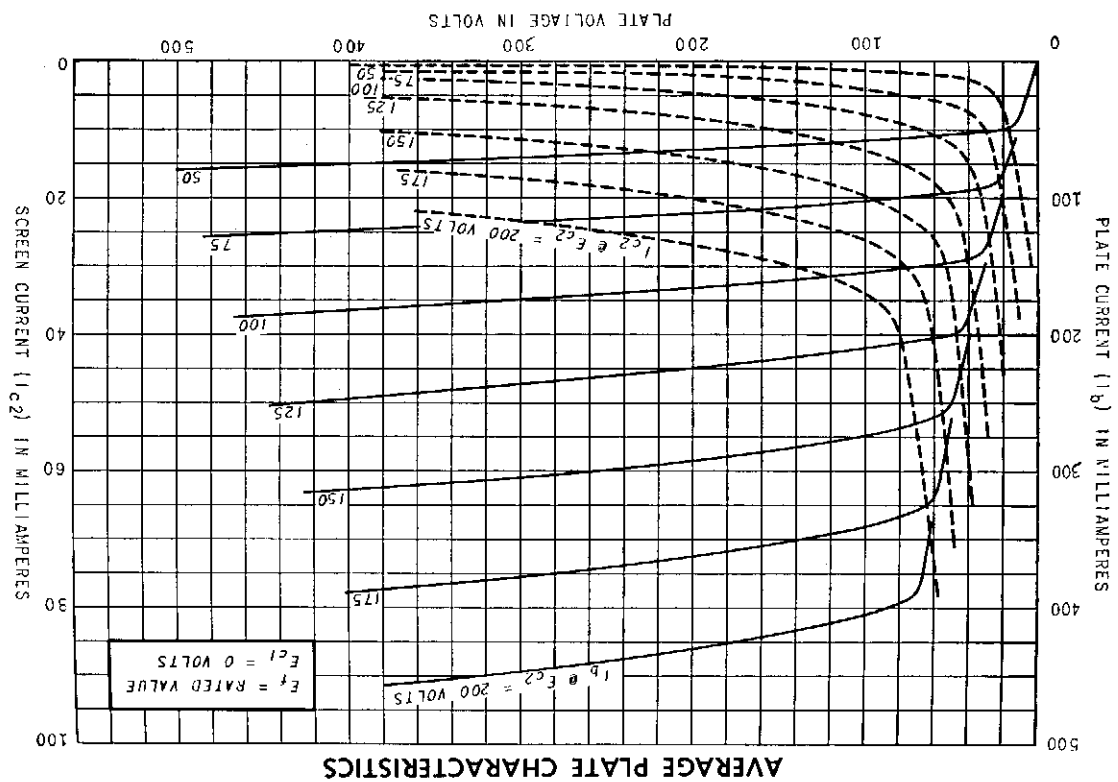
† Small Top Cap.

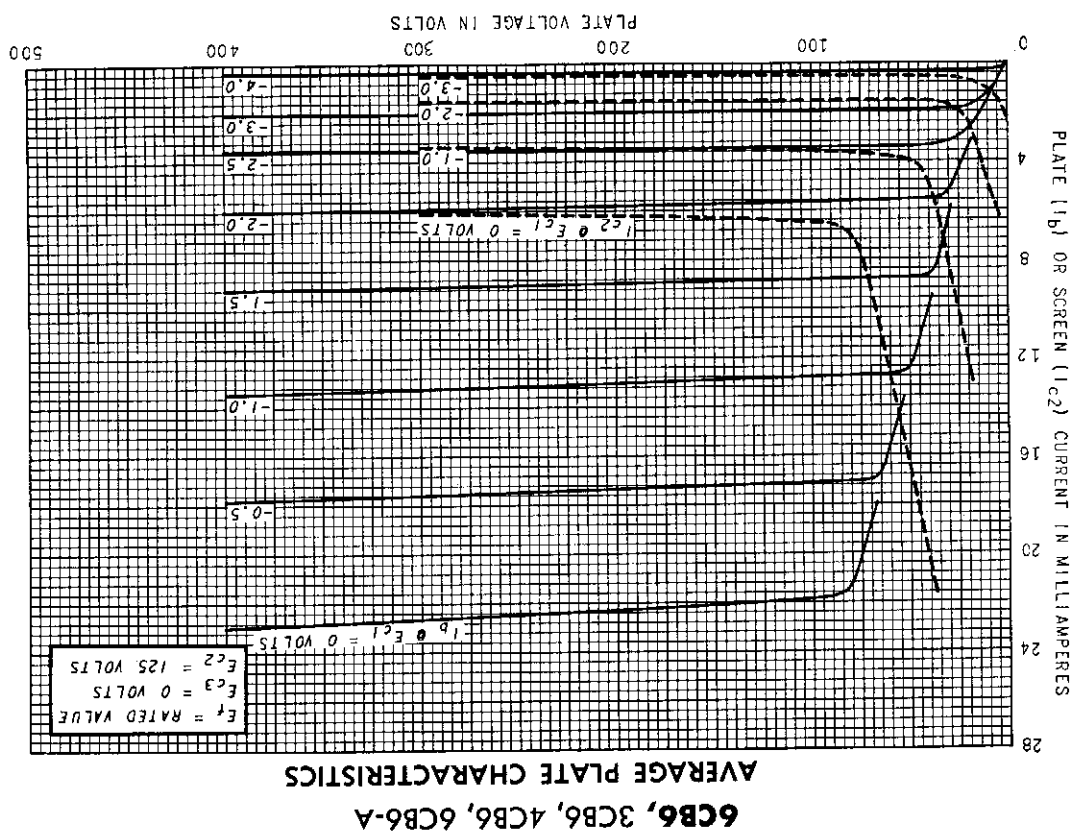
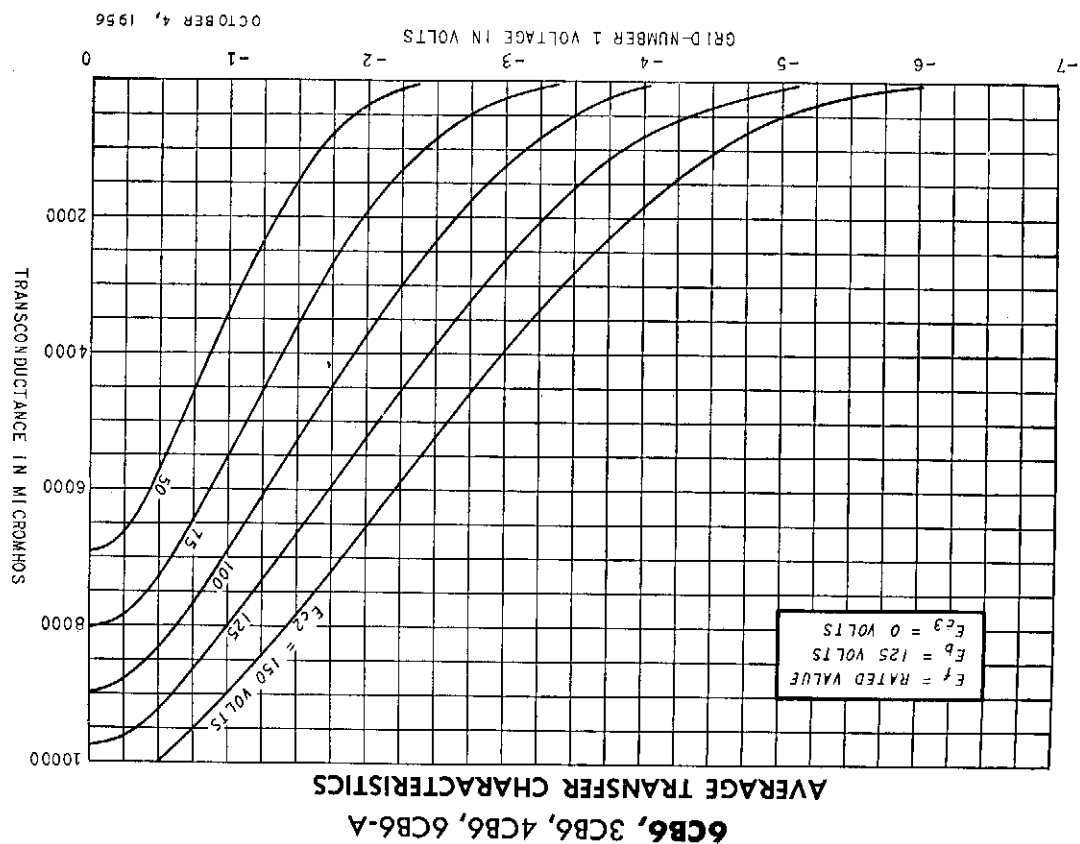


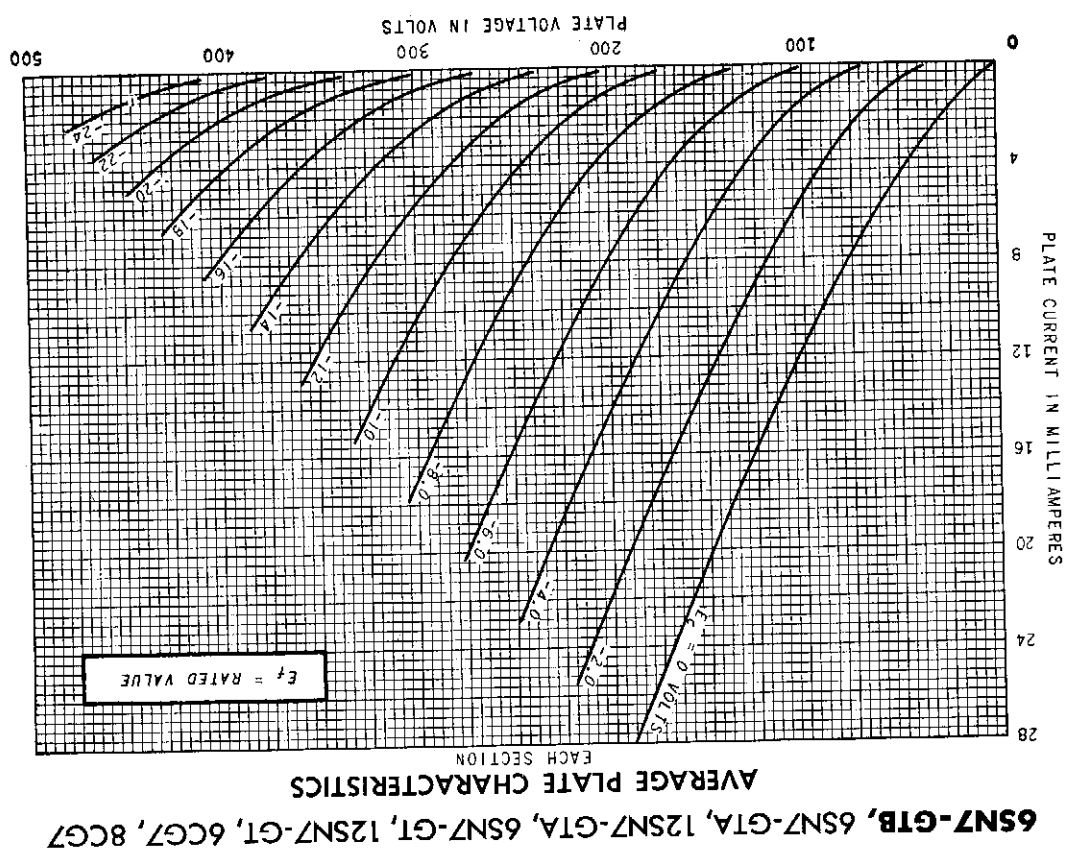
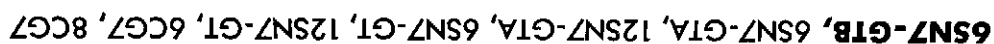
With a capacitor-input filter, the operating point of d-c output current and a-c supply voltage must fall within the curve FAEDG. With a choke-input filter, the operating point must fall within the curve FABCDG.

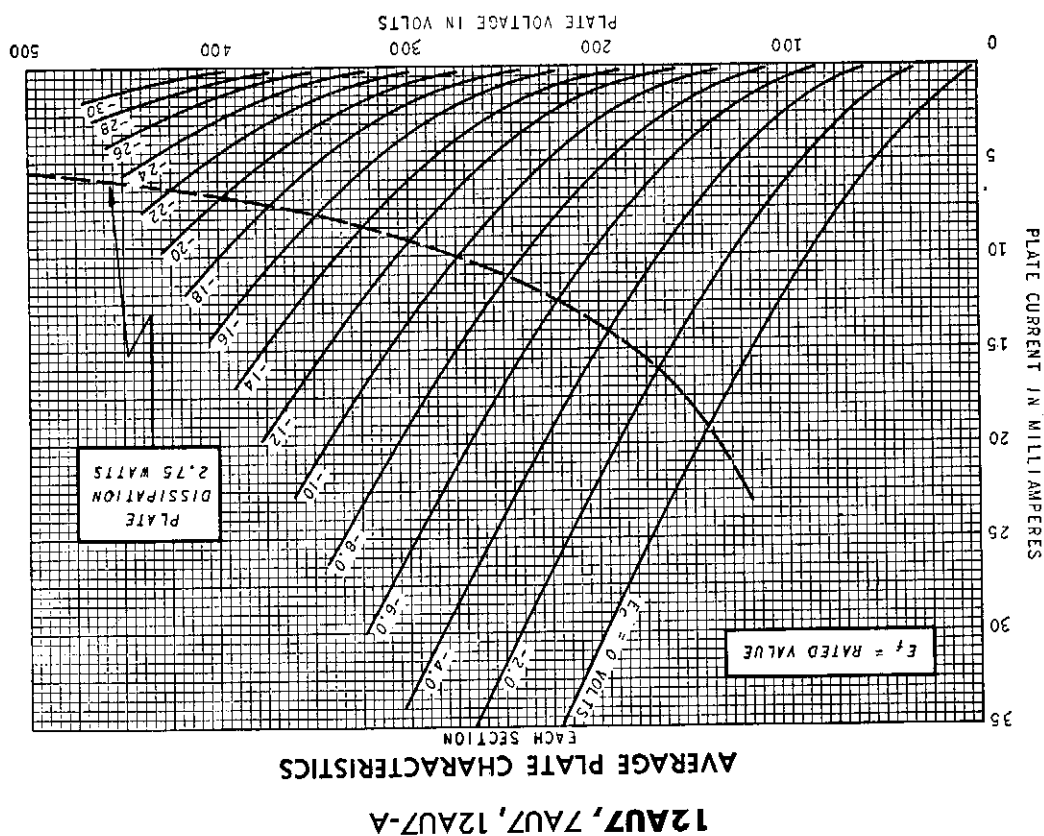
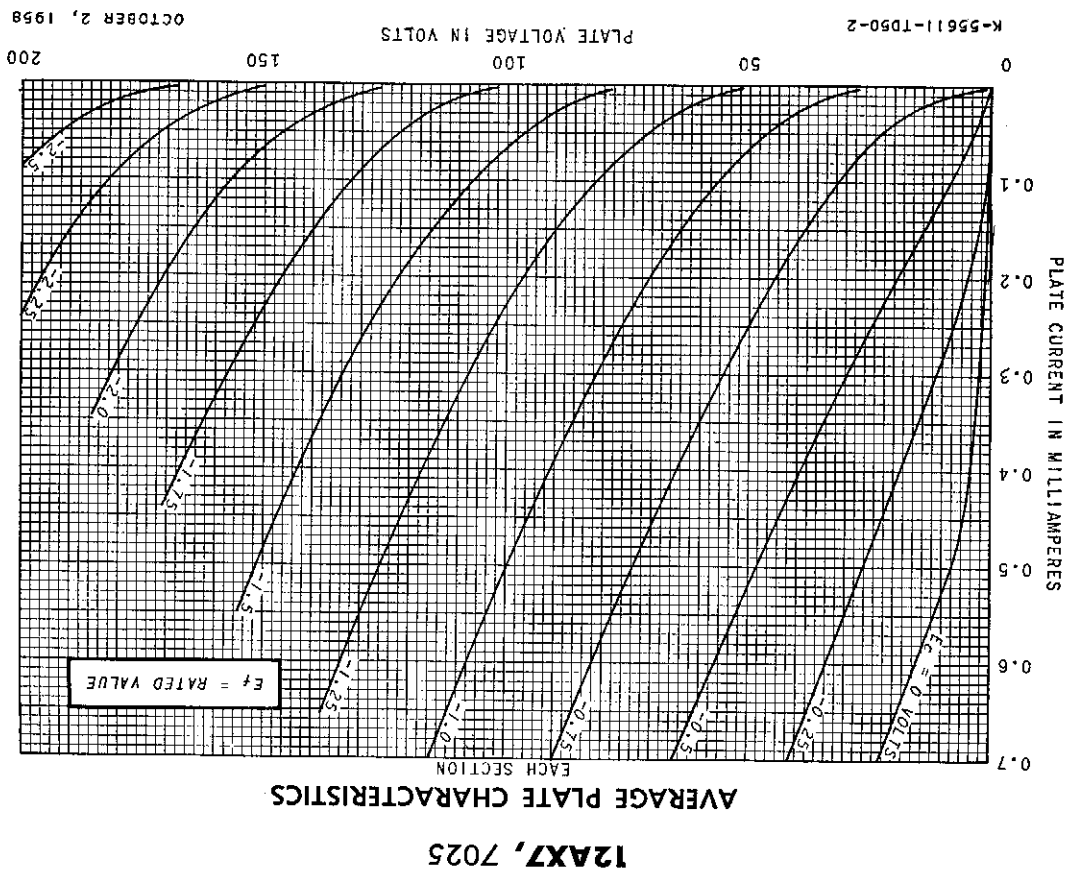












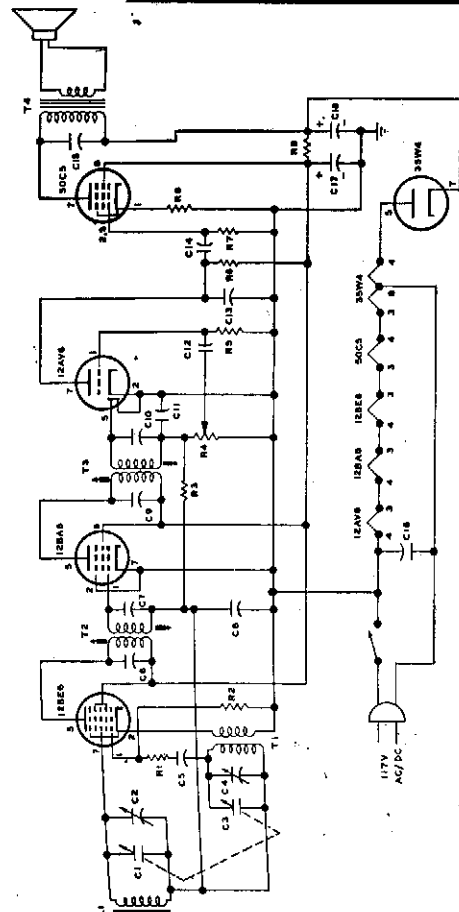
CIRCUIT DIAGRAMS

These circuit diagrams are included for illustration of typical tube applications and are not intended as constructional information. For this reason, wattage ratings of resistors and voltage ratings of capacitors are not necessarily given. Similarly, shielding techniques and alignment methods which may be necessary in some circuit layouts are not indicated.

The description and illustration of the circuits contained herein does not convey to the purchaser of tubes any license under patent rights of General Electric Company. Although reasonable care has been taken in their preparation to assure their technical correctness, no responsibility is assumed by General Electric Company for any consequences of their use.

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AC/DC BROADCAST RECEIVER



C₁ C₂—Ganged 11–283 μ f and 10–112 μ f
C₃ C₄—1–12 μ f Trimmer

C₅—47 μ f
C₆ C₇ C₈ C₉—Capacitors in T₂ and T₃

C₁₀—0.05 μ f

C₁₁—400 μ f

C₁₂—0.002 μ f

C₁₃—220 μ f

C₁₄—0.005 μ f

C₁₅—0.01 μ f

C₁₆—30 μ f 150 V

C₁₇—50 μ f 150 V

L₁—Ferrite Antenna Coil

R₁—100 Ω

R₂—22K

R₃—2.2 Meg

R₄—500 K Pot.

R₅—6.8 Meg

R₆ R₇—470 K

R₈—150 Ω

R₉—1.5 K 2 Watt

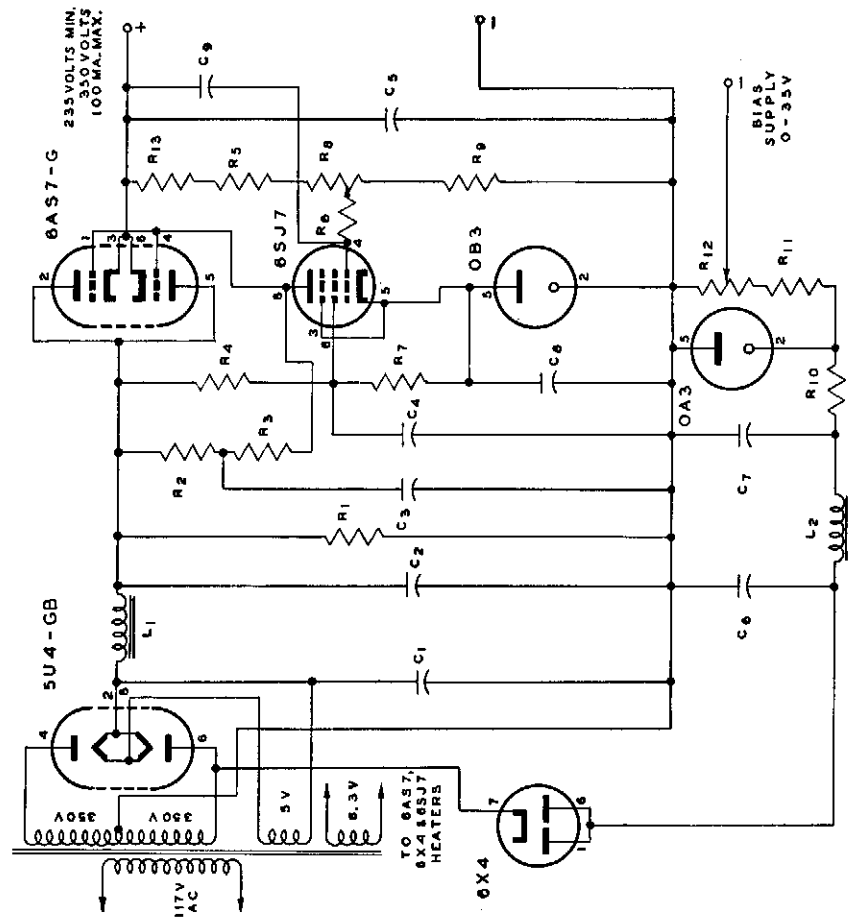
T₁—Oscillator Transformer

T₂ T₃—IF Transformer 455 KC

T₄—Output Transformer 2500 Ω to Voice Coil

All Resistors $\frac{1}{2}$ Watt Unless Otherwise Specified

REGULATED POWER SUPPLY



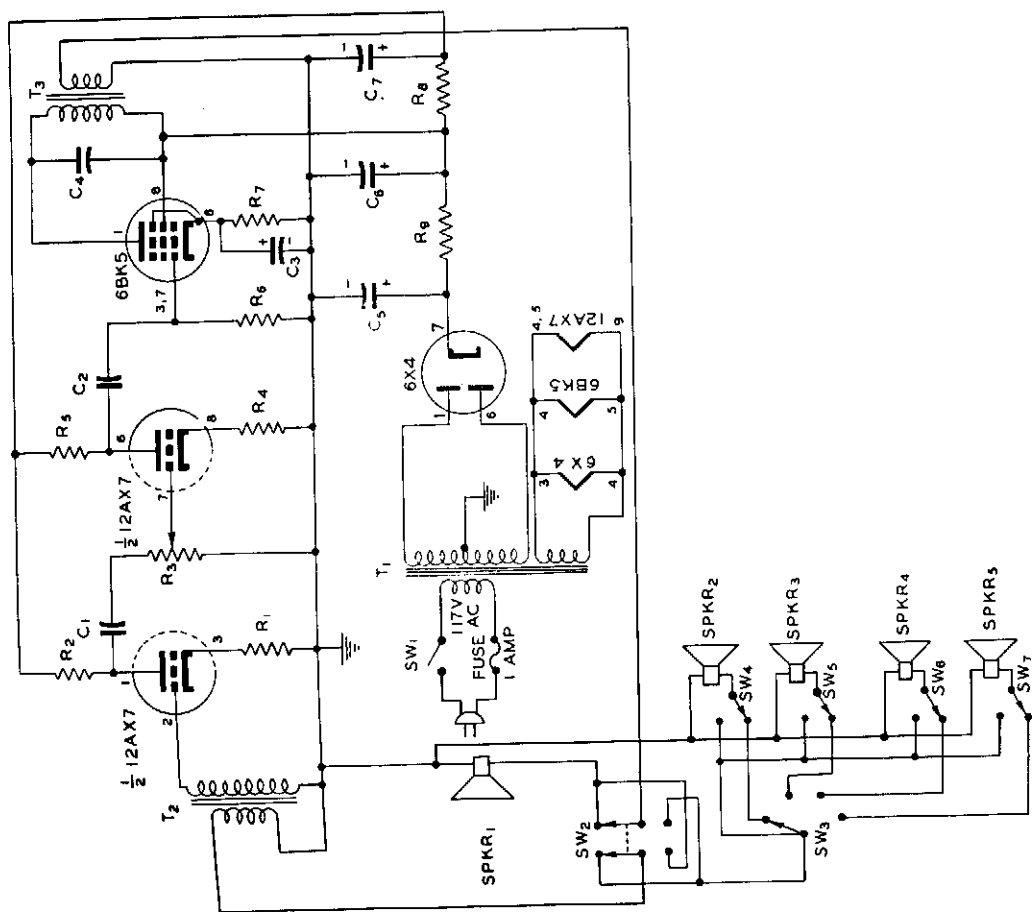
C₁—16 μ f 600V
C₂—1 μ f 600V
C₃—8 μ f 450V
C₄—4 μ f 600V
C₅—40 μ f 450V
C₆—0.1 μ f 600V

L₁—15 H 200 Ma
L₂—15 H 60 Ma
R₁—470 K
R₂—330 K
R₃—100 K
R₄—20 K 10 Watt
R₅—5 K 5 Watt
R₆—5 K Pot. 5 Watt

R₇—1 Meg
R₈—10 K 10 Watt
R₉—500 K Pot.
R₁₀—20 K 5 Watt
R₁₁—5 K 5 Watt
R₁₂—5 K Pot. 5 Watt

All Resistors 1 Watt Unless Otherwise Specified

INTERCOMMUNICATION AMPLIFIER

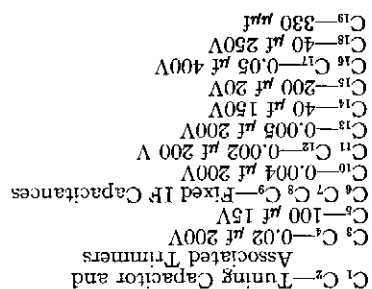


C₁—330 μ f
C₂—0.001 μ f
C₃—25 μ f 25 V
C₄—0.002 μ f
C₅—C₇—10 μ f 350 V
R₁—3.3 K
R₂—470 K
R₃—1 Meg Pot.
R₄—1 K
R₅—100 K
R₆—270 K
R₇—150 Ω 1 Watt
R₈—22 K
R₉—470 Ω 2 Watt

SW₁—SPST Toggle Switch
SW₂—DPDT Master Station Push-to-talk Switch
SW₃—Station Selector Switch
SW₄, SW₅, SW₆, SW₇—SPDT Remote Speaker Push-to-talk Switch
SPKR₁—Master Station PM Speaker
SPKR₂, SPKR₃, SPKR₄, SPKR₅—Remote Station PM Speaker
T₁—Power Transformer: 250-0-250V, 40 Ma; 6.3V, 2.5A
T₂—Input Transformer: 40 Primary to 25000 Secondary
T₃—Output Transformer: 6500 Secondary to Voice Coil

All Resistors 1/2 Watt Unless Otherwise Specified

THREE-WAY BATTERY PORTABLE

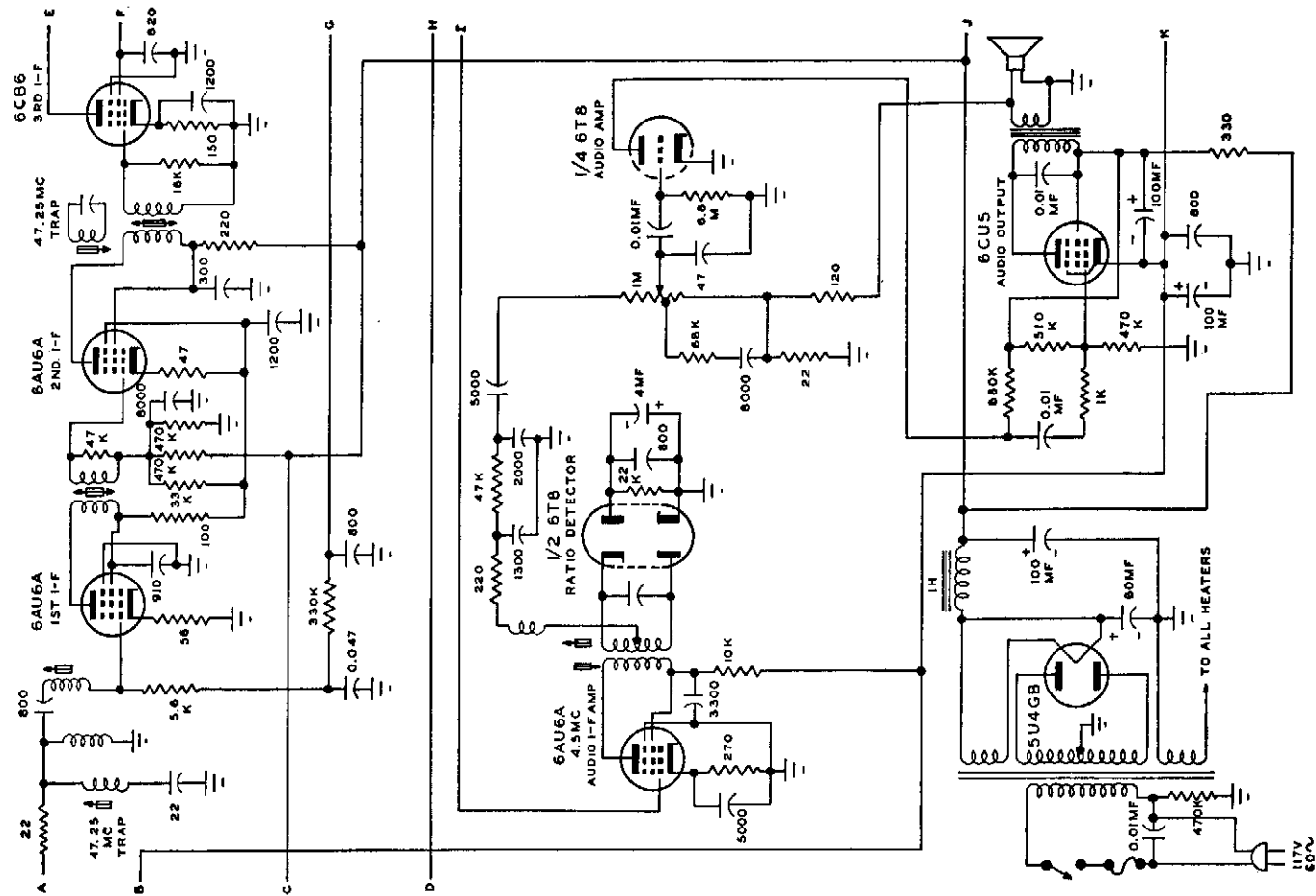
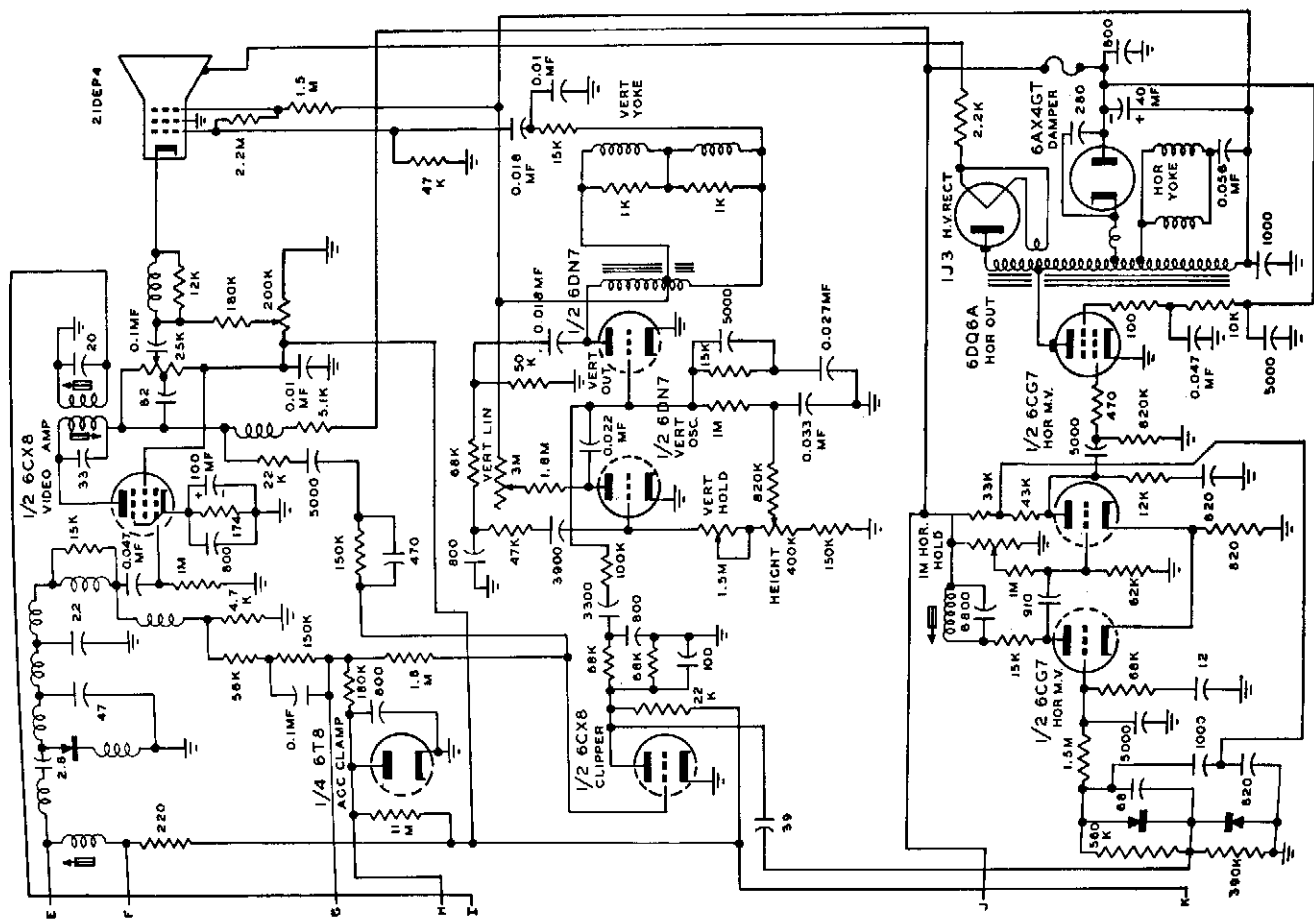


$C_1 C_2$ —Tuning Capacitor and Associated Trimmers

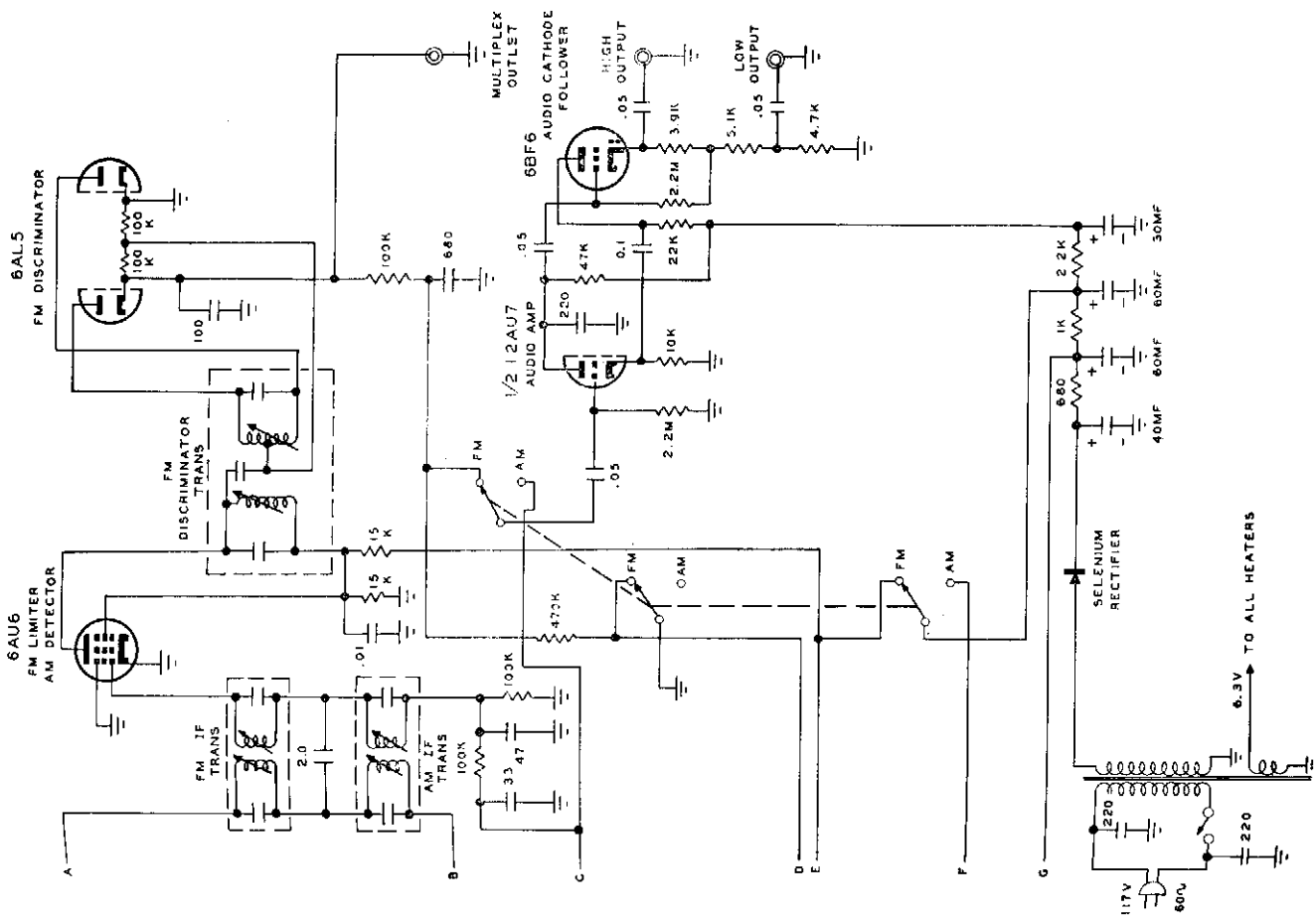
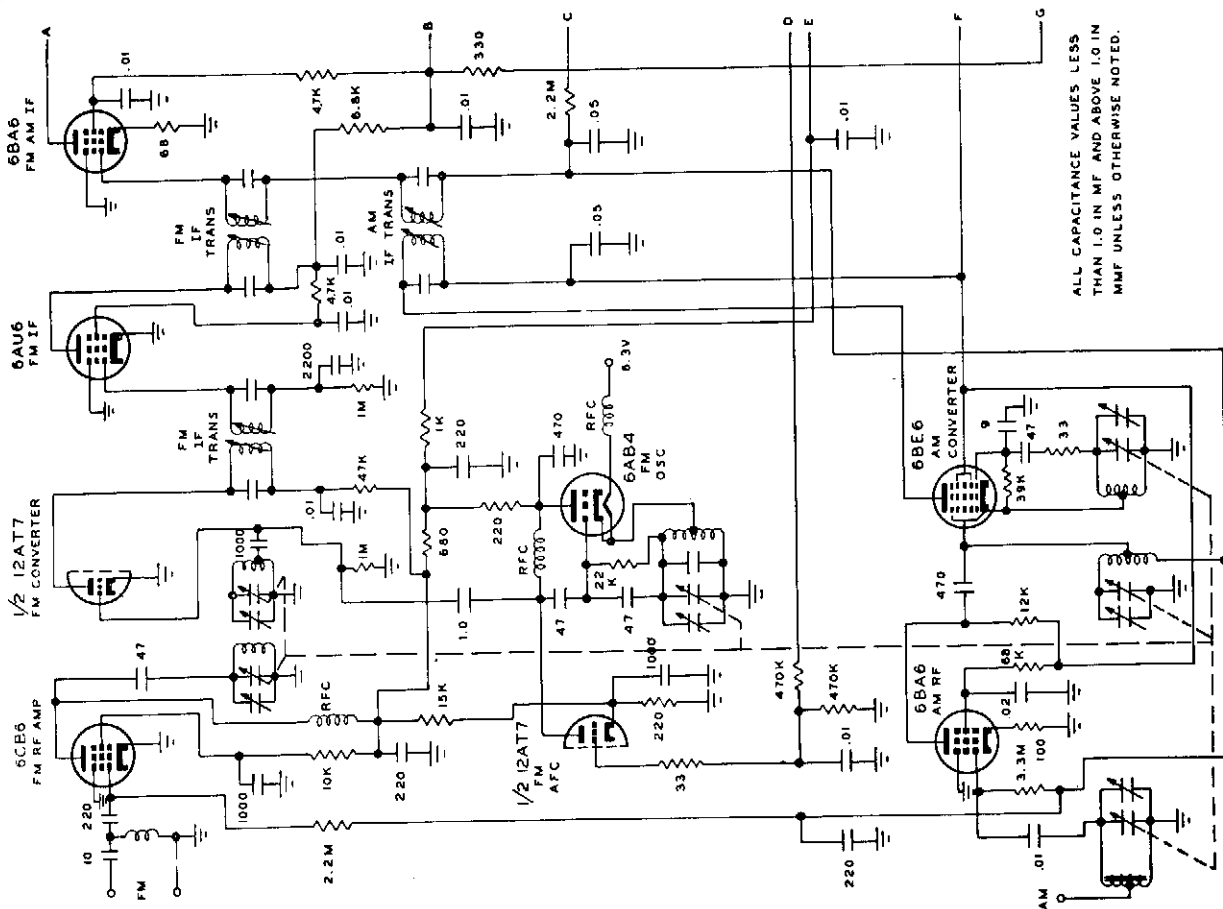
Unless Otherwise Noted
Capacitors 1 or more are in μf
Capacitors less than 1 are in μf

Continued on Pages 250, 251

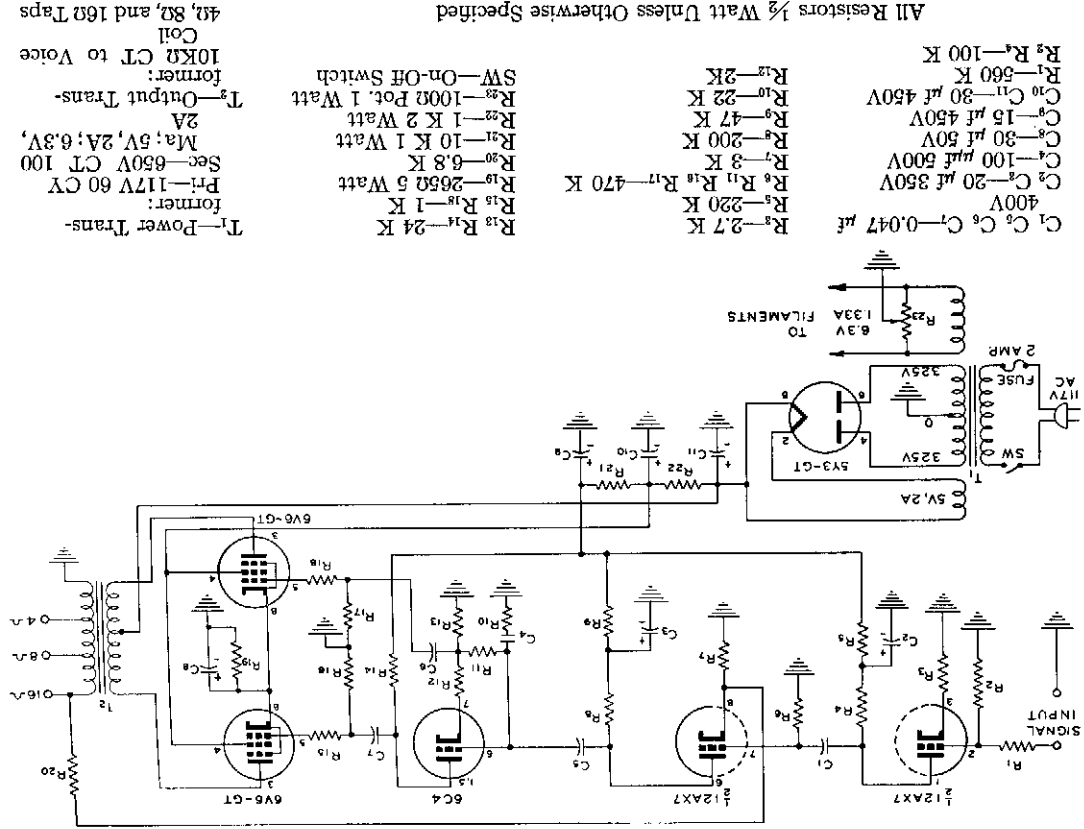
VHF-UHF TELEVISION RECEIVER (Cont'd)



AM/FM TUNER

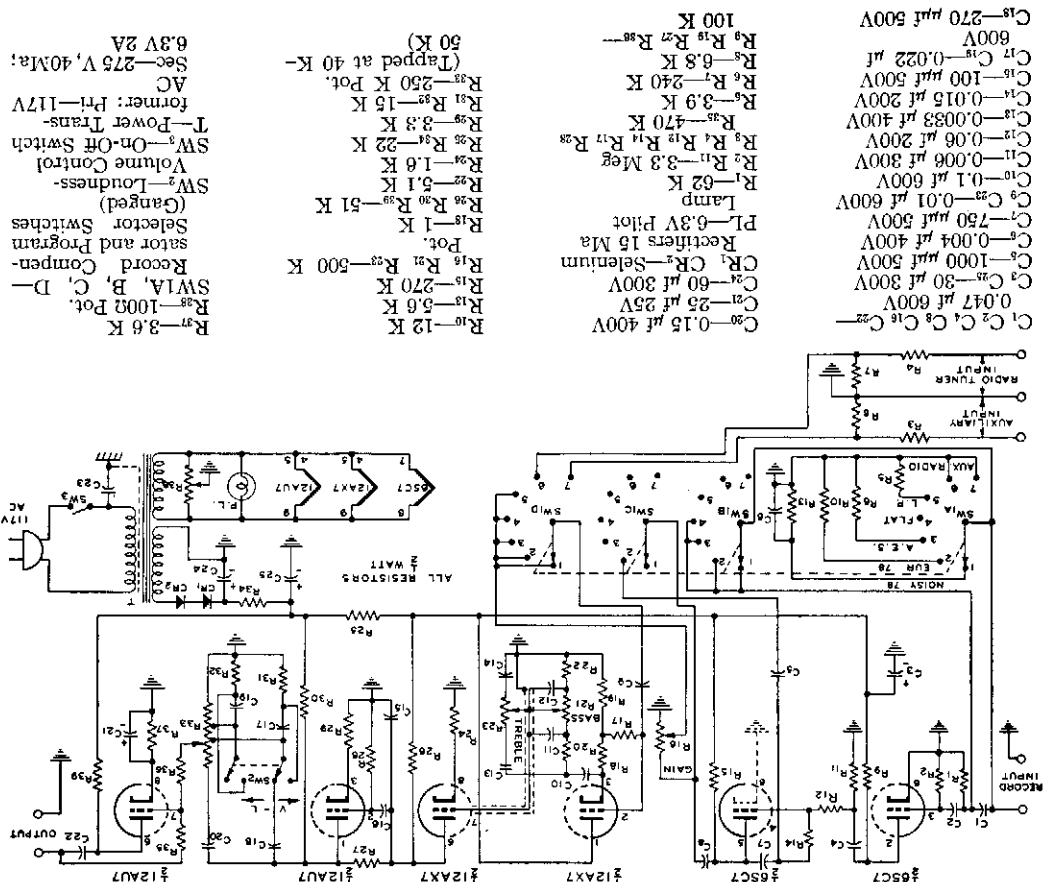


10-WATT HIGH-FIDELITY AUDIO AMPLIFIER



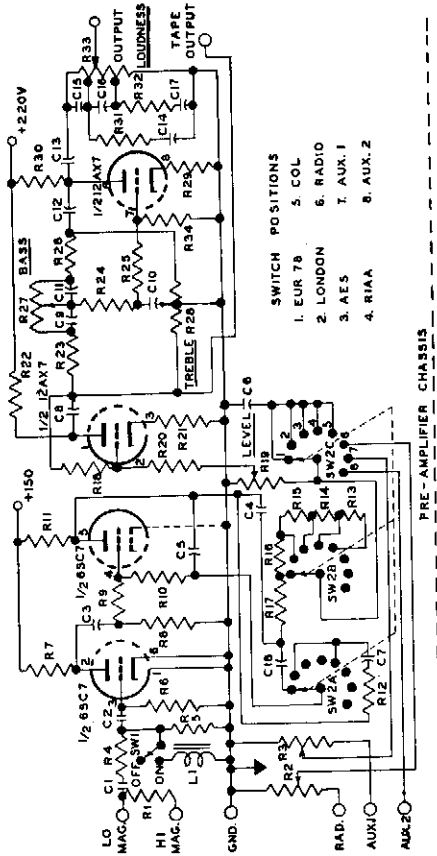
- Component List:**
- Resistors:** R₁—2.7 K, R₂—2.7 K, R₃—2.7 K, R₄—2.7 K, R₅—2.7 K, R₆—2.7 K, R₇—2.7 K, R₈—2.7 K, R₉—2.7 K, R₁₀—2.7 K, R₁₁—2.7 K, R₁₂—2.7 K, R₁₃—2.7 K, R₁₄—2.7 K, R₁₅—2.7 K, R₁₆—2.7 K, R₁₇—2.7 K, R₁₈—2.7 K, R₁₉—2.7 K, R₂₀—2.7 K, R₂₁—2.7 K, R₂₂—2.7 K.
 - Capacitors:** C₁—0.047 μF, C₂—0.047 μF, C₃—0.047 μF, C₄—0.047 μF, C₅—0.047 μF, C₆—0.047 μF, C₇—0.047 μF, C₈—0.047 μF, C₉—0.047 μF, C₁₀—0.047 μF, C₁₁—0.047 μF.
 - Other Components:** T₁—Power Trans-former, T₂—Output Trans-former, SW—On-Off Switch, R₂₃—1000 Pot. 1 Watt, R₂₄—1 K 2 Watt, R₂₅—10 K 1 Watt, R₂₆—6.8 K, R₂₇—265 Ω 5 Watt, R₂₈—1 K, R₂₉—24 K, R₃₀—1 K, R₃₁—1 K, R₃₂—1 K, R₃₃—1 K, R₃₄—1 K, R₃₅—1 K, R₃₆—1 K, R₃₇—1 K, R₃₈—1 K, R₃₉—1 K, R₄₀—1 K, R₄₁—1 K, R₄₂—1 K, R₄₃—1 K, R₄₄—1 K, R₄₅—1 K, R₄₆—1 K, R₄₇—1 K, R₄₈—1 K, R₄₉—1 K, R₅₀—1 K, R₅₁—1 K, R₅₂—1 K, R₅₃—1 K, R₅₄—1 K, R₅₅—1 K, R₅₆—1 K, R₅₇—1 K, R₅₈—1 K, R₅₉—1 K, R₆₀—1 K, R₆₁—1 K, R₆₂—1 K, R₆₃—1 K, R₆₄—1 K, R₆₅—1 K, R₆₆—1 K, R₆₇—1 K, R₆₈—1 K, R₆₉—1 K, R₇₀—1 K, R₇₁—1 K, R₇₂—1 K, R₇₃—1 K, R₇₄—1 K, R₇₅—1 K, R₇₆—1 K, R₇₇—1 K, R₇₈—1 K, R₇₉—1 K, R₈₀—1 K, R₈₁—1 K, R₈₂—1 K, R₈₃—1 K, R₈₄—1 K, R₈₅—1 K, R₈₆—1 K, R₈₇—1 K, R₈₈—1 K, R₈₉—1 K, R₉₀—1 K, R₉₁—1 K, R₉₂—1 K, R₉₃—1 K, R₉₄—1 K, R₉₅—1 K, R₉₆—1 K, R₉₇—1 K, R₉₈—1 K, R₉₉—1 K, R₁₀₀—1 K.

PREAMPLIFIER AND CONTROL UNIT (FOR USE WITH HIGH-FIDELITY AUDIO AMPLIFIER)

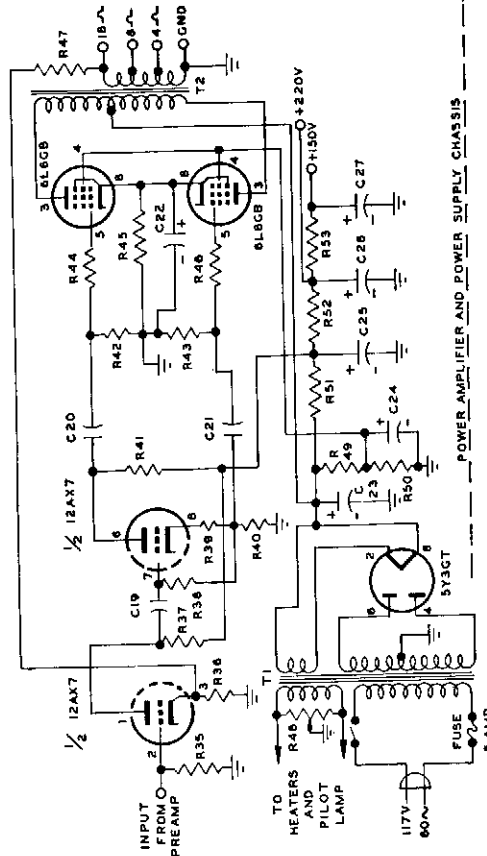


- Component List:**
- Resistors:** R₁—2.7 K, R₂—2.7 K, R₃—2.7 K, R₄—2.7 K, R₅—2.7 K, R₆—2.7 K, R₇—2.7 K, R₈—2.7 K, R₉—2.7 K, R₁₀—2.7 K, R₁₁—2.7 K, R₁₂—2.7 K, R₁₃—2.7 K, R₁₄—2.7 K, R₁₅—2.7 K, R₁₆—2.7 K, R₁₇—2.7 K, R₁₈—2.7 K, R₁₉—2.7 K, R₂₀—2.7 K, R₂₁—2.7 K, R₂₂—2.7 K.
 - Capacitors:** C₁—0.047 μF, C₂—0.047 μF, C₃—0.047 μF, C₄—0.047 μF, C₅—0.047 μF, C₆—0.047 μF, C₇—0.047 μF, C₈—0.047 μF, C₉—0.047 μF, C₁₀—0.047 μF, C₁₁—0.047 μF.
 - Other Components:** T₁—Power Trans-former, T₂—Output Trans-former, SW—On-Off Switch, R₂₃—1000 Pot. 1 Watt, R₂₄—1 K 2 Watt, R₂₅—10 K 1 Watt, R₂₆—6.8 K, R₂₇—265 Ω 5 Watt, R₂₈—1 K, R₂₉—24 K, R₃₀—1 K, R₃₁—1 K, R₃₂—1 K, R₃₃—1 K, R₃₄—1 K, R₃₅—1 K, R₃₆—1 K, R₃₇—1 K, R₃₈—1 K, R₃₉—1 K, R₄₀—1 K, R₄₁—1 K, R₄₂—1 K, R₄₃—1 K, R₄₄—1 K, R₄₅—1 K, R₄₆—1 K, R₄₇—1 K, R₄₈—1 K, R₄₉—1 K, R₅₀—1 K, R₅₁—1 K, R₅₂—1 K, R₅₃—1 K, R₅₄—1 K, R₅₅—1 K, R₅₆—1 K, R₅₇—1 K, R₅₈—1 K, R₅₉—1 K, R₆₀—1 K, R₆₁—1 K, R₆₂—1 K, R₆₃—1 K, R₆₄—1 K, R₆₅—1 K, R₆₆—1 K, R₆₇—1 K, R₆₈—1 K, R₆₉—1 K, R₇₀—1 K, R₇₁—1 K, R₇₂—1 K, R₇₃—1 K, R₇₄—1 K, R₇₅—1 K, R₇₆—1 K, R₇₇—1 K, R₇₈—1 K, R₇₉—1 K, R₈₀—1 K, R₈₁—1 K, R₈₂—1 K, R₈₃—1 K, R₈₄—1 K, R₈₅—1 K, R₈₆—1 K, R₈₇—1 K, R₈₈—1 K, R₈₉—1 K, R₉₀—1 K, R₉₁—1 K, R₉₂—1 K, R₉₃—1 K, R₉₄—1 K, R₉₅—1 K, R₉₆—1 K, R₉₇—1 K, R₉₈—1 K, R₉₉—1 K, R₁₀₀—1 K.

20-WATT HIGH-FIDELITY PREAMPLIFIER AND AMPLIFIER



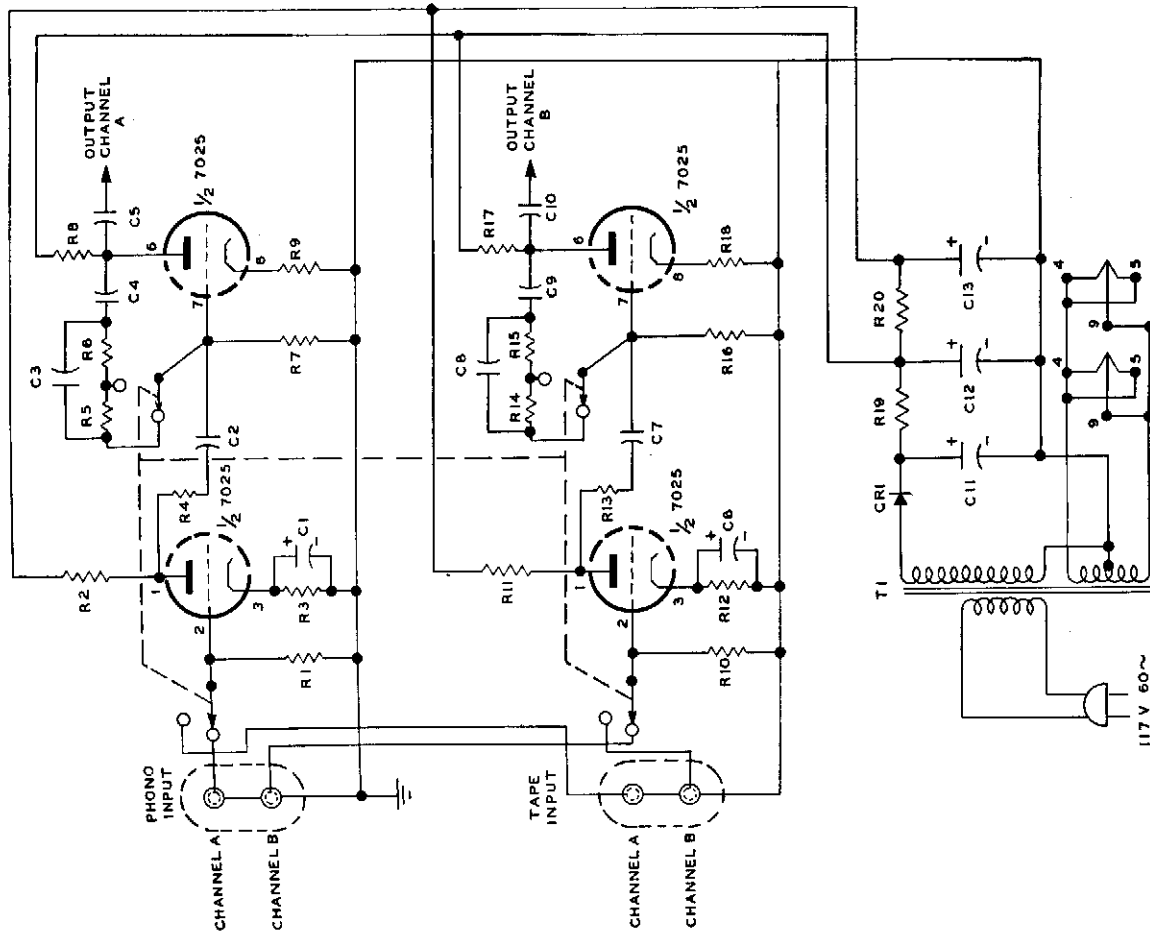
PRE-AMPLIFIER CHASSIS



POWER AMPLIFIER AND POWER SUPPLY CHASSIS

- C₁—2 μf
 C₂—4H 400V
 C₃—750 μf 400V
 C₄—0.002 μf 400V
 C₅—0.01 μf 400V
 C₆—0.1 μf 400V
 C₇—0.0047 μf 400V
 C₈—100 μf 400V
 C₉—0.022 μf 400V
 C₁₀—0.0045 μf 400V
 C₁₁—200 μf 400V
 C₁₂—0.001 μf 400V
 C₁₃—100 μf 50V
 C₁₄—40 μf 450V
 C₁₅—5 μf 350V
 L₁—4H 400V
 R₁—R₂₀—3 K
 R₂₁—500 K Pot.
 R₂₂—50 K
 R₂₃—3.3 Meg
 R₂₄—270 K
 R₂₅—470 K
 R₂₆—2.7 Meg
 R₂₇—2.7 Meg
 R₂₈—24 K
 R₂₉—20 K
 R₃₀—15 K
 R₃₁—10 K
 R₃₂—1.5 Meg
 R₃₃—1 Meg Pot.
 R₃₄—120 K
 R₃₅—1 K
 R₃₆—500 K Pot.
 R₃₇—3 K
 R₃₈—50 K
 R₃₉—50 K Pot.
 R₄₀—110 K
 R₄₁—110 K
 R₄₂—2500 5 Watt
 R₄₃—27 K
 R₄₄—1000 Pot.
 R₄₅—7.5 K 5 Watt
 R₄₆—25 K 7 Watt
 R₄₇—22 K 1 Watt
 R₄₈—22 K
 R₄₉—120 K
 SW₁—Rumble Filter Switch
 SW₂—ABC—Record Compensator and Input Selector Switch
 T₁—Power Transformer: Pri-117V, 60CY, 120 Watt Sec-760V CT 115MA; 6.3V, 4A; 5V, 2A
 T₂—Output Transformer: Pri-9000Ω CT Sec-4, 8, 16Ω VC
 All resistors 1/2 Watt, ±10% unless otherwise specified

PHONO-TAPE PREAMPLIFIER (FOR STEREO MAGNETIC PHONO CARTRIDGES AND STEREO TAPE HEADS RIAA AND NARTB EQUALIZATION)

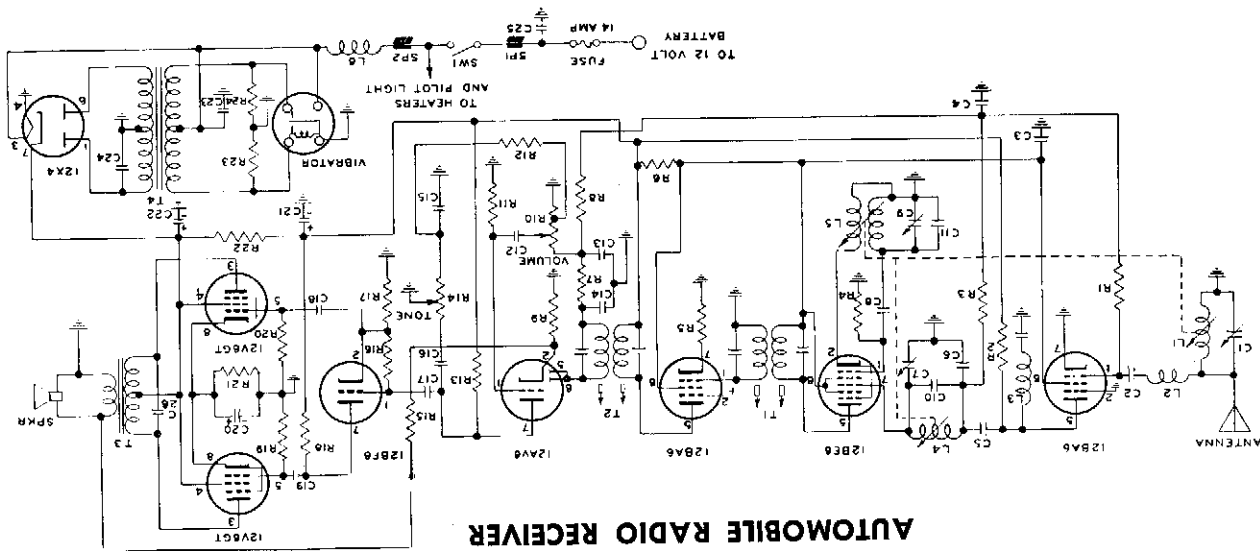


- C₁—30 μf 25V
 C₂—0.1 μf 400V
 C₃—330 μf
 C₄—0.001 μf
 C₅—0.047 μf 400V
 C₆—50 μf 150V
 C₇—20 μf 150V
 C₈—Selenium Rectifier 15 Ma DC
 R₁—47 K
 R₂—270 K
 R₃—5.1 K
 R₄—51 K
 R₅—160 K
 R₆—75 K
 R₇—1 Meg
 R₈—100 K
 R₉—1 K
 R₁₀—10 K
 R₁₁—22 K
 T₁—Power Transformer: Sec—125V, 15Ma; 6.3V, 0.6A

[illegible]

Capacitors

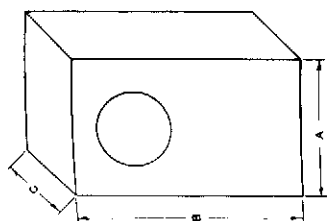
C ₁	27 μ F
C ₂	0.05 μ F 400V
C ₃	68 μ F
C ₄	265 μ F
C ₅	47 μ F
C ₆	100 μ F
C ₇	0.006 μ F 400V
C ₈	0.25 μ F 400V
C ₉	0.004 μ F 400V
C ₁₀	0.005 μ F 400V
C ₁₁	0.01 μ F 600V
C ₁₂	25V
C ₁₃	22-20 μ F 450V



C_1 , C_7 , C_9 —Trimmer Capacitors

$C_1^{21} = 22 \mu\text{f}$
 $C_2^{20} = 20 \mu\text{f}$
 $C_3^{19} = 0.01 \mu\text{f}$
 $C_4^{18} = 0.005 \mu\text{f}$
 $C_5^{17} = 0.004 \mu\text{f}$
 $C_6^{16} = 0.25 \mu\text{f}$
 $C_7^{15} = 0.006 \mu\text{f}$
 $C_8^{14} = 100 \mu\text{f}$
 $C_9^{13} = 56 \mu\text{f}$
 $C_{10}^{12} = 47 \mu\text{f}$
 $C_{11}^{11} = 265 \mu\text{f}$
 $C_{12}^{10} = 68 \mu\text{f}$
 $C_{13}^9 = 0.05 \mu\text{f}$
 $C_{14}^8 = 27 \mu\text{f}$
 $C_{15}^7 = 400 \mu\text{f}$

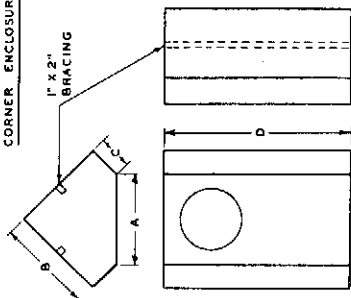
All Resistors $\frac{1}{2}$ Watt Unless Otherwise Specified



CHOOSE DIMENSIONS
TO FIT AVAILABLE
SPACE AND TO PRO-
VIDE 6 OR 10 CU. FT.
ENCLOSED VOLUME
AS DESIRED

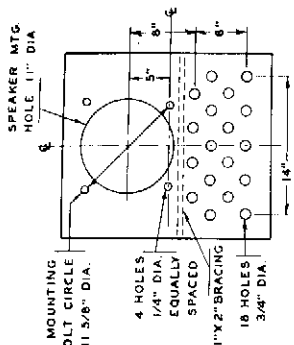
A = AT LEAST 1/2 B
C = 12" MIN. INSIDE
(APPROX. 18" TO
18" PREFERRED)

RECTANGULAR ENCLOSURES

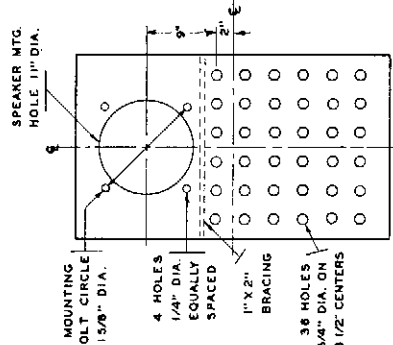


CORNER ENCLOSURES

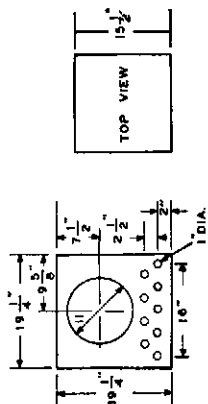
DRILLING PLAN & CU. FT. ENCLOSURE



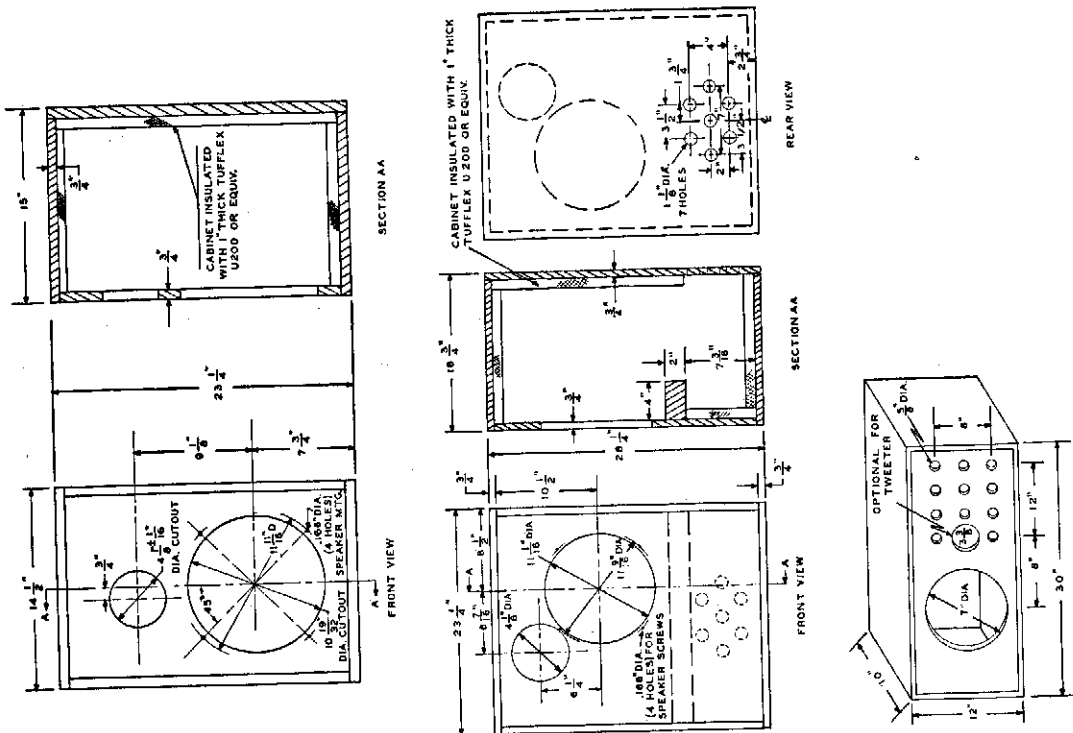
DRILLING PLAN 10 CU. FT. ENCLOSURE



3 CU, FT. ENCLOSURE



Continued on Page 260



Notes—

1. The two enclosures at the top of this page are designed for use with the G-E LW-12 woofer and LT-2 tweeter.
2. The enclosure at the bottom of this page is recommended for use with the G-E 850 extended-range speaker, with the A1-404 tweeter optional.
3. The enclosures on the preceding page are recommended for use with G-E A1-400, 1201A, or 1203A speakers.
4. Unless the thickness of the plywood is specified on the drawing, use 1/2" thick wood for all enclosures except the 10 cubic-foot, for which 3/8" thick wood is recommended.
5. Glue all joints except those that allow removal of the back for speaker mounting.
6. Unless otherwise indicated on the drawings, line the back, bottom, and one side of rectangular enclosures, and the bottom and two back sides of the corner enclosure with one to two inches of soft acoustic material, such as Fiber-glass.