

**INTERNATIONAL  
EDITION**

**BOOK 3**

# A Comprehensive VALVE GUIDE

BY

**B. B. BABANI**

**CHARACTERISTICS AND BASE CONNECTIONS ARE GIVEN FOR**

All receiving valves issued since 1951—including English, American and European: miniatures and sub-miniatures.

All the modern English and American television C.R. Tubes.

Voltage and current stabilisers, thyratrons, rectifiers, etc.

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Complete diagrams of all the valve bases are shown—not simply the pin connections.

The unique features of Book 1 have been retained: more than 1,500 valves not previously shown are presented, including all **ENGLISH, EUROPEAN & AMERICAN RECEIVING VALVES ISSUED SINCE 1951.**



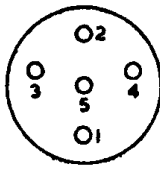
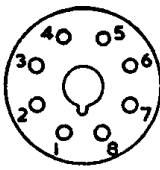
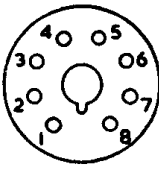
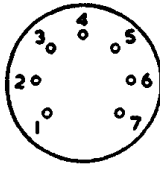
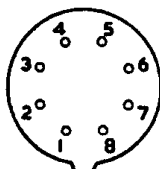

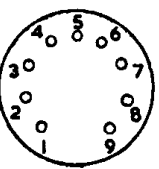
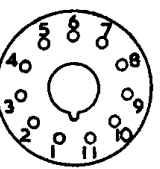


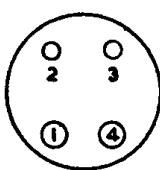
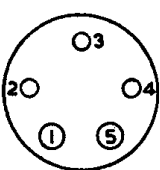
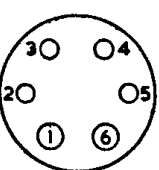
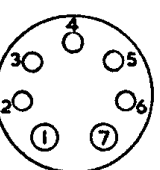
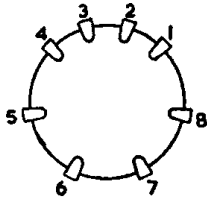
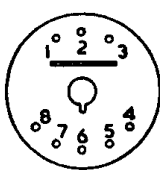
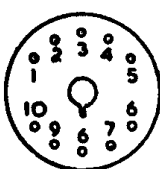
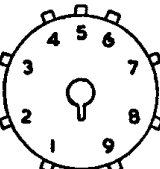
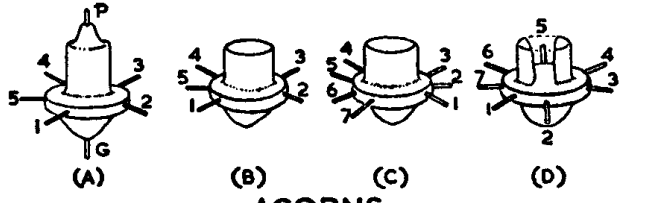
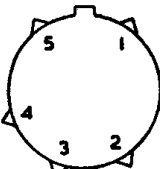
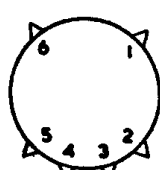
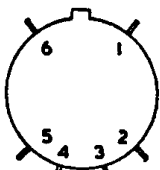
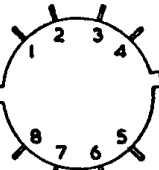
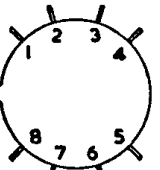
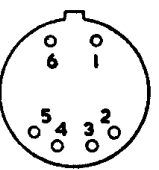
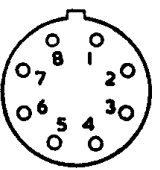
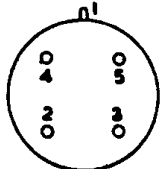
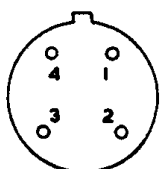
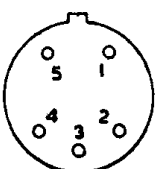
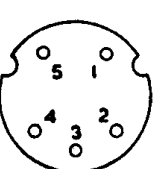
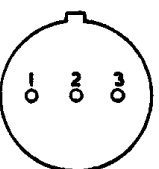
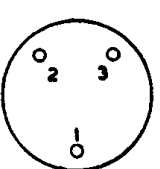
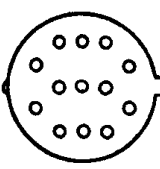
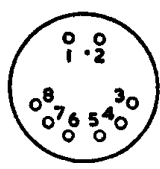
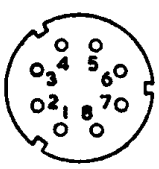
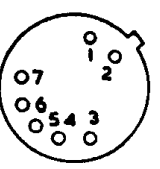
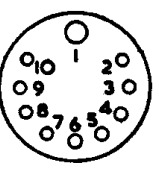
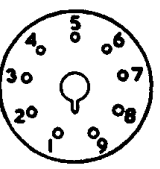
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**BERNARDS RADIO MANUALS**

**5/-**

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# VALVE BASE KEY

 <b>B2A</b>	 <b>B3G</b>	 <b>B5</b>	 <b>I.O.</b>	 <b>M.O.</b>	 <b>B7G</b>
 <b>B8A</b>	 <b>B8G</b>	 <b>B9A</b>	 <b>B11A</b>	 <b>B12A</b>	 <b>B14A</b>
 <b>UX4</b>	 <b>UX5</b>	 <b>UX6</b>	 <b>UX7</b>	 <b>P</b>	 <b>G8A</b>
 <b>GIOA</b>	 <b>G9</b>	 <b>ACORNS</b>			 <b>WC5</b>
 <b>WA6</b>	 <b>W6</b>	 <b>W8</b>	 <b>WB8</b>	 <b>WB6</b>	 <b>WA8</b>
 <b>BC4</b>	 <b>W4</b>	 <b>WA5</b>	 <b>WB5</b>	 <b>W3</b>	 <b>WA3</b>
 <b>W13</b>	 <b>WF8</b>	 <b>WC8</b>	 <b>W7</b>	 <b>GIOG</b>	 <b>B9G</b>

# INTRODUCTION

The information contained in the main tables refers to the electrical characteristics of the valves, together with a diagram of the electrode structure showing the base pin connections. All the requisite information concerning any particular valve is obtained without reference to any other page or table. The valves are listed in sections under headings according to their function, and they are grouped in each section in base order. All B7G types, for example, will be found in one group. For easy reference each base type is listed in numerical/alphabetical order.

For British valves the name of the manufacturer has been included in all cases and, as far as possible, abbreviations have been avoided. The exceptions are (a) duplicate valves made by Mullard and European Companies which are listed as Mul.-Eupn.; (b) valves of American design also made by English manufacturers which are listed as Am.-Brit. (American valves not duplicated in this country are listed as U.S.A.); (c) valves marketed by Marconi and Osram as M.O.V.; and (d) The English Electric Co. Ltd. as Eng.-Elec.

## THE INDEX

The comprehensive index at the back of this Manual contains not only all the valves in this current issue but also gives the type numbers of valves shown in Books I and II, together with the book number and page on which the characteristics are to be found. This index will be found most useful in tracing valves which are now becoming obsolete.

## VALVE BASES

As far as possible all the valves have been given their standard designations. American types interchangeable with English types have been given the English designation, e.g., the English B7G covers the American miniature 7-pin valves and the B9A the American Noval base. Types listed as B8G apply also to type B8B and to English and American Loctol and Lock-in bases. None of these is really identical; but the differences are so slight that all are interchangeable. As a matter of necessity many European bases have been given an arbitrary designation.

The drawing gives a representation of all the valves and C.R.T. bases with the exception of sub-miniature types, which are not true bases.

## FREQUENCY CONVERTERS

The characteristics given are typical operating conditions, such as an engineer will expect to find in the frequency changer stage of the average receiver, though it is pointed out that all designers do not adhere to the typical

operating conditions specified by the manufacturer. As there are so many different forms of frequency changer available, each valve has its particular form given to its type number, e.g. (t/hex) which identifies the valve as a triode-hevode. Nonodes which are extensively used in Europe in F-M circuits are included in this section for convenience.

## TUNING INDICATORS

The information covers the normal operation of cathode ray tuning indicators. The figure in the grid volts column will serve as a guide to the sensitivity of the valve.

## SCREENED TETRODES AND PENTODES

These valves are normally used for RF amplification and the characteristics shown are the typical operating conditions for Class A recommended by the manufacturers. A number of valves listed, find particular application in audio design as RC coupled amplifiers. It has not, however, been found possible to illustrate the valves under these conditions as so much depends on the circuit design. Valves with variable mu characteristics have this indicated by the abbreviation Var.  $\mu$ .

## REGULATOR VALVES

Current and voltage regulators, together with thyratrons, are given, the former, perhaps, being better known as barretters. In the "Used as" column will be found the letters CR, VR, or Relay, which identifies the valve as either a current or voltage regulator, or as a thyatron. The Stabilised Supply in "Amps" and "Voltage Drop" columns are used to give current regulator characteristics; the remainder is devoted to volage regulators and thyratrons.

## RECTIFIERS

The- ratings- given- are- the- maximum- permissible. In many cases a minimum series resistance value has been quoted. When used with a transformer this resistance is usually provided by the resistance and leakage reactance of the transformer windings; but where DC/AC technique is used a resistor must be provided to limit the peak current. Booster or Recovery diodes, used in modern line scan television circuits are included in this section.

## TRIODE AMPLIFIERS

Characteristics are given for single and twin triodes, those for the latter being for a single section. The conditions shown are the typical operating conditions for transformer-coupled AF amplifiers in Class A. RC figures are not given since much is dependent upon circuit constants.

## DIODES

All the relevant information on diodes will be found in this section. Multiple valves containing diode elements are in the section dealing with the function of the main electrodes.

## TELEVISION C.R. TUBES

All modern television tubes are shown, which are entirely magnetic in operation, with the exception of certain types using electro-static focusing, and in some cases electro-static deflection.

Where possible, the focusing current in ampere-turns has been shown, which will be of help to engineers wishing to substitute one type of tube for another. Tubes are listed in numerical/alphabetical order. Aluminised, Aquadag

coated and Ion Trap tubes, etc., are all identified by footnotes. The deflection angle has also been quoted where possible.

## OUTPUT VALVES

All types of output valves are included, with the exception of certain twin output valves. Valves intended for television time base or video amplification are so indicated. The conditions given relate to the typical operating conditions, and, for battery types, fixed bias is assumed. For mains-operated valves auto-bias is more usual, and whilst no cathode resistor value is quoted, it may be easily derived from the available data. It is pointed out that the output with auto-bias may be up to 10 per cent. less than with a fixed source.

## ABBREVIATIONS USED IN THE TABLES

<b>ACC</b>	Accelerator	<b>k</b>	Kilo-ohms
<b>Am.-Brit.</b>	American and British	<b>mA/V</b>	Milli-amps per volt
<b>CR</b>	Current-regulator	<b>MG</b>	Magnetic
<b>d/tri</b>	Diode-triode	<b>MOD</b>	Modulator grid
<b>Dia.</b>	Diameter	<b>M.O.V.</b>	Marconi and Osram
<b>Dis. %</b>	Distortion percentage	<b>mW</b>	Milli-watts
<b>Eng.-Elec.</b>	English Electric	<b>M</b>	Megohms
<b>ES</b>	Electro-static	<b>Mul.-Eupn.</b>	Mullard and European
<b>E.Sw.</b>	Edison screw	<b>oct</b>	Octode
<b>Focus A.T.</b>	Focus ampere-turns	<b>ra</b>	Anode AC resistance
<b>gc</b>	Conversion conductance	<b>Relay</b>	Thyratron
<b>gm</b>	Mutual conductance	<b>Rk</b>	Cathode resistor
<b>hep</b>	Heptode	<b>t/hep</b>	Triode-heptode
<b>hex</b>	Hexode	<b>t/hex</b>	Triode-hexode
<b>I/A</b>	Current in amperes	<b>t/pen</b>	Triode-pentode
<b>IC</b>	Internal connection	<b>t/tet</b>	Triode-tetrode
<b>Ik</b>	Cathode current	<b>Var.μ</b>	Variable mu
<b>I/mA</b>	Current in milli-amperes	<b>Vk</b>	Volts as cathode
<b>IμA</b>	Current in micro-amperes	<b>VR</b>	Voltage-regulator
<b>K</b>	Cathode	<b>W</b>	Watts
		<b>Ω</b>	Ohms
		<b>*</b>	Cathode resistor in ohms

# SCREENED TETRODES and PENTODES

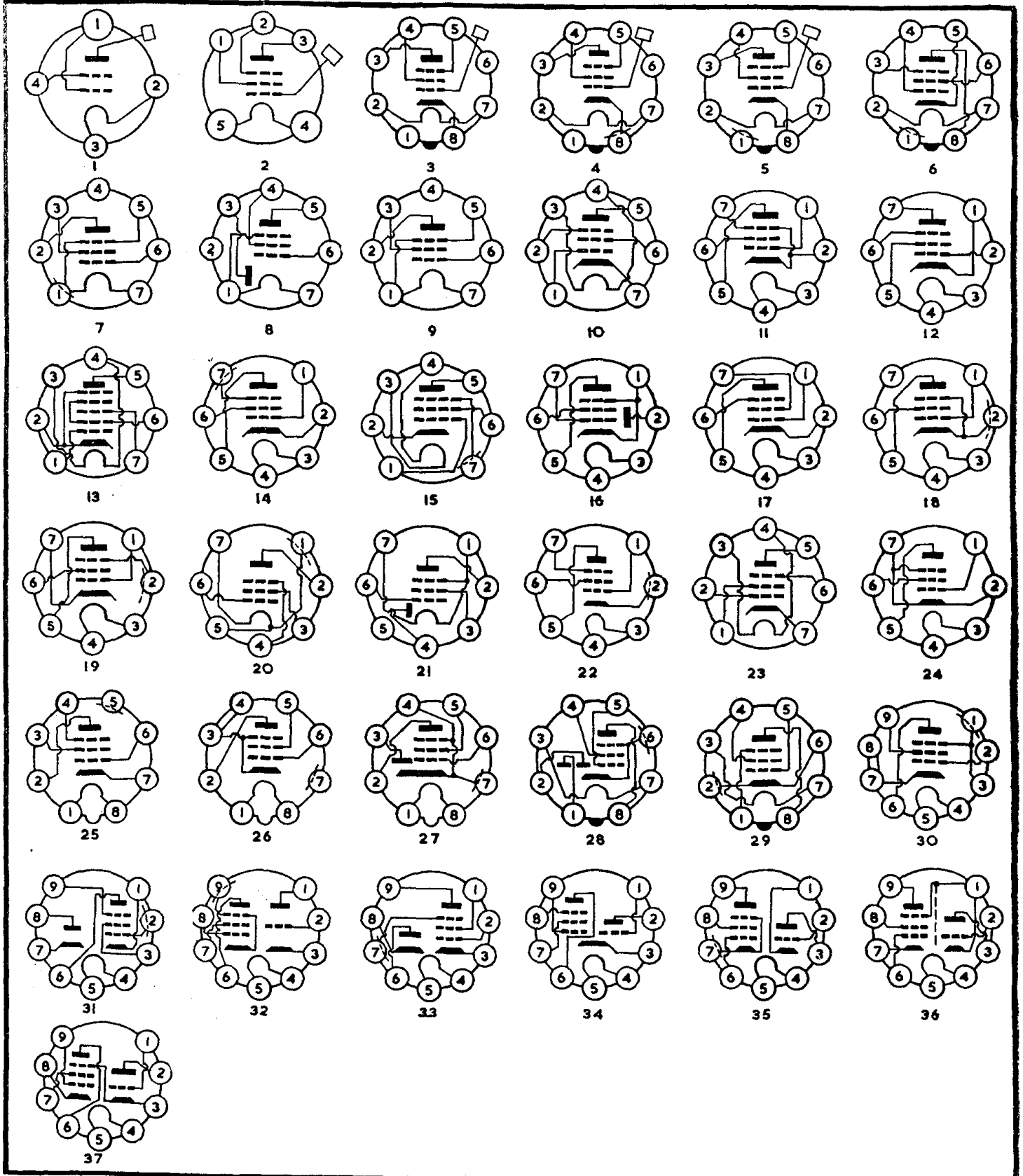
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	Volts	Amps	Volts	I/mA	Volts	I/mA				Type	Ref.		
XSG1.5V	1.5	0.08	50	0.65	30	—	0	666	0.3		1	Hivac	
XSG2.0V	2.0	0.08	50	0.6	30	—	0	500	0.4		1	Hivac	
XVS2.0	2.0	0.08	50	0.4	30	—	0	1500	0.33		1	Hivac	
XW1.5	1.5	0.08	50	0.75	45	—	0	1000	0.52		2	Hivac	
XW2.0V	2.0	0.08	50	0.95	45	—	0	1000	0.6		2	Hivac	
5A/136D	7.5	0.425	250	6.5	135	1.4	3	—	2.0	I.O.	3	S.T.C.	
5A/137D	6.3	0.2	250	—	100	—	2	—	1.8	I.O.	4	S.T.C.	
12M7	12.6	0.15	100	6.0	100	1.7	2.5	400	2.2	I.O.	5	European	
6134	6.3	0.45	300	10.0	150	2.5	160*	1000	9.0	I.O.	6	U.S.A.	
A1685	6.3	0.3	130	8.0	100	2.5	3	—	3.2	I.O.	3	Osram	
1AS4	1.4	0.025	90	1.65	90	0.5	0	1400	0.85	B7G	7	U.S.A.	
1F1	1.4	0.025	90	1.65	90	0.5	0	1400	0.85	B7G	7	Mazda	
1FD1	1.4	0.025	90	1.1	90	0.4	0	1600	0.4	B7G	8	Mazda	
1V4	1.25	0.05	110	1.6	110	0.45	0	1500	—	B7G	9	U.S.A.	
3AU6	3.15	0.6	250	10.8	150	4.3	1.0	1000	5.2	B7G	10	U.S.A.	
3BA6	Vari-mu	3.15	0.6	250	11.0	100	4.2	68*	1500	4.4	B7G	10	U.S.A.
3BC5		3.15	0.6	250	7.5	150	2.1	1.75	800	5.7	B7G	11	U.S.A.
3BN6		3.15	0.6	80	0.23	60	4.5	1.3	Gated Beam	B7G	12	U.S.A.	
3BY6	Heptode	3.15	0.6	250	6.5	100	9.0	2.5	—	1.9	B7G	13	U.S.A.
3BZ6	Vari-mu	3.15	0.6	200	11.0	150	2.6	180*	600	6.1	B7G	14	U.S.A.
3CB6		3.15	0.6	200	9.5	150	2.8	2.0	600	6.2	B7G	15	U.S.A.
3CE5		3.15	0.6	200	9.5	150	2.8	6.5	600	6.2	B7G	24	U.S.A.
3CF6		3.15	0.6	200	9.5	150	2.8	180*	600	6.2	B7G	15	U.S.A.
3CS6	Heptode	3.15	0.6	100	1.1	30	0.75	1.0	1000	0.95	B7G	13	U.S.A.
3DT6		3.15	0.6	150	1.1	100	2.1	560*	150	0.615	B7G	22	U.S.A.
6BY6	Heptode	6.3	0.3	250	6.5	100	9.0	2.5	—	1.9	B7G	13	U.S.A.
6BZ6	Vari-mu	6.3	0.3	200	11.0	150	2.6	180*	600	6.1	B7G	14	U.S.A.
6CE5		6.3	0.3	200	2.5	150	2.8	6.5	600	6.2	B7G	24	U.S.A.
6CF6		6.3	0.3	200	9.5	150	2.8	180*	600	6.2	B7G	15	U.S.A.
6CR6	Vari-mu	6.3	0.3	250	9.5	100	2.6	2.0	800	2.2	B7G	16	U.S.A.
6CS6	Heptode	6.3	0.3	100	1.1	30	0.75	1.0	1200	0.95	B7G	13	U.S.A.
6DB6		6.3	0.3	150	5.8	150	6.6	1.0	50	2.05	B7G	11	U.S.A.
6DC6	Vari-mu	6.3	0.3	200	9.0	150	3.0	180*	500	5.5	B7G	14	U.S.A.
6DE6		6.3	0.3	200	9.5	150	2.8	180*	600	6.2	B7G	14	U.S.A.
6DT6		6.3	0.3	150	1.1	100	2.1	560*	150	0.615	B7G	22	U.S.A.
12CR6	Vari-mu	12.6	0.15	250	9.6	100	2.6	3.0	800	2.2	B7G	16	U.S.A.
18AK5		18.0	0.05	150	7.0	140	2.2	330*	420	4.3	B7G	11	European
403B		6.3	0.15	150	7.0	140	2.2	330*	420	4.3	B7G	11	European
6096		6.3	0.175	120	7.5	120	2.5	200*	340	5.0	B7G	11	U.S.A.
6265		6.3	0.175	250	7.4	150	2.9	1.0	1400	4.6	B7G	15	U.S.A.
6485		6.3	0.45	300	10.0	150	2.5	160*	500	9.0	B7G	10	U.S.A.
6660		6.3	0.3	250	11.0	100	4.2	68*	1000	4.4	B7G	10	U.S.A.
6661		6.3	0.15	250	7.4	150	2.6	100*	1400	4.6	B7G	15	U.S.A.
6662		6.3	0.15	250	9.2	100	3.3	80*	1300	3.6	B7G	15	U.S.A.
DAF92		1.4	0.05	67.5	1.6	67.5	0.4	0	600	0.62	B7G	21	European
DAF191		1.4	0.05	67.5	2.2	67.5	0.8	0	600	0.7	B7G	8	European
DF97		1.4	0.025	85	1.52	67	0.68	0	530	0.75	B7G	20	European
DF191		1.4	0.05	67.5	3.4	67.5	1.5	0	250	0.85	B7G	9	European
F91H		6.3	0.27	150	6.5	75	—	—	—	—	B7G	13	European
EF96		6.3	0.3	250	7.0	150	2.0	200*	800	5.0	B7G	11	European
EF190		6.3	0.3	200	9.5	150	2.8	2	600	6.2	B7G	15	European
EGM1		12.6	0.2	30	14.5	—3	—	+20	—	6.3	B7G	23	European
M8083		6.3	0.3	250	10.0	250	2.5	2.0	1000	7.6	B7G	17	Mullard
M8100		6.3	0.175	150	7.0	140	2.2	3.0	420	4.3	B7G	18	Mullard
M8101	Vari-mu	6.3	0.3	250	11.0	100	4.2	1.0	1500	4.4	B7G	19	Mullard
M8161	Vari-mu	6.3	0.2	250	8.0	200	2.1	2.5	—	2.1	B7G	17	Mullard
QW77	Vari-mu	6.3	0.2	200	8.0	200	2.1	2.5	500	2.5	B7G	17	Osram
QZ77		6.3	0.3	250	10.0	250	2.5	2.0	300	7.6	B7G	17	Osram
W727	Vari-mu	6.3	0.3	250	11.0	100	4.2	68*	1500	4.4	B7G	10	Osram
5A/152M		6.3	0.47	250	10.0	150	2.0	—	—	7.5	B8A	25	S.T.C.
5B/110M		6.3	0.8	250	38.0	150	8.0	—	—	6.5	B8A	25	S.T.C.
6CJ5	Vari-mu	6.3	0.2	250	6.0	125	2.7	2.5	1000	2.2	B8A	26	Tungsram
6CT7	Vari-mu	6.3	0.2	250	5.0	85	1.5	2.0	1400	2.0	B8A	27	Tungsram
7F16	Vari-mu	6.3	0.2	250	6.0	100	1.7	1.5	1000	2.2	B8A	26	European
12AC5	Vari-mu	12.6	0.1	200	7.2	150	2.1	3.0	1000	2.3	B8A	26	Tungsram
12S7	Vari-mu	12.6	0.1	250	5.0	85	1.4	2.0	1000	2.0	B8A	27	Tungsram
121VP	Vari-mu	12.6	0.1	200	7.2	150	2.1	3.0	1000	2.3	B8A	26	Cossor
EBF175		6.3	0.47	250	12.0	100	3.0	2.0	500	5.0	G8G	28	European
EF171		6.3	0.2	250	6.0	75	2.0	2.0	2000	2.2	G8G	29	European
EF173	Vari-mu	6.3	0.2	250	4.5	100	0.6	2.0	500	2.3	G8G	29	European
5A/163K		6.3	0.5	250	15.0	200	—	—	—	15.0	B9A	30	S.T.C.
5AM8		4.7	0.6	200	9.5	150	3.0	120*	300	5.8	B9A	31	U.S.A.

\* Cathode Resistor in Ohms.

## SCREENED TETRODES and PENTODES—Contd.

Type	FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid Volts	$r_a$ K $\Omega$	$\mu m$ mA/V	BASE		Maker
	Volts	Amps	Volts	I/mA	Volts	I/mA				Type	Ref.	
5AN8	4.7	0.6	200	9.5	150	2.8	180*	300	6.2	B9A	32	U.S.A.
5AS8	4.7	0.6	200	9.5	150	3.0	180*	300	6.2	B9A	33	U.S.A.
5AT8	4.7	0.6	150	6.2	150	1.8	3.5	—	2.1	B9A	34	U.S.A.
5AV8	4.7	0.6	200	9.5	150	2.8	180*	300	6.2	B9A	35	U.S.A.
5B8	4.7	0.6	200	9.5	150	2.8	180*	300	6.2	B9A	36	U.S.A.
5BE8	4.7	0.6	250	10.0	110	3.5	68*	400	5.2	B9A	37	U.S.A.

\* Cathode Resistor in Ohms.



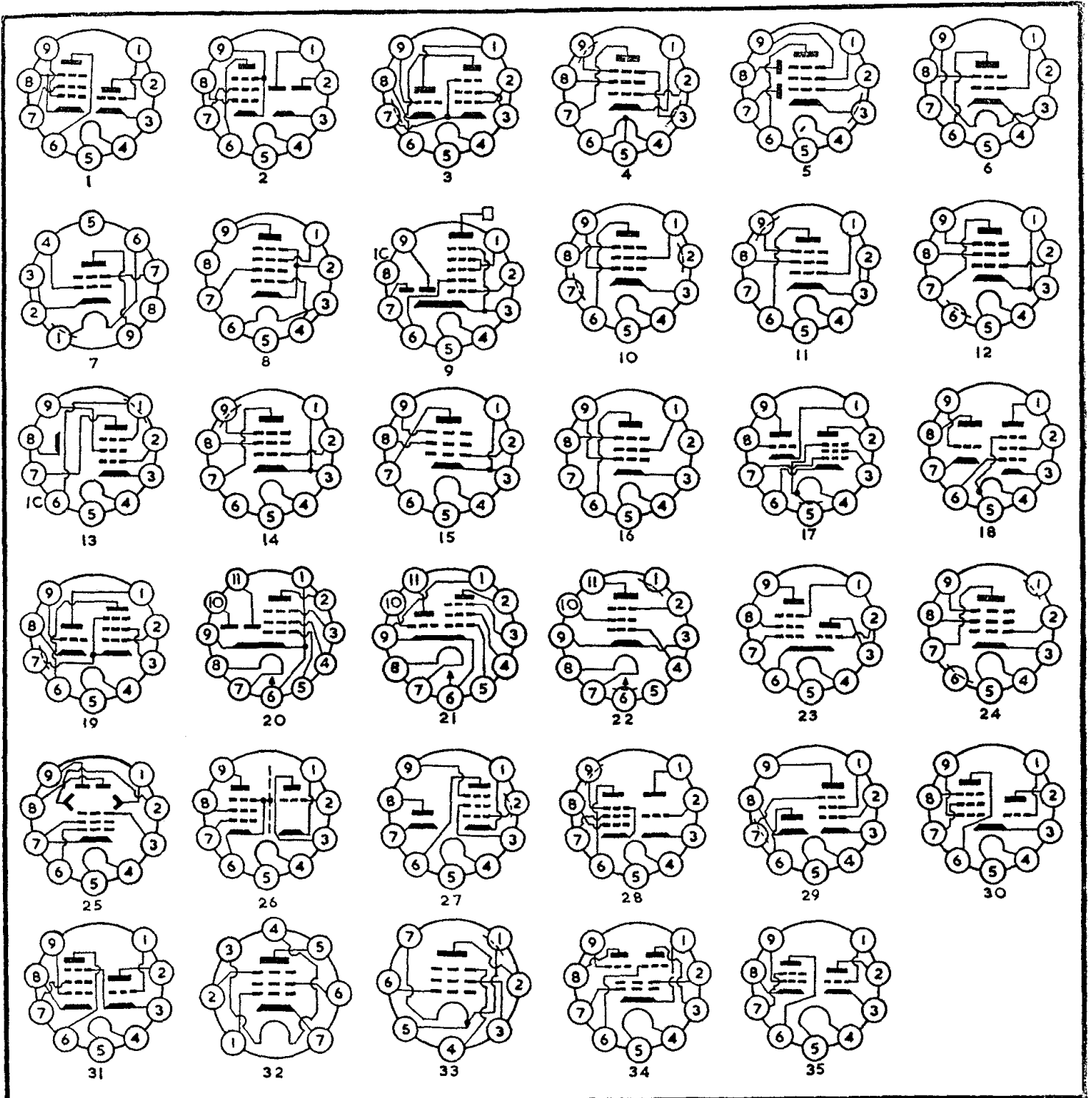
# SCREENED TETRODES and PENTODES—Contd.

Type	FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid Volts	ra K $\Omega$	gm mA/V	BASE		Maker
	Volts	Amps	Volts	I/mA	Volts	I/mA				Type	Ref.	
5BR8	4.7	0.6	250	10.0	110	3.5	68*	400	5.2	B9A	1	U.S.A.
5BT8	4.7	0.6	200	9.5	150	2.8	180*	300	6.2	B9A	2	U.S.A.
5CG8	4.7	0.6	250	7.7	150	1.6	200*	750	4.6	B9A	1	U.S.A.
5U8	4.7	0.6	250	10.0	110	3.5	68*	400	5.2	B9A	3	U.S.A.
5X8	4.7	0.6	250	7.7	150	1.6	200*	750	4.6	B9A	23	U.S.A.
6AM8	6.3	0.45	200	9.5	150	3.0	120*	300	5.8	B9A	27	U.S.A.
6AN8	6.3	0.45	200	9.5	150	2.8	180*	300	6.2	B9A	28	U.S.A.
6AR8	Twin-anode	0.3	T.V.	Colour	Synchronous	Detector				B9A	25	U.S.A.
6AS8		0.45	200	9.5	150	3.0	180*	300	6.2	B9A	29	U.S.A.
6AT8		0.45	150	6.2	150	1.8	3.5	—	2.1	B9A	30	U.S.A.
6AU8		0.6	200	15.0	125	3.4	82*	150	7.0	B9A	26	U.S.A.
6AW8/A		0.6	200	13.0	150	3.5	180*	400	9.0	B9A	26	U.S.A.
6AX8		0.45	250	10.0	110	3.5	12	400	4.8	B9A	3	U.S.A.
6AZ8		0.45	200	9.5	150	3.0	180*	300	6.0	B9A	18	U.S.A.
6BA8/A		0.6	200	13.0	150	3.5	180*	400	9.0	B9A	26	U.S.A.
6BE8		0.45	250	10.0	110	3.5	68*	400	5.2	B9A	31	U.S.A.
6BH8		0.6	200	15.0	125	3.4	82*	150	7.0	B9A	26	U.S.A.
6BK8		—	175	0.6	—	—	—	—	—	B9A	16	Australian
6BR8		0.45	250	10.0	110	3.5	68*	400	5.2	B9A	1	U.S.A.
6BT8		0.45	200	9.5	150	2.8	180*	300	6.2	B9A	2	U.S.A.
6CF8		0.2	250	3.0	140	0.55	2.0	2500	1.85	B9A	10	European
6CG8		0.45	250	7.7	150	1.6	200*	750	4.6	B9A	1	U.S.A.
6CH8		0.45	200	9.5	150	2.8	180*	300	6.2	B9A	17	U.S.A.
6DA6	Vari-mu	0.2	250	9.0	100	3.0	2.0	1000	4.4	B9A	24	U.S.A.
6F18	Vari-mu	0.2	175	12.0	100	3.4	1.3	—	4.5	B9A	12	Mazda
8A8		0.3	170	10.0	170	2.8	2.0	400	6.2	B9A	19	Brimar
9U8		0.3	170	10.0	110	3.5	1.0	400	5.2	B9A	19	Brimar
10F18	Vari-mu	0.1	175	12.0	100	3.4	1.3	—	4.5	B9A	12	Mazda
12BV7		0.6	250	27.0	150	6.0	12.0	85	13.0	B9A	4	U.S.A.
12N8	Vari-mu	0.15	250	5.0	85	1.75	2.0	1600	2.2	B9A	5	European
17N8		0.1	200	5.0	80	1.75	2.0	1000	2.2	B9A	5	European
19BY7		0.1	200	8.0	85	2.0	1.8	400	5.7	B9A	12	European
30C1		0.3	170	10.0	170	2.8	2.0	400	6.2	B9A	19	Mazda
30F5		0.3	170	10.0	170	2.6	1.85	—	8.8	B9A	12	Mazda
171DDP		0.1	170	5.0	85	1.75	2.0	900	2.2	B9A	5	Cossor
435A		0.3	180	13.1	150	3.2	10.0	—	16.5	B9A	6	European
436A		0.45	180	23.4	150	8.6	10.0	—	32.0	B9A	7	European
5857	Sec. emiss.	0.45	300	—	—	8.0	—	70	20.0	B9A	8	U.S.A.
E80T		0.15	100	1.35	70	—	20.0	—	—	B9A	9	Mull-Eupn
E87F		0.3	250	6.0	100	1.9	2.0	1000	2.1	B9A	10	European
E180F		0.3	180	13.0	150	3.0	1.1	35	16.5	B9A	11	Mull-Eupn
EBF89	Vari-mu	0.2	250	9.0	100	2.7	2.0	1000	3.8	B9A	5	European
ECF80		0.45	170	10.0	170	2.8	2.0	400	6.2	B9A	19	European
EF83	Vari-mu	0.2	50	1.85	50	0.54	2.0	A.F.	Preamp	B9A	10	European
EF87		0.3	250	3.3	100	0.64	2.0	1500	1.9	B9A	10	European
EF88		0.3	250	7.0	100	2.1	2.0	900	2.1	B9A	10	European
EF89	Vari-mu	0.2	250	9.0	100	3.0	2.0	1000	4.4	B9A	24	Mull-Eupn
FF805S		0.3	250	8.0	85	2.0	1.8	500	5.7	B9A	12	European
HF85		0.15	200	11.4	116	3.1	2.3	350	6.1	B9A	12	European
LZ319		0.3	170	10.0	170	2.8	2.0	400	6.2	B9A	19	Osram
PCF82		0.3	170	10.0	110	3.5	1.0	400	5.2	B9A	19	Mull-Eupn
UF89	Vari-mu	0.1	170	12.0	100	4.4	1.0	300	4.4	B9A	24	Mull-Eupn
UBF89	Vari-mu	0.1	250	9.0	100	2.7	2.0	1000	3.8	B9A	5	European
W719	Vari-mu	0.3	250	8.0	85	2.0	1.8	500	5.7	B9A	12	Osram
W729	Vari-mu	0.3	170	10.0	170	2.5	2.0	—	6.0	B9A	15	Osram
WD709	Vari-mu	0.3	250	5.0	85	1.75	2.0	1500	2.2	B9A	5	Osram
Z319	Sec. emiss.	0.3	250	15.0	250	1.8	1.5	20	17.0	B9A	13	Osram
Z359		0.3	250	20.0	250	5.25	2.0	500	15.0	B9A	14	Osram
Z759		0.6	250	20.0	250	5.25	2.0	500	15.0	B9A	14	Osram
EBF175		0.045	250	10.0	80	1.8	2.0	700	5.0	11 pin	20	European
ECF174		0.045	250	8.0	150	1.5	2.0	700	5.0	11 pin	21	European
EF176		0.185	250	2.5	75	0.5	2.0	430	1.7	11 pin	22	European
EF177		0.185	250	3.0	75	0.65	2.0	1000	1.5	11 pin	22	European
UBF175		0.1	200	5.0	100	1.75	2.0	700	5.0	11 pin	20	European
UCF174		0.1	250	8.0	150	1.5	2.0	700	5.0	11 pin	21	European
UF176		0.1	250	2.5	75	0.5	2.0	430	1.7	11 pin	22	European
UF177		0.1	250	3.0	75	0.65	2.0	1000	1.5	11 pin	22	European
403B		0.15	180	7.7	120	2.4	8.5	500	5.1	None		European
404A		0.3	150	13.5	150	4.0	110*	200	12.5	None		European

\* Cathode Resistor in Ohms.

# SCREENED TETRODES and PENTODES—Contd.

Type	FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid Volts	ra KΩ	gm mA/V	BASE		Maker
	Volts	Amps.	Volts	1/mA	Volts	1/mA				Type	Ref.	
1AN5	1.4	0.225	85	1.52	67	0.68	0	530	0.75	B7G	33	U.S.A.
12AC6	12.6	0.15	12.6	0.55	12.6	0.028	—	500	0.73	B7G	32	U.S.A.
12AF6	12.6	0.15	12.6	0.75	12.6	0.35	0	300	1.15	B7G	32	U.S.A.
3BU8	3.15	0.6	100	2.2	67.5	4.0	0	100	1.5	B9A	34	U.S.A.
5CL8	4.7	0.6	125	12.0	125	4.0	1.0	100	5.8	B9A	35	U.S.A.
6BU8	6.3	0.3	100	2.2	67.5	4.0	1.0	100	1.5	B9A	34	U.S.A.
6CL8	6.3	0.45	125	12.0	125	4.0	1.0	100	5.8	B9A	35	U.S.A.
9A8	8.5	0.3	170	10.0	170	2.8	2.0	400	6.2	B9A	19	U.S.A.
6BL8	6.3	0.45	170	10.0	170	2.8	2.0	400	6.2	B9A	19	U.S.A.



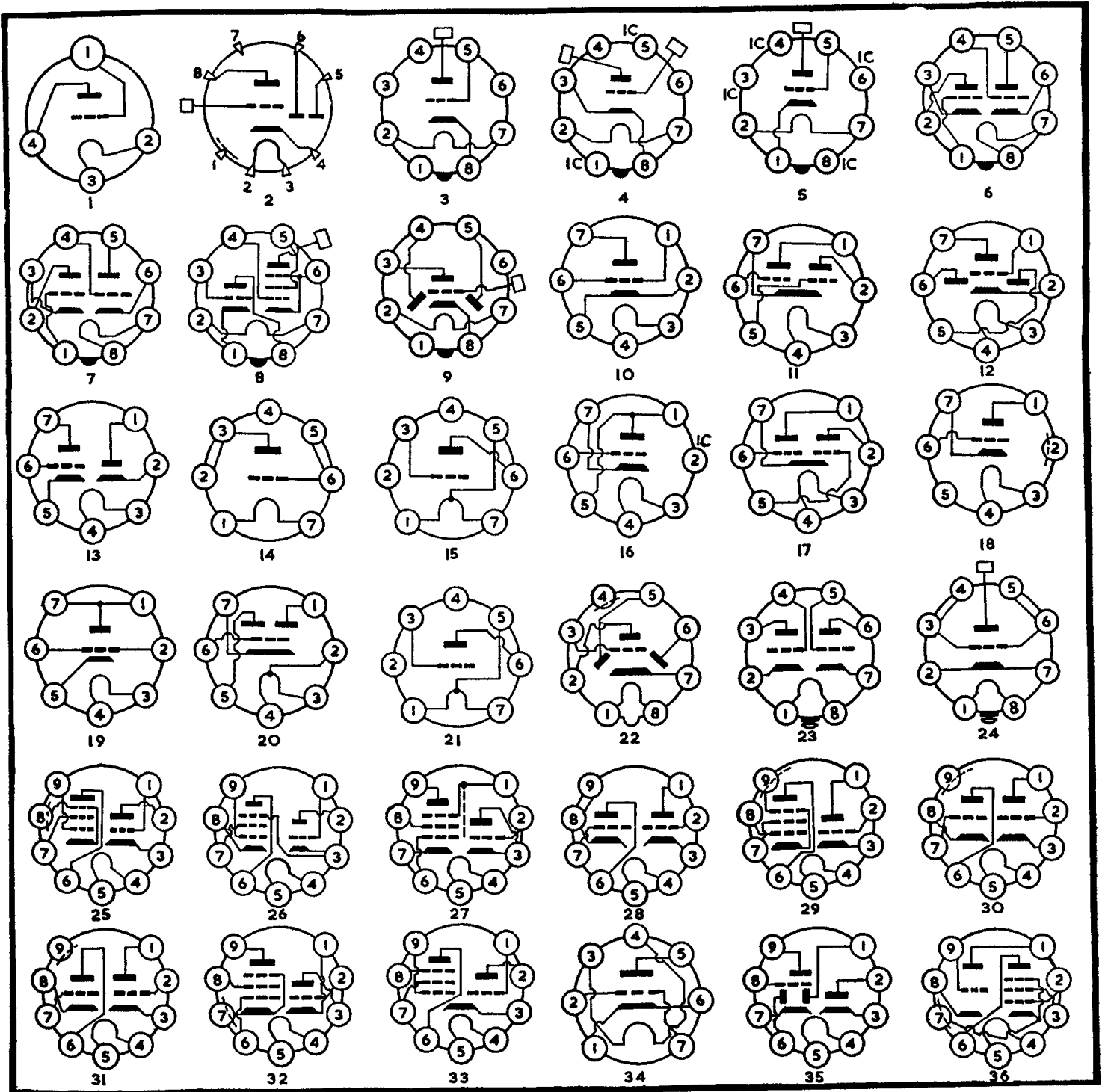


# TRIODE AMPLIFIERS

Type	FILAMENT or HEATER		ANODE		Neg. Grid Volts.	r <sub>a</sub> K $\Omega$	$\mu$ m mA/V	Amp. Factor	RK $\Omega$	BASE		Maker
	Volts.	Amps.	Volts.	I/mA						Type	Ref.	
XD1.5V	1.5	0.08	50	0.45	0	50	0.4	20	—		1	Hivac
XD2.0V	2.0	0.08	50	0.65	0	38	0.56	21	—		1	Hivac
XH1.5V	1.5	0.075	50	0.45	0	55	0.4	22	—		1	Hivac
XH2V	2.0	0.08	50	0.45	0	50	0.56	28	—		1	Hivac
XL1.5V	1.5	0.08	50	0.7	1.0	20	0.6	12	—		1	Hivac
XL2V	2.0	0.08	50	1.0	1.0	12.5	0.84	10.5	—		1	Hivac
XLO1.5V	1.5	0.08	50	0.9	1.0	20	0.65	13	—		1	Hivac
XLO2.0V	2.0	0.08	50	1.1	1.0	12.5	0.92	11.5	—		1	Hivac
CBC1	13.0	0.2	200	2.0	5.0	13.5	2.0	27.0	—	P	2	European
2C53	6.3	0.3	4000	2.5	2.5	550.0	0.95	500	—	I.O.	3	U.S.A.
6BK4	6.3	0.2	25000	1.5	125.0	Voltage	Control	Service	—	I.O.	5	U.S.A.
6SN7GTB	6.3	0.6	250	9.0	8.0	7.7	2.6	20	—	I.O.	6	U.S.A.
12SN7GTA	12.6	0.3	250	9.0	8.0	7.7	2.6	20	—	I.O.	6	U.S.A.
15A8	15.0	0.6	250	9.0	8.0	7.7	2.6	20	—	I.O.	8	U.S.A.
6118	6.3	0.3	250	1.0	3.0	58.0	1.2	70	—	I.O.	9	U.S.A.
6188	6.3	0.3	250	2.3	2.0	44.0	1.6	70	—	I.O.	7	U.S.A.
EC56	6.3	0.6	180	30.0	3.5	2.2	16.0	35	—	I.O.	4	Eupn-Mul.
EC57	6.3	0.65	180	60.0	1.8	1.84	19.0	35	—	I.O.	4	Eupn-Mul.
QB65	6.3	0.6	250	9.0	8.0	7.7	2.6	20	890	I.O.	6	Osram
2AF4A	2.35	0.6	80	16.0	—	2.27	6.6	15	150	B7G	19	U.S.A.
2BN4	2.1	0.6	150	9.0	—	6.3	6.8	43	220	B7G	34	U.S.A.
2T4	2.35	0.6	80	18.0	—	1.9	7.0	13	150	B7G	19	U.S.A.
3AV6	3.15	0.6	250	1.2	2.0	62.5	1.6	100	—	B7G	12	U.S.A.
5J6	4.7	0.6	100	8.5	0.85	7.1	5.3	38	—	B7G	17	U.S.A.
6AF4A	6.3	0.225	80	16.0	—	2.2	6.6	15	150	B7G	19	U.S.A.
6AQ4	6.3	0.3	250	10.0	1.5	12.0	8.5	100	—	B7G	10	U.S.A.
6BN4	6.3	0.2	150	9.0	—	6.3	6.8	43	220	B7G	34	U.S.A.
6J6L	6.3	0.33	100	8.5	0.85	7.1	5.3	38	—	B7G	17	European
9AB4	9.5	0.1	250	10.0	2.0	12.0	5.0	60	—	B7G	18	European
9J6	9.5	0.3	100	8.5	0.85	7.1	5.3	38	—	B7G	17	European
10L1	19.0	0.1	250	10.0	1.5	11.1	9.0	100	—	B7G	10	Mazda
12G4	12.6	0.15	250	9.0	8.0	7.7	2.6	20	—	B7G	16	U.S.A.
12H4	{ 6.3 0.3 }	{ }	250	9.0	8.0	7.6	2.6	20	—	B7G	20	U.S.A.
	{ 12.6 0.15 }	{ }										
18J6	18.0	0.115	100	8.5	0.85	7.1	5.3	38	—	B7G	17	European
6030	6.3	0.45	100	8.5	0.85	7.1	5.8	38	—	B7G	17	U.S.A.
6045	6.3	0.35	100	9.0	—	6.0	6.4	38	50	B7G	17	U.S.A.
6100	6.3	0.15	250	10.5	8.5	7.7	2.2	17	—	B7G	16	U.S.A.
6101	6.3	0.45	100	8.5	—	6.3	6.0	38	50	B7G	17	U.S.A.
6125	6.3	0.15	250	10.5	8.5	7.7	2.2	17	—	B7G	16	U.S.A.
DC93	{ 1.4 0.2 }	{ }	100	10.0	5.0	3.5	2.4	8.4	—	B7G	15	European
	{ 2.8 0.1 }	{ }										
DC96	1.4	0.025	85	1.7	—	100	0.35	35	—	B7G	14	European
DC193	2.8	0.1	100	10.0	5.0	3.5	2.4	8.3	—	B7G	21	European
DD960	{ 1.4 0.2 }	{ }	67.5	9.0	3.0	3.4	2.45	8.3	—	B7G	15	European
	{ 2.8 0.1 }	{ }										
E92CC	6.3	0.4	150	8.5	1.7	8.3	6.0	50	—	B7G	11	European
EC93	6.3	0.225	100	16.0	4.0	1.9	8.0	15	—	B7G	19	European
EC94	6.3	0.225	100	16.0	—	2.13	6.6	14	150	B7G	19	European
HBC90	12.6	0.15	250	1.0	3.0	58.0	1.2	70	—	B7G	12	Mul.-Eupn.
M8081	6.3	0.45	100	8.5	0.85	7.1	5.3	38	—	B7G	17	Mullard
M8097	6.3	0.3	200	7.5	2.8	12.8	2.8	36	—	B7G	13	Mullard
M8099	6.3	0.3	250	10.0	1.5	12.0	8.5	100	—	B7G	10	Mullard
QL77	6.3	0.15	250	10.5	8.5	7.7	2.2	17	—	B7G	16	Osram
6CV7	6.3	0.225	250	1.0	3.0	54	1.3	70	—	B8A	22	Tungram
6LD3	6.3	0.225	250	1.0	3.0	54	1.3	70	—	B8A	22	Mazda
10LD3	14.0	0.1	170	1.5	1.6	42	1.65	70	—	B8A	22	Mazda
14L7	14.0	0.1	170	1.5	1.6	42	1.65	70	—	B8A	22	Tungram
141DDT	14.0	0.1	170	1.5	1.6	42	1.65	70	—	B8A	22	Cossor
3B/240M	6.3	1.1	275	50.0	1.0	3.3	27.0	90	—	B8G	24	S.T.C.
3B/241M	19.0	0.37	275	50.0	1.0	3.3	27.0	90	—	B8G	24	S.T.C.
33A/158M	6.3	0.8	250	—	7.0	4.7	3.0	14.2	—	B8G	23	S.T.C.
4BC8	4.2	0.6	150	10.0	—	5.6	6.2	35	220	B9A	30	U.S.A.
4BQ7A	4.2	0.6	150	9.0	—	6.1	6.4	39	220	B9A	30	U.S.A.
4BS8	4.2	0.6	150	10.0	—	5.0	7.2	36	220	B9A	30	U.S.A.
4BZ7	4.2	0.6	150	10.0	—	5.6	6.8	38	220	B9A	30	U.S.A.
4BZ8	4.2	0.6	125	10.0	—	5.6	8.0	45	100	B9A	30	U.S.A.
4CX7	4.2	0.6	150	9.0	10.0	6.0	6.4	39	—	B9A	28	U.S.A.
5AN8	4.7	0.6	200	13.0	6.0	5.75	3.3	19	—	B9A	29	U.S.A.
5AT8	4.7	0.6	100	8.5	—	6.9	5.8	40	100	B9A	33	U.S.A.
5AV8	4.7	0.6	200	13.0	6.0	5.75	3.3	19	—	B9A	32	U.S.A.
5B8	4.7	0.6	200	13.0	6.0	5.75	3.3	19	—	B9A	27	U.S.A.

# TRIODE AMPLIFIERS—Contd.

Type	FILAMENT or HEATER		ANODE		Grid Volts.	$r_a$ K $\Omega$	gm mA/V	Amp. Factor	RK $\Omega$	BASE Type	BASE Ref.	Maker
	Volts.	Amps.	Volts.	I/mA								
5BE8	4.7	0.6	150	18.0	—	5.0	8.5	42	56	B9A	26	U.S.A.
5BK7A	4.7	0.6	150	18.0	—	4.6	9.3	43	56	B9A	30	U.S.A.
5BR8	4.7	0.6	150	18.0	—	5.0	8.0	40	56	B9A	25	U.S.A.
5T8	4.7	0.6	250	1.0	3.0	58.0	1.2	70	—	B9A	35	U.S.A.
5U8	4.7	0.6	150	18.0	—	5.0	8.5	42	56	B9A	36	U.S.A.

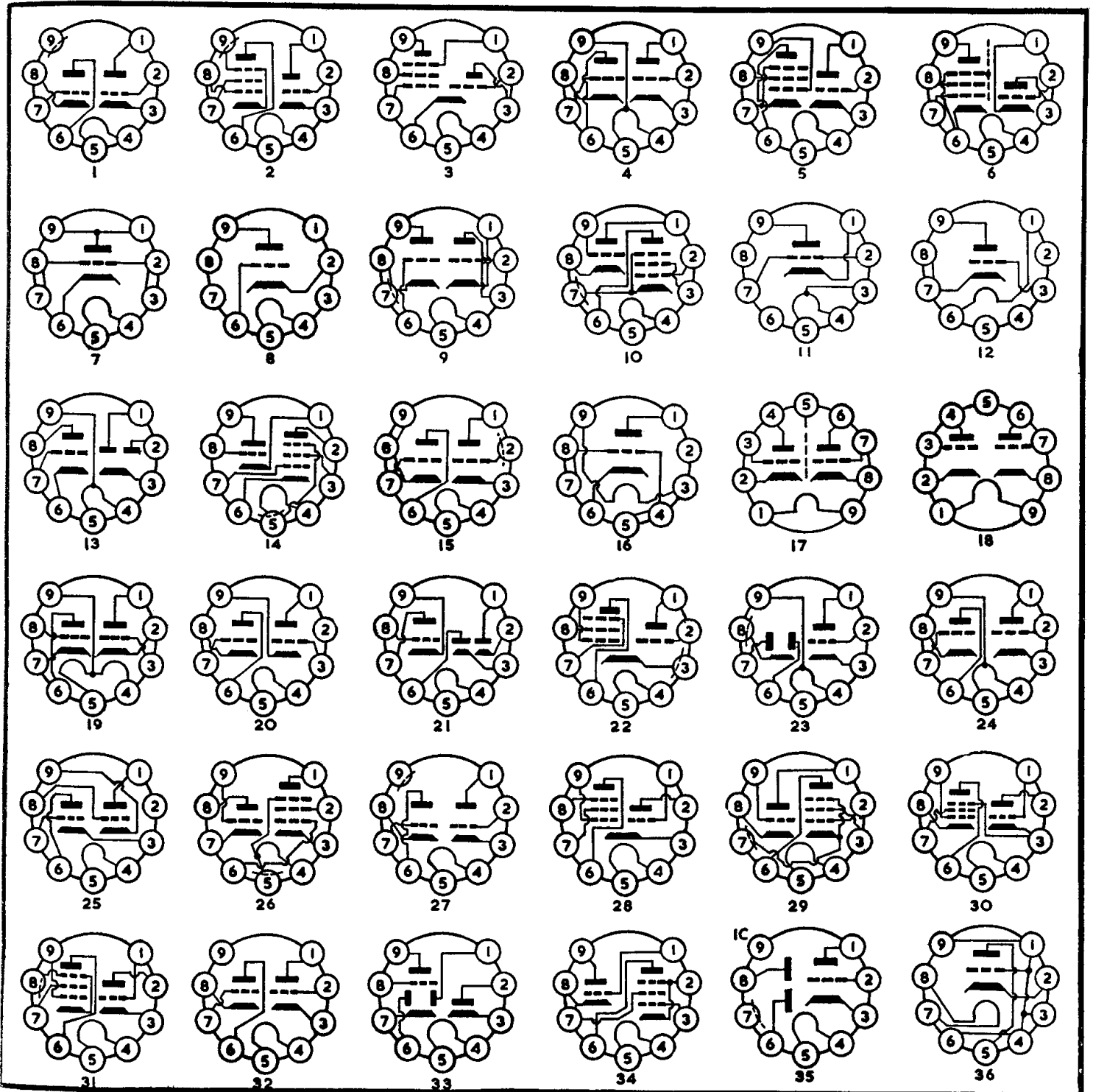


# TRIODE AMPLIFIERS—Contd.

Type	or HEATER FILAMENT		ANODE		Neg. Grid Volts.	ra K $\Omega$	gm mA/V	Amp. Factor	RK $\Omega$	BASE		Maker
	Volts.	Amps.	Volts.	I/mA						Type	Ref.	
5X8	4.7	0.6	100	8.5	—	6.9	5.8	40	100	B9A	3	U.S.A.
6/30L2	6.3	0.3	200	10.0	—	—	—	18	—	B9A	1	U.S.A.
6AN8	6.3	0.45	200	13.0	6.0	5.75	3.3	19	—	B9A	2	U.S.A.
6AQ8	6.3	0.435	250	10.0	2.3	9.8	5.9	57	—	B9A	27	U.S.A.
6AT7N	6.3	0.3	250	10.0	2.0	10.9	5.5	60	—	B9A	1	European
6AT8	6.3	0.45	100	8.5	—	6.9	5.8	40	100	B9A	28	U.S.A.
6AU7	{ 3.15	{ 0.6	250	10.5	8.5	7.7	2.2	17	—	B9A	4	U.S.A.
	{ 6.3	{ 0.3										
6AU8	6.3	0.6	150	8.5	—	8.2	4.9	40	150	B9A	6	U.S.A.
6AW8/A	6.3	0.6	200	4.0	2.0	17.5	4.0	70	—	B9A	6	U.S.A.
6AX7	6.3	0.6	250	1.2	2.0	62.5	1.6	100	—	B9A	4	U.S.A.
6AX8	6.3	0.45	150	18.0	12.0	5.0	8.5	42	—	B9A	29	U.S.A.
6AZ8	6.3	0.45	200	13.0	6.0	5.75	3.3	19	—	B9A	26	U.S.A.
6BA8/A	6.3	0.6	200	8.0	—	6.7	2.7	18	—	B9A	6	U.S.A.
6BC4	6.3	0.225	150	14.5	—	4.8	10.0	48	100	B9A	7	U.S.A.
6BC8	6.3	0.4	150	10.0	—	10.9	5.5	60	200	B9A	27	U.S.A.
6BE8	6.3	0.45	150	18.0	—	5.0	8.5	42	56	B9A	30	U.S.A.
6BH8	6.3	0.6	150	9.5	—	5.15	3.3	17	—	B9A	6	U.S.A.
6BJ8	6.3	0.6	250	8.0	9.0	7.15	2.8	20	—	B9A	21	U.S.A.
6BK7A	6.3	0.45	150	18.0	—	4.6	9.3	43	56	B9A	27	U.S.A.
6BR8	6.3	0.45	150	18.0	—	5.0	8.0	40	56	B9A	31	U.S.A.
6BS8	6.3	0.4	150	10.0	—	5.0	7.2	36	220	B9A	27	U.S.A.
6BZ8	6.3	0.4	125	10.0	100*	—	8.0	45	—	B9A	27	U.S.A.
6CG7	6.3	0.6	250	9.0	8.0	7.7	2.6	20	—	B9A	27	U.S.A.
6CH7	6.3	0.4	150	10.0	—	5.3	6.8	38	220	B9A	15	U.S.A.
6CH8	6.3	0.45	200	16.0	6.0	5.75	3.3	19	—	B9A	14	U.S.A.
6CM7	6.3	0.6	{ 200	{ 5.0	{ 7.0	{ 11.0	{ 2.0	{ 22	{ —	{ B9A	{ 25	{ U.S.A.
			{ 250	{ 20.0	{ 8.0	{ 4.1	{ 4.4	{ 18	{ —	{ —	{ —	{ —
6CN7	{ 6.3	{ 0.3	250	1.0	3.0	58.0	1.2	70	—	B9A	13	U.S.A.
	{ 3.15	{ 0.6										
6CN8	6.3	0.7	100	3.3	—	16.7	3.6	60	—	B9A	34	U.S.A.
6CS7	6.3	0.6	{ 250	{ 19.0	{ 10.5	{ 3.45	{ 4.5	{ 15.5	{ —	{ B9A	{ 20	{ U.S.A.
			{ 250	{ 10.0	{ 8.5	{ 7.7	{ 2.2	{ 17	{ —	{ —	{ —	{ —
6CX7	6.3	0.3	150	9.0	10.0	6.0	6.4	39	—	B9A	32	U.S.A.
6S4A	6.3	0.6	250	26.0	8.0	3.6	4.5	16	—	B9A	8	U.S.A.
7AN7	8.5	0.3	90	12.0	1.5	3.7	6.2	23	—	B9A	9	Bri.-U.S.A.
7AU7	{ 3.5	{ 0.6	250	10.5	8.5	7.7	2.2	17	—	B9A	4	U.S.A.
	{ 7.0	{ 0.3										
8A8	9.0	0.3	100	14.0	2.0	4.0	5.0	20	—	B9A	10	Brimar
8BQ7A	8.4	0.3	150	9.0	—	6.1	6.4	39	220	B9A	27	European
9AK8	9.5	0.3	250	1.0	3.0	58.0	1.2	70	—	B9A	33	Bri.-U.S.A.
9AQ8	9.5	0.3	170	10.0	1.5	6.2	8.0	50	—	B9A	27	Bri.-U.S.A.
9BQ7A	8.4	0.3	150	9.0	—	6.1	6.4	39	220	B9A	27	European
12AD7	{ 6.3	{ —	250	{ 1.25	{ 2.0	{ 62.5	{ 1.6	{ 100	{ —	{ B9A	{ 24	{ U.S.A.
	{ 12.6	{ —										
12B4A	{ 6.3	{ 0.6	150	35.0	17.5	1.0	6.5	6.5	—	B9A	11	U.S.A.
	{ 12.6	{ 0.3										
12BH7A	{ 6.3	{ 0.6	250	11.5	10.5	5.4	3.1	17	—	B9A	4	U.S.A.
	{ 12.6	{ 0.3										
12BR7	{ 6.3	{ 0.45	250	10.0	—	10.9	5.5	60	200	B9A	23	U.S.A.
	{ 12.6	{ 0.225										
12U7	12.6	0.15	12.6	1.0	0	12.5	1.6	20	—	B9A	4	U.S.A.
16CN8	15.0	0.3	100	3.3	—	16.7	3.6	60	—	B9A	34	U.S.A.
18C51	18.9	0.1	150	8.2	2.0	6.5	5.5	35	—	B9A	17	European
28AK8	28.0	0.1	250	1.0	3.0	58.0	1.2	70	—	B9A	33	U.S.A.
30C1	9.0	0.3	100	14.2	2.0	4.0	5.0	20	—	B9A	10	Mazda
30FL1	9.4	0.3	200	10.0	—	—	3.3	18	—	B9A	2	U.S.A.
30L1	8.5	0.3	90	12.0	1.5	3.7	6.2	23	—	B9A	9	Mazda
30PL1	13.0	0.3	250	2.0	—	5.3	3.4	18	—	B9A	5	U.S.A.
63T1	8.3	0.3	100	4.0	2.3	12.5	1.4	17	—	B9A	22	Cossor
417A	6.3	0.3	150	26.0	—	18.0	24.0	43	62	B9A	16	U.S.A.
437A	6.3	0.45	150	40.2	10.0	0.97	47.0	45	—	B9A	12	European
5721	{ 6.3	{ 0.3	250	1.2	2.0	62.5	1.6	100	—	B9A	4	U.S.A.
	{ 12.6	{ 0.15										
6350	{ 6.3	{ 0.6	150	11.0	5.0	3.9	4.6	18	—	B9A	19	U.S.A.
	{ 12.6	{ 0.3										
6385	6.3	0.5	150	8.0	2.0	7.0	5.0	35	—	B9A	17	U.S.A.
6386	6.3	0.35	100	9.6	—	4.25	4.0	17	200	B9A	18	U.S.A.
6463	{ 6.3	{ 0.6	250	14.5	—	3.85	5.2	20	620	B9A	4	U.S.A.
	{ 12.6	{ 0.3										
6697	{ 6.3	{ 0.3	250	10.0	55	—	2.0	10.0	5.5	B9A	24	U.S.A.
	{ 12.6	{ 0.15										

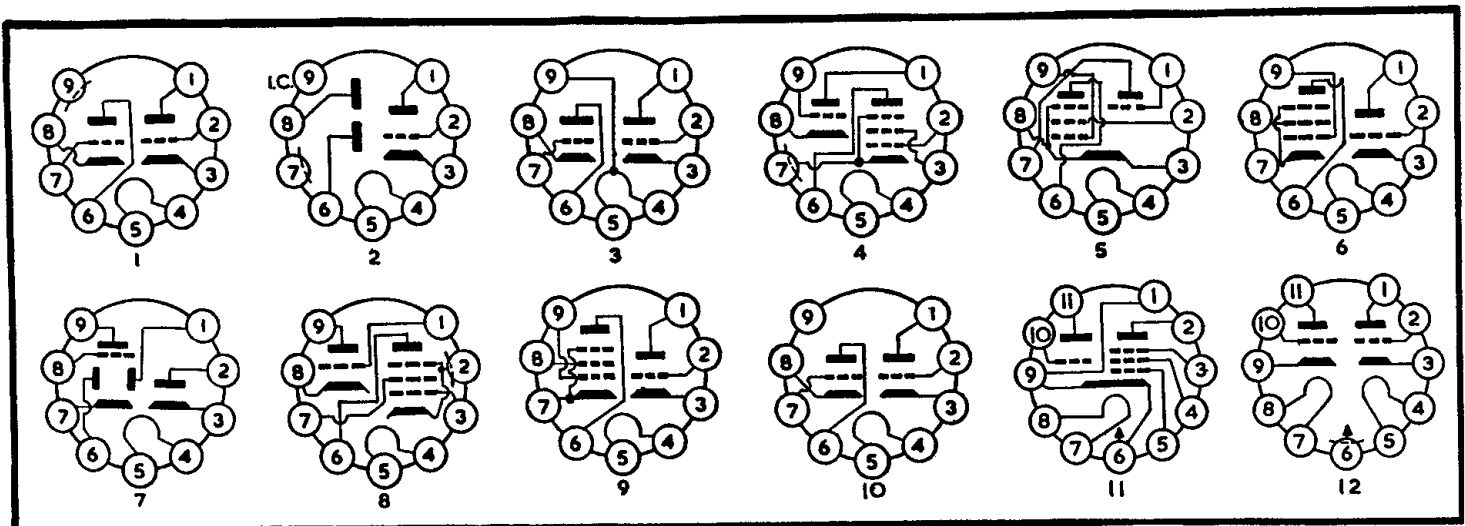
# TRIODE AMPLIFIERS—Contd.

Type	FILAMENT or HEATER		ANODE		Neg. Grid Volts.	ra KΩ	gm mA/V	Amp. Factor	RK Ω	BASE Type	Ref.	Maker
	Volts.	Amps.	Volts.	1/mA								
6680	6.3	0.3	250	10.5	8.5	7.7	2.2	17	—	B9A	24	U.S.A.
6681	12.6	0.15	250	1.2	2.0	62.5	1.6	100	—	B9A	24	U.S.A.
	6.3	0.3										
B152	12.6	0.15	200	11.5	1.0	10.5	6.7	70	—	B9A	4	Osram
	6.3	0.3										
B319	8.5	0.3	90	12.0	1.5	3.7	6.2	23	—	B9A	9	Osram
B329	6.3	0.3	250	10.5	8.5	7.7	2.2	17	—	B9A	4	Osram
	12.6	0.15										
B339	6.3	0.3	250	1.2	2.0	62.0	1.6	100	—	B9A	4	Osram
	12.6	0.15										
B719	6.3	0.45	200	11.0	2.0	7.0	6.8	48	—	B9A	27	Osram
DH719	6.3	0.45	250	1.0	3.0	58.0	1.2	70	—	B9A	33	Osram
E88CC	6.3	0.3	90	15.0	1.2	—	12.5	33	680	B9A	1	European
EBC81	6.3	0.23	250	1.0	3.0	58.0	1.2	70	—	B9A	35	European
EC84	6.3	0.225	125	16.0	1.1	4.2	10.0	42	70	B9A	36	European



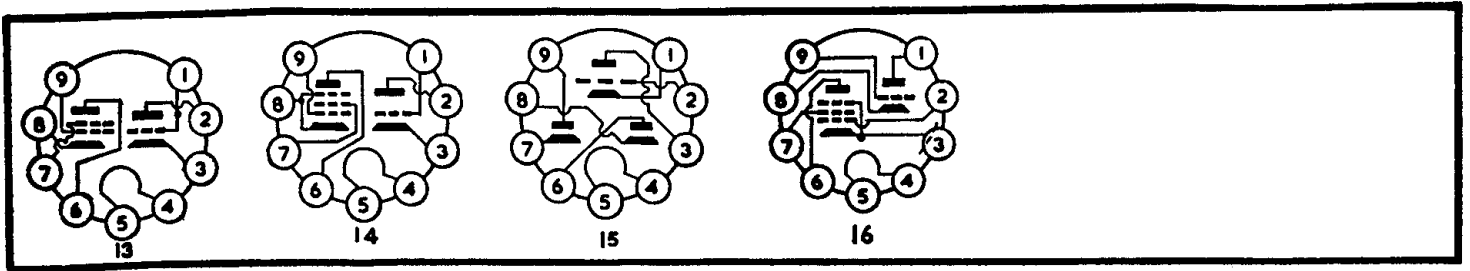
# TRIODE AMPLIFIERS—Contd.

Type	FILAMENT or HEATER		ANODE		Neg. Grid Volts.	ra KΩ	gm mA/V	Amp. Factor	RK Ω	BASE Type	Ref.	Maker
	Volts.	Amps.	Volts.	I/mA								
ECC87	6.3	0.6	250	6.6	5.5	11.5	2.8	32	—	B9A	3	European
ECC180	6.3	0.4	150	9.0	—	6.1	6.4	39	220	B9A	1	European
ECC801	6.3	0.3	250	10.0	—	11	5.5	60	—	B9A	3	European
	12.6	0.15										
ECF80	6.3	0.45	100	14.0	2.0	4.0	5.0	20	—	B9A	4	European
ECL81	6.3	0.6	200	0.5	1.5	6.0	7.2	43	—	B9A	5	Mul.-Eupn.
ECL82	6.3	0.75	100	3.0	0	33	2.2	70	—	B9A	8	Mul.-Eupn.
HN309	12.6	0.3	250	1.4	2.0	26.0	2.5	65	—	B9A	6	Osram
LZ319	8.5	0.3	100	14.0	2.0	4.0	5.0	20	—	B9A	4	Osram
M8136	6.3	0.3	250	10.5	8.5	7.7	2.2	17	800	B9A	3	Mullard
M8137	6.3	0.3	250	1.2	2.0	62.5	1.6	100	—	B9A	3	Mullard
	12.6	0.15										
PABC80	9.5	0.3	250	1.0	3.0	58.0	1.2	70	—	B9A	7	Mul.-Eupn.
PCC85	9.5	0.3	170	10.0	1.5	6.2	8.0	50	—	B9A	1	Mul.-Eupn.
PCF82	9.5	0.3	150	18.0	—	5.0	8.5	42	56	B9A	4	Mul.-Eupn.
PCL82	16.0	0.3	100	3.0	—	32.0	2.2	70	—	B9A	8	European
PCL83	12.6	0.3	250	14.0	8.5	7.7	2.2	17	—	B9A	9	European
QB309	6.3	0.3	250	10.0	2.0	10.0	5.5	55	—	B9A	3	Osram
	12.6	0.15										
UBC81	14.0	0.1	170	1.5	1.5	42.0	1.65	70	—	B9A	2	European
UCC85	26.0	0.1	170	8.7	—	8.4	6.0	50	160	B9A	1	Mul.-Eupn.
UCL81	38.0	0.1	180	0.4	1.5	6.0	7.2	43	—	B9A	5	Mul.-Eupn.
UCL82	48.0	0.1	100	3.0	0	33	2.2	70	—	B9A	8	Mul.-Eupn.
UCL83	38.0	0.1	250	1.0	3.0	58.0	1.2	70	—	B9A	9	European
ECC171	6.3	0.37	200	2.5	1.5	34.0	2.5	83.3	—	11 pin	12	European
ECF174	6.3	0.45	100	11.0	0	5.5	3.0	16.5	—	11 pin	11	European
EDD171	6.3	2x0.32	150	14.0	3.5	4.2	4.8	20	—	11 pin	12	European
UCC171	23.3	0.1	200	2.5	1.5	34.0	2.5	83.3	—	11 pin	12	European
UCF174	28.5	0.1	100	11.0	0	5.5	3.0	16.5	—	11 pin	11	European
UDD171	2x20.0	0.1	150	14.0	3.5	4.2	4.8	20	—	11 pin	12	European
6BA4	6.3	0.4	200	20.0	—	—	—	—	—	None	—	U.S.A.
6018	6.3	0.4	180	12.0	—	5.5	4.5	25	400	None	—	U.S.A.
6263	6.3	0.28	200	27.0	—	3.86	7.0	27	—	None	—	U.S.A.
6264	6.3	0.28	200	18.5	—	6.0	6.8	40	—	None	—	U.S.A.
6280	6.3	1.18	200	—	—	4.0	50.0	200	—	None	—	U.S.A.
6299	6.3	0.35	175	10.0	—	9.6	12.0	115	—	None	—	U.S.A.
6442	6.3	—	350	35.0	3.5	3.4	13.5	47	—	None	—	U.S.A.
6481	6.3	0.4	180	16.5	—	5.2	4.2	25	—	None	—	U.S.A.
6503	6.3	0.4	200	25.0	—	4.0	5.6	23	—	None	—	U.S.A.
12AE6	12.6	0.15	12.6	0.75	0	15	1.0	15	—	B7G	—	U.S.A.
4BX8	4.5	0.6	125	11.0	5	3.3	7.5	25	—	B9A	10	U.S.A.
5CG8	4.7	0.6	100	8.5	—	6.9	5.8	40	100	B9A	14	U.S.A.
5CL8	4.7	0.6	125	15.0	—	5.0	8.0	40	56	B9A	13	U.S.A.
6BL8	6.3	0.45	100	14.0	2.0	4.0	5.0	20	—	B9A	4	U.S.A.
6BV8	6.3	0.6	200	11.0	—	5.9	5.6	33	300	B9A	15	U.S.A.
6BX8	6.3	0.43	125	11.0	5	3.3	7.5	25	—	B9A	10	U.S.A.
6CG8	6.3	0.45	100	8.5	—	6.9	5.8	40	100	B9A	14	U.S.A.
6CL8	6.3	0.45	125	15.0	—	5.0	8.0	40	56	B9A	13	U.S.A.
9A8	8.5	0.3	100	14.0	2.0	4.0	5.0	20	—	B9A	4	U.S.A.
16A8	16.0	0.3	100	3.5	0	28.0	2.5	70	—	B9A	8	U.S.A.
6829	6.3	0.45	150	10.7	—	6.5	8.1	55	220	B9A	3	U.S.A.
	12.6	0.225										



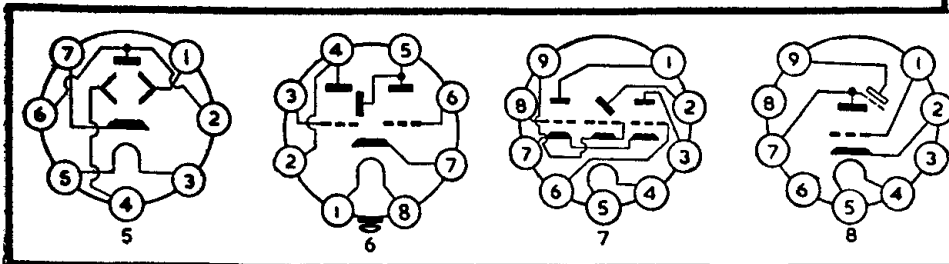
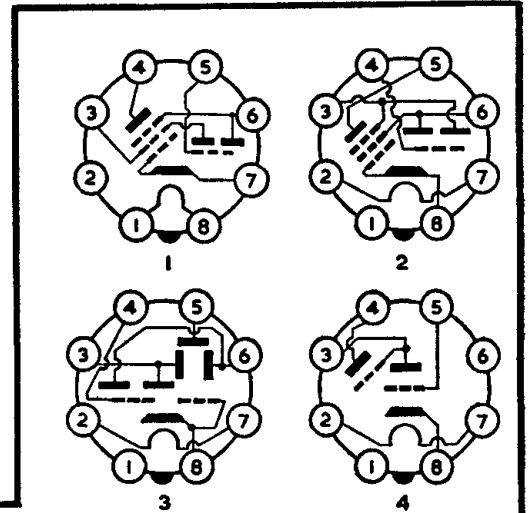
TRIODE AMPLIFIERS TOO LATE FOR CLASSIFICATION

Type	FILAMENT or HEATER		ANODE		Neg. Grid Volts	r <sub>a</sub> KΩ	gm mA/V	Amp. Factor	RK Ω	BASE		Maker
	Volts.	Amps.	Volts.	1/mA						Type	Ref.	
SCM8	4.7	0.6	250	1.8	2.0	50	2.0	100	—	B9A	16	U.S.A.
6CM8	6.3	0.45	250	1.8	2.0	50	2.0	100	—	B9A	16	U.S.A.
8CG7	8.4	0.45	250	9.0	8.0	7.7	2.6	20	—	Base	17	U.S.A.
8CM7	8.4	0.45	200	5.0	7.0	10.5	2.0	21	—	Base	17	U.S.A.
			250	20.0	18.0	4.1	4.4	18	—	25	17	U.S.A.
26AQ8	26.0	0.1	170	8.7	—	8.4	6.0	50	160	B9A	1	U.S.A.
6679	6.3	0.3	200	10.0	1.5	10.0	5.7	57	—	Base	17	U.S.A.
	12.6	0.15								4		



TUNING INDICATORS

Type	HEATER		TARGET		Grid Volts	BASE Type	Ref.	Maker
	Volts	Amps.	Volts	1/mA				
6M2	6.3	0.2	250	0.12	4.0	I.O.	2	Mazda
10M1	19.0	0.1	250	0.25	22.5	I.O.	4	Mazda
10M2	12.6	0.1	200	0.1	3.0	I.O.	2	Mazda
12CD7	12.6	0.1	250	0.75	16.0	I.O.	3	U.S.A.
EM35	6.3	0.2	250	0.2	20.0	I.O.	2	European
HM34	8.5	0.15	250	0.75	16.0	I.O.	3	European
UM35	15.0	0.1	200	0.1	20.0	I.O.	1	European
6355	6.3	0.14	250	—	—	B7G	5	U.S.A.
HM71	12.6	0.1	250	2.5	20.0	B8G	6	European
6BR5	6.3	0.27	250	1.6	20.0	B9A	8	U.S.A.
19BR5	19.0	0.1	250	1.6	20.0	B9A	8	U.S.A.
E82M	6.3	0.75	250	1.3	3.0	B9A	7	European
EM80	6.3	0.27	250	1.6	20.0	B9A	8	Mull-Eupn.
EM81	6.3	0.3	250	2.0	10.5	B9A	8	Mull-Eupn.
EM83	6.3	0.3	250	—	16.0	B9A	—	European
UM80	16.0	0.1	250	1.6	20.0	B9A	8	Mull-Eupn.
UM83	19.0	0.1	250	—	16.0	B9A	—	European
65ME	6.3	0.27	250	1.6	20.0	B9A	8	Cossor



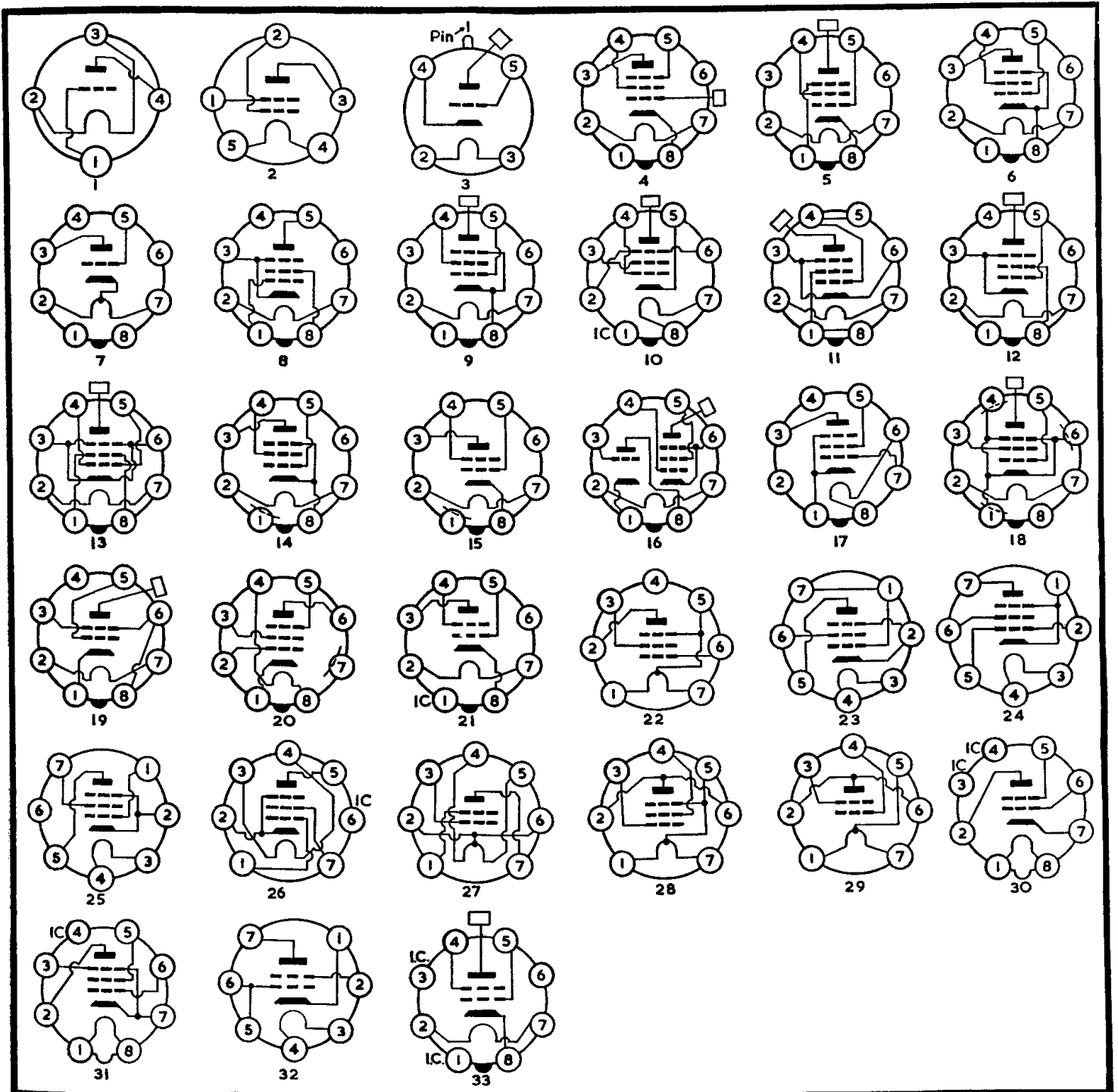
# OUTPUT VALVES

Type	FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid Volts	ra KΩ	gm mA/V	Anode Load Ω	Output W	Dis %	BASE Type	Ref.	Maker
	Volts	Amps	Volts.	I/mA	Volts.	I/mA									
XP1.5V	1.5	0.08	50	1.75	—	—	4.5	7.0	.72	—	—	—		1	Hivac
XP2.0V	2.0	0.08	50	2.0	—	—	3.0	6.0	1.0	—	—	—		1	Hivac
XY1.5V	1.5	0.16	45	1.75	45	—	1.5	66.0	1.0	—	—	—		2	Hivac
XY2.0V	2.0	0.16	50	1.75	50	—	2.0	60.0	1.4	—	—	—		2	Hivac
DA42	7.5	1.2	1000	40.0	—	—	—	24.0	3.0	10K.A.-A	40	—		3	Osram
5A/102D	7.5	0.85	180	—	150	—	18.0	—	2.5	4000	—	—	I.O.	4	S.T.C.
5P29	6.3	1.4	275	91.0	275	11.0	9.0	2.0	16.5	Line	Timebase	Amp.	I.O.	5	European
5V6GT	4.7	0.6	250	47.0	250	7.0	12.5	50.0	4.1	5000	4.5	8	I.O.	6	U.S.A.
6A5	6.3	1.25	250	60.0	—	—	45.0	0.8	5.25	2500	3.75	—	I.O.	7	U.S.A.
6AV5GA	6.3	1.2	250	55.0	150	2.1	22.5	—	5.8	Line	Timebase	Amp.	I.O.	8	U.S.A.
6AY5	6.3	0.45	250	47.0	250	7.0	12.5	50.0	4.1	5000	4.5	8	I.O.	6	U.S.A.
6BQ6/GA/ GT/GTA	6.3	1.2	250	55.0	150	2.1	22.5	20.0	5.5	Line	Timebase	Amp.	I.O.	9	U.S.A.
6BQ6/GTB	6.3	1.2	250	65.0	150	2.1	22.5	18.0	6.0	Line	Timebase	Amp.	I.O.	9	U.S.A.
6BU5	6.3	0.15	20K	1.0	70	0.4	2.4	—	—	E.H.T. Voltage	Reg	—	I.O.	10	U.S.A.
6CB5/A	6.3	2.5	175	90.0	175	6.0	30.0	5.0	8.8	Line	Timebase	Amp.	I.O.	11	U.S.A.
6CD6GA	6.3	2.5	175	75.0	175	5.5	55.0	7.2	7.7	Line	Timebase	Amp.	I.O.	12	U.S.A.
6CL5	6.3	—	175	90.0	175	7.0	40.0	6.0	6.5	Horizontal	Amp.	—	I.O.	13	U.S.A.
6CM5	6.3	1.2	250	72.0	250	8.0	7.0	20.0	14.5	3500	8.0	10	I.O.	6	U.S.A.
6CN6	6.3	1.4	275	91.0	275	11.0	9.0	2.0	16.5	Line	Timebase	Amp.	I.O.	5	U.S.A.
6CU6	6.3	1.2	425	83.0	140	12.3	28.0	20.0	5.5	Line	Timebase	Amp.	I.O.	9	U.S.A.
6DG6GT	6.3	1.2	200	47.0	125	8.5	180*	28.0	8.0	4000	3.8	10	I.O.	14	U.S.A.
6DN6	6.3	2.5	125	70.0	125	6.3	18.0	4.0	9.0	Line	Timebase	Amp.	I.O.	12	U.S.A.
6DQ6/A	6.3	1.2	465	83.0	140	12.3	28.0	—	—	Line	Timebase	Amp.	I.O.	9	U.S.A.
6P1	6.3	0.8	250	40.0	250	8.0	8.5	40.0	8.8	5000	4.5	—	I.O.	15	U.S.A.
12AV5G	12.6	0.6	250	55.0	150	2.1	22.5	—	5.8	Line	Timebase	Amp.	I.O.	8	Mazda
12BQ6	12.6	0.6	250	55.0	150	2.1	22.5	20.0	5.5	Line	Timebase	Amp.	I.O.	9	U.S.A.
12BQ6GTB	12.6	0.6	250	65.0	150	2.1	22.5	18.0	6.0	Line	Timebase	Amp.	I.O.	9	U.S.A.
12CU6	12.6	0.6	425	83.0	140	12.3	28.0	20.0	5.5	Line	Timebase	Amp.	I.O.	9	U.S.A.
12DQ6/A	12.6	0.6	465	83.0	140	12.3	28.0	—	—	Line	Timebase	Amp.	I.O.	9	U.S.A.
12L6	12.6	0.6	200	55.0	110	7.0	8.0	30.0	9.5	3000	4.3	10	I.O.	6	U.S.A.
12W6GT	12.6	0.6	135	61.0	135	12.0	9.5	—	9.0	2000	3.3	—	I.O.	6	U.S.A.
15A8	15.0	0.6	110	45.0	110	—	7.5	13.0	7.3	—	—	—	I.O.	16	U.S.A.
25AV5GA	25.0	0.3	250	55.0	150	2.1	22.5	—	5.8	Line	Timebase	Amp.	I.O.	8	U.S.A.
25BG6	25.0	0.3	135	69.0	135	14.5	22.0	15.0	5.0	1700	3.5	14	I.O.	12	U.S.A.
25BQ6GB	25.0	0.3	175	75.0	175	5.5	55.0	7.2	7.7	Line	Timebase	Amp.	I.O.	9	U.S.A.
25BQ6GTB	25.0	0.3	250	65.0	150	2.1	22.5	18.0	6.0	Line	Timebase	Amp.	I.O.	9	U.S.A.
25CD6GB	25.0	0.6	175	75.0	175	5.5	55.0	7.2	7.7	Line	Timebase	Amp.	I.O.	12	U.S.A.
25CU6	25.0	0.3	425	83.0	140	12.3	28.0	20.0	5.5	Line	Timebase	Amp.	I.O.	9	U.S.A.
25DN6	25.0	0.6	125	70.0	125	6.3	18.0	4.0	9.0	Line	Timebase	Amp.	I.O.	12	U.S.A.
25DQ6	25.0	0.3	465	83.0	140	12.3	28.0	—	—	Line	Timebase	Amp.	I.O.	9	U.S.A.
25E5	25.0	0.3	170	100.0	170	8.8	21.0	6.0	11.0	Horizontal	Amp.	—	I.O.	9	U.S.A.
26E6G	26.0	—	200	61.0	135	3.0	14.0	18.0	7.1	2600	6.0	10	I.O.	14	U.S.A.
30P4	25.0	0.3	170	100.0	170	8.8	21.0	5.5	11.0	Horizontal	Amp.	—	I.O.	33	Mazda
30P14	13.0	0.3	165	42.0	175	10.5	9.4	42	7.2	3500	3.4	—	I.O.	6	Mazda
6046	25.0	0.3	200	55.0	110	7.0	8.0	30.0	9.5	3000	4.3	10	I.O.	6	U.S.A.
6098	6.3	1.2	250	77.0	250	5.0	22.5	21.0	5.4	—	—	—	I.O.	17	U.S.A.
6293	6.3	1.25	200	100.0	200	—	—	—	7.3	—	—	—	I.O.	18	U.S.A.
6549	6.3	3.5	2000	175.0	600	—	100.0	—	—	—	75.0	—	I.O.	—	U.S.A.
6550	6.3	1.8	400	105.0	225	18.0	16.5	27.0	9.0	3000	20.0	13.5	I.O.	14	U.S.A.
6792	—	—	25K	1.0	200	0.1	10M.	E.H.T.	Control Valve	—	—	—	I.O.	19	U.S.A.
EL401	6.3	1.5	1000	40.0	300	16.0	—	—	4.0	—	8.5	—	I.O.	20	European
KT55	52.0	0.3	200	125.0	150	7.5	13.5	5.0	16.5	2000	—	—	I.O.	21	Osram
PL36	25.0	0.3	170	100.0	170	8.8	21.0	5.5	11.0	Horizontal	Amp.	—	I.O.	9	Mul.-Eupn
1P1	{ 1.4 2.8	{ 0.05 0.025	{ 85 —	{ 5.0 —	{ 85 —	{ 1.0 —	{ 5.2 —	{ — —	{ 1.4 —	{ 14K —	{ 0.2 —	{ — —	{ B7G —	{ 22 —	{ Mazda —
5AQ5	4.7	0.6	250	47.0	250	7.0	12.5	52	4.1	5000	4.5	8	B7G	23	European
6AQ5L	6.3	0.36	250	47.0	250	7.0	12.5	52	4.1	5000	4.5	8	B7G	23	U.S.A.
6CA5	6.3	1.2	125	37.0	125	11.0	4.5	15	9.2	4500	1.5	6	B7G	24	U.S.A.
6CU5	6.3	1.2	120	50.0	110	8.5	8.0	10	7.5	2500	2.3	10	B7G	24	U.S.A.
6P9	6.3	0.45	250	30.0	250	3.0	6.0	60	7.0	7000	3.5	—	B7G	23	European
9P9	9.5	0.3	250	30.0	250	3.0	6.0	60	7.0	7000	3.5	—	B7G	23	European
12AQ5	12.6	0.225	250	47.0	250	7.0	12.5	52	4.1	5000	4.5	8	B7G	23	U.S.A.
12C5	12.6	0.6	110	50.0	110	4.0	7.5	10	7.5	2500	1.9	9	B7G	24	U.S.A.
12CA5	12.6	0.6	125	37.0	125	11.0	4.5	15	9.2	4500	1.5	6	B7G	24	U.S.A.
12CU5	12.6	0.6	120	50.0	110	8.5	8.0	10	7.5	2500	2.3	10	B7G	24	U.S.A.
12K5	12.6	0.45	12.6	8.0	12.6	—	2.0	—	—	—	0.0035	10	B7G	32	U.S.A.
18AQ5	18.0	0.125	250	47.0	250	7.0	12.5	52	4.1	5000	4.5	8	B7G	23	U.S.A.
25C5	25.0	0.3	110	50.0	110	8.5	7.5	10	7.5	2500	1.9	—	B7G	24	U.S.A.
25CA5	25.0	0.3	125	37.0	125	11.0	4.5	15	9.2	4500	1.5	6	B7G	24	U.S.A.
30A5	30.0	0.15	100	43.0	100	11.0	6.7	21	9.2	—	1.9	10	B7G	24	U.S.A.
6156	6.3	0.2	250	16.0	250	2.4	13.5	150	2.6	16K	1.4	10	B7G	25	U.S.A.
6669	6.3	0.45	250	47.0	250	7.0	12.5	52	4.1	5000	4.5	8	B7G	23	U.S.A.

\* Cathode Resistor in Ohms.

# OUTPUT VALVES—Contd.

Type	FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid	ra	gm	Anode Load	Output	Dis %	BASE Type	BASE Ref.	Maker
	Volts.	Amps.	Volts.	1/mA	Volts.	1/mA									
A2134	6.3	0.635	165	53.0	165	9.0	9.3	23	9.5	3000	4.1	—	B7G	26	Osram
DL98	2.5	0.165	150	—	135	—	—	—	1.7	—	—	—	B7G	27	European
DL192	1.25	0.33	67.5	7.0	67.5	2.0	7.0	100	1.5	—	0.15	10	B7G	28	European
	1.4	0.1													
DL193	2.8	0.05	150	10.0	67.5	2.6	7.5	90	2.2	12K	0.65	10	B7G	29	European
	1.4	0.2													
	2.8	0.1													
EL95	6.3	0.2	225	26.0	225	4.8	7.3	75	5.5	9000	3	12	B7G	23	European
HL92	50.0	0.15	110	50.0	110	8.5	7.5	10	7.5	2500	1.9	—	B7G	24	Mul.-Eupn
HL94	30.0	0.15	100	43.0	100	11.0	6.7	2.1	9.2	—	1.9	10	B7G	24	European
M8082	6.3	0.15	250	16.0	250	2.4	12.5	130	2.6	16K	1.4	10	B7G	25	Mullard
N727	6.3	0.2	250	47.0	250	7.0	12.5	52	4.1	5000	4.5	—	B7G	23	Osram
QN77	6.3	0.45	250	16.0	250	2.4	12.5	130	2.6	16K	1.4	10	B7G	25	Osram
20P5	20.0	0.2	180	29.0	150	5.8	6.3	—	7.5	5800	2.6	10	B8A	30	Mazda
6CK5	6.3	0.7	250	36.0	250	5.2	7.0	40	10.0	7000	4.2	10	B8A	31	Tungram
45A5	45.0	0.1	170	53.0	170	10.0	10.4	20	10.0	3000	4.2	10	B8A	31	Tungram
451PT	45.0	0.1	170	10.0	170	53.0	10.4	20	10.0	3000	4.2	10	B8A	31	Cossor





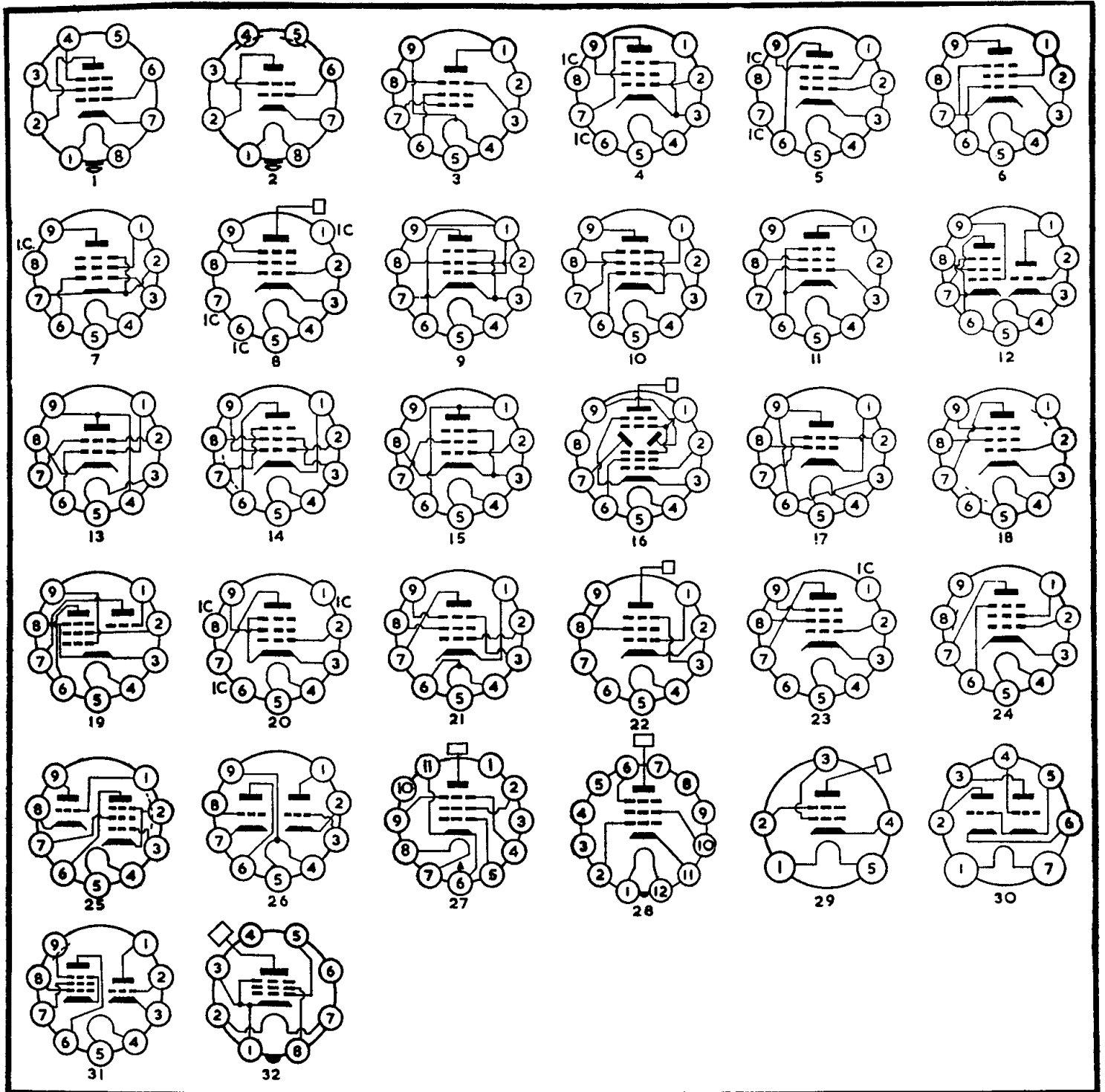
# OUTPUT VALVES—Contd.

Type	FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid Volts.	ra KΩ	gm mA/V	Anode Load Ω	Output W	Dis %	BASE Type	Ref.	Maker
	Volts	Amps	Volts.	I/mA	Volts.	I/mA									
6145	6.3	0.6	150	34.0	100	8.0	0	100	10.0	—	—	—	B8G	1	U.S.A.
A1820	6.3	0.95	250	40.0	250	—	—	—	10.5	—	—	—	B8G	2	Osram
5A6	2.5	0.46	150	40.0	150	7.0	15.0	—	—	—	—	—	B9A	3	U.S.A.
	5.0	0.23													
6BQ5	6.3	0.76	250	48.0	250	5.4	140*	47.5	11.5	5200	5.7	10	B9A	4	U.S.A.
6BS5	6.3	0.75	250	50.0	250	6.0	7.5	17.0	7.0	5000	4.5	6	B9A	5	Europear
6CM6	6.3	0.45	250	45.0	250	4.5	12.5	50.0	4.1	5000	4.5	8	B9A	6	U.S.A.
6CN8	6.3	0.7	200	35.0	200	6.5	16.0	5	6.4	Frame Amp.	—	—	B9A	25	U.S.A.
6CS5	6.3	1.2	200	47.0	125	8.5	180*	28	8.0	4000	3.8	10	B9A	7	U.S.A.
6DR6	6.3	1.05	180	45.0	180	3.0	23.5	—	6.5	Line Timebase Amp.	—	—	B9A	8	Europear
6QL6	6.3	0.8	180	52.0	180	10.0	11.5	18.0	9.5	3000	4.25	—	B9A	9	U.S.A.
12AB5	12.6	0.2	250	45.0	250	4.5	12.5	50.0	4.1	5000	4.5	8	B9A	10	U.S.A.
12BK5	12.6	0.225	250	37.0	250	10.0	5.0	100.0	8.5	6500	3.5	—	B9A	11	U.S.A.
12CM6	12.6	0.225	250	35.0	250	6.0	13.5	80.0	3.75	8500	5.5	12	B9A	6	U.S.A.
12CS5	12.6	0.6	200	47.0	125	8.5	180*	28	8.0	4000	3.8	10	B9A	7	U.S.A.
12G8	6.3	0.8	120	50.0	—	—	8.0	10	7.5	2500	2.3	10	B9A	26	U.S.A.
	12.6	0.4													
16A8	16.0	0.3	250	35.0	200	6.5	16.0	20	6.4	—	—	—	B9A	25	U.S.A.
16CN8	15.0	0.3	200	35.0	200	6.5	16.0	5	6.4	Frame Amp.	—	—	B9A	25	U.S.A.
21B6	21.5	0.3	180	45.0	180	3.0	23.0	—	6.5	Line Timebase Amp.	—	—	B9A	8	Europea
30FL1	9.4	0.3	170	10.0	170	—	2.0	—	7.5	—	—	—	B9A	31	Mazda
30P12	12.6	0.3	250	6.0	250	1.8	—	—	8.3	—	—	—	B9A	4	Mazda
30PL1	13.0	0.3	250	5.5	250	1.5	—	—	6.5	—	—	—	B9A	12	Mazda
45B5	45.0	0.1	170	70.0	170	22.0	12.5	23	10.0	7000	5.6	10	B9A	4	U.S.A.
50BK5	50.0	0.15	250	37.0	250	10.0	5.0	100.0	8.5	6500	3.5	—	B9A	11	U.S.A.
163PEN	16.5	0.3	170	53.0	170	10.0	10.4	20.0	9.5	3000	4.2	10	B9A	4	Cossor
6094	6.3	0.6	250	35.0	250	4.0	—	—	—	—	—	—	B9A	13	U.S.A.
6197	6.3	0.65	250	30.0	150	7.0	3.0	90.0	11.0	Pulse Amplifier	—	—	B9A	14	U.S.A.
6216	6.3	1.2	200	51.0	100	4.0	6.0	39.0	8.8	4500	3.8	—	B9A	15	U.S.A.
6218	6.3	0.15	100	G <sup>2</sup> =70	G <sup>3</sup> =250V.					Deflector=120V. Pulse Generator	—	—	B9A	16	U.S.A.
6287	6.3	0.6	250	48.0	250	10.5	12.5	55.0	4.1	6000	4.5	9	B9A	17	U.S.A.
6677	6.3	0.65	250	31.0	150	7.2	3.0	150	11.0	7500	2.8	8	B9A	14	U.S.A.
E87L	6.3	0.75	250	36.0	250	5.0	6.0	48.0	10.0	—	11.0	—	B9A	18	Europea
ECL81	6.3	0.6	180	30.0	180	4.8	5.5	15.0	8.75	6000	2.1	—	B9A	19	Mul.-Eu
ECL82	6.3	0.75	170	41.0	170	7.5	4.5	40	5.8	4000	3.5	10	B9A	25	Mul.-Eu
EL82	6.3	0.8	170	53.0	170	10.0	10.4	20.0	9.0	3000	4.0	6	B9A	20	Mul.-Eu
EL81F	6.3	1.05	180	45.0	180	3.0	23.5	—	—	Line Timebase Amp.	—	—	B9A	8	Mul.-Eu
EL86	6.3	0.76	170	70.0	170	5.0	12.5	23	10.0	2400	5.6	10	B9A	4	Europe
EL88	6.3	0.75	200	33.0	200	4.6	4.5	48.0	9.75	—	6.25	—	B9A	18	Europe
EL89	6.3	0.75	250	38.0	250	5.3	6.0	45.0	10.5	—	11.0	—	B9A	18	Europe
EL180	6.3	0.6	250	25.0	150	6.0	68*	110	12.0	Video Amplifier	—	—	B9A	21	Europe
	12.6	0.3													
EL804	6.3	0.76	140	70.0	170	5.0	12.0	15	10.0	—	—	12	B9A	22	Europe
EL820	6.3	1.05	180	45.0	180	3.0	23.5	—	—	Line Timebase Amp.	—	—	B9A	8	Mul.-Eu
EL821	6.3	0.75	250	40.0	200	6.5	2.5	60	13.0	Video Amplifier	—	—	B9A	23	Mul.-Eu
EL822	6.3	0.75	250	40.0	150	5.0	2.5	100	13.0	Video Amplifier	—	—	B9A	23	Mul.-Eu
HN309	12.6	0.3	165	—	165	—	9.0	45	4.7	—	—	—	B9A	12	Osram
M8135	6.3	0.75	250	40.0	200	6.5	2.5	60	13.0	Video Amplifier	—	—	B9A	23	Mullar
N153	15.0	0.3	180	36.0	180	4.0	2.9	100	10.0	Video Amplifier	—	—	B9A	24	Osram
N154	16.5	0.3	170	53.0	170	10.0	10.4	20	9.5	3000	4.2	10	B9A	20	Osram
N349	20.0	0.3	170	40.0	170	15.0	0	30	8.5	Line Timebase Amp.	—	—	B9A	8	Osram
N359	21.5	0.3	170	45.0	170	3.0	22.0	10	6.2	Line Timebase Amp.	—	—	B9A	8	Marcor
N709	6.3	0.76	250	48.0	250	5.4	140*	47.5	11.5	5200	5.7	10	B9A	4	Osram
PCL82	16.0	0.3	250	35.0	200	6.5	16.0	20	6.4	—	—	—	B9A	25	Europe
PCL83	12.6	0.3	250	21.6	250	4.8	9.0	45	4.7	—	—	—	B9A	12	Europe
PL81F	21.5	0.3	170	45.0	170	3.0	10.0	6.2	—	Line Timebase Amp.	—	—	B9A	8	Mullar
PL84	16.0	0.3	200	34.0	200	3.8	6.0	55	10.0	7000	4.4	10	B9A	4	Europe
PL820	21.5	0.3	170	45.0	170	3.0	22.0	10	6.2	Line Timebase Amp.	—	—	B9A	8	Europe
UCL81	38.0	0.1	180	30.0	180	4.8	5.5	15	8.75	6000	2.1	—	B9A	19	Mul.-E
UCL82	48.0	0.1	170	41.0	170	7.5	4.5	40	5.8	4000	3.5	10	B9A	25	Mul.-E
UCL83	38.0	0.1	250	21.6	250	4.8	9.0	45	4.7	—	—	—	B9A	12	Europe
UL84	45.0	0.1	170	70.0	170	22.0	12.5	23	10.0	7000	5.6	10	B9A	4	Europe
EL173	6.3	1.2	200	40.0	200	3.0	28.0	11	5.5	Line Timebase Amp.	—	—	11 pin	27	Europe
5890	6.3	0.6	30K	0.5	5200	3	60.0	Shunt Regulator	—	—	—	—	B12A	28	U.S.A.
5B/250A	6.3	0.9	300	83.0	250	8.0	14.0	20	6.5	2850	6.7	—	UX5	29	S.T.C.
HY61	6.3	0.9	300	83.0	250	8.0	14.0	20	6.5	2850	6.7	—	UX5	29	U.S.A.
OEO6/50	6.3	0.9	300	83.0	250	8.0	14.0	20	6.5	2850	6.7	—	UX5	29	Europ
QVO5-25	6.3	0.9	300	83.0	250	8.0	14.0	20	6.5	2850	6.7	—	UX5	29	Mullar
RK39	6.3	0.9	300	83.0	250	8.0	14.0	20	6.5	2850	6.7	—	UX5	29	U.S.A.
2B6	2.5	2.25	250	40.0	—	—	24.0	5.15	3.5	5000	4.0	—	UX7	30	U.S.A.

\* Cathode Resistor in Ohms.

# OUTPUT VALVES—Contd.

Type	FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid Volts.	r <sub>a</sub> KΩ	gm mA/V	Anode Load Ω	Output W	Dis %	BASE Type	Ref. Page	Maker
	Volts.	Amps.	Volts.	1/mA	Volts.	1/mA									
6327	6.3	1.8	250	120.0	250	7.0	22.5	20	8.0	—	—	—	32	U.S.A.	
25F5	25.0	0.15	110	37.0	110	3.0	7.5	16	5.8	2500	1.2	10	24	21	U.S.A.
6760	6.3	1.0	130	70.0	130	3.5	100*	—	12.0	2000	3	—	B9A	15	U.S.A.
6761	18.0	0.35	130	70.0	130	3.5	100*	—	12.0	2000	3	—	B9A	15	U.S.A.

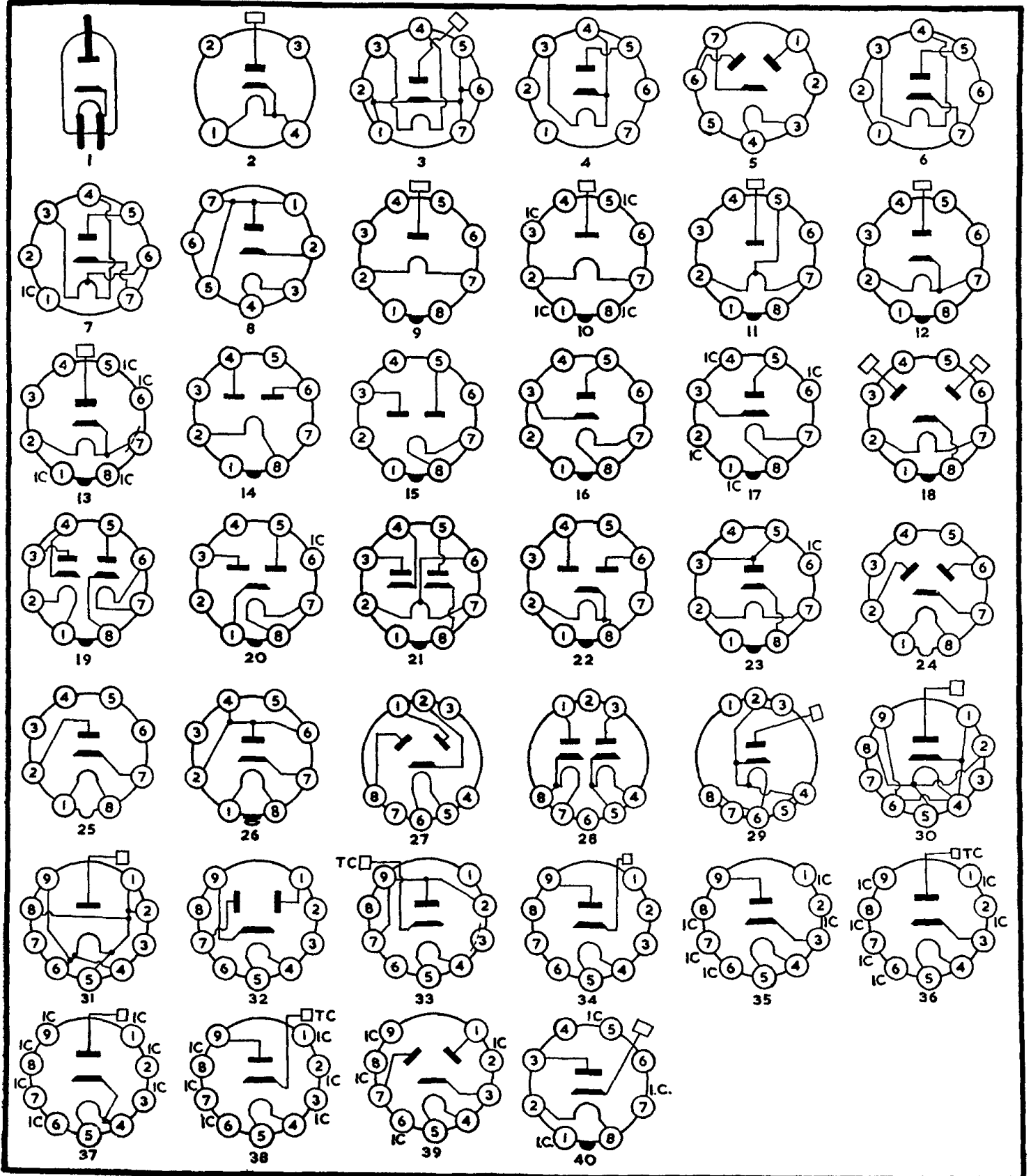


# RECTIFIERS

Type	FILAMENT or HEATER		MAX. VOLTS PER ANODE (RMS)	MAX. I/MA	MAXIMUM INVERSE PEAK VOLTS	MAXIMUM RESERVOIR CAPACITANCE (50 c/s)	MINIMUM SERIES RESISTANCE $\Omega$	BASE		Maker
	Volts	Amps						Type	Ref.	
90V9	6.3	0.08	—	0.5	5000	—	—	B2A	1	European
2X2	2.5	1.75	2650	7.5	7500	—	—	UX4	2	U.S.A.
1B48	Cold	—	800	6.0	2700	—	—	B7G	—	U.S.A.
2T/270K	4.0	0.5	5500	5.0	12500	0.25	62000	B7G	3	S.T.C.
5MK9	5.0	0.65	325	65.0	—	—	—	B7G	4	Japanese
6BX4	6.3	0.6	350	90.0	1350	50	300	B7G	5	European
6FX4	6.3	0.8	350	90.0	—	—	—	B7G	5	European
25MK15	25.0	0.15	125	90.0	—	—	—	B7G	6	Japanese
6202	6.3	0.6	450	70.0	1250	—	—	B7G	5	U.S.A.
6203	6.3	0.6	450	70.0	1250	—	—	B7G	5	U.S.A.
6305	4.0	0.5	—	5.0	12500	—	—	B7G	3	U.S.A.
EY92	6.3	0.4	127	70.0	350	—	—	B7G	6	European
EZ91	6.3	0.95	325	90.0	—	—	150	B7G	5	Mull-Eupn
HY90	35.0	0.15	117	90.0	330	40	15	B7G	7	European
M8138	6.3	0.6	325	70.0	—	—	100	B7G	5	Mullard
QU78	6.3	0.7	350	70.0	1250	—	—	B7G	5	M.O.
UY91	26.0	0.1	250	75.0	—	32	100	B7G	8	European
UY92	26.0	0.1	127	70.0	350	—	—	B7G	6	European
1Z1	0.7	0.18	15000	0.5	—	—	—	I.O.	9	European
2B3GT	1.75	0.25	—	2.0	40000	—	—	I.O.	10	U.S.A.
2V2	{ 1.25	{ 0.4	—	1.0	21000	—	—	I.O.	11	U.S.A.
	{ 2.5	{ 0.2	—	—	—	—	—	—	—	—
3A3	3.15	0.22	—	1.5	30000	—	—	I.O.	12	U.S.A.
3B2	3.15	0.22	—	1.1	35000	—	—	I.O.	13	U.S.A.
3C2	3.15	0.21	—	1.1	33000	—	—	I.O.	9	U.S.A.
5AR4	5.0	1.9	300	250.0	—	60	—	I.O.	—	U.S.A.
5AS4	5.0	4.0	600	300.0	1550	—	—	I.O.	14	U.S.A.
5AU4	5.0	4.5	500	325.0	1400	40	50	I.O.	14	U.S.A.
5AW4	5.0	4.0	550	250.0	1550	10	153	I.O.	14	U.S.A.
5U4GA	5.0	3.0	550	250.0	1550	40	75	I.O.	14	U.S.A.
5U4GB	5.0	3.0	550	275.0	1550	40	67	I.O.	14	U.S.A.
5V3	5.0	3.0	500	300.0	—	40	56	I.O.	14	U.S.A.
5X4GA	5.0	3.0	550	275.0	1150	40	67	I.O.	15	U.S.A.
5Y3GA	5.0	2.0	500	125.0	1400	10	50	I.O.	14	U.S.A.
5Y4GA	5.0	2.0	500	125.0	1400	10	50	I.O.	15	U.S.A.
6AU4	6.3	1.8	—	175.0	4500	T.V.	Damper Diode	I.O.	16	U.S.A.
6AU4GTA	6.3	1.8	—	190.0	4500	T.V.	Damper Diode	I.O.	16	U.S.A.
6BL4	6.3	3.0	—	200.0	4500	T.V.	Damper Diode	I.O.	17	U.S.A.
6M3	6.3	3.0	6000	320.0	—	T.V.	Damping Diode	I.O.	40	U.S.A.
12AX4GTA	12.6	0.6	—	125.0	4400	T.V.	Damper Diode	I.O.	16	U.S.A.
19AU4	18.9	0.6	—	175.0	4500	T.V.	Damper Diode	I.O.	16	U.S.A.
19AU4GTA	18.9	0.6	—	190.0	4500	T.V.	Damper Diode	I.O.	16	U.S.A.
25AX4	25.0	0.3	—	125.0	4000	T.V.	Damper Diode	I.O.	16	U.S.A.
25T3G	25.0	0.3	250	100.0	—	—	—	I.O.	18	European
5690	{ 6.3	{ 2.4	700	110.0	—	10	350	I.O.	19	U.S.A.
	{ 12.6	{ 1.2	—	—	—	—	—	—	—	—
6087	5.0	2.0	350	125.0	1400	40	50	I.O.	14	U.S.A.
6106	5.0	2.0	350	125.0	1400	40	50	I.O.	14	U.S.A.
6325	6.3	2.7	780	250.0	2200	—	—	I.O.	20	U.S.A.
CZ30	80.0	0.2	240	200.0	—	50	50	I.O.	21	European
GZ33	5.0	2.8	500	250.0	—	16	25	I.O.	22	Mull-Eup
PY32	29.0	0.3	250	275.0	700	100	56	I.O.	23	Mullard
6BT4	6.3	0.6	350	90.0	—	50	300	B8A	24	Tungsrar
31A3	31.0	0.1	250	90.0	—	50	160	B8A	25	Tungsrar
311SU	31.0	0.1	250	90.0	—	50	160	B8A	25	Tungsrar
UY22	26.0	0.1	110	60.0	—	—	—	B8G	26	European
6GG6	6.3	0.85	500	100.0	—	—	—	G8A	27	European
EYY13	6.3	2x1.25	500	2x125.0	1500	32	100	G8A	28	European
GY11	2.5	5.0	1600	100.0	—	4	200	G8A	29	European
UY53	2x82.0	0.1	550	250.0	—	—	—	G8A	28	European
1S2	1.4	0.55	—	0.8	22,000	.002	—	B9A	30	U.S.A.
3A2	3.15	0.22	—	1.5	18000	—	—	B9A	30	U.S.A.
6AX2	6.3	0.1	20000	0.3	—	—	—	B9A	31	Europea
6BW4	6.3	0.9	450	100.0	1275	40	82	B9A	32	U.S.A.
6V3A	6.3	1.75	350	125.0	6000	20	145	B9A	33	U.S.A.
6V3P	6.3	0.9	—	150.0	4500	—	—	B9A	34	Europea
12BW4	12.6	0.45	450	100.0	1275	40	82	B9A	32	U.S.A.
19SU	19.0	0.3	250	180.0	700	60	100	B9A	35	Cossor
19U3	19.0	0.3	—	180.0	4000	T.V.	Damper Diode	B9A	35	Cossor
6374	6.3	1.0	625	125.0	2000	24	250	B9A	36	U.S.A.
6443	6.3	1.1	625	125.0	1800	8	100	B9A	36	U.S.A.
DY86	1.4	0.53	18000	0.15	22000	—	—	B9A	37	Europea
DY87	1.4	0.55	18000	0.15	22000	—	—	B9A	37	Europea

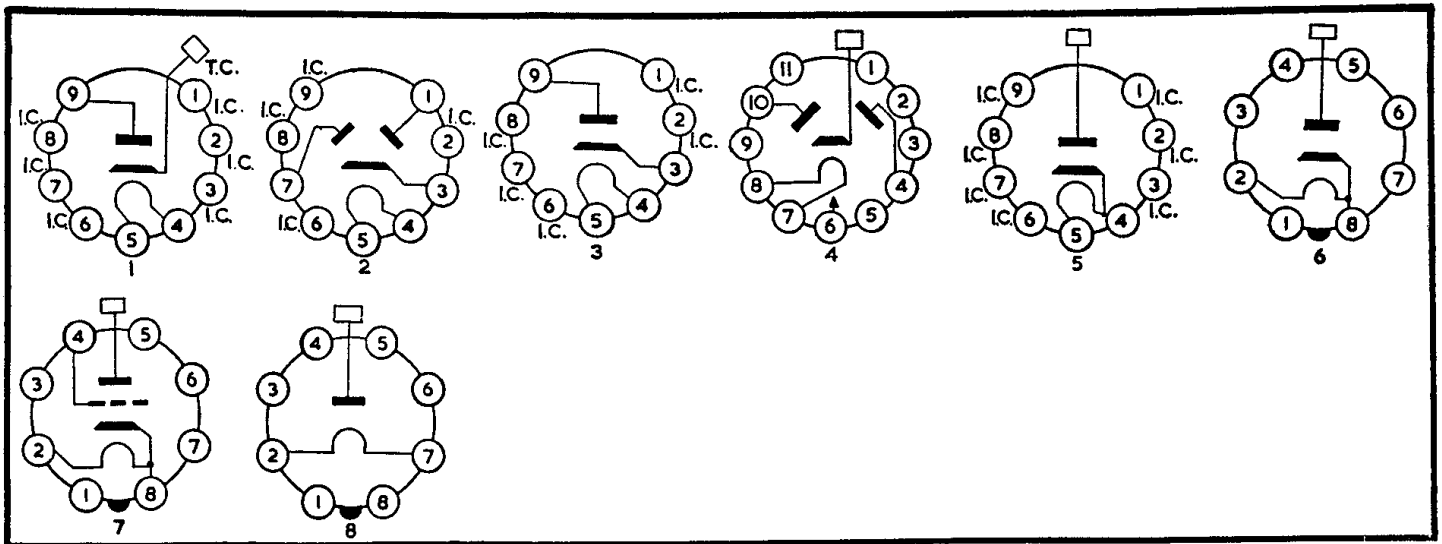
# RECTIFIERS—Contd.

Type	FILAMENT or HEATER		MAX. VOLTS PER ANODE (RMS)	MAX. I/mA	MAXIMUM INVERSE PEAK VOLTS	MAXIMUM RESERVOIR CAPACITANCE (50 c/c)	MINIMUM SERIES RESISTANCE $\Omega$	BASE		Maker
	Volts.	Amps.						Type	Ref.	
EY81	6.3	0.82	—	150.0	4500	4	—	B9A	38	European
EY82	6.3	0.9	250	180.0	700	60	100	B9A	35	European
EY86	6.3	0.09	18000	0.15	22000	—	—	B9A	37	Mull-Eupn.
EY87	6.3	0.09	18000	0.15	22000	—	—	B9A	37	European
EZ81	6.3	1.0	350	150	1000	8	270	B9A	39	Mull-Eupn.
EZ82	6.3	0.6	300	80	—	—	—	B9A	39	European
PY83	20.0	0.3	—	140.0	5000	—	—	B9A	38	European
U153	17.0	0.3	—	150.0	4500	T.V. Damp	Diode	B9A	38	M.O.



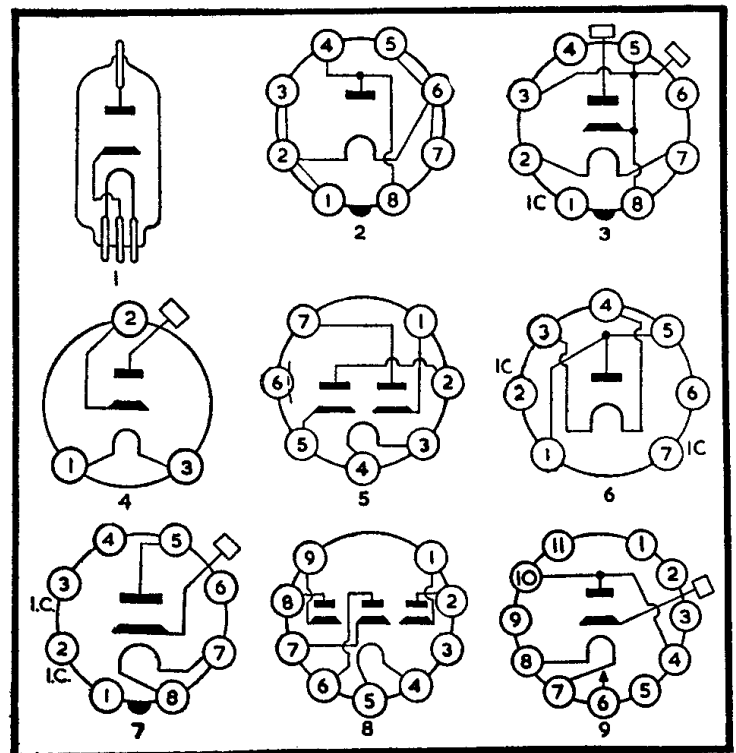
# RECTIFIERS—Contd.

Type	FILAMENT or HEATER		MAX. VOLTS PER ANODE (RMS)	MAX. I/mA	MAXIMUM INVERSE PEAK VOLTS	MAXIMUM RESERVOIR CAPACITANCE (50 c/c)	MINIMUM SERIES RESISTANCE $\Omega$	BASE		Maker
	Volts.	Amps.						Type	Ref.	
U154	19.0	0.3	250	180.0	700	60	100	B9A	3	M.O.
U251	25.0	0.3	—	120.0	7000	T.V. Damper	Diode	B9A	1	Mazda
U709	6.3	0.95	350	150.0	—	—	—	B9A	2	Marconi
UY82	55.0	0.1	250	180.0	700	60	125	B9A	3	European
UY85	38.0	0.1	250	110.0	700	100	100	B9A	3	European
UA271	88.0	0.1	—	100.0	5000	—	—	11 pin	4	European
6R3	6.3	0.82	—	150.0	4500	4	—	B9A	1	U.S.A.
6S2	6.3	0.09	18000	0.15	22000	—	—	B9A	5	U.S.A.
HR8	4.0	1.25	5000	50.0	12500	—	—	I.O.	6	Ferranti
HR9	4.0	1.3	20000	0.75	40000	—	—	I.O.	7	Ferranti
HR11	4.0	1.9	14500	3.0	35000	—	—	I.O.	8	Ferranti
12D4	12.6	0.6	—	155	4400	T.V. Damper	Diode	Base 17	Page 25	U.S.A.
17AX4GT	16.8	0.45	—	125	4000	T.V. Damper	Diode	Base 16	Page 25	U.S.A.
U26	2.0	0.35	—	0.2	25000	—	—	B9A	5	Mazda



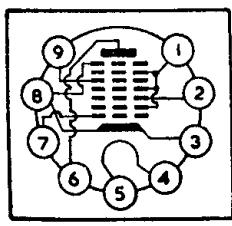
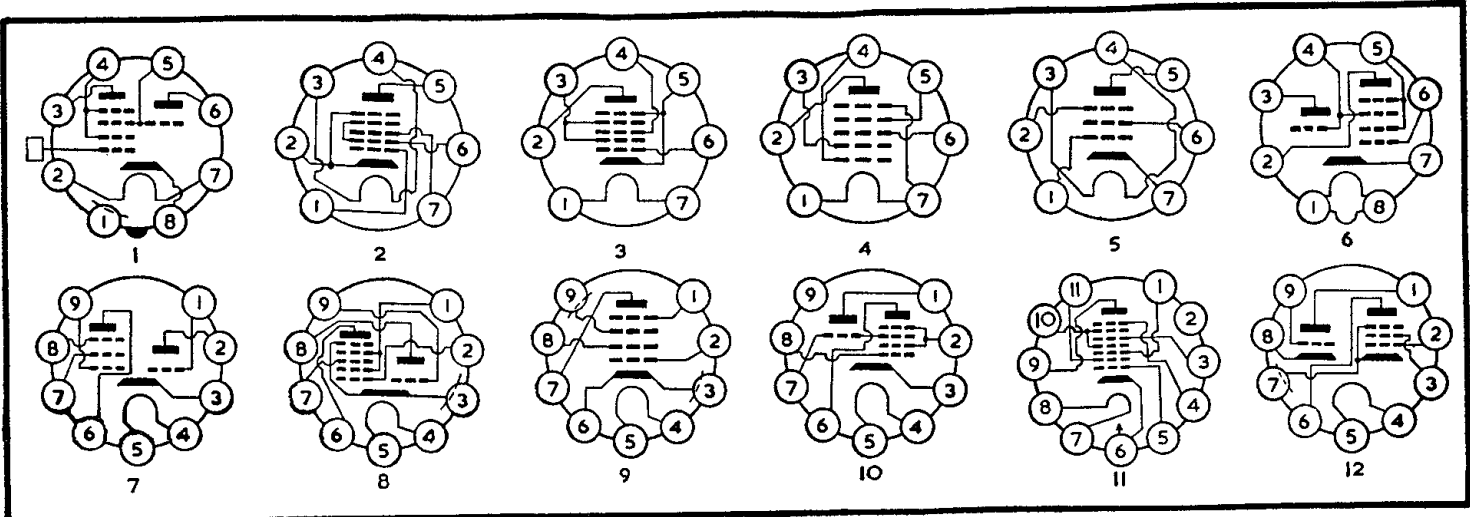
# DIODES

Type	FILAMENT or HEATER		Input Volts (RMS)	Max. I/mA	BASE		Maker
	Volts.	Amps.			Type	Ref.	
2B35	6.3	0.15	50	5.0	B3G	1	U.S.A.
5947	4.4	1.75	90	1.5	I.O.	2	U.S.A.
2B22	6.3	0.75	50	5.0	I.O.	3	U.S.A.
U191	19.0	0.3	4.5 K P.I.V. at 150mA	—	I.O.	7	Mazda
EA960	6.3	0.125	—	0.3	3 pin	4	European
EA961	6.3	0.125	—	0.1	3 pin	4	European
3AL5	3.15	0.6	117	9.0	B7G	5	U.S.A.
10D2	19.0	0.1	150	9.0	B7G	5	Mazda
6663	6.3	0.3	200	5.0	B7G	5	U.S.A.
A2087	4.0	0.58	200	2.0	B7G	6	Osram
D152	6.3	0.3	117	9.0	B7G	5	Osram
EAA901	6.3	0.3	330	9.0	B7G	5	European
HAA91	12.6	0.15	117	9.0	B7G	5	European
M8079	6.3	0.3	150	9.0	B7G	5	Mullard
UB91	18.9	0.1	117	9.0	B7G	5	Mullard
QD77	6.3	0.3	200	5.0	B7G	5	Osram
6BJ7	6.3	0.45	330	1.0	B9A	8	U.S.A.
EA271	6.3	1.4	—	100	11 pin	9	European
2-01C	5.0	0.34	1000	1.0	None	—	U.S.A.
6144	3.2	2.5	300	100	None	—	U.S.A.
6173	6.3	0.135	375	5.6	None	—	U.S.A.



# FREQUENCY CHANGERS

Type	FILAMENT or HEATER		ANODE		SCREEN		Osc. Volts.	Anode I/mA	Neg. Grid Volts.	ra MΩ	gc mA/V	BASE		Maker
	Volts.	Amps.	Volts.	I/mA	Volts.	I/mA						Type	Ref.	
A1760 (t/hex)	6.3	0.3	250	4.0	125	—	—	—	2.0	—	0.52	I.O.	1	Osram
1C3 (hep)	1.4	0.025	65	0.7	35	1.65	—	—	0	1.0	0.3	B7G	4	Mazda
3BE6 (hep)	3.15	0.6	250	3.0	100	7.1	—	—	1.5	1.0	0.47	B7G	2	U.S.A.
6CS6 (hep)	6.3	0.3	100	0.75	30	1.1	—	—	1.0	1.0	0.95	B7G	2	U.S.A.
6WC5 (hep)	6.3	0.35	250	3.5	100	8.6	—	—	2.0	—	0.45	B7G	3	Japanese
12AD6 (hep)	12.6	0.15	12.6	0.45	12.6	1.5	—	—	1.6	1.0	0.26	B7G	2	U.S.A.
12AG6 (hep)	12.6	0.15	12.6	0.35	12.6	1.0	—	—	1	—	0.24	B7G	2	U.S.A.
12CS6 (hep)	12.6	0.15	100	0.75	30	1.1	—	—	1.0	1.0	0.95	B7G	2	U.S.A.
DK192 (hep)	1.4	0.05	67.5	1.2	67.5	3.5	—	—	0	0.07	0.26	B7G	4	European
EH90 (hep)	6.3	0.3	100	0.75	30	1.1	—	—	2.5	1.0	0.95	B7G	2	Mull-Eupn
X727 (hep)	6.3	0.3	250	3.0	100	7.1	—	—	1.5	1.0	0.47	B7G	5	Osram
6CU7 (t/hex)	6.3	0.3	250	3.0	85	3.0	100	4.8	2.0	1.0	0.75	B8A	6	Tungsram
14K7 (t/hex)	14.0	0.1	200	3.2	84	3.4	100	4.2	2.0	1.25	0.69	B8A	6	Tungsram
141TH (t/hex)	14.0	0.1	200	3.2	84	3.4	100	4.2	2.0	1.25	0.69	B8A	6	Cossor
5AT8 (t/pen)	4.7	0.6	250	7.7	150	1.6	100	8.5	—	0.75	—	B9A	7	U.S.A.
6AT8 (t/pen)	6.3	0.45	250	7.7	150	1.6	100	8.5	—	0.75	—	B9A	7	U.S.A.
9A8 (t/pen)	8.5	0.3	170	6.5	170	2.0	—	—	—	—	2.3	B9A	12	U.S.A.
19AJ8 (t/hep)	19.0	0.1	250	3.25	103	6.7	100	4.5	2.0	1.0	0.775	B9A	8	U.S.A.
19D8 (t/hep)	19.0	0.1	250	3.25	103	6.7	100	4.5	2.0	1.0	0.775	B9A	8	Cossor
EH860 (hex)	6.3	0.32	250	5.5	100	3.0	—	—	2.5	0.2	0.8	B9A	9	European
HCH81 (t/hep)	12.6	0.15	250	3.25	103	6.7	100	4.5	2.0	1.0	0.775	B9A	8	European
X719 (t/hep)	6.3	0.3	250	3.25	103	6.7	100	4.5	2.0	1.0	0.775	B9A	8	Osram
6TE9 (t/hex)	6.3	0.3	250	3.0	100	4.5	100	3.4	2.0	1.0	0.75	B9A	10	European
12AJ7 (t/hep)	12.6	0.15	250	12.5	125	8.0	250	6.5	—	—	—	B9A	8	U.S.A.
12AJ8 (t/hep)	12.6	0.15	100	1.7	63	3.7	63	2.5	1.2	0.8	0.62	B9A	8	European
12TE9 (t/hex)	12.6	0.15	250	3.0	100	4.5	100	3.4	2.0	1.0	0.75	B9A	10	European
EQ171 (nonode)	6.3	0.2	250	0.3	20	1.5	—	—	—	5.0	—	11 pin	11	European
UQ171 (nonode)	12.6	0.1	250	0.3	20	1.5	—	—	—	5.0	—	11 pin	11	European
12BE7 (nonode)	12.6	0.1	120	0.28	20	1.5	—	—	—	4.0	—	B9A	13	U.S.A.



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# SUB-MINIATURE VALVES

Type		FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid Volts	ra. (KΩ)	gm (mA/V)	Anode Load Ω	Output (mW)		
		Volts	Amps	Volts	1/mA	Volts	1/mA							
1AK4	R.F. Pent.	1.25	0.2	45	0.75	45	0.2	0	1500	.750	—	—		
1AK5	Diode Pent.	1.25	0.2	45	0.5	45	0.2	0	400	.280	—	—		
1AJ5	Diode Pent.	1.25	0.04	45	1.0	45	0.3	0	300	.425	—	—		
1M1	Tuning Ind.	1.4	0.025	90	0.25	Target	—	13.5	—	—	—	—		
6BY4	H.F. Triode	6.3	0.25	200	5.0	—	—	4.0	16.7	6.0	—	—		
6049	Pentode	6.3	—	165	9.0	155	6.0	—	—	—	—	—		
6119	Volt. Reg.	2100v. Start. 2100v. Reg. 2 to 50 uA regulation												
6121	Triode	1.5	0.12	185	7.0	—	—	—	—	—	—	—		
6142	Volt. Reg.	250v. Start 150v. Reg. 0.075 to 0.4 mA regulation												
6143	Volt. Reg.	1260v. Start 1200v. Reg. 2 to 50 uA regulation												
6205	Pentode	6.3	0.15	100	7.5	100	2.4	150*	260	5.0	—	—		
6206	Pentode	6.3	0.15	100	7.5	100	2.0	120*	260	4.5	—	—		
6245	R.F. Pent.	6.3	0.2	150	7.7	120	2.4	200*	690	5.1	—	—		
6247	Triode	6.3	0.2	250	4.2	—	—	500*	22.6	2.65	—	—		
6259	Volt. Ref.	D.C. Start 92v. D.C. Operating 83-87v. at 4.5 mA												
6281	Pentode	0.625	0.02	15	0.05	15	0.02	1.0	2000	.105	—	—		
6286	Triode	1.25	0.1	67.5	6.0	—	—	2	5.5	2.1	—	—		
6308	Volt. Reg.	Cold — 87v. Operating at 1.5 to 3.5 mA												
6332	Volt. Reg.	80v. Start 75v. Operating 2-6 mA regulation												
6339	Rectifier	6.3	1.55	65 mA D.C. 1600 P.I.V.									—	—
6352	Diode	3.0	0.36	250	0.05	—	—	—	—	—	—	—		
6353	Volt. Reg.	21 KV Start 19 KV. regulation 0.025 to 1.0 mA regulation												
6373	L.F. Pent.	1.25	0.1	150	7.0	90	1.2	8.5	—	1.0	—	630		
6375	Triode	1.25	0.2	150	12.0	—	—	4.5	4	3.5	—	—		
6391	Pentode	6.3	0.2	100	7.0	100	2.2	1.4	180	3.0	—	—		
6397	L.F. Pent.	{ 1.25	{ 0.125	{ 125	{ 7.0	{ 125	{ 1.1	{ 7.5	{ —	{ 1.9	{ —	{ —		
		{ 2.5	{ 0.062	{ —	{ —	{ —	{ —	{ —	{ —	{ —	{ —	{ —		
6418	L.F. Pent.	1.25	0.01	22.5	0.24	22.5	0.06	1.2	420	0.3	100K	2.2		
6419	Pentode	1.25	0.01	15.0	0.005	15.0	0.002	1.2	12	0.017	—	—		
6436	Rectifier	Cold — 1000V. D.C. at 0.1mA P.I.V.=1500												
6437	Volt. Reg.	Cold — 800v. Start. 700v Regulation at 0.005 to 0.1 mA												
6438	Volt. Reg.	Cold — 1400v Start. 1200v Regulation at 0.005 to 0.1 mA												
6487	Pentode	6.3	0.2	100	3.0	100	2.3	2.0	100	2.75	—	—		
6488	Pentode	6.3	0.2	100	7.5	100	2.5	2.0	250	5.0	—	—		
6489	Diode	6.3	0.15	150 V.R.M.S. 9mA. D.C.									—	—
6519	L.F. Pentode	1.25	0.01	22.5	0.4	22.5	0.1	0	—	.45	100K	1.5		
6533	Triode	6.3	0.2	120	0.9	—	—	1500*	31	1.7	—	—		
6542	Volt. Reg.	Cold 150v. regulation 5 to 25 mA.												
6611	Pentode	1.25	0.02	30	1.0	30	0.35	—	400	1.0	—	—		
6612	Pentode	1.25	0.08	30	3.0	30	1.0	—	180	3.0	—	—		
6659	Rectifier	Cold 1400v. R.M.S. 8mA D.C.												
6690	Twin-Triode	6.3	0.3	100	11.0	—	—	100*	7.2	4.8	—	—		
6788	Pentode	6.3	—	100	0.8	100	0.09	1500*	1200	1.15	—	—		
6789	Volt. Reg.	Cold 84.5v. regulation 1.5 to 3.5 mA.												
6814	Triode	—	—	100	10.0	—	—	0	4.8	6.0	—	—		
6830	Volt. Reg.	Cold 185v. Start 150v. operating 5-30mA regulation												
6831	Volt. Reg.	Cold 133v. Start 108v. operating 5-30mA regulation												
AC701	Triode	4.0	0.1	40	0.5	—	—	1.6	22	0.7	—	—		
CK512AX	Pentode	0.625	0.02	22.5	0.125	22.5	0.04	0.625	1250	0.04	—	—		
CK539DX	L.F. Pent.	1.25	0.015	22.5	0.25	22.5	0.075	1.4	250	0.3	100K	2.2		
DF61	Pentode	1.25	0.025	67.5	1.7	67.5	0.75	0	650	1.0	—	—		
DF62	Pentode	1.25	0.1	45	2.8	45	0.8	—	500	2.0	—	—		
DF63	Pentode	1.25	0.025	67.5	1.7	67.5	0.05	0	450	0.8	—	—		
DF161	Pentode	0.7	0.025	22.5	0.3	22.5	0.08	0	700	0.26	—	—		
DF167	Pentode	0.625	0.013	22.5	0.3	22.5	0.004	0	—	—	—	—		
DF650	Pentode	0.625	0.015	15	0.005	15	0.002	0	10000	0.017	—	—		
DF651	Pentode	0.625	0.01	15	0.005	10	0.002	0	10000	0.017	—	—		
DF652	Pentode	1.25	0.1	45	2.8	45	0.8	—	500	2.0	—	—		
DF654	Pentode	1.25	0.05	67.5	1.8	67.5	0.48	0	—	1.1	—	—		
DL69	L.F. Pent.	1.25	0.025	90	1.3	90	0.3	3	500	0.67	60K	4.7		
DL161	L.F. Pent.	1.4	0.025	22.5	0.55	22.5	0.15	0	700	0.5	80K	1.5		
DL167	L.F. Pent.	1.25	0.013	22.5	0.5	22.5	0.1	0	—	0.44	100K	1.6		
DL650	L.F. Pent.	1.25	0.015	22.5	0.425	22.5	0.13	2	150	0.325	50K	3.75		
DL651	L.F. Pent.	1.25	0.01	22.5	0.375	22.5	0.03	0	200	0.425	100K	1.75		
DL652	L.F. Pent.	1.25	0.025	90	1.3	90	0.3	3	500	0.67	60K	4.7		
DL700	L.F. Pent.	1.25	0.01	22.5	0.375	22.5	0.085	0	200	0.425	100K	1.75		
DY101	Rectifier	1.4	0.1	20mA. D.C. 15000 P.I.V.									—	—
EA52	Diode	6.3	0.3	100v. at 0.3mA.									—	—
EA191	Diode	6.3	0.1	0.1mA. D.C. 100 P.I.V.									—	—
EF74	Pentode	6.3	0.2	100	7.0	100	2.2	1.4	180	3.0	—	—		
EN70	Tetrode	6.3	0.15	150	—	0	—	5	Thyratron			—		
F/5654	Pentode	6.3	0.175	120	7.5	120	2.5	200*	340	5.0	—	—		

\* Cathode Resistor in Ohms.

SUB-MINIATURE VALVES—Contd.

Type		FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid Volts	ra. (KΩ)	gm (mA/V)	Anode Load Ω	Output (mW)
		Volts.	Amps.	Volts	1/mA	Volts	1/mA					
F/5726	Twin Diode	6.3	0.3	117	9.0	P.I.V. = 330v.						
F/5750	Heptode	6.3	0.3	250	2.6	100	7.5	3	1000	0.475	—	—
F/6057	Twin Tri. {	6.3	0.3	250	1.2	—	—	2	62.5	1.6	—	—
		12.6	0.15									
F/6058	Twin Diode	6.3	0.3	150	9.0	P.I.V. = 420v.						
F/6060	Twin Tri. {	6.3	0.3	250	10.0	—	—	2	10.0	5.5	—	—
		12.6	0.15									
F/6061	L.F. Pent.	6.3	0.45	250	45	250	4.5	12.5	52	4.1	—	—
F/6063	Rect. F.W.	6.3	0.6	325	70	P.I.V. = 1250v.						
F/6064	Pentode	6.3	0.3	250	10	250	2.5	2	1000	7.5	—	—
F/6065	Pentode	6.3	0.2	250	8	200	2.1	2.5	1000	2.5	—	—
F/6067	Twin Tri. {	6.3	0.3	250	10.5	—	—	8.5	7.7	2.2	—	—
		12.6	0.15									
F/6132	Pentode	6.3	0.75	250	40	250	6.0	4.5	50	11.0	—	—
F/6158	Twin Tri. {	6.3	0.6	250	6	—	—	4.5	14	2.3	—	—
		12.6	0.3									
F/6443	Rect. H.W.	6.3	1.1	625	150	P.I.V. 1800v.						
GK32	Triode	Cold	120-140v. operating		5-20 mA.	85-98v.	Trigger					
GK33	Triode	Cold	120-140v. operating		5-20 mA.	85-98v.	Trigger					
GK40	Triode	Cold	120-140v. operating		5-20 mA.	79-85v.	Trigger					
GK41	Triode	Cold	120-140v. operating		5-20 mA.	79-85v.	Trigger					
KD61	Volt. Ref.	Cold	85v. Ignition .001 to 2.5 mA		Regulation 52v. operating							
KD63	Volt. Ref.	Cold	105v. Ignition .001 to 2.5 mA		Regulation 62v. operating							
M8121	Pentode	6.3	0.15	100	7	100	2.2	1.4	250	5.0	—	—
M8122	Pentode	6.3	0.2	100	7.5	100	2.5	2.0	250	5.0	—	—
M8123	Diode	6.3	0.15	150v R.M.S. 9 mA. D.C.								
M8125	Pentode	6.3	0.2	100	3.0	100	2.3	2.0	100	2.75	—	—
M8156	Triode	6.3	0.15	200	11.5	—	—	680*	4.65	3.45	—	—
NT2	Diode	Cold	Regulator Striking 80v. Working 60v. at 0.5 mA									
U45	Rect. T.V.	6.3	0.12	P.I.V. = 17000v. D.C. Output 0.5 mA								
UD105	Triode	1.25	0.025	15	0.5	—	—	3	—	0.18	—	—
XC11	Triode	Cold	Regulator 75v 1 mA									
XC13	Triode	Cold	Regulator 75v. 7.5 mA.									
XC14	Diode	Cold	Striking 145v Working 75v. Regulation 50-750 uA							0.09		
XE2	Triode	1.25	0.015	9	0.085	—	—	3	—	—	—	—
XFR1	Pentode	1.25	0.1	45	3.0	45	0.9	0	—	2.0	—	—
XFR3	Triode	1.25	0.12	135	4.0	—	—	5	—	1.65	—	—
XFW30	Pentode	0.625	0.012	22.5	—	—	—	0	—	—	—	—
XFW40	Pentode	0.625	0.01	22.5	—	—	—	0	—	—	—	—
XFW50	Tetrode	0.625	0.0075	45	—	45	—	0	—	—	—	—
XFY14	L.F. Pent.	1.25	0.05	67.5	3.1	67.5	0.95	6.5	—	0.65	20K	50.0
XFY22	L.F. Pent.	1.25	0.012	22.5	0.3	22.5	0.07	1.2	—	0.36	100K	2.3
XFY23	L.F. Pent.	1.25	0.017	22.5	0.4	22.5	0.09	2	—	0.34	50K	3.75
XFY31	L.F. Pent.	1.25	0.012	22.5	0.38	22.5	0.09	0	—	0.41	100K	1.8
XFY32	L.F. Pent.	1.25	0.012	22.5	0.37	22.5	0.09	1.5	—	0.32	75K	2.7
XFY33	L.F. Pent.	1.25	0.017	22.5	0.4	22.5	0.09	2	—	0.34	50K	3.75
XFY34	L.F. Tetrode	1.25	0.014	45	1.5	45	0.36	4	—	0.6	25K	30.0
XFY35	L.F. Tetrode	1.25	0.025	45	0.75	45	0.22	1.5	—	0.57	60K	11.5
XFY41/M	L.F. Pent.	1.25	0.01	22.5	0.38	22.5	0.09	0	—	0.41	100K	1.8
XFY43/M	L.F. Pent.	1.25	0.01	22.5	0.4	22.5	0.09	2	—	0.34	50K	3.75
XFY51	L.F. Pent.	1.25	0.01	22.5	0.32	22.5	0.09	0	—	0.32	80K	2.3
XFY53	L.F. Pent.	1.25	0.01	22.5	0.45	22.5	0.17	3	—	0.24	40K	3.75
XY1.4A	L.F. Pent.	1.4	0.03	45	1.75	45	0.75	4.5	—	—	30K	10

\* Cathode Resistor in Ohms.

SUPPLEMENTARY LIST TOO LATE FOR CLASSIFICATION

Type		FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid Volts.	ra. (KΩ)	gm (mA/V)	Anode Load Ω	Output (mW)
		Volts.	Amps.	Volts	1/mA	Volts	1/mA					
19H5	Diode	3.0	0.36	250	0.05	—	—	—	—	—	—	—
6221	Triode	6.3	0.175	100	8.5	—	—	150*	4.6	5.8	—	—
6222	Triode	6.3	0.175	100	0.7	—	—	1500*	41.0	1.7	—	—
6223	Pentode	6.3	0.175	100	7.5	90.0	2.4	150*	175	5.0	—	—
6225	Pentode	6.3	0.175	100	7.2	90.0	2.0	120*	175	4.5	—	—
6320	Twin Tri	6.3	0.085	100	—	—	—	680*	33	1.8	—	—
6321	Twin Tri	6.3	0.085	100	—	—	—	680*	9.9	1.7	—	—
6778	Triode	6.3	0.15	200	11.5	—	—	680*	4.65	3.45	—	—
XFR2	Pentode	1.25	0.05	67.5	1.8	67.5	0.5	0	—	1.1	—	—



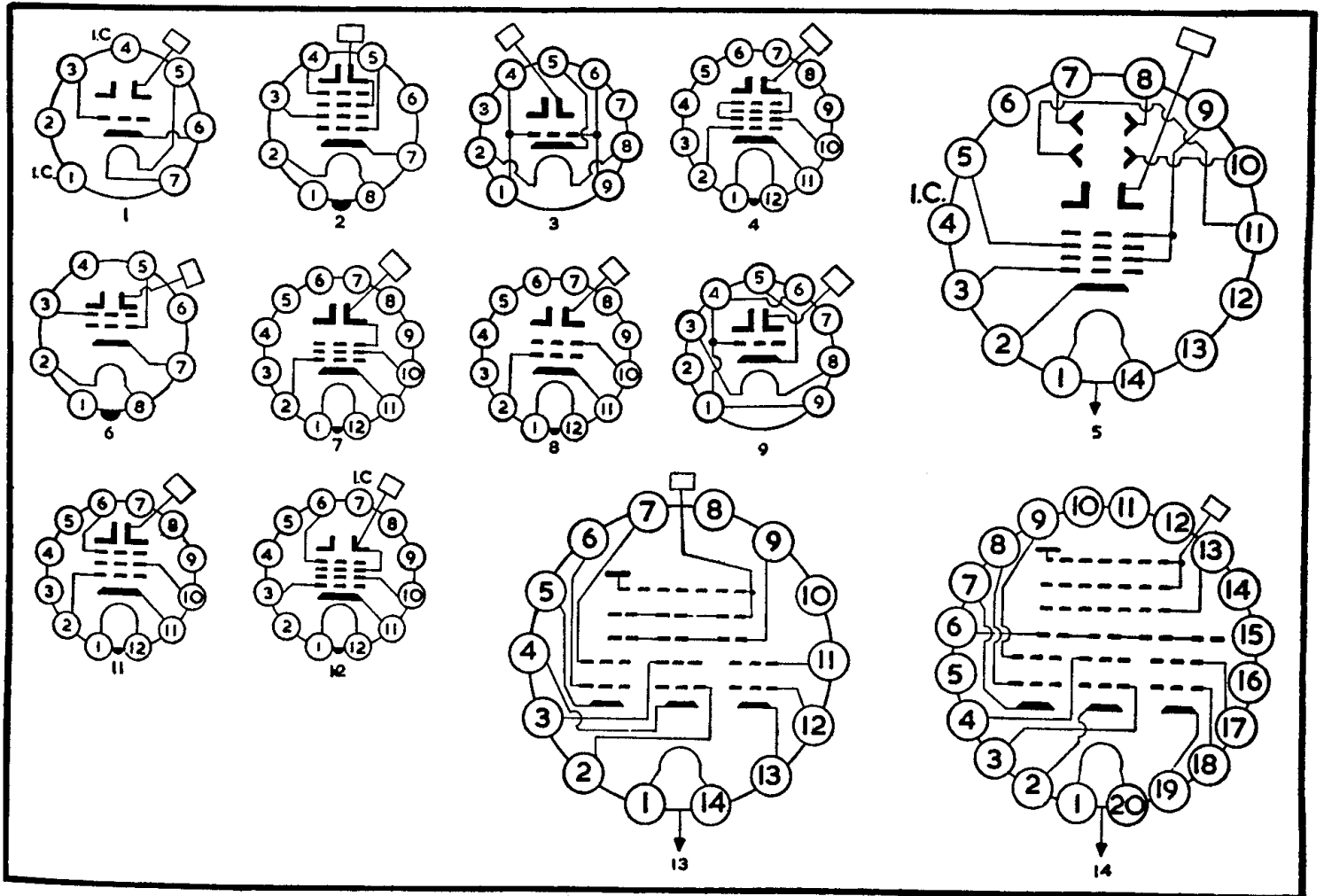
# TELEVISION C.R.T.'s

Type	Dia. in Ins.	Remarks	HEATER		2ND or FINAL ANODE		Focus Anode	ACC.	MODULATOR Volts Swing	Focus A/T. or Def. Method	Focus Def. Angle	BASE		Maker
			Volts.	Amps.	Volts.	I/uA						Type	Ref.	
4/13	Tet	21	A†	13	0.3	15K	—	400	40	MG/MG	70	B7B	1	Emiscope
4/14	Tet	14	RA	13	0.3	17K	—	400	50	MG/MG	70	B7B	1	Emiscope
4/15	Tet	17	RA	13	0.3	17K	—	400	50	MG/MG	70	B7B	1	Emiscope
5AHP4A	Pen	5	A	6.3	0.6	7K	125	300	28-72	ES/MG	53	I.O.	2	U.S.A.
SALP4	Tri	5		6.3	0.6	8K	—	300	50	MG/MG	—	B9A	3	U.S.A.
5AXP4	Pen	5		6.3	0.6	14K	—	300	28-72	ES/MG	53	B12A	4	U.S.A.
5AYP4	Tri	5	A	6.3	0.6	10K	—	300	—	ES/MG	53	—	—	U.S.A.
SCP4	Tet	5	A	6.3	0.6	4K	2000	575	60	ES/ES	—	B14A	5	U.S.A.
5QP4-A	Pen	5		6.3	0.3	12K	—	300	28-42	MG/MG	53	I.O.	6	U.S.A.
8DP4	Pen	8	ARG	6.3	0.3	6K	—	250	45	ES/MG	90	B12A	—	U.S.A.
10BP4-C	Tet	10	A*	6.3	0.6	9K	—	300	28-72	MG/MG	50	B12A	7	U.S.A.
10BP4-D	Tet	10	AG*	6.3	0.6	9K	—	300	28-72	MG/MG	50	B12A	7	U.S.A.
12LP4-C	Tet	12	AG∅	6.3	0.6	11K	—	300	28-72	MG/MG	54	B12A	7	U.S.A.
12QP4-A	Tet	12	G*	6.3	0.6	10K	—	250	24-62	MG/MG	54	B12A	8	U.S.A.
12WP4	Tri	12	G*	6.3	0.6	10K	—	—	27-63	MG/MG	55	B9A	9	U.S.A.
12XP4-A	Tet	12	AG*†	6.3	0.6	8K	—	250	60	MG/MG	60	B12A	8	Emitron
12ZP4	Tet	12	A*†	6.3	0.6	11K	—	300	28-72	MG/MG	54	B12A	7	U.S.A.
12ZP4-A	Tet	12	AG*†	6.3	0.6	11K	—	300	28-72	MG/MG	54	B12A	7	U.S.A.
14BP4-A	Tet	14	GF*†	6.3	0.6	12K	—	300	33-77	MG/MG	65	B12A	7	U.S.A.
14KP4-A	Tet	14	RG*†	6.3	0.6	10K	—	250	24-62	MG/MG	70	B12A	7	U.S.A.
14LP4	Tet	14	RGA*†	6.3	0.3	12K	—	250	60	MG/MG	70	B12A	8	Emitron
14RP4	Hex	14	RGA*	6.3	0.6	14K	470	300	26-72	ES/MG	90	B12A	12	U.S.A.
15DP4-A	Pen	15	G	6.3	0.3	15K	—	250	27-62	ES/MG	57	B12A	8	U.S.A.
15GP22	Pen	15	C†	6.3	1.8	20K	3100	200	45-100	ES/MG	45	B20A	10	U.S.A.
15HP22	Pen	15	C†	6.3	1.8	20K	3100	240	45-100	ES/MG	45	B20A	10	U.S.A.
16ABP4	Tet	16	G*†	6.3	0.6	14K	—	300	33-77	MG/MG	65	B12A	7	U.S.A.
16AEP4	Pen	16	G∅	6.3	0.6	14K	200	300	33-77	ES/MG	70	B12A	11	U.S.A.
16AFP4	Pen	16	RGA	6.3	0.6	12K	108	250	24-62	ES/MG	70	B12A	12	U.S.A.
17ASP4	Tet	17	R*†	6.3	0.6	12K	—	250	24-62	MG/MG	70	B12A	7	U.S.A.
17ATP4	Pen	17	RG*†	6.3	0.6	14K	126	300	28-72	ES/MG	90	B12A	12	U.S.A.
17ATP4-A	Pen	17	RGA*†	6.3	0.6	14K	126	300	28-72	ES/MG	90	B12A	12	U.S.A.
17AVP4	Pen	17	RG*†	6.3	0.6	12K	108	300	28-72	ES/MG	90	B12A	12	U.S.A.
17AVP4-A	Pen	17	RGA*†	6.3	0.6	12K	108	300	28-72	ES/MG	90	B12A	12	U.S.A.
17AXP4	Tet	17	RGA*†	6.3	0.3	12K	—	250	60	MG/MG	70	B12A	8	Emitron
17BP4-C	Tet	17	RGF*†	6.3	0.6	14K	—	250	24-62	MG/MG	70	B12A	7	U.S.A.
17HP4-A	Pen	17	RGF*†	6.3	0.6	14K	126	300	28-72	ES/MG	70	B12A	12	U.S.A.
17HP4-B	Pen	17	RGA*†	6.3	0.6	14K	126	300	28-72	ES/MG	70	B12A	12	U.S.A.
17LP4-A	Pen	17	RGA*†	6.3	0.6	14K	126	300	28-72	ES/MG	70	B12A	12	U.S.A.
17QP4-A	Tet	17	RGA*†	6.3	0.6	14K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.
19AP4-C	Tet	19	GA*	6.3	0.6	12K	—	300	27-63	MG/MG	66	B12A	8	U.S.A.
19TP22	Pen	19	C	6.3	1.8	20K	2600	200	47-78	ES/MG	60	B20A	10	U.S.A.
19VP22	Pen	19	C	6.3	1.8	25K	7250	200	45-100	ES/MG	62	B14A	13	U.S.A.
20CP4-B	Tet	20	RGA*†	6.3	0.6	12K	—	300	33-77	MG/MG	66	B12A	8	U.S.A.
20CP4-C	Tet	20	RGA*†	6.3	0.6	16K	—	300	33-77	MG/MG	66	B12A	8	U.S.A.
20CP4-D	Tet	20	RGA*†	6.3	0.6	16K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.
20DP4-B	Tet	20	RGA*†	6.3	0.6	16K	—	300	28-72	MG/MG	70	B12A	8	U.S.A.
20DP4-C	Tet	20	RGA*†	6.3	0.6	16K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.
20HP4-B	Pen	20	RGF*†	6.3	0.6	14K	126	300	33-77	ES/MG	66	B12A	12	U.S.A.
20HP4-C	Pen	20	RGA*†	6.3	0.6	14K	126	300	28-72	ES/MG	70	B12A	11	U.S.A.
20HP4-D	Pen	20	RGA*†	6.3	0.6	14K	126	300	28-72	ES/MG	70	B12A	12	U.S.A.
21ACP4	Tet	21	RG*†	6.3	0.6	16K	—	300	28-72	MG/MG	90	B12A	7	U.S.A.
21ALP4	Pen	21	RG*†	6.3	0.6	16K	144	300	28-72	ES/MG	90	B12A	12	U.S.A.
21ALP4-A	Pen	21	RGA*†	6.3	0.6	16K	144	300	28-72	ES/MG	90	B12A	12	U.S.A.
21AMP4	Tet	21	RG*†	6.3	0.6	16K	—	300	28-72	MG/MG	90	B12A	7	U.S.A.
21AMP4-A	Tet	21	RGA*†	6.3	0.6	16K	—	300	28-72	MG/MG	90	B12A	7	U.S.A.
21AMP23-A	Tet	21	RGA*†	6.3	0.6	16K	—	300	28-72	MG/MG	90	B12A	7	U.S.A.
21ANP4	Pen	21	RG*†	6.3	0.6	16K	144	300	28-72	ES/MG	90	B12A	11	U.S.A.
21ANP4-A	Pen	21	RGA*	6.3	0.6	16K	144	300	28-72	ES/MG	90	B12A	11	U.S.A.
21AQP4	Tet	21	RG*	6.3	0.6	16K	—	300	28-72	MG/MG	90	B12A	8	U.S.A.
21AQP4-A	Tet	21	RGA*	6.3	0.6	16K	—	300	28-72	MG/MG	90	B12A	8	U.S.A.
21ARP4	Tet	21	RGit†	6.3	0.6	13/19K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.
21ARP4-A	Tet	21	RGAit†	6.3	0.6	13/19K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.
21ASP4	Pen	21	RG*	6.3	0.6	16K	144	300	28-72	ES/MG	70	B12A	11	U.S.A.
21ATP4	Pen	21	RGA*†	6.3	0.6	16K	144	300	28-72	ES/MG	70	B12A	12	U.S.A.
21AUP4	Pen	21	RG*†	6.3	0.6	14K	126	300	28-72	ES/MG	70	B12A	12	U.S.A.
21AUP4-A	Pen	21	RGA*†	6.3	0.6	18K	126	300	28-72	ES/MG	70	B12A	12	U.S.A.
21AUP4-B	Pen	21	RGA*†	6.3	0.6	20K	126	300	28-72	ES/MG	70	B12A	12	U.S.A.
21AVP4	Pen	21	RG*†	6.3	0.6	14K	126	300	28-72	ES/MG	70	B12A	12	U.S.A.
21AVP4-A	Pen	21	RGA*†	6.3	0.6	14K	126	300	28-72	ES/MG	70	B12A	12	U.S.A.
21AWP4	Tet	21	RGA*†	6.3	0.6	16K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.

A=Aluminated. G=Tinted. F=Frosted. †=Aquadag Coating. \* =Single Ion Trap. ∅=Double Ion Trap.  
 ||=Metal Cone. R=Rectangular Tube. §=Projection Tube. C=Colour Tube. i=Internal Magnetic Focus.  
 ‡=Internal Ion Trap. §§=Ion Trap Gun.

Type	Dia. in Ins.	Remarks	HEATER		2ND or FINAL ANODE Volts.	Focus Anode 1/uA	Focus Anode	MODULATOR		Focus A/T. or		BASE		Maker
			Volts.	Amps.				ACC. Volts. Swing	cur. off	Focus Method	Def. Angle	Type	Ref.	
21AXP22	21	A  C	6.3	0.6	25K	—	—	—	ES/MG	70	B14A	—	U.S.A.	
21AYP4	Pen 20	RG*¶	6.3	0.6	16K	144	300	28-72	ES/MG	70	B12A	12	U.S.A.	
21BAP4	Hex 21	RA¶	6.3	0.6	18K	—	300	33-77	ES/MG	90	B12A	12	U.S.A.	
21BCP4	Hex 21	RA¶	6.3	0.6	18K	—	300	33-77	ES/MG	70	B12A	12	U.S.A.	
21BDP4	Hex 21	RA¶	6.3	0.6	18K	—	300	33-77	ES/MG	72	B12A	12	U.S.A.	
21BNP4	Hex 21	RA¶	6.3	0.6	18K	—	300	33-77	ES/MG	90	B12A	12	U.S.A.	
21FP4-C	Pen 21	RGA*¶	6.3	0.6	14K	126	300	28-72	ES/MG	70	B12A	12	U.S.A.	
21JP4	Tet 21	RGit¶	6.3	0.6	13/19K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.	
21JP4-A	Tet 21	RGAit¶	6.3	0.6	13/19K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.	
21WP4	Tet 20	RG*¶	6.3	0.6	16K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.	
21WP4-A	Tet 20	RGA*¶	6.3	0.6	16K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.	
21XP4	Pen 20	RG*¶	6.3	0.6	16K	144	300	28-72	ES/MG	70	B12A	12	U.S.A.	
21XP4-A	Pen 20	RGA*¶	6.3	0.6	16K	144	300	28-72	ES/MG	70	B12A	12	U.S.A.	
21YP4	Pen 21	RG*¶	6.3	0.6	16K	144	300	28-72	ES/MG	70	B12A	12	U.S.A.	
21YP4-A	Pen 21	RGA*¶	6.3	0.6	16K	144	300	28-72	ES/MG	70	B12A	12	U.S.A.	
21ZP4	Tet 21	RG*	6.3	0.6	16K	—	300	28-72	MG/MG	70	B12A	8	U.S.A.	
21ZP4-A	Tet 21	RGA*¶	6.3	0.6	16K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.	
21ZP4-B	Tet 21	RGA*¶	6.3	0.6	16K	—	300	28-72	MG/MG	70	B12A	7	U.S.A.	
22AP4-A	Tet 21	G*	6.3	0.6	14K	—	300	28-72	MG/MG	70	B12A	8	U.S.A.	
24AP4-A	Tet 24	GF*	6.3	0.6	15K	—	300	28-72	MG/MG	70	B12A	8	U.S.A.	
24CP4	Tet 24	RG*¶	6.3	0.6	18K	—	300	28-72	MG/MG	90	B12A	7	U.S.A.	
24CP4-A	Tet 24	RG*¶	6.3	0.6	18K	—	300	28-72	MG/MG	90	B12A	7	U.S.A.	
24DP4	Pen 24	RGA*¶	6.3	0.6	18K	162	300	28-72	ES/MG	90	B12A	12	U.S.A.	
24DP4-A	Pen 24	RGA*¶	6.3	0.6	18K	162	300	28-72	ES/MG	90	B12A	12	U.S.A.	
24QP4	Tet 24	RG*¶	6.3	0.6	16K	—	300	28-72	MG/MG	90	B12A	7	U.S.A.	
24TP4	Tet 24	RGA*¶	6.3	0.6	18K	—	300	28-72	MG/MG	90	B12A	7	U.S.A.	
24VP4	Tet 24	RG*¶	6.3	0.6	20K	—	300	28-72	MG/MG	90	B12A	7	U.S.A.	
24VP4-A	Tet 24	RGA*¶	6.3	0.6	20K	—	300	28-72	MG/MG	90	B12A	7	U.S.A.	
24XP4	Tet 24	RG*	6.3	0.6	18K	—	300	28-72	MG/MG	90	B12A	8	U.S.A.	
24YP4	Pen 24	GA*¶	6.3	0.6	18K	200	300	33-77	ES/MG	90	B12A	12	U.S.A.	
27GP4	Tet 27	RG*¶	6.3	0.6	16K	—	300	33-77	MG/MG	90	B12A	8	U.S.A.	

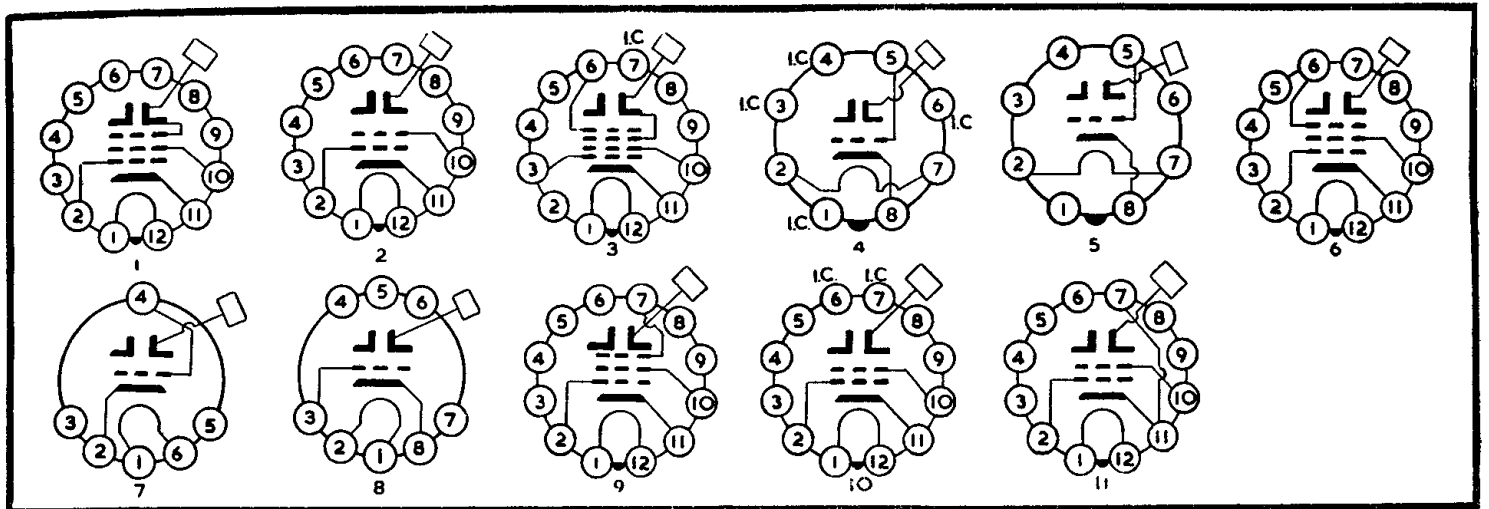
A=Aluminated. G=Tinted. F=Frosted. ¶=Aquadag Coating. \*=Single Ion Trap. ø=Double Ion Trap. ||=Metal Cone. R=Rectangular Tube. §=Projection Tube. C=Colour Tube. i=Internal Magnetic Focus. t=Internal Ion Trap. §§=Ion Trap Gun.



# TELEVISION C.R.T.'s—Contd.

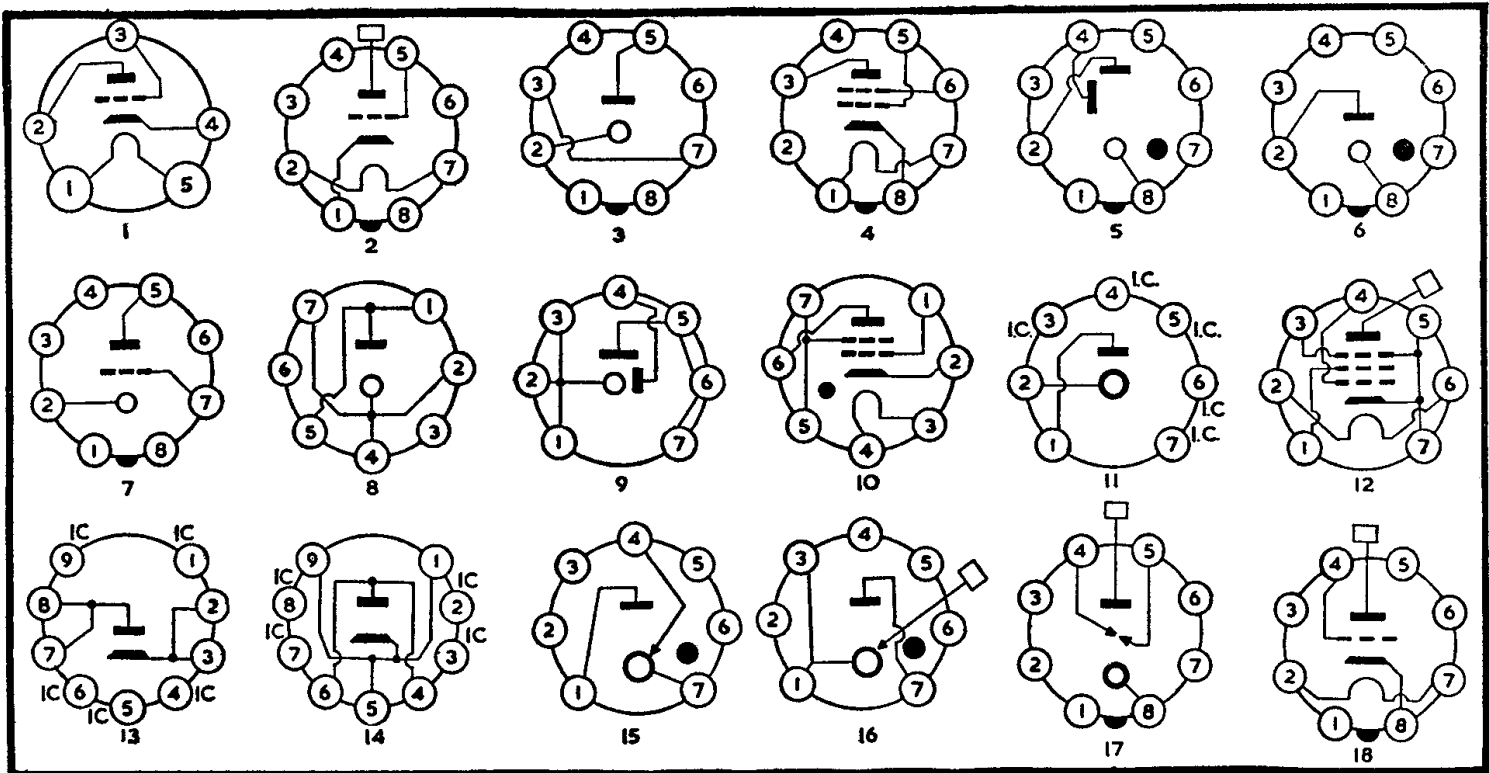
Type	Dia. in Ins.	Remarks	HEATER		2ND or FINAL ANODE Volts.	Focus Anode I/uA	Focus Anode	ACC.	MODULATOR Volts. Swing	Focus A/T. or			BASE		Maker
			Volts.	Amps.						Volts cut off	Focus Method	Def. Angle	Type	Ref.	
27LP4	Tet	27	RGA*¶	6.3	0.6	20K	—	300	33-77	MG/MG	90	B12A	1	U.S.A.	
27MP4	Tet	27	R  GA*	6.3	0.6	16K	—	300	37-73	MG/MG	90	B12A	2	U.S.A.	
27NP4	Tet	27	RG*¶	6.3	0.6	16K	—	300	28-72	MG/MG	90	B12A	1	U.S.A.	
27RP4	Tet	27	RGA*¶	6.3	0.6	16K	—	300	28-72	MG/MG	90	B12A	1	U.S.A.	
27SP4	Pen	27	RGA*¶	6.3	0.6	18K	162	300	28-72	ES/MG	90	B12A	3	U.S.A.	
27UP4	Hex	27	RG*	6.3	0.6	20K	—	300	33-77	ES/MG	90	B12A	3	U.S.A.	
141K	Tet	14	RGA*¶	6.3	0.3	12K	—	250	33-72	MG/MG	70	B12A	2	Cossor	
6506A	Tri	9	A¶	6.3	0.3	7K	—	—	47	MG/MG	50	I.O.	4	Osram	
6802A	Tri	14	RA	6.3	0.3	7.6K	—	—	50	MG/MG	70	I.O.	4	Osram	
7101A	Tri	12	A¶	6.3	0.3	9K	—	—	20-43	MG/MG	55	I.O.	5	Osram	
7401A	Tri	17	RAG	6.3	0.3	16K	—	—	80	MG/MG	70	B12A	2	Osram	
AC30	Tet	12	A	6.3	0.3	11K	—	280	70	MG/MG	65	B12A	2	European	
AR40M	Pen	14	GA*	6.3	0.3	14K	325	325	50	MG/MG	70	B12A	3	European	
AR50	Pen	14	RA	6.3	0.3	14K	325	325	33-77	ES/MG	70	B12A	6	European	
AW13-36	Pen	5		6.3	0.3	12K	300	300	30-70	ES/MG	53	B12A	3	European	
AW36-21	Pen	14	RA*¶	6.3	0.3	12K	200	410	40-80	ES/MG	70	B12A	1	Mullard	
AW43-20	Pen	17	GA¶	6.3	0.3	14K	100	460	44-103	ES/MG	70	B12A	3	European	
AW43-80	Pen	17	GAø¶	6.3	0.3	16K	210	300	40-80	ES/MG	90	B12A	3	European	
Bm12-2	Tet	4	RA¶	6.3	0.3	14K	—	500	33-77	MG/MG	50	B12A	2	European	
Bm31-1	Tri	12	—	6.3	0.3	9K	—	—	60-110	MG/MG	50	Special	7	European	
Bm31-3a	Tri	12	GA	6.3	0.4	9K	—	—	60-110	MG/MG	50	Special	8	European	
Bm35-5	Tri	12	GA	6.3	0.3	12K	—	—	80-140	MG/MG	50	B12A	—	European	
Bm35R-2	Tet	12	GA*	6.3	0.3	12K	—	—	33-77	MG/MG	70	B12A	2	European	
Bm40-5	Tet	15	GA	6.3	0.3	12K	—	300	80-140	MG/MG	70	B12A	2	European	
Bmv42-2	Tet	15	GA	6.3	0.3	14K	—	300	33-77	MG/MG	70	B12A	2	European	
Bs42R3	Pen	15	RAG¶	6.3	0.3	14K	300	500	33-77	ES/MG	70	B12A	3	European	
Bs42R6	Pen	15	RAG*¶	6.3	0.3	14K	300	500	33-77	ES/MG	70	B12A	3	European	
C17JM	Pen	17	RA*¶	6.3	0.6	14K	220	300	33-77	ES/MG	70	B12A	3	Brimar	
C21HM	Tet	21	RA*¶	6.3	0.6	16K	—	300	33-77	MG/MG	70	B12A	2	Brimar	
CRM93	Tet	9	A*	12.6	0.3	9K	—	300	28-72	MG/MG	—	B12A	2	Mazda	
CRM142	Tet	14	RGA	12.6	0.6	12K	—	300	50	MG/MG	70	B12A	2	Mazda	
CRM143	Tet	14	RGA*	12.6	0.3	12K	—	300	50	MG/MG	70	B12A	2	Mazda	
CRM144	Tet	14	RGA	12.6	0.3	14K	—	300	50	MG/MG	70	B12A	2	Mazda	
CRM211	Tet	21	RGA*¶	12.6	0.3	18K	—	300	50	MG/MG	70	B12A	2	Mazda	
CRM212	Tet	21	RGA*¶	12.6	0.3	18K	—	300	50	MG/MG	90	B12A	2	Mazda	
CRM271	Tet	27	RGA*¶	12.6	0.3	16K	—	300	28-72	MG/MG	90	B12A	2	Mazda	
K31	Tri	12		6.3	0.3	9K	—	—	40-60	MG/MG	60	B12A	—	European	
MW36-24	Tet	14	RAG*¶	6.3	0.3	12K	—	250	33-72	MG/MG	70	B12A	2	Mullard	
MW43-43-02	Tet	17	RAG  *	6.3	0.6	14K	—	300	33-77	MG/MG	66	B12A	2	European	
MW43-67	Tet	17	RG  ¶	6.3	0.3	14K	—	300	30-70	MG/MG	65	B12A	2	European	
MW43-69	Pen	17	RGA*¶	6.3	0.3	14K	250	300	40-86	MG/MG	70	B12A	9	European	
MW53-20	Pen	21	RGA*¶	6.3	0.3	16K	250	400	53-105	MG/MG	70	B12A	9	European	
MW53-80	Pen	21	RGA*¶	6.3	0.3	16K	250	400	53-106	MG/MG	90	B12A	9	European	
MW61-80	Tet	24	RGA*¶	6.3	0.3	16K	250	400	53-106	MG/MG	90	B12A	9	European	
T12/100	Tet	12	G¶§§	6.3	0.3	9K	—	350	50	MG/MG	—	B12A	10	Ferranti	
T908	Tet	17	RA¶	6.3	0.3	14K	—	300	33-77	MG/MG	70	B12A	11	Eng. Elec.	
T909A	Pen	21	*	6.3	0.3	14K	—	300	33-77	MG/MG	70	B12A	11	Eng. Elec.	
T914	Tet	17	RGA¶§§	6.3	0.3	14K	—	300	33-77	MG/MG	70	B12A	11	Eng. Elec.	
T915	Pen	21	A*	6.3	0.3	14K	—	300	33-77	MG/MG	70	B12A	11	Eng. Elec.	
TR14/4	Tri	14	RGA¶	6.3	0.3	14K	—	—	50	MG/MG	—	I.O.	5	Ferranti	
TR14/13	Tet	14	RGA¶§§	6.3	0.3	10/15K	—	250	50	MG/MG	—	B12A	2	Ferranti	
TR14/21	Tet	14	RG¶§§	6.3	0.3	10/15K	—	250	50	MG/MG	—	B12A	2	Ferranti	
TR17/8	Tet	17	RA¶	6.3	0.3	11/16K	—	250	50	MG/MG	—	B12A	2	Ferranti	
TR17/10	Tet	17	RA¶	6.3	0.3	11/16K	—	250	50	MG/MG	—	B12A	2	Ferranti	
TR17/21	Tet	17	RA§§¶	6.3	0.3	11/16K	—	250	50	MG/MG	—	B12A	2	Ferranti	
TR21/21	Tet	21	RG¶§§	6.3	0.3	12/18K	—	250	50	MG/MG	—	B12A	2	Ferranti	

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# REGULATORS and THYRATRONS

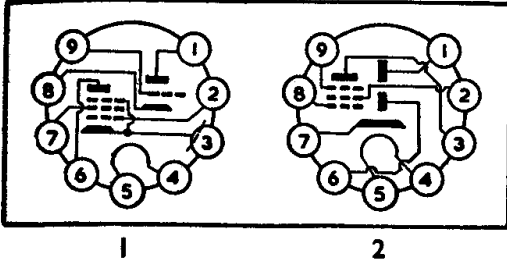
Type	Used as	HEATER		STABILISED SUPPLY		STRI-KING VOLTAGE DROPS	TUBE CURRENT		Max. Anode Volts	Max. Peak Current Amps	Con-trol Ratio	BASE Type	Ref.	Maker
		Volts.	Amps.	Volts.	Amps.		Min.	Max.						
2B4	Relay	2.5	1.4	—	—	19	—	—	300	0.3	—	UX5	1	U.S.A.
6BD4	Shunt	6.3	0.6	40KV	D.C.	supply.	1.5mA	D.C.	Anode	Current	—	I.O.	2	U.S.A.
6BD4A	Shunt	6.3	0.6	55KV	D.C.	supply.	1.5mA	D.C.	Anode	Current	—	I.O.	2	U.S.A.
150C3	V.R.	—	—	150	—	160	—	5	40	—	—	I.O.	3	Mullard
6574	Relay	6.3	0.95	1300	P.I.V.	250mA	Cathode	Current,	—	—	—	I.O.	4	U.S.A.
							Positive Grid 1	Current=5mA				I.O.	5	Hivac
CC2R	Relay	—	—	65	—	75	—	10	30	—	—	I.O.	6	Hivac
CC3D	Relay	—	—	65	—	75	—	10	30	—	—	I.O.	6	Hivac
EN32	Relay	6.3	0.95	1300	P.I.V.	250mA	Cathode	Current,	—	—	—	I.O.	4	Mullard
							Positive Grid 1	Current=5mA				I.O.	17	Ferranti
GN10	Relay	—	—	320-550v.	—	110	—	100	—	—	—	I.O.	17	Ferranti
GN20	Relay	—	—	350-420v.	—	100	—	100	—	—	—	I.O.	18	Ferranti
HL10	V. Cont.	4.0	1.25	20K	1.5mA	Vg=-62v.	—	—	—	—	—	I.O.	18	Ferranti
HL22	V. Cont.	4.0	1.0	25K	0.15mA	Vg=-43v.	—	—	—	—	—	I.O.	18	Ferranti
KD21	V.R.	—	—	75	—	105	—	5	40	—	—	I.O.	3	Ferranti
KD24	V.R.	—	—	100	—	135	—	5	40	—	—	I.O.	3	Ferranti
KD25	V.R.	—	—	150	—	185	—	5	40	—	—	I.O.	3	Ferranti
PL1267	Relay	—	—	—	—	76	—	—	225	0.225	—	I.O.	7	Mull-Eupn
108C1	V.R.	—	—	108	—	133	—	5	30	—	—	B7G	8	Mullard
150B3	V.R.	—	—	150	—	177	—	2	15	—	—	B7G	9	Mullard
150C2	V.R.	—	—	150	—	185	—	5	30	—	—	B7G	8	Mullard
6354	V.R.	Cold	—	18V	Striking	150V	operating	5-15mA	—	—	—	B7G	11	U.S.A.
6626	V.R.	—	—	150	—	185	—	5	30	—	—	B7G	8	U.S.A.
6427	V.R.	—	—	108	—	133	—	5	30	—	—	B7G	8	U.S.A.
6842	V.R.	6.3	—	4KV	Anode	10mA	—	—	—	—	—	B7G	12	U.S.A.
EN'91	Relay	6.3	0.6	650v	Peak	100mA	average	—	—	—	—	B7G	10	Mullard
GK10	Relay	—	—	120-150	—	80	—	7.5	20	—	—	B7G	15	Ferranti
GK20	Relay	—	—	180-230	—	155	—	7.5	20	—	—	B7G	15	Ferranti
GK50	Relay	—	—	190-225	—	120	—	8.0	30	—	—	B7G	16	Ferranti
M8206	V.R.	—	—	90	—	125	—	1	40	—	—	B7G	8	Mullard
6140	V.R.	—	—	100	—	165	—	4	6	—	—	B9A	13	U.S.A.
6141	V.R.	—	—	100	—	165	—	4	6	—	—	B9A	14	U.S.A.



# SCREENED TETRODES AND PENTODES

# TOO LATE FOR CLASSIFICATION

Type	FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid Volts.	$r_a$ K $\Omega$	$g_m$ mA/V	BASE		Maker
	Volts	Amps	Volts.	I/mA	Volts.	I/mA				Type	Ref.	
<b>EH900</b>	6.3	0.27	150	6.5	75	—	—	—	—	13	11	European
<b>5CM8</b>	4.7	0.6	200	9.5	150	2.8	180*	300	6.2	B9A	1	U.S.A.
<b>6CM8</b>	6.3	0.45	200	9.5	150	2.8	180*	300	6.2	B9A	1	U.S.A.
<b>12DA6</b>	Vari-mu	12.6	0.1	170	12.0	100	4.4	1.0	300	24	13	U.S.A.
<b>12F8</b>	Vari-mu	12.6	0.15	12.6	1.0	12.6	0.38	0	330	B9A	2	U.S.A.
<b>6351</b>	Sec Emiss	6.3	0.3	250	15.0	250	1.8	1.5	20	13	13	U.S.A.



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7B8	1	4	8D6	1	15			
7C4	1	30	8D7	1	15			
7C5	1	45	8DP4	3	30			
7C6	1	28				11A2	1	24
7C7	1	14				11D3	1	24
7CP4	2	25				11D5	1	24
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7E7	1	14	9A3	1	8	12A4	2	23
7EP4	2	25	9A8	3	{ 13	12A5	1	43
7F7	1	28			{ 18	12A6	1	41
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7F8W	2	21	9AB4	3	14	12A8	1	3
7F16	3	10	9AK8	3	16	12AB5	3	22
7G7	1	14	9AP4	2	25	12AC5	3	10
7G8	1	14	9AQ8	3	16	12AC6	3	13
7GP4	2	25	9BMS	2	33	12AD6	3	27
7H6	1	14	9BQ7A	3	16	12AD7	3	16
7H7	1	14	9BW6	2	35	12AE6	3	18
7HP4	2	25	9CP4	2	25	12AF6	3	13
7J7	1	4	9D2	1	8	12AG6	3	27
7JP4	2	25	9D6	1	13	12AH7	1	25
7K7	1	29	9I6	3	14	12AH8	2	1
7L7	1	14	9P9	3	20	12AJ7	3	27
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12AS5	2	33	12KP4A	2	25	14A5	1	45
12AT6	1	27	12L6	3	20	14A7	1	14
12AT7	1	29	12L8	2	37	14AF7	1	29
12AU6	1	13	12LP4	2	25	14AP4	2	25
12AU7	1	29	12LP4A	2	25	14B6	1	29
12AV5GA	3	20	12LP4-C	3	30	14B8	1	4
12AV6	1	27	12M7	3	10	14BP4	2	25
12AV7	1	29	12N8	3	12	14BP4-A	3	30
12AW6	1	13	12NK7	2	5	14C5	1	45
12AW7	1	13	12Q7	1	25	14C7	1	14
12AX4	2	15	12QP4	2	25	14CP4	2	25
12AX4GTA	3	24	12QP4-A	3	30	14DP4	2	25
12AX7	1	29	12RP4	2	25	14E6	1	29
12AY7	1	29	12S7	3	10	14E7	1	14
12AZ7	2	23	12S8	1	25	14EP4	2	25
12B4	2	23	12SA7	1	3	14F7	1	29
12B4A	3	16	12SC7	1	25	14F8	1	29
12B6M	1	25	12SF7	1	11	14GP4	2	25
12B7	1	14	12SG7	1	11	14H7	1	15
12B8	1	11	12SH7	1	11	14HP4	2	25
12BA6	1	13	12SJ7	1	11	14J7	1	4
12BA7	1	5	12SK7	1	11	14K7	3	27
12BD6	1	13	12SL7	1	25	14KP4	2	25
12BE6	1	3	12SN7	1	25	14KP4A	3	30
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12BF6	1	27	12SQ7	1	25	14LP4	3	30
12BH7	1	29	12SR7	1	25	14N7	1	29
12BH7A	3	16	12SW7	1	25	14Q7	1	4
12BK5	3	22	12SX7	1	25	14R7	1	15
12BK6	1	27	12SY7	2	1	14RP4	3	30
12BN6	2	5	12TE8	2	1	14S7	1	4
12BQ6	3	20	12TE9	3	27	14V7	1	15
12BQ6GTB	3	20	12TP4	2	25	14W7	1	15
12BR7	3	16	12U7	3	16	14X7	1	29
12BT6	1	27	12UP4	2	25	14Y4	1	21
12BU6	1	27	12UP4A	2	25	14Z3	1	21
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12BZ7	2	23	12W6	3	20			
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12C8	1	11	12WP4	3	30			
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12CD7	3	19	12XP4	2	25			
12CM6	3	22	12XP4A	3	30			
12CP4	2	25	12YP4	2	25			
12CR6	3	10	12Z3	1	21			
12CS5	3	22	12Z5	1	27			
12CS6	3	27	12ZP4	3	30			
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12I7	1	11	13PGA	1	1	15A8	3	14
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16ABP4	3	22	17HP4-B	3	30	19Y3	2	17
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16AEP4	3	25	17KP4	2	27			
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16EP4	2	26	17UP4	2	27	20A3	2	13
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16FP4	2	26	17YP4	2	27	20BP4	2	27
16GPA	2	26	17Z3	2	17	20CP4	2	27
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16GP4B	2	26				20CP4B	3	30
16GP4C	2	26				20CP4C	3	30
16HP4	2	26				20CP4-D	3	30
16HP4A	2	26				20D1	1	30
16JP4	2	26				20D2	1	1
16JP4A	2	26				20D3	1	5
16KP4	2	26	18	1	43	20DP4	2	27
16KP4A	2	26	18AK5	3	10	20DP4A	2	27
16LP4	2	26	18AQ5	3	20	20DP4B	3	30
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16SP4	2	26				20HP4A	2	27
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16UP4	2	26				20HP4D	3	30
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			19SU	3	27	21AMP23-A	3	30
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			19TP22	3	27	21ANP4-A	3	30
			19U3	3	24	21AP4	2	27
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142BT	1	42	220PT	1	37	956	2	9
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171DDP	3	12	305	2	13	1223	2	5
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			404A	3	12	1280	2	7
			405BU	1	17	1284	2	7
			408BU	1	17	1294	1	30
			412BU	1	17	1299	2	35
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			415PT	1	37	1611	2	33
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			5824	2	33	5993	2	17
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