

A Comprehensive

INTERNATIONAL  
EDITION

# RADIO VALVE GUIDE

BOOK 4

BY

B. B. BABANI

CHARACTERISTICS AND BASE CONNECTIONS ARE GIVEN FOR

All receiving valves issued since 1956—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.

\* \* \*

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

The unique features of Book's 1 2 and 3 have been retained : more than 1,100 valves not previously shown are presented, including all ENGLISH, EUROPEAN & AMERICAN RECEIVING VALVES ISSUED SINCE 1956

No. 157 BERNARDS RADIO MANUALS

40p



**A Comprehensive**  
**RADIO VALVE**  
**GUIDE**

**BOOK 4**

by

**B. B. BABANI**

**LONDON: BERNARDS (Publishers) LIMITED**

**FIRST PUBLISHED JANUARY 1960**  
**REPRINTED OCTOBER 1963**  
**REPRINTED MARCH 1967**  
**REPRINTED APRIL 1968**  
**REPRINTED FEBRUARY 1969**  
**REPRINTED SEPTEMBER 1970**  
**REPRINTED NOVEMBER 1971**  
**REPRINTED JULY 1972**

## CONTENTS

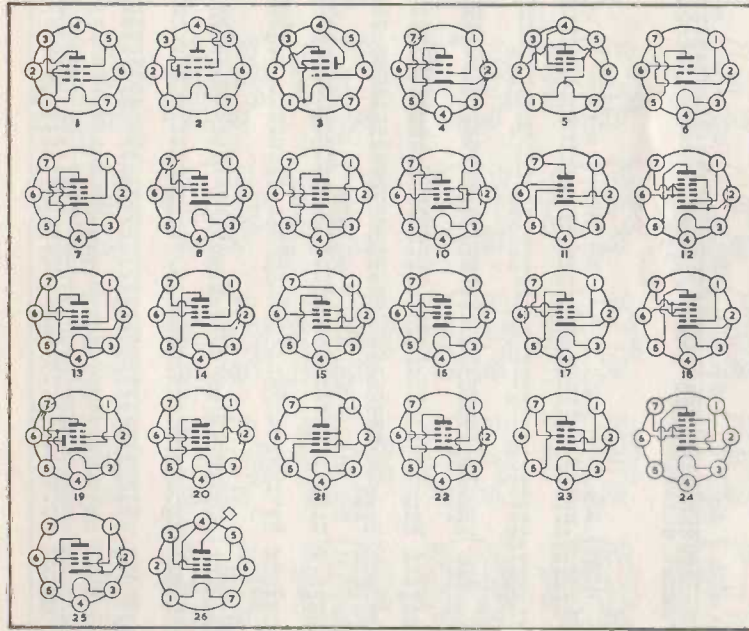
Screened Tetrodes and Pentodes	10
Frequency Changers	17
Triode Amplifiers	18
Sub Miniature Valves	26
Tuning Indicators	27
Rectifiers	28
Output Valves	30
Regulators and Thyratrons	35
Television C.R. Tubes	36
Diodes	39
Radio Receiving, Transmitting, and C.R.T. Designation Systems	40
Index	43
Index of U.S.S.R. Valves	47

SCREENED TETRODES and PENTODES

Table listing vacuum tube types, filaments, heaters, anodes, screens, grids, and various electrical parameters like transconductance and gain.

SCREENED TETRODES and PENTODES—Contd.

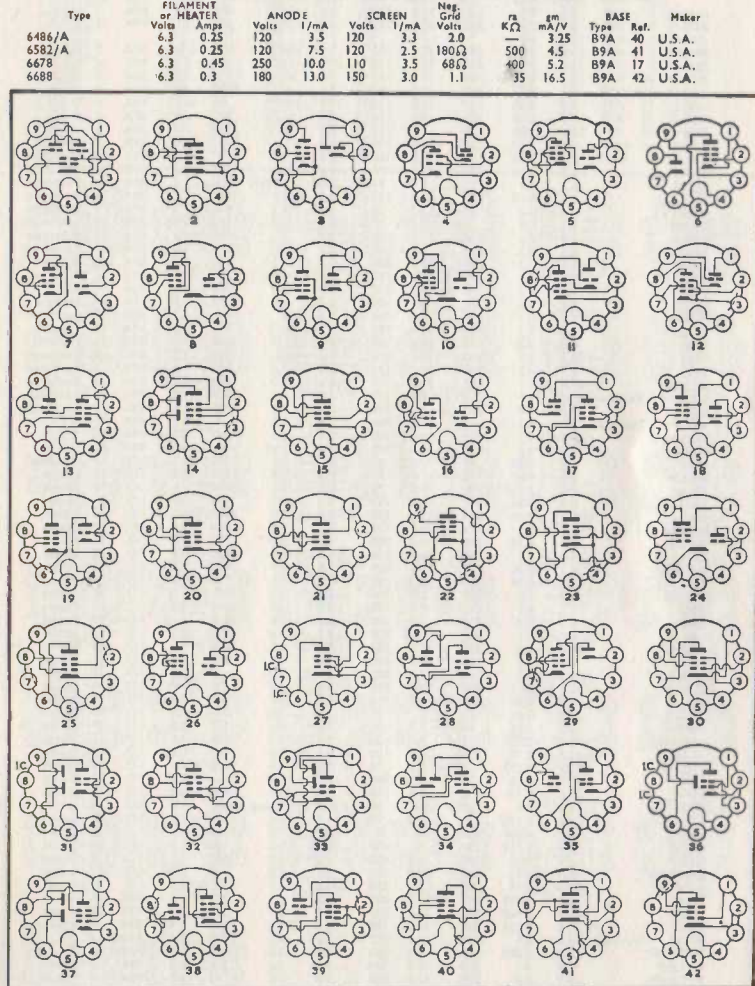
Continuation of the vacuum tube specifications table, listing types, filaments, heaters, anodes, screens, grids, and electrical parameters.



## SCREENED TETRODES and PENTODES—Contd.

## SCREENED TETRODES and PENTODES—Contd.

Type	FILAMENT or HEATER		ANODE		SCREEN		Neg. Grid		ra	gm	BASE		Maker
	Volts	Amperes	Volts	I/mA	Volts	I/mA	Volts	I/mA			Type	Ref.	
4BUB	4.2	0.45	100	2.2	67.5	3.0	—	—	—	—	B9A	1	U.S.A.
5A/170K	6.3	0.3	180	13.0	150	3.0	630Ω	—	16.5	—	B9A	2	U.S.A.
5BVV8	4.7	0.6	250	10.0	110	3.5	68Ω	—	250	5.2	B9A	3	U.S.A.
5CL8A	4.7	0.6	125	12.0	125	4.0	1.0	100	6.4	B9A	16	U.S.A.	
5CQ8	4.7	0.6	125	12.0	125	4.2	1.0	140	5.8	B9A	4	U.S.A.	
5CR8	4.7	0.6	125	13.0	125	3.0	56Ω	300	7.7	B9A	11	U.S.A.	
5D4H	5.2	0.6	125	3.5	125	3.8	56Ω	150	8.6	B9A	5	U.S.A.	
5E4H	4.7	0.6	125	12.0	125	4.0	1.0	80	6.4	B9A	17	U.S.A.	
5EH8	4.7	0.6	125	12.0	125	4.0	1.0	170	6.0	B9A	18	U.S.A.	
6AM8A	6.3	0.45	200	9.5	150	3.0	120Ω	300	5.8	B9A	6	U.S.A.	
6AN8A	6.3	0.45	200	9.5	150	2.8	180Ω	300	6.2	B9A	7	U.S.A.	
6AT8A	6.3	0.4	150	6.2	150	1.8	3.5	—	2.1	B9A	8	U.S.A.	
6A8A	6.3	0.6	200	15.0	125	3.4	82Ω	150	7.0	B9A	9	U.S.A.	
6BE8A	6.3	0.45	250	10.0	110	3.5	68Ω	400	5.2	B9A	5	U.S.A.	
6BVV8	6.3	0.45	250	10.0	110	3.5	68Ω	250	5.2	B9A	3	U.S.A.	
6CG8A	6.3	0.45	250	7.7	150	1.6	200Ω	750	4.6	B9A	10	U.S.A.	
6CL8A	6.3	0.45	125	12.0	125	4.0	1.0	140	6.4	B9A	16	U.S.A.	
6CQ8	6.3	0.45	125	12.0	125	4.2	1.0	140	5.8	B9A	4	U.S.A.	
6CR8	6.3	0.45	125	13.0	125	3.0	56Ω	300	7.7	B9A	11	U.S.A.	
6CS8	6.3	0.45	125	13.0	125	3.0	56Ω	300	7.7	B9A	12	U.S.A.	
6CU8	6.3	0.45	200	9.5	150	2.8	180Ω	300	6.2	B9A	13	U.S.A.	
6CX8	6.3	0.75	200	24.0	125	5.2	68Ω	70	10.0	B9A	9	U.S.A.	
6DC8	6.3	0.3	250	9.0	100	2.7	2.0	1000	3.8	B9A	14	U.S.A.	
6DG7	6.3	0.3	100	10.8	100	4.4	60Ω	250	6.8	B9A	15	U.S.A.	
6DR8	6.3	0.3	12.6	0.45	12.6	0.14	2.2MΩ	1000	1.0	B9A	14	U.S.A.	
6E8A	6.3	0.45	125	12.0	125	4.0	1.0	80	6.4	B9A	17	U.S.A.	
6EB8	6.3	0.8	200	25.0	125	7.0	68Ω	75	12.6	B9A	19	U.S.A.	
6EH8	6.3	0.45	125	12.0	125	4.0	1.0	170	6.0	B9A	18	U.S.A.	
6F19	6.3	0.3	250	8.0	85	2.0	1.8	500	5.7	B9A	20	Ediswan	
6FD20	6.3	0.3	170	10.0	170	2.5	2.0	—	6.0	B9A	2	Ediswan	
6F22	6.3	0.2	250	3.0	140	0.55	2.0	—	1.85	B9A	25	Ediswan	
6F23	6.3	0.34	170	10.0	170	2.6	1.8	—	8.8	B9A	30	Ediswan	
6F40	6.3	0.2	250	3.0	140	0.55	2.0	—	2.0	B9A	21	Czech	
6FD12	6.3	0.2	250	9.0	100	2.7	2.0	1000	3.8	B9A	14	Czech	
6RF10	6.3	0.5	150	36.0	150	6.5	60Ω	—	13.5	B9A	22	Japanese	
6RR8	6.3	0.3	150	13.0	150	4.5	110Ω	—	12.5	B9A	23	Japanese	
6UBA	6.3	0.45	250	10.0	110	3.5	1.0	400	5.2	B9A	17	U.S.A.	
6XB8	6.3	0.45	150	4.6	150	1.1	3.5	—	1.6	B9A	24	U.S.A.	
8AUBA	8.4	0.45	200	15.0	125	3.4	82Ω	150	7.0	B9A	9	U.S.A.	
8AW8A	8.4	0.45	200	13.0	150	3.5	180Ω	400	9.0	B9A	9	U.S.A.	
8B8A	8.4	0.45	200	13.0	150	3.5	180Ω	400	9.0	B9A	9	U.S.A.	
8BH8	8.4	0.45	200	15.0	125	3.4	82Ω	150	7.0	B9A	9	U.S.A.	
8CX8	8.0	0.6	200	24.0	125	5.2	68Ω	70	10.0	B9A	9	U.S.A.	
8D8	6.3	0.2	250	3.0	140	0.55	2.0	2500	1.85	B9A	25	Brimar	
8EB8	8.0	0.6	200	25.0	125	7.0	68Ω	75	12.5	B9A	19	U.S.A.	
9BR8	9.45	0.3	250	10.0	110	3.5	68Ω	400	5.2	B9A	26	U.S.A.	
9CL8	9.45	0.3	125	10.0	100	3.0	1.0	100	5.8	B9A	16	U.S.A.	
9D7	6.3	0.3	250	10.0	100	3.3	100Ω	750	8.4	B9A	20	Brimar	
9UBA	9.5	0.3	250	10.0	110	3.5	1.0	400	5.2	B9A	17	U.S.A.	
9X8	9.5	0.3	150	4.6	150	1.1	3.5	—	1.6	B9A	24	U.S.A.	
10C8	10.5	0.3	135	11.5	135	3.2	100Ω	190	8.0	B9A	7	U.S.A.	
10EB8	10.5	0.45	200	25.0	125	7.0	68Ω	75	12.5	B9A	19	U.S.A.	
10F18	13.0	0.1	175	12.0	100	3.4	1.3	—	4.5	B9A	20	Ediswan	
10FD12	10.0	0.1	250	9.0	100	2.7	2.0	1000	3.8	B9A	14	Ediswan	
12AD5	12.6	0.1	100	6.0	100	1.75	2.5	600	2.2	B9A	27	U.S.A.	
12AL8	12.6	0.45	12.6	25.0	12.6	—	0.8	1	8.0	B9A	28	U.S.A.	
12AU8	12.6	0.3	200	15.0	125	3.4	82Ω	150	7.0	B9A	9	Fivve	
12CT8	12.6	0.3	200	15.0	125	3.4	82Ω	150	7.0	B9A	9	U.S.A.	
12E8	12.6	0.2	12.6	1.3	12.6	0.2	0.8	300	7.5	B9A	29	U.S.A.	
12DK5	12.6	0.3	12.6	2.0	12.6	0.65	0	100	3.3	B9A	30	U.S.A.	
12DK7	12.6	0.5	12.6	6.0	12.6	1.0	2MΩ	4	5.0	B9A	32	U.S.A.	
12DQ7	6.3	0.6	200	26.0	125	5.6	68Ω	53	10.5	B9A	32	U.S.A.	
12D57	12.6	0.3	12.6	40.0	12.6	8.0	2.0	—	—	B9A	33	U.S.A.	
12D58	12.6	0.375	12.6	9.0	12.6	—	18Ω	0.9	8.5	B9A	34	U.S.A.	
12DY8	12.6	0.35	12.6	14.0	12.6	2.0	2.2MΩ	5	6.0	B9A	35	U.S.A.	
12EC8	12.6	0.225	12.6	0.66	12.6	0.28	33KΩ	750	2.0	B9A	26	U.S.A.	
12EM6	12.6	0.5	12.6	6.0	12.6	1.0	2MΩ	4	5.0	B9A	36	U.S.A.	
17C8	17	0.1	170	5.0	85	1.75	2.0	900	2.2	B9A	37	U.S.A.	
30C13	9	0.3	170	10.0	170	2.9	2.0	400	6.2	B9A	38	U.S.A.	
50B8	50.0	0.1	200	35.0	200	7.0	16.0	20	6.4	B9A	39	U.S.A.	

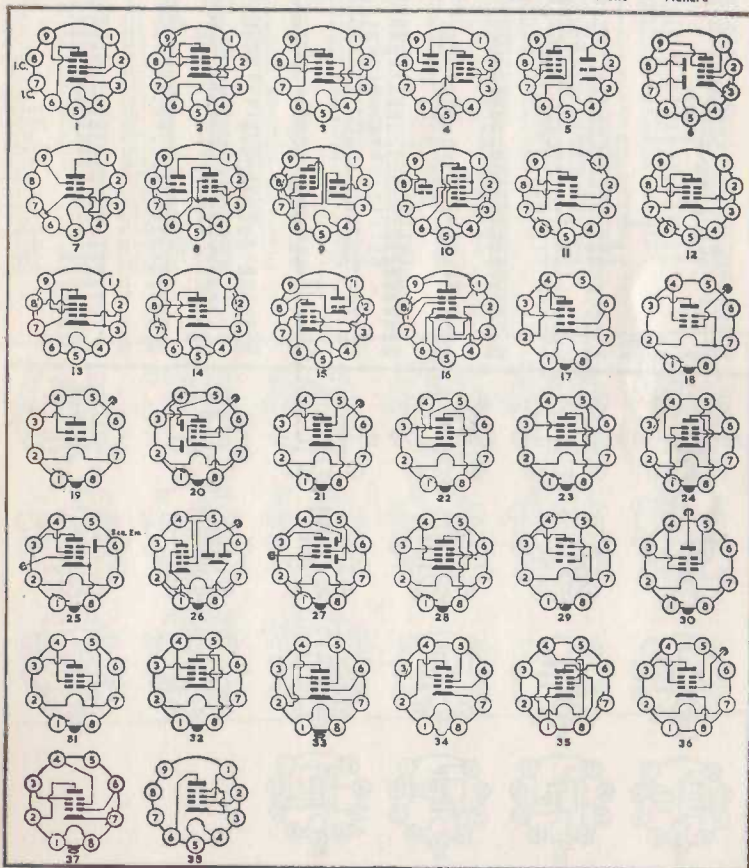


SCREENED TETRODES and PENTODES—Contd.

Type	FILAMENT or HEATER Volts Amps	ANODE Volts I <sub>mA</sub>	SCREEN Volts I <sub>mA</sub>	Neg. Grid Volts K $\Omega$	BASE Volts K $\Omega$	Typ. Ref.	Maker
6689	6.3 0.3	210	10.0	12.0	165 $\Omega$	9.0	B9A
6870	6.3 0.6	250	25.0	25.0	120 $\Omega$	23.0	B9A
7054	12.6 0.3	250	19.0	15.0	3.5	100	B9A
7059	13.5 0.275	250	10.0	11.0	3.5	483 $\Omega$	B9A
7060	13.5 0.28	200	15.0	12.5	3.4	82 $\Omega$	B9A
7125	6.3 0.2	250	9.0	10.0	2.7	2.0	1000
7150	6.3 0.45	135	26.0	13.5	10.0	240 $\Omega$	B9A
7159	6.3 0.45	220	12.5	13.0	3.5	62 $\Omega$	B9A
7259	12.5 0.21	125	12.0	12.5	3.8	56 $\Omega$	B9A
A1600	6.3 0.45	135	26.0	13.5	10.0	+8	B9A
D3a	6.3 0.32	190	22.0	16.0	5.8	0	B9A
E80CF	6.3 0.38	170	10.0	17.0	2.8	155 $\Omega$	B9A
EBF83	6.3 0.3	12.6	0.45	12.6	0.14	2.2M $\Omega$	B9A
ECF82	6.3 0.45	250	10.0	11.0	3.5	1.0	1000
ECF83	6.3 0.4	60	3.0	50	1.25	2.3	600
ECM83	6.3 0.3	12.6	0.17	12.6	0.3	1M $\Omega$	B9A
EF89F	6.3 0.3	250	11.0	10.0	4.2	2.0	1000
EF806S	6.3 0.2	250	3.2	14.0	0.6	500 $\Omega$	B9A
EF860	6.3 0.3	250	10.0	25.0	2.8	3.5	650
EF861	6.3 0.3	180	13.0	15.0	3.0	1.1	35
LZ329	9.0 0.3	170	10.0	17.0	2.8	2.0	400
M8195	6.3 0.2	250	3.0	14.0	0.55	2.0	2500
PCF84	9.0 0.3	170	8.0	17.0	2.7	0	B9A
PTT217	6.3 0.3	150	12.5	15.0	3.3	120 $\Omega$	B9A
R150	6.3 0.3	150	12.5	15.0	3.3	120 $\Omega$	B9A
T553	18.0 0.1	210	10.0	12.0	2.1	165 $\Omega$	B9A
T554	6.3 0.3	210	10.0	17.0	2.2	165 $\Omega$	B9A
UCF80	27.0 0.1	170	10.0	17.0	2.8	2.0	400
UF81	12.6 0.1	250	6.0	12.5	1.7	2.5	1000
UF86	12.6 0.1	200	3.0	14.0	0.6	2.0	2500
W119	13 0.1	175	12.0	10.0	3.4	1.3	B9A
W739	6.3 0.2	175	12.0	10.0	3.4	1.3	B9A
Z329	7.5 0.2	170	10.0	17.0	2.6	1.85	B9A
1LB7	1.4 0.05	45	1.0	45	0	3.0	300
2K2M	2.0 0.06	120	1.0	70	0.3	1.0	1500
2K1M	2.0 0.125	120	3.5	7.0	0.7	1.0	1000
2K2M	2.0 0.06	100	2.4	10.0	0.5	2.0	800
6F10	6.3 0.45	250	10.0	15.0	2.5	2.0	1000
6B8C	6.3 0.3	250	10.0	12.5	3.0	7.0	1.5
6X2M	6.3 0.45	300	10.0	15.0	1.5	2.0	750
6X3	6.3 0.3	250	10.8	15.0	4.3	1.0	900
6X3M	6.3 0.45	300	12.5	20.0	1.8	3.0	700
6X4	6.3 0.45	300	10.2	15.0	2.5	2.0	750
6X6M	6.3 0.3	250	2.0	10.0	0.8	3.0	1500
6X7	6.3 0.3	250	2.0	10.0	0.8	3.0	1500
6X8	6.3 0.3	250	3.0	10.0	0.8	3.0	1500
6K3	6.3 0.3	250	9.25	10.0	2.5	3.0	800
6K4	6.3 0.3	250	9.2	15.0	3.4	2.5	1000
6K7	6.3 0.3	250	7.0	10.0	1.7	3.0	800
6K9C	6.3 0.3	250	9.25	10.0	2.6	3.0	100
6T9	6.3 0.65	300	30.0	15.0	4.5	3.0	130
6P-V6	6.3 0.67	250	10.0	10.0	0.7	15.0	100
12B1M	12.5 0.22	25	1.1	25	0.4	1.0	7.5
12B2M	12.5 0.15	25	1.3	25	0.3	1.0	15.0
12K3M	12.5 0.225	25	2.0	25	0.5	1.5	20.0
12K9	12.5 0.15	250	3.0	17.0	0.8	3.0	1.65
12K1M	12.5 0.225	25	2.0	25	0.5	1.5	200
12K3	12.5 0.15	250	9.25	10.0	2.5	3.0	2.0
12K4	12.5 0.15	250	9.2	15.0	3.4	2.5	1000
6888	6.3 0.6	150	375	9.0	19.0	Gated amp.	B9A
C5241	2.0 0.125	120	4.5	7.0	1.1	0.5	1000
C0241	2.0 0.185	120	3.5	7.0	1.0	1.0	1100
C0244	2.0 0.185	120	4.1	12.0	0.75	1.5	150
C0257	2.0 0.25	100	6.0	10.0	1.5	3.0	1500
C0258	1.8 0.32	160	10.0	12.0	1.7	6.0	80
R116	10.0 0.55	200	8.0	20.0	1.6	2.2	1000
6F24	6.3 0.495	250	15.0	20.0	1.9	2.1	300
18F24	18.0 0.9	165	20.0	15.0	2.1	3.0	300
C3m	20.0 0.125	220	16.0	15.0	3.2	250 $\Omega$	25.0
W118	13.0 0.1	175	7.0	10.0	2.0	2.5	1000
PTT202S	18.0 0.085	200	8.0	20.0	1.6	2.2	800
PTT203	18.0 0.1	200	10.5	20.0	2.0	1.6	500
PTT206P	18.0 0.4	200	35.0	20.0	5.0	5.0	43
PTT212P	6.3 0.31	200	8.0	20.0	1.6	230 $\Omega$	800
PTT213P	6.3 0.3	200	10.5	20.0	2.0	1.6	500

SCREENED TETRODES and PENTODES—Contd.

Type	FILAMENT or HEATER Volts Amps	ANODE Volts I <sub>mA</sub>	SCREEN Volts I <sub>mA</sub>	Neg. Grid Volts K $\Omega$	BASE Volts K $\Omega$	Typ. Ref.	Maker
PTT214P	6.3 0.3	150	12.3	15.0	3.7	1.75	B9A
PTT216	6.3 0.3	150	12.3	15.0	3.7	1.75	B9A
PTT241P	6.3 0.79	220	34.0	22.0	4.5	2.9	B9A
PTT243P	6.3 0.42	150	26.0	15.0	6.5	1.5	B9A
PTT301A	18.5 0.2	80	2.0	80	0.5	2.13	B9A
R122N	18.0 0.225	200	8.0	20.0	1.6	2.2	B9A
R126F	18.0 0.225	200	6.0	20.0	1.3	4.0	B9A
R142	6.3 0.3	200	10.5	20.0	2.0	1.6	B9A
R143	6.3 0.24	200	8.0	20.0	1.6	2.2	B9A
R145	18.0 0.085	200	8.0	20.0	2.0	3.0	B9A
M8140	6.3 0.175	150	7.0	14.0	2.2	3.0	B9A
M8180	6.3 0.3	250	10.0	25.0	2.5	2.0	B9A









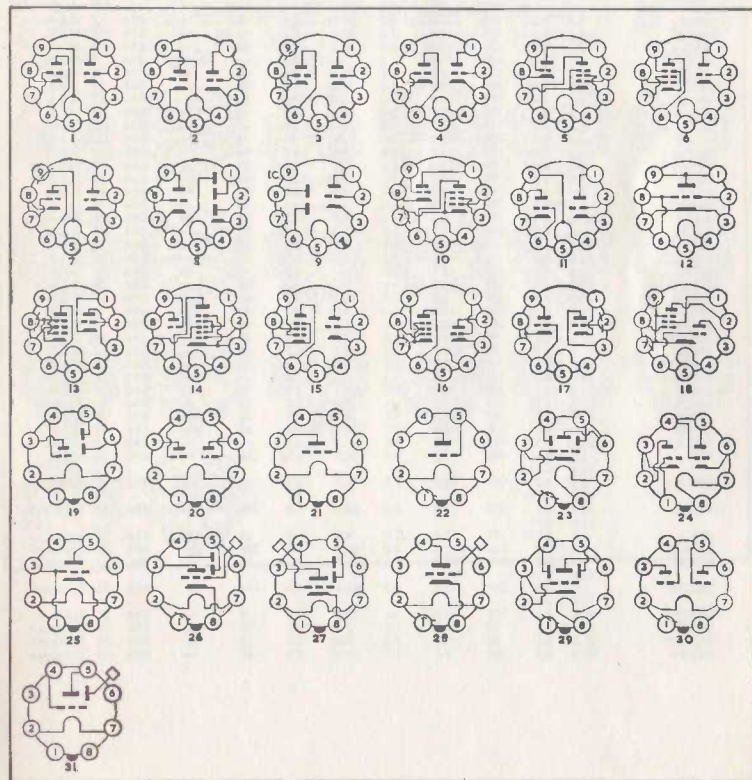


## TRIODE AMPLIFIERS—Contd.

Type	FILAMENT or HEATER		ANODE		Neg. Grid Volts	r <sub>a</sub> Ω	r <sub>m</sub> mA/V	Amp Factor	RK Ω	BASE Type	Ref.	Maker
	Volts	Amps	Volts	I/mA								
6955	12.6	0.175	250	11.5	—	7.0	2.35	—	—	—	—	—
7025	6.3	0.3	250	1.2	2.0	62.5	1.6	100	—	B9A	1	U.S.A.
7044	12.6	0.15	120	36.0	2.0	1.9	10	19	—	B9A	2	U.S.A.
7057	12.6	0.45	150	10.0	—	5.3	6.8	36	220	B9A	3	U.S.A.
7058	13.5	0.155	250	1.25	2.0	61.0	1.65	100	—	B9A	4	U.S.A.
7059	13.5	0.195	150	18.0	—	4.7	8.5	40	56	B9A	5	U.S.A.
7060	13.5	0.28	150	9.0	—	8.2	4.9	40	150	B9A	6	U.S.A.
7062	6.3	0.4	100	8.5	0.8	6.4	7.8	50	—	B9A	7	U.S.A.
7118	12.6	0.2	100	8.5	1.3	5.9	5.6	32	—	B9A	7	U.S.A.
7119	12.6	0.2	180	2.3	7.0	2.75	6.4	17.5	—	B9A	2	U.S.A.
7199	6.3	0.45	215	9.0	8.5	0.0	2.1	17	—	B9A	1	U.S.A.
7258	12.5	0.21	150	15.0	3.0	4.7	4.5	21	—	B9A	6	U.S.A.
7318	6.3	0.35	300	900	Pulse Amplifier	—	—	—	—	B9A	1	U.S.A.
B109	12.6	0.175	170	8.7	—	8.4	6.0	50	160	B9A	3	G.E.C.
D729	6.3	0.3	200	10.0	—	—	—	18	—	B9A	3	G.E.C.
CC81E	6.3	0.3	250	10.0	—	10.9	5.5	60	60	B9A	1	European
CC82E	12.6	0.15	250	10.5	8.5	7.7	2.2	17	—	B9A	1	European
CC84E	6.3	0.3	250	14.5	—	3.85	5.2	20	620	B9A	1	European
DH109	28.0	0.1	270	1.0	3.0	53.0	1.2	70	—	B9A	8	G.E.C.
DH119	14.0	0.1	170	1.5	1.5	42.0	1.65	70	—	B9A	9	G.E.C.
E80CF	6.3	0.38	100	14.0	—	5.0	—	—	145	B9A	10	European
E81CC	6.3	0.3	250	10.0	—	10.9	5.5	60	60	B9A	11	European
E180CC	12.6	0.15	100	8.5	0.8	6.4	7.8	50	—	B9A	7	European
E181CC	12.6	0.2	100	8.5	1.3	5.9	5.6	32	—	B9A	7	European
E182CC	12.6	0.2	150	2.3	7.0	2.75	6.4	17.5	—	B9A	2	European
EC86	6.3	0.22	175	12.0	1.5	4.86	14.0	68	—	B9A	12	European
ECC86	6.3	0.33	6.3	1.0	0.45	4.5	2.6	13	100K	B9A	3	European
ECC88	6.3	0.33	90	15.0	1.3	2.64	12.5	33	—	B9A	3	European
ECC189	6.3	0.365	90	15.0	1.2	2.64	12.5	33	—	B9A	4	French
ECC8015	6.3	0.3	250	10.0	—	10.9	5.5	60	60	B9A	1	European
ECC8025	12.6	0.15	250	10.5	8.5	7.7	2.2	17	—	B9A	1	European
ECC865	6.3	4.0	170	8.7	—	8.4	6.0	50	160	B9A	3	European
ECF82	6.3	0.45	150	18.0	1.0	5.0	8.5	42.5	56	B9A	5	European
ECF83	6.3	0.4	60	6.5	3.7	3.0	3.6	11	—	B9A	13	European
ECF83B	6.3	0.3	12.6	0.75	—	1.4	—	—	47K	B9A	14	European
ECL83	6.3	0.6	200	2.4	1.5	34	2.5	85	—	B9A	15	European
ECL84	6.3	0.71	200	3.0	1.7	16.25	4.0	65	—	B9A	16	European
LN319	13.0	0.3	250	2.0	—	5.3	3.4	18	—	B9A	15	G.E.C.
LZ329	9.0	0.3	120	6.0	2.0	4	5.0	20	—	B9A	5	G.E.C.
M8162	6.3	0.3	250	10.0	2.0	11	5.5	60	—	B9A	1	Mullard
PCC86	3.8	0.2	175	12.0	1.5	4.86	14.0	68	—	B9A	12	European
PCC88	7.0	0.3	90	15.0	1.2	2.7	12.5	33	—	B9A	3	European
PCC89	7.2	0.3	90	15.0	1.2	3.0	12.0	36	—	B9A	17	European
PCC189	7.0	0.3	90	15.0	1.2	2.64	12.5	33	—	B9A	4	French
PCF84	9.0	0.3	100	14.0	2.0	2.5	—	—	—	B9A	18	European
PCL84	15.0	0.3	200	3.0	1.7	16.25	4.0	65	—	B9A	16	European
UCC84	21.0	0.1	90	12.0	1.5	4	6.0	24	—	B9A	17	European
UCF80	27.0	0.1	100	14.0	2.0	4	5.0	20	—	B9A	10	European
2F2-M	2.0	0.06	120	0.5	0	130	0.35	45	—	I.O.	19	Soviet
2H1M	2.0	0.24	120	1.2	2.0	32	1.0	32	—	I.O.	20	Soviet
2C3-M	2.0	0.12	120	1.5	2.5	17	1.3	22	—	I.O.	21	Soviet
2D1-M	2.0	0.125	120	3.3	1.0	15	1.6	24	—	I.O.	22	Soviet
2Φ2-M	2.0	0.06	120	2.0	1.0	28	0.9	25	—	I.O.	22	Soviet
6CC10	6.3	0.6	250	6.5	9.0	1.1	2.2	20	1350	I.O.	24	Czech
6CK4	6.3	1.25	250	55.0	26.0	1.05	6.5	6.7	—	I.O.	25	U.S.A.
6DN7	6.3	0.9	250	6.6	8.0	9.0	2.5	22.5	—	I.O.	24	U.S.A.
6F1	6.3	0.3	250	33.0	9.5	2.2	7.4	16.0	—	I.O.	26	Soviet
6F2	6.3	0.3	250	9.5	9.0	8.5	1.9	16	—	I.O.	23	Soviet
6F7	6.3	0.3	250	1.0	2.0	91	1.1	100	—	I.O.	23	Soviet
6F7C	6.3	0.3	250	1.1	3.0	60	1.2	72	—	I.O.	26	Soviet
6F7C	6.3	0.3	250	1.1	3.0	58	1.2	70	—	I.O.	27	Soviet

## TRIODE AMPLIFIERS—Contd.

Type	FILAMENT or HeATER		ANODE		Neg. Grid Volts	r <sub>a</sub> Ω	r <sub>m</sub> mA/V	Amp Factor	RK Ω	BASE Type	Ref.	Maker
	Volts	Amps	Volts	I/mA								
6H8C	3	0.6	250	9.0	8.0	7	3.0	21	—	I.O.	24	Soviet
6H9C	6.3	0.3	250	2.3	2.0	44	1.6	70	—	I.O.	24	Soviet
6C2C	6.3	0.3	250	9.0	8.0	7.7	2.6	20	—	I.O.	22	Soviet
6D3-C	6.3	0.3	250	0.9	2.0	66	1.5	100	—	I.O.	28	Soviet
85N7GTB	8.4	0.45	250	9.0	8.0	7.7	2.6	20	—	I.O.	24	U.S.A.
12I1	12.6	0.15	250	9.5	9.0	8.5	1.9	16	—	I.O.	29	Soviet
13D2	12.6	0.15	250	1.15	2.0	91	1.1	100	—	I.O.	29	Soviet
31B×7	6.3	0.6	250	9.0	8.0	7.7	2.6	20	—	I.O.	24	Brimar
6082A	31.5	0.3	250	42.0	—	1.3	7.6	10.0	390	I.O.	24	U.S.A.
639A	26.5	0.6	135	125.0	—	0.28	7.0	2.0	250	I.O.	24	U.S.A.
6520	26.5	1.2	190	185.0	—	0.2	13.5	2.7	200	I.O.	24	U.S.A.
6520	6.3	2.5	135	112.0	—	0.28	7.0	2.0	250	I.O.	24	U.S.A.
7236	6.3	2.4	120	120.0	14.0	0.4	12.5	4.8	—	I.O.	1	European
ECC230	6.3	2.5	135	125.0	—	0.28	7.0	2	250	I.O.	24	European
R125C	18.0	0.4	250	5.0	5.5	13	2.5	33	—	I.O.	26	French
CB240	2.0	0.125	120	3.0	2.5	10	2	20	—	I.O.	22	Soviet
CB243	2.0	0.24	120	2.2	0	16	1.8	29	—	I.O.	30	Soviet
CB245	2.0	0.32	120	10.0	7.5	2	2.2	4.4	—	I.O.	31	Soviet
YB240	2.0	0.125	120	3.5	1.0	15.6	1.6	25	—	I.O.	22	Soviet

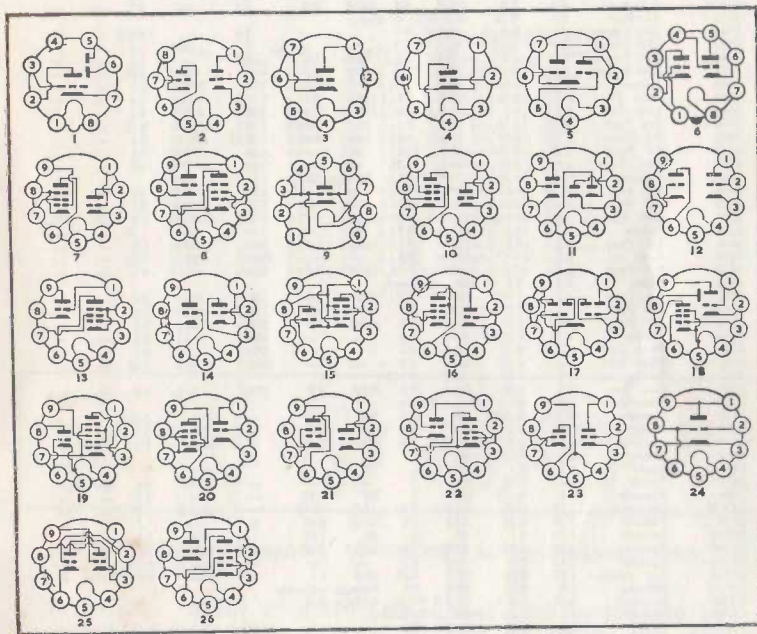


## TRIODE AMPLIFIERS—Contd.

Type	FILAMENT or HEATER		ANODE		Neg. Grid Volts	r <sub>a</sub> Ω	g <sub>m</sub> mA/V	Amp Factor	R <sub>K</sub> Ω	BASE		Maker
	Volts	Amps	Volts	I/mA						Type	Ref.	
DH118	1.40	0.1	170	1.5	1.6	42.0	1.65	70	1000	B8A	1	G.E.C.
DH718	6.3	0.225	250	1.0	3.0	54.0	1.3	70	—	B8A	1	G.E.C.
PTT120P	18.0	0.2	220	10.0	—	11.0	5.5	60	150	F8A	2	French
PTT141	6.3	0.3	150	23.0	1.3	2.0	25.0	50	60	F8A	2	French
R148	18.0	0.2	220	10.0	1.5	11.0	5.5	60	—	F8A	2	French
3AB4	3.15	0.3	250	10.0	2.0	10.0	5.5	55	—	B7G	3	U.S.A.
3ER5	3.6	0.3	200	10.0	1.2	7.8	10.5	80	—	B7G	4	U.S.A.
6ER5	6.3	0.18	200	10.0	1.2	7.8	10.5	80	—	B7G	4	U.S.A.
10ER5	10.0	0.1	200	10.0	1.2	7.8	10.5	80	—	B7G	4	U.S.A.
6535	6.3	0.45	100	8.5	0.85	7.1	5.3	38	—	B7G	5	U.S.A.
EC95	6.3	0.18	200	10.0	1.2	7.8	10.5	80	—	B7G	4	European
PC92	3.15	0.3	250	10.0	2.0	12.0	5.0	60	—	B7G	3	European
PC95	3.6	0.3	200	10.0	1.2	7.8	10.5	80	—	B7G	4	European
UC95	10.0	0.1	200	10.0	1.2	7.8	10.5	80	—	B7G	4	European
6EA7 (U.S.A.)	6.3	1.05	250	1.5	3.0	34.00	1.9	65	—	I.O.	6	U.S.A.
10EG7	9.7	0.6	250	5.5	11.0	8.75	2.0	175	—	I.O.	6	U.S.A.
5F5	4.7	0.6	125	14.0	1.0	5.00	8.0	40	—	B9A	7	U.S.A.
5GH8	4.7	0.6	125	14.0	1.0	5.4	8.5	46	—	B9A	8	U.S.A.
6C16	6.3	0.45	100	14.00	2.0	4.0	5.0	20	—	B9A	8	Ediswan
6CR4	6.3	0.37	130	16.0	1.0	—	60.0	—	—	B9A	9	U.S.A.
6DQ8	6.3	0.71	200	3.0	1.7	16.25	4.0	65	—	B9A	10	U.S.A.
6FM8	6.3	0.45	280	1.0	3.0	58.00	1.2	70	—	B9A	11	U.S.A.
6FV8	6.3	0.45	16.0	1.0	5.00	—	46	—	—	B9A	12	U.S.A.
6FW8	6.3	0.4	125	15.0	2.0	2.62	12.5	33	—	B9A	12	U.S.A.
6FY8	6.3	1.2	125	2.5	1.5	—	2.0	—	—	B9A	13	U.S.A.
6GA8	6.3	0.3	250	8.0	—	—	—	18	—	B9A	12	U.S.A.
6GH8	6.3	0.45	125	13.5	1.0	5.4	8.5	46	—	B9A	8	U.S.A.
6L16	6.3	0.4	90	12.0	1.5	3.7	6.2	23	—	B9A	14	Ediswan
7ES8	7.0	0.3	90	15.0	1.2	2.64	12.5	33	—	B9A	14	U.S.A.
9EN7	9.0	0.3	120	6.0	—	4.0	5.0	20	—	B9A	15	U.S.A.
9GB8	9.0	0.3	250	8.0	—	—	—	18	—	B9A	16	U.S.A.
10L14	26.0	0.1	170	8.7	—	8.4	6.0	50	160	B9A	12	Ediswan
12FQ8	12.6	0.15	250	1.5	1.5	76.0	12.5	95	—	B9A	17	U.S.A.
12FR8	12.6	0.32	12.6	1.0	0.6	8.3	1.2	10	—	B9A	18	U.S.A.
12FX8	12.6	0.3	12.6	1.3	0.8	7.8	1.4	10	—	B9A	19	U.S.A.
12FY8	12.6	0.6	125	2.5	1.5	—	2.0	—	—	B9A	13	U.S.A.
13GC8	13.0	0.3	250	8.0	—	—	—	18	—	B9A	20	U.S.A.
15DX8	15.0	0.3	200	3.0	1.7	16.25	4.0	65	—	B9A	10	U.S.A.
19CL8A	18.9	0.15	125	15.00	—	5.0	8.0	40	56	B9A	8	U.S.A.
19EA8A	18.9	0.15	150	18.00	—	5.0	8.5	42.5	56	B9A	8	U.S.A.
21CV7	21.0	0.1	90	12.0	1.5	4.0	6.0	24	—	B9A	14	U.S.A.
21DJ8	21.0	0.1	90	15.0	1.2	2.7	12.5	33	—	B9A	12	U.S.A.
21E58	21.0	0.1	90	15.0	1.2	2.64	12.5	33	—	B9A	12	U.S.A.
25FY8	25.0	0.3	125	2.5	1.5	—	2.0	—	—	B9A	13	U.S.A.
27BL8	27.0	0.1	100	14.00	2.0	4.0	5.0	20	—	B9A	22	U.S.A.
30C15	9.0	0.3	120	6.0	—	4.0	5.0	20	—	B9A	15	Ediswan
45DQ8	45.0	0.1	200	3.0	1.7	16.25	4.0	65	—	B9A	10	U.S.A.
45DX8	45.0	0.1	200	3.0	1.7	16.25	4.0	65	—	B9A	10	U.S.A.
50FY8	50.00	0.15	125	2.5	1.5	—	2.0	—	—	B9A	13	U.S.A.
7247	6.3	0.3	250	1.2	2.0	80.0	1.25	100	—	B9A	23	U.S.A.
E82CC	12.6	0.15	250	10.5	8.5	7.7	2.2	17	—	B9A	23	European
E83CC	6.3	0.3	250	1.2	2.0	62.5	1.6	100	—	B9A	23	European
E86C	6.3	0.165	175	12.0	2.0	4.9	14.0	68	125	B9A	24	European
E283CC	6.3	0.3	250	1.2	2.0	62.5	1.6	100	—	B9A	25	European
ECC802	6.3	0.3	250	10.5	8.5	7.7	2.2	17	—	B9A	23	European
ECC803	6.3	0.3	250	1.2	2.0	62.5	1.6	100	—	B9A	23	European
LN119	48.0	0.1	100	3.0	—	33.0	2.2	70	—	B9A	26	G.E.C.
UC98	21.0	0.1	90	15.0	1.2	2.7	12	33	—	B9A	12	European
UCCL189	21.0	0.1	90	15.0	1.2	2.64	12.5	33	—	B9A	12	European
UCL84	45.0	0.1	200	3.0	1.7	16.25	4.0	65	—	B9A	10	European

## TRIODE AMPLIFIERS—Contd.

Type	FILAMENT or HEATER		ANODE		Neg. Grid Volts	r <sub>a</sub> Ω	g <sub>m</sub> mA/V	Amp Factor	R <sub>K</sub> Ω	BASE		Maker
	Volts	Amps	Volts	I/mA						Type	Ref.	
416B	6.3	1.2	200	30.0	—	—	50.0	—	260	No base	—	Ericsson
DX144	6.3	0.65	300	25.0	—	2.3	19.0	43	—	No base	—	U.S.A.
DX145	6.3	0.65	300	70.0	—	2.3	19.0	43	—	No base	—	U.S.A.
EC760	6.3	0.15	150	13.0	2.4	40	6.5	26	—	No base	—	E. Eurpn.
M8144	6.3	0.3	250	10.0	2.0	11.0	5.5	60	—	No base	—	Mullard
M8149	12.6	0.15	—	—	—	—	—	—	—	No base	—	Mullard
M8179	6.3	0.45	100	8.5	0.85	7.1	5.3	38	—	No base	—	Mullard
M8214	6.3	0.3	250	1.2	2.0	62.5	1.6	100	—	No base	—	Mullard
R243	12.6	0.15	—	—	—	—	—	—	—	No base	—	French
	6.3	0.4	250	20.0	3.5	5.0	6.0	30	—	No base	—	French



SUB-MINIATURE VALVES

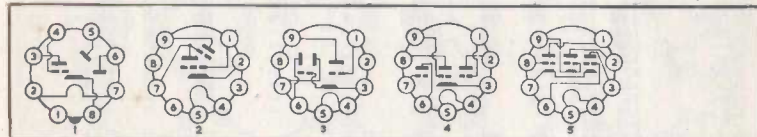
Table listing various sub-miniature valves including types like 1C91, 1EDR1, 1ER11, etc., with columns for filament/heater, anodes, screen, grid, and output specifications.

SUB-MINIATURE VALVES—Contd.

Continuation of the valve list table, including types like 02DF, R242P, R263, etc., with their respective electrical characteristics.

TUNING INDICATORS

Table listing tuning indicators with columns for type, heater, target, grid, and base, including models like 1H90, 6DA5, 6DL7, etc.



BP2 - HANDBOOK OF RADIO, TV INDUSTRIAL AND TRANSMITTING EQUIVALENTS

Price 60p Size: 7" x 4 1/2" (178 x 114) ISBN 085934 020 1 Author B. B. Babani 96 pages

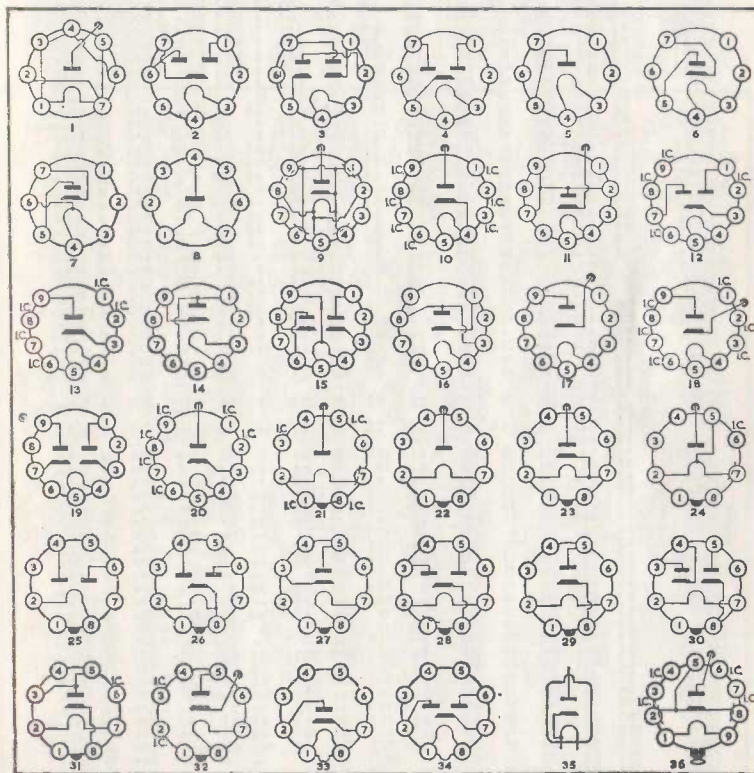
A modern, easy to use, equivalents handbook for amateur and service engineer. Every new and old valve is shown here with its equivalents. More than 18,000 valves from Gt. Britain, USA, Europe, Japan and the rest of the World are included and a complete up-to-date C.V. (Military, Naval and Air Force) List with full commercial equivalents is also provided in a most convenient form.

## 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 Type	Ref.	MAKER
	Volts	Amps								
1Y32	1.4	0.26	—	2	20000	—	—	B7G	1	Czech
6Z31	6.3	0.6	325	70	1000	—	150	B7G	2	Czech
6X2II	6.3	0.3	117	9	—	—	—	B7G	3	Soviet
6114T	6.3	0.6	—	75	1000	—	—	B7G	4	Soviet
25MK15	25.0	0.15	330	70	—	—	—	B7G	5	Japanese
35A3	35.0	0.15	—	100	700	—	—	B7G	6	U.S.A.
35C3	35.0	0.15	—	100	330	—	—	B7G	6	U.S.A.
35Y31	35.0	0.15	250	140	700	—	125	B7G	6	Czech
36AM3	18.0	0.2	—	82	365	—	—	B7G	7	U.S.A.
	36.0	0.1	—	—	—	—	—	—	—	—
50DC4	25.0	0.3	—	120	330	—	—	B7G	7	Czech
	50.0	0.15	—	—	—	—	—	—	—	—
DDR3	6.3	0.42	250	75	—	32	100	B7G	8	European
EZ900	6.3	0.6	325	70	—	—	—	B7G	2	European
IH2	1.4	0.55	—	0.5	24000	—	—	B9A	9	U.S.A.
152A	1.4	0.55	18000	0.15	22000	—	—	B9A	10	U.S.A.
21J	2.0	0.35	—	0.2	27000	—	—	B9A	9	U.S.A.
6B3	6.3	1.2	—	150	4500	—	—	B9A	11	U.S.A.
6CA4	6.3	1.0	350	150	1000	8	270	B9A	12	U.S.A.
6N3	6.3	0.9	250	180	700	60	100	B9A	13	U.S.A.
652A	6.3	0.09	18000	0.15	22000	—	—	B9A	10	U.S.A.
6Y5	6.3	1.65	1200	220	3500	—	—	B9A	14	Czech
12B3	12.6	0.6	—	150	4400	—	—	B9A	11	U.S.A.
12DF5	6.3	0.9	—	350	1275	—	—	B9A	15	U.S.A.
	12.6	0.45	—	—	—	—	—	—	—	—
17H3	17.5	0.3	—	75	2000	—	—	B9A	16	U.S.A.
20Y40	20.0	0.3	—	140	4500	—	—	B9A	17	Czech
26AE4	26.0	0.3	—	600	—	—	—	B9A	18	U.S.A.
38A3	38.0	0.1	—	110	700	—	—	B9A	13	U.S.A.
35N3	55.0	0.1	—	180	700	—	—	B9A	13	U.S.A.
6754	6.3	1.0	450	90	—	4	10	B9A	19	U.S.A.
EY83	6.3	1.0	—	140	5000	—	—	B9A	18	European
EY88	6.3	1.2	—	600	—	—	—	B9A	18	European
H8091	6.3	1.0	625	125	2000	24	250	B9A	20	Mullard
PY83	20.0	0.3	—	175	5000	—	—	B9A	18	European
PY88	26.0	0.3	—	—	6000	—	—	B9A	18	European
TY86F	7.4	0.07	18000	0.15	22000	—	—	B9A	10	Mullard
U49	2.0	0.35	—	0.28	25000	—	—	B9A	10	G.E.C.
U119	38.0	0.1	250	110	700	100	100	B9A	13	G.E.C.
U152	19.0	0.3	250	180	700	60	100	B9A	13	Ediswan
U381	38.0	0.1	250	110	700	100	100	B9A	13	Ediswan
UU12	6.3	1.0	350	150	1000	8	270	B9A	12	Ediswan
IG3GT	1.25	0.2	—	0.5	26000	—	—	I.O.	21	U.S.A.
1J3	1.25	0.2	—	0.5	26000	—	—	I.O.	21	U.S.A.
1K3	1.25	0.2	22000	0.05	—	—	—	I.O.	21	U.S.A.
1111C	0.7	0.185	3300	1.0	—	—	—	I.O.	22	Soviet
1117C	1.25	0.2	—	2.0	30000	—	—	I.O.	22	Soviet
2112C	2.5	0.175	4500	7.5	—	—	—	I.O.	23	Soviet
3C2	1.58	0.42	—	1.1	28000	—	—	I.O.	24	U.S.A.
	3.15	0.21	—	—	—	—	—	—	—	—
5A54A	5.0	4.0	600	300	1550	—	—	I.O.	25	U.S.A.
5C4	5.0	2.0	—	125	1400	—	—	I.O.	26	U.S.A.
5R4GYB	5.0	2.0	—	250	2650	—	—	I.O.	25	U.S.A.
5Z4C	5.0	3.0	500	250	1400	—	—	I.O.	26	E. Eurpn.
5Z10	5.0	3.0	500	250	1700	—	—	I.O.	25	Czech
5113C	5.0	3.0	450	225	—	—	—	I.O.	25	Soviet
5114C	5.0	2.0	350	175	—	—	—	I.O.	26	Soviet
6DA4	6.3	1.2	—	155	4400	—	—	I.O.	27	U.S.A.
6DE4	6.3	1.6	—	175	5000	—	—	I.O.	27	U.S.A.
6UD5	6.3	0.6	400	60	—	—	—	I.O.	28	Soviet
17D4	16.8	0.45	—	155	4400	—	—	I.O.	27	U.S.A.
17D6A	17.0	0.6	—	175	5000	—	—	I.O.	27	U.S.A.
19C34	19.0	0.3	—	120	4500	—	—	I.O.	27	U.S.A.
22DE4	22.4	0.45	—	175	5000	—	—	I.O.	27	U.S.A.
25D4	25.0	0.3	—	155	4400	—	—	I.O.	27	U.S.A.
3011M	30.0	0.3	250	90	—	—	—	I.O.	29	Soviet
3016G	30.0	0.3	250	90	—	—	—	I.O.	30	Soviet
GZ37	5.0	2.8	500	350	1850	7	75	I.O.	26	Mullard
U54	5.0	2.8	500	250	—	16	50	I.O.	26	Ediswan

## RECTIFIERS—Contd.

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 Type	Ref.	MAKER
	Volts	Amps								
U291	29.0	0.3	250	275	700	100	56	I.O.	31	Ediswan
U339	19.0	0.3	—	150	4500	—	—	I.O.	32	G.E.C.
U118	40.0	0.1	250	90	—	—	—	B8A	33	G.E.C.
U719	6.3	0.6	350	90	—	—	—	B8A	34	G.E.C.
6763	Cold	—	2800	12	—	—	—	UX7	?	G.E.C.
A2272	6.3	1.6	—	100	16000	—	—	B9G	36	G.E.C.
U47	2.0	0.2	7800	0.5	20000	0.1	100K	B2A	35	G.E.C.
M8141	6.3	1.0	625	125	2000	24	250	None	—	Mullard











TELEVISION C.R. Tubes

Table with columns: Type, Dia. in In., Remarks, Heater (Volts, Amps), 2nd or Final ANODE (Volts), Focus (Volts), ACC, c, off, Focus A/JT or Method, Focus Def., Def. Angle, BASE Type, Ref., Maker. Lists various tube models like 3R P4, 5ABP4, etc.

Base diagrams for the C.R.T.'s shown on this page appear on Page 38.

TELEVISION C.R. Tubes—Contd.

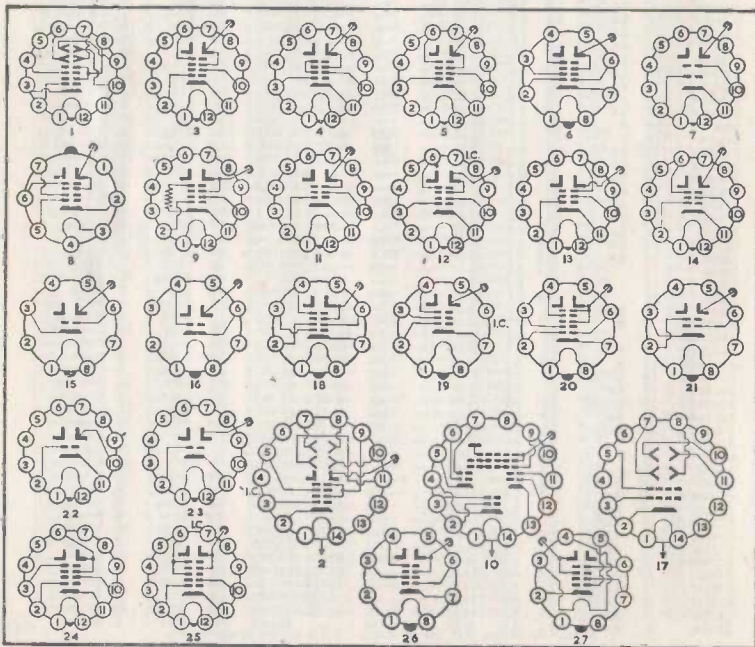
Continuation of the table from page 36, listing tube models like 21CBP4A, 21GR\*, 21AGR\*, etc., with their specifications and manufacturer information.

Base diagrams for the C.R.T.'s shown on this page appear on Page 38.

## TELEVISION C.R. Tubes—Contd.

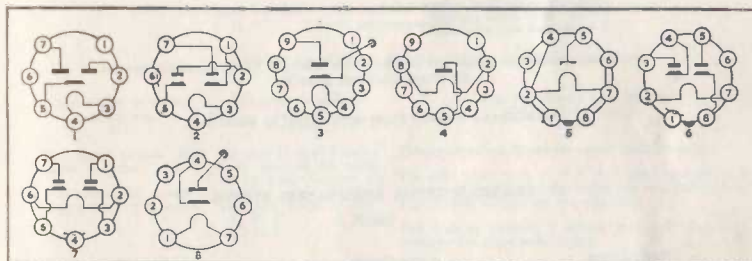
Type	Dia. in In.	Remarks	HEATER Volts	Amps	2nd or FINAL ANODE Volts	Focus Anode	ACC	e off	Focus A/T or Def. Method	Def. Angle	BASE Type	Ref.	Maker
CZ13M	21	RAG	6.3	0.3	18.0K	—	300	33-77	ES/MG	90°	B12A	12	Brimar
CZ17M	21	RA*	12.6	0.3	18.0K	—	300	30-72	MG/MG	90°	B12A	7	Brimar
CZ4K4	24	RA*	6.3	0.3	16.0K	—	300	40-60	M/M	90°	B12A	13	Brimar
CME141	14	RA	12.6	0.3	14.0K	—	300	51	ES/MG	70°	B12A	3	Ediswan
CME1402	14	RG A*	12.6	0.3	14.0K	—	300	30-72	ES/MG	90°	B12A	3	Mazda
CME1702	17	RA	12.6	0.3	15.0K	—	300	30-72	ES/MG	90°	B12A	12	Ediswan
CME1703	17	RA	12.6	0.3	16.0K	—	400	30-70	ES/MG	110	B8H	6	Ediswan
CME2101	21	RA	12.6	0.3	16.0K	—	400	30-70	ES/MG	110	B8H	6	Ediswan
CRM172	17	RG A	12.6	0.3	14.0K	—	300	51	ES/MG	90°	B12A	7	Mazda
CRM173	17	RG A*	12.6	0.3	16.0K	—	300	30-72	MG/MG	90°	B12A	7	Mullard
MP17-20	5		6.3	0.3	14.0K	—	300	40-86	ES/MG	53	B12A	13	European
MW13-35	5		6.3	0.3	7.0K	—	300	30-70	MG/MG	53	I.O.	?	Mullard
MW17-69	6.5	A	6.3	0.3	14.0K	—	300	40-85	MG/MG	70	B12A	13	European
MW22-22	6		6.3	0.3	9.0K	—	300	30-70	MG/MG	64	B12A	7	Mullard
MW36-67	14	R	6.3	0.3	14.0K	—	300	30-70	MG/MG	65	B12A	7	Mullard
MW53-22	21	RA*	6.3	0.3	16.0K	—	300	33-77	MG/MG	70	B12A	13	French
JLK715	6		2.5	2.1	3.5K	—	—	—	MG/MG	I.O.	15	Soviet	
JLK715A	6		6.3	0.47	3.8K	—	—	—	MG/MG	I.O.	15	Soviet	
JLK726	6		2.5	2.1	3.5K	—	—	—	MG/MG	I.O.	15	Soviet	
23JK15	6		6.3	0.47	3.5K	—	—	—	MG/MG	I.O.	15	Soviet	
JLK740	7		6.3	0.47	2.8K	—	—	—	ES/ES	46.5	B14A	17	Soviet
23JK1B	9		6.3	0.47	6.0K	—	—	—	/MG	46.5	I.O.	16	Soviet
31JK1B	12		6.3	0.47	8.0K	—	—	—	/MG	—	I.O.	16	Soviet
40JK1B	15		6.3	0.47	10.0K	—	—	—	/MG	—	I.O.	15	Soviet

A = Aluminated. G = Tinted. R = Rectangular Tube. \* = Single Ion Trap.



## DIODES

Type	FILAMENT or HEATER Volts	Input Amps	Input Volts (RMS)	Max. I/mA	BASE Type	Ref.	Maker
2EN5	2.1	0.45	—	—	B7G	1	U.S.A.
6B31	6.3	0.3	150	9	B7G	7	Czech
6097	6.3	0.3	117	9.0	B7G	2	U.S.A.
6887	6.3	0.2	360	10.0	B7G	2	U.S.A.
6919	6.3	0.2	165	3.0	B7G	2	U.S.A.
7055	13.5	0.155	350	10.0	B7G	2	U.S.A.
AA91E	6.3	0.3	117	9	B7G	2	European
E91AA	6.3	0.3	117	9.0	B7G	2	E. Eurpn.
E9A62	6.3	0.125	100	0.1	B7G	8	E. Eurpn.
EA9015	6.3	0.3	117	9.0	B7G	2	E. Eurpn.
M8212	6.3	0.3	117	9.0	B7G	2	Mullard
6AF3	6.3	1.2	4.5K P.I.V.	185	B9A	3	U.S.A.
12AF3	12.6	0.6	4.5K P.I.V.	185	B9A	3	U.S.A.
R290	1.85	2.7	100	15	B9A	4	French
6X6	6.3	0.3	100	4.0	I.O.	6	Soviet
29C1	4.0	0.8	100	3	I.O.	5	Ediswan
R128	18.0	0.2	200	5	I.O.	6	French
M8184	6.3	0.3	150	9	None	—	Mullard



## 202 - HANDBOOK OF INTEGRATED CIRCUITS (IC's) EQUIVALENTS AND SUBSTITUTES

Price: 75p 128 pages ISBN 0 900162 35 X  
 Author: B.B. Babani Size 7" x 4½" (178 x 114)

The First and most complete integrated circuits (IC's) equivalents and substitutes guide ever published containing full interchangeability data on more than 9,500 integrated circuits with every possible alternative and equivalent clearly shown. Comprehensively covers all digital and linear IC's of every type, including those manufactured in Gt. Britain, USA, Japan, Germany, France, Czechoslovakia, the rest of Europe and all other manufacturing sources. The products of the worlds leading makers are listed in this unique book. All available commercial industrial service and military types are extensively covered.

## RADIO RECEIVING VALVE DESIGNATION SYSTEMS

### EUROPEAN Example EABC80

First Letter (E) Filament or Heater Voltage, Heater Current.	Second or following Letters (ABC) Type Classification	First Figure (8) Valve Holder and Base Type	Second or following figures (6) Design
A—4 V	A—RF single diode	1. Various, including Y8A special German type	Indicates a particular design and usage.
C—200 mA	B—RF double diode	2. Local B&G	
D—up to 1.4 V	C—triode (except output and gas-filled triodes)	3. Octal	
E—6.3 V	D—output triode	4. Rimlock B8A	
G—5 V	E—tetrode (except output tetrode)	5. 9 pin Local B9G and special bases.	
H—150 mA	F—pentode (except output pentode)	6. Sub miniature or wired-in.	
K—2 V battery	H—hexode or heptode	7. Sub miniature or wired-in.	
O—no filament	K—heptode or octode	8. Noval B9A	
I—300 mA	L—output tetrode or pentode	9. Miniature B7G	
U—100 mA	M—tuning indicator		
X—600 mA	N—gas-filled triode or tetrode		
	P—tube with secondary emission (used as third letter only)		
	Q—enode		
	T—miscellaneous		
	X—full-wave gas-filled mains rectifier		
	Y—half-wave mains rectifier		
	Z—full-wave mains rectifier		

Designation system for special and Industrial type tubes: the figures are placed between the letters (e.g. E90F, E181CC)

EABC80=6.3 V heater Triple diode Triode on Noval base

### AMERICAN RETMA DESIGNATION SYSTEM

#### 12AU7

Figure Group (12) Filament or Heater Voltage	Letter Group (AU) Letter(s) indicating the serial order of assignment of the designation.	2nd Figure Group (with additional letters) (7) The number of useful elements.
0—cold cathode		
1—between 0.1 and 2.1	The letters U, V, W, X, Y, Z commonly are used to indicate rectifiers.	Notes: In metal tubes the shell counts as one element. Shielding by or in base does not count as an element.
2—between 2.1 and 2.9		Additional letters: G—glass bulb ST-12 size to ST-16 GΓ—glass bulb T-9 size GT/G—glass bulb T-9 size, interchangeable with G and GT types X—low loss base for HF use (ceramic) Y—low loss base for HF use (phenolic)
3—between 3.0 and 3.9	S—as first letter indicates single-ended tubes, related to grid-cap types.	
5—between 5 and 5.9	Combinations like AB, AC, AD, and AE were used when all the single letters were used up.	Letters A, B, C as additional letter indicating a minor change.
6—between 6 and 6.9	S—as second letter indicates single-ended construction.	
7—between 7 and 7.9 etc.		
Notes: When heater or filament is centre tapped for use on two voltages, the higher voltage number is used.	Note: P as second letter is destined for designation of cathode-ray tubes, e.g., 5KP4.	
On cathode-ray tubes this first number refers to the screen diameter in inches.	Note: Whenever possible, the 12 V equivalent of a 6 V tube has kept the same letters, e.g. 6SK7GT and 12SK7GT are similar except for heater rating.	

12AU7=12.6/6.3 heater Twin Triode

## DESIGNATION SYSTEM FOR CATHODE-RAY TUBES

### EUROPEAN Example MW43-64

First Letter (M)	Second Letter (W) Screen Properties	Figures (43-64) First group of figures for round screens: screen diameter in cm. For rectangular screens: screen diagonal in cm. The second group of figures is a serial number indicating a particular design.
D = Deflection and Focusing A = Magnetic deflection, electrostatic focusing.	B = Blue fluorescence and phosphorescence, short persistence.	
D = Electrostatic deflection and focusing.	C = Blue violet fluorescence and phosphorescence, very short persistence.	
M = Magnetic deflection and focusing.	F = Orange fluorescence and phosphorescence, very long persistence.	
	G = Green fluorescence and phosphorescence, medium persistence.	
	L = Orange fluorescence and phosphorescence, long persistence.	
	N = Blue-green fluorescence and green phosphorescence, long persistence.	
	P = Blue fluorescence and greenish-yellow phosphorescence, very long persistence.	
	R = Greenish-yellow fluorescence, and yellow phosphorescence, long persistence.	
	W = Screen for picture tubes, white screen colour, short persistence.	

MW43-64=Magnetic deflection and focusing. White screen short persistence picture tube 43 cms. diagonal screen

### AMERICAN RETMA DESIGNATION SYSTEM

#### 21AMP4A

First Figure or Group of Figures (21)	Letter(s) Preceding Letter P (AM)	Letter P Followed by a Number (One or Two Figures) (P4A)
For round screens: diameter in inches.	Letter(s) is (are) a serial code applying to tubes of the same diameter of diagonal and indicates particular design of tube. (A, B, C, ..., Z, AB, AC, etc.)	This combination designates screen characteristics.
For rectangular screens: screen diagonal in inches.		The suffix letter (A, B, C, or F, etc.), when used, indicates a later and modified version which can be substituted for any previous version but not vice versa.
		The letter W indicates a military type and, when used, precedes any other suffix letters.

### TRANSMITTING TUBES DESIGNATION SYSTEM

#### EUROPEAN QQE03-20A

First Letter (QQ)	Second Letter (E) Third Letter (for Dual Systems)	Figures (03-20A) First figure or group of figures.
D = Rectifying tube (including grid controlled tubes)	A = Directly-heated, tungsten filament	Rectifying tubes: approximately D.C. output voltage in KV's in a three-phase half-wave rectifying circuit.
M = Triode (AF amplifying tube or modulator)	B = Directly-heated, thoriated tungsten filament	Transmitting tubes: approximately maximum anode voltage in kilovolts
P = Pentode	C = Directly-heated, oxide-coated filament	
Q = Tetrode	E = Indirectly-heated, oxide-coated filament	
QQ = Double Tetrode		
T = Triode (R.F., A.F. or oscillator tube)	Third Letter	Second Group of Figures
	G = Mercury-vapour filling	Rectifying tubes: approximately D.C. output power in watts or kilowatts per tube in a three-phase half-wave rectifying circuit.
	I = Forced-air cooling	R.F. tubes: approximate output power in watts or kilowatts in class C telegraphy.
	W = Water cooling	Modulators: approximate anode dissipation in watts or kilowatts.
	X = Xenon filling	Additional letter(s): base type.
	The tube is radiation-cooled, if cooling is not indicated in the type number	

### AMERICAN RETMA

No system yet adopted





## RUSSIAN INDEX

Valve Type	Page No.	Valve Type	Page No.
ЛК715	38	6С7Б	26
ЛК715А	38	6Ж1Б	26
ЛК726	38	6Ж2б	26
18ЛК15	38	1П2Б	26
ЛК740	38	6С1П	18
23ЛК1Б	38	6С2П	18
31ЛК1Б	38	6Н15П	18
40ЛК1Б	38	6Х2П	28
6Б2П	10	6П4П	28
6К1П	10	1Ш1С	28
6К4П	10*	1Ш7С	28
6Ж1П	10	2ШС	28
6Ж2П	10	3ШС	28
6Ж3П	10	5ШС	28
6Ж4П	10	30Л1М	28
6Ж5А	10	30Л6С	28
6Ж5П	10	1А1П	17
2Г2М	22	6А2П	17
2С3М	22	6Д1М	17
2Ф1М	22	6Л7	17
2Ф2М	22	СБ242	17
6Г1	23	6П1П	30
6Г2	23	6П2П	30
6Г7	23	2К2М	14
6Г7С	23	2К1М	14
6Ф5С	23	2К2М	14
12Г1	23	6Б8С	14
12Г2	23	6Ж2М	14
СБ240	23	6Ж3М	14
СБ243	23	6Ж4	14
СБ245	23	6Ж3	14
УБ24С	23	6Ж6М	14
СБ244	32	6Ж7	14
СБ246	32	6Ж8	14
СБ258	32	6К3	14
2Ж1М	32	6К4	14
2П1М	32	6К7	14
2П2М	32	6К9С	14
2П9М	32	6П9	14
4П1П	32	6ФУ6	14
6Ц16А	26	12Б1М	14
6П3М	32	12Б2М	14
6П6С	32	12Ж1М	14
6П7С	32	12Ж8	14
6Ф6С	32	12К1М	14
23П1С	32	12К3	14
30П1С	32	12К4	14
6Н1П	20	СБ241	14
6Н2П	20	Г837	11
О6П2Б	27	1К1П	10
6С6Б	26	1Б1П	10
		2П1П	10



## BERNARDS & BABANI PRESS RADIO AND ELECTRONICS BOOKS

BP1	First Book of Transistor Equivalents and Substitutes	40p
BP	Handbook of Radio, TV, Ind & Transmitting Tube & Valve Equivalents	60p
BP3	Handbook of Tested Transistor Circuits	40p
BP4	World's Short, Medium & Long Wave, FM & TV Broadcasting Stations Listing (International Edition)	60p
BP5	Handbook of Simple Transistor Circuits	35p
BP6	Engineers and Machinists Reference Tables	20p
BP7	Radio and Electronic Colour Codes and Data Chart	15p
BP8	Sound and Loudspeaker Manual	50p
BP9	38 Practical Tested Diode Circuits for the Home Constructor	35p
BP10	Modern Crystal and Transistor Set Circuits for Beginners	35p
BP11	Practical Transistor Novelty Circuits	40p
BP12	Hi-Fi, P.A., Guitar & Discotheque Amplifier Design H/book	75p
BP13	Electronic Novelties for the Motorist	50p
BP14	Second Book of Transistor Equivalents	95p
BP15	Constructors Manual of Electronic Circuits for the Home	50p
BP16	Handbook of Electronic Circuits for the Amateur Photographer	60p
BP17	Radio Receiver Construction Handbook using IC's and Transistors	60p
BP18	Boys & Beginners Book of Practical Radio & Electronics	60p
BP19	Second Constructors Manual, Electronic Circuits for the Home	75p
BP20	Ham's Handbook of Radio and Electronic Circuits	75p
BP21	Practical-Circuits for Solid State Receivers	75p
BP22	79 Electronic Novelty Circuits	75p
BP23	First Book of Practical Electronic Projects	75p
100	A Comprehensive Radio Valve Guide - Book 1	40p
121	A Comprehensive Radio Valve Guide - Book 2	40p
126	Boys Book of Crystal Sets	25p
129	Universal Gram-Motor Speed Indicator	10p
138	How to make FM and TV Aerials - Bands 1/2/3	25p
143	A Comprehensive Radio Valve Guide - Book 3	40p
150	Practical Radio Inside Out	40p
157	A Comprehensive Radio Valve Guide - Book 4	40p
160	Coil Design and Construction Manual	50p
161	Radio, TV and Electronics Data Book	60p
170	Transistor Circuits for Radio Controlled Models	40p
177	Modern Transistor Circuits for Beginners	40p
178	A Comprehensive Radio Valve Guide - Book 5	40p
183	How to receive foreign TV programmes on your set by simple modifications	35p
195	High Fidelity 14 Watt Amplifier Design Chart	15p
196	AF-RF Reactance-Frequency Chart for Constructors	15p
197	Inexpensive Push-Pull Amplifier Construction Chart	15p
200	Handbook of Practical Electronic Musical Novelties	50p
201	Practical Transistorised Novelties for Hi-Fi Enthusiasts	35p
202	Handbook of Integrated Circuits (IC's) Equivalents and Substitutes	75p
203	IC's and Transistor Gadgets Construction Handbook	60p
204	Second Book of Hi-Fi Loudspeaker Enclosures	60p
205	First Book of Hi-Fi Loudspeaker Enclosures	60p
206	Practical Transistor Circuits for Modern Test Equipment	60p
207	Practical Electronic Science Projects	75p
208	Practical Stereo and Quadrophony Handbook	75p
209	Modern Tape Recording Handbook	75p
210	The Complete Car Radio Manual	75p
211	First Book of Diode Characteristics Equivalents and Substitutes	95p
RCC	Resistor Colour Code Disc Calculator	10p

**BABANI PRESS & BERNARDS (PUBLISHERS) LIMITED**

The Grampians, Shepherds Bush Road, London W6 7NF

Telephone Number: 01 603 2581/7296