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THE  
SERVICES RADIO VALVE  
MANUAL

(ISSUED BY THE INTER-SERVICE  
TECHNICAL VALVE COMMITTEE)

**426**

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**B.R. 783**

Army Publication. Electrical and Mechanical  
Regulations Telecommunications. A.311.  
A.P. 1186, Vol. I, Sect. 8.

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ISSUE No. 1.  
*November, 1942.*



196  
**THE SERVICES RADIO VALVE  
MANUAL**

**B.R. 783 (1)**

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**A.P.1186, Vol. 1, Sect. 8**

**AMENDMENT No. I**

**SEPTEMBER, 1944**

## TABLE OF ABBREVIATIONS.

Cathode	D.H. I.H	Directly heated. Indirectly heated.	
Electrodes and Pin Connections	A. B. C. D. F. G. H. H.C.T M. S. T. X. —	Anode. Beam Plates.* Cathode. Diode Anode. Filament. Grid. Heater. Heater centre tap. Metallising. Internal shield.* Target. Indicates no pin, except in C.R. Tubes Indicates that a pin exists but has no connection to it.	<p>NOTE. Base connections are given thus:—</p> <p>Type of base/connections in numerical order of pins/other connections.</p>

\* These are not denoted when connected internally to another electrode.

**Surfaces** The grids are numbered 1, 2, 3, etc., commencing with the grid nearest the filament or cathode. When the grids are equidistant from the filament, or occur in two or more identical structures, they are designated 1a and 1b, 2a and 2b, etc.

In a Self-Oscillating Frequency Changer Valve which employs an independent grid or grids in the oscillator section, these are designated by the suffixo. When two or more anodes are employed, an anode suffix is added corresponding to the suffix of the co-operating grid.

<b>Characteristics</b>	G. $\mu$ Ra. C.C. Vf, or Vh If, or Ih Va. Vg1 Vg2 Ia Wa E. M.	Mutual conductance. Amplification factor. Anode A.C. resistance or impedance. Conversion conductance. Filament or heater voltage. Filament or heater current. Anode voltage. Control grid voltage. Screen grid voltage. Anode current. Anode dissipation. Electrostatic deflection. Magnetic deflection.
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<b>Base</b>	B4 B5 B7 B9 B9G M.O. I.O. USS4 USS6 USS7 USM4 USM5 USM7 USL4 USG5 L4 T4 GES. Sp.	British Standard 4 pin. " " 5 " " " 7 " " " 9 " " 9 pin, glass. Mazda Octal. International Octal. American Small 4-pin " " 6 " " " 7 " " Medium 4-pin. " Medium, 5-pin. " " 7 " " Large 4 " " Giant 5-pin. Special 4-pin Low Loss. Transmitting 4-pin metal shell. Goliath Edison Screw. Special.
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NOTE.—Service types shown as equivalents in this list are not necessarily covered by the same specification. The possible commercial substitutes should not be used except in case of emergency.

**AMENDMENT NO. 1 TO B.R. 783**  
**A.P. 1186, VOL. 1, SECT. 8.**

The following amendments are to be made :—

From cover of book and title pages of Chapters I to IV inclusive, *delete* from title :—  
“ Army Publications, Electrical and Mechanical Regulations. Telecommunications.  
A.311 ”.

Chapter I. General (Issue No. 1).

Page 2. *Cut out* and *paste* the following abbreviations on the right-hand side of  
“ Characteristics ” :—

PIV	....	....	Peak Inverse Voltage.
VM	....	....	Velocity Modulated.
Wres	....	....	Resonator Dissipation.
Vres	....	...	Resonator Voltage.
Vref	....	....	Reflector Voltage.
IDC	....	....	Rectified Current.

Page 3. *Cut out* and *paste* below valve bases :—

NOTE.—The valve base drawings entitled “ Transmitting Bayonet 4-pin (T4) ”, and  
“ ACORN ”, are not numbered in the standard manner given in other publications, but the  
information given in other parts of this book is consistent with the numbering of the above  
drawings.

Chapter II—Naval Valves (Issue No. 1).

*Remove* pages 3 and 4 and *insert* attached pages 3, 3A, 3B and 4.

Pages 4 to 17 inclusive. *Amend*, or *add to*, where necessary, the items listed on pages 4 to  
17, from the attached tabulated list entitled :—“ Corrections to pages 4–17 inclusive,  
of Chapter II (Issue No. 1), of BR783 ”.

Chapter III—Army Valves.

Page 10. Item ATS25.  
4th column *For* “ STC.5C250/A ”  
*Read* “ STC.5B/250A ”

Page 10. Item ATP35.  
2nd column *Delete* “ NT74 ”

Page 11. Item 6J5G.  
2nd column *Delete* “ NR78A ” and  
*Insert* “ 6J5G ”

Chapter IV—R.A.F. Valves.

Page 3. *Insert* under title :—  
(NOTE.—All voltages in column under “ Vg1 (V) Bias ” are negative unless otherwise  
denoted.)

Pages 3 to 14 inclusive. *Amend*, or *add to*, where necessary, the items listed on pages 3  
to 14, from the attached tabulated list entitled :—“ Corrections to pages 3–14 inclusive  
of Chapter IV (Issue No. 1) of A.P. 1186, Vol. 1, Section 8.”

Pages 15 and 16. *Remove* and *dispose* of pages 15 and 16.  
*Insert* new pages 15, 16, 17 and 18, attached.

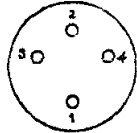
Chapter V—Inter-Service (CV) Valves (Issue No. 1).  
*Insert* new Chapter V immediately after Chapter IV,

A notation that Amendment No. 1 has been inserted, should be made at the beginning of  
book.

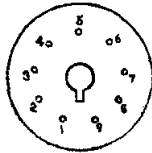
# VALVE BASE PIN NUMBERING (BOTTOM VIEW)

**BRITISH STANDARD BASES.**

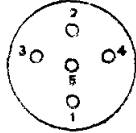
4 PIN (B4).



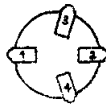
BRITISH  
9-PIN GLASS (B9G)



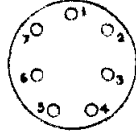
5 PIN (B5)



BRITISH  
4 SIDE CONTACT



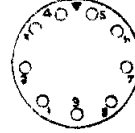
7 PIN (B7).



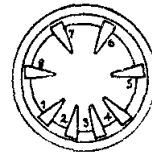
EUROPEAN  
3-SIDE CONTACT



9 PIN (B9)

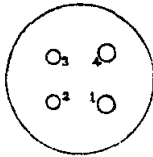


EUROPEAN  
6 SIDE CONTACT

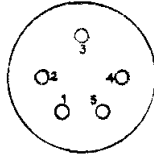


**AMERICAN BASES**

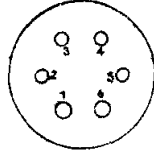
4 PIN (USM4).



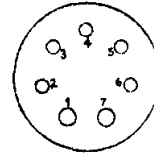
5 PIN (USM5)



6 PIN (USM6)



7 PIN (USM7)



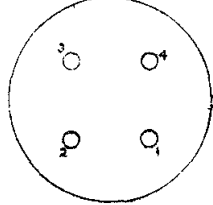
INTERNATIONAL  
OCTAL (IO)



MAZDA  
OCTAL (MO)



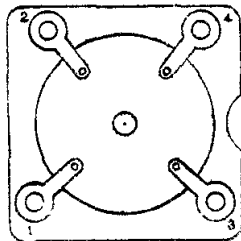
TRANSMITTING BAYONET  
4-PIN (T4)



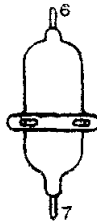
DIODE TYPE



LOW LOSS 4-PIN (L4)



ACORN



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(Issued by the Inter-Service Technical  
Valve Committee)

B.R. 783 (1)

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A.P.1186, Vol. 1, Sect. 8

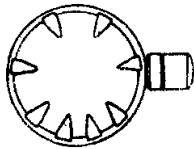
## CHAPTER I GENERAL

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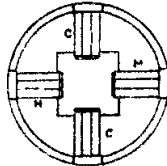
Issue No. 1  
November, 1942

# CATHODE RAY TUBE BASES IN GENERAL USE

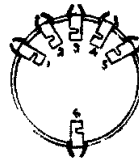
MULLARD P BASE, 8 CONTACT WITH SIDE TERMINAL



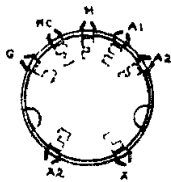
4 CLIP BASE



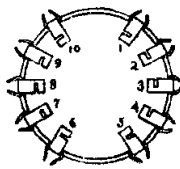
6 CLIP BASE



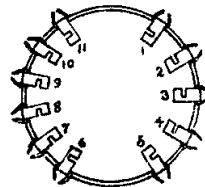
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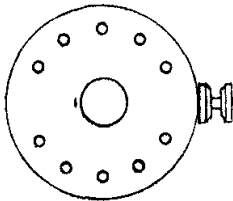
10 CLIP BASE



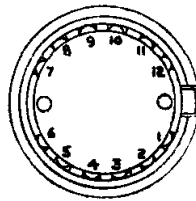
11 CLIP BASE



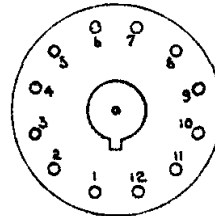
MULLARD 9 PIN BASE WITH SIDE TERMINAL



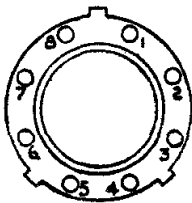
STANDARD 12 CONTACT BASE



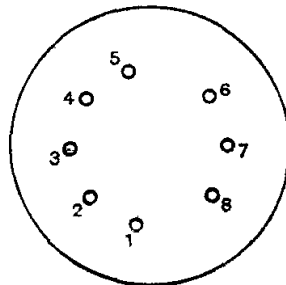
12 PIN SPIGOT BASE LONG & SHORT SHELL



8 PIN BAYONET BASE



EMI 8 PIN BASE





# THE SERVICES RADIO VALVE MANUAL

B.R. 783 (2)

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Army Publication. Electrical and Mechanical  
Regulations Telecommunications. A.311

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A.P.1186, Vol. 1, Sect. 8

## CHAPTER II NAVAL VALVES

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Issue No. 1  
November, 1942



NAVAL VALVES—CATHODE RAY TUBES

Replacing P.3 of Chap. II (Issue 1) of BR783 (2) A.P. 1186, Vol. 1, Sect. 8.

Navy	Type		Possible Commercial Substitute	Base and Connections	Max. Dimensions		Cathode		Focus and Def.	A3 Max. (kV)	Sensitivity (mm./V <sup>2</sup> /A <sup>3</sup> )		Fluorescent Screen	
	Army	R.A.F.			Length (mm.)	Diam. (mm.)	V <sub>p</sub> (V)	I <sub>p</sub> (A)			x	y	Colour	Diam. (Ins.)
NC1 W306	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NC2 W307	—	—	32A	8-pin Spigot/A:Y1:F:X1:G: Y2:F:X2/	414	136	0.6	1.2	GAS/E	1.5	450	450	Green	5.0
NC3 W308	—	—	4081	British 9-pin/X1:Y1:A1:H:C:H: G:A2:Y2:X2/	203	71	4.0	1.1	E/E	0.8	120	150	Green	2.5
NC4 W1070	—	—	32G	—	—	—	—	—	—	—	—	—	Blue/ Green	—
NC5 W1071	—	—	20K	6-clip Base/G:G:H:H:A2:A1/A3: Y1:Y2:X1:X2/	495	136	4.0	1.1	E/E	4.0	600	675	White	4.5
NC6 W1307	—	—	4409	12-Pin Spigot/G:-:C:H:H:A1:A2: M:-:A3:-:X2/Y1:Y2	362	76.2	4.0	1.1	E/E	4.0	320	480	Green	3.0
NC7 W1308	—	—	4602 with magnetic shield	Standard 12-Contact/G:-:H:C: H:A1:A2:M:Y2:X2:A3:X1:Y1/	638	295	4.0	1.0	E/E	6.0	1,490	1,270	White or Green	12.0
NC8 W1920	—	—	32E	—	—	—	—	—	—	—	—	—	Red	—
NC9 W1921	—	—	26J	12-Pin Spigot/C:G:H:H-E:-:A2:-: Y2:X2:A3:X1:Y1/	380	114	4.0	1.1	E/E	2.0	490	490	Blue	4.5
NC10 W1851	—	—	—	6-Clip Base/C:G:H:H:A2:A1/A3: Y1:Y2:X1:X2/	405	136	4.0	1.1	E/E	4.0	600	675	White	4.5
NC11 W2170	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NC12 W3128	—	—	4201 (mod.)	12-Side Contact/G:C:H:H:A1:A2: M:Y2:X2:A3:X1:Y1/	431	160	4.0	1.0	-E/E	6.0	625	1,175	Green	5.0

Superseded by NC19

As NC2, except for fluorescent screen

Obsolete—replaced by NC12

NAVAL VALVES—CATHODE RAY TUBES—continued.

Navy	Type		Possible Commercial Substitute	Base and Connections	Max. Dimensions		Cathode		Focus and Defl.	A.S. Max. (KV)	Sensitivity (mm./V s)		Fluorescent Screen Colour	Diam. (Ins.)
	Army	R.A.F.			Length (mm.)	Diam. (mm.)	V <sub>h</sub> (V)	I <sub>h</sub> (A)			x	y		
NC13 W6138	—	—	—	12-Side Contact/G:C:H:H:A1:A2: -:YA:YF:A3:XS:XP/	495	175	4.0	0.715	E/E	4.0	520	520	Green	6.0
NC14 W6601.	—	—	—	12-Side Contact/G:C:H:H:A1:A2: M:Y2:X2:A3:X1:Y1/	431	160	4.0	1.0	E/E	2.5	600	1,140	Blue	6.0
NC15 W3337	—	—	—	12-Pin Spigot/C:G:H:H:H:-:A2:A4: Y2:X2:A3:X1:Y1/	380	116	4.0	1.1	E/E	2.0	530	370	Green	4.5
NC16 53162	—	—	—	12-Pin Spigot/C:G:H:H:H:A2:-:Y2: X2:A3:X1:Y1:-/	205	70	4.0	1.1	E/E	1.5	170	170	Green	2.5
NC17 53270	—	—	—	10/-:H:-:G:-:H:G/A	398	89.5	4.0	1.15	M/M	15	—	—	Dark Trace	3.5
(NC18)* (53271)	—	—	—	12-Side Contact/G:C:H:H:A1:A2: M:Y2:X2:A3:X1:Y1/	431	160	4.0	1.1	E/E	6.0	620	1,160	Yellow	5.5
NC19 54218	—	—	—	British Standard 9-Pin/X1:Y1: A2:H:C:G:A1:A3:Y2:X2/	165	39	4.0	1.1	E/E	0.8	100	90	Green	1.2
(NC20)†	—	—	—	12-Side Contact/C:G:H:H:-:A2: -:Y2:X2:A3:X1:Y1/	585	300	4.0	1.0	E/E	5.0	900	900	Green	11.0

\* NC18, A.P. 53271 is now known as CV966.

† NC20 is now known as CV989.

NAVAL VALVES—GAS TRIODES

Replacing P. 4 of Chap. II (Issue 1) of BR783 (2) A.P. 1186, Vol. 1, Sect. 8.

Navy	Army	R.A.F. *	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions			Rating and Characteristics					
						Length (mm.)	Diam. (mm.)	V <sub>h</sub> (V)	I <sub>h</sub> (A)	V <sub>s</sub> (V)	I <sub>a</sub> (A) (peak)	I <sub>a</sub> (A) (mean)	Grid Control Ratio	Max. Voltage Drop (V)
NGT1 4803	—	—	DQP	I.H. Argon-filled triode .. ..	B5/-:G:H:C/A .. ..	130	45	4.0	1.75	350	1.0	0.2	40	—
NGT2 W269	—	VGTT128	GT1C	I.H. Argon-filled triode .. ..	B5/A:G:H:H:C/ .. ..	120	45	4.0	1.3	350	1.0	0.3	28	16
NGT3 W612	—	—	MR75	Mercury-filled triode .. ..	Sp/Close pins, H, H; wide pins, G/T.C., A	190	78	2.0	10.0	1,200	—	1.0	20—60	15
NGT4 W614	—	—	GT1A	I.H. Argon-filled triode .. ..	B5/A:G:H:H:C/ .. ..	125	50	4.0	1.3	300	0.6	0.3	20	15
NGT5 W1244	—	—	BT19	D.H. Mercury-filled triode .. ..	B4/-:G:F:P/A .. ..	160	55	2.5	5.0	1,000	2.0	0.5	—	22.5
NGT6 W1306	—	—	BT9A	D.H. Mercury-filled triode .. ..	Flexible leads .. ..	435	130	5.0	20.0	10KV	40.0	12.5	180 mhn.	20.0
NGT6A W1306A	—	—	—	—	As NGT6—Special High Voltage Test.	—	—	—	—	—	—	—	—	—
NGT7 W1280	—	—	BT35	I.H. Mercury-filled triode .. ..	USM4/H:C:G:H/A .. .. Pins 2 & 4 connected	190	80	5.0	5.0	1,000	12.5	2.5	125 mhn.	20.0
NGT8 W2512	—	—	E.1191	D.H. Mercury-filled triode .. ..	Flexible/T.C., A .. ..	350	75	2.5	43.0	10KV	120	—	—	—
NGT9	—	—	BT41	I.H. Mercury-filled triode .. ..	Flexible leads .. ..	490	155	5.0	35.0	18KV	200	—	—	—



NAVAL VALVE-RECEIVING

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. Dia. mm.	Rating						Characteristics					
							Rating			Characteristics			Measured at					
							V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (mA.)
NR14 7406	—	—	—	Triode	Clp	84	35	4.0	0.1	80	—	—	—	—	—	—	—	—
NR15 7404	—	—	PM3	Triode	B4/A:G:F:F/	115	47	3.6	0.12	100	—	—	—	—	—	—	—	—
NR15A 7404A	—	—	L410 6101E PM4DX	Triode	B4/A:G:F:F/	110	47	3.8	0.1	100	—	—	—	—	—	—	—	—
NR16 7405	—	—	PM254	Triode	B4/A:G:F:F/	115	47	3.6	0.3	150	—	—	—	—	—	—	—	—
NR18A 7405A	—	—	P415 P425 610XP	Triode	B4/A:G:F:F/	115	47	3.6	0.25	150	—	—	—	—	—	—	—	—
NR17 7407	—	—	—	Triode	B4/A:G:F:F/	90	40	4.0	0.1	100	—	—	—	—	—	—	—	—
NR18 7408	—	—	DEQ	Triode	Clp	75	27.5	3.0	0.22	100	—	—	—	—	—	—	—	—
NR19 7409	—	—	Obsolete	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NR22 7410	—	—	S410 PM14	Screen Grid	B4/G2:G1:F:F/A	139	46	3.6	0.1	150	—	—	—	—	—	—	—	—
NR23 7412	—	—	S410 PM14	Screen Grid	B4/G2:G1:F:F/A	139	46	3.6	0.1	150	—	—	—	—	—	—	—	—
NR26 8751	—	—	161V MHL4	Triode	B5/A:G:H:H:C/	115	51	4.0	1.0	200	—	—	—	—	—	—	—	—
NR27 8752	—	—	104V M14	Triode	B5/A:G:H:H:C/	115	51	4.0	1.0	200	—	—	—	—	—	—	—	—
NR27A W1039	—	—	104V M14	As NR27.	Special operation tests	—	—	—	—	—	—	—	—	—	—	—	—	—
NR28 8753	—	—	P216 PM2	Triode	B4/A:G:F:F/	104	47	2.0	0.16	150	—	—	—	—	—	—	—	—

NAVAL VALVES—RECEIVING—continued

NAVY	Type		Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating						Characteristics							
	Army	R.A.F.				Lght. mm.	Dia. mm.	V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at			I <sub>a</sub> (mA.)		
																V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias			
NR31 7413	AB17	VR37	AC/HL MH4 354V	Triode	B5/A:G:H:H:C/	115	56	4.0	1.0	200	—	—	—	—	3.0	36	12,000	100	—	0	4.5
NR35 7414	—	—	PD220A	Double Triode	B7/G <sub>2</sub> :G <sub>1</sub> :A <sub>2</sub> :B <sub>2</sub> :H: H <sub>1</sub> :A <sub>1</sub> :G <sub>1</sub> /	113	47	2.0	0.2	200	—	—	—	—	1.5	6	4,000	100	—	0	18.0
NR37 4408	—	—	MS4 AC/SG	Screen Grid	B4/G2:G1:F:F/A	145	45	4.0	0.1	200	70	—	—	—	1.1	550	500,000	100	60	0	2.2
NR38 4427	—	—	VMS4 VM4V MYSG	Var. mu Screen Grid	B5/G2:G:H:H: C/A	145	45	4.0	1.0	200	80	—	—	—	2.0	250	200,000	100	60	0	4.5
NR39 3777	ARPI	VR118	PEN.220 PM22A 220 OT	Pentode	B5/A:G1:G3:F:F: G2/	125	50	2.0	0.2	150	150	—	—	—	2.5	—	—	100	100	0	8.4
NR41 3795	ARPI3	VR83	VP21 VP210 210VPT	Var. mu Pentode	B7/M:G1:G3:F:F: H <sub>1</sub> :G2/A	130	46	2.0	0.1	150	60	—	—	—	1.0	—	—	150	60	0	2.5
NR42 4407	AR5	—	IP2 220PA IP220 PM2A	Output Triode	B4/A:G:F:F/	110	45	2.0	0.2	150	—	—	—	—	3.85	15	3,900	100	—	0	8
NR43 3704	—	—	PM24A	Output Pentode	B5/A:G1:G3,F F:G2/	112	56	4.0	0.25	300	200	—	—	—	1.6	—	—	150	150	0	29
NR44 3832	—	—	PX4 4XP AC044	Output Triode	B4/A:G:F:F/	160	66	4.0	1.0	250	—	12	—	—	5	5.5	1,100	100	—	0	70
NR45 3907	—	—	VMP4/G VP4A	Var. mu Pentode	B7/M:G1:G3:H: H:G:G2/A	140	50	4.0	1.0	250	100	—	—	—	2.25	—	—	200	100	-1	10.5
NR46 3813	—	—	D41	Double Diode	B5/D1:D2 H:H:C/	100	36	4.0	0.3	10 V	—	—	—	—	—	—	—	—	—	—	—
NR47 816	—	VR40	PX25 DO24 PP5/400	Output Triode	B4/A:G:F:F/	166	68	4.0	2.0	400	—	—	26	—	7.0	10	1,400	100	—	0	—



NAVAL VALVES—RECEIVING—continued

Navy	Type	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating						Characteristics					
					Lgh. mm.	Dia. mm.	V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (mA.)
NR48 850	AR21	EBG33	Double Diode Triode	IO/M:H:A:DI: D2:X:H:C/G1	102	36	6-3	0-2	300	—	1-5	1-8	32	18,000	250	—	-5	4-0
NR49 1260	—	ER36	H.F. Pentode	IO/M:H:A:G2:G3: -:H:C/G1	100	32	6-3	0-2	250	100	—	2-2	5,000	2-5 megohms	250	100	-2	4-0
NR50 412	—	HA1 AT4 A40	Acorn Triode	BA/H:C: H:G:A/	48	—	4-0	0-25	180	—	—	2-8	28	10,000	100	—	0	6-8
NR51 1166	—	VP4A VMP4G	Var. mu Pentode	B7/M:G1:G3:H: H:C:G2/A	140	50	4-0	1-2	200	100	—	2-5	—	—	200	100	0	6-0
NR52 1607	—	334V MH4 AC/HL 41MTL	Triode	B5/A:G:H:H:C/	110	43	4-0	0-65	250	—	—	3-5	40	11,500	200	—	-3	9-5
NR53 1457	—	PEN-4VA KT42 MP/PEN. AC/PEN.	Output Pentode	B7/-:G1:G2:H: H:C,G3:A/	137	58	4-0	1-0	250	250	8-0	2-0	—	—	250	250	-20	2-0
NR54 5381	—	ZAI AP4	Acorn Pentode	BA/H:C:H:G3: G2/A:G:	48	—	4-0	0-25	250	100	—	2-3	—	—	250	100	0	—
NR54A V790	—	—	—	As NR54—less stringent tests.														
NR55 5382	—	HL13G HA1320	Triode	B7/M:-:H:H: C:A/G:	126	43	13-0	0-2	250	—	—	4-0	35	8,750	200	—	0	12-5
NR56 5529	—	DA30 DO30 Y503	Output Triode	B4/A:G:F:F/	160	66	4-0	2-0	500	—	—	3-5	3-5	1,000	500	—	-128	60
NR57 5631	—	T14 M14 ACP	Triode	B5/A:G:H:H:C/	128	48	4-0	1-0	250	—	—	3-5	10-5	3,000	200	—	-12	13-5
NR58 W.122	—	V312 244V	Triode	B5/A:-:H:H:C/G	126	39	4-0	0-65	200	—	—	2-6	30	11,500	200	—	0	10-0

NAVAL VALVES—RECEIVING—continued

Navy	Type	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Leh. Dia. mm.	Rating					Characteristics							
							V <sub>h</sub> (V)	I <sub>h</sub> (A)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	W <sub>a</sub> (W)	G (mA/V)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	V <sub>g1</sub> (V) bias	I <sub>a</sub> (mA)	
NR59 W.263	ARP 25	—	K1A1 PEN. A4 AC2/PEN.	Output Pentode or Tetrode	E7/-:G1:G2:H:H: C:G3:A/	141	57	4.0	2.0	250	250	10	10.0	—	—	250	250	—5	40.0
NR60 W.264	—	—	H42	Triode	B7/-:-:H:H:C: A/G1	120	42	4.0	0.6	250	—	—	2.25	115	51,000	250	—	-2	0.6
NR61 W.265	—	—	W42	Var.-mu Pentode	B7/-:A:G3:H:H: C:G2/G1	120	42	4.0	0.6	250	125	—	1.5	—	—	250	100	-3	7.5
NR62 W.266	—	—	A373	Voltneter Diode	S.E.S/F:F/A	76	17	1.8	1.6	2,000 1,500 1,000	at max. 50 100 Mc/s. > 109	—	—	Total Emission = 3 mA.	—	—	—	—	—
NR64 W.281	—	—	K1W61	Var.-mu Tetrode	IO/-:H:A:G2:G3: X:H:C/G1	120	40	6.3	0.3	250	80	—	2.9	—	400,000	250	80	-3	8.0
NR65 W.282	—	—	AC/S2/PEN. MSP4	H.F. Pentode	B7/M:G1:G3:H: H:C:G2/A	130	45	4.0	1.0	250	100	—	5.5	—	—	200	100	0	12
NR66 W.283	—	—	D41	Double Diode	B5/D1:D2:H:H: C/	100	41	4.0	0.3	—	—	—	—	—	—	10	—	—	1 mA. min. per diode
NR67 W.1525	ARH1	—	X64 6L7G	Var.-mu Heptode Mixer	IO/-:H:A:G2:G4: G3:X:H:C/G1	114	39	6.3	0.3	250	150	—	0.31	Conversion Characteristics 1.0 megohm	—	250	V <sub>g2</sub> } 150 V <sub>g4</sub> }	V <sub>g1</sub> = -6 V <sub>g3</sub> = -15	3.25
NR68 W.1526	—	—	DH63 6Q7G	Double Diode Triode	IO/M:H:A:Da: D5:-H:C/G1	114	39	6.3	0.3	300	—	Diodes Triode	1.0	—	70,000	10 250	—	-3	1.0-15 1.3
NR69 W.1527	—	—	Y63	Thumng Indicator	IO/-:H:A:T:G1:X: H:C/	108	40	6.3	0.3	V <sub>a</sub> } 250 V <sub>b</sub> }	—	Shadow Angle	{ 60° 0°	at V <sub>g1</sub> = -40V <sub>b</sub>	250	—	—	—	I <sub>a</sub> = 6.6 I <sub>c</sub> = 3.5
NR70 W.1065	ARP23	VR124	MS. PEN SP4	H.F. Pentode	B7/M:G1:G3:H: H:C:G2/A	126	45	4.0	1.0	200	100	—	3.5	—	—	200	100	0	—
NR71 W.1066	—	—	MS. PEN. T	H.F. Pentode	B7/-:G1:G3:H: H:C:G2/A	As NR70	Special High Voltage Tests	—	—	—	—	—	—	—	—	—	—	—	—

NAVAL VALVES—RECEIVING—continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating						Characteristics						
						Lgh. mm.	Dia. mm.	V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at			I <sub>a</sub> (mA.)	
																V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias		
NR72 W.1067	—	—	NA3	Output Pentode	B7/-;G2:H:H:C/A/G1	153	57	4.0	2.0	250	250	—	10.5	—	—	250	250	—	40	
NR73 W.1280	—	—	BCC 31 6N7G	Double Triode	1O/-;H:A1:G1 G2:A2:H:C/	120	46	6.3	1.0	300	—	5	2.3	32	14,000	250	—	-4.6	—	
NR74 W.1301	—	—	AC6 PEN.	Beam Power Amp.	B7/-;G1:G2:H:H:C-/A	139	54	4.0	1.75	330	220	20	8.5	—	—	100	100	0	—	
NR75 W.1302	—	—	ACP 4	—	—	Matched Pair of NR 94		—	—	—	—	—	—	—	—	—	—	—	—	
NR76 W.1303	—	—	KTZ41	Screened Tetrode	B7/-;A;-H:H:C: G2/G1	120	41.5	4.0	1.5	250	250	4.0	7.5	—	1.0 M	250	250	-2.5	8	
NR77 W.1295	—	—	EL 35 6L6G	Output Pentode	1O/-;H:A;G2:G1 X:H:C;G3/	135	53	6.3	1.35	250	250	18	5.5	—	—	250	250	—	72	
NR78 W.1528	—	—	6C5G	Triode	1O/-;H:A;-;G-; H:C/	108	40	6.3	0.3	300	—	2.5	2.0	20	10,000	250	—	-8	8	
NR79 W.1529	ARR 21	—	Z 62	H.F. Pentode	1O/M:H:A;G2:G3: -;H:C/G1	88	31	6.3	0.45	300	150	—	7.5	—	—	250	150	-6	10.0	
NR80 W.1530	—	VR 135	E.1148	V.H. Triode	—	Valve obsolete: superseded by VR 135						—	—	—	—	—	—	—	—	—
NR81 W.1531	—	—	6K7G	V-mu H.F. Pentode	1O/-;H:A;G2:G3: X:H:C/G1	114	40	6.3	0.3	300	125	2.75	1.45	—	0.8 meg-ohms	250	100	-3	7.0	
NR82 W.1532	—	—	X65	Triode Hexode	1O/-;H:A;G2:G4: G0;G3:A0:H:C/G1	114	41.5	6.3	0.3	V <sub>a</sub> } 250 V <sub>a0</sub> } 150	V <sub>g2</sub> } 100 V <sub>g4</sub> }	—	0.225 (conv. cond.)	—	2.5 meg-ohms	Hex. } 250 Osc. } 250	100	-3	—	
NR83 W.1533	ARR 16	VT74	6J7G KTZ63	HF Tetrode or Pentode	1O/S:H:A;G2:G3: X:H:C/G1	114	40	6.3	0.3	300	125	0.75	1.2	—	—	250	100	-3	2.0	
NR84 W.1534	—	—	X41 41STH AC/TBI TR4	Triode Hexode	B7/A0;G0;G3:G2; G4:H H C A/G1	135	45	4.0	1.2	V <sub>a</sub> } 250 V <sub>a0</sub> } 150	80	—	0.64 (conv. cond.)	—	0.75 meg-ohms	Hex. } 250 Osc. } 100	70	-1.5	—	

NAVAL VALVES—RECEIVING—continued

Navv	Type	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating					Characteristics						
							Lgh. mm.	Dia. mm.	V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	V <sub>e1</sub> (V.) bias	I <sub>a</sub> (mA.)
NR85 W.1535	ARP 17	—	—	KT63 6F6G	Power amp. Tetrode	IO/-:H:A:G2:G1: X:H:C/	120	46	6-3	0-7	250	250	—	2-5	—	—	250	250	—16-5	34
NR86 W.1536	ARP 15	—	—	KTW63	Var. mu Tetrode	IO/-:H:A:G2:-: X:H:C/G1	120	40	9-3	0-3	250	125	—	1-5	—	250	100	—3	7-6	
NR87 W.1528	—	—	—	AC5/PEN.DD	Double Diode Output Pentode	B7/D1.A:D:2:H: H:C:G2/G1	142	54	4-0	2-0	250	250	—	9-0	—	100	100	0	—	
NR88 W.1927	—	—	—	RL18	V.H.F. Triode	Rigid Wires	53	20	6-3	0-25	250	—	2-5	2-9	33	11,500	200	—3-3	7-5	
NR89 W.2970	—	—	—	—	V.M. Tube	IO/G:H:A1:-:-:-: H:C/Refl.	—	—	4-0	1-5	$\left\{ \begin{array}{l} V_{a2} = 1,750 \text{ V.} \\ V_{a1} = 1/20 V_{a2} \\ V_{e1} = -30 \text{ to} \\ \quad -100 \text{ V.} \end{array} \right.$		10	—	—	—	—	—	—	
NR94 W.2529	—	—	—	AO/P4	Triode	B5/-:G1:H:H: C/A	130	42	4-0	1-1	700	—	—	7-0	20	3,000	100	0	—	
287 W.2164	—	—	—	2B7	Double diode Pentode	USS7/H:A:G2: D1:D2:C:H/G1 (USM7 Nos.)	115	40	2-5	0-8	250	125	—	1-1	730	0-65 Meg.	250	125	—3	9
2A5 W.2163	—	—	—	2A5	Identical with 42 except:— V <sub>b</sub> = 2-5, I <sub>b</sub> = 1-75															
57 W.2161	—	—	—	57	Identical with 6C6 except:— V <sub>b</sub> = 2-5, I <sub>b</sub> = 1-0															
58 W.2162	—	—	—	58	Identical with 6D6 except:— V <sub>b</sub> = 2-5, I <sub>b</sub> = 1-0															

For 6J5G, W1528A, see Chap. III.  
 " 6V6G, W2077, " " "  
 " 6B7, W2165, " " "  
 " 6C6, W2166, " " "  
 " 6D6, W2167, " " "  
 " 42, W2160, " " "  
 " 25T6G, W3446, see Chap " IV, " VR502.  
 " 807 " " " VT60.

NAVAL VALVES—CURRENT AND VOLTAGE STABILISERS

Navy	Type		Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating and Characteristics				
	Army	R.A.F.				Length mm.	Diam. mm.	V <sub>b</sub>	I <sub>b</sub> (A.)	Operating Voltages (V.)	Cathode Current	
									Mean	Max.		
NS1 5458	—	VS69	MOV. STV280/80 ..	Voltage stabiliser ..	B5/A4:C:A2:A3:A1/	145	62	—	—	73, 143, 205, 282 ..	40 mA.	80 mA.
NS2 5459	—	—	—	Voltage stabiliser ..	B4/A:C:-:~:/ ..	174	53	—	—	97.5 .. ..	50 mA.	180 mA.
NS3 7021	—	—	MOV. Barbetter 202..	Current stabiliser ..	B4/-:-:F:F/ ..	154	64	—	0.2	120-200 .. ..	—	—
NS4 W.285	—	—	MUL.4317 .. ..	Voltage stabiliser ..	—	—	—	—	—	—	—	—
NS5 W.2697	—	—	MOV.304 .. ..	Current stabiliser ..	Edison screw ..	126	58	—	0.3	95-165 .. ..	—	—

NAVAL VALVES—TRANSMITTING

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. Dia. mm.	Rating						Characteristics						
							V <sub>h</sub> (V)	I <sub>h</sub> (A)	V <sub>a</sub> (V)	V <sub>e2</sub> (V)	W <sub>a</sub> (W.)	G (mA/V)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V)	V <sub>e2</sub> (V)	V <sub>e1</sub> (V)	I <sub>a</sub> (mA.)	
NT1	—	—	—	D.H. Triode	Leads:-:I/Yellow;G/Green:A/Red	250	125	14.0	4.7	2.0KV	—	150	1.6	5.8	3,600	1,000	—	-25	150
NT4A	—	—	—	D.H. Triode	F/Yellow-G/Green A/Red	380	175	17.0	5.65	7.0KV	—	450	2.4	24	10,000	3,000	—	0	150
NT17	—	—	—	D.H. Triode	B4/A:G:F:F/	165	60	4.0	2.5	400	—	20	2.5	5.0	2,000	150	—	0	40
NT18	—	—	DA60 DO60	D.H. Triode	I4/A:F:F:G/	205½	80	6.0	4.0	400	—	60	3.5	2.5	700	400	—	-80	150
NT19	—	—	—	D.H. Triode	Leads:-:I/F/Yellow;G/Green:A/Red	330	175	17.0	5.65	7.0KV	—	450	2.4	24	10,000	4,000	—	-50	110
NT20	—	—	P625 PM256	D.H. Triode	B4/A:G:F:F/	140	56	6.0	0.25	250	—	10	4.0	6.0	1,500	250	—	-25	25
NT22B	—	—	—	Silica Triode	Flexible Leads	887	161	27.0	48.0	14.0KV	—	15 kW.	10.0	32	3,200	10,000	—	0	1,300
NT22C	—	—	—	Silica Triode	Flexible Leads	765	160	27.0	48.0	14.0KV	—	15 kW.	4.2	55	13,000	10,000	—	0	350
NT23B	—	—	—	Silica Triode	Paxolin tube with terminals	700	165	12.5	18.5	12.0KV	—	2.5 kW.	2.4	35	11,000	10,000	—	-180	250
NT23D	—	—	—	Silica Triode	Sprung holder, flexibles	637	—	12.5	18.5	12.0KV	—	2.5 kW.	2.4	35	11,000	10,000	—	-180	250
NT24	—	—	—	Silica Triode	Sprung holder, flexibles	610	—	16.5	28.3	12.0KV	—	4.0 kW.	2.2	180	80,000	10,000	—	0	50
NT30	—	—	—	Silica Triode	Flexible leads	766	160	27.0	48.0	14.0KV	—	15 kW.	5.0	75	15,000	10,000	—	0	250
NT31	—	—	—	Silica Triode	Spring metal and flexibles	629	—	16.5	28.3	12.0KV	—	4 kW.	2.0	80	40,000	8,000	—	0	150
NT32B	—	—	—	Silica Triode	Plug-in	730	—	23.0	47.0	12.0KV	—	4.5 kW.	4.5	60	12,000	10,000	—	0	320
NT33	—	—	—	Silica Triode	Plug-in	730	—	16.5	28.3	12.0KV	—	4.0 kW.	2.0	80	40,000	8,000	—	0	150

NAVAL VALVES—TRANSMITTING—(continued)

Navy	Army	R. A. F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating					Characteristics								
						Len. mm.	Dia. mm.	V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.)	I <sub>a</sub> (mA.)		
NT35	—	—	—	Silica Triode	Spring metal and Hexibles	870	160	29.0	52.0	14 kV.	—	15 kW.	12.0	20	1,700	8,000	—	—	—	200	900
1059	—	—	—	Silica Triode	I4/A:T.F.G./	250	90	6.0	2.7	1,250	—	100	4.0	5.6	1,400	1,000	—	—	—	150	100
NT36	—	—	DA 100	Triode	B5/A:G:H:H:C/	126	58	6.0	1.5	600	—	25	9.0	15	1,670	800	—	—	—	125	55
3830	—	—	MZ1-100	Triode	T4/G2:F.G1:F/A G3 shell	263	66	10.0	2.0	1,500	500	75	1.7	—	—	1,500	400	—	—	135	60
NT37	—	—	4083A	Triode	T4/-:F:G:F/A	220	53	10.0	1.65	1,500	—	75	5.0	22	4,400	1,000	—	—	—	20	75
4656	—	—	P/1-75 PT6 SW/5 Pen.	Pentode	B4/A:G:F:F/	170	65	4.0	2.0	600	—	25	7.5	9.5	1,265	500	—	—	—	45	50
NT38A	ATP75	—	—	Pentode	Flexible Leads	455	105	9.1	20.3	10,000	—	1,000	1.0	18	18,000	6,000	—	—	—	200	170
4562A	—	—	—	Silica Triode	Flexible Leads	552	105	21.0	20.6	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
NT39	AT75	—	ACT. 6	Triode	Plug-in	410	—	9.5	20.4	10.0 kV.	—	1.25 kW.	2.0	37	18,500	8,000	—	—	—	75	150
513	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
NT40	—	—	DET. 5	Triode	Plug-in	722	—	12.5	18.7	12.0 kV.	—	2.5 kW.	0.77	—	—	5,000	500	—	—	0	16
4687	—	—	—	Silica Triode	Rods and Flexibles	330	60	3.0	6.0	2,000	—	100 per anode	—	—	—	—	—	—	—	—	—
NT41A	—	—	—	Silica Triode	Flexible Leads	455	105	15.2	48.0	10 kV.	—	1.75 kW.	2.4	16	6,800	5,000	—	—	—	175	200
7429	—	—	—	Silica Triode	Flexible Leads	552	105	21.0	20.6	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
NT43	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
7431	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
NT45A	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
1347	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
NT46R	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
NT48	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
1249	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
NT52	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
8910	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
NT54	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
3798	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500
NT57.	—	—	—	Silica Triode	Flexible Leads	570	105	15.5	40.0	10.0 kV.	—	3.5 kW.	3.0	18	6,000	6,000	—	—	—	170	500

NAVAL VALVES—TRANSMITTING—continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating							Characteristics						
						Lgh. mm.	Di. mm.	V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) Bias	I <sub>a</sub> (mA.)		
NT57A W.337	—	—	—	Silica Triode	Rods	442	105	15.0	48.0	20 kV.	—	1.75 kW.	1.5	17	11,300	5,000	—	—	—	80	
NT57D 6675D	—	—	—	Silica Triode	Flexible Leads	320	105	15.0	48.0	20 kV	—	1.75 kW.	3.2	16	5,000	3,000	—	—	—	270	
NT57T W.560	—	—	—	Silica Triode	Flexible Leads	320	105	9.0	35.0	20 kV.	—	—	3.2	16	5,000	3,000	—	—	—	270	
NT58 4889	—	VT62	DEF.12 TYI-50	Triode	B4/-:F:F/A:G	170	72	7.5	3.0	1,250	—	50	2.0	10	5,000	800	—	—	—	60	
NT68A W.580	—	—	—	As NT 58 with anode and grid pins replaced by flexible leads																	
NT59A 4738A	—	—	—	Silica Pentode	Flexible Leads	365	105	8.5	20.3	10 kV.	—	1.75 kW.	—	—	—	—	—	—	—	—	
NT62 8794	—	—	PM24D	Pentode	B5/A:G:F:F:G2:	160	67	4.0	2.0	500	200	3.0	3	—	—	—	500	200	—	32	60
NT62A 3794A	—	—	—	As NT62—higher																	
NT63A 798A	—	—	—	Silica Pentode	Flexible Leads	347	105	13.0	40.8	10 kV.	—	2.5 kW.	3.0	—	—	—	6,000	2,000	—	25	60
NT63A 1612A	—	—	PZ1-35	Pentode	T4/G2:F:G1:F/1 G3 to shell	190	51	4.0	2.0	1,000	300	35	1.5	—	—	—	1,000	250	—	65	53
NT68 3191	—	—	—	Triode	B4/A:G:F:F/	137	52	4.0	1.0	490	—	20	3.0	5.0	1,700	150	—	—	—	0	75
NT68A W.1699	—	—	—	As NT68—with special out-off test.																	
NT69 W.1231	—	—	—	Silica Pentode	Cup-type holder	440	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NT75 W.267	—	—	—	Magnetron	—	—	—	3	4	1,000	—	—	—	—	—	—	—	—	—	—	—
NT78A W.1691A	—	—	—	Silica Triode	Flexible Leads	435	104	10.0	66	—	—	—	—	—	—	—	—	—	—	—	—



NAVAL VALVES—TRANSMITTING—continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating					Characteristics							
						Lgh. mm.	Dia. mm.	V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at			I <sub>a</sub> (mA.)	
													V <sub>a</sub> (V.)			V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias			
NT82 7418	—	—	P 2 PM202	Triode	B4/A;G-F-F/	110	46	2-0	0-22	100	—	—	3	3-0	7-6	2,500	100	—	0	32
NT83 7417	—	—	—	Triode	Flex. F/Yellow, G/Green, A/Red	250	124	14-0	6-0	2,000	—	150	2-4	6-6	2,750	1,000	—	-50	120	
NT84 4556	—	—	—	Silica Triode	Flexible leads	455	105	12-5	40-8	10 kV.	—	1-5 kW.	5-5	4-5	800	1,000	—	0	650	
NT86 W.1241	—	—	—	Silica Triode	Flexible leads	275	113	10-5	100	—	—	—	10-0	11	1,100	6,000	—	-100	—	
NT87 W.628	—	—	STC.4279A	Triode	Special	540	152	10-0	21-0	3,000	—	1,200	5	10	2,000	1,000	—	0	300	
NT90 W.1240	—	—	—	Triode	Cup type holder	500	104	33	20	—	—	6 kW.	5	24	4,800	6,000	—	0	1,250	
NT92 W.1069	—	—	STC.4212E	Triode	Extra large 4-pin bayonet /A;G.F.F/	345	91	14	6-25	3 kV.	—	275	8-4	16-0	1,900	2,000	—	-90	60	
NT98 W.1305	—	—	E.1161	Aircooled Triode	Special	—	—	10-6	12-0	—	—	—	—	—	—	—	—	—	100	
NT97 W.2511	—	—	E.1161 (mod.)	Aircooled Triode	Special	—	—	11-0	12-5	—	—	—	—	—	—	—	—	—	—	
NT98 W.2510	—	—	E.1189	—	Special	—	—	6-0	1-25	—	—	—	—	—	—	—	—	—	—	
NT99 W.2514	—	—	E.1282	Aircooled Triode	Special	—	—	6-0	6-5	—	—	—	—	—	—	—	—	—	—	
NT100 W.5536	—	—	E.1155	Tetrode	—	—	—	8-0	6-0	—	—	—	—	—	—	—	—	—	—	

NAVAL VALVES-RECTIFIERS

Navy	Type			Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating and Characteristics						
	Army	R.A.F.					Length mm.	Diam. mm.	V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> R.M.S. (V.)	W <sub>a</sub> (max.) (cont.)	Peak Inv. Volts	Peak I <sub>a</sub> (M.A.)	Max. Rect. Current (m.A.)
NU1 5233	—	—	—	—	D.H., Half Wave ..	F/Yellow : D/Red ..	250	125	14.0	4.75	—	150	14 KV.	—	250
NU2 5433	—	—	—	—	D.H., Half Wave ..	F/Yellow : D/Red ..	380	175	17.0	6.6	—	450	20 KV.	—	350
NU3 7403	AU3	VU64	—	MOV. U12/14 MUL. DW4/500 .. MAZ. UUI 0/500 ..	D.H., Full Wave ..	B4/D1:D2:F:F/ ..	142	58	4.0	2.25	500	—	—	—	120
NU4 7415	—	—	—	—	D.H., Half Wave ..	F/Yellow : D/Red ..	250	125	14.0	6.0	—	150	14 KV.	—	350
NU5 7416	—	—	—	MUL. RX3-120 ..	D.H., Half Wave ..	F/Yellow : D/Red ..	280	124	13.5	9.7	3000	250	10 KV.	600	150
NU7 3822	—	—	—	—	Mercury Vapour Half Wave	B4/D1:-F:F/ ..	115	45	4.0	3.0	1000	—	—	—	250
NU8 3828	—	—	—	—	Mercury Vapour Half Wave	Edison Screw/F:F/D ..	155	55	2.0	5.0	1250	—	—	—	125
NU12 803	AU1	—	—	MOV. U18 ..	D.H., Full Wave ..	B4/D1:D2:F:F/ ..	145	56	4.0	3.75	500	—	—	—	250
NU13 4476	—	—	—	MOV. U15 MUL. RZ1-250 ..	D.H., Half Wave ..	L4/D1:D2:F:F/ ..	185	52	6.0	2.0	1500	—	4 KV.	—	250
NU13A 4476A	AU12	—	—	—	As NU13—Special High-Voltage Tests	—	—	—	—	—	2000	—	5 KV.	—	250
NU16 6380	—	—	—	MAZ. U4020 ..	I.H., Half Wave ..	B5/D1:-H:H:C/ ..	122	45	40.0	0.2	250	—	—	—	120
NU17 W.268	AU3	VU39	—	MUL. IW4 MAZ. UU5 COS. 441U }	I.H., Full Wave ..	B4/D1:D2:H:C:A/ ..	136	54	4.0	2.5	500	—	—	—	120
NU18 W.284	AU4	VU13	—	MOV. U17 ..	D.H., Half Wave ..	B4/-:-F:F/D ..	140	51	4.0	1.0	2500	—	—	—	30
NU20 W.1624	—	—	—	MOV. U50 ..	D.H., Full Wave ..	10/-:-F:X:D1-X:D2-X:F	119	46	5.0	2.0	350	—	—	—	120

NAVAL VALVES—RECTIFIERS—(continued)

Navy	Type			Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating and Characteristics						
	Army	R.A.F.					Length mm.	Diam. mm.	V <sub>p</sub> (V.)	I <sub>p</sub> (A.)	V <sub>a</sub> R.M.S. (V.)	W <sub>a</sub> (max.) (cont.)	Peak Inv. Volts	Peak I <sub>a</sub> (mA)	Max. Rect. Current (mA.)
NU22B 7440	—	—	—	—	Silica Half Wave ..	Flexible leads ..	455	114	19.0	19.2	—	—	40 kV.	1400	—
NU22C 7201C	—	—	—	—	Silica Half Wave ..	Spring Metal and Flex- ibles	890	161	27.0	46.0	—	—	40 kV.	5000	—
NU23 7446	—	—	—	—	Silica Half Wave ..	Plug-in ..	485	114	22.0	52.0	—	—	25 kV.	4500	—
NU24 7449	—	—	—	—	Silica Half Wave ..	Plug-in ..	485	114	19.0	19.2	—	—	40 kV.	1800	—
NU25 7447	—	—	—	—	Silica Half Wave ..	Plug-in ..	485	114	19.0	19.2	—	—	40 kV.	1800	—
NU26 7448	—	—	—	—	Silica Half Wave ..	Plug-in ..	300	110	22.0	18.0	—	—	22 kV.	1800	—
NU26C 7448C	—	—	—	—	Silica Half Wave ..	Plug-in ..	—	—	22.0	18.6	—	—	—	1800	—
NU28 4589	—	—	—	—	Silica Half Wave ..	Plug-in ..	515	110	28.0	20.3	—	—	28 kV.	2500	—
NU29 3776	—	—	—	—	Silica Half Wave ..	Flexible leads ..	700	104	29.0	52.0	—	—	40 kV.	5000	—
NU30 5476	—	—	—	—	Silica Half Wave ..	Flexible Leads ..	440	104	14.0	10.0	—	—	60 kV.	800	—
NU31 W.613	—	—	—	MAZ. NU2	Mercury Vapour, Half Wave	B4/---:F:P/D ..	121	39	2.0	3.1	—	—	5 kV.	0.3	—
NU33 W.1068	—	—	VU120	COS.SU2150A ..	I.H., Half Wave ..	B4/---:H:C:H/D ..	145	61	2.0	1.5	5000	—	15 kV.	100	10
NU34 W.1304	—	—	—	MUL.HVH2 ..	I.H., Half Wave ..	B4/---:H:C:H/D ..	130	46	4.0	0.65	6000	—	20 kV.	—	3.0

Paxolin Tube as NT 22B

For BU4G A.P.W4030 see Chap. III, Army Valves  
For 5Z4G A.P.W3792 .. .. .



**CORRECTIONS TO PAGES 4-17 INC. OF CHAP. II (ISSUE 1) OF BR783 (2) A.P. 1186, VOL. 1, SECT. 8.**

The insertions in the columns below indicate alterations which are to be made. Where a column is blank, no alteration is to be made.

Navy	Army	R. A. F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh.   Dia. mm.   mm.	Rating					Characteristics					
							V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at		
												V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>b</sub> (mA.)		
NR15A											2.0	14	7,000			-1	4.5
NR26		VR38															
NR37				Tetrode or Pentode	B5/G2:G1:H:H:C/A		4.0	1.0			2.8				200	100	
NR38				Varl-μ Tetrode or Pentode							2.2				200	100	
NR39				Pentode or Beam Tetrode	B5/A:G1:F:F:G2:	115					1.75					-3 <sup>1</sup>	3.8
NR45					B7/M:G1:G3:H:H:C:G2/A						2.7					-2	8.0
NR47 3816						160											
NR49						100	36		300	125	1.0	1.8	4,500				
NR50					BA/A:EC:H:G/												
NR54					BA/G2:H:C:H:H:G3/A:G1												
NR55			4D1		B7/-:/:-:H:H:C:A/C												

**CORRECTIONS TO PAGES 4-17 INC. OF CHAP. II (ISSUE 1) OF BR783—continued.**

The insertions in the columns below indicate alterations which are to be made. Where a column is blank, no alteration is to be made.

Type	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh.   Dia.   mm.   mm.	Rating						Characteristics								
					V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at						
													V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (mA.)			
NR66																			
NR68			IO/-:H:A;D1:D2: -:H:C/G1	114	40														
NR77			IO/-:H:A;G2:G1: X:H:C;G3/																
NR79	1851		IO/-:H:A;G2:G3: X:H:C/G1																
NR83				121	40														
NR89			Obsolete																
NT37				147	58														-12.5
NT38A											2.5								
NT40													100					0	
NT52						200													
NT57A																			200
NT63A				407	91														
NT68						400													

As NR46 but unmetalized

**CORRECTIONS TO PAGES 4-17 INC. OF CHAP. II (ISSUE 1) OF BR783—continued.**

The insertions in the columns below indicate alterations which are to be made. Where a column is blank, no alteration is to be made.

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. Dia. mm./mm.	Rating					Characteristics				
							V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	u	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)
NT78A							65	20KV		300	20·0	1,000				3,000
NT86								20KV		150			5,000			2,000
NT90				Silica Triode		500 140		10KV			5·3	4,700			-100	1,000
NT92																200
NT100					T4/G:H;C:G:H/A G2 to shell	220 68		12KV		60						

**CORRECTIONS TO PAGES 4-17 INC. OF CHAP. II (ISSUE 1) OF BR783—continued.**

The insertions in the columns below indicate alterations which are to be made. Where a column is blank, no alteration is to be made.

Navy	Army	R. A. F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. mm.   Dia. mm.	Rating and Characteristics						
							V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> R.M.S. (V.)	W <sub>a</sub> (max.) (Cont.)	Peak Inv. Volts	Peak I <sub>a</sub> (mA.)	Max. Rect. Current (mA.)
NU3			MOY. U12/14 MUL.DW4/500 MAZ.UU120/500				2.5						
NU12			MOY. U18 MUL.FW4/500				3.2						
NU13				L4/A:F:F- /									
NU17	AU3A		MUL.IW4 COS.44IU MAZ.UU5 MOY.MU12/14		B4/D1:-D2:H;.OH/ ..	136	56						
NU24						725	162						
NU30						505	98						
NU31													5
NU33A W1068A			MUL.HVVK2	I.H. Half Wave ..	B4/-:-H;.C:H/D	145	51	2.0	1.5	5,000			5
NU34													18



# THE SERVICES RADIO VALVE MANUAL

B.R. 783 (3)

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Army Publication. Electrical and Mechanical  
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A.P.1186, Vol. 1, Sect. 8

## CHAPTER III ARMY VALVES

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Issue No. 1  
November, 1942



ARMY VALVES

(S O 554A) 4

Army	Type		Possible Commercial Substitutes	Description	Base and Connections	Max Dimensions		Rating				Characteristics							
	Navy	R A F				Legh mm	Dia mm	V <sub>h</sub> (V)	I <sub>h</sub> (A)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	W <sub>a</sub> (W)	G (mA/V)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	V <sub>g1</sub> (V) bias	I <sub>a</sub> (mA)
ARRDD1	—	—	STC 10D1	Double Diode (I H)	B5/D2 D1 H H C/	108	40	130	0.2	0.2	150	—	—	—	—	—	—	—	—
ARRD2	—	VR 78	Maz D1	Diode (I H)	Rigid Wires	47	11	40	0.2	—	150	—	—	—	—	—	—	—	—
ARRDD3	—	—	MOV D 63 6H6G	Double Diode (I H)	10/M H 1 2 C2 D1 - H C1/	99	35.5	63	0.3	—	150	—	—	—	—	—	—	—	—
ARRD4	—	—	MOV D 42	Diode (I H)	B4/D C H H /	101	36	40	0.6	—	150	—	—	—	—	—	—	—	—
ARRDD5	—	VR 54	Mul EB34	Double Diode (I H)	10/M S H D1 C1 D2 - H C2/	82	36	63	0.2	—	200	—	—	—	—	—	—	—	—
ARB4	—	—	Mul PM1HT Maz HL210 Cos 210H 1	Triode (D H)	B4/A G F F /	103	45	18	0.1	—	150	—	—	—	—	—	—	—	3.3
ARB5	NR42	—	MOV LP2 Mul PM2A Maz P220	Triode (D H)	B4/A G F F /	108	42	20	0.2	—	150	—	—	—	—	—	—	—	16.5
ARB6	—	—	Selected MOV LP2	Triode (D H)	B4/A G F F /	108	42	20	0.2	—	150	—	—	—	—	—	—	—	4.5
ARB7	—	—	Maz HL 133 (Modified)	Triode (I H)	B7/M - - H H C A/G1	110	38	13	0.2	—	250	—	—	—	—	—	—	—	10
ARB8	—	—	Maz HL23DD	Double Diode (D H)	M08/R - A D2 M D1 F/G1	96	33	20	0.05	—	150	—	—	—	—	—	—	—	1.0
ARB9	—	VR21	Cos 210L F MOV L 21 Maz L 2 Mul PM1L F	Triode (D H)	B4/A G F F /	105	42	20	0.1	—	150	—	—	—	—	—	—	—	6.0
ARR10	—	—	Maz J21DD Cos 210DDT MOV HD24 Mul 1DD2A	Double Diode (D H)	B5/A D1 F M F D2/G	122	38	20	0.1	—	150	—	—	—	—	—	—	—	—

Input volts R M S (max) = 50 volts  
Rectified current (max) = 10 mA

Peak inverse anode voltage = 500 volts  
Maximum peak anode current = 50 mA  
Maximum anode current = 5 mA

Input volts R M S (max) = 100 volts  
Cathode current per diode (max) = 2 mA

A C or H F volts (max) = 75 volts  
Rectified current (max) = 15 mA

ARMY VALVES—continued

Army	Type	Possible Commercial Substitute	Description	Base and Connectors	Max. Dimensions Lgh. mm. Dia. mm.	Rating						Characteristics					
						V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at			
Navy	R.A.F.													V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	V <sub>e1</sub> (V.) bias	I <sub>a</sub> (mA.)
AR11	—	—	STC.4019.B Triode (D.H.)	B4/A:G:F:F/	116 57	4.0	0.25	190	—	—	1.27	7	5,500	130	—	—8	7.5
AR12	—	—	STC.4020A Triode (D.H.)	Medium 4-pin bayonet	114.5 57	2.0	0.25	190	—	—	0.6	30	50,000	130	—	—1.5	0.8
AR13	—	—	STC.4022.AB Triode (D.H.)	Medium 4-pin bayonet	114.5 57	4.0	0.25	190	—	—	2.2	12	5,500	130	—	—4.5	—
AR14	—	—	Cos.220BC Triode (I.H.)	B5/A:G:H:H:C/	97 31	2.0	0.21	150	—	—	1.35	50	37,000	100	—	0	2.5
AR15	—	—	Cos.220L.F Triode (I.H.)	B5/A:G:H:H:C/	97 31	2.0	0.21	150	—	—	1.7	20	1,177	100	—	0	7.5
AR16	—	—	Cos.220B Class B, Double Triode (D.H.)	B7/(3):Ga:Ar:F: F:-:Ab/	114.5 45	2.0	0.2	150	—	—	—	—	—	—	—	—	—
AR17	NR31	VR37	MOV.MH4 Max. AC/HL Mul. 354V Triode (I.H.)	B5/A:G:H:H:C/	116 44.5	4.0	1.0	250	—	—	3.6	40	12,000	100	—	0	7.5
AR20	—	—	STC.4021B Triode (D.H.)	B4/A:G:H:H/	116 57	4.0	0.25	190	—	—	8.0	6	2,000	130	—	—8	—
AR21	NR48	VR55	Mul. EBC33 Double Diode Triode (I.H.)	10/M:H:A:Di: D2—H C/G	100 36	6.3	0.2	300	1.5	—	1.8 (min.)	29 (min.)	15,000	250	—	—5	5.75
AR96	—	—	MOV. S.625 Screen Grid (D.H.)	Double-Ended	129 36	6.0	0.3	250	—	—	0.6	—	150,000	150	75	0	—
AR97	—	—	MOV. VS24 Mul. PM12M Max. S216VM Var.-% Screen Grid (D.H.)	B4/G2:G1:F:F/A	132 45	2.0	0.16	150	—	—	1.6	—	100,000	150	75	0	—
AR98	—	—	MOV. VS2 Mul. PM12V Var.-% Screen Grid	B4/G2:G1:F:F/A	139 44	2.0	0.1	150	—	—	1.2	—	100,000	150	70	0	—

ARMY VALVES—continued

Army	Type	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating						Characteristics					
					Lgh, mm.	Dia, mm.	V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	V <sub>e1</sub> (V.)	I <sub>a</sub> (mA.)
ARP1	NR39	VR118	MOV. PT2 Max. Pen. 220 Mul. PM22A	B5:A:G1:F:F:G2/	126	50	2.0	0.2	150	150	—	2.6	—	—	100	100	0	—
ARP2	—	—	H.F. Pentode (D.H.)	B7/M:G1:G3:F: F:-G2/A	134	48	2.0	0.18	150	150	—	1.8	—	0.5 meg.	150	150	0	3.2
ARP3	—	VR106	Var. μ H.F. Pentode (I.H.)	B7/-A:G3:H:H: C:G2/G1	116	40	13.0	0.2	250	125	—	1.75	—	0.6 meg.	250	125	-3	10.5
ARP4	—	—	H.F. Pentode (D.H.)	B7/M:G1:G3:F: F:-G2/A	124	39	2.0	0.1	150	150	—	1.45	—	2 meg.	120	120	0	2.9
ARP5	—	—	Var. μ H.F. Pentode (D.H.)	B7/M:G1:G3:F: F:-G2/A	134	48	2.0	0.18	150	150	—	1.7	—	0.75 meg.	150	150	0	3.75
ARP6	—	—	H.F. Pentode (I.H.)	B7/M:G1:G3:H: H:C:G2/A	140	51	4.0	1.0	200	100	—	2.3	—	2.2 meg.	200	100	-2	3.0
ARP7	—	—	H.F. Pentode (I.H.)	B7/-G1:G3:H: H:C:G2/A	146	56.5	4.0	2.0	250	250	—	8.5	—	0.1 meg.	250	200	-3	34
ARP8	—	—	Max. AC4/Pen. Mul Pen. B/ Beam Tetrode (I.H.)	B7/-G1:G2:H: H:C:A/	129	54	4.0	2.0	250	250	16	11	—	—	250	250	-9.5	55
ARP9	—	—	Max. Pen. 1340 (Mod.)	B7/-G1:G2:H: H:C:A/	116	39	13.0	0.4	250	250	8	7.5	—	—	250	250	-6	62
ARPA	—	—	STC. 7D8S	B7/-G1:G2:H: H:C:A/	135	52.5	13.0	0.65	250	250	—	8.0 (min.)	—	—	250	250	-6	32
ARPI0	—	—	Mul. Pen. A4 (mod.)	B7/-G2:H:H: C:A/G1	147.5	51	4.0	2.0	250	250	—	9.1	—	—	250	250	—	40

**ARMY VALVES—continued**

Army	Type	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh., Dia., mm.	Rating					Characteristics							
						V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>s</sub> (V.)	V <sub>g2</sub> <sup>1</sup> (V.)	W <sub>a</sub> (W.)	Φ (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at			I <sub>a</sub> (mA.)	
Navy	R.A.F.												V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias			
ARP11	—	Mul. TSP 4	H.F. Pentode (I.H.)	B7/M:A:G3:H:H:C:G2/G1	135	46	4.0	1.5	200	200	—	4.0 (min.)	—	—	200	170	-1	12
ARP12	—	Max. VP23	Var.- <sup>u</sup> H.F. Pentode (D.H.)	MO/E:X:A:G2:G3:M:X:F/G1	96	33	2.0	0.05	150	150	—	1.08	—	1.45 meg.	120	60	0	3.15
ARP13	NH41	Max. VP210	Var.- <sup>u</sup> Pentode (D.H.)	B7/M:G1:G3:F:F:-G2/A	125	39	2.0	0.1	150	150	—	1.4	—	1.45 meg.	120	60	0	3.0
ARP14	—	Cos.2201PT	H.F. Pentode (I.H.)	B7/M:G1:-:H:H:C & G3:G2/A	112	39	2.0	0.2	150	80	—	1.0	—	—	150	60	0	3.9
ARP15	NH86	MOV.K.TW63 6K7G	Var.- <sup>u</sup> Screened Tetrode (I.H.)	10/-:H:A:G2:-:X:H:C/G1	120	39	6.3	0.3	250	125	—	1.5	—	—	250	100	-3	7.5
ARP16	NH83	MOV.K.TZ63 6J7G	H.F. Screened Tetrode (I.H.)	10/-:H:A:G2:-:X:H:C/G1	120	39	6.3	0.3	250	125	—	1.27	—	—	250	100	-3	2.0
ARP17	NH85	MOV.K.T63 6H6G	Beam Tetrode (I.H.)	10/-:H:A:G2:G1:X:H:C/	119	45	6.3	0.7	250	250	8.5	2.5	—	—	250	250	-16.5	34
ARP18	—	MOV.K.T24	Beam Tetrode (D.H.)	B5/A:G1:F:F:G2/	116	45	2.0	0.2	150	150	—	3.2	—	—	150	120	-2.9	5.0
ARP19	—	Max. SP41	H.F. Pentode (I.H.)	MO/H:C:A:G2:G3:M:X:H/G1	95	32	4.0	0.95	250	250	—	8.5	—	—	200	200	—	8.0
ARP20	—	Max. SP42	H.F. Pentode (I.H.)	MO/H:C:A:G2:G3:M:X:H/G1	95	32	4.0	0.95	200	200	—	8.5	—	—	200	115	-1	—

ARMY VALVES—continued

Army	Type	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh., Dia., mm., mm.	Rating					Characteristics						
						V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	V <sub>e1</sub> (V.) Bias	I <sub>a</sub> (mA.)
ARP21	NB79	—	MOV Z62	10/-;H:A;G2;G3; X:H:C/G1	88 31	6.3	0.45	300	150	—	7.5	—	—	250	150	—	10
ARP22	—	—	Cos.116/Pen	B7/-;-G2;H:H; C:A/G1	139 56.5	11.5	0.65	250	250	—	7	—	—	100	100	0	—
ARP23	NB70	VR124	Cos.MS/Pen	B7/-;G1;G3;H:H; H:C;G2/A	126 45	4.0	1.0	200	100	3.0	2.8	—	0.6 meg.	200	100	-1.5	4.8
ARP24	—	—	Cos.220 VFT	B7/H:A;G3;H:H; C G2/G1	112 39	2.0	0.21	1.0	60	—	1.0	—	—	150	60	0	4.0
ARP25	NB59	—	MOV.KT61 (Modified)	B7/-;G1;G2;H:H; C:A/	119 45	4.0	1.37	250	250	—	10.5	—	—	250	250	—	40
ARP26	—	—	MOV.KT44 (Modified)	B7/-;G1;G3;H:H; C;G2/A	153 56.5	4.0	2.0	400	300	—	6.3	—	—	250	250	—	85
ARP33	—	—	MOV.MSP4	B7/-;G1;G3;H:H; C;G2/A	141 44.5	4.0	1.0	250	100	—	4.0	—	—	200	100	-1	5.5
ARP34	—	VB53	Mul.EF39	IO/M;H:A;G2; G3;X:H:C/G1	99 36	6.3	0.2	300	300	2.0	2.2	—	1.25 meg.	250	100	-2.5	6.0
ARP35	—	VR91	Mul.EF50	B9G/H;G2;A;G3; S;C;G1;S;H/	76.3 37.2	6.3	0.3	300	300	3.0	6.5	—	1.0 meg.	250	250	-2	10
ARP36	—	VR65	Max.SP41 (G.3V)	MO/H:C;A;G2; G3;M;X:H/G1	98 37	6.3	0.63	250	250	—	8.5	—	—	200	200	-1.9	8.0

ARMY VALVES—continued

Army	Type	Navy	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating						Characteristics						
							Lgh. mm.	Dia. mm.	V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at			I <sub>a</sub> (mA.)	
ARP27	—	—	—	Max. QP25	Q.P.P. Output Pentode (D.H.)	MO/F:-A:G2ab:G1a:G1b.A.b.F/F/	90	33	2.0	0.2	120	120	—	—	3.0	—	—	100	100	0	15 (min.)
ARP28	—	—	—	MOV KTY 78 (Modified)	H.F. Pentode (I.H.)	IO/M:H:A:G2:G3:X:H:C/G1	106	86	4.0	0.25	250	100	—	—	2.2	—	—	100	100	-1.5	5.0
ARTP1	—	—	—	Max. TP22	Triode Pentode (D.H.)	B9/M:G2.A:G3:F:F:-A:G:G:G1	123	47	2.0	0.26	150	150	—	—	1.35	—	—	120	60	0	3.0
ARTP2	—	—	—	Max. TP25	Triode Pentode (D.H.)	MO/F:-A:A:G:G:G:G2:F/F/G1	106	32	2.0	0.2	150	150	—	—	1.0	—	—	120	60	0	2.5
ARH1	NR67	—	—	MOV X64 6L7G	Var. μ Heptode Mixer (I.H.)	IO/-H:A:G2 & 4:G3--H:C/G1	114	38.5	6.3	0.3	250	150	—	—	G.C. 0.31	—	—	250	150	0	—
ARTH2	—	—	—	Mul.ECH35	Triode Hexode (I.H.)	IO/M:H:A:G2 & 4:G:G3 Ac:H:C/G1	112	36	8.3	0.3	300	100	—	—	Conversion Conductance 650 μA/V						
AV1	NU12	—	—	MOV U18 Mul.FW4/500	F.W. Rectifier (D.H.)	B4/A:A:F:F/	145	56	4.0	3.75	—	—	—	—	500 (R.M.S. per anode) 250 mA. max. rectified current						
AV2	—	—	—	Mul.RG5/500 Mul.RG4/1,000	H.W. Mercury Rectifier (D.H.)	G.E.S./F:F/A	300	91	5.0	11.0 (max)	—	—	—	—	4,200 R.M.S. 500 mA mean anode current 2.5 amps. peak anode current.						
AV3	NU3	—	—	MOV U12/14 Mul.DW4/500	F.W. Rectifier (D.H.)	B4/A:A:F:F/	122	45	4.0	2.5	—	—	—	—	500 (R.M.S. per anode). 120 mA. max. rectified current.						
AU3A	—	—	VU39	MOV MU12/14 Mul.LW4/500 Max. UV4	F.W. Rectifier (I.H.)	B4/A:A:F:C:F/	122	45	4.0	2.5	—	—	—	—	500 (R.M.S. per anode). 120 mA. max. rectified current.						



ARMY VALVES—continued

Army	Type	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. mm. Dia. mm.	Rating						Characteristics							
						V <sub>b</sub> (V)	I <sub>b</sub> (A)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	W <sub>a</sub> (W)	G (mA/V)	μ	R <sub>g</sub> (ohms)	Measured at					
														V <sub>a</sub> (V)	V <sub>g2</sub> (V)	V <sub>g1</sub> (V) bias	I <sub>a</sub> (mA)		
AU4	NU18	MOV.U17	H.W. Rectifier (D.H.)	B4/-:-F:F/A	140	50·5	4·0	1·0	2·5	kV. R.M.S. max., 30 mA. max. rectified current.									
AU5	—	MOV.E1132 Maz. V1907	H.W. Rectifier (D.H.)	B4/-:-F:F/A	148	55	4·0	1·1	5·0	kV. R.M.S. max. Max. rectified current. Medium life, 50 mA. Normal life, 25 mA.									
AU6	NU16	MOV.GU150 Mnl. RG1-240 Cos.MU.4250	H.W. Mercury Rectifier (D.H.)	B4/-:-F:F/A	146	51	4·0	3·0	1,500	R.M.S. 250 mA. max. rectified current. 4,700 Max. peak inverse voltage.									
AU7	—	Maz. ESU300 Mnl. RG3/1250 STC.4049.C	H.W. Mercury Rectifier (D.H.)	G·E·S./F·E/A	250	65	4·0	1·5	2,000	R.M.S. 750 mA. max. rectified current. 10,000 max. peak inverse voltage.									
AU8	—	Maz. U22	H.W. Rectifier (I.H.)	MO/H·C·X·-·X· -·X·X·H/A	98	28·5	2·0	2·0	4,500	R.M.S. 5·0 mA. max. rectified current. 12,500 max. peak inverse voltage.									
AU12	NU13A	MOV.U15 Mnl. RZ1-250	H.W. Rectifier (D.H.)	I4/A·E·-·F/	185	52	6·0	2·0	2,000	R.M.S. 250 mA. rectified current.									
AW1	—	—	Neon Indicator	—	65	39	Max. striking voltage 160.												
AW2	—	Mnl. 7476	Gas-filled Voltage Stabiliser	B4/A·C·-·-/	80	28	Max. striking voltage 140. Normal operating voltage 90-110. Normal burning current, 4 mA.												
AW3	—	V8110	Gas-filled Voltage Stabiliser	B4/A·C·-·-/	123	62	Max. striking voltage, 180V. Normal operating voltage, 115-135V. at 75 mA.												
AW4	—	V866	Gas-filled Voltage Stabiliser	B6/A4·C·A2·A3· A1/	145	50	Max. striking voltage, 280V. Max. cathode current, 60 mA. Nominal operating voltages at 30 mA. cathode current :— A1—cathode—70 volts, A2—cathode—140 volts. A3—cathode—210 volts, A4—cathode—280 volts.												
AW6	—	Maz. ME41	Thyring Indicator (I.H.)	MO/H·C·A·-·G· -·T·H/	90	28·5	4·0	0·45	250	Target 250	Grid voltage (0° shadow angle)—22·5 volts.								

ARMY VALVES—continued

Army	Type	Navy	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. Dia. mm. mm.	Rating						Characteristics						
								V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	#	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (mA.)	
AW6	—	—	V177	Mul. EM31	Tuning Indicator (I.H.)	IO/-:E:A:T:G:X: H:C/	85 30	6-3	0-2	250	Target 250	20	3-2	10	3,200	500	—	—	-27-5	—
AT20	—	—	—	Mul. MZ05-20	Triode (D.H.)	B4/A:G:F:F/	165 67	6-0	1-1	600	—	20	3-2	10	3,200	500	—	—	-27-5	—
AT35	—	—	—	MOV.DET25	Triode (D.H.)	L4/A:F:F:G/	180 54	8-0	2-2	1,200	—	35	2-1	10	4,800	1,200	—	—	-70	60
AT76	NT39	—	—	MOV.ACT6	Triode (D.H.)	T4/-:F:G:F/A	220 53	10-0	1-65	1,500	—	75	5-0	22	4,200	1,000	—	—	—	75
AT200B	—	—	—	MOV.DET16	Triode (D.H.)	T4/-:F:G:F/A	230 65	10-0	5-5	3,000	—	200	4-9 (min.)	56	11,500	3,000	—	—	-27	67
ATS25	—	—	VT60A	STC.5G250/A American 807	Beam Tetrode (I.H.)	USM5/H:G2:G1: C:H/A	146 52-5	6-3	0-9	600	300	25	7-1	—	—	300	250	—	-12-5	83
ATS25A	—	—	—	—	Beam Tetrode (I.H.)	—	—	6-3	1-0	—	—	—	—	—	—	—	—	—	—	—
ATS70	—	—	—	STC.4282B	Tetrode (D.H.)	L4/G2:F:F:G1/A	152.5 65	10-0	3-0	1,250	300	70	1-05	—	—	1,000	200	—	-40	42-5
ATP4	—	—	—	Maz.V248A	Pentode (D.H.)	MO/F:-:G2: G1:-:F/A	114 39	2-0	0-3	150	150	5	3-6 (min.)	—	—	150	150	—	-8	38
ATP5	—	—	—	Maz.V245	Pentode (D.H.)	B7/-:G1:G3:F: F:-:G2/A	134 39	3-0	0-3	450	250	5	5-0	—	—	250	250	—	—	16
ATP7	—	—	—	Maz.V226	Pentode (D.H.)	B7/M:G1:G3:F: F:-:G2/A	140 45	6-0	0-2	600	300	7	3-0 (min.)	—	1 meg.	450	250	—	-5	14
ATP10	—	—	—	STC.4061A	Pentode (I.H.)	USM7/H:-:G2: G1:G3:C:H/A	146 47-6	6-3	0-8	500	250	10	2-5	500	0-2 meg.	500	200	—	-10	50
ATP35	NT74	—	—	Mul.PV1/35	Pentode (I.H.)	B7/G1:-:G3:H: H:G2:C/A	177 65	12-0	0-9	1,000	500	36	2-0	—	—	1,000	200	—	—	40
ATP75	NT38	—	—	MOV.PT6 Mul.PZ1/75 Cos.SW75PEN	Pentode (D.H.)	T4/G2:F:G1:F/A G3 connected to shell of base	262 66	10-0	2-0	1,500	400	75	1-7	—	—	1,500	400	—	—	60

This valve differs from ATS.25 only in heater current

ARMY VALVES—continued

Army	Navy	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh./Dia. mm./mm.	Rating						Characteristics						
							V <sub>h</sub>			V <sub>a</sub>			G			Measured at			
							V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (mA.)	
ATP100	—	—	STC.4069.A	Pentode (D.H.)	USG5/E:G2:G1:G3:F/A	248	57	10.0	5.4	2,000	400	100	5.25	—	—	2,000	400	-20	—
ATP600	—	—	Mul.PY3-600	Pentode (D.H.)	Special 5-pin	557	182	12.0	7.5	3,000	1,000	600	5.0	—	—	3,000	800	-170	150
6J5G	NR78A	VR67	6J5G MOV.163	Triode (L.H.)	IO/-:H:A:X:G:G:X:H:C/	107	40	6.3	0.3	300	—	2.5	2.6	20	7,700	250	—	-8	9.0
6C5G	NR78	—	6C5G	Triode (L.H.)	IO/-:H:A:X:G:G:X:H:C/	107	40	6.3	0.3	300	—	2.5	2.0	20	10,000	250	—	-8	8.0
6Q7G	—	—	6Q7G MOV.DH63	Double Diode Triode (L.H.)	IO/-:H:A:D2:DI:H:C/G	114	40	6.3	0.3	250	—	—	1.2	70	58,000	250	—	-3	1.3
6K7G	—	—	6K7G MOV.KTW63	Var. μ H.F. Pentode (L.H.)	IO/-:H:A:G2:G3:X:H:C/G1	114	40	6.3	0.3	300	125	2.75	1.45	—	0.8 meg.	250	100	-3	7.0
6V6G	6V6G	—	6V6G	Beam Tetrode (L.H.)	IO/-:H:A:G2:G1:X:H:C/	117.5	46	6.3	0.45	315	250	12	4.1	—	52,000	250	250	-12.5	45
6B8G	—	—	6B8G	Double-Diode Pentode (L.H.)	IO/-:H:A:D2:DI:G2:H:C/G1	114	40	6.3	0.3	300	125	2.25	1.1	—	0.6 meg.	250	125	-3	9.0
6D6	—	—	6D6	Var. μ H.F. Pentode (L.H.)	USS6/H:A:G2:G3:C:H/G1	126	40	6.3	0.3	300	100	2.25	1.6	—	0.8 meg.	250	100	-3	8.2
6C8	—	—	6C8	H.F. Pentode (L.H.)	USS6/H:A:G2:G3:C:H/G1	126	40	6.3	0.3	300	125	0.75	1.25	—	1 meg.	250	100	-3	2.3
6B7	—	—	6B7	Double-Diode Pentode (L.H.)	USS7/H:A:G2:D2:DI:C:H/G1	115	40	6.3	0.3	300	125	2.25	1.1	—	0.6 meg.	250	125	-3	9.0

ARMY VALVES—*continued*

Army	Type		Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions		Rating						Characteristics					
	Navy	R.A.F.				Lgh. mm.	Dia. mm.	V <sub>h</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at			I <sub>a</sub> (mA.)
															V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias		
42	42	—	42	Output Pentode (I.H.)	U5M6/H.A.G2: G1:C:H/	119	46	6.3	0.65	375	285	11	2.35	—	250	250	—	—	34
6K8G	—	—	6K8G	Triode-Hexode (I.H.)	10/-:H:A:G2:G4: G1,G0:A0:H:C/G3	117	40	6.3	0.3	300 125	150 —	0.7 0.75	C.C. = 0.35 3.0	—	250 100	100 —	— 0	—	2.5 3.8
5Z4G	—	—	5Z4G	Full-wave Rectifier (I.H.)	10/-:H:X:A1:X: A2:X:H/C/	117.5	46	5.0	2.0	350 (R.M.S. per anode) 125 mA. max. rectified current. 1,400 max. peak inverse voltage.									
5U4G	—	VU71	5U4G	Full-wave Rectifier (D.H.)	10/-:F:X:A1:X: A2:X:F/	136	51	5.0	3.0	450 (R.M.S. per anode) 225 mA. max. rectified current. 1,550 max. peak inverse voltage.									
6X5G	—	—	6X5G	Full-wave Rectifier (I.H.)	10/-:H:A1 X:A2. X:H/C/	105	40	6.3	0.6	325 (R.M.S. per anode) 70 mA. max. rectified current. 1,250 max. peak inverse voltage.									

ARMY VALVES—continued

Type	Vac. No.	Service Equiv.	Commercial Prototype	Screen		Dimensions (mm.) max.		Cathode		Focus and Def.	A <sub>3</sub> Max. kv.	Sensitivity, mm./V <sup>2</sup>	
				Colour	Diam., mm.	Length	Diam.	Vh	Ih			x	y
ACR1	ZC.0123	—	—	W	110	495	136	4.0	0.9	E.E.	4.0	600	675
ACR2	ZC.0697	—	2nd grade ACR1	W	110	495	136	4.0	0.9	E.E.	4.0	600	675
ACR8	ZC.3081	—	—	W or G	110	—	—	4.0	1.2 (max.)	E.E.	3.0	870	500
ACR10	ZC.3141	VCR139A	3223.D	G	55	205	70	4.0	1.1	E.E.	1.0	170	170
ACR11	ZC.3595	—	—	As ACR8 but with external surface metallised									
ACR12	ZC.1965	—	—	G	220	620	295	4.0	1.0	E.E.	5.0	650	650
ACR13	ZC.3596	—	—	G	120	431	160	4.0	1.0	E.E.	5.0	620	1160



# **THE SERVICES RADIO VALVE MANUAL**

**B.R. 783 (4)**

## **CHAPTER IV R.A.F. VALVES**

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## R.A.F. VALVES

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. Dia. mm.	Rating						Characteristics					
							V <sub>h</sub> (V)	I <sub>h</sub> (V)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at			I <sub>a</sub> (mA.)
—	—	VT4B 10E/5203	—	Triode (D.H.)	None	325	165	18-0-5-15	5 kV.	—	450	1.5	30	20K	2 kV.	—	0	55
—	—	VT7A 10E/5433	—	H.W. Rectifier (D.H.)	None	320	165	17 0 5 15	—	450	—	—	30	20K	2 kV.	—	0	55
—	—	VR18 10E/7607	215 S.G.	Screen Grid (D.H.)	B4/G2:G1:F.M: F/A	131	45	2-0-0-15	180	80	—	1.1	330	0.3M	120	60	0	—
NR28	—	VR19 10E/7846	215P	Triode (D.H.)	B4/A:G:F:M:F/	104	43	2-0-0-15	150	—	—	2.25	9	4K	100	—	0	—
—	—	VT20 10E/7813	220P	Triode (D.H.)	B4/A:G:F:F:/	105	43	2-0-0-2	150	—	—	2.25	9	4K	100	—	0	—
—	—	VR21 10E/7738	210 L.F.	L.F. Triode (D.H.)	B4/A:G:F:N:F/	104	41.5	2-0-0-1	150	—	—	1.4	14	10K	100	—	0	—
—	—	VR22 10E/7938	220PA	Triode (D.H.)	B4/A:G:F:F/	109	45	2 0 0 2	150	—	—	4.0	16	4K	100	—	0	—
—	—	VT23 10E/8062	230XP	Triode (D.H.)	B4/A:G:F:F/	104	43	2-0 0 3	150	—	—	3 0	4 5	1.5K	100	—	0	—
—	—	VT23A 10E/8221	—	Specially selected V.T. 23 for microphonic noise. This valve is no longer available.														
—	—	AT35 10E/7312	DET. 25	Triode (D.H.)	L4/A:F:F:G/	186	73	7-5 2-0	1.2 kV.	—	36	2.05	10	4.87K	1.2 kV.	—	82	30
—	—	VT26A 10E/9122	—	Triode (D.H.)	L4/A:F:F:G/	203	83	12-0 1-85	2 kV.	—	100	1.0	22	22K	1 kV.	—	0	30
—	—	VR27 10E/8239	—	Specially selected VR21 for detection efficiency. This valve is no longer available.														
—	—	VR28 10E/8399	220VSG	Vu Screen Grid (D.H.)	B4/G2:G1:F.M: F/A	131	45	2-0 0-2	150	80	—	1.6	176	0.11M	150	60	0	—

Max Peak Inverse Voltage = 12 kV.  
Max. Peak Anode Current = 750 mA.

R.A.F. VALVES—continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions	Rating						Characteristics							
							Thermions		V <sub>h</sub>		I <sub>h</sub>		V <sub>a</sub>		V <sub>g2</sub>		W <sub>a</sub>		g	
						Lgh. mm.	Dia. mm.	(V.)	(A.)	(V.)	(V.)	(W.)	(mA/V.)	(ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.)	Bias	I <sub>a</sub> (mA.)	
—	—	VT29 10E/8087	—	H.W. Mercury Rectifier (D.H.)	G.E.S.	216	63.5	4.0	9.0	1,500 (R.M.S.)	—	—	—	—	—	—	—	—	0	67
—	—	VT30 10E/8738	—	Triode (D.H.)	None	365	125	12.5	5.5	5 kV.	—	250	1.35	26	19K	—	—	—	—	—
—	ATS 250	VT81 10E/8739	SG250	Tetrode (D.H.)	None	365	168	11.25	8.0	5 kV.	—	250	1.0	100	—	—	—	—	—	40
—	AR16	VR32 10E/9141	220B	Double Triode (D.H.)	B7/Ga;Cb;Ab: F;F'-;Aa/	111	45	2.0	0.2	150	—	—	—	—	—	—	—	—	—	—
—	—	VT33 10E/9829	—	Diode (D.H.) with internal resistance of 0.25 ohms in -ve filament lead.	B4/A;-F;F'/	111	44	2.0	0.4	30	—	—	—	—	—	—	—	—	—	—
—	—	VT34 10E/7787	DETS	Triode (D.H.)	None	430	165	15.0	4.0	3 kV.	—	250	4.0	18	4.5 K.	—	—	—	—	100
—	—	VR35 10E/9779	QP21	Quiescent Double Pentode (D.H.)	B7/G1a;G1b: Ab;F;G3a;G3b: F;G2a;G2b;Aa/	120	51	2.0	0.4	150	150	—	2.3	—	—	—	—	—	—	150
—	—	VW36 10E/9851	—	Specially selected VR22 for capacitances.																
NR31	AR17	VR37 10E/9598	MH4	Triode (I.H.)	B5/A;G;H;H-C/	180	56	4.0	1.0	200	—	2.5	3.6	40	11.1 K.	—	—	—	0	7.5
NR26	—	VR38 10E/9599	MH14	Triode (I.H.)	B5/A;G;H;H-C/	130	51	4.0	1.0	250	—	—	2.5	16	6.5 K.	—	—	—	0	—
NU17	AT3A	VU39 10E/9600	MU12/14 U5	F.W. Rectifier (I.H.)	B4/A;A;H;C;E/	140	60	4.0	2.5	500 (R.M.S. per anode)	120 mA. max. rectified current	—	—	—	—	—	—	—	—	—

R.A.F. VALVES—continued

Navy	Army	R.A.F.	Type	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. Dia. mm.	Rating						Characteristics							
								V <sub>h</sub> (V)	I <sub>a</sub> (A)	V <sub>a</sub> (V)	V <sub>G2</sub> (V)	W <sub>a</sub> (W)	G (mA/V)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V)	V <sub>G2</sub> (V)	V <sub>G1</sub> (V) bias	I <sub>a</sub> (mA)		
—	—	VC39A	—	—	F.W. Rectifier (I.H.)	B4/A:A;H:C;H/	140	60	4.0	2.3	400 (R.M.S. per anode)	180 mA. max. rectified current.	—	—	—	—	—	—	—	—	
—	—	10E/374	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
NR47	—	VR40 10E/9801	—	PPS/400	Thode (D.H.)	B4/A:G;F;F/	181	68	4.0	2.0	400	—	25	7.0	10	1.5 K	100	—	—	0	—
—	—	VR41 10E/9049	—	PM12M	Var.-u Screen Grid (D.H.)	B4/G2:G1:F;M;F/A	135	50	2.0	0.18	150	90	—	1.4	—	—	150	90	—	0	—
—	—	VV42 10E/ 10299	—	—	Specialty selected VR27 for capacitance.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	VR43 10E/ 10541	—	210 PG	Var.-u Pentagrid (D.H.)	B7/G2:G1:G3;G6;F;F;M:A/G4	133	46	2.0	0.1	150 150	80	—	C.C. 0.45	—	—	120	40	—	0	—
—	—	VR44 10E/ 10542	—	HI21DD	Double Diode Triode (D.H.)	B5/A:D1:F;M;F;D2/G	140	46	2.0	0.15	150	—	—	1.5	32	21K	100	—	—	0	—
—	—	VT45 10E/ 10557	—	X56	Triode (D.H.)	B4/A:G;F;F/	105	45	2.0	0.44	400	—	5	2.7	10.8	4K	200	—	—	10	19
—	—	VT46 10E/ 10558	—	PT25H	Pentode (D.H.)	B5/A:G1:F;G3:F;G2/	170	67	4.0	2.0	300	100	25	6.5	180	28K	400	400	—	16	—
—	—	VT47 10E/ 10559	—	V705-20 VLS417	Triode (D.H.)	I4/A:F;F;G/	150	70	6.0	1.1	600	—	20	5.0	25	5K	400	—	—	+2	50
—	—	VW48 10E/ 10585	—	—	Specialty selected VR18 for capacitance.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	VR49 10E/ 10931	—	210SPT	H.F. Pentode (D.H.)	B7/M;G1;G3;F;F;G2/A	130	46	2.0	0.1	150	80	—	0.8	—	1.2 M	120	60	—	1.5	1.2

R.A.F. VALVES—continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions L <sub>g</sub> /D <sub>g</sub> , mm./mm.	Rating					Characteristics						
							V <sub>b</sub> (V)	I <sub>b</sub> (A.)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	Measured at			
							V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (mA.)								
—	—	VT750 10E/ 10945	BI2K	Triode (D.H.)	B1 A:G:F:F <sub>1</sub>	28	0	0.1	150	—	1.0	1.7	26.5	16.5K	100	—	0	3
—	—	VT51 10E/ 10946	PLN.220A	Pentode (D.H.)	Ba A G1 F <sub>1</sub> G3 F <sub>1</sub> G2/	115	2.0	0.2	150	150	3	2.5	—	—	100	100	0	—
—	—	VT52 10E/ 11398	BI32	Pentode (L.H.)	IO/-H:A:G2-; X:H:C;G3/G1	110	36.5	6.3	0.2	300	7.5	2.85	200	70K	250	250	18.5	30
—	—	ARP34	EP39	V-μ HF Screened Pentode (L.H.)	IO/M:H:A:G2; G3:X:H:C/G1	100	36	6.3	0.2	300	2	2.2	—	1.25M	250	100	2.5	6
—	—	ARDD5	EB34	Double Diode (L.H.)	IO/M;S:H:A2;C2; A1:X:H:C/1	82	36	6.3	0.2	200	—	—	—	—	—	—	—	—
NR48	AR21	VR55 10E/ 11401	EB33	Double Diode Triode (L.H.)	IO/M:H:A:DI; D2:X:H:C/G	102	36	6.3	0.2	300	1.5	2.0	30	15K	250	—	5	5.75
NR49	—	VR56 10E/ 11402	ET36	HF Pentode (L.H.)	IO/M:H:A:G2; G3:X:H:C/G1	100	36	6.3	0.2	300	1.0	1.8	4,500	2.5M	250	100	2	3
—	—	VR57 10E/ 11403	EK32	Octode (L.H.)	IO/M:H:A:G3; G5;G1;G2:H:C; G6/G4	100	36	6.3	0.2	300 225	—	0.55	—	2M	250 200	50	—	1
—	—	VR57A 10E/609	—	Octode (L.H.)	Similar to VR57	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	VT58 10E/ 11405	—	Triode (D.H.)	—	—	—	—	—	—	58.0	—	—	—	—	—	—	—
—	—	VT38A 10E/410	—	Triode (D.H.)	—	—	—	—	—	—	58.0	—	—	—	—	—	—	—

\* Marked Voltage

Specification tests are done under different conditions.

R.A.F. VALVES—continued

Navy	Army	R.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Legh. Dia. mm.	Rating					Characteristics							
							V <sub>b</sub> (V)	I <sub>b</sub> (V)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	W <sub>a</sub> (W.)	G (mA/V)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (mA.)	
—	—	VR59 10E/ 11452	955, HA2 4671	Acorn Triode (I.H.)	Acorn/A.H.C.H. G:X:X	35	22	6.3	0.15	250	—	—	2.0	25	12.5K	180	—	5	—
—	—	VT60 10E/ 11441	807	Beam Tetrode (I.H.)	USV6/H.G2.G1. C/H/A	146	52.5	6.3	0.9	600	300	25	7.1	—	—	300	250	12.5	83
—	ATS25	VT60A 10E/587	8 07	Beam Tetrode (I.H.)	USM6/H.G2.G1. C/H/A	146	52.5	6.3	1.0	This valve is a VT60 to wider tolerances.					—	—	—	—	—
—	—	VT61 10E/ 11442	RK34 DEFL9, 4074A	Double Triode (I.H.)	U.S.M.T/H.-G. C:Gb.-H/A: Ab	128	46	6.3	0.3	300	—	7.5 each anode	2.8	14	5K	250	—	7	21
—	—	VT61A 10E/142	TV03-10	Double Triode (I.H.)	B5/Ga:Gb:H:H. C/Aa:Ab	127	46	12.0	0.44	500	—	5 each anode	3.2	12.5	3.9K	300	—	17	17
NT68	—	VT62 10E/ 11443	DEFL 12 834 TY1-50	Triode (D.H.)	B4/-:-F:J/A:G	170	72	7.5	3.25	1.25 KV.	—	50	2.0	10	5K	1 KV.	—	55	50
NU3	AU3	VU64 10E/ 11445	U12/14	F.W. Rectifier (D.H.)	B4/A:A:F:J/	142	58	4.0	2.5	500 (R.M.S. per anode) 120 mA. max. Rectified current.					—	—	—	—	—
—	ARP 36	VR65 10E/ 11446	SP41 (with 6.3 V. heater)	H.F. Pentode (I.H.)	MO/H:C:A:G2: G3:M:X:H:/G1	98	37	6.3	0.63	250	250	—	8.5	—	—	200	200	1.9	8
—	ARP 19	VR65A 10E/149	SP41	H.F. Pentode (I.H.)	MO/H:C:A:G2: G3:M:X:H/G1	98	37	4.0	0.95	250	250	—	8.5	—	—	200	200	1.9	8
—	—	VR66 10E/ 11447	P41 (with 6.3 V. heater)	Triode (I.H.)	MO/H:C:A:G: M:X:H/	87	36	6.3	0.64	250	—	4.0	8.0	17	2.1K	100	—	0	—
6J5G	6J5G	VR67 10E/ 11448	L. 63. 6J5G	Triode (I.H.)	IO/-:H:A:X:G:X: H/C/	107	40	6.3	0.3	250	—	2.5	2.6	20	7.75	250	—	8	9

R.A.F. VALVES—continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lght. Dia. mm.	V <sub>b</sub> (V)	I <sub>b</sub> (A.)	Rating					Characteristics							
									V <sub>a</sub> (V)	V <sub>g2</sub> (V)	W <sub>a</sub> (W.)	G (mA/V)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	V <sub>g1</sub> (V) bias	I <sub>a</sub> (mA)			
—	AW4	VS68 10E/ 11449	STV280/40	Gas-filled Voltage Stabiliser	B5/A4:C:A2:A3: A1/	145	50														
NSI	—	VS69 10E/ 11450	STV280/80	Gas-filled Voltage Stabiliser	B5/A4:C:A2:A3: A1/	145	62														
—	AW2	VS70 10E/ 11451	7475	Diode Gas-Filled Stabiliser	B4/A:C:-:-/	80	28														
—	—	VU71 10E/ 11529	U52 5U4G	F.W. Rectifier (D.H. or I.H.)	I0/-:F:X:A:X:A: X:F,C/	136	51	5.0	3.0	500 (R.M.S. per anode), 250 mA. max. rectified current											
—	—	VU71A 10E/ 597	U52 5U4G	F.W. Rectifier (I.H.)	I0/-:F:X:A:X:A: X:F,C/	136	51	5.0	3.0	500 (R.M.S. per anode), 250 mA. max. rectified current											
—	AU6	VU72 10E/ 11530	GU5, GU50	H.W. Mercury Rectifier (D.H.)	B4/-:F:F/A	145	51	4.0	3.0	1.5 kV. R.M.S. 250 mA. max. rectified current.											
—	—	VT73 10E/ 11531	H63, 6F5G	Thiode (I.H.)	I0/-:H:X:A:X:X: H:C/G	115	30	6.3	0.3	250			1.5	99	66K	250			2	1.0	
NR83	AKP16	VT74 10E/ 11532	KTZ63 6J7G	H.F. Screen Pentode (I.H.)	I0/-:H:A:G2:-:X: H:C/G8/G1	121	39	6.3	0.3	250	135		1.2	1,800	1.5 M	250	100		3		
—	—	VT75 10E/ 11533	KT66	Output Tetrode (Pentac-teristic) (I.H.)	I0/-:H:A:G2:G1: X:H:C/	141	57	6.3	1.27	400	300		6.25			250	250	15		85	

Max. striking voltage, 140.  
Normal operating voltage, 100.

A1—Cathode 71 V. A3—Cathode 214 V.  
A2—Cathode 142 V. A4—Cathode 285 V.  
At Cathode current 30 mA.

A1—Cathode 73 V. A3—Cathode 205 V.  
A2—Cathode 143 V. A4—Cathode 282 V.  
At Cathode current 40 mA.

Striking voltage 363.  
Max. Cathode current 80 mA.

Striking voltage, 280.  
Max. Cathode current, 60 mA.

R.A.F. VALVES—continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. Dia. mm. mm.	Rating						Characteristics							
							V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (mA.)		
—	—	VT75A 10E/387	KT44T	Output Tetrode (Pentode characteristic) (L.H.)	B7/-G1:-H:H: H:C:G2/A	152	57	4.0	2.0	—	—	—	—	—	—	—	—	—	—	
—	—	VT75B 10E/472	KT44	Output Tetrode (Pentode characteristic) (L.H.)	B7/-G1:B:H:H: C:G2/A	152	57	4.0	2.0	400	300	25	6.25	—	—	250	250	15	85	
—	—	VT76 10E/ 11534	TZ40 DA41	Tetrode (D.H.)	USM4/F:-G:F/A	172	62	7.5	2.5	1.25 KV.	—	40	3.6	62	17.5	1 KV.	—	—	0	19.5
—	AW6	VT77 10E/ 11539	EM31	Tuning Indicator (L.H.)	10/-H:A:T:G:X: H:C/	85	30	6.3	0.2	250	—	V <sub>t</sub> = 250 { at V <sub>g</sub> = 0 Shadow angle > 75° at V <sub>g</sub> = -5 Shadow angle < 10°								
—	ARD2	VT78 10E/ 11540	1)1	Diode (L.H.)	Rigid wires	48	12	4.0	0.2	—	—	Peak Inverse anode voltage = 500 V. Max. peak anode current = 50 mA. Max. anode current = 5 mA.								
—	—	VT79 10E/ 11752	KT8	Tetrode (Pentode characteristic) (L.H.)	B5/G2:G1:H:H: C/A	145	57	6.3	1.25	600	300	25	6.5	—	—	250	250	10	100	
—	—	VT80 10E/ 11756	4307A	Pentode (D.H.)	B7/G1:G3:G2:F: F:-:-/A	152.5	54	5.5	1.0	700	300	15	4.2	7.0 (inner)	—	250	250	20	50	
—	—	VT81 10E/3	4052A	Pentode (D.H.)	USM5/F:G2:G1: G3:F/A	228.5	51	7.5	3.0	1.5 KV.	300	80	3.0	—	—	1.5 KV.	300	17.5	—	
—	—	VR82 10E/4	2207H	Triode Heptode (D.H.)	B7/A0:G0:G2:G4: F:F:M:A/G1	188	51	2.0	0.2	150 100	150	—	Triode 1.8	Triode 16	Triode 8.5K	100	—	0	—	

R.A.F. VALVES - continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Len. Dia. mm.	Rating					Characteristics							
							V <sub>h</sub> (V)	I <sub>h</sub> (V)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	W <sub>a</sub> (W)	G (mA/V)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	V <sub>e1</sub> (V) bias	I <sub>s</sub> (mA)	
NR41	ARF13	VR88 10E/5	210VPT	Var-μ H.F. Pentode (D.H.)	B7/M:G1:G3:R:R:F: --G2/A	138	46	2.0	0.1	150	80	—	1.1	—	—	150	60	0	2.9
—	—	VT88 10E/9	882	Push-pull I.F. Beam Power Amplifier (I.H.)	Special Glass Base	87	60.5	12.6	0.8	400	250	15 Total	3.0	—	—	250	135	10	30
—	—	VT90 10E/97	—	Trode (D.H.)	—	—	—	8.25	7.0	9 KV.	—	100	16	—	—	—	—	—	—
—	ARF35	VR91 10E/92	EG50	H.F. Pentode (I.H.)	B9G/H:G2:A:G3: S:C:G1:S:H/	77.3	37.2	6.3	0.3	300	300	3.0	6.5	—	—	250	250	2	10
—	—	VR91A 10E/287E	—	—	—	—	—	Specially selected VR91 for "tail."					—	—	—	—	—	—	—
—	—	VR92 10E/105	E450	Diode (I.F.)	Rigid wires	48	12	6.3	0.15	—	—	—	—	—	—	—	—	—	—
—	—	VT94 10E/108	—	Trode (D.H.)	I4/A:R:F:G/	125	55	5.8	1.43	1.2 KV.	—	40	1.75	45	26K	1 KV.	—	2.5	—
—	—	VR95 10E/95	954, ZAG, 4072	Acorn Pentode (I.H.)	Acorn/G2 H:C:H: G3:A:G1	48	22	6.3	0.15	250	150	—	1.4	—	1.5M	250	100	3	2
—	—	VR95A 10E/286	—	—	—	—	—	Specially selected VR95 to closer limits.					—	—	—	—	—	—	—
—	—	VT96 10E/147	5B/302A	Pentode (D.H.)	TSM5/F:G2:G1: G3:F/A	131	59	12.0	2.0	1.5 KV.	300	60	3.0	—	—	1.5 KV.	300	17.5	—
—	—	VT98 10E/224	—	Trode (D.H.)	—	—	—	3.25	35.0	—	—	750	—	—	—	—	—	—	—
—	—	VR99 10E/1277	X66	Trode- Heccode (I.H.)	I0/-:H:A:G2:G4: G0:A0:H:C/G1	114	39.6	6.3	0.34	250	100	—	C.C. 0.2	—	—	250	100	3	—



R.A.F. VALVES—continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. Dia. num. num.	Rating						Characteristics					
							V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (m.A.)
—	—	VR100 10E/278	KTW62	Var- $\mu$ H.F. Pentode (I.H.)	10/-:H:A:G2:S: X:H:C/G1	130 39 6	6-3	0-3	250	100	—	2-7	—	—	250	80	3	—
—	—	VR101 10E/280	MHI/D6	Double Diode Triode (I.H.)	10/-:H:A:D2:DI: X:H:C/G	114 39	6-3	0-65	250	—	—	3-0	—	—	200	—	5	11-5
—	—	VR102 10E/279	BI63	Double Triode	10/-:H:A:b:Cb: G <sub>1</sub> :A <sub>2</sub> :H:C <sub>2</sub> /Gb	134 45	6-3	1-3	250	—	—	4-0	—	—	200	—	8	25
NR89	—	VT103 10E/305	Y63	Tuning Indicator (I.H.)	10/-:H:A:T:G:X: H:C/	107 39-6	6-3	0-3	250	Target 250	—	—	—	—	—	—	—	—
—	—	VT104 10E/215	PT15	Pentode (D.H.)	B5/G2:G1:F:F: G3/A	188 50-5	6-0	1-3	1-25 kV	300	30	3-1	—	—	1 kV	300	26-5	40
—	—	VT105 10E/216	MI6	Triode (I.H.)	B5/A:G:H:H:C/	120 46	6-0	0-7	250	—	—	3-8	—	—	200	—	8	24-5
—	—	VR106 10E/ 11095	9D2	V- $\mu$ H.F. Pentode (I.H.)	B7/-:A:G3:H:H: C/G2/G1	117 39	13-0	0-2	250	125	—	1-65	—	0-6 M	250	125	3	10-5
—	—	VR107 10E/ 11097	15D2	Heptode (I.H.)	B7/G2:G1:G3, G5: H:H:C/A/G4	117 39	13-0	0-15	250 200	100	—	C.C. 0-55	—	0-38 M	250	100	3	3-5
—	—	VR108 10E/ 11096	8D2	H.F. Pentode (I.H.)	B7/-:A:G3:H:H: C/G2/G1	117 39	13-0	0-2	250	125	—	1-25	—	—	250	100	3	2-3
NR55	—	VR109 10E/ 11098	4D1	Triode (I.H.)	B7/-:A:G3:H:H: C/G2/G1	117 39	13-0	0-2	250	—	—	4-0	40	10 K	250	—	3	10
—	AW3	VS110 10E/ 10914	S.130	Gas Filled Voltage Stabiliser	B4/A:C:—:—: A/G	125 52	—	—	—	—	—	—	—	—	—	—	—	—

Max. striking voltage 180V. Normal stabilised voltage 130 V.

R.A.F. VALVES—continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Tgh. mm. Dia. mm.	Rating						Characteristics					
							V <sub>b</sub> (V)	I <sub>b</sub> (A)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	W <sub>a</sub> (W)	G (mA/V)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V)	V <sub>g2</sub> (V)	V <sub>g1</sub> (V) bias	I <sub>a</sub> (mA)
—	—	VS110A 10E/423	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	AU5	VU111 10E/146	V1907	H.W. Rectifier (D.H.)	B4/-:-F:F/A	143	55	4.0	1.1	—	—	—	—	—	—	—	—	—
—	AU4	VU113 10E/19	U17	H.W. Rectifier (D.H.)	B4/-:-F:F/A	140	50.5	4.0	1.0	—	—	—	—	—	—	—	—	—
—	—	VT114 10E/168	—	Tetrode (D.H.)	—	—	—	10.0	70.0	—	—	—	—	—	—	—	—	—
—	—	VT114A 10E/167	—	Tetrode (D.H.)	—	—	—	10	0 70.0	—	—	—	—	—	—	—	—	—
—	—	VR116 10E/266	V872	H.F. Screened Pentode (I.H.)	MO/H:C:A:G2: G3:M:X:H/G1	96	32	6.3	0.63	250	200	—	—	—	—	—	—	—
—	—	VK117 10E/176	41MTL (MET)	Triode (I.H.)	B5/A:G:H:H:C, M/	117	45	4.0	1.0	250	—	—	—	—	—	—	—	—
—	—	VR117A 10E/623	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	VR118 10E/88	KT2	Beam Tetrode (D.H.)	B5/A:G:F:F:G2/	115	—	2.0	0.2	150	150	—	—	—	—	—	—	—
—	ARR1	VR119 10E/28	DDL4	Double Diode (I.H.)	B5/Db:Da:H:H: G/	97	31	4.0	0.75	—	—	—	—	—	—	—	—	—
—	—	VU120 10E/121	SU2150A	H.W. Rectifier (I.H.)	B4/-:-H:C:H/A	134	51	2.0	1.5	—	—	—	—	—	—	—	—	—
—	—	VGT 121 10E/164	T41	Gas Triode (I.H.)	MO/H:C:A:--G: M:X:H/	90	32	4.0	1.5	400	—	—	—	—	—	—	—	—
						Specially selected VS110.						5 kV. R.M.S. Max. Rectified Current, 50 mA.						
						Specially selected VR117 by high voltage test.						2.5 kV R.M.S. Max. Rectified Current 30 mA						
						Max. working Anode Voltage R.M.S., 200V. Max. cathode current 10 mA. Max. peak cathode current, 20 mA						5 kV. R.M.S. Max. Rectified Current, 5 mA.						
						Max. Peak I <sub>a</sub> = 500 mA. Control Ratio = 20 Max. Voltage Drop = 70.												

R.A.F. VALVES—continued

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh., Dia., mm., mm.	Rating						Characteristics						
							V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>g</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) Bias	I <sub>a</sub> (mA.)	
		VR122 10E/31	4IMXP	Triode (I.H.)	B5/A;G;H;E:C/	142	57.5	4.0	1.1	200	—	—	7.5	11.2	1.5 K.	100	—	0	4.9
		VR124 10E/24	MS/PEN. B	H.F. Pentode (I.H.)	B7/M;G1;G3;H;H:C;G2/A	127	45	4.0	1.0	200	100	—	2.8	—	—	200	100	1.5	4.8
		VR125 10E/25	MS/PEN. B	H.F. Pentode (I.H.)	B7/M;A;G3;H;H:C;G2/G1	127	45	4.0	1.0	200	100	—	2.8	—	—	200	100	1.5	4.8
		VR126 10E/172	4SH	Hexode (I.H.)	B7/-;A;G3;H;H:C;G2;G4/G1	127	45	4.0	1.0	250	100	—	3.0	—	—	250	100	2	6.2
		VT127 10E/231	PEN. 46	Beam Power Tetrode (I.H.)	M0/H;C;-;G2;G1;-;X;H/A	129	55	4.0	1.75	330	220	20	8.5	—	—	100	100	0	—
		VG128 10E/15	GTL10	Gas Triode (I.H.)	B5/A;G;H;H:C/	120	45.5	4.0	1.3	500	—	—	—	—	—	—	—	—	—
		VR129 10R/307	MS PEN.	H.F. Pentode (I.H.)	B7/-;G1;G3;H;H:C;G2/A	127	45	4.0	1.0	200	100	—	2.8	—	—	200	100	1.5	4.8
		VR130 10E/139	H.L. 23	Triode (D.H.)	M0/F;X;A;X;G1;M;X;F/	88	32	2.0	0.05	150	—	—	1.5	32	21K	100	—	0	—
		VI132 10E/6	—	Neon Indicator	Single contact bayonet cap	48	16	—	—	—	—	—	—	—	—	—	—	—	—
		VU133 10E/211	V960	H.W. Rectifier (I.H.)	B4/-;-;C;H;H/A	141	55	4.0	1.3	—	—	—	—	—	—	—	—	—	—
		VU134 10E/100	HVR2	H.W. Rectifier (I.H.)	B4/-;-;C;H;H/A	130	46	4.0	0.65	—	—	—	—	—	—	—	—	—	—
		VR135 10E/392	EI148	Triode (I.H.)	I0/-;H;X;-;-;X;H:C;G;A	89	32	6.9	0.21	500	—	1	3.0	—	—	250	V <sub>f</sub> =6.3	5.5	14

Max. peak I<sub>a</sub> = 1.0 amp. Control Ratio = 28.  
Max. voltage drop = 16.

Max. A.C. striking voltage 20 V.

2.5 kV. R.M.S. Max. Rectified Current 60 mA.

6 kV. R.M.S. Max. Rectified Current 3 mA.

R.A.F. VALVES—continued

	Type	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions Lgh. Dia. mm. mm.	Rating			Characteristics															
						V <sub>p</sub>	I <sub>p</sub>	V <sub>a</sub>	V <sub>gas</sub>	W <sub>a</sub>	G	$\mu$	R <sub>a</sub>	Measured at										
					(V)	(A.)	(V)	(V)	(W.)	(mA/V.)		(ohms)	V <sub>a</sub>	V <sub>g2</sub>	V <sub>g1</sub>	I <sub>a</sub>								
													(V.)	(V.)	(V.) bias	(ma.)								
—	Navy	—	R.I.7	H.F. Pentode (I.H.)	B9G/H:A-G2:S:S:	77.3	37.2	6.3	0.3	250	250	—	7.7	80	—	250	250	1.6	10					
—	Army	—	R.I.16	Triode (I.H.)	B9G/H:G:C:A:—:~																			
—		—	E.I.192	R.F. Beam Power Amplifier (I.H.)	IO/—:H:B:G1:G2:X:H:C/A	103.5	30	6.3	0.8	300	250	7.5	3.5	—	—	250	135	11	30					
25L6G	—	—	KT32	Output Pentode Characteristic (I.H.)	IO/—:H:A:G2:G1:X:H:C/	124	45	26.0	0.3	135	135	10	9.0	—	—	135	135	7.8	75					
—	—	—	KT33C	Output Pentode Characteristic (I.H.)	IO/HCT:H:A:G2:G1:X:H:C/	124	45	26.0	0.3	250	200	13	10.0	—	—	175	175	9.5	70					
—	—	—	V.I.901	H.W. Rectifier (D.H.)	Edison Screw Cap	455	161	16.5	15.25	20 K.V. R.M.S. Max. Rectified Current 200 ma.														
—	—	—	MH41	Triode (I.H.)	B5/A:G:H:H:C/	116	45	4.0	1.0	250	—	—	6.0	80	13.3K	100	—	0	6.8					
—	—	—	5C/450A	Pentode (D.H.)	Extra Large American 4-pin /G2:G1:F:F/A:G3	317.5	105	10.0	13.0	3 kV.	650	450	6.5	—	—	3KV.	—	—	200					
—	—	—	—	Gas Filled Spark Gap	—	50	20	Maximum Striking Voltage = 1,250 volts.																
—	—	—	V.I.913	H.W. Rectifier (D.H.)	B4/—:~	185	66	4.0	3.0	2.75 K.V. R.M.S. Max. Rectified Current 125 mA.														

R.A.F. CATHODE RAY TUBES.

(Replacing pages 15 and 16 of Chap. IV (Issue 1) of BR783 (4), A.P. 1186, Vol. 1, Sect. 8.)

NOTE.—Unless otherwise stated,  $V_h = 4V$  and  $I_h = 1.0 A$  approx.

C.R.T. Type	Noml. Diam. (Ins.)	Focus and Def.	Base and Connections	Max. Dimension		Max. $V_{g3}$ (kV.)	Max. $V_{Y1}$ (kV.)	Typical Operation					Sensitivities		Screen	Remarks
				Leath. (mm.)	Diam. (mm.)			$V_{g3}$ (kV.)	$V_{g2}$ (kV.)	$V_{a1}$ (kV.)	Max. $V_g$ Cut off (V.)	mm/ $V_{g3}$	Y			
VCR84 10E/10	12	E.E./M.	12 Contact Key Base/C/G:G/H or H:H:A1:A2: Internal Coating:Y:X:A3:X:Y/	685	305	4	3.5	3.5	0.65	1.8	—	150	1,175	550	Afterglow	Obsolete
VCR85 10E/11	12	E.E./M.	12 Contact Key Base/C/G:G:H:H:A1 (if not strapped to A3):A2: Internal Coating (if not strapped to A3):Y2: X2:A3:X1:Y1/	660	295	7	2	6.0	1.6	1.8	—	100	1,345	1,300	Afterglow	—
VCR86 10E/12	6	E.E.	As VCR84	570	160	5.5	3	5	0.97	1.8	—	150	900	700	Afterglow	Obsolete
VCR87 10E/13	6	E.E./M.	12 Contact Key Base/C/G:G:H:H:—A2:—Y2:X2:A3:X1:Y1/	512	160	5.5	—	3.0	0.7	—	—	65	700	750	Afterglow	—
VCR97 10E/222	6	E.E.	12 Contact Key Base/C/G:G:H:H:A1 (if not strapped to A3):A2: Internal Coating (if not strapped to A3): Y2:X2:A3:X1:Y1/	431	160	2.5	—	2.0	0.35	2.0	—	80	600	1,140	Green	—
VCR12 10E/171	5	E.E.	7-Clip Base/looking at base with side connections on top:— SIDE ARMS Y1:A3:Y2 BASE X1:X2 A2:A1:H:H:C:G	495	135	3.5	—	3.0	0.56	0.2	—	60	870	500	Green or White	—
VCR131 10E/156	12	E.E.	As VCR87	585	300	5	—	4	0.8	—	—	60	900	900	Green	—
VCR138 10E/407	3½	E.E.	As VCR97	340	90	3.5	—	1.2	0.2	—	—	48	357	780	Green	—
VCR138A 10E/759	3½	E.E.	12 Contact Key Base/C/G:G:H:H:A1:A2: Internal Coating (if not strapped to A3):Y2:X2:A3:X1:Y1/	340	90	5	—	1.2	0.2	1.2	—	48	357	780	Green	Larger useful screen area than VCR138
VCR139A 10E/466	2½	E.E.	12-Pin Spigot Base/C/G:G:H:H:A2: Omitted:Y2:X2:A3:X1:Y1:omitted/	205	70	1	—	800	0.135	—	—	16	170	170	Green	—

R.A.F. CATHODE RAY TUBES—continued.

C.R.T. Type	Noml. Diam. (Ins.)	Focus and Def.	Base and Connections	Max. Dimension		Max. $V_{g3}$ (kV)	Max. $V_{g1}$ (kV)	Typical Operation			Sensitivities mm/ $V_{g3}$		Screen	Remarks		
				Legth. (mm.)	Diam. (mm.)			$V_{g3}$ (kV)	$V_{g2}$ (kV)	$V_{g1}$ (kV)	Max. $V_g$ Cut-off (v)	X			Y	
VCR140 10E/420	12	M.M.	IO/-:H:omitted:omitted:G:omitted:H: C/A	587	306	6.5	—	5.5	—	—	—	—	—	—	Afterglow	
VCR511 10E/586	12	E.E.	As VCR57	585	300	6.5	—	4	0.8	—	—	—	1,000	1,000	—	Afterglow
VCR511A (10E/736) and VCR511B (10E/808) differ from VCR511 in screen properties only.																
VCR514 10E/658	3½	E.E.	As VCR138A	370	90	2.5	—	2	0.275	0.8	—	—	380	580	—	Green
VCR515 10E/13026	3½	E.E.	E.M.I. 8-Pin Base/A1:H:C:H:G:X2: A2:X1/ Side Arms Y1 above pin 7 Y2 " " 8	384	90	Max. $V_{g2}$ 1.5	—	—	1.2	0.215	—	—	480	400	—	Blue or Green
VCR516 10E/13027	9	M.M.	As VCR140	452	230	5	—	4	—	—	—	—	—	—	—	Afterglow
VCR517 10E/758	6	E.E.	12 Contact Key Base/G:C:H:H:A1:A2: Internal Coating:Y2:X2:A3:X1:Y1/	431	160	6	2	3	0.525	2	—	—	720	880	—	Afterglow
VCR517A (10E/811), VCR517B (10E/818), VCR517C (10E/819), VCR517D (10E/831) and VCR517E (10E/840) differ from VCR517 in screen properties only.																
VCR518 10E/767	4½	E.E.	12-Pin Spigot Base/G:C:H:H:-A2:Hood (A4):Y2:X2:A3:X1:Y1/	380	116	2	—	1.2	0.345	A4 1.23	—	—	580	370	—	Blue
VCR518A (10E/810) is identical electrically to VCR518 but it has a green trace.																
VCR519 10E/768	12	E.E.	12 Contact Key Base/G:C:H:H:A1:A2: -:Y north: Y south:A3:X west: X east/	640	312	4	0.5	2.2	0.46	0.45	—	—	720	720	—	Green
VCR520 10E/771	3½	M.M.	As VCR140	393	88.5	15	—	10	—	—	—	—	—	—	—	Afterglow
VCR521 10E/796	3½	E.E.	As VCR138A	340	92	5	2	4	0.7	1.8	—	—	357	780	—	Afterglow

R.A.F. CATHODE RAY TUBES—continued.

C.R.T. Type	Noml. Diam. (Ins.)	Focus and Def.	Base and Connections	Max. Dimension		Max. $V_{a3}$ (kV)	Max. $V_{a1}$ (kV)	Typical Operation				Sensitivities mm/ $V_{a2}$		Screen	Remarks
				Lgth. (mm.)	Diam. (mm.)			$V_{a3}$ (kV)	$V_{a2}$ (kV)	$V_{a1}$ (kV)	Max. $V_g$ Cut off (V)	X	Y		
VCR522 10E/797	1 $\frac{1}{2}$	E.E.	B9/X1:Y1:A2:H;C:H;G:A3,A1:Y2:X2/	150	39	1	—	0.8	0.135	—	—	100	100	Green	—
VCR522A 10E/892	1 $\frac{1}{2}$	E.E.	As VCR522 .. .. .	145	39	1	—	0.8	0.135	—	—	90	90	Green	—
VCR523 10E 798	12	E.E.	As VCR85 .. .. .	660	295	7	2	6	1.6	1.8	—100	1,340	1,300	Green	VCR85 with green trace

R.A.F. CATHODE RAY TUBES—continued.

C.R.T. Type	Noml. Diam. (Ins.)	Focus and Def.	Base and Connections	Max. Dimension		Max. V <sub>g4</sub> (kV)	Max. V <sub>a3</sub> (kV)	Max. V <sub>a1</sub> (kV)	Typical Operation					Sensitivities mm/V <sub>a3</sub>		Screen	Remarks	
				Lgth. (mm.)	Diam. (mm.)				V <sub>g4</sub> (kV)	V <sub>a3</sub> (kV)	V <sub>a1</sub> (kV)	V <sub>g4</sub> (kV)	V <sub>a3</sub> (kV)	V <sub>a2</sub> (kV)	V <sub>a1</sub> (kV)			Max. V <sub>2</sub> Cut-off (V)
VCR524 10E/816	3½	E.E.	12 Contact Key Base/G:C:H:H:A1:A2: Internal Coating (if not tied to A3): Y2:X2:A3:X1:Y1/A4 (post deflector accelerator)	340	92	6	4	2.5	4	2	0.34	2	—	80	.19 mm/v at V <sub>a4</sub> = 4kV V <sub>a3</sub> = 2kV	.25	After- glow	—
VCR525 10E/817	2½	E.E.	As VCR139A	205	70	1.5	—	—	—	0.8	0.136	—	—	20	170	170	After- glow	Similar to VCR139A but with special screen
VCR526 10E/824	2½	E.E.	12-Pin Splitpot Base/G:C:H:H:A2: omitted; Y2:X2:A1:A3, internal coat- ing; X1:Y1:omitted/A4 (post deflector accelerator)	260	70	3	1.5	—	2.5	1.3	0.75	—	—	—	0.2 mm/v at V <sub>a4</sub> = 2.5kV V <sub>a3</sub> = 1.3kV	0.2	Green	—
VCR527 10E/826	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VCR528 10E/828	12	E.E./M.	As VCR85	660	295	—	7	2	—	6.0	1.6	1.8	—	—	1,345	1,300	After- glow	VCR85 with alter- native screen
VCR529 10E/835	3½	E.E.	As VCR138A	340	90	—	5	—	—	1.2	0.2	1.2	—	48	357	780	Blue	VCR138A with blue trace
VCR530 10E/837	—	E.M.	10/-A1:A2:-G:C:H:H/A3	400	163	—	8.0	1.45	—	7.0	1.0	1.25	—	100	—	—	After- glow	—



**CORRECTIONS TO PAGES 3-14 OF CHAP. IV (ISSUE I) OF BR783(4) A.P. 1186, VOL. 1, SECT. 8**

The insertions in the columns below indicate alterations which are to be made. Where a column is blank, no alteration is to be made.

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions L <sub>g</sub> l. Dia. (mm.)	Rating					Characteristics						
							V <sub>h</sub> (V.)	I <sub>h</sub> (A.)	V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>a</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>e2</sub> (V.)	V <sub>e1</sub> (V.) Bias	I <sub>b</sub> (mA.)
		VR21				43						1.1	15	14K				
		VU29				64												
		VT31				395												
		VR37				115			250					11.5K				
		VU39	MUT2/14 UU5, 44IU, 1W4			136												
		VR40				160								1.4K				
		VR44	HL21DD 210DDT			124	0.1				1.2	28	28K					
		VT45				110			300		3.5							15.5
		VT60A				53	0.9											
		VT61				130												
		VR67												7.7K				
		VS68																

A1 - Cathode 70v.  
A2 - Cathode 140v.  
A3 - Cathode 210v.  
A4 - Cathode 280v.  
at Cathode Current 30 mA.

CORRECTIONS TO PAGES 3-14 INC. OF CHAP. IV (ISSUE 1) OF BR783 (4) A.P. 1186, VOL. 1, SECT. 8—continued.

The insertions in the columns below indicate alterations which are to be made. Where a column is blank, no alteration is to be made.

Navy	Army	R.A.F.	Possible Commercial Substitute	Description	Base and Connections	Max. Dimensions T <sub>gh</sub> , Dia. (mm.)	Rating					Characteristics								
							V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	W <sub>a</sub> (W.)	G (mA/V.)	μ	R <sub>s</sub> (ohms)	V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) Bias	I <sub>a</sub> (mA.)		
		VS70				30-51														
		VT74		H.F. Screen Triode (I.H.)	I0/S:H:A:G2:-X: H:C,G3/G1	40			300											
		VT75A			B7/-:G1:B:H:H: C:G2/A															
		VT76																		
		VT81				229														
		VT88							500											
		VT90																		100
		VR91A																		
		VT98A 10E/740		Triode (DH)						750										
		VR99A 10E/757	HCH35 (un-metalised)	Triode, Hexode or Triode Pentode (I.H.)	I0/-:H:A:G2:G4: G0:A0:H:C/G1	114	39.6	6.3	0.3											
		VI103				40														
		VI106A 10E/821																		
		VI108A 10E/822																		

VR91 to wider limits  
I<sub>b</sub> = 0.15A; otherwise similar to VR106  
I<sub>a</sub> = 0.15A; otherwise similar to VR108  
Special valve for one application only





# THE SERVICES RADIO VALVE MANUAL

B.R. 783 (5)

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A.P.1186, Vol. 1, Sect. 8

## CHAPTER V INTER-SERVICE “ CV ” VALVES

Issue No. 1

September, 1944

CHAPTER V  
INTER-SERVICE "CV" VALVES

CV Title	Possible Equivalent	Description	Base and Connections	Max. Dimensions		Rating						Characteristics					
				Lgth. mm.	Dia. mm.	$V_a$ (V.)	$I_b$ (A.)	Max. $V_a$ (V.)	Max. $V_{G2}$ (V.)	Max. $W_a$ (W.)	$G$ (mA/V)	$\mu$	$R_a$ (ohms)	Measured at			
														$V_a$ (V.)	$V_{G2}$ (V.)	$V_{G1}$ (V.) bias	$I_a$ (mA.)
CV1	DO-51, V619, E.1177, XH1.5	DH High $\mu$ midget Triode	Flexible Leads .. ..	46	16	1-35	0-12 max.	110	—	—	0.5	30	60,000	45	—	0	0.8
CV2	DAQ.1, V623, E.1180, XGR.	DH midget Gas Triode	Flexible Leads .. ..	44	16	1-35	0-15 max.	110	—	—	—	—	—	Trigger Voltage 4.25V.			
CV3	E.1228 .. ..	DH rugged midget Gas Triode	Flexible Leads .. ..	90	32	1.4	0-16	45	—	—	—	—	—	—	—	—	—
CV4	E.1229 .. ..	Rugged midget Pentode	Flexible Leads .. ..	—	—	1.4	0-12	45	45	—	0-45	—	—	45	45	0	1.8
CV5	GU.21 .. ..	Half-wave Mercury Vapour Rectifier	GES/F:F/A .. ..	225	68	4.0	11.0	—	—	—	—	—	—	—	—	—	—
CV6	DET20, E.1148	IH VHR. Triode ..	IO/-:H:X-:-:X:H:C/G1:A	90	32	6-3	0-2	250	—	3.5 (CW)	3.0	20	—	250	—	-5.5	14.0
CV7	E.1209 .. ..	DH Gas Triode ..	NO PRODUCTION														
CV8	E.1356 .. ..	IH Diode Switch..	Flexible Leads .. ..	124	25.45	6.0	4.0	450	—	—	—	—	—	—	—	—	—
CV9	AL.60 .. ..	IH Power Pentode	B7/M:G1:G3:H:H:C:G2/A	165	52	4.0	2.1	500	275	18	14.5	—	20,000	250	250	-7	72
CV10	—	OBSOLETE	OBSOLETE														
CV11	—	OBSOLETE	OBSOLETE														
CV12	E.1191. High rating	DH Hg filled grid-controlled Triode	Special .. ..	315	95	2.5	43	—	—	—	—	—	—	—	—	—	—
CV13	BT9/B .. ..	IH Hg filled grid-controlled Triode	Special .. ..	430	130	5.0	20	—	—	—	—	—	—	—	—	—	—
CV14	—	IH Silica Triode.	OBSOLETE														

INTER-SERVICE " CV " VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections		Max. Dimensions		Rating					Characteristics							
					Lgth. mm.	Dia. mm.	V <sub>a</sub> (V.)	I <sub>b</sub> (A.)	Max. V <sub>a</sub> (V.)	Max. V <sub>g2</sub> (V.)	Max. W <sub>a</sub> (W.)	G (mA/V)	μ	R <sub>a</sub> (ohms)	Measured at				
															V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (mA.)	
CV15	E.1266 .. ..	DH Triode ..	Flexible Leads ..	..	186	17	3-25	6-75	4 kV.	—	1	—	15-5	—	500	—	—13	20	
CV16	S25A .. ..	IH Grounded Grid VHF Triode	Special .. .	..	95	51	4-0	0-65	350	—	2	—	5-0	100	250	—	R <sub>g</sub> = 150 ohms	6-5	
CV17	—	Low voltage discharge tube, OBSOLETE																	
CV18	DET19, R.K.34, 4074A	IH Double Triode	USM7/H:-GA:C:GB-/ A1:A2	130	46	6-3	0-8	300	—	5-0	2-8	14	5,000	250	—	—7	—		
CV19	BHT1 .. ..	DH Half-wave Rectifier	GDS/F:R/A ..	445	128-5	17-0	10-0	—	—	200	Max. Peak Inverse V <sub>a</sub> = 63 kV. I <sub>a</sub> Peak = 800 mA. Max. D.C. rectified current = 66 mA.								
CV20	V1906 .. ..	DH Half-wave Rectifier	B4/-:-:F:R/A ..	168	68	4-0	2-5	—	—	4,400 V. Peak Inverse, 600 mA Peak, 75 mA max. rectified current									
CV21	VP41 .. ..	IH Variable-μ HF Pentode	MO/H:C:A:G2:G3:M:X:H/G	105	33	4-0	0-63	250	250	—	2-9	—	—	250	200	—2-5	8-5		
CV22	BT45 .. ..	DH Gas Triode modulator	Special .. .	274	63	2-5	21	—	—	V <sub>a</sub> Peak 20 kV. Max. V <sub>g</sub> for hold-off at V <sub>a</sub> = 20 kV = 50 V. I <sub>g</sub> Peak 65 A.									
CV23	E1287 .. ..	OBSOLETE																	
CV24	HI41 .. ..	IH Triode ..	MO/H:G:A:-:G:M:X:H/..	95	33	4-0	0-65	250	—	—	4-3	33	7,700	200	—	—3	7-5		
CV25	4242A .. ..	DH Triode ..	T4/A:F:G:F/ ..	172-5	59-0	—	3-25	1-25 kV	—	85	4-0	12-5	3,100	1-0 kV	—	—55	72		
CV26	813 .. ..	DH RF Beam Power Amplifier	Giant 7-Pin Rayonet/F:-G2:G1:B:-:F/A	191	66	10-0	5-0	2 kV	—	100	3-75	—	2,000	400	40	50			
CV27	4357A .. ..	DH Triode ..	Special .. .	206	130	10-0	10-0	3 kV	—	350	6-0	32	5,300	2 kV	—	—80	170		
CV28	AC19 .. ..	DH Air-cooled Triode	Special .. .	470	186	Marked 16 V. approx.	22	10 kV	—	800	3-1	40	13,000	5 kV	—	—60	200		





INTER-SERVICE "CV" VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections	Max. Dimensions		Rating					Characteristics							
				Lgth. mm.	Dia. mm.	V <sub>b</sub> (V)	I <sub>b</sub> (A.)	Max. V <sub>a</sub> (V)	Max. V <sub>g2</sub> (V)	Max. W <sub>a</sub> (W)	I <sub>g</sub> (mA/V)	μ	R <sub>a</sub> (ohms)	Measured at				
														V <sub>a</sub> (V)	V <sub>g2</sub> (V)	V <sub>g1</sub> (V), bias	I <sub>a</sub> (mA.)	
CV44	NT100 mod. ..	IH Tetrode ..	T4/G:H & C:G:H/G2 ..	196	66	8.0	6.0	12 kV	—	60	—	4.5	—	—	—	—	—	
CV45	Mod. VS.110 ..	Voltage Stabiliser Cold Cathode	B4/A:C:-priming Anode/	125	52	Max. striking voltage = 135 V Max. space current = 75 mA Normal stabilised voltage = 120 V					—	—	—	—	—	—	—	
CV46	E.1046, VT90 ..	DH Triode ..	Flexible Leads ..	184	—	8.25	7.0	2 kV	—	150	16	—	5,000	1 kV	—	—	-24	100
CV47		CANCELLED																
CV48		CANCELLED																
CV49	3B/501A HK.34	DH Transmitting Triode	USM4/F:-:-F/Slide contact: G, top contact: A	140	—	5.0	5.15	2 kV	—	50	2.0	29	—	—	—	—	—	
CV50	NT77A ..	DH Tetrode (Silica)	Special ..	320	125	10.7	69	—	—	200	—	—	—	—	—	—	—	
CV51	E.1350 ..	IH Tuning Indicator	IO/-H:A:T:G:X:C/ ..	107	40	6.3	0.3	250	Target 250	—	At V <sub>g</sub> = -3 shadow angle 60° At V <sub>g</sub> = -40 shadow angle closed	—	—	—	—	—	—	
CV52	E.1231 ..	IH VHF Triode ..	Special ..	60	36	6.3	0.75	200	—	12	8	12	1,500	100	—	—	-0.5	60
CV53	S26A ..	IH Grounded Grid Triode	Flexible Leads ..	83	51	4.0	0.65	350	—	2	5	100	20,000	250	—	—	R <sub>g</sub> = 150 ohms	
CV54	VU133 .. DH Type	DH Half-wave Rectifier	B4/-:-F:F/A ..	143	55	4.0	1.3	2.5 kV RMS	—	Max. Rect. current 60 mA Max. Peak Inverse voltage 7.0 kV	—	—	—	—	—	—	—	
CV55	E.1190 ..	VHF Triode ..	Flexible Leads ..	80	38	7.0	2.7	500	—	50	—	15	—	400	—	—	—	100
CV56	E.1325 ..	Resonant Magnetron	Special ..	—	—	6	1.25	—	—	—	—	—	—	—	—	—	—	—
CV57	E.1271 ..	IH Hard Tetrode Modulator	T4/G2:H+C:G1:H/A ..	165	57	12.6	1.9	11kV	1.4 kV	15	—	—	—	—	—	—	—	—

for use as a series modulator

INTER-SERVICE "CV" VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections	Max. Dimensions			Rating					Characteristics					
				Lgth. mm.	Dia. mm.	V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	Max. V <sub>a</sub> (V.)	Max. V <sub>g2</sub> (V.)	Max. W <sub>a</sub> (W.)	G (mA/V)	μ	R <sub>a</sub> (ohms)	Measured at			
												V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) bias	I <sub>a</sub> (mA.)		
CV58	E.1273 ..	IH Diode (Axial).	Special ..	41	13	6-3	0-36	—	—	—	3-0	—	—	—	1		
CV59	—	Gas Resonator Spark Gap	Special ..	—	—	—	—	—	—	—	—	—	—	—	—		
CV60	—	Special Valve ..	—	—	—	—	—	—	—	—	—	—	—	—	—		
CV61	E.1335 ..	DH midjet Pen-tode (Red and Green spot)	Flexible Leads ..	54	16	1-4	0-12	135	—	—	—	—	—	—	—		
CV61	E.1335 ..	(Blue Spot) variation of Red and Green spot types)	Flexible Leads ..	50	16	1-4	0-12	—	—	—	—	—	—	—	—		
CV62	—	DH Triode ..	Special ..	184	—	8-25	7-0	9 kV	—	100	—	16	3,000	1 kV	—	24	100
CV63	E.1323 ..	IH Triode ..	IO/-:H:X:--:X:H/	112	40	6-3	0-8	500 (2.5 KV pulse)	—	2-5	6-7	—	—	100	—	3	25
CV64	BM717 .. E.1342	Resonant Magnetron	Special ..	—	—	6-0	1-25	—	—	—	—	—	—	—	—	—	—
CV65	Pen 25 ..	DH Output Pen-tode	MO/E-ve:X:A:G2:G1-:X:F+ve/	87	33	2-0	0-15	150	150	—	3-0	—	—	120	120	—	—
CV66	RL37 ..	IH Grounded Grid Triode	B9G/H:G:G:A:A:G:G:C:H/	77-3	37-2	6-3	0-43	250	—	3 0	9-0	100	11,100	250	—	1-5	10
CV67	—	VM (reflection) Local Oscillator	IO/G:H-:-:-:H:C/Ref.	—	—	4-0	1-6	Vres = 1 0 to 1.5 kV Vref = -300 to -450 V	—	—	—	V <sub>g</sub> = 0 Wres = 10 W max.	—	—	—	—	—
CV68	E.1198 ..	Resonant Magnetron (selected CV38)	Special ..	—	—	6-0	1-2	—	—	—	—	—	—	—	—	—	—



INTER-SERVICE "CV" VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections	Max Dimensions			Rating						Characteristics						
				Lgth. mm.	Dia. mm.	$V_h$ (V.)	$I_h$ (A.)	Max. $V_a$ (V.)	Max. $V_g^2$ (V.)	Max. $W_a$ (W.)	G (mA/V)	$\mu$	$R_a$ (ohms)	Measured at					
														$V_a$ (V.)	$V_g^2$ (V.)	$V_{g1}$ (V.)	$I_a$ (mA.)		
CV80	VF01 .. ..	Transmitting Klystron (water-cooled)	5-amp. 3-pin/H+C:H:C/A	—	—	4.0	5.0	$V_a = 6$ kV max. Mean $I_a = 250$ mA Input = 2 kW max. Output = 100 W max.	—	6.0	5	22	—	250	—	—	—3	20	
CV81	VF08 .. ..	Special valve	5-amp. 3-pin/H+C:H:C/A	—	—	4.0	5.0		—	—	—	—	—	—	—	—	—	—	—
CV82	S27A .. ..	IH Grounded Grid Triode	Special .. ..	82.5	51	4.0	0.6		350	—	—	—	—	—	—	—	—	—	—
CV83	—	Gas Resonator Spark Gap	Special .. ..	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—
CV84	3B/102B NT37(4033A)	IH Triode	B5:A:G:H:H:C/ .. ..	121	45	6.0	0.8		500	—	—	10	6	15	2,500	300	—	—9	55
CV85	V2023 .. ..	Enclosed Triggered Spark Gap	Special .. ..	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—
CV86	V1507 .. ..	Gas-filled Spark Gap	Special .. ..	50	20	—	—		—	—	—	—	—	—	—	—	—	—	—
CV87	KRN2 .. ..	VM (reflection) Local Oscillator	IO/G:H:--:--:--H:C/Ref.	—	—	4.0	1.4		$V_a = 1.6$ kV. $V_{ref} = -300$ to $-350$ V. $V_g = 0$ to $-100$ V Resonator dissipation = 10 W max.						—	—	—	—	
CV88	S28A .. .. DV32	IH Grounded Grid Triode	Special .. ..	82.6	50.9	6.3	0.4		350	—	—	3	5	100	20,000	250	—	$R_g = 250$	—
CV89	E.1380 .. ..	Magnetron Local Oscillator	Special .. ..	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—
CV90	E1368 .. ..	IH Triode Oscillator CW	Special .. ..	84	47.5	6.3	0.6	350	—	—	10	5	35	—	250	—	—	25	
CV91	—	Clod Cathode Diode	Special .. ..	Striking voltage = 105 V approx.															
CV92	NT99 .. ..	IH Triode	Flexible Leads .. ..	181	50	6.0	6.5	1 kV (12 kV pulse)	—	150	—	—	—	—	—	—	—	—	—
CV93	V625 .. ..	DH Triode	Special .. ..	47	16.0	1.4	0.135	45	—	—	—	0.7	10	14,300	20	—	0	—	

INTER-SERVICE "CV" VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections	Max Dimensions		Rating					Characteristics							
				Lgth. mm.	Dia. mm.	$V_h$ (V)	$I_h$ (A)	Max. $V_B$ (V)	Max. $V_{G2}$ (V)	Max. $W$ (W.)	$G$ (mA/V)	$\mu$	$R_d$ (ohms)	Measured at				
												$V_A$ (V)	$V_{G2}$ (V)	$V_{G1}$ (V.) bias	$I_s$ (mA.)			
CV94	DS103 .. ..	Diode Switch ..	Special .. ..	120	46	6.0	7.5	1.5kV	$I_s$ peak 100 mA									
CV95	R3/10 .. ..	Bolometer Indicator	Special .. ..	23	10.5	Cold resistance = 6.5 $\sim$ . Wattage dissipation when just glowing = 8 mW												
CV96	R3/16 .. ..	VHF Current Indicator 40 mA.	Special .. ..	23	10.5	Cold resistance at 4 mA = 2.0 to 8.0 $\sim$ . Wattage dissipation when just glowing = 13 to 22 mW. Max operating wattage = twice "just glowing" wattage. Current when just glowing = 29 to 54 mA. Voltage when just glowing = 0.35 to 0.56 V. Hot resistance at max. op. wattage = 11.5 to 15.5 $\sim$												
CV97	R2/10 .. ..	VHF Current Indicator 12 mA.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV98	R2/38 .. ..	VHF Current Indicator 55 mA.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV99	E.1373 .. ..	Resonant Magnetron	Special .. ..	—	—	5.0	2.6	—	—	—	—	—	—	—	—	—	—	—
CV100	V2033 .. ..	Enclosed Triggered Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV101	—	Crystal Valve ..	—	—	—	Colour mark : yellow												
CV102	—	Crystal Valve ..	—	—	—	Colour mark : yellow/orange												
CV103	—	Crystal Valve ..	—	—	—	Colour mark : yellow/red												
CV104	—	Neon Indicator Cold Cathode	Bayonet .. ..	59	29	Max. striking voltage 170 V Max. operating current 1 mA												
CV105	E.1371 .. ..	DH Noise Diode ..	IO/-F.X.X.-X.F-/A ..	136	46	6.0	2.0	—	—	—	—	—	—	100	—	—	—	35
CV106	—	Gas Resonator Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV107	—	Gas Resonator Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

INTER-SERVICE "CV" VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections	Max. Dimensions		Rating					Characteristics						
				Length, mm.	Dia. mm.	V <sub>H</sub> (V)	I <sub>H</sub> (A)	Max. V <sub>a</sub> (V)	Max. V <sub>g2</sub> (V)	Max. W <sub>a</sub> (W)	G (mA/V)	μ	R <sub>a</sub> (ohms)	Measured at			
											V <sub>a</sub> (V)	V <sub>g2</sub> (V)	V <sub>g1</sub> (V) Bias	I <sub>a</sub> (mA)			
CV108	BM313 .. ..	Resonant Magnetron	Special .. ..	—	—	6.3	2.8	—	—	—	—	—	—	—	—	—	—
CV109	9PK5 .. ..	Transmitting Klystron	10/-H-/-L-/-H + Cr- / ..	—	—	4.0	2.5	—	—	—	—	—	—	—	—	—	—
CV110	VS68 with Dome Bulb	Cold Cathode Gas-filled Voltage Stabiliser	B5/A4:C:Ag:A3:A1/ ..	145	56.5	—	—	—	—	—	—	—	—	—	—	—	—
CV111	—	Crystal Valve ..	—	—	—	Colour mark : green											
CV112	—	Crystal Valve ..	—	—	—	Colour mark : green/orange											
CV113	—	Crystal Valve ..	—	—	—	Colour mark : green/red											
CV114	E.1365 .. ..	Gas Resonator Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV115	E.1415 .. ..	Slotted Disc Cell.	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV116	—	VM (reflection) Local Oscillator	10/G:H-/-:-:-H:C/Ref.	—	—	4.0	1.3	—	—	—	—	—	—	—	—	—	—
CV117	E.1417 .. ..	Gas Discharge Cell	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV118	VH65 (mod.) ..	IH HF Pentode ..	MO/H:C:A:G2:G3:M:X:H/G	98	37	6.3	0.63	25	25	4.5	8.5	—	—	—	—	—	8
CV119	X7 (ASE Type)	VHF Current Indicator	Special .. ..	165	50	Current for "just glowing" 0.7 A Max. dissipation 50 W											
CV120	CV41 .. ..	Resonant Magnetron	Special .. ..	—	—	6.0	7.0	—	—	—	—	—	—	—	—	—	—
CV121	V1920 .. ..	DH Half-wave Rectifier	B4/-:-F:F/A .. ..	205	53	4.0	2.1	5.8 kV R.M.S.	—	—	—	—	—	—	—	—	—
											Max. working P.I.V. 15 kV Max. no load P.I.V. 16.5 kV Max. peak I <sub>a</sub> 600 mA						

INTER-SERVICE "CV" VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections	Max. Dimensions		Rating					Characteristics					
				Legth. mm.	Dia. mm.	V <sub>b</sub> (V.)	I <sub>b</sub> (A.)	Max. V <sub>a</sub> (V.)	Max. V <sub>g2</sub> (V.)	Max. W <sub>a</sub> (W.)	I <sub>g</sub> (mA/V)	μ	R <sub>a</sub> (ohms)	Measured at		
												V <sub>a</sub> (V.)	V <sub>g2</sub> (V.)	V <sub>g1</sub> (V.) Bias	I <sub>a</sub> (mA.)	
CV122	E.1336	DH High μ Triode	Special	32	10	1.5	0.15	100	—	—	0.8	32	40,000	100	—	0
CV123	E.1330	DH Gas Triode	Special	32	10	1.5	0.17	100	I <sub>g</sub> = 16 mA with anode load = 5,000 Ω; grid resistance = 1.0 MΩ		—	—	—	—	—	
CV124	807	Beam Tetrode	USM5/H-G2/G1:C/H/A	149	53	6.3	0.9	600	300	25	7.1	—	—	300	250	—
CV125	V2024	Enclosed Triggered Spark Gap	Special	—	—	—	—	—	—	—	—	—	—	—	—	—
CV126	E.1362	Diode	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV127	DY34	DH Triode	Special	130	37	6.3	2.0	1 kV	—	40	3	—	—	500	—	—5
CV128	SU750	IH Rectifier	T4/-H;C-/H/A	190	65	10.0	2.4	3 kV	Max. P.I.V. (Working) 7.5 kV. Max. P.I.V. (no load) 9.0 kV Max. I.D.C. = 250 mA. Max. I peak = 20 A		—	—	—	—	—	—
CV129	KRN2A	VM (reflection) Local Oscillator	IO/G:H;-;-;-H:C/Ref.	—	—	4.0	1.4	V <sub>res</sub> = 1.6 kV. (No load) V <sub>ref</sub> = -300 to -550 V.	—	—	—	—	—	—	—	—
CV130	KRN3	—	—	—	—	—	—	—	NO PRODUCTION		—	—	—	—	—	—
CV131	—	Var-μ R.F. Pentode (I.H.)	B7G/G1:C:H:H:A;G3;S;G2/	—	—	6.3	0.2	250	250	2.5	2.5	—	—	250	200	—2.5
CV132	—	Hexode Mixer (I.H.)	B7G/G1:C:H:H:A;G3;G2;G4/	—	—	6.3	0.2	250	100	—	0.6	—	—	—	—	—
CV133	6C4	I.H. Triode	B7G/A:Int. Con:H:H:A;G:C/	—	—	6.3	0.15	250	—	3.8	2.2	17	7.7	250	—	—8.5
CV134	—	Double Diode	—	—	—	—	—	—	NO PRODUCTION		—	—	—	—	—	—
CV135	—	Half wave Rectifier (I.H.)	B7G/A:C:H:H:A;-;/	—	—	6.3	0.42	250 RMS	—	—	—	—	—	—	—	—
CV136	—	Output Pentode (I.H.)	B7G/G1:C;G3;H:H:A;-;G2/	—	—	6.3	0.2	250	250	4.0	2.6	—	—	250	250	—13.5

INTER-SERVICE "CV" VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections	Max. Dimensions		Rating					Characteristics							
				Lgth. mm.	Dia. mm.	$V_p$ (V)	$I_p$ (A.)	Max. $V_a$ (V)	Max. $V_{g2}$ (V)	Max. $W_a$ (W)	$G$ (mA/V)	$\mu$	$R_a$ (ohms)	Measured at				
														$V_a$ (V)	$V_{g2}$ (V)	$V_{g1}$ (V.) bias	$I_a$ (mA.)	
CV187	—	Diode Triode (I.H.)	B7G/AD:CD:H:H:C:G:A/	—	—	6-3	0-3	250	—	2-0	2-5	36	—	200	—	—	-3	—
CV188	—	R.F. Pentode (I.H.)	B7G/G1:C:H:H:A:G3,S:G2/	—	—	6-3	0-3	250	250	2-5	7-5	—	—	250	250	—	-2	10
CV139	—	Grounded Grid Triode (I.H.)	B7G/G:C:H:H:C:G:A/	—	—	6-3	0-3	250	—	2-5	9-0	100	—	250	—	-1.5	10	
CV140	—	I.H. Double Diode (separate cathodes)	B7G/Cl:A2:H:H:C2:S:A1/	—	—	6-3	0-3	—	—	—	—	—	—	—	—	—	—	—
CV141 to CV149	Reserved for Admiralty																	
CV150	PK150 ..	Transmitting Klystron	Special ..	—	—	13-0	2-4	—	—	—	—	—	—	—	—	—	—	—
CV151	XGR3 ..	DH Rugged Miniature Gas Triode (Green or Red spot)	Flexible Leads ..	50	16	1-4	0-65 min. 0-220 max.	135	—	—	—	—	—	—	—	—	—	—
CV152	(1U21, 4049C; RG3 1250)	Rectifier ..	GES ..	—	248	4-0	11-0	—	Max. P.I.V. 11 kV Max. I.D.C. 1-25 A	—	—	—	—	—	—	—	—	—
CV153	E.1411 ..	Rf Amplifier ..	Special ..	—	—	6-3	0-5	350	—	6	7-0	100	—	250	—	-2	10	
CV154	E.1419 ..	Enlarged CV90 ..	NO PRODUCTION															
CV155	—	Pulse CV65 ..	Flexible Leads ..	80	38	7-0	2-7	500 (4-75 kV pulse)	—	150	—	15	—	100	—	0	—	
CV156	—	Gas Resonator Spark Gap	Special ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
CV157	—	Gas Resonator Spark Gap	Special ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	



INTER-SERVICE "CV" VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections	Max. Dimensions		V <sub>b</sub> (V)	I <sub>b</sub> (A)	Rating				Characteristics							
				Lgth. mm.	Dia. mm.			Max. V <sub>a</sub> (V)	Max. V <sub>g2</sub> (V)	Max. W <sub>a</sub> (W)	G (mA/V)	$\mu$	R <sub>a</sub> (ohms)	Measured at			I <sub>a</sub> (mA.)		
NO PRODUCTION																			
CV158	KR3 .. ..	VM (reflection) Local Oscillator	IO/G:H:--:--:--H/C/Ref.	—	—	4.0	1.4	V <sub>res</sub> = 1.0 to 1.5 KV, V <sub>g</sub> = 0 V <sub>ref</sub> = -250 to -390 V. Resonator dissipation = 10 W max.	—	—	—	—	—	—	—	—	—	—	—
CV159	A11 .. ..	Local Oscillator ..		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV160	CV64 .. ..	Resonant Magnetron	Flexible Leads .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV161	VS26 .. ..	Vacuum Photocell	B4/A:--:--:--C .. ..	106+ pins	37	—	—	Min. sensitivity (mA/mm) at V <sub>a</sub> 100 V = 20 } $\lambda$ of light source for peak sensitivity at Min. sensitivity (mA/mm) at V <sub>a</sub> 20 V = 10 } these V <sub>a</sub> = 7,500-8,500 AU	—	—	—	—	—	—	—	—	—	—	—
CV171	210 VPF, VS2, W21-4 pin	Vari- $\mu$ Tetrode or Pentode	BA/G <sub>2</sub> G <sub>1</sub> F:M & G <sub>2</sub> F/A	128	45	2.0	0.1	150	90	—	1.1	—	—	—	—	150	60	—	-0.5
CV172	E.1468 .. ..	DH Noise Diode ..	B9G/F:A:A:--F11 Springs --:--A:A:F/	78	37.2	6.0	1.0	I <sub>a</sub> (saturated) = 18 mA for V <sub>a</sub> less than 50 V	—	—	—	—	—	—	—	—	—	—	—
CV173	DDR2 .. ..	IH Pentode .. ..	B9G/H:G <sub>2</sub> A:G <sub>1</sub> :G <sub>2</sub> C:G <sub>1</sub> : O <sub>2</sub> H/	99	37.2	6.3	0.95	300	250	10	6.4	—	—	—	—	250	250	—	10
CV174	E.1460 .. ..	Specially processed (CV57)	—	—	—	—	—	11 KV D.C. 19 KV peak	—	25	—	12	—	—	—	—	—	—	40
CV175	XSG 1.5 .. ..	DH Tetrode .. ..	Special .. ..	75	16	1.5	0.08	100	50	—	0.45	—	—	—	—	250	30	0	0.55
CV176	XP 1.5 .. ..	DH Triode .. ..	Special .. ..	68	16	1.5	0.08	100	—	—	0.7	—	—	—	—	250	50	—	1.75
CV177	M126H .. ..	DH Triode .. ..	Giant 7-Pin Bayonet/F: --:--G <sub>1</sub> :--:--F/A	216	66	10.0	5.0	2 KV	—	100	2.1	—	—	—	—	—	—	—	—
CV178	E.1458 .. ..	IH Triode Oscillator	Flexible Leads .. ..	—	—	6.3/7.0	2.7	750	—	—	—	—	—	—	—	—	—	—	—
CV179	—	Gas Resonator Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV180	KR4 .. ..	VM (reflection) Local Oscillator	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

INTER-SERVICE "CV" VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections	Max. Dimensions			Rating					Characteristics							
				Lgth. mm.	Dia. mm.	V <sub>b</sub> (V)	I <sub>b</sub> (A)	Max. V <sub>a</sub> (V)	Max. V <sub>g2</sub> (V)	Max. W <sub>a</sub> (W)	G (mA/V)	μ	R <sub>a</sub> (ohms)	Measured at			I <sub>a</sub> (mA.)		
CV181	ECC32 .. ..	IH Double Triode	IO/G <sub>2</sub> :A <sub>2</sub> :G <sub>1</sub> :G <sub>2</sub> :B <sub>1</sub> :A <sub>1</sub> :C <sub>1</sub> : H:H/	118	46	6-3	0-95	300	—	5	2-3	32	14,000	250	—	—	-4-6	6	
CV182	E.1488 .. ..	Triode .. ..																	
CV183	—	—																	
CV184	—	—																	
CV185	PM202 .. ..	DH Triode ..	B4/A:G:F:Sh:F/ ..	115	50	2-0	0-2	150	—	—	3-5	7	2,000	150	—	—	-13-5	—	
CV186	CV64 .. ..	Resonant Magnetron	Special .. ..	—	—	6-0	1-25	—	—	—	—	—	—	—	—	—	—	—	
CV187	U19 .. ..	Rectifier ..	B4/-:-F:F/A ..	185	6-6	4-0	3-0	2-75 kV R.M.S.	—	—	—	—	—	—	—	—	—	—	
CV188	E.1486 .. ..	Cold Cathode Station biller	B4/A:C:-:-/ ..	85	30-5	Max. striking voltage = 140 V Max. cathode current = 10 mA													
CV189	BS4 .. ..	Protective Spark Gap	IO/I:-:-:-:-:-I/U ..	70	64	Max. breakdown voltage = 17 kV Max. mean current = 50 mA													
CV190	DL510 .. ..	Thermal Delay Switch	B4/S:S:H:H/ ..	150	50	Max. delay time 20 secs. 6 A. at 250 V 200 mA at 1,000 V													
CV191	E.1494 .. ..	Resonant Magnetron	Special .. ..	—	—	3-0	2-5	—	—	—	—	—	—	—	—	—	—	—	
CV192	E.1481 .. ..	Resonant Magnetron	Special .. ..	—	—	6-0	1-25	—	—	—	—	—	—	—	—	—	—	—	
CV193	—	Gas Resonator Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
CV194	—	Gas Resonator Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
CV195	—	Gas Resonator Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

INTER-SERVICE "CV" VALVES—continued.

CV Title	Possible Equivalent	Description	Base and Connections	Max. Dimensions		Rating					Characteristics						
				Legth. mm.	Dia. mm.	$V_b$ (V.)	$I_b$ (A.)	Max. $V_a$ (V.)	Max. $V_{g2}$ (V.)	Max. $W_a$ (W.)	$g$ (mA/V)	$\mu$	$R_{g1}$ (ohms)	$V_{g1}$ (V.)	$V_{g2}$ (V.)	$V_{g1}$ (V.) Bias	$I_a$ (mA.)
CV196	—	Gas Resonator Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV197	—	Gas Resonator Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV198	—	Gas Resonator Spark Gap	Special .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CV199	—	IH CV92 with low emission	Flexible leads .. ..	181	50	6.0	6.5	1 kV (12 kV pulse)	—	150	—	—	—	—	—	—	—
CV200	MZ2/200 ..	Output or Modulator Triode	Extra large 4-Pin Bayonet type	345	96	14.0	2.2	2 kV	—	250	—	—	—	—	—	—	110