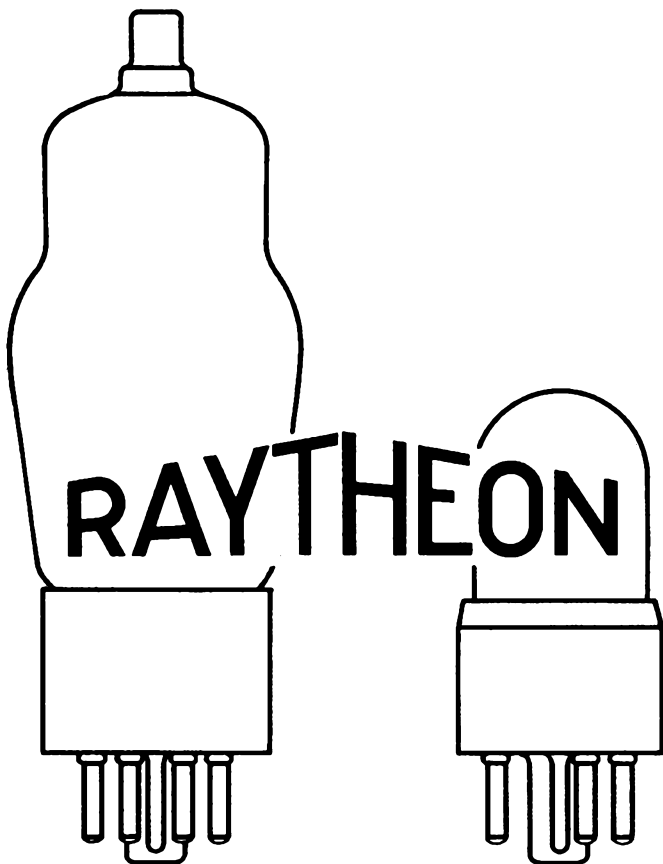


CHARACTERISTIC DATA CHART

Price
10 cents



THIRTEENTH EDITION
SECOND PRINTING
JUNE 1940
FORM 165-1

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BEFORE USING THIS CHART

Please read the following notes carefully. They explain the symbols and abbreviations which are used.

A new system for describing the type of base and for referring to the base connection diagram is used in the column headed "Basing Data".

The symbol at the left of the hyphen refers to the base connection diagram.

The symbol at the right of the hyphen indicates the type of base and the number of contact pins in accordance with the following:

First Letter- O=Octal Base
L=Locking Base
S=Standard Base

Second Letter- M=Medium Shell (bakelite)
S=Small Shell (bakelite)
W=Wafer Base (metal tube or bantam tube
with metal shell)
GT=Intermediate (bantam) shell (bakelite)

Numeral indicates the number of pins in base.

"B" after numeral indicates bayonet pin in base.

Examples:

4C-SS4B Diagram 4C, standard small shell with bayonet, 4 pin.
6G-SM6 Diagram 6G, standard medium shell, 6 pin.
7Q-OW7 Diagram 7Q, octal wafer base, 7 pin.

The column headed "Max Size View" shows the number of the tube outline drawing which gives dimensions. Although the letter in the symbol is arbitrarily chosen, the number refers to the bulb size. Thus 14C means that the tube has a size 14 bulb and that its outline drawing and dimensions are given in the "C" drawing for size 14 bulbs. Since the unit of bulb size is 1/8", a size 14 bulb is nominally 1 3/4", at its largest diameter.

* Indicates that capacitance is measured with standard tube shield connected to cathode. In the case of a metal type, the metal shell is connected to cathode.

"C" after figure in "Mutual Conductance" column indicates that value is for conversion transconductance. (Used for converter types only.)

"S" after figure in "Plate Volts" column indicates that value shown is anode supply voltage and that it is applied through the indicated value of G_2 resistor. (Also used only for converter types.)

Capacities shown for converter types are for the mixer section only.

Values of Plate Ma., Screen Ma., and Output Watts for push-pull operation are for two tubes and value of load resistance is from plate to plate.

Values of Grid Volts for filament type tubes are measured from the negative filament terminal.

Values of Cutoff Bias are approximate.

TYPE	DESIGN	CATHODE HTR OR FIL			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		TYPE	VOLTS	AMPS			G-P μFDS	IN μFDS	OUT μFDS													
00A	TRIODE	FIL	5.0	.25	4D-SM4B	14B	8.5	3.2	2.0	DETECTOR	45	0		1.5		20	30000	666				00A
01A	TRIODE	FIL	5.0	.25	4D-SM4B	14D	8.1	3.1	2.2	AMP CL A	135	-9		3		8	10000	800				01A
0A4G	GAS TRI	COLD			4V-OS6	12E				RELAY TUBE	MAX PEAK CATHODE CURRENT 100ma, MAX DC CATHODE CURRENT 25ma, STARTER ANODE DROP APPROX 60v, ANODE DROP APPROX 70v											0A4G
0Z4 0Z4G	TWIN DIODE	COLD			4R-OW6 4R-OT5	8D 7A				FULL WAVE RECTIFIER	300 RMS MAX			75 ma MAX-30 ma MIN			TUBE DROP 24v				0Z4 0Z4G	
1A4-T	TETRODE	FIL	2.0	.06	4K-SS4	12H	.010*	5.0	11	AMP CL A	180	-3	67.5	2.3	0.7	720	.96MEG	750			-15	1A4-T
1A5G 1A5GT	PENTODE	FIL	1.4	.05	6X-OS7 6X-OGT7	9N 9H				POWER AMP CLASS A	90 85	-4.5 -4.5	90 85	4.0 3.5	0.8 0.7		.3 MEG .3 MEG	850 800	.115 .100	25000 25000		1A5G 1A5GT
1A6	HEPTODE	FIL	2.0	.06	6L-SS6	12H	.25*	10.5	9.0	OSC SECT MIXER	135S 180	.05MEG -3	67.5	2.3 1.3	2.4		GRID #2 RES .5 MEG	300C	.02 MEG			1A6
1A7G 1A7GT	HEPTODE	FIL	1.4	.05	7Z-OS8 7Z-OW8	9P 9F	.30*	6.5*	11*	OSC SECT MIXER	90 90	.2 MEG 0	45	1.2 0.55	0.6		.8 MEG	250C			-3	1A7G 1A7GT
1B4/951	PENTODE	FIL	2.0	.06	4M-SS4	12H	.007*	5.0	11	AMP CL A	180 90	-3 -3	67.5 67.5	1.7 1.6	0.6 0.7	1000 550	1.5MEG 1 MEG	650 600			-8 -8	1B4/951
1B5/25S	DUO-DI TRIODE	FIL	2.0	.06	6M-SS6	12B	3.6	1.6	1.9	AMPLIFIER CLASS A	135	-3		0.8		20	35000	575				1B5/25S
1B7G	HEPTODE	FIL	1.4	.1	7Z-OS8	9P	.34*	7.0*	7.5*	OSC SECT MIXER	90 90	.2 MEG 0	45	1.6 1.5	1.3		.35MEG	350C			-14.5	1B7G
1C5G 1C5GT	PENTODE	FIL	1.4	.1	6X-OS7 6X-OGT7	9N 9H				POWER AMP CLASS A	90 83	-7.5 -7	90 83	7.5 7.0	1.6 1.6	180 165	.12MEG .11MEG	1550 1500	.240 .200	8000 9000		1C5G 1C5GT
1C6 1C7G	HEPTODE	FIL	2.0	.12	6L-SS6 7Z-OS8	12H 12F	.3* .26*	10 10*	10 14*	OSC SECT MIXER	180S 180	.05MEG -3	67.5	4.0 1.5	2.0		GRID #2 RES .7 MEG	325C	.02 MEG		-14	1C6 1C7G
1D5G-P	PENTODE	FIL	2.0	.06	5Y-OS7	12F	.007*	5.0*	11*	AMPLIFIER CLASS A	180 90	-3 -3	67.5 67.5	2.3 2.2	0.8 0.9	750 425	1 MEG .6 MEG	750 720			-15 -15	1D5G-P
1D7G	HEPTODE	FIL	2.0	.06	7Z-OS8	12F	.30*	10*	14*	OSC SECT MIXER	180S 180	.05MEG -3	67.5	2.3 1.3	2.4		GRID #2 RES .5 MEG	300C	.02 MEG		-22.5	1D7G
1D8GT	DI-TRI PENTODE	FIL	1.4	.1	8AJ-OGT8	9J				TRI CL A PENT CL A	90 90	0 -9	90	1.1 5.0	1.0	25	43500 .2 MEG	575 925	.200	12000		1D8GT
1E4G	TRIODE	FIL	1.4	.05	5S-OS7	9N	2.4	2.4	6.0	AMPLIFIER CLASS A	90 90	-3 0		1.5 4.5		14 14.5	17000 11000	825 1325				1E4G
1E5G-P	PENTODE	FIL	2.0	.06	5Y-OS7	12F	.007*	5.5*	12*	AMPLIFIER CLASS A	180 90	-3 -3	67.5 67.5	1.7 1.6	0.6 0.7	1000 550	1.5MEG 1 MEG	650 600			-8 -8	1E5G-P
1E7G	TWIN	FIL	2.0	.24	8C-OS8	12E				CL A 1 SECT CL A 2 SECT	135 135	-4.5 -7.5	135 135	7.5 14	2.2 4.0		.26MEG	1425	.290 .575	16000 24000		1E7G
1F4 1F5G	PENTODE	FIL	2.0	.12	5K-SM5 6X-OW7	12D 14C				PR AMP CL A CL AB 2 TUBE	135 180	-4.5 -7.5	135 180	8.0 19	2.4 5.5		.20MEG	1700	.310 1.25	16000 20000		1F4 1F5G
1F6 1F7G-H	DUO-DI PENTODE	FIL	2.0	.06	6W-SS6 7AD-OS8	12H 12F	.007* .01*	4 3.8*	9 9.5*	AMPLIFIER CLASS A	180	-1.5	67.5	2.2	0.7		1 MEG	650			-12	1F6 1F7G-H

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		TYPE	HTR OR VOLTS	FIL AMPS			G-P μFDS	IN μFDS	OUT μFDS													
1G4G	TRIODE	FIL	1.4	.05	5S-OS7	9N				AMP CL A	90	-6		2.3		8.8		825				1G4G
1G5G	PENTODE	FIL	2.0	.12	6X-OM7	14C				POWER AMP CLASS A	135 90	-13.5 -6	135 90	8.7 8.5	2.5 2.5		.16MEG .13MEG	1550 1500	.550 .250	9000 8500		1G5G
1G6G	TWIN TRIODE	FIL	1.4	.1	7AB-OS8	9N				CL A 1 SECT CL B 2 SECT	90 90	0 0		1.0 2.0	30 PL CUR-MAX	45000 SIG-14ma	675		.675	12000		1G6G
1H4G	TRIODE	FIL	2.0	.06	5S-OS6	12E	3.6*	5.0*	5.5*	AMPLIFIER CL B 2 TUBE	180 157.5	-13.5 -15		3.1 1.0		9.3	10300	900	(SEE TYPE 30 ALSO) 2.1	8000		1H4G
1H5G 1H5GT	DIODE TRIODE	FIL	1.4	.05	5Z-OS7 5Z-OW7	9P 9F	1.1	.36	4.0	AMPLIFIER CLASS A	90	0		0.15		65	.24MEG	275				1H5G 1H5GT
1H6G	DUO-DI TRIODE	FIL	2.0	.06	7AA-OS8	12E	3.6*	2.0*	3.0*	AMPLIFIER CLASS A	135	-3		0.8		20	35000	575				1H6G
1J5G	PENTODE	FIL	2.0	.12	6X-OM7	14C				PR AMP CL A	135	-16.5	135	7.0	2.0	100		950	.45	13500		1J5G
1J6G	TWIN TR	FIL	2.0	.24	7AB-OS8	12E				CLASS B TWO SECT	135 135	0 -6		10 NO SIG 0.2 NO SIG					2.1 1.6	10000 10000		1J6G
1LA4	PENTODE	FIL	1.4	.05	5AD-L8	9A				PR AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 1A5G										1LA4	
1LA6	HEPTODE	FIL	1.4	.05	7AK-L8	9A	.40	7.7	5.0	OSC MIXER	CHARACTERISTICS SAME AS FOR TYPE 1A7G										1LA6	
1LH4	DI-TRI	FIL	1.4	.05	5AG-L8	9A	1.2	2.0	2.4	AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 1H5G										1LH4	
1LN5	PENTODE	FIL	1.4	.05	7A0-L8	9A	.007	3.5	9.0	AMP CL A	90	0	90	1.6	0.35	880	1.1MEG	800			-4.5	1LN5
1N5G 1N5GT	PENTODE	FIL	1.4	.05	5Y-OS7 5Y-OW7	9P 9F	.007*	2.2	9.0	AMP CL A	90	0	90	1.2	0.3	1160	1.5MEG	750			-4	1N5G 1N5GT
1N6G	DI-PENT	FIL	1.4	.05	7AM-OS8	9N				PR AMP CL A	90	-4.5	90	3.1	0.6		.3 MEG	800	.10	25000		1N6G
1P5G	PENTODE	FIL	1.4	.05	5Y-OS7	9P	.007*	2.2	9.0	AMP CL A	90	0	90	2.3	0.7	640	.8 MEG	800			-12	1P5G
1Q5G 1Q5GT	BEAM PWR AMP	FIL	1.4	.1	6AF-OS7 6AF-OGT7	9N 9H				POWER AMP CLASS A	90 85	-4.5 -4.5	90 85	9.5 8.2	1.6 1.4			2100 1950	.27 .225	8000 8000		1Q5G 1Q5GT
1T5GT	BM PWR	FIL	1.4	.05	6X-OGT7	9H				PR AMP CL A	90	-6	90	6.5	1.4			1150	.17	14000		1T5GT
1-V	DIODE	HTR	6.3	.3	4G-SS4	12B				H W RECT	325 RMS MAX 45 DC MAX TUBE DROP 20v AT 90ma DC										1-V	
2A3	TRIODE	FIL	2.5	2.5	4D-SM4	16B				PR AMP CL A PUSH-PULL CL AB 2 TUBE	250 300 300	-45 -62 SELF		60 80 80		4.2	800	5250	3.5 15 10	2500 3000 5000		2A3
2A4G	GAS TRI	FIL	2.5	2.5	5S-OS7	12E				THYRATRON	200 RMS MAX 100 DC MAX TUBE DROP 12v										-9	2A4G
2A5	PENTODE	HTR	2.5	1.75	6B-SM6	14D	TRIODE CONNECTION			PR AMP CL A CL AB 2 TUBE	250 350	-20 -38	250	31 48		6.8 (SEE TYPE 6F6G ALSO)	2600 6F6G	.85 ALS0	4000 13	6000		2A5
2A6	DUO-DI TRIODE	HTR	2.5	.8	6G-SS6	12H	1.7	1.7	3.8	AMPLIFIER CLASS A	250	-2		0.9		100	91000	1100				2A6
2A7 2A7S	HEPTODE	HTR	2.5	.8	7C-SS7 7C-SS7	12H	.3*	8.5	9.0	OSC SECT MIXER	250S 250	.05MEG -3	100	4.0 3.5	2.7		GRID #2 RES .36MEG	RES 550C	.02 MEG		-35	2A7 2A7S

TYPE	DESIGN	CATHODE HTR OR TYPE	FIL VOLTS	FIL AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
							G-P μFDS	IN μFDS	OUT μFDS													
2B7 2B7S	DUO-DI PENTODE	HTR	2.5	.8	7D-SS7 7D-SS7	12H	.007*	3.5	9.5	AMPLIFIER CLASS A	250 250	-3 -3	125 100	9.0 6.0	2.3 1.5	.65MEG .80MEG	1125 1000			-21 -17	2B7 2B7S	
2E5	ELEC RAY	HTR	2.5	.8	6R-SS6	12B				TUNING IND	CHARACTERISTICS SAME AS FOR TYPE 6E5										2E5	
2S/4S	DUO DIODE	HTR	2.5	1.35	5D-SS5					DETECTOR	40 APPROX PER PLATE AT 50v DC										2S/4S	
2Z2/G84	DIODE	FIL	2.5	1.5	4B-SS4	12B				HALF WAVE RECTIFIER	CHARACTERISTICS SIMILAR TO THOSE OF TYPE 1-V										2Z2/G84	
3A8GT	DI-TRI PENTODE	FIL	1.4 or 2.8	.1 .05	8AS-OGT8	9K	2.2* .015*	2.6* 2.6*	4.6* 10*	TRI CL A PENT CL A	90 90	-FIL -FIL	90	0.15 1.2	0.3	.24MEG .6 MEG	275 750				3A8GT	
3Q5GT	BM PWR	FIL	1.4 or	.1	7AP-OGT7	9H	PARALLEL FIL SERIES FIL			PR AMP CL A	90 90	-4.5 -4.5	90 90	9.5 8.0	1.6 1.0	.1 MEG .11MEG	2100 1950	.270 .230	8000 8000		3Q5GT	
4A6G	TWIN TRIODE	FIL	2.0 or 4.0	.12 .06	8L-OS8	12E				CL A 1 SECT CL B 2 SECT	90 90	-1.5 -1.5		1.1 1.1	20 PL CUR-MAX	26600 SIG-10.8ma	750 1.0		8000		4A6G	
5T4	TWIN DIODE	FIL	5.0	2.0	5T-OW5	10C				FULL WAVE RECTIFIER	450 RMS MAX COND IN 225 DC MAX TUBE DROP 45v AT 225ma DC 550 RMS MAX CHOKE IN 225 DC MAX										5T4	
5U4G	TWIN DIODE	FIL	5.0	3.0	5T-OM8	16A				FULL WAVE RECTIFIER	450 RMS MAX COND IN 225 DC MAX TUBE DROP 58v AT 225ma DC 550 RMS MAX CHOKE IN 225 DC MAX										5U4G	
5V4G	TWIN DIODE	HTR	5.0	2.0	5L-OM5	14C				FULL WAVE RECTIFIER	375 RMS MAX COND IN 175 DC MAX TUBE DROP 23v AT 175ma DC 500 RMS MAX CHOKE IN 175 DC MAX										5V4G	
5W4 5W4G	TWIN DIODE	FIL	5.0	1.5	5T-OW5 5T-OM5	8H 14C				FULL WAVE RECTIFIER	350 RMS MAX COND IN 100 DC MAX TUBE DROP 45v AT 100ma DC 500 RMS MAX CHOKE IN 100 DC MAX										5W4 5W4G	
5X4G	TWIN DI	FIL	5.0	3.0	5Q-OM8	16A				F W RECT	CHARACTERISTICS SAME AS FOR TYPE 5U4G										5X4G	
5Y3G 5Y4G	TWIN DIODE	FIL	5.0	2.0	5T-OM5 5Q-OM8	14C 14C				FULL WAVE RECTIFIER	350 RMS MAX COND IN 125 DC MAX TUBE DROP 60v AT 125ma DC 500 RMS MAX CHOKE IN 125 DC MAX										5Y3G 5Y4G	
5Z3	TWIN DI	FIL	5.0	3.0	4C-SM4	16B				F W RECT	CHARACTERISTICS SAME AS FOR TYPE 5U4G										5Z3	
5Z4 5Z4MG	TWIN DIODE	HTR	5.0	2.0	5L-OW5 5L-OW5	8H 10D				FULL WAVE RECTIFIER	350 RMS MAX COND IN 125 DC MAX TUBE DROP 20v AT 125ma DC 500 RMS MAX CHOKE IN 125 DC MAX										5Z4 5Z4MG	
6A3	TRIODE	FIL	6.3	1.0	4D-SM4	16B	16	7	5	PR AMP CL A PUSH-PULL CL AB 2 TUBE	CHARACTERISTICS SAME AS FOR TYPE 6B4G										6A3	
6A4/LA	PENTODE	FIL	6.3	.3	5B-SM5	14D				PR AMP CL A PUSH-PULL CL AB 2 TUBE	180 250	-12 SELF	180 230	22 32	3.9 700	100 OHM BIAS RES	45500 2200	1.4 4.2	8000 16000		6A4/LA	
6A5G	TRIODE	HTR	6.3	1.25	6T-OM8	16A	16	7	5	PR AMP CL A PUSH-PULL CL AB 2 TUBE	250 325 325	-45 -68 SELF		60 80 80	4.2 850	800 OHM BIAS RES	5250	3.75 15 10	2500 3000 5000		6A5G	
6A6	TWIN TRIODE	HTR	6.3	.8	7B-SM7	14D	(SEE TYPE 6N7G ALSO)			AMP CL A TRI IN PAR'L	294 250	-6 -5		7 6		35 35	11000 11300	3200 3100			6A6	

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		HTR OR FIL TYPE	VOLTS	AMPS			G-P μFDS	IN μFDS	OUT μFDS													
6A7 6A7S 6AB 6ABG 6ABGT	HEPTODE	HTR	6.3	.3	7C-SS7 7C-SS7 8A-OW8 8A-OS8 8A-OW8	12H 8F 12F 9F	.3* .03 26*	8.5 12.5 9.5*	9.0 12.5 12*	OSC SECT MIXER	250S 100 250 100	.05MEG .05MEG -3 -1.5	4.0 2.0 100 50	2.7 1.3		GRID #2 RES .36MEG .6 MEG	550C 360C					6A7 6A7S 6AB 6ABG 6ABGT
6AB5	ELEC RAY	HTR	6.3	.15	6R-SS6	9R				TUNING IND	135 THRU .25 MEG, TARGET 135v, GRID 0v FOR 90°, -7.5v FOR 0°											6AB5
6AB7/RK1853	PENTODE	HTR	6.3	.45	8N-OW8	8E	.015	8	5	HIGH FREQ AMPLIFIER	300 300	-3 -3	200 300	12.5 THRU	3.2 .03 MEG	.7 MEG 5000 (OTHER VALUES SAME AS ABOVE)				-15 -22.5	6AB7/RK1853	
6AC5G	TRIODE	HTR	6.3	.4	6Q-OS6	12E	ONE 76 DRIVER TWO 76 DRIVERS			DIR C'P'D AMP PUSH PULL CL B 2 TUBE	250 250 250	SUPPLIED BY DRIVERS 0			32 64 5 NO SIGNAL	125	36700	3400	3.7 9.5 8	7000 10000 10000	6AC5G	
6AC7/RK1852	PENTODE	HTR	6.3	.45	8N-OW8	8E	.15	11	5	HIGH FREQ AMPLIFIER	300 300	SELF SELF	150 300	10 THRU	2.5 .06 MEG	.75MEG 9000 160 OHM-BIAS RES (OTHER VALUES SAME AS ABOVE) REMOTE				6AC7/RK1852		
6AD6G	TWIN ELEC RAY	HTR	6.3	.15	7AG-OW7	9C				TUNING INDICATOR	TARGET 150v CONTROL ELECTRODE 75v AT 0°, 8v AT 90°, -50v AT 135° TARGET 100v CONTROL ELECTRODE 45v AT 0°, 0v AT 90°, -23v AT 135°											6AD6G
6AE5G	TRIODE	HTR	6.3	.3	6Q-OS6	12E				AMP CL A	95	-15		7		4.2	3500	1200			6AE5G	
6AE6G	DUO TRIODE	HTR	6.3	.15	7AH-OS7	12E				CONTROL FOR 6AD6G-6AF6G	250 250	-1.5 -1.5		6.5 4.5	25 33		1000 950	PLATE R PLATE L		-35 -9.5	6AE6G	
6AF5G	TRIODE	HTR	6.3	.3	6Q-OS6	12E				AMP CL A	180	-18		7		7.4	4900	1500			6AF5G	
6AF6G	TWIN ELEC RAY	HTR	6.3	.15	7AG-OS7	9M				TUNING INDICATOR	TARGET 135v CONTROL ELECTRODE 81v AT 0°, 0v AT 100° TARGET 100v CONTROL ELECTRODE 60v AT 0°, 0v AT 100°											6AF6G
6AL6G	BEAM PWR AMP	HTR	6.3	.9	6AM-OM7	16C				POWER AMP CLASS A	250 250	-14 SELF	250 250	72 75	5 5.4	170	22500 OHM BIAS RES	6000 6.5	6.5 2500		6AL6G	
6B4G	TRIODE	FIL	6.3	1.0	5S-OM8	16A	16	7	5	PR AMP CL A PUSH PULL CL AB 2 TUBE	250 325 325	-45 -68 SELF		60 80 80		4.2	800	5250	3.2 15 10	2500 3000 5000	6B4G	
6B5	DUO-TRI	HTR	6.3	.8	6AS-SM6	14D				DIR C'P'D AMP	300	0	300	42	9	58	24000	2400	4	7000	6B5	
6B6G	DUO-DI TRIODE	HTR	6.3	.3	7V-OS7	12F	1.7	1.7	3.8	AMPLIFIER CLASS A	250	-2		0.9		100	91000	1100			6B6G	
6B7 6B7S	DUO-DI PENTODE	HTR	6.3	.3	7D-SS7 7D-SS7	12H	.007*	3.5	9.5	AMPLIFIER CLASS A	250 250	-3 -3	125 100	9.0 6.0	2.3 1.5	.8	.6 MEG .8 MEG	1125 1000		-21 -17	6B7 6B7S	
6B8 6B8G	DUO-DI PENTODE	HTR	6.3	.3	8E-OW8 8E-OS8	8F 12F	.005 .01*	6 3.6*	9 9.5*	AMPLIFIER CLASS A	250	-3	125	10	2.3	.6 MEG	1325			-21	6B8 6B8G	
6C5 6C5G	TRIODE	HTR	6.3	.3	6Q-OW6 6Q-OS6	8D 12E	2.0 2.2*	3.0 4.4*	11 12*	AMPLIFIER CLASS A	250	-8		8		20	10000	2000			6C5 6C5G	
6C6	PENTODE	HTR	6.3	.3	6F-SS6	12J	.007*	5.0	6.5	AMPLIFIER CLASS A	250 100	-3 -3	100 100	2.0 2.0	.5 .5	1.5MEG 1 MEG	1226 1185			-7 -7	6C6	
6C7	DUO-DI TRIODE	HTR	6.3	.3	7G-SS7					AMP CL A	250	-9		5.5		20	16000	1250			6C7	
6C8G	TWIN TR	HTR	6.3	.3	8G-OS8	12F				CL A 1 SECT	250	-4.5		3.2		36	22500	1600			6C8G	

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE		
		HTR OR	FIL	AMPS			G-P μFDS	IN μFDS	OUT μFDS															
6D6	PENTODE	HTR	6.3	.3	6F-SS6	12J	.007*	4.7	6.5	AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6U7G										6D6			
6D7	PENTODE	HTR	6.3	.3	7H-SS7					AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6C6										6D7			
6D8G	HEPTODE	HTR	6.3	.15	8A-OS8	12F	.2*	8.0*	11*	OSC SECT MIXER	250S 250	.05MEG -3	100	4.3 3.5	2.6		GRID #2 RES .02 MEG .4 MEG 550C			-35	6D8G			
6E5	ELEC RAY	HTR	6.3	.3	6R-SS6	12B				TUNING IND	250 THRU 1 MEG, TARGET 250v, GRID 0v FOR 90°, -8v FOR 0°										6E5			
6E6	TWIN TR	HTR	6.3	.6	7B-SM7	14D	PUSH PULL			CL A 1 SECT CL A 2 SECT	250 250	-27.5 -27.5		18 36		6	3500	1700	1.6	14000		6E6		
6E7	PENTODE	HTR	6.3	.3	7H-SS7					AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6U7G										6E7			
6F5 6F5G 6F5GT	TRIODE	HTR	6.3	.3	5M-OW5 5M-OS5 5M-OW5	8F 12F 9F	2.0 2.0	6.0 2.5	12 3.5	AMPLIFIER CLASS A	250	-2		0.9		100	66000	1500				6F5 6F5G 6F5GT		
6F6 6F6G	PENTODE	HTR	6.3	.7	7S-OW7 7S-OW7	8H 14C	PENTODE CONNECTION			PR AMP CL A PUSH PULL CL AB 2 TUBE	285 250 375 315	-20 -16.5 -26 -24	285 250 250 285	38 34 34 62	7 6.5 5 12	(SEE TYPE 2A5 ALSO)			78000 80000 2550 2500	4.8 3.2 18.5 11	7000 7000 10000 10000		6F6 6F6G	
6F7 6F7S	TRIODE PENTODE	HTR	6.3	.3	7E-SS7 7E-SS7	12H	2.0 .007*	2.5 3.2	3.0 12.5	TRI CL A PENT CL A	100 250	-3 -3		3.5 6.5		8 900	16000 .95MEG	500 1100	(SEE 6P7G ALSO)		-35	6F7 6F7S		
6F8G	TWIN TR	HTR	6.3	.6	8G-OS8	12F	4.0L 3.6R	3.2L 3.0R	3.2L 3.8R	AMP CL A ONE SECT	250 90	-8 0		9.0 10.0		20 20	7700 6700	2600 3000				6F8G		
6G6G	PENTODE	HTR	6.3	.15	7S-OS7	12E				POWER AMP CLASS A	180 135	-9 -6	180 135	15 11.5	2.5 2.0	400 360	.18MEG .17MEG	2300 2100	1.1 0.6	10000 12000		6G6G		
6H4GT	DIODE	HTR	6.3	.15	5AF-OGT5	9H				DETECTOR	100 MAX			4 MAX			1000 AT .25ma				6H4GT			
6H6 6H6G 6H6GT	TWIN DIODE	HTR	6.3	.3	7Q-OW7 7Q-OS7 7Q-OW7	8C 12E 9E	.05 .1 P-P	3 3.1 P-K	3.4 4.0 P-K	DETECTOR	117 MAX										4 MAX EACH DIODE			6H6 6H6G 6H6GT
6J5 6J5G 6J5GT	TRIODE	HTR	6.3	.3	6Q-OW6 6Q-OS6 6Q-OW6	8E 12E 9E	3.4 4.0*	3.4 4.2*	3.6 5.0*	AMPLIFIER CLASS A	250 90	-8 0		9.0 10.0		20 20	7700 6700	2600 3000				6J5 6J5G 6J5GT		
6J7 6J7G 6J7GT	PENTODE	HTR	6.3	.3	7R-OW7 7R-OS7 7R-OW7	8F 12F 9F	.005 .007*	7 4.6*	12 12*	AMP CL A PENT CONN TRI CONN	250 100 250	-3 -3 -8	100 100	2.0 2.0 6.5	0.5 0.5		1.5MEG 1.0MEG 10500	1225 1185 1900			-7 -7	6J7 6J7G 6J7GT		
6J8G	TRIODE HEPTODE	HTR	6.3	.3	8H-OS8	12F	.01*	4.6*	10.5*	OSC-TRIODE MIXER HEPT	250S 250	.05MEG -3	100	5.0 1.3	2.9	TRIODE PLATE RESISTOR .02 MEG 4 MEG 290C			-20	6J8G				
6K5G	TRIODE	HTR	6.3	.3	5U-OS7	12F	2.0	2.4	3.6	AMP CL A	250	-3		1.1		70	50000	1400				6K5G		
6K6G 6K6GT	PENTODE	HTR	6.3	.4	7S-OS7 7S-OGT7	12E 9H				POWER AMP CLASS A	315 250	-21 -18	250 250	25.5 32	4.0 5.5		75000 68000	2100 2300	4.5 3.4	9000 7600		6K6G 6K6GT		
6K7 6K7G 6K7GT	PENTODE	HTR	6.3	.3	7R-OW7 7R-OS7 7R-OW7	8F 12F 9F	.005 .007*	7 7*	12 12*	AMPLIFIER CLASS A	250 250 90	-3 -3 -3	125 100 90	10.5 7.0 5.4	2.6 1.7 1.3		.6 MEG .8 MEG .3 MEG	1650 1450 1275			-52.5 -42.5 -38.5	6K7 6K7G 6K7GT		

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE	
		HTR OR TYPE	FIL VOLTS	FIL AMPS			G-P μFDS	IN μFDS	OUT μFDS														
6K8 6K8G 6K8GT	TRIODE HEXODE	HTR	6.3	.3	8K-OW8 8K-OS8 8K-OW8	8F 12F 9F	.03 .08* .03*	6.6 4.6* 4.0*	3.5 4.8* 4.5*	OSC-TRIODE MIXER HEX	100 250 100	.05MEG -3 -3		3.8 2.5 2.3								(TRIODE GRID 0v) -30 -30	6K8 6K8G 6K8GT
6L5G	TRIODE	HTR	6.3	.15	6Q-OS6	12E	2.7*	3*	5*	AMP CL A	250	-9		8		17	8900	1900			-20	6L5G	
6L6 6L6G	BEAM PWR AMP	HTR	6.3	.9	7AC-OW7 7AC-OM8	10C 16A				POWER AMP CLASS A PP CL A PP CL AB PP CL AB	350 250 270 360 360	-18 -14 -17.5 -22.5 -22.5	250 250 270 270 270	54 72 134 88 88	2.5 5.0 11 5 5		33000 22500 23500	5200 6000 5700	10.8 6.5 17.5 26.5 47	4200 2500 5000 6600 3800		6L6 6L6G	
6L7 6L7G	HEPTODE	HTR	6.3	.3	7T-OW7 7T-OS7	8F 12F	.001 .005*	7.5 6*	11 10*	AMP CL A MIXER	250 250	-3 -6	100 150	5.3 3.3	6.5 9.2	670	.6 MEG 1 MEG	1100 350C	G3 AT G3 AT	-3v -15v	-15 -45	6L7 6L7G	
6N5	ELEC RAY	HTR	6.3	.15	6R-SS6	12B				TUNING IND	135 THRU .25 MEG, TARGET 135v, GRID 0v FOR 90°, -12v FOR 0°											6N5	
6N6G 6N6MG	DUO TRI	HTR	6.3	.8	7AU-OW7 7AU-OW7	14C 10B				DIR COUP PWR AMP	300	0	300	42	9	58	24000	2400	4	7000		6N6G 6N6MG	
6N7 6N7G	TWIN TRIODE	HTR	6.3	.8	8B-OW8 8B-OM8	8H	(SEE TYPE 6A6 ALSO)			POWER AMP CL B 2 SECT	300	0		35					10	8000		6N7 6N7G	
6P5G 6P5GT	TRIODE	HTR	6.3	.3	6Q-OS6 6Q-OGT6	12E 9H	3.4* 3.6*	3.6* 3.5*	5.5* 12*	AMPLIFIER CLASS A	250 100	-13.5 5		5 2.5		13.8 13.8	9500 12000	1450 1150				6P5G 6P5GT	
6P7G	TRIODE- PENTODE	HTR	6.3	.3	7U-OS8	12F	2.0* .008*	3.5* 3.5*	3.0* 12*	OSC-TRIODE MIXER PENT	100 250	-10	100	2.4 2.8	0.6							(SEE TYPE 6F7 ALSO)	6P7G
6Q7 6Q7G 6Q7GT	DUO- DIODE TRIODE	HTR	6.3	.3	7V-OW7 7V-OS7 7V-OW7	8F 12F 9F	1.5 1.3	5.5 2.7	5.0 4.5	AMPLIFIER CLASS A	250 100	-3 -1.5		1.1 0.35		70 70	58000 87500	1200 800				6Q7 6Q7G 6Q7GT	
6R7 6R7G	DUO DI TRIODE	HTR	6.3	.3	7V-OW7 7V-OS7	8F 12F	2.5 3.5	5.5 2.5	4.0 4.5	AMPLIFIER CLASS A	250	-9		9.5		16	8500	1900	.28	10000		6R7 6R7G	
6S7 6S7G	PENTODE	HTR	6.3	.15	7R-OW7 7R-OS7	8G 12F	.005 .008*	6.5 4.4*	10.5 8.0*	AMPLIFIER CLASS A	250 135	-3 -3	100 67.5	8.5 3.7	2.0 0.9		1 MEG 1 MEG	1750 1250			-38.5 -25	6S7 6S7G	
6SA7 6SA7GT	HEPTODE	HTR	6.3	.3	8R-OW8 8AD-OW8	8E 9D	.13 .13	9.5 10.5	12 12	OSC SECT MIXER	OSC GRID RES 250	-	.02 MEG 100	3.4	8		OSC GRID CUR - .5ma .8 MEG	450C			-35	6SA7 6SA7GT	
6SC7	TWIN TR	HTR	6.3	.3	8S-OW8	8E				CL A 1 SECT	250	-2		2		70	53000	1325				6SC7	
6SF5 6SF5GT	TRIODE	HTR	6.3	.3	6AB-OW6 6AB-OGT6	8E 9H	2.6	4.2	3.8	AMPLIFIER CLASS A	250	-2		0.9		100	66000	1500				6SF5 6SF5GT	
6SJ7 6SJ7GT	PENTODE	HTR	6.3	.3	8N-OW8 8N-OW8	8E 9E	.005	6.0	7.0	AMPLIFIER CLASS A	250 100	-3 -3	100 100	3.0 2.9	0.8 0.9	2500 1100	1.5MEG 0.7MEG	1650 1575				6SJ7 6SJ7GT	
6SK7 6SK7GT	PENTODE	HTR	6.3	.3	8N-OW8 8N-OW8	8E 9E	.005*	6.0*	7.0*	AMPLIFIER CLASS A	250 100	-3 -3	100 100	9.2 8.9	2.4 2.6	1600 475	0.8MEG .25MEG	2000 1900			-35	6SK7 6SK7GT	
6SQ7 6SQ7GT	DUO-DI TRIODE	HTR	6.3	.3	8Q-OW8 8Q-OGT8	8E 9H	1.8	4.2	3.4	AMPLIFIER CLASS A	250	-2		0.8		100	91000	1100				6SQ7 6SQ7GT	
6T7G/6Q6G	DUO DI TRIODE	HTR	6.3	.15	7V-OS7	12F	1.3	2.7	4.5	AMPLIFIER CLASS A	250 135	-3 -1.5		1.2 0.9		65 65	62000 65000	1050 1000				6T7G/6Q6G	

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		HTR OR TYPE	FIL VOLTS	FIL AMPS			G-P μFDS	IN μFDS	OUT μFDS													
6U5/6G5	ELEC RAY	HTR	6.3	.3	6R-SS6	9R				TUNING IND	250 THRU 100	1 MEG TARGET	250v, GRID 0v FOR 90°									6U5/6G5
6U7G	PENTODE	HTR	6.3	.3	7R-OS7	12L	.007*	5*	9*	AMP CL A	250 100	-3 -3	100 100	8.2 8.0	2.0 2.2	.8 MEG .25MEG	1600 1500				-50 -50	6U7G
6V6 6V6G 6V6GT	BEAM POWER AMP	HTR	6.3	.45	7AC-OW7 7AC-OM7 7AC-OW7	8H 14C 9H				AMPLIFIER CLASS A PP CL AB	315 250 250	-13 -12.5 -15	225 250 250	34 45 70	2.2 4.5 5.0	77000 52000 60000	3750 4100 3750	5.5 4.5 10	8500 5000 10000		6V6 6V6G 6V6GT	
6V7G	DUO-DI TRIODE	HTR	6.3	.3	7V-OS7	12F	1.7	2.0	3.5	AMPLIFIER CLASS A	250 180	-20 -13.5		8 6	8.3 8.3	7500 8500	1100 975	.35 .16	20000 20000		6V7G	
6W5G	TWIN DI	HTR	6.3	.9	6S-OS6	12E				FULL WAVE RECTIFIER	325 RMS MAX	COND IN 90 DC MAX										6W5G
6W7G	PENTODE	HTR	6.3	.15	7R-OS7	12F	.007*	5.0*	8.5*	AMP CL A	250	-3	100	2.0	0.5	1.5MEG	1225				-7	6W7G
6X5 6X5G 6X5GT	TWIN DIODE	HTR	6.3	.6	6S-OW6 6S-OS6 6S-OGT6	8H 12E 9H				FULL WAVE RECTIFIER	325 RMS MAX	COND IN 70 DC MAX										6X5 6X5G 6X5GT
6Y5	TWIN DI	HTR	6.3	.8	6J-SS6	6J	(MERCURY VAPOR)			F W RECT	1500 PEAK INVERSE	200 DC MAX										6Y5
6Y6G	BEAM PWR AMP	HTR	6.3	1.25	7AC-OM7	14C				POWER AMP CLASS A	200 135	-14 -13.5	135 135	61 58	2.2 3.5	18300 9300	7100 7000	6.0 3.6	2600 2000		6Y6G	
6Y7G	TWIN TRIODE	HTR	6.3	.6	8B-OS8	12E				CL B AMP 2 SECTIONS	250 180	0 0		10.6 NO SIG 7.6 NO SIG				8 5.5	14000 7000		6Y7G	
6Z5	TWIN DIODE	HTR	12.6 or 6.3	.4 .8	6K-SS6	12B				FULL WAVE RECTIFIER	1500 PEAK INVERSE	60 DC MAX										6Z5
6Z7G	TWIN TRIODE	HTR	16.3	.3	8B-OS8	12E				CL B AMP 2 SECTIONS	180 135	0 0		8.4 NO SIG 6.0 NO SIG				4.2 2.8	12000 9000		6Z7G	
6ZY5G	TWIN DI	HTR	6.3	.3	6S-OS6	12E				FULL WAVE RECTIFIER	325 RMS MAX	COND IN 40 DC MAX										6ZY5G
7A4	TRIODE	HTR	6.3	.3	5AC-L8	9A	4	3.4	3.0	AMPLIFIER CLASS A	250 90	-8 0		9 10		20 20	7700 6700	2600 3000				7A4
7A5	PENTODE	HTR	6.3	.7	6AT-L8	9B				POWER AMP CLASS A	125 110	-9 -7.5	125 110	37.5 35	3.2 3.0	17000 16700	6100 6000	1.9 1.4	2700 2500		7A5	
7A6	DUO-DI	HTR	6.3	.15	7AJ-L8	9A	.05PP			DETECTOR	150 RMS MAX			10 DC MAX								7A6
7A7	PENTODE	HTR	6.3	.3	8V-L8	9A	.005	6.0	7.0	AMP CL A	250	-3	100	8.6	2.0	1600	.8 MEG	2000			-35	7A7
7A8	OCTODE	HTR	6.3	.15	8U-L8	9A	.15	7.5	9.0	OSC SECT MIXER	250S 250	.05MEG -3	100	4.5 3.0	3.1	GRID #2 RES .7 MEG	.02 MEG 550C			-30	7A8	
7B5	PENTODE	HTR	6.3	.4	6AE-L8	9B				POWER AMP CLASS A	250 100	-18 -7	250 100	32 9.0	5.5 1.6	68000 .1 MEG	2300 1500	3.4 .35	7600 12000		7B5	
7B6	DUO-DI TRIODE	HTR	6.3	.3	8W-L8	9A	1.5	3.0	3.0	AMPLIFIER CLASS A	250	-2		0.9		100	91000	1100				7B6
7B7	PENTODE	HTR	6.3	.15	8V-L8	9A	.005	5.0	7.0	AMP CL A	250	-3	100	8.5	2.0	1200	.7 MEG	1700			-40	7B7

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		HTR OR TRIODE	FIL AMPS	FIL AMPS			G-P μFDS	IN μFDS	OUT μFDS													
7B8	HEPTODE	HTR	6.3	.3	8X-L8	9A	.03	9.5	9.0	OSC SECT MIXER	250S 250	.05MEG -3	100	4.0 3.5	2.7		GRID #2 RES .36MEG	550C	.02 MEG		-35	7B8
7C5	BEAM PWR AMP	HTR	6.3	.45	6AT-L8	9B	PUSH PULL			PR AMP CL A CL AB 2 TUBE	250 250	-12.5 -15	250 250	45 70	4.5 5.0		52000 60000	4100 3750	4.5 10	5000 10000		7C5
7C6	DUO-DI TRIODE	HTR	6.3	.15	8W-L8	9A	1.4	2.4	3.0	AMPLIFIER CLASS A	250	0		1.3		100	.1 MEG	1000	10 MEG	GRID RES		7C6
7C7	PENTODE	HTR	6.3	.15	8V-L8	9A	.007*	5.5*	6.5*	AMPLIFIER CLASS A	250 100	-3 -3	100 100	2.0 1.8	0.5 0.4		2 MEG 1.2MEG	1300 1225				7C7
7E6	DUO-DI TRIODE	HTR	6.3	.3	8W-L8	9A	1.5	3.0	3.4	AMP CL A	250	-9		9.5		16	8500	1900				7E6
7E7	DUO-DI PENTODE	HTR	6.3	.3	8AE-L8	9A	.005*	4.6*	9.5*	AMPLIFIER CLASS A	250	-3	100	7.5	1.6		.7 MEG	1300			-42.5	7E7
7F7	TWIN TR	HTR	6.3	.3	8AC-L8	9A				CL A 1 SECT	250	-2		2.3		70	44000	1600				7F7
7J7	TRI HEX	HTR	6.3	.3	8AR-L8	9A	.01*	5.5*	7.5*	OSC-TRIODE MIXER HEX	250S 250	.05MEG -3	100	5.7 1.4	2.8		TRIODE PLATE RESISTOR 1.5MEG	310C	.02 MEG		-20	7J7
7Q7	HEPTODE	HTR	6.3	.3	8AL-L8	9A	.1*	9.5*	9.0*	OSC SECT MIXER	OSC GRID RES 250	0	100	3.4	8		OSC GRID CUR .8 MEG	450C	-.5ma		-35	7Q7
7Y4	TWIN DI	HTR	6.3	.5	5AB-L8	9A				F W RECT	350 RMS MAX			60 DC MAX			TUBE DROP 19 AT 60ma DC					7Y4
10	TRIODE	FIL	7.5	1.25	4D-SM4	16B	7	4	3	POWER AMP CLASS A	425 250	-40 -23.5		18 10		8 8	5000 6000	1600 1330	1.6 0.4	10200 13000		10
WD11 WX12	TRIODE	FIL	1.1	.25	4F-WD4 4D-SM4B	8B 10A	3.3	2.5	2.5	AMPLIFIER CLASS A	135 90	-10.5 -4.5		3 2.5		6.6 6.6	15000 15500	440 425				WD11 WX12
12A	TRIODE	FIL	5.0	.25	4D-SM4B	14D	8.5	4.0	2.0	AMPLIFIER CLASS A	180 135	-13.5 -9		7.7 6.2		8.5 8.5	4700 5100	1800 1650	.285 .130	10650 9000		12A
12A5	PENTODE	HTR	12.6 or 6.3	.3 .6	7F-SS7	12B				POWER AMP CLASS A	180 100	-25 -15	180 100	45 17	8 3		35000 50000	2400 1700	3.4 0.8	3300 4500		12A5
12A7	DIODE PENTODE	HTR	12.6	.3	7K-SS7	12H				H W RECT AMP CL A	125 RMS MAX 135		135	30 DC MAX 9	2.5	100	.1 MEG	975	.55	TUBE DROP 15v AT 60ma DC 13500		12A7
12A8GT	HEPTODE	HTR	12.6	.15	8A-OW8	9F				OSC MIXER	CHARACTERISTICS SAME AS FOR TYPE 6A8GT										12A8GT	
12B7	PENTODE	HTR	12.6	.15	8V-L8	9A	.005*	5.5*	7.0*	AMPLIFIER CLASS A	250 100	-3 -3	100 100	9.2 8.9	2.4 2.6		.8 MEG .25MEG	2000 1900			-35	12B7
12B8GT	TRIODE PENTODE	HTR	12.6	.3	8T-OGT8	9L				AMP TRIODE CLASS A AMP PENT CLASS A	100 90 100 90	-1 0 -3 -3		0.6 2.8 8 7		110 90 360 360	73000 37000 .17MEG .20MEG	1500 2400 2100 1800			-2.5 -2.5 -42.5	12B8GT
12C8	DUO-DI	HTR	12.6	.15	8E-OW7	9F	.005	6	9	AMPLIFIER CLASS A	250 250	-3 -3	125 100	10 6.8	2.3 1.5		.6 MEG .8 MEG	1325 1150			-21 -17	12C8
12F5GT	TRIODE	HTR	12.6	.15	5M-OW5	9F				AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6F5GT										12F5GT	
12J5GT	TRIODE	HTR	12.6	.15	6Q-OW6	9E				AMP CL A	CHARACTERISTICS SAME AS TYPE 6J5GT										12J5GT	

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		HTR OR TYPE	FIL VOLTS	FIL AMPS			G-P μFDS	IN μFDS	OUT μFDS													
12J7GT	PENTODE	HTR	12.6	.15	7R-OW7	9F				AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6J7GT										12J7GT	
12K7GT	PENTODE	HTR	12.6	.15	7R-OW7	9F				AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6K7GT										12K7GT	
12Q7GT	DUO-DI TRIODE	HTR	12.6	.15	7V-OW7	9F				AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6Q7GT										12Q7GT	
12SA7 12SA7GT	HEPTODE	HTR	12.6	.15	8R-OW8 8AD-OW8	8E	.13*	9.5*	12*	OSC-MIXER	CHARACTERISTICS SAME AS FOR TYPE 6SA7										12SA7 12SA7GT	
12SC7	TWIN TRI	HTR	12.6	.15	8S-OW8	8E				AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6SC7										12SC7	
12SF5GT	TRIODE	HTR	12.6	.15	6AB-OGT6	8H				AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6SF5GT										12SF5GT	
12SJ7 12SJ7GT	PENTODE	HTR	12.6	.15	8N-OW8 8N-OW8	8E 9E	.005	6.0	7.0	AMPLIFIER CLASS A	CHARACTERISTICS SAME AS FOR TYPE 6SJ7										12SJ7 12SJ7GT	
12SK7 12SK7GT	PENTODE	HTR	12.6	.15	8N-OW8 8N-OW8	8E 9E	.005	6.0	7.0	AMPLIFIER CLASS A	CHARACTERISTICS SAME AS FOR TYPE 6SK7										12SK7 12SK7GT	
12SQ7 12SQ7GT	DUO-DI TRIODE	HTR	12.6	.15	8Q-OW8 8Q-OGT8	8E 9H	1.8	4.2	3.4	AMPLIFIER CLASS A	CHARACTERISTICS SAME AS FOR TYPE 6SQ7										12SQ7 12SQ7GT	
12Z3	DIODE	HTR	12.6	.3	4G-SS4	12B				H W RECT	235 RMS MAX		55 DC MAX		TUBE DROP 17v AT 110ma DC						12Z3	
15	PENTODE	HTR	2.0	.22	5F-SS5	12H	.01*	2.4	7.8	AMPLIFIER CLASS A	135 67.5	-1.5 -1.5	67.5 67.5	1.85 1.85	0.3 .3	600 450	.8 MEG .63MEG	750 710				15
19	TWIN TR	FIL	2.0	.26	6C-SS6	12B				CL B 2 SECT	CHARACTERISTICS SAME AS FOR TYPE 1J6G										19	
20	TRIODE	FIL	3.3	.132	4D-SS4	9Q	4.1	2.0	2.3	PR AMP CL A	135	-22.5		6.5		3.3	6300	525	.11	6500		20
22	TETRODE	FIL	3.3	.132	4K-SM4	14E	.02*	4.0	10	AMP CL A	135	-1.5	67.5	3.7	1.3		.33MEG	500				22
24A 24S	TETRODE	HTR	2.5	1.75	5E-SM5 5E-SM5	14E	.007*	5.3	10.5	AMPLIFIER CLASS A	250 180	-3 -3	90 90	4 4	1.7 1.7	630 400	.6 MEG .4 MEG	1050 1000				24A 24S
25A6 25A6G 25A6GT	PENTODE	HTR	25	.3	7S-OW7 7S-OW7 7S-OW7	8H 14C 9F				AMPLIFIER CLASS A	160 135 95	-18 -20 -15	120 135 95	33 37 20	6.5 8 4		42000 35000 45000	2375 2450 2000	2.2 2.0 0.9	5000 4000 4500		25A6 25A6G 25A6GT
25A7G 25A7GT	DIODE PENTODE	HTR	25	.3	8F-OM8 8F-OGT8	14C 9H				H W RECT AMP CL A	125 RMS MAX 100 -15		75 DC MAX 100 20.5		4	90	50000	1800	.77	4500		25A7G 25A7GT
25AC5G	TRIODE	HTR	25	.3	6Q-OS6	12K	6AE5G DRIVER			DIR C'P'D AMP	110 FROM DRIVER						45		2	2000		25AC5G
25B6G	PENTODE	HTR	25	.3	7S-OM7	14C				POWER AMP CLASS A	200 135 105	-23 -22 -16	135 135 105	62 61 48	1.8 2.5 2.0		18000 15000 15500	5000 5000 4800	7.1 4.3 2.4	2500 1700 1700		25B6G
25B8GT	TRIODE PENTODE	HTR	25	.15	8T-OGT8	9L				CL A TRIODE CL A PENT	100 100	-1 -3	100	0.6 7.6	2.0	113	.08MEG .19MEG	1500 2000			-2.5 -41	25B8GT
25C6G	BM PWR	HTR	25	.3	7AD-OM7	14C				PR AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6Y6G										25C6G	
25L6 25L6G 25L6GT	BEAM PWR AMP	HTR	25	.3	7AC-OW7 7AC-OM7 7AC-OGT7	8H 14C 9H				POWER AMP CLASS A	110	-7.5	110	49	4	82	10000	8200	2.2 2.1	2000 1500		25L6 25L6G 25L6GT

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		HTR OR	FIL	FIL			G-P μFDS	IN μFDS	OUT μFDS													
25Z5 25Z6 25Z6G 25Z6GT	TWIN DIODE	HTR	25	.3	6E-SS6 7Q-OW7 7Q-OS7 7Q-OGT7	12B 8H 12E 9H				H W RECT V DOUBLER	235 RMS MAX 117 RMS MAX		75 DC MAX 75 DC MAX			TUBE DROP 22v AT 150ma DC					25Z5 25Z6 25Z6G 25Z6GT	
26	TRIODE	FIL	1.5	1.05	4D-SM4	14D	8.1	2.8	2.5	AMP CL A	180	-14.5		6.2		8.3	7300	1140			26	
27 27S	TRIODE	HTR	2.5	1.75	5A-SS5 5A-SS5	12B	3.3	3.1	2.3	AMPLIFIER CLASS A	250 135	-21 -9		5.2 4.5		9 9	9250 9000	975 1000			27 27S	
30	TRIODE	FIL	2.0	.06	4D-SS4	12B	6.0	3.0	2.1	AMP CL A BIAS DET	180 180	-13.5 -18		3.1		9.3	10300	900	(SEE 1H4G ALSO)		30	
31	TRIODE	FIL	2.0	.13	4D-SS4	12B	5.7	3.5	2.7	AMPLIFIER CLASS A	180 135	-30 -22.5		12.3 8		3.8 3.8	3600 4100	1050 925	.375 .185	5700 7000	31	
32	TETRODE	FIL	2.0	.06	4K-SM4	14E	.015*	5.3	10.5	AMPLIFIER CLASS A	180 135	-3 -3	67.5 67.5	1.7 1.7	0.4 0.4	780 610	1.2MEG .95MEG	650 640			32	
32L7GT	DIODE BM PWR	HTR	32.5	.3	8Z-OGT8	9H				H W RECT POWER AMP CLASS A	125 RMS MAX 110 90	-7.5 -7	110 90	40 27	3 2		15000 17000	6000 4800	1.5 1.0	2500 2600	32L7GT	
33	PENTODE	FIL	2.0	.26	5K-SM5	14D				POWER AMP CLASS A	180 135	-18 -13.5	180 135	22 14.5	5 3	90 70	55000 50000	1700 1450	1.4 0.7	6000 7000	33	
34	PENTODE	FIL	2.0	.06	4M-SM4	14E	.015*	6.0	11.5	AMPLIFIER CLASS A	180 67.5	-3 -3	67.5 67.5	2.8 2.7	1.0 1.1	620 224	1 MEG 0.4MEG	620 560		-22.5 -22.5	34	
35/51 35S/51S	TETRODE	HTR	2.5	1.75	5E-SM5 5E-SM5	14E	.007*	5.3	10.5	AMPLIFIER CLASS A	250 180	-3 -3	90 90	6.5 6.3	2.5 2.5	420 305	0.4MEG 0.3MEG	1050 1020		-42.5 -42.5	35/51 35S/51S	
35A5	BM PWR	HTR	32	.15	5AT-L8	9B				PR AMP CL A	110	-7.5	110	35	2.8		25000	5500	1.4	2500	35A5	
35L6GT	BM PWR	HTR	35	.15	7AC-OGT7	9H				PR AMP CL A	110	-7.5	110	40	3		13800	5800	1.5	2500	35L6GT	
35Z3	DIODE	HTR	32	.15	4Z-L8	9B				H W RECT	250 RMS MAX		110 DC MAX			TUBE DROP 22v AT 200ma DC				35Z3		
35Z4GT	DIODE	HTR	35	.15	5AA-OGT6	9H				H W RECT	125 RMS MAX		110 DC MAX			TUBE DROP 16v AT 200ma DC				35Z4GT		
35Z5GT	DIODE	HTR TAP	35 7.5	.15 .15	6AD-OGT6	9H				H W RECT LAMP TAP	125 RMS MAX		100 DC MAX OR 60 DC MAX WITH 6.3v - 150 ma			PANEL LAMP				35Z5GT		
36	TETRODE	HTR	6.3	.3	5E-SS5	12H	.007*	3.7	9.2	AMP CL A BIAS DET	250 250	-3 -8	90 90	3.2 0.1	1.7	595	.55MEG	1080			36	
37	TRIODE	HTR	6.3	.3	5A-SS5	12B	2.0	3.5	2.9	AMP CL A BIAS DET	250 250	-18 -28		7.5 .2		9.2	8400	1100			37	
38	PENTODE	HTR	6.3	.3	5F-SS5	12H	.3	3.5	7.5	POWER AMP CLASS A	250 135	-25 -13.5	250 135	22 9	3.8 1.5	120 120	.1 MEG .13MEG	1200 925	2.5 0.55	10000 13500	38	
39/44	PENTODE	HTR	6.3	.3	5F-SS5	12H	.007*	3.5	10	AMPLIFIER CLASS A	250 90	-3 -3	90 90	5.8 5.6	1.4 1.6	1050 360	1.0MEG .38MEG	1050 950		-42.5 -42.5	39/44	
40	TRIODE	FIL	5.0	.25	4D-SM4	14D	8.0	2.8	2.2	AMP CL A	180	-3		0.2		30	.15MEG	200 PL RESISTOR	.25MEG		40	
41	PENTODE	HTR	6.3	.4	6B-SS6	12B				PR AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6K6G										41	

TYPE	DESIGN	CATHODE HTR OR FIL			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		TYPE	VOLTS	AMPS			G-P μFDS	IN μFDS	OUT μFDS													
42	PENTODE	HTR	6.3	.7	6B-SM6	14D				POWER AMP	CHARACTERISTICS SAME AS FOR TYPE 6F6G										42	
43	PENTODE	HTR	25	.3	6B-SM6	14D				POWER AMP	CHARACTERISTICS SAME AS FOR TYPE 25A6G										43	
45	TRIODE	FIL	2.5	1.5	4D-SM4	14D	7	4	3	POWER AMP CLASS A CL AB 2 TUBE	275 180 275	-56 -31.5 -68		36 31 28		3.5 3.5	1700 1650	2050 2125	2 .825 18	4600 2700 3200		45
45Z5GT	DIODE	HTR	45	.15	6AD-OGT6	9H				H W RECT LAMP TAP	125 RMS MAX 100 DC MAX OR 60 DC MAX WITH 6.3v - 150 ma PANEL LAMP										45Z5GT	
46	DUAL GRID TRIODE	FIL	2.5	1.75	5C-SM5	16B	G2 TIED TO P G1 TIED TO G2			PR AMP CL A PR AMP CL B 2 TUBES	250 400 300	-33 0 0		22 12 NO SIGNAL 8 NO SIGNAL		5.6	2380	2350	1.25 20 16	6400 5800 5200		46
47	PENTODE	FIL	2.5	1.75	5B-SM5	16B				PR AMP CL A	250	-16.5	250	31	6	150	60000	2500	2.7	7000		47
48	PENTODE	HTR	30	.4	6E-SM6	16B				PR AMP CL A	125	-20	100	56	9.5			3900	2.5	1500		48
49	DUAL GRID TRIODE	FIL	2.0	.12	5C-SM5	14D	G2 TIED TO P G1 TIED TO G2			PR AMP CL A PR AMP CL B 2 TUBES	135 180 135	-20 0 0		6 4 NO SIGNAL 2.6 NO SIGNAL		4.7	4175	1125	.17 3.5 2.3	11000 12000 8000		49
50	TRIODE	FIL	7.5	1.25	4D-SM4B	19A	7.1	4.2	3.4	POWER AMP CLASS A	450 350	-84 -63		55 45		3.8 3.8	1800 1900	2100 2000	4.6 2.4	4350 4100		50
50C6G	BM PWR	HTR	50	.15	7AC-OM7	14C				PR AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6Y6G										50C6G	
50L6GT	BM PWR	HTR	50	.15	7AC-OGT7	9H				PR AMP CL A	110	-7.5	110	49	4	82	10000	8200	2.2	2000		50L6GT
52	2 GRID TRIODE	FIL	6.3	.3	5C-SM5	14D	G2 TIED TO P G1 TIED TO G2			PR AMP CL A CL B 2 TUBE	110 180	0 0		43 3 NO SIGNAL		5.2	1750	3000	1.5 5	2000 10000		52
53	TWIN TRIODE	HTR	2.5	2.0	7B-SM7	14D				POWER AMP	CHARACTERISTICS SAME AS FOR TYPE 6N7G										53	
55 55S	DUO-DI TRIODE	HTR	2.5	1.0	6G-SS6 6G-SS6	12H	1.5	1.5	4.3	AMPLIFIER CLASS A	250 135	-20 -10.5		8 3.7		8.3 8.3	7500 11000	1100 750	.3 .075	20000 25000		55 55S
56 56S 56AS	TRIODE	HTR	2.5 2.5 6.3	1.0 1.0 .3	5A-SS5 5A-SS5 5A-SS5	12B	3.2	3.2	2.2	AMPLIFIER CLASS A BIAS DET	250 100 250	-13.5 -5 -20		5 2.5 0.2 WITH NO SIGNAL		13.8 13.8	9500 12000	1450 1150				56 56S 56AS
57 57S 57AS	PENTODE	HTR	2.5 2.5 6.3	1.0 1.0 .4	6F-SS6 6F-SS6 6F-SS6	12J	.007*	5.0	6.5	AMPLIFIER CLASS A	250 100	-3 -5	100 100	2 2	0.5 0.5	1500 1185	1.5MEG 1.0MEG	1225 1185			-7 -7	57 57S 57AS
58 58S 58AS	PENTODE	HTR	2.5 2.5 6.3	1.0 1.0 .4	6F-SS6 6F-SS6 6F-SS6	12J	.007*	4.7	6.3	AMPLIFIER CLASS A	250 100	-3 -3	100 100	8.2 8	2 2.2	1280 375	.8 MEG .25MEG	1600 1500			-50 -50	58 58S 58AS
59	PENTODE	HTR	2.5	2.0	7A-SM7	16B	G ₂ , G ₃ PENT CONN TO PL 2 TUBES G ₃ TO P,			PR AMP CL A TRI CONN PR AMP CL B G ₁ TO G ₂	250 250 400 300	-18 -28 0 0	250	35 26 26 20	9 6 NO SIGNAL NO SIGNAL	100 6	40000 2300	2500 2600	3 1.25 20 15	6000 5000 6000 4600		59
70L7GT	DIODE BM PWR	HTR	70	.15	8AA-OGT8	9H				H W RECT PR AMP CL A	125 RMS MAX 110			70 DC MAX 40	3		TUBE DROP 20v AT 140ma DC 15000	7500	1.8	2000		70L7GT

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND μMHO	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		HTR OR TRIODE	FIL	AMPS			G-P μFDS	IN μFDS	OUT μFDS													
71A	TRIODE	FIL	5	.25	4D-SM4B	14D				POWER AMP CLASS A	180 90	-40.5 -16.5		20 10		3 3	1750 2170	1700 1400	.79 .125	4800 3000		71A
75 75S	DUO-DI TRIODE	HTR	6.3	.3	6G-SS6 6G-SS6	12H	1.7	1.7	3.8	AMPLIFIER CLASS A	250	-2		0.9		100	91000	1100				75 75S
76	TRIODE	HTR	6.3	.3	5A-SS5	12B				AMPLIFIER	CHARACTERISTICS SAME AS FOR TYPE 56										76	
77	PENTODE	HTR	6.3	.3	6F-SS6	12H	.007*	4.7	11	AMPLIFIER CLASS A	250 100	-3 -1.5	100 60	2.3 1.7	0.5 0.4		1.5MEG 0.6MEG	1250 1100			-7.5 -5.5	77
78	PENTODE	HTR	6.3	.3	6F-SS6	12H	.007*	4.5	11	AMPLIFIER	CHARACTERISTICS SAME AS FOR TYPE 6K7G										78	
79	TWIN TR	HTR	6.3	.6	6H-SS6	12H				POWER AMP	CHARACTERISTICS SAME AS FOR TYPE 6Y7G										79	
80	TWIN DI	FIL	5.0	2.0	4C-SM4	14D				F W RECT	CHARACTERISTICS SAME AS FOR TYPE 5Y3G										80	
81	DIODE	FIL	7.5	1.25	4B-SM4	16B				H W RECT	700 RMS MAX			85 DC MAX							TUBE DROP 91v AT 170ma DC	81
82	TWIN DI	FIL	2.5	3.0	4C-SM4	14D			(MERCURY VAPOR)	FULL WAVE RECTIFIER	450 RMS MAX COND 550 RMS MAX CHOKE			115 DC MAX							TUBE DROP 15v	82
83	TWIN DI	FIL	5.0	3.0	4C-SM4	16B			(MERCURY VAPOR)	FULL WAVE RECTIFIER	450 RMS MAX COND 550 RMS MAX CHOKE			225 DC MAX							TUBE DROP 15v	83
83V	TWIN DI	HTR	5.0	2.0	4AD-SM4	14D				FULL WAVE RECTIFIER	375 RMS MAX COND 500 RMS MAX CHOKE			175 DC MAX							TUBE DROP 23v AT 175ma DC	83V
84/6Z4	TWIN DI	HTR	6.3	.5	5D-SS5	12B				FULL WAVE RECTIFIER	325 RMS MAX COND			60 DC MAX							TUBE DROP 20v AT 60ma DC	84/6Z4
85	DUO-DI TRIODE	HTR	6.3	.3	6G-SS6	12H	1.5	1.5	4.3	AMP CL A	CHARACTERISTICS SAME AS FOR TYPE 6V7G										85	
85AS	DUO-DI TRIODE	HTR	6.3	0.3	6G-SS6					AMP CL A	250	-9		5.5		20		1250				85AS
89	PENTODE	HTR	6.3	.4	6F-SS6	12H	G3 TIED TO K G ₁ TIED TO G ₂			PENT PR AMP CLASS A CL B 2 TUBE	250 135 180	-25 -13.5 0	250 135	32 14 6 NO SIG	5.5 2.2	125 125	70000 92500	1800 1350	3.4 0.75 3.5	6750 9200 9400		89
V99 X99	TRIODE	FIL	3.3	.063	4E-SV4 4D-SS4	8A 9Q	3.3	2.5	2.5	AMP CL A BIAS DET	90 90	-4.5 -10.5		2.5 0.2 WITH NO SIGNAL		6.6	15500	425				V99 X99
117Z6G 117Z6GT	TWIN DIODE	HTR	117 58.5	.075 .15	7AR-OS7 7AR-OGT7	9N 9H				RECTIFIER V DOUBLER	235 RMS MAX 117 RMS MAX			60 DC MAX 60 DC MAX								117Z6G 117Z6GT
182B/482B	TRIODE	FIL	5.0	1.25	4D-SM4	14D				POWER AMP CLASS A	250	-35		18		5		1500				182B/482B
183/483	TRIODE	FIL	5.0	1.25	4D-SM4	14D				POWER AMP CLASS A	250	-58		20		3		1500				183/483
485	TRIODE	HTR	3.0	1.25	5A-SS5	12B				AMP CL A	180	-10		5.2		12.8		1300				485
950	PENTODE	FIL	2.0	.12	5K-SM5	14D				POWER AMP	CHARACTERISTICS SAME AS FOR TYPE 1J5G										950	
1232	PENTODE	HTR	6.3	.45	8V-L8	9A	.007*	9.0*	7.0*	AMP CL A	250	-2	100	6.0	2.0		.8 MEG	4500				1232

TYPE	DESIGN	CATHODE	BASING DATA	MAX SIZE VIEW		USED AS	PLATE VOLTS	PLATE MA		TYPE
BA	TWIN DI	COLD	4J-SM4	19B	GAS FILLED	F W RECT	350 RMS MAX	350 DC MAX	TUBE DROP 80v	BA
BH	TWIN DI	COLD	4J-SM4	14A	GAS FILLED	F W RECT	350 RMS MAX	125 DC MAX	TUBE DROP 90v	BH
BR	DIODE	COLD	4H-SM4	12A	GAS FILLED	H W RECT	300 RMS MAX	50 DC MAX	TUBE DROP 60v	BR

PLUG-IN RESISTORS

FOR AC-DC RECEIVERS WITH 300 MILLIAMPERE SERIES CONNECTED HEATERS. (NORMAL LINE VOLTAGE - 117.5 VOLTS)

TYPE	TYPICAL TUBE LINEUP	TOTAL DROP IN TUBE FILAMENTS	TOTAL DROP IN RESISTOR	NUMBER AND ma OF PANEL LAMPS*	CIRCUIT AND BASE	REPLACEMENT TYPES
	6 VOLT TYPES	25 VOLT TYPES	VOLTS	VOLTS		
L36B	5	2	81.5	36	1-250	B-OCTAL L38B, L39B
42A	4	2	75.2	42.3	0	A-OCTAL K42A, 42AG, K42AG, K43A
42A1	4	2	75.2	42.3	0	A-OCTAL KY42A
42A2	4	2	75.2	42.3	1-150	B-OCTAL KY42B
42B2	4	2	75.2	42.3	2-150	C-OCTAL KY42C
K42B	4	2	75.2	42.3	1-150	B-OCTAL K42B, K42BG, K43B, 135K1
BK42B	HAS BALLASTING ACTION FOR PANEL LAMP TAP					K40B
K42C	4	2	75.2	42.3	2-150	C-OCTAL K42CG, BK42C, 95K2, K40C, 5516, 5530
K42D	4	2	75.2	42.3	2-150	D-OCTAL K42DG, BK42D, K40D, 3326
K42E	4	2	75.2	42.3	3-150	E-OCTAL K42E1†
L42B	4	2	75.2	42.3	1-250	B-OCTAL BL42B, L42BG, 5547
L42C	4	2	75.2	42.3	2-250	C-OCTAL BL42C, L42CG, 69-2037, 5548
L42D	4	2	75.2	42.3	2-250	D-OCTAL BL42D, L42DG, 5549
49A	3	2	68.9	48.6	0	A-OCTAL K49A, 49KA, K50A
49A1	3	2	68.9	48.6	0	A-OCTAL KY49A
49A2	3	2	68.9	48.6	1-150	B-OCTAL KY49B
49B2	3	2	68.9	48.6	2-150	C-OCTAL KY49C
K49B	3	2	68.9	48.6	1-150	B-OCTAL BK49B, 49KB, K43B2, 165KB, W43357, 115.41, 5533, 160KB, 5623
K49C	3	2	68.9	48.6	2-150	C-OCTAL 49KC, BK49C, A16040, K50C, 81966-2, 5534
BK49C/K49C	HAS BALLASTING ACTION FOR PANEL LAMP TAP					
K49D	3	2	68.9	48.6	2-150	D-OCTAL 49KD, BK49D, BK49D-10, 5633, 5518, 69116, 115.28, 3334, 3334A
L49B	3	2	68.9	48.6	1-250	B-OCTAL 49LB, BL49B, 2UR224, 165LB, 160LB, 69.2033, 5550, 5511
L49C	3	2	68.9	48.6	2-250	C-OCTAL 49LC, 160LC, 165LC, L49-5.5C, BL49C, 2905, 5552
L49D	3	2	68.9	48.6	2-250	D-OCTAL 3CR-241, 49LD, BL49D, 5567
55A1	2	2	62.6	54.9	0	A-OCTAL KY55A
55A2	2	2	62.6	54.9	1-150	B-OCTAL KY55B
55B2	2	2	62.6	54.9	2-150	C-OCTAL KY55C
K55B	2	2	62.6	54.9	1-150	B-OCTAL 55KB, K55BG, K54B, 180KB, 185KB, BK55B, 3613, 5519, 5535
K55C	2	2	62.6	54.9	2-150	C-OCTAL BK55C, 185KB, 5536
K55D	2	2	62.6	54.9	2-150	D-OCTAL BK55D, 185KD, 115.22
L55B	2	2	62.6	54.9	1-250	B-OCTAL 2V4215, 185LB, 2903, 5555, 8598
L55C	2	2	62.6	54.9	2-250	C-OCTAL 85LC, L55-5.5C, 185LC, 2904

PLUG-IN RESISTORS (CONTINUED)

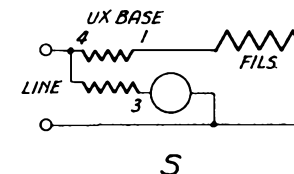
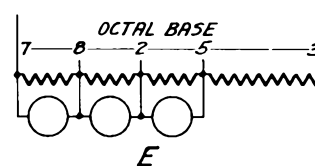
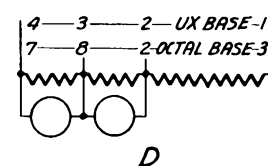
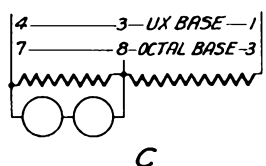
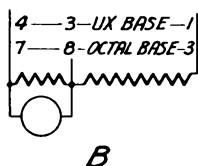
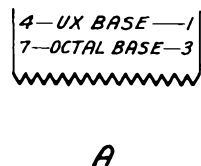
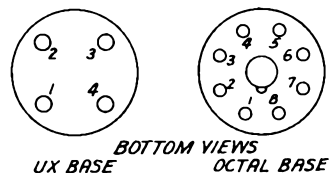
TYPE	TYPICAL TUBE LINEUP 6 VOLT 25 VOLT TYPES TYPES	TOTAL DROP IN TUBE FILAMENTS VOLTS	TOTAL DROP IN RESISTOR VOLTS	NUMBER AND ma OF PANEL LAMPS* BASE	CIRCUIT AND BASE	REPLACEMENT TYPES	
L55D	2	2	62.6	54.9	2-250	D-OCTAL	85LD, 185LD
6OR30G	SPECIAL		98.9	17.6	1-150	B-OCTAL	
M73B	3	1	43.9	73.6	1-200	B-OCTAL	
14OR	4	2	75.2	42.3	0	A-UX	
14OR4	4	2	75.2	42.3	1-150	B-UX	40B2
14OR8	4	2	75.2	42.3	2-150	C-UX	40A2
165L4	3	2	68.9	48.6	1-250	B-UX	
165R	3	2	68.9	48.6	0	A-UX	
165R4	3	2	68.9	48.6	1-150	B-UX	50B2
165R8	3	2	68.9	48.6	2-150	C-UX	50A2
185R	2	2	62.6	54.9	0	A-UX	50X3
185R4	2	2	62.6	54.9	1-150	B-UX	
185R8	2	2	62.6	54.9	2-150	C-UX	50X3T
879R48	7	2	93.9	23.6	1-150	S-UX	

THE FOLLOWING TYPES ARE FOR USE IN BATTERY OPERATED RECEIVERS USING 2 VOLT TUBES WITH FILAMENTS IN PARALLEL.

	TOTAL CURRENT DRAIN OF TUBES ma			
1A1	500	"	2	1
1B1	360	"	2	1
NB1	300	"	2	ALL NB TYPES USE BASING DIAGRAM IN-
NB2	360	"	2	DICATED TOGETHER WITH DEVELOPED BASE
NB3	420	"	2	VIEW. DEPENDING UPON THE WAY IN
NB4	480	"	2	WHICH IT IS INSERTED IN THE SPECIAL
NB5	540	"	2	3-KEYWAY OCTAL SOCKET, AN NB TYPE
NB6	600	"	2	MAY BE USED WITH SETS OBTAINING FIL-
NB7	660	"	2	AMENT SUPPLY FROM EITHER A DRY PACK,
NB8	720	"	2	AIR CELL BATTERY OR STORAGE BATTERY.
				COMPLETE DATA AND APPLICATION INFOR-
				MATION IS AVAILABLE UPON REQUEST.

*PANEL LAMPS TO BE USED WITH THESE PLUG-IN RESISTORS MUST HAVE THE CURRENT RATING SHOWN. THE ACTUAL TYPE WILL DEPEND UPON THE TYPE OF BASING REQUIRED AND MAY BE OBTAINED FROM THE PANEL LAMP DATA IN THIS CHART.

†PILOT LAMP WIRING MAY REQUIRE SLIGHT CHANGE.

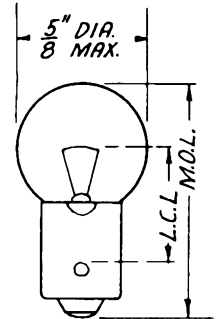
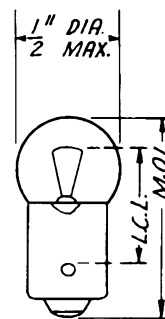
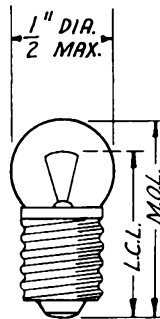
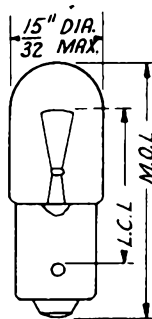
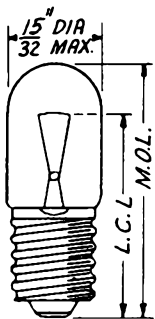


RADIO PANEL LAMPS

Type No.	Volts	Amps.	C.P.	Bulb	Base	Bead Color	L.C.L. Inches	M.O.L. Inches
40	6-8	0.15	0.5	T-3 1/4	Min. Screw	Brown	29/32	1 1/8
40-A	6-8	0.15	0.5	T-3 1/4	Min. Bayonet	Brown	23/32	1 1/8
41	2.5	0.5	0.5	T-3 1/4	Min. Screw	White	29/32	1 1/8
42	3.2	0.5	0.75	T-3 1/4	Min. Screw	Green	29/32	1 1/8
43	2.5	0.5	0.5	T-3 1/4	Min. Bayonet	White	23/32	1 1/8
44	6-8	0.25	0.8	T-3 1/4	Min. Bayonet	Blue	23/32	1 1/8
45	3.2	0.5	0.75	T-3 1/4	Min. Bayonet	Green	23/32	1 1/8
46	6-8	0.25	0.8	T-3 1/4	Min. Screw	Blue	29/32	1 1/8
48	2.0	0.06	0.03	T-3 1/4	Min. Screw	Pink	29/32	1 1/8
49	2.0	0.06	0.03	T-3 1/4	Min. Bayonet	Pink	23/32	1 1/8
49-A	2.1	0.12	0.07	T-3 1/4	Min. Bayonet	White	23/32	1 1/8
50	6-8	0.2	1.0	G-3 1/2	Min. Screw	White	23/32	15/16
292	2.9	0.17	0.3	T-3 1/4	Min. Screw	White	29/32	1 1/8
292-A	2.9	0.17	0.3	T-3 1/4	Min. Bayonet	White	23/32	1 1/8

AUTOMOBILE MINIATURE TYPES

51	6-8	0.2	1.0	G-3 1/2	Min. Bayonet	White	1/2	15/16
55	6-8	0.4	1.5	G-4 1/2	Min. Bayonet	White	1/2	1 1/16



40
41
42
46
48
292

40A
43
44
49
49A
292A

50

51

55

INTERCHANGEABLE TUBE TYPES

TYPE	REPLACE WITH	TYPE	REPLACE WITH	TYPE	REPLACE WITH	TYPE	REPLACE WITH	TYPE	REPLACE WITH	TYPE	REPLACE WITH
AD	1-V	SO2	50	6X5MG	6X5G	41M	6K6G	88	83V	231	31
AF	82	2A3H	Δ2A3	6Y5G	6Y5	42A	42	88M	#6K7G	232	32
AG	83	G4	2S/4S	6Z3	1-V	43MG	25A6G	88S	Δ#6D6	233	33
AX	01A	G4S	2S/4S	6Z4	84/6Z4	44	39/44	95	2A5	234	34
B	V99	KR5	6A4	6Z5/12Z5	6Z5	44A	39/44	96	1-V	235	35/51
BX	X99	5Y3	5Y3G	C11	WD11	45A	45	98	84/6Z4	236	36
E	20	6A7M	#6A7	C12	WX12	46S	46	WX99	X99	237	37
G	40	6A8MG	#6A8G	WDL2	WX12	47S	47	112	12A	238	38
H	01A	6AC5MG	6AC5G	13	80	HZ50	12Z3	112A	12A	239	39/44
LA	6A4/LA	6B5MG	6B5	13B	80	51	35/51	120	20	240	40
PZ	47	6B6G	6B6	14Z3	12Z3	51S	35S/51S	171	71A	245	45
PZH	2A5	6B6MG	6B6	16	81	56A	Δ76	171A	71A	247	47
OO	01A	6B7M	#6B7	16B	81	57A	Δ6C6	171AC	71A	250	50
D 1/2	81	6C5MG	6C5G	AC22	24A	58A	Δ78	171B	71A	280	80
D1	80	6F5MG	6F5G	K24	24A	64	Δ36	182A	Δ71A	280M	83V
DE1	27	6F6M	6F6G	24	24A	64A	36	182B	**183/483	281	81
KR1	1-V	6F6MG	6F6G	KR25	2A5	65	Δ39/44	V199	V99	288	83V
REL	80	6F7S	#6F7	25/25S	1B5/25S	65A	39/44	X199	X99	C299	V99
OL	01A	6G5	6U5/6G5	25A6MG	25A6G	67	Δ37	200	00A	X299	X99
L	1-V	6H5	6U5/6G5	25A7	25A7G	67A	37	201	01A	401A	01A
OLAA	01A	6H6MG	#6H6G	25A8	25A7G	68	Δ38	201A	01A	450	50
OLB	Δ01A	6J7MG	#6J7G	25S	1B5/25S	68A	38	202	10	482A	Δ71A
1A4	1A4P	6K6MG	6K6G	25Z5MG	25Z6G	71	71A	210	10	482B	182B/482B
1A4T	1A4P	6K7MG	#6K7G	25Z6MG	25Z6G	71B	71A	213	80	483	183/483
1B4T	1B4/951	6L7MG	#6L7G	K27	27	75M	#6B6	216	81	585	50
1B5	1B5/25S	6N6	6N6G	27HM	Δ56	80M	80	216B	81	586	50
LD5G	LD5GP	6N6MG	6N6G	KR28	84/6Z4	81M	81	220	20	P861	84/6Z4
LD5GT	LD5GP	6N7MG	6N7G	35	35/51	G84	2Z2/G84	222	22	951	1B4/951
1E5G	1E5GP	6P7G	6P7	36A	36	84	84/6Z4	224	24A	986	†83
1E5GT	1E5GP	6Q6G	6T7G/6Q6G	37A	37	85S	#85	224A	24A		
G2	2S/4S	6Q7MG	#6Q7G	38A	38	86	76	226	26		
G2S	2S/4S	6R7MG	#6R7G	39	39/44	86S	#76	227	27		
RE2	81	6U5	6U5/6G5	39A	39/44	87S	#Δ6C6	230	30		

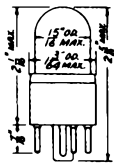
†When the filament supply will stand one ampere additional drain.

**When both power tubes are changed together.

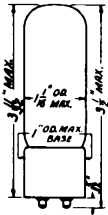
*This type made as a tetrode and as a pentode.

#Replacement may require the addition of a shield can.

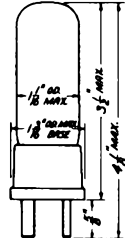
ΔReplacement satisfactory in parallel filament circuits. In series circuits provisions must be made to supply proper filament or heater current.



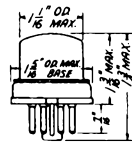
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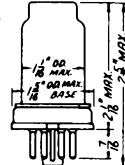
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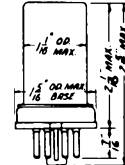
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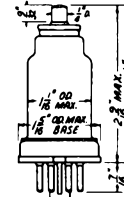
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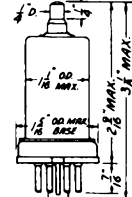
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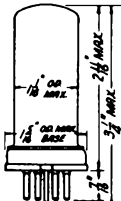
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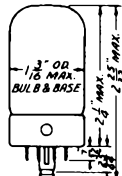
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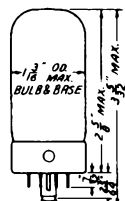
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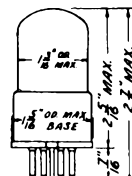
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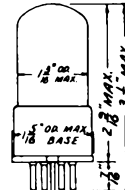
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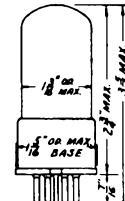
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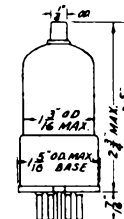
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9D



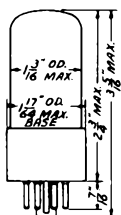
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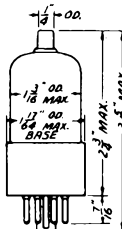
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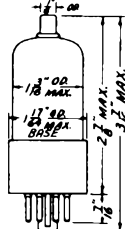
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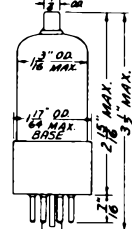
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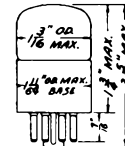
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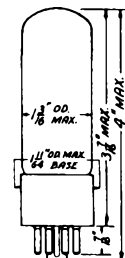
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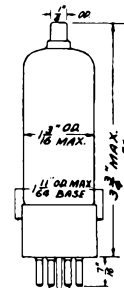
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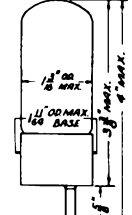
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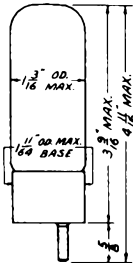
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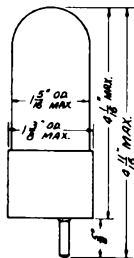
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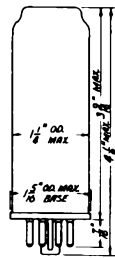
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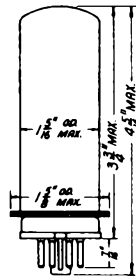
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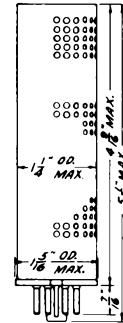
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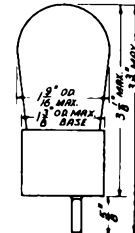
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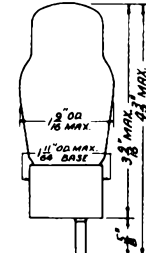
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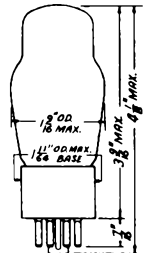
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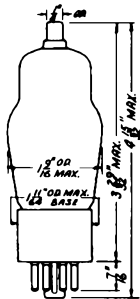
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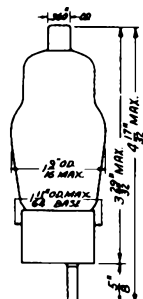
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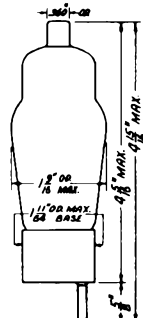
12E



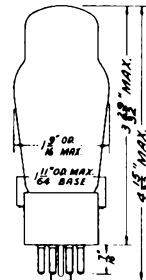
12F



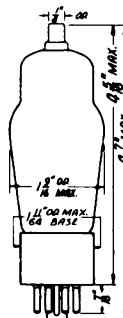
12H



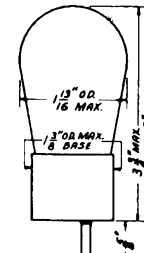
12J



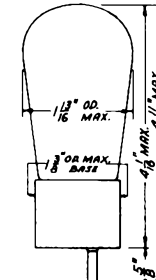
12K



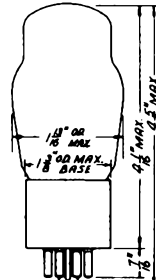
12L



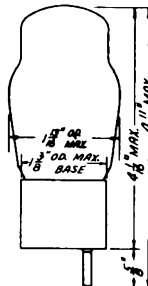
14A



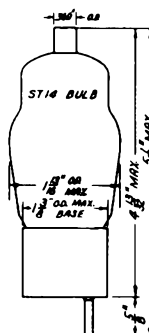
14B



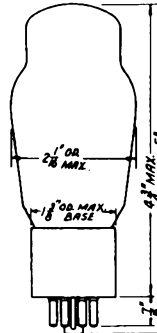
14C



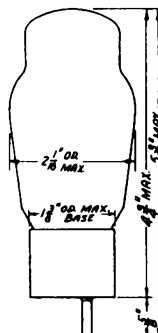
14D



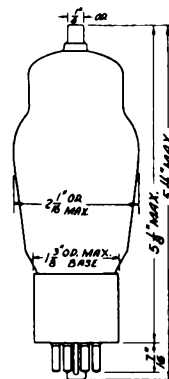
14E



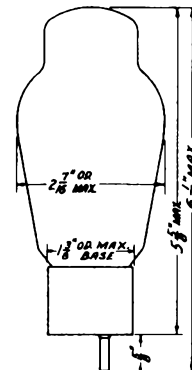
16A



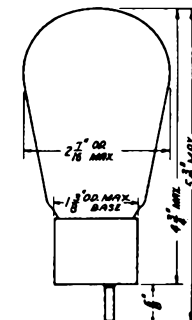
16B



16C



19A



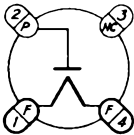
19B

BASE CONNECTION DIAGRAMS
(VIEWED FROM BOTTOM OF BASE)
(RMA NUMBERING SYSTEM)

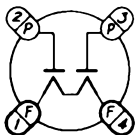
LIST OF SYMBOLS

- A ANODE
- AS STARTER ANODE
- B DIODE PLATE
- BS DIODE PLATE-BOTTOM
- BL DIODE PLATE-LEFT
- BR DIODE PLATE-RIGHT
- BT DIODE PLATE-TOP
- C DEFLECTOR PLATES
- CC CONTROL ELECTRODE
- CF FILAMENT
- T FILAMENT TAP
- G GRID
- G1 GRID NO. 1
- G2 GRID NO. 2
- G3 GRID NO. 3
- G4 GRID NO. 4
- G5 GRID NO. 5
- G6 GRID NO. 6
- H1 HEPTODE GRID NO. 1
- H2 HEPTODE GRID NO. 2
- H3 HEPTODE GRID NO. 3
- H4 HEPTODE GRID NO. 4
- H5 HEPTODE GRID NO. 5
- H6 HEPTODE GRID NO. 6
- H7 HEXODE GRID NO. 1
- H8 HEXODE GRID NO. 2
- H9 HEXODE GRID NO. 3
- H10 HEXODE GRID NO. 4
- I1 GRID NO. 1-LEFT
- I2 PENTODE GRID NO. 1
- I3 PENTODE GRID NO. 2
- I4 PENTODE GRID NO. 3
- I5 GRID NO. 1-RIGHT
- I6 GRID-INPUT SECT.
- I7 GRID-LEFT
- I8 GRID-RIGHT
- I9 TRIODE GRID
- I10 HEATER
- I11 HEATER TAP
- I12 INTERNAL SHIELD
- I13 CATHODE
- I14 DIODE CATHODE
- I15 CATHODE-LEFT
- I16 CATHODE-OUTPUT SECT.
- I17 PENTODE CATHODE
- I18 CATHODE-RIGHT
- I19 TRIODE OR TETRODE CATH.
- I20 NO CONNECTION
- I21 PLATE
- I22 HEPTODE PLATE
- I23 HEXODE PLATE
- I24 PLATE-INPUT SECT.
- I25 PLATE-LEFT
- I26 PLATE-OUTPUT SECT.
- I27 PENTODE PLATE
- I28 PLATE-RIGHT
- I29 TRIODE OR TETRODE PLATE
- I30 SHELL
- I31 TARGET
- I32 EXTERNAL SHIELD

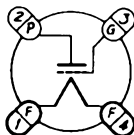
4B



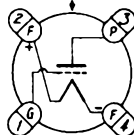
4C



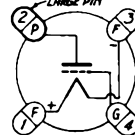
4D



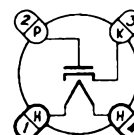
4E



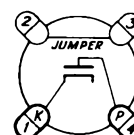
4F



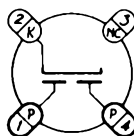
4G



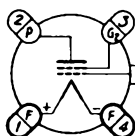
4H



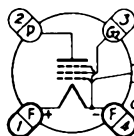
4J



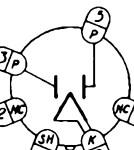
4K



4M

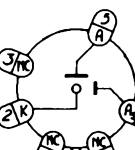


4R

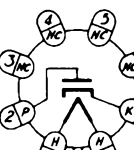


024G Pin 1-NC
Pin 2-Omitted

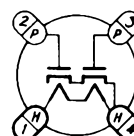
4V



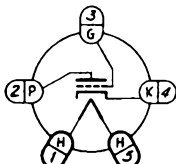
4Z



4AD

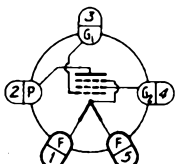


5A

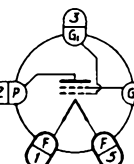


27S }
56S } -Pin 4-K, XS
56AS }

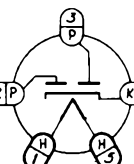
5B



5C

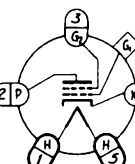


5D



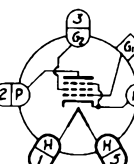
2S/4S Pin 4-K, XS

5E

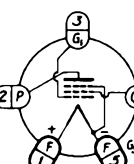


24S }
35S/51S } -Pin 4-K, XS

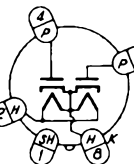
5F



5K

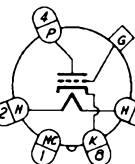


5L



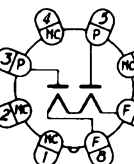
5V4G Pin 1-NC

5M

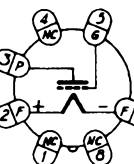


6F5 }
6F60T } -Pin 1-SH
12F50T }

5Q

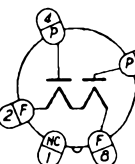


5S



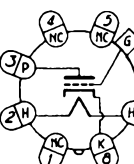
1E4G Pin 1-IS
2A4G }
6B4G } -Pin 6-NC

5T



5T4 }
5W4 } -Pin 1-SH
5U4G Pins 3, 5, 7-NC

5U



5Y

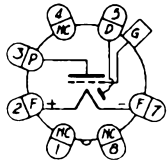


1N5GT Pin 1-SH

SH DESIGNATION FOR GT TYPES
INDICATES METAL BASE SHELL.

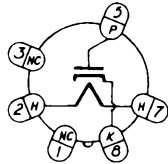
SUBSCRIPTS R & L INDICATE
RIGHT & LEFT ELEMENTS WHEN
LOOKING DOWN ON TOP OF TUBE
WITH LOCATING LUG OF KEY
OR FILAMENT PINS AT FRONT.

5Z

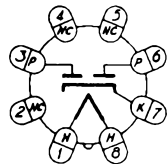


125GT Pin 1-SH

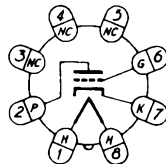
5AA



5AB



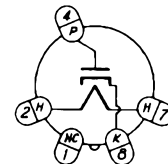
5AC



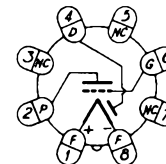
5AD



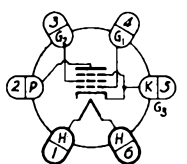
5AF



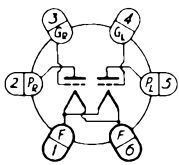
5AG



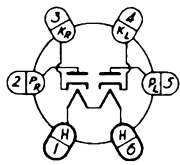
6B



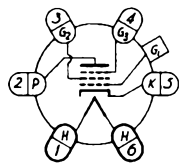
6C



6E

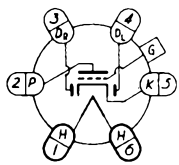


6F



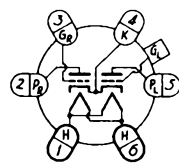
57S } Pin 5-K, XS
57AS }
58S }
58AS }

6G

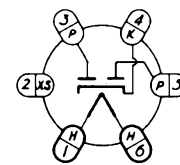


55S } Pin 5-K, XS
75S }
85AS Pin 6-H, XS

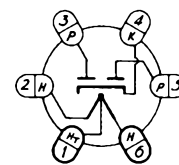
6H



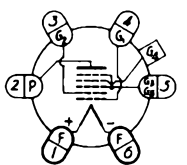
6J



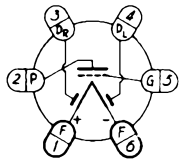
6K



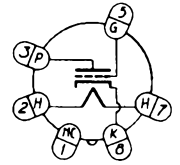
6L



6M

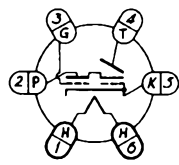


6Q

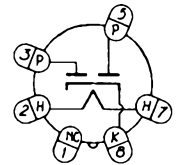


6C5 } Pin 1-SH
6C5 }
6J5GT }
12E5GT }
12J5GT }
6C5G } Pin 1-1S

6R

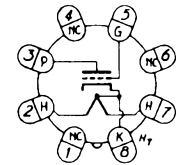


6S

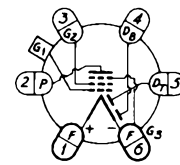


6X5 Pin 1-SH

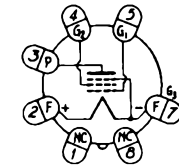
6T



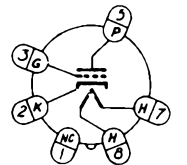
6W



6X

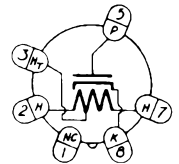


6AB

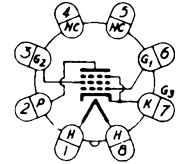


6SF5 Pin 1-SH

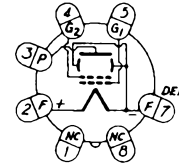
6AD



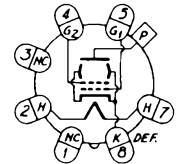
6AE



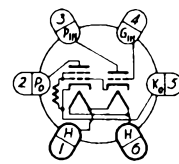
6AF



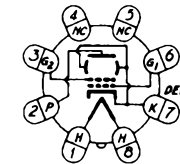
6AM



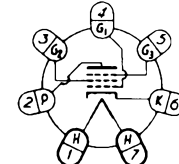
6AS



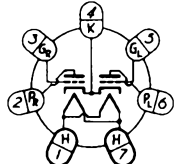
6AT



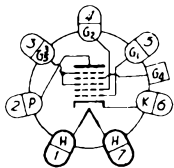
7A



7B

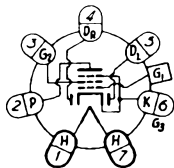


7C



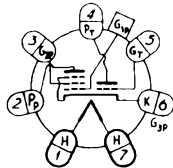
2A7S } Pin 6-K, XS
6A7S }

7D



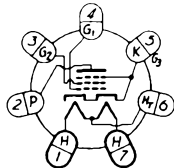
2B7S } Pin 6-K, G₃, XS
6B7S }

7E

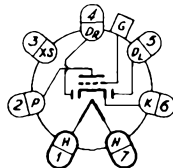


6F7S Pin 6-K, G₃, XS

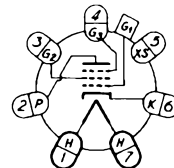
7F



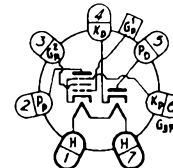
7G



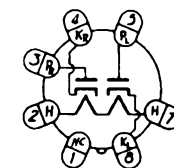
7H



7K

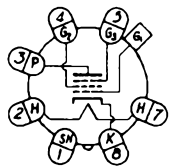


7Q



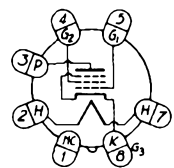
6H6 Pin 1-SH, IS
6H6G Pin 1-IS
6H6GT Pin 1-SH, IS
2526 Pin 1-SH

7R



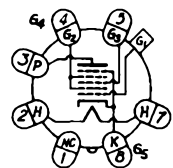
6J7G Pin 1-IS
6K7G
6S7G } Pin 1-NC
6U7G
6W7G
6J7GT Pin 1-SH, IS

7S



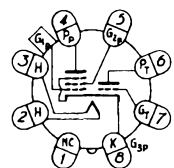
6P6
25A6 } Pin 1-SH
25A6GT

7T

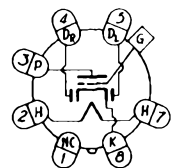


6L7 Pin 1-SH

7U

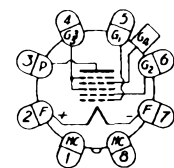


7V



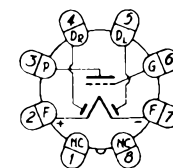
6Q7
6Q7GT
6R7
6R7GT
12Q7GT } Pin 1-SH

7Z

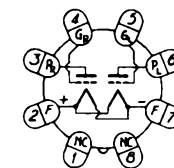


1A7GT Pin 1-SH

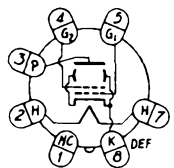
7AA



7AB



7AC

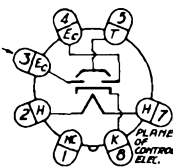


6L6
6V6 } Pin 1-SH
25L6 }

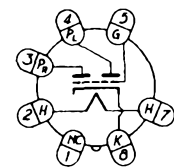
7AD



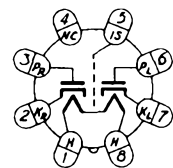
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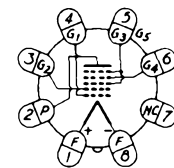
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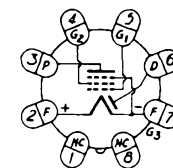
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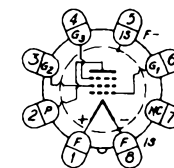
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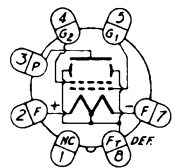
7AM



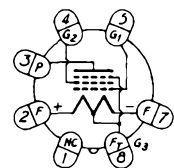
7AO



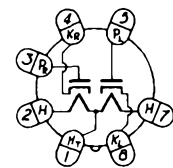
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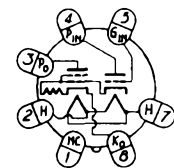
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7AR

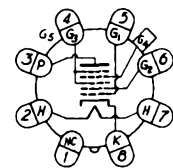


7AU



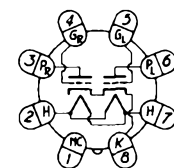
6N6MG Pin 1-SH

8A



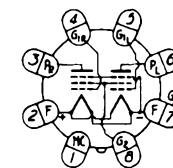
6A8
6A8GT } Pin 1-SH
12A8GT

8B

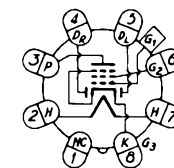


6H7 Pin 1-SH

8C

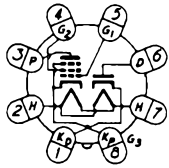


8E

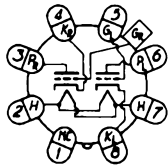


6B8 } Pin 1-SH
12C8 }

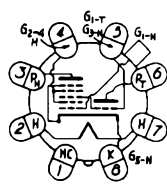
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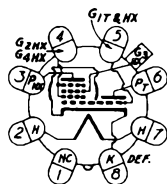
8G



8H

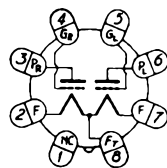


8K

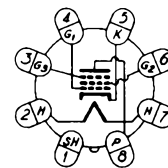


6KB Pin 1-SH,DEF
6KBGT Pin 1-SH

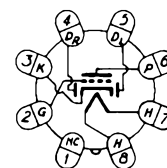
8L



8N

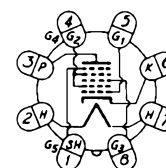


8Q

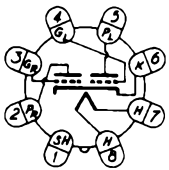


6SQ7 } Pin 1-SH
12SQ7 }

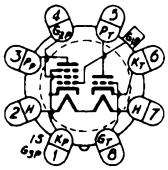
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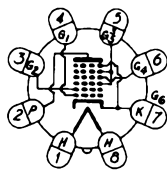
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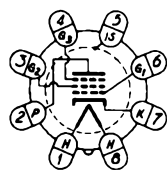
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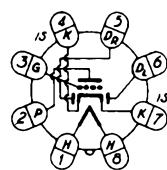
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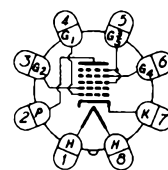
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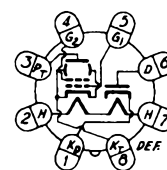
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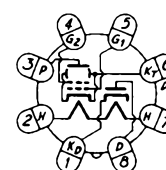
8X



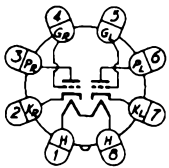
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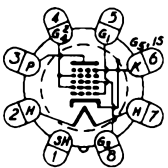
8AA



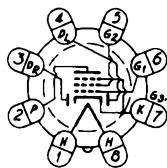
8AC



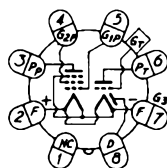
8AD



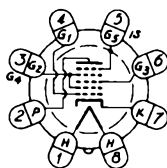
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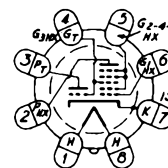
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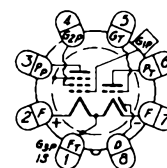
8AL



8AR



8AS



Raytheon, World's Largest Exclusive Manufacturer of Radio Tubes, has for many years been accredited with publishing the most constructive and complete Receiving Tube Data Chart made available to the Radio Trade.

The Sales Promotion Department sincerely believes the user will find this new edition possesses even higher standards than previous issues and is not only helpful but a real necessity to Radio Technicians, Experimenters, and All Others Concerned in the maintenance of Radio Apparatus.

The Sales Promotion Department also hopes the user will be reminded of the uniformly high quality of Raytheon Tubes maintained through the many years, and will favor the Raytheon Tube Distributor in his area when radio tubes are needed. Each Distributor has been selected for ability to serve the Radio Trade with a *complete line of all types* of Raytheon Tubes and is prepared to meet your most exacting requirements.

The Raytheon Data Chart is only one of the many Service and Sales Helps available to the Trade. For complete information, consult the nearest Raytheon office, or, better still, your nearest Raytheon Distributor.

In this new edition of the Raytheon Characteristic Data Chart, there has been included a considerable amount of information not appearing in the preceding editions. A multitude of new tube types have been introduced and these are listed in proper RMA sequence with their essential features and operating characteristics. For each of the active tube types listed there is given complete information on the base connections and in addition the size and type of base. There is also given for each tube type the bulb style and size, and the outline dimensions of the complete tube.

The Interchangeable Tube Section has been made complete to the extent that it includes all obsolete types for which interchangeable types are available.

With these additions, this chart contains a useful and compact summary of the essential information on American receiving tubes. It has been designed for radio servicemen, radio dealers, receiver engineers, and all others who have to do with the application of radio receiving tubes. The number of tube types has become so great that a simple wall chart is no longer practicable. The present booklet form has been chosen as being most convenient for general use. Holes have been provided so that this booklet may be easily mounted on the wall by rings for use as a wall chart or inserted in a loose leaf notebook for bench or desk use.

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