RCA ELECTRON TUBE REFERENCE BOOK-1947

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RCA through its "Preferred Type" Tube Program, has rendered a real service to the radio receiving tube business. The plan of centering production and development around a carefully chosen group of tubes made it possible for the service man, the wholesaler, and the radio manufacturer to buy tubes more intelligently. The soundness of this program was proven during the war when the armed forces used an Army-Navy preferred list, thus simplifying the wartime supply task. To the tube distributor, the user, and to the radio service man the Preferred Type Program means great savings in inventory costs, and increased turnover.

The RCA Tube line is composed of a line of *Receiving Types* which includes some 300 metal, glass, and miniature glass types generally covering the requirements of home receivers, and about 200 *Non-Receiving Types* which embrace Vacuum Power Tubes for transmitters and Industrial uses, Thyratrons, Voltage Regulators, Rectifiers, Ignitrons, Phototubes, Cathode-Ray Oscillograph Tubes, Television Camera Tubes (Iconoscopes, Image Orthicons, and Orthicons), and Types for Special Applications. All of these are described in the Receiving Tube and the Non-Receiving Tube Chart Sections of this Reference Book (pages 42 to 48 inc.)

RCA "PREFERRED-TYPE" BATTERIES

In addition to Electron Tubes, RCA also has a line of some 47 "Preferred-Type" Batteries which are radio-engineered to give extra listening hours. These dry batteries take care of most radio requirements and many non-radio requirements.

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For radio servicemen, engineers, for schools, for laboratories, and for Electronic maintenance and design services RCA offers a complete line of Test Equipment. This equipment includes the famous RCA Voltohmyst, as well as a number of other excellently designed, time-saving devices.

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RCA also sells an extensive line of component and replacement parts for radio and television receivers, industrial electronic equipment and for amateurs and experimenters. This line of components is in process of development and eventually will embrace a wide section of the field.

RCA ELECTRON TUBE TECHNICAL PUBLICATIONS

The following Technical Publications are available on RCA Electron Tubes from your RCA Tube Distributor, Cunningham Tube Distributor, or direct from the Commercial Engineering, Tube Department, Radio Corporation of America, Harrison, N. J.

ALL TYPES TUBE HANDBOOK—HB-3 A loose-leaf compilation of technical data on all RCA Receiving and Non-Receiving Electron Tubes Regarded as the "Bible" of the radio engineering and communication field, it is available in two volumes with subscription page replacement service. Write to Commercial Engineering for descriptive folder and order form

RECEIVING TUBE MANUAL—RC-14—Includes tube theory, application data, circuits, charts. Price $0 25

PHOTOTUBES BULLETIN—Phototube theory, data, curves, and circuits for light operated relays, sound reproduction, light measurement devices.
Single copy free on request.

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TUBE SUBSTITUTION DIRECTORY—A useful reference for the radio service man, in making repairs or replacements where certain tubes are no longer available.
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RCA RADIO TUBE CHART

CHART I. Metal, GT, and other Receiving Types*

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUPPLY VOLTS	GRID BIAS ■ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μMHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
		DIMEN.	S.C.	C T.	VOLTS	AMP.												
00-A	DETECTOR TRIODE	D12	4D	D.C. F	5.0	0.25	GRID LEAK DETECTOR	45	Grid Return to (−) Filament			1.5	30000	666	20	—	—	00-A
01-A	DETECTOR★ AMPLIFIER	D12	4D	D.C. F	5.0	0.25	CLASS A AMPLIFIER	90 135	− 4.5 − 9.0	—	—	2.5 3.0	11000 10000	725 800	8.0 8.0	—	—	01-A
0Z4	FULL-WAVE GAS RECTIFIER	B3	4R	Cold	—	—	RECTIFIER	Starting-Supply Voltage per Plate, 300 min peak volts. Peak Plate Current, 200 max ma. D-C Output Current, 75 max., 30 min ma. D-C Output Voltage, 300 max volts.										0Z4
0Z4-G	FULL-WAVE GAS RECTIFIER	B1	G-4R ♦	Cold	—	—	RECTIFIER											0Z4-G
1A3	H-F DIODE	B0	$5AP_2$	H	1.4	0.15	DETECTOR RECTIFIER	Max. Peak Inverse Volts, 330 Max. Peak Plate Ma., 5				Max. D-C Output Ma., 0.5 Max. D-C Heater-Cathode Potential, 140 Volts						1A3
1A4-P	SUPER-CONTROL R-F AMPLIFIER PENTODE	D9	4M	D.C. F	2.0	0.06	AMPLIFIER	For other characteristics, refer to Type 1D5-GP										1A4-P
1A5-GT/G	POWER AMPLIFIER PENTODE	C3	G-6X	D.C. F	1.4	0.05	CLASS A AMPLIFIER	85 90	− 4.5 − 4.5	85 90	0.7 0.8	3.5 4.0	360000 300000	800 850	—	25000 25000	0.100 0.115	1A5-GT/G
1A6	PENTAGRID CONVERTER ●	D9	6L	D.C. F	2.0	0.06	CONVERTER	135 180	− 3.0 min.	67.5 67.5	2.5 2.4	1.2 1.3	400000 500000	Anode-Grid (#2): 180 max. volts, 2.3 ma. Oscillator-Grid (#1) Resistor, Conversion Transcond., 300 micromhos.				1A6
1A7-G	PENTAGRID CONVERTER ●	D6	G-7Z	D.C. F	1.4	0.05	CONVERTER	For other characteristics, refer to Type 1A7-GT										1A7-G
1A7-GT	PENTAGRID CONVERTER ●	C3	GT-7ZK	D.C. F	1.4	0.05	CONVERTER	90	0	45♣	0.7	0.6	600000	Anode-Grid (#2) 90 max. volts, 1.2 ma. Oscillator-Grid (#1) Resistor, 0.2 meg. Conversion Transcond., 250 micromhos.				1A7-GT
1B4-P	R-F AMPLIFIER PENTODE	D9	4M	D.C. F	2.0	0.06	AMPLIFIER	For other characteristics, refer to Type 1E5-GP										1B4-P
1B5/25S	DUPLEX-DIODE TRIODE	D5	6M	D.C. F	2.0	0.06	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 1H6-G.										1B5/25S

1B7-GT/G	PENTAGRID CONVERTER	C3	GT-7ZA	D.C. F	1.4	0.10	CONVERTER	90	0	45♣	1.3	1.5	350000	Anode-Grid (# 2): 90 max. volts, 1.6 ma. Oscillator-Grid (# 1) Resistor, 0.2 meg. Conversion Transcond., 350 micromhos.				1B7-GT/G
1C5-GT/G	POWER AMPLIFIER PENTODE	C3	G-6X	D.C. F	1.4	0.10	CLASS A AMPLIFIER	83 90	− 7.0 − 7.5	83 90	1.6 1.6	7.0 7.5	110000 115000	1500 1550	——	9000 8000	0.20 0.24	1C5-GT/G
1C6	PENTAGRID CONVERTER ⊙	D9	8L	C.C. F	2.0	0.12	CONVERTER	For other characteristics, refer to Type 1C7-G.										1C6
1C7-G	PENTAGRID CONVERTER⊙	D8	G-7Z	D.C. F	2.0	0.12	CONVERTER	135 180	− 3.0 − 3.0	67.5 67.5	2.5 2.0	1.3 1.5	600000 700000	Anode-Grid (# 2): 180 max. volts. 4.0 ma. Oscillator-Grid (# 1) Resistor∞. Conversion Transcond., 325 micromhos.				1C7-G
1D5-GP	SUPER-CONTROL R-F AMPLIFIER PENTODE	D8	G-5Y	D.C. F	2.0	0.06	CLASS A AMPLIFIER	90 180	(− 3.0 min.)	67.5 67.5	0.9 0.8	2.2 2.3	600000 1000000	720 750	——	——	——	1D5-GP
1D5-GT	SUPER-CONTROL R-F AMPLIFIER TETRODE	D8	G-5R	D.C. F	2.0	0.06	CLASS A AMPLIFIER	180	− 3.0	67.5	0.7	2.2	600000	650	——	——	——	1D5-GT
1D7-G	PENTAGRID CONVERTER⊙	D8	G-7Z	D.C. F	2.0	0.06	CONVERTER	For other characteristics, refer to Type 1A6.										1D7-G
1D8-GT	DIODE-TRIODE-POWER AMPLIFIER PENTODE	C3	G-8AJ	D.C. F	1.4	0.1	PENTODE UNIT AS CLASS A AMPLIFIER	45 90	− 4.5 − 9.0	45 90	0.3 1.0	1.6 5.0	300000 200000	650 925	——	20000 12000	0.035 0.200	1D8-GT
							TRIODE UNIT AS CLASS A AMPLIFIER	45 90	0 0	——	——	0.3 1.1	77000 43500	325 575	25 25	——	——	
1E5-GP	R-F AMPLIFIER PENTODE	D8	G-5Y	D.C. F	2.0	0.06	CLASS A AMPLIFIER	90 180	− 3.0 − 3.0	67.5 67.5	0.7 0.6	1.6 1.7	1000000 1500000	600 650	——	——	——	1E5-GP
1E7-G	TWIN PENTODE POWER AMPLIFIER	D3	G-6C	D.C. F	2.0	0.24	CLASS A AMPLIFIER	135	− 7.5	135	——	Power Output is for one tube at stated plate-to-plate load.				24000	0.575	1E7-G
1F4	POWER AMPLIFIER PENTODE	D12	5K	D.C. F	2.0	0.12	AMPLIFIER	For other characteristics, refer to Type 1F5-G.										1F4
1F5-G	POWER AMPLIFIER PENTODE	D10	G-8X	D.C. F	2.0	0.12	CLASS A AMPLIFIER	90 135	− 3.0 − 4.5	90 135	1.1 2.4	4.0 8.0	240000 200000	1400 1700	——	20000 16000	0.11 0.31	1F5-G
1F6	DUPLEX-DIODE PENTODE	D9	6W	D.C. F	2.0	0.06	PENTODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 1F7-G.										1F6
1F7-G	DUPLEX-DIODE PENTODE	D8	G-7AF	D.C. F	2.0	0.06	PENTODE UNIT AS R-F AMPLIFIER	180	− 1.5	67.5	0.7	2.2	1000000	650	——	——	——	1F7-G
							PENTODE UNIT AS A-F AMPLIFIER	135∝	− 2.0	Screen Supply, 135 volts applied through 0.8-megohm resistor. Grid Resistor,** 1.0 megohm. Voltage Gain, 46.							
1G4-GT/G	DETECTOR AMPLIFIER TRIODE	C3	G-$5S_7$	D.C. F	1.4	0.05	CLASS A AMPLIFIER	90	− 6.0	——	——	2.3	10700	825	8.8	——	——	1G4-GT/G
1G5-G	POWER AMPLIFIER PENTODE	D10	G-8X	D.C. F	2.0	0.12	CLASS A AMPLIFIER	90 135	− 6.0 − 13.5	90 135	2.5 2.5	8.5 8.7	133000 160000	1500 1550	——	8500 9000	0.25 0.55	1G5-G
1G6-GT/G	TWIN TRIODE AMPLIFIER	C3	G-7AB	D.C. F	1.4	0.10	CLASS B AMPLIFIER	90	0	——	——	Power Output is for one tube at stated plate-to-plate load.				12000	0.350	1G6-GT/G

RCA TYPE	NAME	DIMENSIONS SOCKET CONNEC-TIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUP-PLY VOLTS	GRID BIAS ■ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CUR-RENT MA.	PLATE CUR-RENT MA.	A-C PLATE RESIS-TANCE OHMS	TRANS-CONDUC-TANCE (GRID-PLATE) μMHOS	AMPLIFI-CATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUT-PUT WATTS	RCA TYPE
		DIMEN.	S.C.	C.T.	VOLTS	AMP.												
1H4-G	DETECTOR★ AMPLIFIER	D3	G-5S	D.C. F	2.0	0.06	CLASS A AMPLIFIER	90	− 4.5	—	—	2.5	11000	850	9.3	—	—	1H4-G
								135	− 9.0	—	—	3.0	10300	900	9.3			
								180	−13.5	—	—	3.1	10300	900	9.3			
							CLASS B AMPLIFIER	157.5	−15.0	—	—	1.0◆	—	—	—	8000	2.1†	
1H5-G	DIODE HIGH-MU TRIODE	D6	G-5Z	D.C. F	1.4	0.05	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 1H5-GT.										1H5-G
1H5-GT	DIODE HIGH-MU TRIODE	C3	GT-5Z	D.C. F	1.4	0.05	TRIODE UNIT AS CLASS A AMPLIFIER	90	0	—	—	0.15	240000	275	65	—	—	1H5-GT
1H6-G	DUPLEX-DIODE TRIODE	D3	G-7AA	D.C. F	2.0	0.06	TRIODE UNIT AS CLASS A AMPLIFIER	135	− 3.0	—	—	0.8	35000	575	20	—	—	1H6-G
1J5-G	POWER AMPLIFIER PENTODE	D10	G-6X	D.C. F	2.0	0.12	CLASS A AMPLIFIER	135	−16.5	135	2.0	7.0	105000	950	—	135000	0.45	1J5-G
1J6-G	TWIN TRIODE AMPLIFIER	D3	G-7AB	D.C. F	2.0	0.24	CLASS B AMPLIFIER	Power Output is for one tube at stated plate-to-plate load.								10000	2.1	1J6-G
								135	0	—	—					10000	1.9	
								135	− 3.0									
1L4	R-F AMPLIFIER PENTODE	B0	6AR	D.C. F	1.4	0.05	CLASS A AMPLIFIER	90	0	67.5	1.2	2.9	600000	925	—	—	—	1L4
								90	0	90	2.0	4.5	350000	1025				
1LA4	POWER AMPLIFIER PENTODE	B5	5AD	D.C. F	1.4	0.05	AMPLIFIER	For other characteristics, refer to Type 1A5-GT/G.										1LA4
1LA6	PENTAGRID CONVERTER	B5	7AK	D.C. F	1.4	0.05	CONVERTER	90	0	45◆	0.6	0.55	750000	Anode-Grid (★2): 90 max. volts, 1.2 ma. Oscillator Grid (★1) Resistor, 0.2 meg. Conversion Transcond., 250 micromhos.				1LA6
1LB4	POWER AMPLIFIER PENTODE	B5	5AD	D.C. F	1.4	0.05	CLASS A AMPLIFIER	For other characteristics, refer to Pentode Unit of Type 1D8-GT.										1LB4
1LH4	DIODE HIGH-MU TRIODE	B5	5AG	D.C. F	1.4	0.05	TRIODE UNIT AS CLASS A AMPLIFIER	For other characteristics, refer to Type 1H5-GT.										1LH4
1LN5	R-F AMPLIFIER PENTODE	B5	7AO	D.C. F	1.4	0.05	CLASS A AMPLIFIER	90	0	90	0.35	1.6	1.1 meg.	800	—	—	—	1LN5
1N5-G	R-F AMPLIFIER PENTODE	D6	G-5Y	D.C. F	1.4	0.05	AMPLIFIER	For other characteristics, refer to Type 1N5-GT.										1N5-G
1N5-GT	R-F AMPLIFIER PENTODE	C3	GT-5Y	D.C. F	1.4	0.05	CLASS A AMPLIFIER	90	0	90	0.3	1.2	1500000	750	—	—	—	1N5-GT
1N6-G	DIODE—POWER AMPLIFIER PENTODE	D1	G-7AM	D.C. F	1.4	0.05	PENTODE UNIT AS CLASS A AMPLIFIER	90	− 4.5	90	0.7	3.4	300000	800	—	25000	0.1	1N6-G

1P5-GT/G	SUPER-CONTROL R-F AMPLIFIER PENTODE	C3	GT-5Y	D.C. F	1.4	0.05	CLASS A AMPLIFIER	90	0	90	0.7	2.3	800000	750	——	——	——	1P5-GT/G
1Q5-GT/G	BEAM POWER AMPLIFIER	C3	G-6AF	D.C. F	1.4	0.1	CLASS A AMPLIFIER	90	— 4.5	90	1.3	9.5	75000	2200	——	8000	0.27	1Q5-GT/G
1R5	PENTAGRID CONVERTER	B0	7AT	D.C. F	1.4	0.05	CONVERTER	45 90	0 0	45 67.5	1.9 3.2	0.7 1.6	600000 600000	Grid #1 Resistor, 100000 ohms. Conversion Transcond., 300 micromhos.				1R5
1S4	POWER AMPLIFIER PENTODE	B0	7AV	D.C. F	1.4	0.1	CLASS A AMPLIFIER	45 90	— 4.5 — 7.0	45 67.5	0.8 1.4	3.8 7.4	100000 100000	1250 1575	——	8000 8000	0.065 0.27	1S4
1S5	DIODE PENTODE	B0	6AU	D.C. F	1.4	0.05	PENTODE UNIT AS A-F AMPLIFIER	Plate Supply, 90 volts applied through 1 meg. resistor. Screen Supply, 90 volts applied through 3 meg. resistor. Grid Bias, 0 volts. Grid Resistor, 10 megohms. Voltage Gain, 50 approx.										1S5
1T4	SUPER-CONTROL R-F AMPLIFIER PENTODE	B0	6AR	D.C. F	1.4	0.05	CLASS A AMPLIFIER	45 90	0 0	45 67.5	0.7 1.4	1.7 3.5	350000 500000	700 900	——	——	——	1T4
1T5-GT	BEAM POWER AMPLIFIER	C3	G-6X	D.C. F	1.4	0.05	CLASS A AMPLIFIER	90	— 6.0	90	1.4	6.5	——	1150	——	14000	0.17	1T5-GT
1-v	HALF-WAVE RECTIFIER	D5	4G	H	6.3	0.3	WITH CONDENSER-INPUT FILTER	Max. A-C Plate Volts (RMS), 325 Max. D-C Output Ma., 45				Min. Total Effective Plate-Supply Impedance: Up to 117 volts, 0 ohms; at 150 volts, 30 ohms; at 325 volts, 75 ohms.						1-v
2A3	POWER AMPLIFIER TRIODE	E3	4D	F	2.5	2.5	CLASS A AMPLIFIER	250	—45.0	——	——	60.0	800	5250	4.2	2500	3.5	2A3
							PUSH-PULL CLASS AB1 AMPLIFIER	300 300	Cath. Bias, 780 ohms♣ —62 volts, fixed bias			80.0♣ 80.0♣	——	——	——	5000 3000	10.0† 15.0†	
2A4-G	GAS-TRIODE	D3	G-6S7	F	2.5	2.5	RELAY SERVICE	Peak Anode Voltage, 200 max. volts, inverse or forward. Peak Anode Current, 1.25 max. amperes. Average Anode Current, 0.1 max. ampere.										2A4-G
2A5	POWER AMPLIFIER PENTODE	D12	6B	H	2.5	1.75	AMPLIFIER	For other characteristics, refer to Type 6F6-G.										2A5
2A6	DUPLEX-DIODE HIGH-MU TRIODE	D9	6Q	H	2.5	0.8	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SQ7.										2A6
2A7	PENTAGRID CONVERTER	D9	7C	H	2.5	0.8	CONVERTER	For other characteristics, refer to Type 6A8.										2A7
2B7	DUPLEX-DIODE PENTODE	D9	7D	H	2.5	0.8	PENTODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6B8-G.										2B7
2E5	ELECTRON-RAY TUBE	D5	6R	H	2.5	0.8	VISUAL INDICATOR	For other characteristics, refer to Type 6E5.										2E5
3A8-GT	DIODE-TRIODE R-F AMPLIFIER PENTODE	C5a	8AS	D.C. F	1.4	0.1	TRIODE UNIT AS CLASS A AMPLIFIER	90	0	——	——	0.2	200000	325	65	——	——	3A8-GT
					2.8	0.05	PENTODE UNIT AS CLASS A AMPLIFIER	90	0	90	0.5	1.5	800000	750	——	——	——	
3Q4	POWER AMPLIFIER PENTODE	B0	7BA	D.C. F	1.4	0.1	CLASS A AMPLIFIER	90	— 4.5	90	2.1	9.5	100000	2150	——	10000	0.27	3Q4
					2.8	0.05		90	— 4.5	90	1.7	7.7	120000	2000	——	10000	0.24	

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUPPLY VOLTS	GRID BIAS ■ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μMHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
		DIMEN.	S. C.	E. T.	VOLTS	AMP.												
30S-GT/G	BEAM POWER AMPLIFIER	C3	G-7AP	D.C. F	1.4 2.8	0.1 0.05	CLASS A AMPLIFIER	110 110	− 6.6 − 6.6	110 110	1.4 1.1	10.0 8.5	100000 110000	2200 2000	—— ——	8000 8000	0.40 0.33	30S-GT/G
33-4	POWER AMPLIFIER PENTODE	B0	7BA	D.C. F	1.4 2.8	0.1 0.05	CLASS A AMPLIFIER	90 90	− 7 − 7	67.5 67.5	1.4 1.1	7.4 6.1	100000 100000	1575 1425	—— ——	8000 8000	0.27 0.235	33-4
5T4	FULL-WAVE RECTIFIER	D7	5T	F	5.0	2.0	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1550				Max. D-C Output Ma., 225 Max. Peak Plate Ma., 675			Min. Total Effect Supply Imped. per Plate, 150 ohms			5T4
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 550 Max. Peak Inverse Volts, 1550				Max. D-C Output Ma., 225 Max. Peak Plate Ma., 675			Min. Value of Input Choke, 3 henries		
5U4-G	FULL-WAVE RECTIFIER	E2	G-5T	F	5.0	3.0	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1550				Max. D-C Output Ma., 225 Max. Peak Plate Ma., 675			Min. Total Effect Supply Imped. per Plate, 75 ohms			5U4-G
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 550 Max. Peak Inverse Volts, 1550				Max. D-C Output Ma., 225 Max. Peak Plate Ma., 675			Min. Value of Input Choke, 3 henries		
5V4-G	FULL-WAVE RECTIFIER	D10	G-5L	H	5.0	2.0	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 375 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 175 Max. Peak Plate Ma., 525			Min. Total Effect Supply Imped. per Plate, 100 ohms			5V4-G
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 500 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 175 Max. Peak Plate Ma., 525			Min. Value of Input Choke, 4 henries		
5W4	FULL-WAVE RECTIFIER	C2	5T	F	5.0	1.5	For other ratings, refer to Type 5W4-GT/G											5W4
5W4-GT/G	FULL-WAVE RECTIFIER	C7	G-5T	F	5.0	1.5	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 350 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 100 Max. Peak Plate Ma., 300			Min. Total Effect Supply Imped. per Plate, 50 ohms			5W4-GT/G
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 500 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 100 Max. Peak Plate Ma., 300			Min. Value of Input Choke, 6 henries		
5X4-G	FULL-WAVE RECTIFIER	E2	G-5Q	F	5.0	3.0	For other ratings, refer to Type 5U4-G.											5X4-G
5Y3-GT/G	FULL-WAVE RECTIFIER	D10	G-5T	F	5.0	2.0	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 350 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 125 Max. Peak Plate Ma., 375			Min. Total Effect Supply Imped. per Plate, 50 ohms			5Y3-GT/G
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 500 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 125 Max. Peak Plate Ma., 375			Min. Value of Input Choke, 5 henries		
5Y4-G	FULL-WAVE RECTIFIER	D10	G-5Q	F	5.0	2.0	For other ratings, refer to Type 5Y3-GT/G.											5Y4-G
5Z3	FULL-WAVE RECTIFIER	E3	4C	F	5.0	3.0	For other ratings, refer to Type 5U4-G.											5Z3

5Z4	FULL-WAVE RECTIFIER	C2	5L	H	5.0	2.0	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 350 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 125 Max. Peak Plate Ma., 375			Min. Total Effect. Supply Imped. per Plate, 50 ohms		5Z4
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 500 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 125 Max. Peak Plate Ma., 375			Min. Value of Input Choke, 5 henries		
6A3	POWER AMPLIFIER TRIODE	E3	4D	F	6.3	1.0	CLASS A AMPLIFIER	250	−45.0	—	—	60.0	800	5250	4.2	2500	3.20	6A3
							PUSH-PULL CLASS AB1 AMPLIFIER	325	Cath. Bias, 850 ohms◆			80.0◆	—	—	—	5000	10.0†	
								325	−68 volts, fixed bias			80.0◆	—	—	—	3000	15.0†	
6A4/LA	POWER AMPLIFIER PENTODE	D12	5B	F	6.3	0.3	CLASS A AMPLIFIER	100	− 6.5	100	1.6	9.0	83250	1200	—	11000	0.31	6A4/LA
								180	−12.0	180	3.9	22.0	45500	2200	—	8000	1.40	
6A6	TWIN TRIODE AMPLIFIER	D12	7B	H	6.3	0.8	AMPLIFIER	For other characteristics, refer to Type 6N7-GT/G.										6A6
6A7	PENTAGRID CONVERTER ⊡	D9	7C	H	6.3	0.3	CONVERTER	For other characteristics, refer to Type 6A8.										6A7
6A7S	PENTAGRID CONVERTER ⊡	D9	7C	H	6.3	0.3	CONVERTER	For other characteristics, refer to Type 6A8.										6A7S
6A8	PENTAGRID CONVERTER ⊙	C1	8A	H	6.3	0.3	CONVERTER	100	− 1.5	50	1.3	1.1	600000	Anode-Grid (⊛2): 250 ▼ max. volts, 4.0 ma. Oscillator-Grid (⊛1) Resistor ▲. Conversion Transcond., 550 micromhos				6A8
								250	− 3.0	100	2.7	3.5	360000					
6A8-G	PENTAGRID CONVERTER ⊙	D8	G-8A‡	H	6.3	0.3	CONVERTER	For other characteristics, refer to Type 6A8.										6A8-G
6A8-GT	PENTAGRID CONVERTER ⊙	C3	GT-8A ⊠	H	6.3	0.3	CONVERTER	For other characteristics, refer to Type 6A8.										6A8-GT
6AB5/ 6N5	ELECTRON-RAY TUBE	D4	6R	H	6.3	0.15	VISUAL INDICATOR	Plate & Target Supply = 135 volts. Triode Plate Resistor = 0.25 meg. Target Current = 2.0 ma. Grid Bias, − 10.0 volts; Shadow Angle, 0°. Bias, 0 volts; Angle, 90°; Plate Current, 0.5 ma.										6AB5/ 6N5
								Plate & Target Supply = 135 volts. Triode Plate Resistor = 1.0 meg. Target Current = 1.9 ma. Grid Bias, −15.5 volts; Shadow Angle, 0°. Bias, 0 volts; Angle 90°. Plate Current, 0.13 ma.									
6AB7/ 1853	TELEVISION AMPLIFIER PENTODE	B3	8N	H	6.3	0.45	CLASS A AMPLIFIER	300	− 3.0	200	3.2	12.5	700000	5000	—	—	—	6AB7/ 1853
6AC5-GT/G	HIGH-MU POWER AMPLIFIER TRIODE	C3	G-6Q‡	H	6.3	0.4	CLASS B AMPLIFIER	250	0	—	—	5.0◆	—	—	—	10000	8.0†	6AC5-GT/G
							DYNAMIC-COUPLED AMPLIFIER WITH 6P5-GT/G DRIVER	250	Bias for both 6AC5-GT/G and 6P5-GT/G is developed in coupling circuit. Average Plate Current of Driver = 5.5 milliamperes. Average Plate Current of 6AC5-GT/G = 32 milliamperes.							7900	3.7	
6AC7/ 1852	TELEVISION AMPLIFIER PENTODE	B3	8N	H	6.3	0.45	CLASS A AMPLIFIER	300	Cath. Bias	150	2.5	10.0	100000	9000	Cathode-Bias Resistor, 160 ohms			6AC7/ 1852
6AD6-G	ELECTRON-RAY TUBE Twin Indicator Type	B5a	7AG	H	6.3	0.15	VISUAL INDICATOR	Target Voltage, 100 volts. Control-Electrode Voltage, −23 volts, Shadow Angle, 135°, Target Current, 0.8 ma. Control-Electrode Voltage, 45 volts, Angle, 0°, Target Current, 1.5 ma.										6AD6-G
								Target Voltage, 150 volts. Control-Electrode Voltage, −50 volts, Shadow Angle, 135°, Target Current, 1.2 ma. Control-Electrode Voltage, 75 volts, Angle, 0°, Target Current, 3 ma.									

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUPPLY VOLTS	GRID BIAS ■ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μMHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
		DIMEN.	S. C.	C. T.	VOLTS	AMP.												
6AD7-G	TRIODE-POWER AMPLIFIER PENTODE	D10	8AY	H	6.3	0.85	TRIODE UNIT AS CLASS A AMPLIFIER	250	−25.0	—	—	4.0	19000	325	6.0	—	—	6AD7-G
							PENTODE UNIT AS CLASS A AMPLIFIER	250	−16.5	250	6.5	34.0	80000	2500	—	7000	3.2	
							PENTODE UNIT WITH 6FA-G AS PUSH-PULL CLASS AB1 AMPLIFIER	375	Cath. Bias	250	6.7◆	41.0◆	Cathode-Bias Resistor, 470 ohms◆			16000	9.0†	
6AE5-GT/G	AMPLIFIER TRIODE	C3	G-6Q	H	6.3	0.3	CLASS A AMPLIFIER	95	−15.0	—	—	7.0	3500	1200	4.2	—	—	6AE5-GT/G
6AE6-G	TWIN-PLATE CONTROL TUBE	D3	7AH	H	6.3	0.15	REMOTE CUT-OFF TRIODE	250	− 1.5	—	—	6.5	25000	1000	25	—	—	6AE6-G
								250	−35.0	—	—	0.01	—	—	—	—	—	
							SHARP CUT-OFF TRIODE	250	− 1.5	—	—	4.5	35000	950	33	—	—	
								250	− 9.5	—	—	0.01	—	—	—	—	—	
							CLASS A AMP.▲▲	250	−13.5	—	—	10.0	4650	3000	14	—	—	
6AE7-GT	TWIN-INPUT TRIODE AMPLIFIER	C3	G-7AX	H	6.3	0.5	DRIVER FOR PUSH-PULL 6AC3-GT/G's IN DYNAMIC-COUPLED AMPLIFIER	250	Bias for both 6AC5-GT/G's and 6AE7-GT is developed in coupling circuit. Zero-Signal Plate Current of 6AE7-GT = 10 milliamperes. Zero-Signal Plate Current of 6AC5-GT/G's = 64 milliamperes. Power Output is for two 6AC5-GT/G's at stated plate-to-plate load.						10000	9.5	6AE7-GT
6AF6-G	ELECTRON-RAY TUBE Twin Indicator Type	B2	7AQ	H	6.3	0.15	VISUAL INDICATOR	Target Voltage, 135 volts. Control-Electrode Voltage, 0 volts; Shadow Angle, 100°; Target Current, 0.9 ma. Control-Electrode Voltage, 81 volts; Angle, 0°. Target Voltage, 250 volts. Control-Electrode Voltage, 0 volts; Shadow Angle, 100°; Target Current, 2.4 ma. Control-Electrode Voltage, 153 volts; Angle, 0°.									6AF6-G
6AG5	R-F AMPLIFIER PENTODE	B6	7BD	H	6.3	0.3	CLASS A AMPLIFIER	100	Cath. Bias	100	1.6	5.5	300000	4750	Cath. Bias Res., 100 ohms			6AG5
								250		150	2.0	7.0	800000	5000	Cath. Bias Res., 200 ohms			
6AG7	VIDEO POWER AMPLIFIER PENTODE	C2	8Y	H	6.3	0.65	CLASS A AMPLIFIER	300	Cath. Bias − 2.0	125	7.0	28.0	Cathode-Bias Resistor, 57 ohms. Load Resistance, 3500 ohms. Peak-to-Peak Volts Output, 140 approx.					6AG7
6B4-G	POWER AMPLIFIER TRIODE	E2	G-5S$_6$	F	6.3	1.0	AMPLIFIER	For other characteristics, refer to Type 6A3.										6B4-G
6B5	DIRECT-COUPLED POWER AMPLIFIER	D12	6AS	H	6.3	0.8	CLASS A AMPLIFIER	For other characteristics, refer to Type 6N6-G.										6B5
6B6-G	DUPLEX-DIODE HIGH-MU TRIODE	D8	G-7V	H	6.3	0.3	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SQ7.										6B6-G
6B7	DUPLEX-DIODE PENTODE	D8	7D	H	6.3	0.3	PENTODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6B8-G.										6B7

6B7S	DUPLEX-DIODE PENTODE	D9	7D	H	6.3	0.3	PENTODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6B8-G.											6B7S
6B8	DUPLEX-DIODE PENTODE	C1	8E	H	6.3	0.3	PENTODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 12C8.											6B8
6B8-G	DUPLEX-DIODE PENTODE	D8	G-8E‡	H	6.3	0.3	PENTODE UNIT AS R-F AMPLIFIER	100 250	− 3.0 − 3.0	100 125	1.7 2.3	5.8 9.0	300000 600000	950 1125	—	—	—		6B8-G
							PENTODE UNIT AS A-F AMPLIFIER	90 ✕ Cath. Bias, 3500 ohms. Screen Resistor = 1.1 meg. Grid Resistor,** 0.5 megohm. Gain per stage = 55 300 ✕ Cath. Bias, 1600 ohms. Screen Resistor = 1.2 meg. Gain per stage = 79										
6C5	DETECTOR★ AMPLIFIER TRIODE	B1	6Q	H	6.3	0.3	CLASS A AMPLIFIER	250	− 8.0	—	—	8.0	10000	2000	20	—	—		6C5
								90 ▼ Cath. Bias, 6400 ohms. 300 ▼ Cath. Bias, 5300 ohms. Grid Resistor,** 0.25 megohm. Gain per stage = 11 Gain per stage = 13										
							BIAS DETECTOR	250	−17.0 approx. Plate current to be adjusted to 0.2 milliampere with no signal.										
6C5-GT/G	DETECTOR★ AMPLIFIER TRIODE	C3	GT-6Q★	H	6.3	0.3	AMPLIFIER DETECTOR	For other characteristics, refer to Type 6C5.											6C5-GT/G
6C6	TRIPLE-GRID DETECTOR AMPLIFIER	D13	6F	H	6.3	0.3	AMPLIFIER DETECTOR	For other characteristics, refer to Type 6J7.											6C6
6C7	DUPLEX-DIODE TRIODE	D9	7G	H	6.3	0.3	TRIODE UNIT AS CLASS A AMPLIFIER	250	− 9.0	—	—	4.5	16000	1250	20	—	—		6C7
6C8-G	TWIN TRIODE AMPLIFIER	D8	G-8G	H	6.3	0.3	EACH UNIT AS AMPLIFIER	250	− 4.5	—	—	3.2	22500	1600	36	—	—		6C8-G
6D6	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	D13	6F	H	6.3	0.3	AMPLIFIER MIXER	For other characteristics, refer to Type 6U7-G.											6D6
6D7	TRIPLE-GRID DETECTOR AMPLIFIER	D13	7H	H	6.3	0.3	AMPLIFIER DETECTOR	For other characteristics, refer to Type 6J7.											6D7
6D8-G	PENTAGRID CONVERTER●	D8	G-8A‡	H	6.3	0.15	CONVERTER	135 250	− 3.0 − 3.0	67.5 100	1.7 2.6	1.5 3.5	600000 400000	Anode-Grid (#2): 250✎ max. volts; 4.3 ma. Oscillator-Grid (#1) Resistor ✎. Conversion Transcond., 550 micromhos.					6D8-G
6E5	ELECTRON-RAY TUBE	D4	6R	M	6.3	0.3	VISUAL INDICATOR	Plate & Target Supply = 200 volts. Triode Plate Resistor = 1.0 meg. Target Current = 3.0 ma. Grid Bias, −6.5 volts; Shadow Angle, 0°. Bias, 0 volts; Angle, 90°; Plate Current, 0.19 ma.											6E5
								Plate & Target Supply = 250 volts. Triode Plate Resistor = 1.0 meg. Target Current = 4.0 ma. Grid Bias, −8.0 volts; Shadow Angle, 0°. Bias, 0 volts; Angle, 90°; Plate Current, 0.24 ma.										
6E6	TWIN TRIODE POWER AMPLIFIER	D12	7B	H	6.3	0.6	PUSH-PULL CLASS A AMPLIFIER	180 250	−20.0 −27.5	—	—	Power Output is for one tube at stated plate-to-plate load.				15000 14000	0.75 1.60		6E6
6E7	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	D13	7H	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6U7-G.											6E7

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUPPLY VOLTS	GRID BIAS VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μMHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
		DIMEN.	S. C.	C. T.	VOLTS	AMP.												
6F5	HIGH-MU TRIODE	C1	5M	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6SF5.										6F5
6F5-G	HIGH-MU TRIODE	D8	G-5M‡	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6SF5.										6F5-G
6F5-GT	HIGH-MU TRIODE	C3	G-5M‡	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6SF5.										6F5-GT
6F6	POWER AMPLIFIER PENTODE	C2	7S	H	6.3	0.7	AMPLIFIER	For other characteristics, refer to Type 6F6-G.										6F6
6F6-G	POWER AMPLIFIER PENTODE	D10	G-7S‡	H	6.3	0.7	PENTODE CLASS A AMPLIFIER	250	−16.5	250	6.5	34.0	80000	2500	——	7000	3.2	6F6-G
								285	−20.0	285	7.0	38.0	78000	2550		7000	4.8	
							TRIODE□ CLASS A AMPLIFIER	250	−20.0	——	——	31.0	2600	2600	6.8	4000	0.85	
							PENTODE PUSH-PULL CLASS A AMPLIFIER	315	Cath. Bias	285	12.0♣	62.0♣	Cath. Bias Resistor, 320 ohms♣			10000	10.5†	
								315	−24.0	285	12.0♣	62.0♣	——	——	——	10000	11.0†	
							PENTODE PUSH-PULL CLASS AB$_2$ AMPLIFIER	375	Cath. Bias	250	8.0♣	54.0♣	Cath. Bias Resistor, 340 ohms♣			10000	19.0†	
								375	−26.0	250	5.0♣	34.0♣	——	——	——	10000	18.5†	
							TRIODE PUSH-PULL□ CLASS AB$_2$ AMPLIFIER	350	Cath. Bias	——	——	50.0♣	Cath. Bias Resistor, 730 ohms♣			10000	9.0†	
								350	−38.0	——	——	48.0♣	——	——	——	6000	13.0†	
6F7	TRIODE-PENTODE	D9	7E	H	6.3	0.3	TRIODE UNIT AS CLASS A AMPLIFIER	100	(−3.0 min.)	——	——	3.5	16000	500	8	——	——	6F7
							PENTODE UNIT AS CLASS A AMPLIFIER	100	(−3.0 min.)	100	1.6	6.3	290000	1050	——	——	——	
								250		100	1.5	6.5	850000	1100	——	——	——	
							PENTODE UNIT AS MIXER	250	−10.0	100	0.6	2.8	Oscillator Peak Volts = 7.0. Conversion Transcond. = 300 micrombos.					
6F8-G	TWIN TRIODE AMPLIFIER	D8	G-8G	H	6.3	0.6	EACH UNIT AS AMPLIFIER	For other characteristics, refer to Type 6J5.										6F8-G
6G6-G	POWER AMPLIFIER PENTODE	D3	G-7S‡	H	6.3	0.15	PENTODE CLASS A AMPLIFIER	135	−6.0	135	2.0	11.5	170000	2100	——	12000	0.6	6G6-G
								180	−9.0	180	2.5	15.0	175000	2300		10000	1.1	
							TRIODE□ CLASS A AMPLIFIER	180	−12.0	——	——	11.0	4750	2000	9.5	12000	0.25	
6H6	TWIN DIODE	A1	7Q	H	6.3	0.3	VOLTAGE DOUBLER	Max. A-C Supply Volts per Plate (RMS), 150 Max. D-C Output Ma., 8 Min. Total Effect. Plate-Supply Imped. per Plate, half-wave, 30 ohms, full-wave, 15 ohms.										6H6
							HALF-WAVE RECTIFIER	Max. A-C Plate Volts (RMS), 150 Min. Total Effective Plate-Supply Impedance: up Max. D-C Output Ma., 8 per Plate to 117 volts, 15 ohms, at 150 volts, 40 ohms.										

6H6-GT/G	TWIN DIODE	C3	G-7Q‡‡	H	6.3	0.3	DETECTOR RECTIFIER	For other ratings, refer to Type 6H6.									6H6-GT/G
6J5	DETECTOR AMPLIFIER TRIODE	B3	8Q	H	6.3	0.3	CLASS A AMPLIFIER	90 250	0 − 8.0	— —	— —	10.0 9.0	6700 7700	3000 2600	20 20	— —	— —		6J5
6J5-GT/G	DETECTOR AMPLIFIER TRIODE	C3	GT-8Q§	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6J5.									6J5-GT/G
6J7	TRIPLE-GRID DETECTOR AMPLIFIER	C1	7R	H	6.3	0.3	PENTODE CLASS A R-F AMPLIFIER	100	− 3.0	100	0.5	2.0	1000000	1185	—	—	—		6J7
								250	− 3.0	100	0.5	2.0	1.0+1	1225					
							PENTODE CLASS A A-F AMPLIFIER	90 × Cath. Bias, 2600 ohms. Screen Resistor = 1.2 meg. Grid Resistor,** Gain per stage = 85 300 × Cath. Bias, 1200 ohms. Screen Resistor = 1.2 meg. 0.5 megohm. Gain per stage = 140								
							PENTODE BIAS DETECTOR	250	− 4.3	100	Cathode Current 0.43 ma.		——	Plate Resistor, 500000 ohms. Grid Resistor,** 250000 ohms.					
							TRIODE ✣ CLASS A AMPLIFIER	180	− 5.3	—	—	5.3	11000	1800	20	—	—		
								250	− 8.0	—	—	6.5	10500	1900	20	—	—		
6J7-G	TRIPLE-GRID DETECTOR AMPLIFIER	D8	G-7R‡‡	H	6.3	0.3	AMPLIFIER DETECTOR	For other characteristics, refer to Type 6J7.									6J7-G
6J7-GT	TRIPLE-GRID DETECTOR AMPLIFIER	C3	GT-7R§	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6J7.									6J7-GT
6J8-G	TRIODE-HEPTODE CONVERTER	D8	G-8H	H	6.3	0.3	TRIODE UNIT AS OSCILLATOR	100 250 ✎	Triode-Grid Resistor ✎			4.0 5.8	Triode-Grid & Heptode-Grid Current, 0.3 ma. Triode-Grid & Heptode-Grid Current, 0.4 ma.						6J8-G
							HEPTODE UNIT AS MIXER	100 250	− 3.0 − 3.0	100 100	3.2 3.5	1.3 1.3	800000 2500000	Conversion Transcond., 260 micromhos. Conversion Transcond., 290 micromhos.					
6K5-G	HIGH-MU TRIODE	D8	G-8U	H	6.3	0.3	CLASS A AMPLIFIER	100 250	− 1.5 − 3.0	— —	— —	0.35 1.1	78000 50000	900 1400	70 70	— —	— —		6K5-G
6K6-GT/G	POWER AMPLIFIER PENTODE	C3	G-7S‡	H	6.3	0.4	SINGLE-TUBE CLASS A AMPLIFIER	100	− 7.0	100	1.6	9.0	104000	1500	—	—	12000	0.35	6K6-GT/G
								250	−18.0	250	5.5	32.0	68000	2300	—	—	7600	3.40	
								315	−21.0	250	4.0	25.5	75000	2100			9000	4.50	
							PUSH-PULL CLASS A AMPLIFIER	285	−25.5	285	9.0 ✣	55.0 ✣	——	——	—	—	12000	10.5†	
								285	Cath. Bias	285	9.0 ✣	55.0 ✣	Cath. Bias Resistor, 400 ohms ✣				12000	9.8†	
6K7	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	C1	7R	H	6.3	0.3	CLASS A AMPLIFIER	100	− 1.0	100	2.7	9.5	150000	1650	—	—	—	—	6K7
								250	− 3.0	125	2.6	10.5	600000	1650	—	—	—	—	
							MIXER IN SUPERHETERODYNE	250	−10.0	100	—	—	Oscillator Peak Volts = 7.0						
6K7-G	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	D8	G-7R‡	H	6.3	0.3	AMPLIFIER MIXER	For other characteristics, refer to Type 6K7.									6K7-G

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUPPLY VOLTS	GRID BIAS VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μMHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
		DIMEN.	S. C.	C. T.	VOLTS	AMP.											
6K7-GT	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	C3	GT-7B	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6K7.										6K7-GT
6K8	TRIODE-HEXODE CONVERTER	C1	8K	H	6.3	0.3	TRIODE UNIT AS OSCILLATOR	100	Triode-Grid Resistor =			3.8	Triode-Grid & Hexode-Grid Current, 0.15 ma.					6K8
							HEXODE UNIT AS MIXER	100	−3.0	100	6.2	2.3	400000	Conversion Transcond., 325 micromhos.			
								250	−3.0	100	6.0	2.5	600000	Conversion Transcond., 350 micromhos.				6K8-G
6K8-G	TRIODE-HEXODE CONVERTER	D8	G-8K	H	6.3	0.3	OSCILLATOR AND MIXER	For other characteristics, refer to Type 6K8.										6K8-GT
6K8-GT	TRIODE-HEXODE CONVERTER	C7a	GT-8K	H	6.3	0.3	OSCILLATOR AND MIXER	For other characteristics, refer to Type 6K8.										6L5-G
6L5-G	DETECTOR AMPLIFIER TRIODE	D3	G-6Q	H	6.3	0.15	CLASS A AMPLIFIER	135	−5.0	—	—	3.5	11300	1500	17	—	—	
								250	−9.0	—	—	8.0	9000	1900	17			
																2500	6.5	
							SINGLE-TUBE CLASS A AMPLIFIER	250	−14.0	250	5.0	72.0	Cath. Bias Resistor, 170 ohms.			2500	6.5	
								250	Cath. Bias	250	5.4	75.0						
																5000	17.5	
							PUSH-PULL CLASS A AMPLIFIER	270	−17.5	270	11.0	134.0	Cath. Bias Resistor, 125 ohms.			5000	18.5	
								270	Cath. Bias	270	11.0	134.0				6600	26.5	6L6
							PUSH-PULL CLASS AB1 AMPLIFIER	360	−22.5	270	5.0	88.0	Cath. Bias Resistor, 250 ohms.			9000	24.5	
6L6	BEAM POWER AMPLIFIER	D7	7AC	H	6.3	0.9		360	Cath. Bias	270	5.0	88.0				6000	31.0	
							PUSH-PULL CLASS AB2 AMPLIFIER	360	−18.0	225	3.5	78.0				3800	47.0	
								360	−22.5	270	5.0	88.0				5000	1.4	
							SINGLE TRIODE CLASS A AMPLIFIER	250	−20.0	—	—	40.0	1700	4700	8.0	6000	1.3	
								250	Cath. Bias	—	—	40.0	Cath. Bias Resistor, 490 ohms.					6L6-G
6L6-G	BEAM POWER AMPLIFIER	E2	G-7AC	H	6.3	0.9	AMPLIFIER	For other characteristics, refer to Type 6L6.										6L7
6L7	PENTAGRID MIXER-A AMPLIFIER	C1	7T	H	6.3	0.3	MIXER IN SUPERHETERODYNE	250	−3.0	100	7.1	2.4	Oscillator-Grid (# 3) Bias, −10 volts. Grid # 3 Peak Swing, 12 volts minimum. Conversion Transcond., 375 micromhos.					
							CLASS A AMPLIFIER	250	−3.0	100	6.5	5.3	600000	1100		—	—	6L7-G
6L7-G	PENTAGRID MIXER-A AMPLIFIER	D8	G-7T	H	6.3	0.3	MIXER AMPLIFIER	For other characteristics, refer to Type 6L7.										6N6-G
6N6-G	DIRECT-COUPLED POWER AMPLIFIER	D10	G-7AU	H	6.3	0.8	CLASS A AMPLIFIER	Output Triode: Plate Volts, 300; Plate Ma., 45; Load, 7000 ohms. Input Triode: Plate Volts, 300; Grid Volts, 0; A-F Signal Volts (Peak), 21; Plate Ma., 8.									4.0	6N7
6N7	TWIN TRIODE AMPLIFIER	C2	8B	H	6.3	0.8	AMPLIFIER	For other characteristics, refer to Type 6N7-GT/G.										

6N7-GT/G	TWIN TRIODE AMPLIFIER	D19	G-8B‡	H	6.3	0.8	CLASS A AMPLIFIER (As ϕ)	250 294	− 5.0 − 6.0	—	—	6.0 7.0	11300 11000	3100 3200	35 35	20000 or more	exceeds 0.4	**6N7-GT/G**
							CLASS B AMPLIFIER	300	0	—	—	Power Output is for one tube at stated plate-to-plate load.				8000	10.0	
6P5-GT/G	DETECTOR AMPLIFIER TRIODE	C3	G-6Q‡	H	6.3	0.3	CLASS A AMPLIFIER	100 250	− 5.0 − 13.5	—	—	2.5 5.0	12000 9500	1150 1450	13.8 13.8	—	—	**6P5-GT/G**
								90▼ 300▼	Cath. Bias, 6500 ohms. Cath. Bias, 6400 ohms.			Grid Resistor,** 0.25 megohm.				Gain per stage = 9 Gain per stage = 10		
							BIAS DETECTOR	250	(− 20.0 approx.)	—	—	Plate current to be adjusted to 0.2 milliampere with no signal.						
6P7-G	TRIODE-PENTODE	D8	G-7U	H	6.3	0.3	AMPLIFIER AND CONVERTER	For other characteristics, refer to Type 6P7.										6P7-G
6Q7	DUPLEX-DIODE HIGH-MU TRIODE	C1	7V	H	6.3	0.3	TRIODE UNIT AS CLASS A AMPLIFIER	100 250	− 1.0 − 3.0	—	—	0.8 1.0	58000 58000	1200 1200	70 70	—	—	**6Q7**
								90ж 300ж	Cath. Bias, 7600 ohms. Cath. Bias, 3000 ohms.			Grid Resistor,** 0.5 megohm.				Gain per stage = 32 Gain per stage = 45		
6Q7-G	DUPLEX-DIODE HIGH-MU TRIODE	D8	G-7V‡	H	6.3	0.3	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6Q7.										**6Q7-G**
6Q7-GT	DUPLEX-DIODE HIGH-MU TRIODE	C3	GT-7V‡	H	6.3	0.3	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6Q7.										**6Q7-GT**
6R7	DUPLEX-DIODE TRIODE	C1	7V	H	6.3	0.3	TRIODE UNIT AS CLASS A AMPLIFIER	250	− 9.0	—	—	9.5	8500	1900	16	—	—	**6R7**
								90▼ 300▼	Cath. Bias, 4400 ohms. Cath. Bias, 3800 ohms.			Grid Resistor,** 0.25 megohm.				Gain per stage = 10 Gain per stage = 10		
6R7-G	DUPLEX-DIODE TRIODE	D8	G-7V‡	H	6.3	0.3	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6R7.										**6R7-G**
6R7-GT	DUPLEX-DIODE TRIODE	C3	G-7V‡	H	6.3	0.3	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6R7.										**6R7-GT**
6S7	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	C1	7R	H	6.3	0.15	CLASS A AMPLIFIER	135 250	− 3.0 − 3.0	67.5 100	0.9 2.0	3.7 8.5	1000000 1000000	1250 1750	—	—	—	**6S7**
6S7-G	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	D8	G-7R‡	H	6.3	0.15	AMPLIFIER	For other characteristics, refer to Type 6S7.										**6S7-G**
6SA7	PENTAGRID CONVERTER A	B3	8R	H	6.3	0.3	MIXER	100 250	Self-Excited	100 100	8.5 8.5	3.3 3.5	500000 1000000	Grid ⌀1 Resistor, 20000 ohms. Conversion Transcond., 450 micromhos.				**6SA7**
6SA7-GT/G	PENTAGRID CONVERTER A	C3	GT-8AD	H	6.3	0.3	MIXER	For other characteristics, refer to Type 6SA7										**6SA7-GT/G**
6SC7	TWIN TRIODE AMPLIFIER	B3	8S	H	6.3	0.3	EACH UNIT AS AMPLIFIER	250	− 2.0	—	—	2.0	53000	1325	70	—	—	**6SC7**
6SF5	HIGH-MU TRIODE	B3	8AB	H	6.3	0.3	CLASS A AMPLIFIER	100 250	− 1.0 − 2.0	—	—	0.4 0.9	85000 66000	1150 1500	100 100	—	—	**6SF5**
								90ж 300ж	Cath. Bias, 8800 ohms. Cath. Bias, 3200 ohms.			Grid Resistor,** 0.5 megohm.				Gain per stage = 43 Gain per stage = 63		

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUPPLY VOLTS	GRID BIAS ■ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μ MHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
		DIMEN.	S. C.	C: T.	VOLTS	AMP.												
6SF5-GT	HIGH-MU TRIODE	C3	G-6AB‡	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6SF5.										6SF5-GT
6SF7	DIODE SUPER-CONTROL AMPLIFIER PENTODE	B3	7AZ	H	6.3	0.3	PENTODE UNIT AS CLASS A AMPLIFIER	100 250	− 1.0 − 1.0	100 100	3.4 3.3	12.0 12.4	200000 700000	1975 2050	—	—	—	6SF7
6SG7	H-F AMPLIFIER PENTODE	B3	8BK	H	6.3	0.3	CLASS A AMPLIFIER	100 250 250	− 1.0 − 1.0 − 2.5	100 125 150	3.2 4.4 3.4	8.2 11.8 9.2	250000 900000 1.0+§	4100 4700 4000	—	—	—	6SG7
6SH7	H-F AMPLIFIER PENTODE	B3	8BK	H	6.3	0.3	CLASS A AMPLIFTER	100 250	− 1.0 − 1.0	100 150	2.1 4.1	5.3 10.8	350000 900000	4000 4900	—	—	—	6SH7
6SJ7	TRIPLE-GRID DETECTOR AMPLIFIER	B3	8N	H	6.3	0.3	CLASS A AMPLIFIER	100 250 90 × 300 ×	− 3.0 − 3.0 Cath. Bias, 1700 ohms. Cath. Bias, 860 ohms.	100 100	0.9 0.8	2.9 3.0	700000 1.0+§ Grid Resistor,** 0.5 megohm.	1575 1650 Gain per stage = 93 Gain per stage = 167	—	—	—	6SJ7
6SJ7-GT	TRIPLE-GRID DETECTOR AMPLIFIER	C3	GT-8N§	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6SJ7.										6SJ7-GT
6SK7	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	B3	8N	H	6.3	0.3	CLASS A AMPLIFIER	100 250	− 1.0 − 3.0	100 100	4.0 2.6	13.0 9.2	120000 800000	2350 2000	—	—	—	6SK7
6SK7-GT/G	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	C3	GT-8N§	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6SK7.										6SK7-GT/G
6SL7-GT	TWIN TRIODE AMPLIFIER	C3	8BD	H	6.3	0.3	EACH UNIT AS AMPLIFIER	250	− 2.0	—	—	2.3	44000	1600	70	—	—	6SL7-GT
6SN7-GT	TWIN TRIODE AMPLIFIER	C3	8BD	H	6.3	0.6	EACH UNIT AS AMPLIFIER	For other characteristics, refer to Type 6J5.										6SN7-GT
6SQ7	DUPLEX-DIODE HIGH-MU TRIODE	B3	8Q	H	6.3	0.3	TRIODE UNIT AS CLASS A AMPLIFIER	100 250 90 × 300 ×	− 1.0 − 2.0 Cath. Bias, 11000 ohms. Cath. Bias, 3900 ohms.	—	—	0.4 0.9 Grid Resistor, ** 0.5 megohm.	110000 91000	900 1100 Gain per stage = 40 Gain per stage = 53	100 100	—	—	6SQ7
6SQ7-GT/G	DUPLEX-DIODE HIGH-MU TRIODE	C3	GT-8Q§	H	6.3	0.3	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SQ7.										6SQ7-GT/G
6SR7	DUPLEX-DIODE TRIODE	B3	8Q	H	6.3	0.3	TRIODE UNIT AS CLASS A AMPLIFIER	250	− 9.0	—	—	9.5	8500	1900	16	10000	0.3	6SR7

6SS7	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	B3	8N	H	6.3	0.15	CLASS A AMPLIFIER	100 250	− 1.0 − 3.0	100 100	3.1 7.0	12.2 9.0	120000 1000000	1930 1850	—	—	—	6SS7
6ST7	DUPLEX-DIODE TRIODE	B3	8Q	H	6.3	0.15	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SR7										6ST7
6T7-G	DUPLEX-DIODE HIGH-MU TRIODE	D8	6-7V;	H	6.3	0.15	TRIODE UNIT AS CLASS A AMPLIFIER	135 250	− 1.5 − 3.0	—	—	0.9 1.2	65000 62000	1000 1050	65 65	—	—	6T7-G
								90 × Cath. Bias, 8300 ohms † 300 × Cath. Bias, 4580 ohms ‡				Grid Resistor, ** 0.5 megohm			Gain per stage = 30 Gain per stage = 40	
6U5/6G5	ELECTRON-RAY TUBE	D4	6R	H	6.3	0.3	VISUAL INDICATOR	Plate & Target Supply = 100 volts. Triode Plate Resistor = 0.5 meg. Target Current = 1.0 ma. Grid Bias, −8 volts, Shadow Angle, 0° Bias, 0 volts, Angle, 90°, Plate Current, 0.19 ma.										6U5/6G5
								Plate & Target Supply = 250 volts. Triode Plate Resistor = 1.0 meg. Target Current = 4.0 ma. Grid Bias, −22 volts, Shadow Angle, 0° Bias, 0 volts, Angle, 90°; Plate Current, 0.24 ma.									
6U7-G	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	D-12a	G-7R;	H	6.3	0.3	CLASS A AMPLIFIER	100 250	− 3.0 − 3.0	100 100	2.2 2.0	8.0 8.2	250000 800000	1500 1600	—	—	—	6U7-G
							MIXER IN SUPERHETERODYNE	100 250	−10.0 −10.0	100 100	—	—		Oscillator Peak Volts = 7.0				
6V6	BEAM POWER AMPLIFIER	C2	7AC	H	6.3	0.45	AMPLIFIER	For other characteristics, refer to Type 6V6-GT/G.										6V6
6V6-GT/G	BEAM POWER AMPLIFIER	C3	G-7AC;	H	6.3	0.45	SINGLE-TUBE CLASS A AMPLIFIER	180 250 315	− 8.5 −12.5 −13.0	180 250 225	3.0 4.5 2.2	29.0 45.0 34.0	58000 52000 77000	3700 4100 3750	— — —	5500 5000 8500	2.0 4.5 5.5	6V6-GT/G
							PUSH-PULL CLASS AB1 AMPLIFIER	250 285	−15.0 −19.0	250 285	5.0▲ 4.0▲	70.0▲ 70.0▲	—	—	— —	10000 8000	10.0† 14.0†	
6V7-G	DUPLEX-DIODE TRIODE	D8	G-7V;	H	6.3	0.3	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 85.										6V7-G
6W7-G	TRIPLE-GRID DETECTOR AMPLIFIER	D8	G-7R;	H	6.3	0.15	CLASS A AMPLIFIER	250	− 3.0	100	0.5	2.0	1500000	1225	—	—	—	6W7-G
6X5	FULL-WAVE RECTIFIER	C2	6S	H	6.3	0.6	For other ratings, refer to Type 6X5-GT/G											6X5
6X5-GT/G	FULL-WAVE RECTIFIER	C3	G-6S;	H	6.3	0.6	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 325 Max. Peak Inverse Volts, 1250				Max. D-C Output Ma., 70 Max. Peak Plate Ma., 210		Min. Total Effect. Supply Imped. per Plate, 150 ohms				6X5-GT/G
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1250				Max. D-C Output Ma., 70 Max. Peak Plate Ma., 210		Min. Value of Input Choke, 8 henries			
6Y5	FULL-WAVE RECTIFIER	D5	6J	H	6.3	0.8	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 350 Max. D-C Output Ma., 90										6Y5
6Y6-G	BEAM POWER AMPLIFIER	D10	G-7AC;	H	6.3	1.25	SINGLE TUBE CLASS A AMPLIFIER	135 200	−13.5 −14.0	135 135	3.5 2.2	58.0 61.0	9300 18300	7000 7100	— —	2000 2600	3.6 6.0	6Y6-G
6Y7-G	TWIN TRIODE AMPLIFIER	D3	G-8B;	H	6.3	0.6	CLASS B AMPLIFIER	180 250	0 0	— —	— —	Power Output is for one tube at stated plate-to-plate load.				7000 14000	5.5 8.0	6Y7-G
6Z5	FULL-WAVE RECTIFIER	D5	6K	H	6.3 12.6	0.8 0.4	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 230 Max. D-C Output Ma., 60										6Z5

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUPPLY VOLTS	GRID BIAS ⓜ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μMHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
		DIMEN.	∫. C.	C. T.	VOLTS	AMP.												
6Z7-G	TWIN TRIODE AMPLIFIER	D3	G-8B‡	H	6.3	0.3	CLASS B AMPLIFIER	135 180	0 0	—	—	Power Output is for one tube at stated plate-to-plate load.				9000 12000	2.5 4.2	6Z7-G
6ZY5-G	FULL-WAVE RECTIFIER	D3	G-4S‡	H	6.3	0.3	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 325 Max. Peak Inverse Volts, 1250				Max. D-C Output Ma., 40 Max. Peak Plate Ma., 120			Min. Total Effect. Supply Imped. per Plate, 225 ohms			6ZY5-G
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1250				Max. D-C Output Ma., 40 Max. Peak Plate Ma., 120			Min. Value of Input Choke, 13.5 henries		
7A4	DETECTOR AMPLIFIER TRIODE	B5	$5AC_2$	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6J5.										7A4
7A5	BEAM POWER AMPLIFIER	C6a	6AA	H	6.3	0.7	CLASS A AMPLIFIER	110 125	− 7.5 − 9.0	110 125	3.0 3.3	40.0 44.0	14000 17000	5800 6000	—	2500 2700	1.5 2.2	7A5
7A6	TWIN DIODE	B5	7AJ	H	6.3	0.15	DETECTOR RECTIFIER	Maximum A-C Voltage per Plate.....150 Volts, RMS Maximum D-C Output Current per plate.....8 Milliamperes										7A6
7A7	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	B5	8V	H	6.3	0.3	CLASS A AMPLIFIER	For other characteristics, refer to Type 6SK7.										7A7
7A8	OCTODE CONVERTER	B5	8U	H	6.3	0.15	CONVERTER	100 250	− 3.0 − 3.0	75 100	2.7 3.2	1.8 3.0	650000 700000	Anode-Grid (#2): 250 max. volts, 4.2 ma. Oscillator-Grid (#1) Resistor. Conversion Transcond., 550 micromhos.				7A8
7B4	HIGH-MU TRIODE	B5	$5AC_1$	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6SF5.										7B4
7B5	POWER AMPLIFIER PENTODE	C6	6AE	H	6.3	0.4	CLASS A AMPLIFIER	For other characteristics, refer to Type 6K6-GT/G.										7B5
7B6	DUPLEX-DIODE HIGH-MU TRIODE	B5	8W	H	6.3	0.3	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SQ7.										7B6
7B7	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	B5	8V	H	6.3	0.15	CLASS A AMPLIFIER	100 250	− 3.0 − 3.0	100 100	1.8 1.7	8.2 8.5	300000 750000	1675 1750	—	—	—	7B7
7B8	PENTAGRID CONVERTER	B5	8X	H	6.3	0.3	CONVERTER	For other characteristics, refer to Type 6A8.										7B8
7C5	BEAM POWER AMPLIFIER	C6	6AA	H	6.3	0.45	CLASS A AMPLIFIER	For other characteristics, refer to Type 6V6-GT/G.										7C5
7C6	DUPLEX-DIODE HIGH-MU TRIODE	B5	8W	H	6.3	0.15	TRIODE UNIT AS CLASS A AMPLIFIER	250	− 1.0	—	—	1.3	100000	1000	100	—	—	7C6
7C7	TRIPLE-GRID DETECTOR	B5	8V	H	6.3	0.15	CLASS A AMPLIFIER	100 250	− 3.0 − 3.0	100 100	0.4 0.5	1.8 2.0	1.2 2.0	1225 1300	—	—	—	7C7

7E6	[illegible] TRIODE	B5	6W	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6N7.									7E6
7E7	DUPLEX-DIODE PENTODE	B5	6AE	H	6.3	0.3	PENTODE UNIT AS CLASS A AMPLIFIER	100	− 1.0	100	2.7	10.0	150000	1600	—	—	—	7E7
								250	− 3.0	100	1.6	7.5	700000	1300				
7F7	TWIN TRIODE AMPLIFIER	B5	6AC	H	6.3	0.3	EACH UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SL7-GT										7F7
7G7/ 1232	TELEVISION AMPLIFIER PENTODE	B5	6V	H	6.3	0.45	CLASS A AMPLIFIER	250	− 2.0	100	2.0	6.0	800000	4500	—	—	—	7G7/ 1232
7H7	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	B5	6V	H	6.3	0.3	CLASS A AMPLIFIER	100	− 1.0	100	3.3	8.2	250000	3800	—	—	—	7H7
								250	− 2.5	150	3.5	9.5	800000	3800				
7J7	TRIODE-HEPTODE CONVERTER	B5	6AR	H	6.3	0.3	TRIODE UNIT AS OSCILLATOR	100	Triode-Grid Resistor*			3.7	Triode-Grid & Hexode-Grid Current, 0.3 ma.					7J7
								250				5.4	Triode-Grid & Hexode-Grid Current, 0.1 ma.					
							HEXODE UNIT AS MIXER	100	− 3.0	100	3.1	1.1	300000	Conversion Transcond., 260 micromhos.				
								250	− 3.0	100	2.9	1.3	1.5§	Conversion Transcond., 300 micromhos.				
7Q7	PENTAGRID CONVERTER	B5	6AL	H	6.3	0.3	CONVERTER	100	− 2.0	100	8.5	3.3	500000	Grid #1 Resistor, 30000 ohms.				7Q7
								250	− 2.0	100	8.5	3.5	1000000	Conversion Transcond., 550 micromhos.				
7Y4	FULL-WAVE RECTIFIER	B5	5AB	H	6.3	0.5	WITH CONDENSER INPUT FILTER	Max. A-C Volts per Plate (RMS), 325 Max. Peak Inverse Volts, 1250				Max. D-C Output Ma., 60 Max. Peak Plate Ma., 180		Min. Total Effect. Supply Imped. per Plate, 150 ohms.				7Y4
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1250				Max. D-C Output Ma., 60 Max. Peak Plate Ma., 180		Min. Value of Input Choke, 10 henries				
10	POWER AMPLIFIER TRIODE	E3	4D	F	7.5	1.25	CLASS A AMPLIFIER	350	−32.0	—	—	16.0	5150	1550	8.0	11000	0.9	10
								425	−40.0			18.0	5000	1600	8.0	10200	1.6	
11 12	DETECTOR☆ AMPLIFIER TRIODE	D2 D11	4F 4D	D.C. F	1.1	0.25	CLASS A AMPLIFIER	90	− 4.5	—	—	2.5	15500	425	6.6	—	—	11 12
								135	−10.5			3.0	15000	440	6.6			
12A5	POWER AMPLIFIER PENTODE	D5	7F	H	6.3 12.6	0.6 0.3	CLASS A AMPLIFIER	100	−15.0	100	3.0	17.0	50000	1700	—	4500	0.8	12A5
								180	−25.0	180	8.0	45.0	35000	2400		3300	3.4	
12A7	RECTIFIER-PENTODE	D9	7K	H	12.6	0.3	PENTODE UNIT AS CLASS A AMPLIFIER	135	−13.5	135	2.5	9.0	102000	975	—	13500	0.55	12A7
							HALF-WAVE RECTIFIER	Maximum A-C Plate Voltage ..... 125 Volts, RMS Maximum D-C Output Current ..... 30 Milliamperes									
12A8-GT	PENTAGRID CONVERTER‡	C3	GT-8A‡	H	12.6	0.15	CONVERTER	For other characteristics, refer to Type 6A8.										12A8-GT
12AH7-GT	TWIN TRIODE	C0	8BE	H	12.6	0.15	EACH UNIT AS CLASS A AMPLIFIER	100	− 3.6	—	—	3.7	10300	1550	16	—	—	12AH7-GT
								160	− 6.5			7.6	8400	1900	16			
12B8-GT	TRIODE-PENTODE	C7a	8T	H	12.6	0.3	TRIODE UNIT AS CLASS A AMPLIFIER	90	0	—	—	2.8	37000	2400	90	—	—	12B8-GT
							PENTODE UNIT AS CLASS A AMPLIFIER	90	− 3.0	90	2.0	7.0	200000	1800	—			
12C8	DUPLEX-DIODE PENTODE	C1	8E	H	12.6	0.15	PENTODE UNIT AS R-F AMPLIFIER	250	− 3.0	125	2.3	10.0	600000	1325	—	—	—	12C8
							PENTODE UNIT AS A-F AMPLIFIER	90 ☆ Cath. Bias, 3500 ohms. Screen Resistor = 1.1 meg. Grid Resistor,** Gain per stage = 53 300 ☆ Cath. Bias, 1600 ohms. Screen Resistor = 1.2 meg. 0.5 megohm, Gain per stage = 79									

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use.	PLATE SUPPLY VOLTS	GRID BIAS ■ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μMHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
		DIMEN.	S. C.	C. T.	VOLTS	AMP.												
12F5-GT	HIGH-MU TRIODE	C3	G-5M‡	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6SF5.										12F5-GT
12H6	TWIN DIODE	A1	7Q	H	12.6	0.15	DETECTOR RECTIFIER	For other ratings, refer to Type 6H6.										12H6
12J5-GT	DETECTOR AMPLIFIER TRIODE	C3	GT-6Q1	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6J5.										12J5-GT
12J7-GT	TRIPLE-GRID DETECTOR AMPLIFIER	C3	GT-7R2	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6J7.										12J7-GT
12K7-GT	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	C3	GT-7R2	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6K7.										12K7-GT
12K8	TRIODE-HEXODE CONVERTER	C1	8K	H	12.6	0.15	OSCILLATOR MIXER	For other characteristics, refer to Type 6K8.										12K8
12Q7-GT	DUPLEX-DIODE HIGH-MU TRIODE	C3	GT-7V2	H	12.6	0.15	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6Q7.										12Q7-GT
12SA7	PENTAGRID CONVERTER▲	B3	8R	H	12.6	0.15	MIXER	For other characteristics, refer to Type 6SA7.										12SA7
12SA7-GT/G	PENTAGRID CONVERTER▲	C3	GT-8AD	H	12.6	0.15	MIXER	For other characteristics, refer to Type 6SA7.										12SA7-GT/G
12SC7	TWIN TRIODE AMPLIFIER	B3	8S	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6SC7.										12SC7
12SF5	HIGH-MU TRIODE	B3	6AB	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6SF5.										12SF5
12SF5-GT	HIGH-MU TRIODE	C3	G-6AB‡	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6SF5.										12SF5-GT
12SF7	DIODE SUPER-CONTROL AMPLIFIER PENTODE	B3	7AZ	H	12.6	0.15	PENTODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SF7.										12SF7
12SG7	H-F AMPLIFIER PENTODE	B3	8BK	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6SG7.										12SG7
12SH7	H-F AMPLIFIER PENTODE	B3	8BK	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6SH7.										12SH7
12SJ7	TRIPLE-GRID DETECTOR AMPLIFIER	B3	8N	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6SJ7.										12SJ7

12SJ7-GT	TRIPLE-GRID DETECTOR AMPLIFIER	C3	GT-8N8	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6SJ7.										12SJ7-GT
12SK7	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	B3	8N	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6SK7.										12SK7
12SK7-GT/G	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	C3	GT-8N8	H	12.6	0.15	AMPLIFIER	For other characteristics, refer to Type 6SK7.										12SK7-GT/G
12SL7-GT	TWIN TRIODE AMPLIFIER	C3	8BD	H	12.6	0.15	EACH UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SL7-GT.										12SL7-GT
12SN7-GT	TWIN TRIODE AMPLIFIER	C3	8BD	H	12.6	0.3	EACH UNIT AS AMPLIFIER	For other characteristics, refer to Type 6J5.										12SN7-GT
12SQ7	DUPLEX-DIODE HIGH-MU TRIODE	B3	8Q	H	12.6	0.15	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SQ7.										12SQ7
12SQ7-GT/G	DUPLEX-DIODE HIGH-MU TRIODE	C3	GT-8Q8	H	12.6	0.15	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SQ7.										12SQ7-GT/G
12SR7	DUPLEX DIODE TRIODE	B3	8Q	H	12.6	0.15	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 6SR7.										12SR7
12Z3	HALF-WAVE RECTIFIER	D5	4G	H	12.6	0.3	WITH CONDENSER-INPUT FILTER	Max. A-C Plate Volts (RMS), 235 Max. D-C Output Ma., 55					Min. Total Effective Plate-Supply Impedance: Up to 117 volts, 0 ohms; at 150 volts, 30 ohms; at 235 volts, 75 ohms.							12Z3
14A7/12B7	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	B5	8V	H	12.6	0.15	CLASS A AMPLIFIER	100 250	− 1.0 − 3.0	100 100	4.0 2.6	13.0 9.2	120000 800000	2350 2000	— —	— —	— —	14A7/12B7
15	R-F AMPLIFIER PENTODE	D9	5F	D.C. H	2.0	0.22	CLASS A AMPLIFIER	67.5 135	− 1.5 − 1.5	67.5 67.5	0.3 0.3	1.85 1.85	630000 800000	710 750	— —	— —	— —	15
19	TWIN TRIODE AMPLIFIER	D5	6C	D.C. F	2.0	0.26	AMPLIFIER	For other characteristics, refer to Type 1J6-G.										19
20	POWER AMPLIFIER TRIODE	D1	4D	D.C. F	3.3	0.132	CLASS A AMPLIFIER	90 135	−16.5 −22.5	— —	— —	3.0 6.5	8000 6300	415 525	3.3 3.3	9600 6500	0.045 0.119	20
22	R-F AMPLIFIER TETRODE	E1	4K	D.C. F	3.3	0.132	SCREEN-GRID R-F AMPLIFIER	135 135	− 1.5 − 1.5	45 67.5	0.6* 1.3*	1.7 3.7	725000 325000	375 500	— —	— —	— —	22
24-A	R-F AMPLIFIER TETRODE	E1	5E	H	2.5	1.75	SCREEN-GRID R-F AMPLIFIER	180 250	− 3.0 − 3.0	90 90	1.7* 1.7*	4.0 4.0	400000 600000	1000 1050	— —	— —	— —	24-A
							BIAS DETECTOR	250●	(− 5.0) approx.	20 to 45	—	Plate current to be adjusted to 0.1 milliampere with no signal.						
25A6	POWER AMPLIFIER PENTODE	C2	7S	H	25.0	0.3	AMPLIFIER	For other characteristics, refer to Type 25A6-GT/G.										25A6
25A6-GT/G	POWER AMPLIFIER PENTODE	C3	G-7S1	H	25.0	0.3	CLASS A AMPLIFIER	95 160	−15.0 −18.0	95 120	4.0 6.5	20.0 33.0	45000 42000	2000 2375	— —	4500 5000	0.9 2.2	25A6-GT/G
25A7-GT/G	RECTIFIER PENTODE	C3	8F	H	25.0	0.3	PENTODE UNIT AS CLASS A AMPLIFIER	100	−15.0	100	4.0	20.5	50000	1800	—	4500	0.77	25A7-GT/G
							HALF-WAVE RECTIFIER	Max. A-C Plate Volts (RMS), 117 Max. Peak Inverse Volts, 350					Max. D-C Output Ma., 75 Max. Peak Plate Ma., 450			Min. Total Effect. Supply Impedance, 15 ohms.		

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUPPLY VOLTS	GRID BIAS ■ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μMHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
		DIMEN.	S.C.	C.T.	VOLTS	AMP.												
25AC5-GT/G	HIGH-MU POWER AMPLIFIER TRIODE	C3	G-8Q‡	H	25.0	0.3	CLASS B AMPLIFIER	180	0	—	—	4.0♠	—	—	—	4800	6.0	25AC5-GT/G
							DYNAMIC-COUPLED AMP. WITH TYPE 6AE5-GT DRIVER	110	Bias for both 25AC5-GT/G and 6AE5-GT/G developed in circuit. Average Plate Current of Driver = 7 milliamperes. Average Plate Current of 25AC5-GT/G = 45 milliamperes.							2000	2.0	
25B5	DIRECT-COUPLED POWER AMPLIFIER	D9a	6D	H	25.0	0.3	AMPLIFIER	For other characteristics, refer to Type 25N6-G.										25B5
25B6-G	POWER AMPLIFIER PENTODE	D10	G-7S‡	H	25.0	0.3	CLASS A AMPLIFIER	105 200	−16.0 −23.0	105 135	2.0 1.8	48.0 62.0	15500 18000	4800 5000	—	1700 2500	2.4 7.1	25B6-G
25B8-GT	TRIODE-PENTODE	C3	8T	H	25.0	0.15	TRIODE UNIT AS CLASS A AMPLIFIER	100	− 1.0	—	—	0.6	75000	1500	112	—	—	25B8-GT
							PENTODE UNIT AS CLASS A AMPLIFIER	100	− 3.0	100	2.0	7.6	185000	2000	—	—	—	
25C6-G	BEAM POWER AMPLIFIER	D10	G-7AC‡	H	25.0	0.3	CLASS A AMPLIFIER	For other characteristics, refer to Type 6Y6-G.										25C6-G
25L6	BEAM POWER AMPLIFIER	C2	7AC	H	25.0	0.3	AMPLIFIER	For other characteristics, refer to Type 50L6-GT.										25L6
25L6-GT/G	BEAM POWER AMPLIFIER	C3	G-7AC‡	H	25.0	0.3	AMPLIFIER	For other characteristics, refer to Type 50L6-GT.										25L6-GT/G
25N6-G	DIRECT-COUPLED POWER AMPLIFIER	D9	G-7W	H	25.0	0.3	CLASS A AMPLIFIER	Output Triode: Plate Volts, 180; Plate Ma., 46; Load, 4000 ohms. Input Triode: Plate Volts, 100; Grid Volts, 0; A-F Signal Volts (Peak), 29.7; Plate Ma., 5.8.									3.8	25N6-G
25Y5	RECTIFIER-DOUBLER	D5	6E	H	25.0	0.3	HALF-WAVE RECTIFIER	Max. A-C Volts per Plate (RMS), 235 Max. D-C Output Ma. per Plate, 75		Min. Total Effective Plate-Supply Impedance per Plate, 0 ohms.								25Y5
25Z5	RECTIFIER-DOUBLER	D5	6E	H	25.0	0.3	RECTIFIER-DOUBLER	For other ratings, refer to Type 25Z6.										25Z5
25Z6	RECTIFIER-DOUBLER	C2	7Q	H	25.0	0.3	VOLTAGE DOUBLER	Max. A-C Volts per Plate (RMS), 117 Max. D-C Output Ma., 75		Min. Total Effective Plate-Supply Impedance: Half-Wave, 30 ohms; Full-Wave, 15 ohms.								25Z6
							HALF-WAVE RECTIFIER	Max. A-C Volts per Plate (RMS), 235 Max. D-C Output Ma. per Plate, 75		Min. Total Effect. Supply Imped. per Plate: Up to 117 volts, 15 ohms; at 150 volts, 40 ohms; at 235 volts, 100 ohms.							
25Z6-GT/G	RECTIFIER-DOUBLER	C3	G-7Q‡	H	25.0	0.3	RECTIFIER-DOUBLER	For other ratings, refer to Type 25Z6.										25Z6-GT/G
26	AMPLIFIER TRIODE	D12	4D	F	1.5	1.05	CLASS A AMPLIFIER	90 180	− 7.0 −14.5	—	—	2.9 6.2	8900 7300	935 1150	8.3 8.3	—	—	26

27	DETECTOR★ AMPLIFIER TRIODE	D5	5A	H	2.5	1.75	CLASS A AMPLIFIER	135 250	− 9.0 −21.0	—	—	4.5 5.2	9000 9250	1000 975	9.0 9.0	—	—	27
							BIAS DETECTOR	250	(−30.0 approx.)	—	—	Plate current to be adjusted to 0.2 milliampere with no signal.						
30	DETECTOR★ AMPLIFIER TRIODE	D5	4D	D.C. F	2.0	0.06	AMPLIFIER	For other characteristics, refer to Type 1H4-G.										30
31	POWER AMPLIFIER TRIODE	D5	4D	D.C. F	2.0	0.13	CLASS A AMPLIFIER	135 180	−22.5 −30.0	—	—	8.0 12.3	4100 3600	925 1050	3.8 3.8	7000 5700	0.185 0.375	31
32	R-F AMPLIFIER TETRODE	E1	4K	D.C. F	2.0	0.06	SCREEN-GRID R-F AMPLIFIER	135 180	− 3.0 − 3.0	67.5 67.5	0.4* 0.4*	1.7 1.7	950000 1200000	640 650	—	*	—	32
							BIAS DETECTOR	180▼	(− 6.0 approx.)	67.5	—	Plate current to be adjusted to 0.2 milliampere with no signal.						
32L7-GT	RECTIFIER-BEAM POWER AMPLIFIER	C3	8Z	H	32.5	0.3	AMPLIFIER UNIT AS CLASS A AMPLIFIER	90 90	− 5.0 − 7.0	90 90	3.0 2.0	38.0 27.0	15000 17000	6000 4800	—	2600 2600	0.8 1.0	32L7-GT
							HALF-WAVE RECTIFIER	Maximum A-C Plate Voltage ..... 125 Volts, RMS Maximum D-C Output Current ..... 60 Milliamperes.										
33	POWER AMPLIFIER PENTODE	D12	5K	D.C. F	2.0	0.26	CLASS A AMPLIFIER	180	−18.0	180	5.0	22.0	55000	1700	—	6000	1.5	33
34	SUPER-CONTROL R-F AMPLIFIER PENTODE	E1	4M	D.C. F	2.0	0.06	SCREEN-GRID R-F AMPLIFIER	135 180	(− 3.0 min.) 67.5	67.5 67.5	1.0 1.0	2.8 2.8	600000 1000000	600 620	—	—	—	34
35	SUPER-CONTROL R-F AMPLIFIER TETRODE	E1	5E	H	2.5	1.75	SCREEN-GRID R-F AMPLIFIER	180 250	(− 3.0 min.) 90	90 90	2.5* 2.5*	6.3 6.5	300000 400000	1020 1050	—	—	—	35
35A5	BEAM POWER AMPLIFIER	C8	6AA	H	35.0	0.15	SINGLE-TUBE CLASS A AMPLIFIER	For other characteristics, refer to Type 35L6-GT/G.										35A5
35L6-GT/G	BEAM POWER AMPLIFIER	C3	G-7AC‡	H	35.0	0.15	SINGLE-TUBE CLASS A AMPLIFIER	110 200	− 7.5 − 8.0	110 110	3.0 2.0	40.0 41.0	14000 40000	5800 5900	—	2500 4500	1.5 3.3	35L6-GT/G
35Z3	HALF-WAVE RECTIFIER	C6	4Z	H	35.0	0.15	WITH CONDENSER-INPUT FILTER	For other ratings, refer to Type 35Z4-GT.										35Z3
35Z4-GT	HALF-WAVE RECTIFIER	C3	G-5AA	H	35.0	0.15	WITH CONDENSER-INPUT FILTER	Max. A-C Plate Volts (RMS), 235 Max. D-C Output Ma., 100 — Min. Total Effective Plate-Supply Impedance: Up to 117 volts, 15 ohms; at 235 volts, 100 ohms.										35Z4-GT
35Z5-GT/G	HALF-WAVE RECTIFIER Heater Tap for Pilot	C3	G-6AD	H	35.0	0.15	WITH CONDENSER-INPUT FILTER	Max. A-C Plate Volts (RMS), 235 — Min. Total Effect. Plate-Supply Imped.: Up to 117 volts, 15 ohms; at 235 volts, 100 ohms. Max. D-C Output Ma.: With Pilot and No Shunt Res., 60; With Pilot and Shunt Res., 90; Without Pilot, 100.										35Z5-GT/G
36	R-F AMPLIFIER TETRODE	D9	5E	H	6.3	0.3	SCREEN-GRID R-F AMPLIFIER	100 250	− 1.5 − 3.0	55 90	— 1.7*	1.8 3.2	550000 550000	850 1080	—	—	—	36
							BIAS DETECTOR	100● 250●	− 5.0 − 8.0	55 90	—	Grid-bias values are approximate. Plate current to be adjusted to 0.1 milliampere with no signal.						

RCA TYPE	NAME	DIMENSIONS SOCKET CONNEC-TIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUP-PLY VOLTS	GRID BIAS VOLTS	SCREEN SUPPLY VOLTS	SCREEN CUR-RENT MA.	PLATE CUR-RENT MA.	A-C PLATE RESIS-TANCE OHMS	TRANS-CONDUC-TANCE (GRID-PLATE) μ MHOS	AMPLIFI-CATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUT-PUT WATTS	RCA TYPE
		DIMEN.	S. C.	C. T.	VOLTS	AMP.												
37	DETECTOR★ AMPLIFIER TRIODE	D5	5A	H	6.3	0.3	CLASS A AMPLIFIER	90 250	− 6.0 −18.0	—	—	2.5 7.5	11500 8400	800 1100	9.2 9.2	—	—	37
							BIAS DETECTOR	90 250	−10.0 −28.0	—	—	Grid-bias values are approximate. Plate current to be adjusted to 0.2 milliampere with no signal.						
38	POWER AMPLIFIER PENTODE	D9	5F	H	6.3	0.3	CLASS A AMPLIFIER	100 250	− 2.0 −25.0	100 250	1.2 3.8	7.0 22.0	140000 100000	875 1200	—	15000 10000	0.27 2.50	38
39/44	SUPER-CONTROL R-F AMPLIFIER PENTODE	D9	5F	H	6.3	0.3	CLASS A AMPLIFIER	90 250	(− 3.0 min.)	90 90	1.6 1.4	5.6 5.8	300000 800000	1000 1050	—	—	—	39/44
40	VOLTAGE AMPLIFIER TRIODE	D12	4D	D.C. F	5.0	0.25	CLASS A AMPLIFIER	135× 180×	− 1.5 − 3.0	—	—	0.2 0.2	150000 150000	200 200	30 30	—	—	40
41	POWER AMPLIFIER PENTODE	D5	5B	H	6.3	0.4	AMPLIFIER	For other characteristics, refer to Type 6K6-GT/G.										41
42	POWER AMPLIFIER PENTODE	D12	5B	H	6.3	0.7	AMPLIFIER	For other characteristics, refer to Type 6F6-G.										42
43	POWER AMPLIFIER PENTODE	D12	6B	H	25.0	0.3	AMPLIFIER	For other characteristics, refer to Type 25A6-GT/G.										43
45	POWER AMPLIFIER TRIODE	D12	4D	F	2.5	1.5	CLASS A AMPLIFIER	180 275	−31.5 −56.0	—	—	31.0 36.0	1650 1700	2125 2050	3.5 3.5	2700 4600	0.82 2.00	45
							PUSH-PULL CLASS AB1 AMPLIFIER	275 275	Cath. Bias, 775 ohms♣ −68.0 volts, fixed bias			36.0♣ 28.0♣	— —	— —	— —	5060 3200	12.0† 18.0†	
45Z3	HALF-WAVE RECTIFIER	B0	5AM	H	45.0	0.075	HALF-WAVE RECTIFIER	Max. A-C Plate Volts (RMS), 117 Max. Peak Inverse Volts, 350				Max. D-C Output Ma., 65 Max. Peak Plate Ma., 390				Min. Total Effect. Plate-Supply Imped., 15 ohms.			45Z3
45Z5-GT	HALF-WAVE RECTIFIER Heater Tap for Pilot	C3	G-8AD	H	45.0	0.15	WITH CONDENSER-INPUT FILTER	For other ratings, refer to Type 35Z5-GT/G.										45Z5-GT
46	DUAL-GRID POWER AMPLIFIER	E3	5C	F	2.5	1.75	CLASS A AMPLIFIER □	250	−33.0	—	—	22.0	2380	2350	5.6	6400	1.25	46
							CLASS B AMPLIFIER♦	300 400	0 0	—	—	8.0♣ 12.0♣	—	—	—	5200 5800	16.0† 20.0†	
47	POWER AMPLIFIER PENTODE	E3	5B	F	2.5	1.75	CLASS A AMPLIFIER	250	−16.5	250	6.0	31.0	60000	2500	—	7000	2.7	47
48	POWER AMPLIFIER TETRODE	E3	6A	D.C. H	30.0	0.4	TETRODE CLASS A AMPLIFIER	96 125	−19.0 −20.0	96 100	9.0 9.5	52.0 56.0	— —	3800 3900	— —	1500 1500	2.0 2.5	48
							TETRODE PUSH-PULL CLASS A AMPLIFIER	125	−20.0	100	—	100.0♣	—	—	—	3000	5.0†	

49	DUAL-GRID POWER AMPLIFIER	D12	5C	D.C. F	2.0	0.12	CLASS A AMPLIFIER □	135	−20.0	——	——	6.0	4175	1125	4.7	11000	0.17	49
							CLASS B AMPLIFIER ◆	180	0	——	——	4.0▲	——	——	——	12000	3.5†	
50	POWER AMPLIFIER TRIODE	F1	4D	F	7.5	1.25	CLASS A AMPLIFIER	300	−54.0	——	——	35.0	2000	1900	3.8	4600	1.6	50
								400	−70.0	——	——	55.0	1800	2100	3.8	3670	3.4	
								450	−84.0	——	——	55.0	1800	2100	3.8	4350	4.6	
50L6-GT	BEAM POWER AMPLIFIER	C3	G-7AC‡	H	50.0	0.15	SINGLE-TUBE CLASS A AMPLIFIER	110	− 7.5	110	4.0	49.0	13000	9000	——	2000	2.1	50L6-GT
								200	− 8.0	110	2.0	50.0	30000	9500	——	3000	4.3	
50Y6-GT/G	RECTIFIER-DOUBLER	C3	G-7Q‡	H	50.0	0.15	RECTIFIER-DOUBLER	For other ratings, refer to Type 25Z6.										50Y6-GT/G
50Z7-G	RECTIFIER-DOUBLER Heater Tap for Pilot	D3	G-8AN	H	50.0	0.15	VOLTAGE-DOUBLER	Max. A-C Volts per Plate (RMS), 117 Max. D-C Output Ma., 65 — Min. Total Effective Plate-Supply Impedance: 15 ohms.										50Z7-G
							HALF-WAVE RECTIFIER	Max. A-C Volts per Plate (RMS), 235 Max. D-C Output Ma. per Plate, 65 — Min. Total Effective Plate-Supply Impedance per Plate: Up to 117 volts, 15 ohms; at 235 volts, 100 ohms.									
53	TWIN TRIODE AMPLIFIER	D12	7B	H	2.5	2.0	AMPLIFIER	For other characteristics, refer to Type 6N7-GT/G.										53
55	DUPLEX-DIODE TRIODE	D9	6Q	H	2.5	1.0	TRIODE UNIT AS AMPLIFIER	For other characteristics, refer to Type 85.										55
56	DETECTOR AMPLIFIER TRIODE★	D5	5A	H	2.5	1.0	AMPLIFIER, DETECTOR	For other characteristics, refer to Type 6P5-GT/G.										56
57	TRIPLE-GRID DETECTOR AMPLIFIER	D13	6F	H	2.5	1.0	AMPLIFIER DETECTOR	For other characteristics, refer to Type 6J7.										57
58	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	D13	6F	H	2.5	1.0	AMPLIFIER MIXER	For other characteristics, refer to Type 6U7-G.										58
59	TRIPLE-GRID POWER AMPLIFIER	E3	7A	H	2.5	2.0	TRIODE ¶ CLASS A AMPLIFIER	250	−28.0	——	——	26.0	2300	2600	6.0	5000	1.25	59
							PENTODE** CLASS A AMPLIFIER	250	−18.0	250	9.0	35.0	40000	2500	——	6000	3.0	
							TRIODE● CLASS B AMPLIFIER	300	0	——	——	20.0▲	——	——	——	4600	15.0†	
								400	0	——	——	26.0▲	——	——	——	6000	20.0†	
70L7-GT	RECTIFIER-BEAM POWER AMPLIFIER	C5b	8AA	H	70.0	0.15	AMPLIFIER UNIT AS CLASS A AMPLIFIER	110	− 7.5	110	3.0	40.0	15000	7500	——	2000	1.8	70L7-GT
							HALF-WAVE RECTIFIER	Max. A-C Plate Volts (RMS), 117 Max Peak Inverse Volts, 350 — Max. D-C Output Ma., 70 Max. Peak Plate Ma., 420 — Min. Total Effect. Plate-Supply Imped., 15 ohms									
71-A	POWER AMPLIFIER TRIODE	D12	4D	F	5.0	0.25	CLASS A AMPLIFIER	90	−19.0	——	——	10.0	2170	1400	3.0	3000	0.125	71-A
								180	−43.0	——	——	20.0	1750	1700	3.0	4800	0.790	
75	DUPLEX-DIODE HIGH-MU TRIODE	D9	6G	H	6.3	0.3	AMPLIFIER	For other characteristics, refer to Type 6SQ7.										75
76	DETECTOR AMPLIFIER						AMPLIFIER	For other characteristics, refer to Type 6P5-GT/G.										76

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS		CATHODE TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUPPLY VOLTS	GRID BIAS ■ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μMHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
		DIMEN.	S. C.	C. T.	VOLTS	AMP.												
77	TRIPLE-GRID DETECTOR AMPLIFIER	D9	6F	H	6.3	0.3	CLASS A AMPLIFIER	100 250	− 1.5 − 3.0	60 100	0.4 0.5	1.7 2.3	600000 1.0+§	1100 1250	——	——	——	77
							BIAS DETECTOR	250	− 1.95	50	Cathode current 0.65 ma.		——	Plate Resistor, 250000 ohms. Grid Resistor,** 250000 ohms.				
78	TRIPLE-GRID SUPER-CONTROL AMPLIFIER	D9	6F	H	6.3	0.3	AMPLIFIER MIXER	For other characteristics, refer to Type 6K7.										78
79	TWIN TRIODE AMPLIFIER	D9	6H	H	6.3	0.6	CLASS B AMPLIFIER	For other characteristics, refer to Type 6Y7-G.										79
80	FULL-WAVE RECTIFIER	D12	4C	F	5.0	2.0	For other ratings, refer to Type 5Y3-GT/G.											80
81	HALF-WAVE RECTIFIER	F1	4B	F	7.5	1.25	WITH CONDENSER-INPUT FILTER	Max. A-C Plate Volts (RMS), 700 Max. Peak Inverse Volts, 2000						Max. D-C Output Ma., 85 Max. Peak Plate Ma., 500				81
82	FULL-WAVE▶ RECTIFIER	D12	4C	F	2.5	3.0	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1550						Max. D-C Output Ma., 115 Max. Peak Plate Ma., 600		Min. Total Effect. Supply Imped. per Plate, 50 ohms.		82
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 550 Max. Peak Inverse Volts, 1550						Max. D-C Output Ma., 115 Max. Peak Plate Ma., 600		Min. Value of Input Choke, 6 henries		
83	FULL-WAVE▶ RECTIFIER	E3	4C	F	5.0	3.0	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1550						Max. D-C Output Ma., 225 Max. Peak Plate Ma., 1000		Min. Total Effect. Supply Imped. per Plate, 50 ohms.		83
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 550 Max. Peak Inverse Volts, 1550						Max. D-C Output Ma., 225 Max. Peak Plate Ma., 1000		Min. Value of Input Choke, 3 henries		
83-V	FULL-WAVE RECTIFIER	D12	4AD	H	5.0	2.0	For other ratings, refer to Type 5V4-G.											83-V
84/6Z4	FULL-WAVE RECTIFIER	D5	5D	H	6.3	0.5	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 325 Max. Peak Inverse Volts, 1250						Max. D-C Output Ma., 60 Max. Peak Plate Ma., 180		Min. Total Effect. Supply Imped. per Plate, 150 ohms.		84/6Z4
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1250						Max. D-C Output Ma., 60 Max. Peak Plate Ma., 180		Min. Value of Input Choke, 10 henries		
85	DUPLEX-DIODE TRIODE	D9	6G	H	6.3	0.3	TRIODE UNIT AS CLASS A AMPLIFIER	135 250	−10.5 −20.0	——	——	3.7 8.0	11000 7500	750 1100	8.3 8.3	25000 20000	0.075 0.350	85
89	TRIPLE-GRID POWER AMPLIFIER	D9	6F	H	6.3	0.4	AS TRIODE ¶ CLASS A AMPLIFIER	160 250	−20.0 −31.0	——	——	17.0 32.0	3300 2600	1425 1800	4.7 4.7	7000 5500	0.30 0.90	89
							AS PENTODE ■■ CLASS A AMPLIFIER	100 250	−10.0 −25.0	100 250	1.6 5.5	9.5 32.0	104000 70000	1200 1800	——	10700 6750	0.33 3.40	
							AS TRIODE Ψ CLASS B AMPLIFIER	180	0	——	——	6.0♠	——	——	——	13600 9400	2.50† 3.50†	

V-99 X-99	DETECTOR★ AMPLIFIER TRIODE	C4 D1	4E 4D	D.C. F	3.3	0.063	CLASS A AMPLIFIER	90	− 4.5	—	—	2.5	15500	425	6.6	—	—	V-99 X-99
112-A	DETECTOR★ AMPLIFIER TRIODE	D12	4D	D.C. F	5.0	0.25	CLASS A AMPLIFIER	90 180	− 4.5 −13.5	—	—	5.0 7.7	5400 4700	1575 1800	8.5 8.5	—	—	112-A
117L/M7-GT	RECTIFIER-BEAM POWER AMPLIFIER	C5b	8AO	H	117	0.09	AMPLIFIER UNIT AS CLASS A AMPLIFIER	105	− 5.2	105	4.0	43.0	17000	5300	—	4000	0.85	117L/M7-GT
							HALF-WAVE RECTIFIER	Max. A-C Plate Volts (RMS), 117 Max. Peak Inverse Volts, 350				Max. D-C Output Ma., 75 Max. Peak Plate Ma., 450		Min. Total Effect. Plate-Supply Imped., 15 ohms.			
117N7-GT	RECTIFIER-BEAM POWER AMPLIFIER	C5b	8AV	H	117	0.09	AMPLIFIER UNIT AS CLASS A AMPLIFIER	100	− 6.0	100	5.0	51.0	16000	7000	—	3000	1.2	117N7-GT
							HALF-WAVE RECTIFIER	Max. A-C Plate Volts (RMS), 117 Max. Peak Inverse Volts, 350				Max. D-C Output Ma., 75 Max. Peak Plate Ma., 450		Min. Total Effect. Plate-Supply Impedance, 15 ohms.			
117P7-GT	RECTIFIER-BEAM POWER AMPLIFIER	C5b	8AV	H	117	0.09	AMPLIFIER UNIT AS CLASS A AMPLIFIER	For other characteristics, refer to Type 117L/M7-GT.										117P7-GT
							HALF-WAVE RECTIFIER	For other ratings, refer to Type 117L/M7-GT.										
117Z6-GT/G	RECTIFIER-DOUBLER	C3	G-7Q1	H	117	0.075	VOLTAGE DOUBLER	Max. A-C Volts per Plate (RMS), 117 Max. D-C Output Ma., 60				Min. Total Effective Plate-Supply Impedance per Plate: Half-Wave, 30 ohms; Full-Wave, 15 ohms.						117Z6-GT/G
							HALF-WAVE RECTIFIER	Max. A-C Volts per Plate (RMS), 225 Max. D-C Output Ma. per Plate, 60				Min. Total Effect. Supply Imped. per Plate: Up to 117 volts, 15 ohms; at 150 volts, 40 ohms; at 235 volts, 100 ohms.					
183/ 483	POWER AMPLIFIER TRIODE	D12	4D	F	5.0	1.25	CLASS A AMPLIFIER	250	−60.0	—	—	30.0	1750	1700	3.0	5000	1.8	183/ 483
485	DETECTOR AMPLIFIER TRIODE	D5	5A	H	3.0	1.25	CLASS A AMPLIFIER	180	− 9.0	—	—	5.8	8900	1400	12.5	—	—	485
876	CURRENT REGULATOR	G1	—	F	—	—	Voltage Range	40 to 60 Volts				Operating Current			1.7 Amperes			876
886	CURRENT REGULATOR	G1	—	F	—	—	Voltage Range	40 to 60 Volts				Operating Current			2.05 Amperes			886

★ For Grid-leak Detection—plate volts 45, grid return to + filament or to cathode.

■ Either A C or D C may be used on filament or heater, except as specifically noted. For use of D C on A-C filament types, decrease stated grid volts by ½ (approx) of filament voltage.

◣ Supply voltage applied through 20000-ohm voltage-dropping resistor

➤ Mercury-Vapor Type.

▪▪ Grid ▪1 is control grid. Grid ▪2 is screen. Grid ▪3 tied to cathode.

¶ Grid ▪1 is control grid. Grids ▪2 and ▪3 tied to plate.

● Grids ▪1 and ▪2 connected together. Grid ▪3 tied to plate.

8 This diagram is like the one having the same designation without the prefix GT, except that the base sleeve is connected to Pin No. 1.

● Applied through plate resistor of 250000 ohms or 500-henry choke shunted by 0.25-megohm resistor.

▼ Applied through plate resistor of 100000 ohms.

✖ Applied through plate resistor of 250000 ohms.

▪ 50000 ohms.

✓ Requires different socket from small 7-pin.

*Maximum.

‡ Megohms.

■ Grids #3 and #5 are screen. Grid #4 is signal-input control grid.
▲ Grids #2 and #4 are screen. Grid #1 is signal-input control grid.
** For grid of following tube.
○ Both grids connected together; likewise, both plates.
† Power output is for two tubes at stated plate-to-plate load.
◆ For two tubes.
‡ This diagram is like the one having the same designation without the prefix G, except that Pin No. 1 has no connection.
♦ This diagram is like the one having the same designation without the prefix G, except that Pin No. 2 is omitted and Pin No. 1 has no connection.
◆ Obtained preferably by using 70000-ohm voltage-dropping resistor in series with a 90-volt supply.
✱ This diagram is like the one having the same designation with the prefix G, except that base sleeve is connected to Pin No. 1.
†‡ This diagram is like the one having the same designation without the prefix G, except that Pin No. 1 is connected to internal shield.
‡‡ Grids #2 and #3 tied to plate.
▲▲ Both grids connected together; likewise both cathodes.

□ Grid #2 tied to plate.
◆ Plate voltages greater than 125 volts RMS require 100-ohm (minimum) series-plate resistor.
○○ Applied through plate resistor of 150000 ohms.
◀ For signal-input control-grid (#1); control-grid #3 bias, −3 volts.
■ Applied through 200000-ohm plate resistor.
▲ Grids #2 and #4 are screen. Grid #3 is signal-input control grid.
☒ Nominal voltage: 7.0 volts; current: 0.16 ampere.
◆ Nominal voltage: 7.0 volts; current: 0.32 ampere.
◆ Nominal voltage: 7.0 volts; current: 0.53 ampere.
◤ Nominal voltage: 7.0 volts; current: 0.75 ampere.
♣ Nominal voltage: 7.0 volts; current: 0.43 ampere.
♦ Nominal voltage: 7.0 volts; current: 0.48 ampere.
◤ Nominal voltage: 14.0 volts; current: 0.16 ampere.

◆ Grids #1 and #2 tied together.

Note 1: Types with octal bases have *Miniature Metal Cap*; all others have *Small Metal Cap*.

Note 2: Subscript 1 on class of amplifier service (as AB_1) indicates that grid current does not flow during any part of input cycle.
Subscript 2 on class of amplifier service (as AB_2) indicates that grid current flows during some part of the input cycle.

KEY TO TUBE DIMENSIONS

Symbol	Maximum Overall Length	Maximum Overall Diameter
A0a	$1\frac{1}{4}''$	$1\frac{31}{32}''$
A0b	$1\frac{5}{16}''$	$\frac{3}{4}''$
A1	$1\frac{3}{4}''$	$1\frac{15}{16}''$
A2	$1\frac{13}{16}''$	$\frac{3}{4}''$
A3	$1\frac{1}{2}''$	$1\frac{3}{16}''$
B0	$2\frac{1}{8}''$	$\frac{3}{4}''$
B1	$2\frac{1}{8}''$	$1\frac{1}{16}''$
B2	$2\frac{5}{16}''$	$1\frac{3}{16}''$
B3	$2\frac{1}{8}''$	$1\frac{1}{16}''$
B4	$2\frac{11}{32}''$	$1\frac{3}{16}''$
B5	$2\frac{23}{32}''$	$1\frac{3}{16}''$
B5a	$2\frac{1}{8}''$	$1\frac{3}{16}''$
C0	$3\frac{1}{4}''$	$1\frac{15}{16}''$
C1	$3\frac{1}{4}''$	$1\frac{1}{16}''$
C2	$3\frac{1}{4}''$	$1\frac{3}{16}''$
C3	$3\frac{1}{4}''$	$1\frac{5}{16}''$
C4	$3\frac{1}{4}''$	$1\frac{7}{16}''$
C5a	$3\frac{1}{4}''$	$1\frac{9}{16}''$
C5b	$3\frac{1}{16}''$	$1\frac{5}{16}''$
C6	$3\frac{5}{16}''$	$1\frac{7}{16}''$
C7	$3\frac{1}{4}''$	$1\frac{3}{16}''$
C7a	$3\frac{1}{16}''$	$1\frac{3}{16}''$
C8	$3\frac{1}{4}''$	$1\frac{7}{16}''$
D1	$4''$	$1\frac{1}{16}''$
D2	$4\frac{1}{4}''$	$1\frac{1}{16}''$
D3	$4\frac{1}{4}''$	$1\frac{1}{16}''$
D4	$4\frac{1}{16}''$	$1\frac{1}{16}''$
D5	$4\frac{1}{16}''$	$1\frac{7}{16}''$
D6	$4\frac{1}{16}''$	$1\frac{1}{16}''$
D7	$4\frac{1}{16}''$	$1\frac{1}{16}''$
D8	$4\frac{1}{16}''$	$1\frac{3}{16}''$
D9	$4\frac{1}{16}''$	$1\frac{1}{16}''$
D9a	$4\frac{1}{16}''$	$1\frac{1}{16}''$
D10	$4\frac{1}{2}''$	$1\frac{13}{16}''$
D11	$4\frac{1}{16}''$	$1\frac{7}{16}''$
D12	$4\frac{1}{16}''$	$1\frac{11}{16}''$
D12a	$4\frac{1}{16}''$	$1\frac{9}{16}''$
D13	$4\frac{15}{16}''$	$1\frac{1}{16}''$
E1	$5\frac{1}{16}''$	$1\frac{11}{16}''$
E2	$5\frac{1}{16}''$	$2\frac{1}{16}''$
E3	$5\frac{1}{16}''$	$2\frac{1}{16}''$
E4	$5\frac{1}{16}''$	$2\frac{3}{16}''$
F1	$6\frac{1}{16}''$	$2\frac{7}{16}''$
G1	$8''$	$2\frac{1}{16}''$

Socket Connections

Bottom Views

KEY TO TERMINAL DESIGNATIONS OF SOCKETS

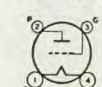
Alphabetical subscripts B, D, P, T, HP, and HX indicate, respectively, beam unit, diode unit, pentode unit, triode unit, heptode unit, and hexode unit in multi-unit types.

BP = Bayonet Pin
BS = Base Shell
F = Filament
F_M = Filament Mid-Tap
G = Grid
H = Heater
H_L = Heater Tap for Panel Lamp
H_M = Heater Mid-Tap
IC = Internal Connection
K = Cathode
NC = No Connection
● = Gas-Type Tube
P = Plate (Anode)
RC = Rey-Control Electrode
S = Shell
S_I = Interlead Shield
TA = Target
U = Unit

4AD

4B

4C



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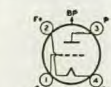

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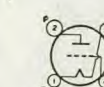

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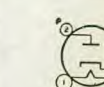

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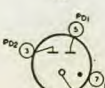
4S

4M

4R



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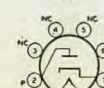

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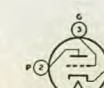

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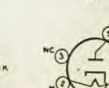

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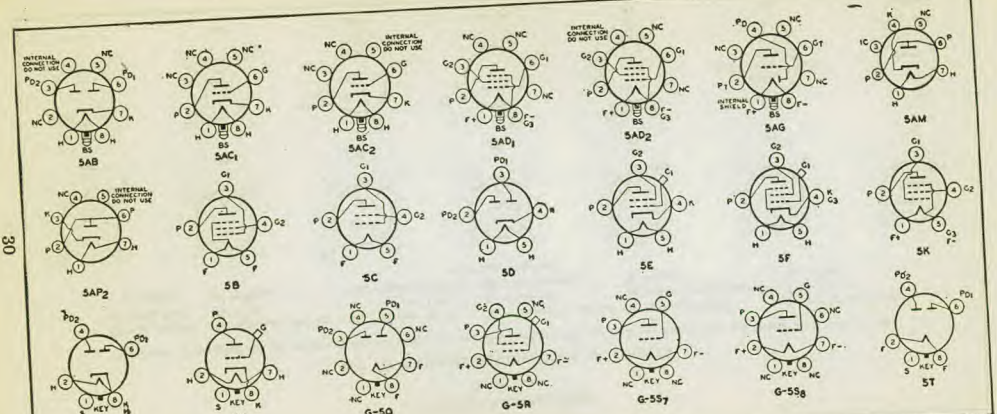
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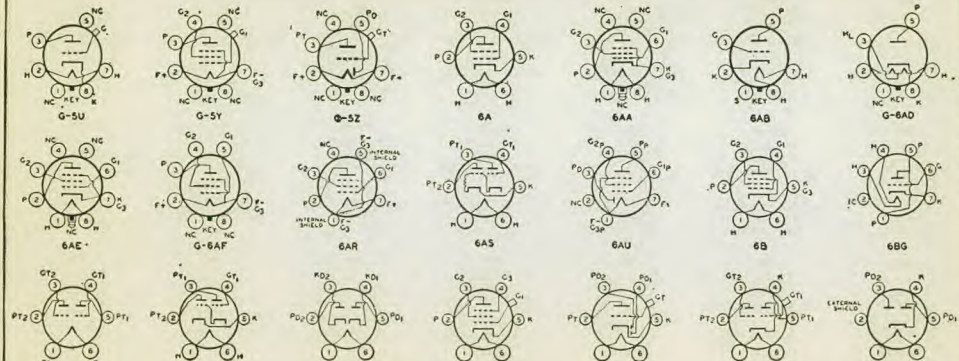
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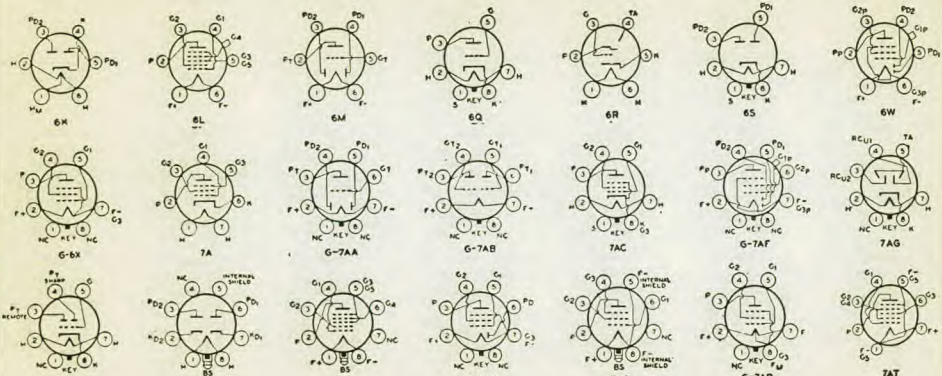
6J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6L
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6Q
6R
6S
6W
6-6X
7A
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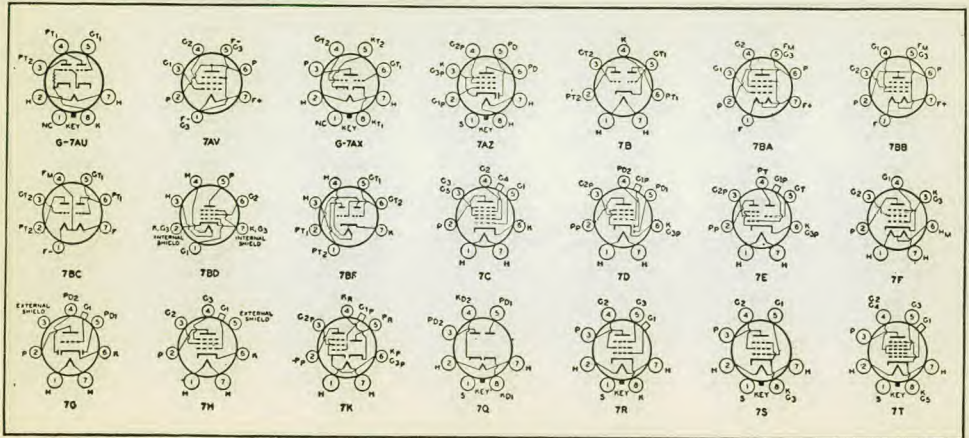
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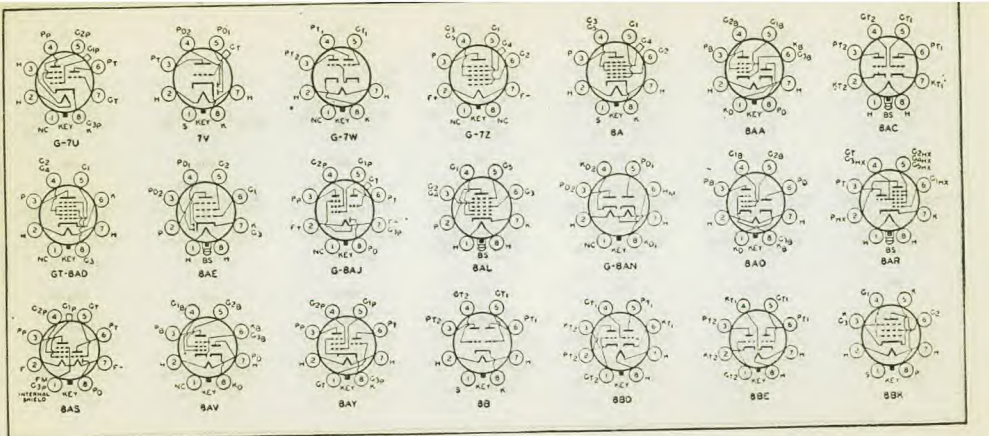
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8AO
8AR
8AS
8AV
8AY
8B
8BD
8BE
8BK

4W
4N
4K
4H-G
4G-G
4F
4E
4R
4C-G
4Z
4Y
4X
4S
4T
4U
4Q
4P
4M
4L
4J
4V

RCA RADIO TUBE CHART

CHART II. Miniature Types

RCA TYPE	NAME	DIMENSIONS SOCKET CONNECTIONS DIMEN.	S. C.	CATHODE TYPE AND RATING C. T.	VOLTS	AMP.	USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUPPLY VOLTS	GRID BIAS ▭ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CURRENT MA.	PLATE CURRENT MA.	A-C PLATE RESISTANCE OHMS	TRANSCONDUCTANCE (GRID-PLATE) μMHOS	AMPLIFICATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUTPUT WATTS	RCA TYPE
0A2	VOLTAGE REGULATOR	B1a	5B0	COLD			VOLTAGE REGULATOR	Max. Ratings: Average Starting Ma., 75;* D-C Operating Ma., 5-30 Typical Operation: Min. D-C Supply Volts, 185; D-C Starting Volts, 155; D-C Operating Volts, 150										0A2
1A3	H-F DIODE	B0	5AP2	H	1.4	0.15	DETECTOR RECTIFIER	Max. Peak Inverse Volts, 330 Max. Peak Plate Ma., 5					Max. D-C Output Ma., 0.5 Max. Peak Heater-Cathode Volts, 140					1A3
1L4	R-F AMPLIFIER PENTODE	B0	6AR	D.C. F	1.4	0.05	CLASS A AMPLIFIER	90 90	0 0	67.5 90	1.2 2.0	2.9 4.5	600000 260000	925 1025	——	——	——	1L4
1R5	PENTAGRID CONVERTER▲	B0	7AT	D.C. F	1.4	0.05	CONVERTER	45 90	0 0	45 67.5	1.9 3.2	0.7 1.6	600000 600000	Grid #1 Resistor, 100000 ohms Conversion Transcond., 300 micromhos				1R5
1S4	POWER AMPLIFIER PENTODE	B0	7AV	D.C. F	1.4	0.1	CLASS A AMPLIFIER	45 90	− 4.5 − 7.0	45 67.5	0.8 1.4	3.8 7.4	100000 100000	1250 1575	——	8000 8000	0.065 0.27	1S4
1S5	DIODE-PENTODE	B0	6AU	D.C. F	1.4	0.05	PENTODE UNIT AS A-F AMPLIFIER	Plate Supply, 90 volts applied through 1 meg. resistor. Screen Supply, 90 volts applied through 3 meg. resistor. Grid Bias, 0 volts. Grid Resistor, 10 megohms.** Voltage Gain, 50 approx.										1S5
1T4	SUPER-CONTROL R-F AMPLIFIER PENTODE	B0	6AR	D.C. F	1.4	0.05	CLASS A AMPLIFIER	45 90	0 0	45 67.5	0.7 1.4	1.7 3.5	350000 500000	700 900	——	——	——	1T4
1U4	R-F AMPLIFIER PENTODE	B0	6AR	D.C. F	1.4	0.05	CLASS A AMPLIFIER	90	0	90	0.45	1.6	1.5§	900	——	——	——	1U4
2D21	THYRATRON TETRODE	B0	7BN	H	6.3	0.6	RELAY TUBE AND GRID-CONTROLLED RECTIFIER	Max. Peak Inverse Volts, 1300 Max. Peak Forward Volts, 650					Max. Peak Cathode Ma., 500 Average Cathode Ma., 100					2D21
3A4	POWER AMPLIFIER PENTODE	B0	7S8	D.C. F	1.4 2.8	0.2 0.1	CLASS A AMPLIFIER	135 150	− 7.5 − 8.4	90 90	2.6 2.2	14.8 13.3	90000 100000	1900 1900	——	8000 8000	0.6 0.7	3A4
							R-F POWER AMPLIFIER	150	——	135	6.5	18.3	Grid Resistor, 0.2 megohm Grid Current, 0.13 ma.		——	——	1.2 at 10 Mc	
3A5	H-F TWIN TRIODE	B0	7BC	D.C. F	1.4 2.8	0.22 0.11	EACH UNIT AS CLASS A AMPLIFIER	90	− 2.5	——	——	3.7	8300	1800	15	——	——	3A5
							PUSH-PULL CLASS C AMPLIFIER	135	−20.0	from grid resistor, 4000 ohms		30.0	Grid Current, 5 ma. Driving Power, 0.2 watt			——	2.0 at 40 Mc	

3Q4	POWER AMPLIFIER PENTODE	B0	78A	D.C. F	1.4 2.8	0.1 0.05	CLASS A AMPLIFIER	90 90	− 4.5 − 4.5	90 90	2.1 1.7	9.5 7.7	100000 120000	2150 2000	——	10000 10000	0.27 0.24	3Q4
3S4	POWER AMPLIFIER PENTODE	B0	78A	D.C. F	1.4 2.8	0.1 0.05	CLASS A AMPLIFIER	90 90	− 7 − 7	67.5 67.5	1.4 1.1	7.4 6.1	100000 100000	1575 1425	——	8000 8000	0.27 0.235	3S4
3V4	POWER AMPLIFIER PENTODE	B0	6BX	D.C. F	1.4 2.8	0.1 0.05	CLASS A AMPLIFIER	For other characteristics, refer to Type 3Q4										3V4
6AG5	R-F AMPLIFIER PENTODE	B0	78D	H	6.3	0.3	AS PENTODE CLASS A AMPLIFIER	100 250	Cath. Bias	100 150	1.6 2.0	5.5 7.0	300000 800000	4750 5000	Cath. Bias Res., 100 ohms Cath. Bias Res., 200 ohms			6AG5
							AS TRIODE ◻ CLASS A AMPLIFIER	180 250	Cath. Bias	——	——	7.0 5.5	7900 11000	5700 3800	Cath. Bias Res., 350 ohms Cath. Bias Res., 825 ohms			
6AK5	R-F AMPLIFIER PENTODE	A1a	78D	H	6.3	0.175	CLASS A AMPLIFIER	120 180	Cath. Bias	120 120	2.5 2.4	7.5 7.7	340000 690000	5000 5100	Cath. Bias Res., 200 ohms Cath. Bias Res., 200 ohms			6AK5
6AK6	POWER AMPLIFIER PENTODE	B0	78K	H	6.3	0.15	CLASS A AMPLIFIER	180	− 9.0	180	2.5	15	200000	2300	——	10000	1.1	6AK6
6AL5	H-F TWIN DIODE	A1a	69T	H	6.3	0.3	DETECTOR RECTIFIER	Max. Peak Inverse Volts, 420 Max. Peak Plate Ma. per Plate, 54					Max. D-C Output Ma. per Plate, 9 Max. Peak Heater Cathode Volts, 330					6AL5
6AQ5	BEAM POWER AMPLIFIER	B1a	78Z	H	6.3	0.45	SINGLE TUBE CLASS A AMPLIFIER	180 250	− 8.5 −12.5	180 250	3.0 4.5	29.0 45.0	58000 52000	3700 4100	——	5500 5000	2.0 4.5	6AQ5
							PUSH PULL CLASS AB1 AMPLIFIER	250	−15.0	250	5.0♣	70.0♣	——	——	——	10000	10.0†	
6AQ6	DUPLEX-DIODE HIGH-MU TRIODE	B0	78T	H	6.3	0.15	TRIODE UNIT AS CLASS A AMPLIFIER	100 250	− 1.0 − 3.0	——	——	0.8 1.0	61000 58000	1150 1200	70 70	——	——	6AQ6
6AT6	DUPLEX-DIODE HIGH-MU TRIODE	B0	78T	H	6.3	0.3	TRIODE UNIT AS CLASS A AMPLIFIER	100 250	− 1.0 − 3.0	——	——	0.8 1.0	54000 58000	1300 1200	70 70	——	——	6AT6
6AU6	R-F AMPLIFIER PENTODE	B0	78K1	H	6.3	0.3	CLASS A AMPLIFIER	100 250	− 1.0 − 1.0	100 150	2.0 4.3	5.2 10.8	600000 2.0§	3900 5200	——	——	——	6AU6
6BA6	R-F AMPLIFIER PENTODE	B0	78K1	H	6.3	0.3	CLASS A AMPLIFIER	100 250	Cath. Bias	100 100	4.4 4.2	10.8 11.0	250000 1.5§	4300 4400	Cath. Bias Res., 68 ohms Cath. Bias Res., 68 ohms			6BA6
6BE6	PENTAGRID CONVERTER▲	B0	7CH	H	6.3	0.3	MIXER	100 250	− 1.5 − 1.5	100 100	7.3 7.1	2.8 3.0	500000 1.0§	Grid #1 Resistor, 20000 ohms Conversion Transcond., 475 micrombos				6BE6
6BF6	DUPLEX-DIODE TRIODE	B0	78T	H	6.3	0.3	TRIODE UNIT AS CLASS A AMPLIFIER	250	− 9.0	——	——	9.5	8500	1900	16	10000	0.3	6BF6
6C4	H-F POWER TRIODE	B0	6BG	H	6.3	0.15	CLASS A AMPLIFIER	100 250	0 − 8.5	——	——	11.8 10.5	6250 7700	3100 2200	19.5 17	——	——	6C4
							CLASS C AMPLIFIER	300	−27.0	——	——	25.0	Grid Current, 7 ma. Driving Power, 0.35 watt			——	5.5	
6J4	U-H-F AMPLIFIER TRIODE	B0	78Q	H	6.3	0.4	GROUNDED-GRID CLASS A AMPLIFIER	100 150	Cathode-Bias Resistor, 100 ohms			10.0 15.0	5000 4500	11000 12000	55 55	——	——	6J4

RCA TYPE	NAME	SOCKET CONNEC-TIONS		TYPE AND RATING			USE Values to right give operating conditions and characteristics for indicated typical use	PLATE SUP-PLY VOLTS	GRID BIAS ■ VOLTS	SCREEN SUPPLY VOLTS	SCREEN CUR-RENT MA.	PLATE CUR-RENT MA.	PLATE RESIS-TANCE OHMS	CONDUC-TANCE (GRID-PLATE) μ MHOS	AMPLIFI-CATION FACTOR	LOAD FOR STATED POWER OUTPUT OHMS	POWER OUT-PUT WATTS	RCA TYPE
		DIMEN.	S.C.	C.T.	VOLTS	AMP.												
6J6	TWIN TRIODE	B0	7BF	H	6.3	0.45	EACH UNIT AS CLASS A AMPLIFIER	100	Cathode Resistor, for both units, 50 ohms			8.5	7100	5300	38	—	—	6J6
							PUSH-PULL CLASS C AMPLIFIER	150	−10.0	Cath. Res., 220 ohms, both units		30.0	Grid Current, 16 ma. Driving Power, 0.35 watt			—	3.5	
6X4	FULL-WAVE RECTIFIER	B1a	7CF	H	6.3	0.6	WITH CONDENSER-INPUT FILTER	Max. A-C Volts per Plate (RMS), 325 Max. Peak Inverse Volts, 1250				Max. D-C Output Ma., 70 Max. Peak Plate Ma., 210			Min. Total Effect. Supply Imped. per Plate, 150 ohms			6X4
							WITH CHOKE-INPUT FILTER	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1250				Max. D-C Output Ma., 70 Max. Peak Plate Ma., 210			Min. Value of Input Choke, 8 Henries		
12AT6	DUPLEX-DIODE HIGH-MU TRIODE	B0	7BT	H	12.6	0.15	TRIODE UNIT AS CLASS A AMPLIFIER	For other characteristics, refer to Type 6AT6										12AT6
12BA6	R-F AMPLIFIER PENTODE	B0	7BK1	H	12.6	0.15	CLASS A AMPLIFIER	For other characteristics, refer to Type 6BA6										12BA6
12BE6	PENTAGRID CONVERTER▲	B0	7CH	H	12.6	0.15	MIXER	For other characteristics, refer to Type 6BE6										12BE6
26A6	R-F AMPLIFIER PENTODE	B0	7BK1	H	26.5	0.07	CLASS A AMPLIFIER	26.5	—	26.5	0.7	1.7	250000	2000	Grid Resistor, 2 megohms Cathod Resistor, 125 ohms			26A6
								250	—	100	4.0	10.5	1.0§	4000				
26C6	DUPLEX-DIODE TRIODE	B0	7BT	H	26.5	0.07	TRIODE UNIT AS CLASS A AMPLIFIER	26.5	from grid resistor, 2.0§			1.1	15500	1100	17	—	—	26C6
								250	−9	—	—	9.5	8500	1900	16	—	—	
26D6	PENTAGRID CONVERTER▲	B0	7CH	H	26.5	0.07	CONVERTER	26.5	− 0.5	26.5	1.6	0.45	—	Conversion Transcond., 270 micromhos.				26D6
								250	− 1.5	100	7.8	3.0	1.0§	Conversion Transcond., 475 micromhos.				
35W4	HALF-WAVE RECTIFIER Heater Tap for Pilot	B1a	8BQ	H	35.0	0.15	WITH CONDENSER-INPUT FILTER	Max A-C Plate Volts (RMS), 117 Max. D-C Output Ma.: With Pilot and No Shunt Res., 60; With Pilot and Shunt Res., 90; Without Pilot, 100					Min. Total Effect. Supply Impedance, 15 ohms					35W4
45Z3	HALF-WAVE RECTIFIER	B0	5AM	H	45.0	0.075	HALF-WAVE RECTIFIER	Max. A-C Plate Volts (RMS), 117 Max. Peak Inverse Volts, 350				Max. D-C Output Ma., 65 Max. Peak Plate Ma., 390			Min. Total Effect. Plate-Supply Imped., 15 ohms			45Z3
50B5	BEAM POWER AMPLIFIER	B1a	7BZ	H	50.0	0.15	CLASS A AMPLIFIER	110	− 7.5	110	4	49	14000	7500	—	2500	1.9	50B5
117Z3	HALF-WAVE RECTIFIER	B1a	8BB	H	117.0	0.04	WITH CONDENSER-INPUT FILTER	Max. A-C Plate Volts (RMS), 117 Max. Peak Inverse Volts, 330				Max. D-C Output Ma., 90 Max. Peak Plate Ma., 540			Min. Total Effect. Plate-Supply Imped., 15 ohms			117Z3
1654	HALF-WAVE RECTIFIER	B0a	2Z	F	1.4	0.05	WITH CONDENSER-INPUT FILTER	Max. A-C Plate Volts (RMS), 2500 Max. Peak Inverse Volts, 7000				Max. D-C Output Ma., 1 Max. Peak Plate Ma., 6			Min. Total Effect. Plate-Supply Imped., 175000 ohms			1654

9001	SHARP CUT-OFF U-H-F PENTODE	A1a	7B0	H	6.3	0.15	CLASS A AMPLIFIER	90 250	− 3.0 − 3.0	90 100	0.5 0.7	1.2 2.0	1.0§ 1.0+§	1100 1400	——	——	——	9001
							MIXER IN SUPERHETERODYNE	100 250	− 5.0 − 5.0	100 100	——	——	Oscillator Peak Volts = 4 Conversion Transconductance = 550 micromhos				
9002	U-H-F TRIODE	A1a	7B5	H	6.3	0.15	CLASS A AMPLIFIER	90 250	− 2.5 − 7.0	——	——	2.5 6.3	14700 11400	1700 2200	25 25	——	——	9002
9003	REMOTE CUT-OFF U-H-F PENTODE	A1a	7B0	H	6.3	0.15	CLASS A AMPLIFIER	250	− 3.0	100	2.7	6.7	700000	1800	——	——	——	9003
							MIXER IN SUPERHETERODYNE	100 250	−10.0 −10.0	100 100	——	——	Oscillator Peak Volts = 9 Conversion Transconductance = 600 micromhos				
9006	U-H-F DIODE	A1a	6BH	H	6.3	0.15	DETECTOR RECTIFIER	Max. Peak Inverse Volts, 750 Max. Peak Plate Ma., 15					Max. D-C Output Ma., 5 Max. Peak Heater-Cath. Volts, 100		Min. Total Effect. Plate-Supply Imped., 100 ohms			9006

■ Either A-C or D-C may be used on filament or heater, except as specifically noted. For use of D-C on A-C filament types, decrease stated grid volts by ½ (approx.) of filament voltage.

* Averaged over a starting period not exceeding 10 seconds.

** For grid of following tube.

▲ Grids # 2 and # 4 are screen. Grid # 1 is signal-input control grid.

† Power output is for two tubes at stated plate-to-plate load.

□ Grid # 2 tied to plate.

§ Megohms.

✤ For two tubes.

Note 1: Subscript 1 on class of amplifier service (as AB_1) indicates that grid current does not flow during any part of input cycle.

KEY TO TUBE DIMENSIONS

Symbol	Maximum Overall Length x Diameter	Symbol	Maximum Overall Length x Diameter	Symbol	Maximum Overall Length x Diameter	Symbol	Maximum Overall Length x Diameter
A1a	$1\frac{1}{2}''$ x $\frac{3}{4}''$	BO	$2\frac{1}{8}''$ x $\frac{1}{4}''$	BOa	$2\frac{7}{16}''$ x $\frac{1}{4}''$	B1a	$2\frac{1}{8}''$ x $\frac{1}{4}''$

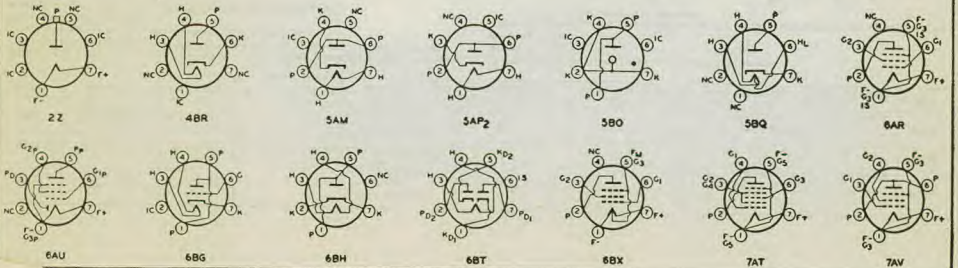
Socket Connections for Chart II

Bottom Views

KEY TO TERMINAL DESIGNATION OF SOCKETS

Alphabetical subscripts D, T, and P indicate, respectively, diode unit, triode unit, and pentode unit in multi-unit types.

F = Filament
F_M = Filament Mid-Tap
G = Grid
● = Gas-Type Tube
H = Heater
H_L = Heater Tap for Panel Lamp
IS = Internal Shield
IC = Internal Connection—Do Not Use
K = Cathode
NC = No Connection
P = Plate (Anode)



7BA
7BB
7BC
7BD
7BE
7BF
7BG
7BH
7BI
7BJ
7BK
7BK1
7CH
7CF
7BZ
7BT
7BS
7BQ
7BN

NON-RECEIVING TUBES

VACUUM POWER TUBES

TYPE	CATHODE VOLTS	MAX. DIMENSIONS INCHES		AMPLIFICATION FACTOR	MAX. PLATE RATINGS*	
		LENGTH	DIAM.		DC VOLTS	DISSIPATION WATTS
TRIODES (AIR-COOLED)						
203-A	10	7⅛	2 5/16	25	1250	100
204-A	11	14⅜	4 1/16	23	2500	250
211	10	7⅛	2 5/16	12	1250	100
304TH	5/10	7⅛	1 11/16*	20	3000	300
800	7.5	6⅜	2 1/16	15	1250	35
801-A	7.5	5¾	2 1/16	8	600	20
805	10	8½	2 5/16	variable	1500	125
806	5	10	3 13/16	12.6	3300†	225†
808	7.5	6 1/16	2 5/16	47	1500	50
809	6.3	6 1/16	2 5/16	50	1000†	30†
810	10	8¾	2 1/4*	36	2250†	150†
811	6.3	6 1/16	2 1/16	160	1500†	55†
812	6.3	6 1/16	2 5/16	29	1500†	55†
826	7.5	3 11/16	2⅜	31	1250†	75†
830-B	10	6 11/16	2 1/16	25	1000	60
833-A	10	8 1/16	4 15/29	35	4000†	450†
834	7.5	6¾	2 11/16	10.5	1250	50
838	10	7⅛	2 5/16	variable	1250	100
841	7.5	5¾	2 1/16	30	450	15
842	7.5	5¾	2 1/16	3	425	12
843	2.5	5¾	2 1/16	7.7	450	15
845	10	7¼	2 5/16	5.3	1250	100
849	11	14⅜	4 1/16	19	2500	400
851	11	17⅛	6⅛	20.5	2500	750
852	10	9	4¼*	12	3000	100
1608	2.5	5⅜	2 1/16	20	425	20
1623	6.3	6 9/16	2 1/16	20	1000†	30†
1626	12.6	4⅛	1 3/16	5	250	5
5556	4.5	5⅜	2 3/16	8.5	350	10
8000	10	8¾	2 1/4*	16.5	2250†	150†
8003	10	8½	2 5/16	12	1350	100
8005	10	6 11/16	2 1/16	20	1500†	85†
8012-A	6.3	3 15/16	1 3/16*	18	1000	40
8025-A	6.3	4 15/16	1 5/64*	18	1000†	30
TRIODES (WATER-COOLED)						
9C21	19.5	24½	9½	38	17000	40000
207	22	20¼	6½*	20	15000	10000
846	11	9½	3⅜*	40	7500	2500
858	22	24½	7½*	42	20000	20000
862-A	33	60¾	10*	45	20000	100000
880	12.6	11½	7	20	10500	20000
889-A	11	10 11/16	3¼	21	8500	5000
891	11#	20¾	6½*	8	12000	6000
892	11#	20¾	6½*	50	15000	10000
893-A	10#	26¼	6⅜*	36	20000	20000
898-A	33#	60¾	10*	45	20000	100000
TRIODES (FORCED-AIR-COOLED)						
6C24	11	6½	1 29/32	30	3000	600
7C24	12.6	7½	4 11/16	25	5000	2000
9C22	19.5	25	8 13/32	38	17000	20000
889R-A	11	11⅞	5 7/16*	21	8500	5000

VACUUM POWER TUBES (Cont'd)

TYPE	CATHODE VOLTS	MAX. DIMENSIONS INCHES LENGTH	DIAM.	AMPLIFICATION FACTOR	MAX. PLATE RATINGS* DC VOLTS	DISSIPATION WATTS
TRIODES (FORCED-AIR-COOLED)						
891	11#	22	6½*	8	10000	4000
892-R	11#	22	6½*	50	12500	4000
893A-R	10✣	28	8 13/16*	36	20000	20000
TETRODES (WATER-COOLED)						
8D21	4.2	12 3/32	5¾	5§b	6000	6000
TETRODES (FORCED-AIR-COOLED)						
827-R	7.5	6 1/16	4 21/32	16§	3500	800
BEAM POWER TUBES AND PENTODES (AIR-COOLED)						
2E24	6.3	3 21/32	1 3/16	3200	600†	13.5†
2E26	6.3	3 21/32	1 3/16	3500	600†	13.5†
3E22	6.3/12.6	4 3/16	2⅜	4000	600□	35□
4E27/8001	5	6 3/16	2 11/16	2800	4000	75
802	6.3	5¾	2 1/16	2250	600†	13†
803	10	9¼	2 5/16	4000	2000	125
804	7.5	7 11/16	2 1/16	3250	1500†	50†
807	6.3	5¾	2 1/16	6000	750†	30†
813	10	7½	2 5/16	3750	2250†	125†
814	10	7 11/16	2 1/16	3300	1500†	65†
815	6.3/12.6	4 5/16	2⅜	4000	500†	25†
828	10	7 11/16	2 1/16	2700	1500†	80†
829-B	6.3/12.6	4 5/16	2⅜	8500	750†	45†
832-A	6.3/12.6	3 5/16	2⅜	3500	750	15
837	12.6	5⅞	2 1/16	3400	500	12
1610	2.5	5⅛	2 1/16	2500	400	6
1613	6.3	3¼	1 5/16	2500	350	10
1614	6.3	4 5/16	1⅜	6050	375	21
1619	2.5	4 5/16	1⅜	4500	400	15
1624	2.5	5¾	2 1/16	4000	600	25
1625	12.6	5¾	2 1/16	6000	750†	30†
TETRODES (AIR-COOLED)						
4-125A/4D21	5	5 11/16	2⅞	6.2§	3000	125
860	10	8¾	4¼*	1100	3000	100
861	11	17 5/32	6⅝*	2400	3500	400
865	7.5	5¾	2 1/16	750	750	15

THYRATRONS

TYPE	CATHODE VOLTS	MAX. DIMENSIONS INCHES LENGTH	DIAM.	MAX. ANODE RATINGS PEAK INV. VOLTS	AV. AMP.
TRIODES					
3C23	2.5	6⅛	2 5/16	1250	1.5
627	2.5	6⅝	2 1/16	2500	0.64
629	2.5	4¼	1 3/16	350	0.04
676	5	11¾	3 13/16	2500	6.4
677	5	11¾	3 13/16	10000	4.0

†For Intermittent Commercial and Amateur Service. *Maximum Radius. #Per Section.
• Absolute values for Continuous Commercial Service, unless otherwise specified.
§Grid-Screen Mu-Factor. b Per Unit. ✣Per Strand. □ Intermittent Mobile Service.

THYRATRONS (Cont'd)

TYPE	CATHODE VOLTS	MAX. DIMENSIONS INCHES		MAX. ANODE RATINGS	
		LENGTH	DIAM.	PEAK INV. VOLTS	AV. AMP.
TRIODES					
678	5	10¾	2⅜	15000	1.6
884	6.3	4⅛	1⅜	350	0.075
885	2.5	4⅜	1⅜	350	0.075
5557	2.5	6⅜	2⅛	5000	0.5
5559	5	7¼	3	1000	2.5
TETRODES					
2D21	6.3	2½	¾	300	0.1
3D22	6.3	4¾	2⅜	1350	0.75
105	5	11¼	2 13/16	2500	6.4
172	5	10¾	2⅜*	2000	6.4
502-A	6.3	2 19/32	1⅜	1300	0.1
672	5	8⅜	2⅜	1500	2.5
2050	6.3	4⅛	1⅜	1300	0.1
2051	6.3	4⅛	1⅜	700	0.075
5560	5	7 15/16	2¼*	1000	2.5

VOLTAGE REGULATORS

TYPE	OPERATING VOLTS	MAX. DIMENSIONS INCHES		OPERATING CURRENT DC MA.	
		LENGTH	DIAM.	MIN.	MAX.
GLOW-DISCHARGE (COLD-CATHODE) TYPES					
OA2	150	2⅜	¾	5	30
OA3/VR75	75	4⅛	1⅜	5	40
OC3/VR105	105	4⅛	1⅜	5	40
OD3/VR150	150	4⅛	1⅜	5	40
874	90	5⅜	2 1/16	10	50
991	59	1 1/16	⅜	0.4	2

RECTIFIERS

TYPE	CATHODE VOLTS	MAX. DIMENSIONS INCHES		MAX. PLATE OR ANODE RATINGS	
		LENGTH	DIAM.	PEAK INV. VOLTS	AV. AMP.
VACUUM TYPES					
2X2/879	2.5	4 13/32	1⅜	12500	0.0075
2X2-A	Has same ratings and dimensions as type 2X2/879 but has greater ruggedness for use in equipment subject to excessive shock and vibration.				
2V3-G	2.5	4 13/32	1⅜	16500	0.002
5R4-GY	5	5 3/16	2 1/16	2800	0.175
217-C	10	8½	2 5/16	7500	0.150
579-B	2.5	7 7/16	2 1/16	20000	0.025
836	2.5	6 3/16	2 1/16	5000	0.25
878	2.5	7⅜	1 13/16	20000	0.005
1616	2.5	6 13/16	2 1/16	6000	0.13
8013-A	2.5	6 1/16	2 1/16	40000	0.020
8020	5	8	2 5/16	40000	0.100
MERCURY-VAPOR TYPES					
575-A	5	11 1/16	3 13/16	15000	1.5
673	5	11⅜	3 13/16	15000	1.5
816	2.5	4 11/16	1 13/16	5000	0.125
857-B	5	20	7⅛	22000	10
866-A/866	2.5	6⅜	2 5/16	10000	0.25

RECTIFIERS (Cont'd.)

TYPE	CATHODE VOLTS	MAX. DIMENSIONS INCHES LENGTH	DIAM.	MAX. PLATE OR ANODE RATINGS PEAK INV. VOLTS	AV. AMP.
MERCURY-VAPOR TYPES					
869-B	5	14 7/16	5 1/16	20000	2.5
870-A	5	27 1/8	5 1/16	16000	75
872-A/872	5	8 1/2	2 5/16	10000	1.25
5558	5	7	3	1000	2.5
5561	5	11 1/4	3 13/16	3000	6.4
8008	5	8 3/4	2 5/16	10000	1.25
GAS TYPES					
3B25	2.5	6 5/16	2 1/8	4500	0.5
4B26/2000	2.2	7	3 1/4	375	6

IGNITRONS

	SIZE	MAX. DIMENSIONS INCHES APPROX. LENGTH	RADIUS	MAX. ANODE RATINGS* KVA DEMAND	Corresponding Av. Anode Amp.	MAX. ANODE RATINGS‡ PEAK INV. VOLTS	AV. AMP
5550	(A)	10	1 3/8	300	12.1	...	...
5551	(B)	13 1/2	2 1/8	600	30.2	...	...
5552	(C)	14 1/2	3 1/8	1200	75.6	...	...
5553	(D)	20	4 11/16	2400	192.	...	...
5554		17 1/2	3 13/16	.....	.....	2100	75
5555		18 1/2	4 5/16	.....	.....	2100	150

PHOTOTUBES

TYPE	MAX. DIMENSIONS INCHES LENGTH	DIAM.	MAX. ANODE-SUPPLY VOLTS	LUMINOUS SENSITIVITY MICROAMP. PER LUMEN	SPECTRAL RESPONSE
GAS TYPES					
1P29	4 1/8	1 1/16	100	40	Violet-Green
1P37	4 1/8	1 1/8	100	120	Blue
1P40	Similar to type 930 except for non-hygroscopic base.				
1P41	Similar to type 924 except for Peewee 3-pin base.				
868	4 1/16	1 1/16	90	90	Red, Infra-Red
918	4 1/8	1 3/16	90	150	Red, Infra-Red
920¶	4	1 1/16	90	75	Red, Infra-Red
921	1 23/32	13/16	90	135	Red, Infra-Red
923	3 3/16	1 3/16	90	135	Red, Infra-Red
924	2 3/16	1 1/16	90	83	Red, Infra-Red
927	2 1/32	23/32	90	125	Red, Infra-Red
928	3 1/16	1 1/16	90	65	Red, Infra-Red
930	3 1/16	1 1/16	90	135	Red, Infra-Red

¶For welding-control. ‡For power rectification.
• Absolute values for Continuous Commercial Service, unless otherwise specified.
†For Intermittent Commercial and Amateur Service.
□ For Intermittent Mobile Service.
§Grid-Screen Mu-Factor. ¶ Twin Type.
*Maximum Radius.

PHOTOTUBES (Cont'd)

TYPE	MAX. DIMENSIONS INCHES LENGTH	DIAM.	MAX. ANODE-SUPPLY VOLTS	LUMINOUS SENSITIVITY MICROAMP. PER LUMEN	SPECTRAL RESPONSE
VACUUM TYPES					
1P39	Similar to type 929 except for non-hygroscopic base.				
917	4 3/16	1 3/16	500	20	Red, Infra-Red
919	4 3/16	1 3/16	500	20	Red, Infra-Red
922	1 23/32	1/2	500	20	Red, Infra-Red
925	2 5/8	1 5/16	250	15	Red, Infra-Red
926	1 23/32	1 5/16	500	6.5	Violet-Green
929	3 5/16	1 5/16	250	45	Blue
934	2 15/32	2 3/32	250	30	Blue
935	4 1/4	1 5/16	250	30	Ultra-Violet-Blue

MULTIPLIER PHOTOTUBES

TYPE	MAX. DIMENSIONS INCHES LENGTH	DIAM.	MAX. ANODE-SUPPLY VOLTS	LUMINOUS SENSITIVITY MICROAMP. PER LUMEN	SPECTRAL RESPONSE
1P21	3 11/16	1 5/16	1250	40.0×10^6	Blue
1P22	3 11/16	1 5/16	1250	0.6×10^6	Blue-Green-Red
1P28	3 11/16	1 5/16	1250	3.0×10^6	Ultra-Violet-Blue
931-A	3 11/16	1 5/16	1250	10×10^6	Blue

CATHODE-RAY OSCILLOGRAPH TUBES

TYPE	CATHODE VOLTS	MAX. DIMENSIONS INCHES LENGTH	APPROX. SCREEN DIAM.	MAX ANODE-No. 2 VOLTS	DEFLECTION FACTOR‡‡ VOLTS DC/IN./KV
GREEN FLUORESCENCE, MEDIUM PERSISTENCE TYPES					
2AP1-A	6.3	7 5/8	2	1000	230
2BP1	6.3	7 13/16	2	2500	120
3AP1-A	2.5	11 7/8	3	1500	76
3BP1-A	6.3	10 1/4	3	2000	100
3KP1	6.3	11 3/4	3	2500	58
5BP1-A	6.3	17 1/8	5	2000	42
5CP1-A	6.3	17 1/8	5	2000	46
5HP1-A	Similar to 5BP1-A except for micanol base.				
7CP1	6.3	13 13/16	7	7000	**
902-A	6.3	7 1/8	2	600	232.5
905-A	2.5	16 1/8	5	2000	57.5
912	2.5	16 1/8	5	13500	62
913	6.3	4 3/4	1	500	598
914-A	2.5	20 1/8	9	7000	46
BLUISH FLUORESCENCE, SHORT PERSISTENCE TYPES					
2BP11	Similar to 2BP1 but useful for photographic recording.				
908-A	2.5	11 1/8	3	1500	76

** Magnetic deflection.

‡‡ For deflecting electrodes DJ_1 and DJ_2 (nearer screen).

ICONOSCOPES

1848 For portable television cameras. Mosaic, 2¼" x 3". Heater volts, 6.3. Max. anode-No. 2 volts, 1200.

1850-A For film and direct pick-up. Mosaic, 3 3/16" x 4¾". Heater volts, 6.3. Max. anode-No. 2 volts, 1200.

ORTHICON

1840 For film and direct pick-up. Mosaic, 1¾" x 2 5/16". Heater volts, 6.3. Max. anode-No. 2 volts, 300.

IMAGE ORTHICON

2P23 A 3" television camera type featuring exceptional sensitivity and having good resolution for outdoor pickup.

MONOSCOPE

2F21 A 5" magnetic-deflection type for use in testing video performance of television transmitters and receivers.

TYPES FOR SPECIAL APPLICATIONS

ACORNS

6F4 Oscillator Triode. Heater-cathode type. For frequencies up to 1200 Mc.

954 Detector Amplifier Pentode. Heater-cathode type. For frequencies up to 430 Mc.

955 Detector Amplifier Oscillator Triode. Heater-cathode type. For frequencies up to 600 Mc.

956 Super-Control R-F Amplifier Pentode. Remote cut-off, heater-cathode type. For frequencies up to 430 Mc.

957 Detector Amplifier Oscillator Triode. Filament volts, 1.25. Amplification factor, 13.5.

958-A Amplifier Triode. Filament volts, 1.25. For oscillator and r-f amplifier service.

959 Detector Amplifier Pentode. Filament volts, 1.25 For r-f amplifier and detector service.

9004 U-H-F Diode. Heater-cathode type. For u-h-f service as a rectifier, detector or measuring device. Resonant frequency, about 850 Mc.

9005 U-H-F Diode. Heater-cathode type. For u-h-f service as a rectifier, detector or measuring device. Resonant frequency, about 1500 Mc.

MINIATURES

3A4 Power Amplifier Pentode. Filament volts, 1.4/2.8. A-F power output of 700 milliwatts.

3A5 H-F Twin Triode. Class C power output of 2 watts at 40 Mc.

6AK5 R-F Amplifier Pentode. Features sharp cut-off characteristic. Heater volts, 6.3. Max. plate volts, 180. For frequencies up to 400 Mc.

6J4 U-H-F Amplifier Triode. Grounded-grid amplifier. For frequencies up to 500 Mc.

1654 Half-Wave High-Vacuum Rectifier. Max. peak inverse plate volts, 7000. Max. average plate current, 1 ma.

9001 Detector Amplifier Pentode. A sharp cut-off pentode for use as an r-f amplifier or detector in u-h-f service.

9002 U-H-F Triode. Useful as a u-h-f detector, amplifier and oscillator.

9003 Super-Control R-F Amplifier Pentode. Remote cut-off type useful as a mixer or as an r-f or i-f amplifier in u-h-f services.

9006 U-H-F Diode. Heater-cathode type. Resonant frequency, about 700 Mc. For u-h-f service as a rectifier, detector, or measuring device.

TYPES FOR SPECIAL APPLICATIONS

METAL, GT, AND OTHER GLASS TYPES

OA4-G Gas-Triode. Cold-cathode starter-anode type. For use in carrier current systems. May also be used as a voltage regulator.

1C21 Gas-Triode. Cold-cathode glow-discharge type. Similar to the OA4-G except for its smaller size.

2C21/1642 Twin-Triode Amplifier. Medium Mu. Plate dissipation per plate, 2.1 watts. Heater volts, 6.3; current, 0.6 ampere.

2C22 High-Frequency Triode. Max. plate dissipation, 3.3 watts. Max. plate volts, 300.

2C40 Lighthouse Triode. A high frequency amplifier and oscillator featuring low frequency drift with variations in heater and plate volatges. Plate dissipation, 5 watts max., mu = 36., gm = 4800 micromhos.

2C43 Lighthouse Triode. Has the same design features as the 2C40 except for a plate dissipation of 10 watts max., mu = 48, and gm = 8000 micromhos.

6AG7-Y Video Power Amplifier Pentode. Similar to type 6AG7 except for micanol base.

6AS7-G Low-Mu Twin Power Triode. For use in voltage-regulator equipment and as a booster tube in television scanning circuits.

6SJ7-Y Triple-Grid Detector Amplifier. Similar to type 6SJ7 except for micanol base.

6SN7-GTY Twin-Triode Amplifier. Similar to type 6SN7-GT except for micanol base.

10-Y Transmitting Triode. Fil. volts, 7.5. Max. plate dissipation, 15 watts.

12A6 Beam Power Amplifier. Metal type. Designed particularly for aircraft applications. Heater volts, 12.6. Max. plate volts, 250.

12K8-Y Triode-Hexode Converter. Similar to type 12K8 except for micanol base.

12L8-GT Twin-Pentode Power Amplifier. Heater volts, 12.6. Max. plate volts, 180. Plate dissipation per plate, 2.5 watts. Similar to type 1644.

26A7-GT Twin A-F Beam Power Amplifier. Heater volts, 26.5. Max. plate volts, 50. For 12-cell battery service.

89-Y Triple-Grid Power Amplifier. Similar to type 89 except for micanol base.

559 Lighthouse Diode. For use as a detector and in r-f switching.

864 Amplifier Triode. For low-microphonic applications. Filament volts, 1.1. Max. plate volts, 135.

1603 Triple-Grid Detector Amplifier. For low-microphonic applications. Heater volts, 6.3. Max. plate volts, 250. Similar to type 6C6.

1609 Amplifier Pentode. For low-microphonic applications. Filament volts, 1.1. Max. plate volts, 135.

1612 Pentagrid Amplifier. For low-microphonic applications. Heater volts, 6.3. Max. plate volts, 250. Similar to type 6L7.

1620 Triple-Grid Detector Amplifier. For low-microphonic applications. Heater volts, 6.3. Max. plate volts, 250. Similar to type 6J7.

1621 Power Amplifier Pentode. Metal type. For applications requiring continuity of service. Heater volts, 6.3. In push-pull service: Max. plate volts, 300, a-f power output, 5 watts.

1622 Beam Power Amplifier. Metal type. For applications requiring continuity of service. Heater volts, 6.3. In push-pull service: Max. plate volts, 300; power output, 10 watts.

1629 Electron-Ray Tube. Indicator type. Similar to type 6E5 except for a 12.6-volt heater and an octal base.

1631 Beam Power Amplifier. Metal type. Similar to type 6L6 except for a 12.6-volt heater. Max. plate dissipation, 16 watts.

1632 Beam Power Amplifier. Similar to type 25L6 except for 12.6-volt heater, and plate voltage and dissipation ratings.

1644 Twin-Pentode Power Amplifier. Similar to type 12L8-GT, but is especially suited for applications requiring matched pentode units.

Technical Definitions*

Amplification Factor A measure of the effectiveness of the grid voltage relative to that of the plate voltage in affecting the plate current.

Amplifier A device for increasing the amplitude of electric current, voltage or power, through the control by the input power of a larger amount of power supplied by a local source to the output circuit.

Anode An electrode to which an electron stream flows.

Attenuation The reduction in power of a wave or a current with increasing distance from the source of transmission.

Audio Frequency A frequency corresponding to a normally audible sound wave. The upper limit ordinarily lies between 10,000 and 20,000 cycles.

Automatic Volume Control A self-acting device which maintains the output constant within relatively narrow limits while the input voltage varies over a wide range.

By-Pass Capacitor A capacitor used to provide an alternating-current path of comparatively low impedance around some circuit element.

Cathode The electrode from which the electron stream flows. (See Filament.)

Class A Amplifier A class A amplifier is an amplifier in which the grid bias and alternating grid voltages are such that plate current in a specific tube flows at all times.

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

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

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

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

Control-Grid-Plate Transconductance—see definition of "transconductance."

*Many of these definitions are based on I.R.E. Standards.

Conversion Transconductance is the ratio of the magnitude of a single beat-frequency component ($f_1 + f_2$) or ($f_1 - f_2$) of the output current to the magnitude of the input voltage of frequency f_1 under the conditions that all direct voltages and the magnitude of the second input alternating voltage f_2 must remain constant. As most precisely used, it refers to an infinitesimal magnitude of the voltage of frequency f_1.

Converter (generally, in superheterodyne receivers.) A converter is a vacuum-tube which performs simultaneously the functions of oscillation and mixing (first detection) in a radio receiver.

Cross Modulation A type of intermodulation due to modulation of the carrier of the desired signal in a radio apparatus by an undesired signal.

Current Amplification The ratio of the alternating current produced in the output circuit of an amplifier to the alternating current supplied to the input circuit for specific circuit conditions.

Deflection Factor of a cathode-ray oscillograph tube is the reciprocal of the deflection sensitivity.

Deflection Sensitivity of a cathode-ray oscillograph tube is the quotient of the displacement of the electron beam at the place of impact by the change in the deflecting field. It may be expressed in millimeters or inches per volt applied between the deflecting electrodes or in millimeters or inches per gauss of the deflecting magnetic field.

Detection is any process of operation on a modulated signal wave to obtain the signal imparted to it in the modulation process.

Detector A detector is a device which is used for operation on a signal wave to obtain the signal imparted to it in the modulation process.

Diode A type of thermionic tube containing two electrodes which passes current wholly or predominantly in one direction.

Direct Capacitance (C) between two conductors—The ratio of the charge produced on one conductor by the voltage between it and the other conductor, divided by this voltage, all other conductors in the neighborhood being at the potential of the first conductor.

Dynamic Sensitivity of a Phototube The alternating-current response of a phototube to a pulsating light flux at specified values of mean light flux, frequency of pulsation, degree of pulsation, and steady tube voltage.

Electrode Current is the current passing to or from an electrode through the vacuous space.

Electrode Dissipation is the power dissipated in the form of heat by an electrode as a result of electron and/or ion bombardment.

Electrode Voltage is the voltage between an electrode and a specified point on the cathode.

Electron Emission The liberation of electrons from an electrode into the surrounding space. In a vacuum tube it is the rate at which the electrons are emitted from a cathode. This is ordinarily measured as the current carried by the electrons under the influence of a voltage sufficient to draw away all the electrons.

Electron Tube A vacuum tube evacuated to such a degree that its electrical characteristics are due essentially to electron emission.

Emission Characteristic A graph plotted between a factor controlling the emission (such as the temperature, voltage, or current of the cathode) as abscissas, and the emission from the cathode as ordinates.

Filament A cathode in which the heat is supplied by current passing through the cathode.

Full-Wave Rectifier A double unit rectifier arranged so that current is allowed to pass in the same direction to the load circuit during each half cycle of the alternating-current supply, one element functioning during one-half cycle and the other during the next half cycle, and so on.

Gas Amplification Factor of a phototube is the factor of increase in the sensitivity of a gas phototube due solely to the ionization of the contained gas.

Gas Phototube A type of phototube in which a quantity of gas has been introduced, usually for the purpose of increasing its sensitivity.

Grid An electrode having openings through which electrons or ions may pass.

Grid Bias The direct component of the grid voltage.

Grid Capacitor A series capacitor in the grid or control circuit of a vacuum tube.

Grid Driving Power is the average product of the instantaneous value of the grid current and of the alternating component of the grid voltage over a complete cycle. This comprises the power supplied to the biasing device and to the grid.

Grid Leak A resistor in a grid circuit, through which the grid current flows, to affect or determine a grid bias.

Grid-Plate Transconductance The name for the plate current to grid voltage transconductance. (This has also been called mutual conductance.)

Half-Wave Rectifier A rectifier which changes alternating current into pulsating current, utilizing only one-half of each cycle.

Heater An electrical heating element for supplying heat to an indirectly heated cathode.

Heterodyne Reception The process of receiving radio waves by combining in a detector a received voltage with a locally generated alternating voltage. The frequency of the locally generated voltage is commonly different from that of the received voltage. (Heterodyne reception is sometimes called beat reception.)

Indirectly Heated Cathode A cathode of a thermionic tube, in which heat is supplied from a source other than the cathode itself.

Input Capacitance of a vacuum tube is the sum of the direct capacitances between the control grid and the cathode and such other electrodes as are operated at the alternating potential of the cathode. This is not the effective input capacitance which is a function of the impedances of the associated circuits.

Interelectrode Capacitance The direct capacitance between two electrodes of an electron tube.

Linear Detection That form of detection in which the audio output voltage under consideration is substantially proportional to the modulation envelope throughout the useful range of the detecting device.

Magnetic Loudspeaker One in which the mechanical forces result from magnetic reactions.

Mercury-Vapor Rectifier A mercury-vapor rectifier is a two electrode, vacuum-tube rectifier which contains a small amount of mercury. During operation, the mercury is vaporized. A characteristic of mercury-vapor rectifiers is the low-voltage drop in the tube.

Mixer Tube (generally, in superheterodyne receivers.) A mixer tube is one in which a locally generated frequency is combined with the carrier-signal frequency to obtain a desired beat frequency.

Monochromatic Sensitivity The response of a phototube to light of a given color, or narrow frequency range.

Mu-Factor A measure of the relative effect of the voltages on two electrodes upon the current in the circuit of any specified electrode. It is the ratio of the change in one electrode voltage to a change in the other electrode voltage, under the condition that a specified current remains unchanged.

Mutual Conductance (See Grid-Plate Transconductance.)

Output Capacitance of a vacuum tube is the sum of the direct capacitances between the output electrode (usually the plate) and the cathode and such other electrodes as are operated at the alternating potential of the cathode. This is not the effective output capacitance which is a function of the impedances of the associated circuits.

Peak Forward Plate Voltage is the maximum instantaneous plate voltage in the direction in which the tube is designed to pass current.

Peak Inverse Plate Voltage is the maximum instantaneous plate voltage in the direction opposite to that in which the tube is designed to pass current.

Pentode A type of thermionic tube containing a plate, a cathode, and three additional electrodes. (Ordinarily the three additional electrodes are of the nature of grids.)

Phototube A vacuum tube in which electron emission is produced by the illumination of an electrode.

Plate A common name for the principal anode in an electron tube

Power Amplification (of an amplifier)—The ratio of the alternating-current power produced in the output circuit to the alternating-current power supplied to the input circuit.

Power Detection That form of detection in which the power output of the detecting device is used to supply a substantial amount of power directly to a device such as a loud speaker or recorder.

Pulsating Current A periodic current, that is, current passing through successive cycles, the algebraic average value of which is not zero. A pulsating current is equivalent to the sum of an alternating and a direct current.

Rectifier A device having an asymmetrical conduction characteristic which is used for the conversion of an alternating current into a pulsating current. Such devices include vacuum-tube rectifiers, gas rectifiers, oxide rectifiers, electrolytic rectifiers, etc.

Reflex Circuit Arrangement A circuit arrangement in which the signal is amplified, both before and after detection, in the same amplifier tube or tubes.

Regeneration The process by which a part of the output power of an amplifying device reacts upon the input circuit in such a manner as to reinforce the initial power, thereby increasing the amplification. (Sometimes called "feedback" or "reaction.")

Screen Grid A screen grid is a grid placed between a control grid and an anode, and maintained at a fixed positive potential, for the purpose of reducing the electrostatic influence of the anode in the space between the screen grid and the cathode.

Secondary Emission Electron emission under the influence of electron or ion bombardment.

Sensitivity of a Phototube The electrical current response of a phototube, with no impedance in its external circuit, to a specified amount and kind of light. It is usually expressed in terms of the current for a given radiant flux, or for a given luminous flux. In general the sensitivity depends upon the tube voltage, flux intensity, and spectral distribution of the flux.

Static Sensitivity of a Phototube The direct current response of a phototube to a light flux of specified value.

Superheterodyne Reception Superheterodyne reception is a method of reception in which the received voltage is combined with the voltage from a local oscillator and converted into voltage of an intermediate frequency which is usually amplified and then detected to reproduce the original signal wave. (This is sometimes called double detection or supersonic reception.)

Television The electrical transmission of a succession of images and their reception in such a way as to give a substantially continuous reproduction of the object or scene before the eye of a distant observer.

Tetrode A type of thermionic tube containing a plate, a cathode, and two additional electrodes. (Ordinarily the two additional electrodes are of the nature of grids.)

Thermionic Emission Electron or ion emission under the influence of heat.

Thermionic Tube An electron tube in which the electron emission is produced by the heating of an electrode.

Total Emission The value of the current carried by electrons emitted from a cathode under the influence of a voltage such as will draw away all the electrons emitted.

Transconductance The ratio of the change in the current in the circuit of an electrode to the change in the voltage on another electrode, under the condition that all other voltages remain unchanged.

Triode A type of thermionic tube containing an anode, a cathode, and a third electrode, in which the current flowing between the anode and the cathode may be controlled by the voltage between the third electrode and the cathode.

Tuning The adjustment of a circuit or system to secure optimum performance in relation to a frequency; commonly, the adjustment of a circuit or circuits to resonance.

Vacuum Phototube A type of phototube which is evacuated to such a degree that the residual gas plays a negligible part in its operation.

Vacuum Tube A device consisting of a number of electrodes contained within an evacuated enclosure.

Vacuum-Tube Transmitter A radio transmitter in which vacuum tubes are utilized to convert the applied electric power into radio-frequency power.

Vacuum-Tube Voltmeter A device utilizing the characteristics of a vacuum tube for measuring alternating voltages.

Voltage Amplification The ratio of the alternating voltage produced at the output terminals of an amplifier to the alternating voltage impressed at the input terminals.

DIRECTORY OF U. S. BROADCASTING STATIONS

Call Letters	Location	Frequency in Kilocycles	Power in Watts
KABC	San Antonio, Tex.	680	50,000-LS 10,000-N
KABR	Aberdeen, S. D.	1420	5,000
KADA	Ada, Okla.	1230	250
KALB	Alexandria, La.	580	1,000
KALE	Portland, Ore.	1330	5,000
KALL	Salt Lake City, Utah	910	1,000
†KAMD	Camden, Ark.	1450	250
KANS	Corsicana, Tex.	1340	250
KANS	Wichita, Kans.	1240	250
†KAPT	N. Little Rock, Ark.	1450	250
KARK	Little Rock, Ark.	920	5,000
KARM	Fresno, Cal.	1430	5,000
KASA	Elk City, Okla.	1240	100
KAST	Astoria, Ore.	1230	250
KATE	Albert Lea, Minn.	1450	250
KAVE	Carlsbad, N. Mex.	1240	250
KBIX	Muskogee, Okla.	1490	250
KBIZ	Ottumwa, Iowa	1240	250
KBKR	Baker, Ore.	1490	250
KBND	Bend, Ore.	1340	250
†KBNE	Boulder City, Nev.	1450	250
KBON	Omaha, Neb.	1490	250
KBPS,	Portland, Ore.	1450	100
KBST	Big Spring, Tex.	1490	250
KBTM	Jonesboro, Ark.	1230	250
KBUR	Burlington, Iowa	1490	250
KBWD	Brownwood, Tex.	1380	1,000-LS 500-N
KCKN	Kansas City, Kan.	1340	250
KCMC	Texarkana, Tex.	1230	250
†KCMJ	Palm Springs, Cal.	1340	250
KCMO	Kansas City, Mo.	1480	5,000
KCOK	Tulare, Cal.	1240	250
KCOR	San Antonio, Tex.	1350	1,000-D
†KCOW	Ellensburg, Wash.	1240	250
KCRA	Sacramento, Cal.	1340	250
KCRC	Enid, Okla.	1390	1,000
KCRS	Midland, Tex.	1230	250
KDAL	Duluth, Minn.	610	1,000
KDB	Santa Barbara, Cal.	1490	250
KDFN	Casper, Wyo.	1470	1,000
KDKA	Pittsburgh, Pa.	1020	50,000
KDLR	Devils Lake, N. D.	1240	250
KDNT	Denton, Tex.	1450	250
KDON	Monterey, Cal.	1240	250
KDRO	Sedalia, Mo.	1490	250
KDTH	Dubuque, Ia.	1370	1,000
KDYL	Salt Lake City, Utah	1320	5,000
KECA	Los Angeles, Cal.	790	5,000
KELA	Centralia, Wash.	1470	1,000
KELD	El Dorado, Ark.	1400	250
KELO	Sioux Falls, S. D.	1230	250
KENO	Las Vegas, Nev.	1400	250
KERN	Bakersfield, Cal.	1410	1,000
KEVR	Seattle, Wash.	1090	*10,000
KEX	Portland, Ore.	1190	5,000
KEYS	Corpus Christi, Tex.	1490	250
KFAB	Lincoln, Neb. (CP) Omaha, Nebr.	1110	10,000 *50,000
KFAC	Los Angeles, Cal.	1330	1,000
KFAM	St. Cloud, Minn.	1450	250
KFAR	Fairbanks, Alaska	610	5,000
KFBB	Great Falls, Mont.	1300	10,000 5,000
KFBC	Cheyenne, Wyo.	1240	250
KFBI	Wichita, Kan.	1070	5,000-LS 1,000-N
KFBK	Sacramento, Cal.	1530	10,000
KFDA	Amarillo, Tex.	1230	250
KFDM	Beaumont, Tex.	560	1,000
KFEL	Denver, Col.	950	5,000
KFEQ	St. Joseph, Mo.	680	5,000
KFFA	Helena, Ark.	1490	250

Call Letters	Location	Frequency in Kilocycles	Power in Watts
KFGQ	Boone, Ia.	1260	250-D
KFH	Wichita, Kan.	1330	5,000
KFI	Los Angeles, Cal.	640	50,000
KFIO	Spokane, Wash.	1230	250
KFIZ	Fond du Lac, Wis.	1450	250
KFJB	Marshalltown, Ia.	1230	250
KFJI	Klamath Falls, Ore.	1240	100
KFJM	Grand Forks, N. D.	1440	1,000-LS 500-N
KFJZ	Ft. Worth, Tex.	1270	5,000
KFKA	Greeley, Col.	910	1,000
KFKU	Lawrence, Kan.	1250	5,000-LS 1,000-N
KFLW	Klamath Falls, Ore.	1450	250
KFMB	San Diego, Cal.	1450	250
KFNF	Shenandoah, Ia.	920	1,000-LS 500-N
KFOR	Lincoln, Neb.	1240	250
KFOX	Long Beach, Cal.	1280	1,000
KFPW	Ft. Smith, Ark.	1400	250
KFPY	Spokane, Wash.	920	5,000
KFQD	Anchorage, Alaska	790	1,000
KFRC	San Francisco, Cal.	610	5,000
KFRE	Fresno, Cal.	1340	250
KFRO	Longview, Tex.	1370	1,000
KFRU	Columbia, Mo.	1400	250
KFSD	San Diego, Cal.	600	1,000
KFSG	Los Angeles, Cal.	1150	2,500-LS 1,000-N
KFUN	Las Vegas, N. M.	1230	250
KFUO	Clayton, Mo.	850	5,000
KFVD	Los Angeles, Cal.	1020	1,000-LS L-1,000-N *5,000-LS *L-5,000
KFVS	Cape Girardeau, Mo.	1400	250
KFWB	Los Angeles, Cal.	980	5,000
KFXD	Nampa, Ida.	1230	250
KFXJ	Grand Junction, Col.	920	1,000-LS 500-N
KFXM	San Bernardino, Cal.	1240	250
KFYO	Lubbock, Tex.	1340	250
KFYR	Bismarck, N. D.	550	5,000
KGA	Spokane, Wash.	1510	10,000
KGAK	Gallup, N. Mex.	1230	250
KGB	San Diego, Cal.	1360	1,000
KGBS	Harlingen, Tex.	1240	250
KGBX	Springfield, Mo.	1260	5,000
KGCU	Mandan, N. D.	1270	250
KGCX	Sidney, Mont.	1480	1,000
KGDE	Fergus Falls, Minn.	1230	250-LS 100-N
KGDM	Stockton, Cal.	1140	5,000
KGEK	Sterling, Col.	1230	100
KGER	Long Beach, Cal.	1390	5,000
KGEZ	Kalispell, Mont.	1340	100
KGFF	Shawnee, Okla.	1450	250
KGFJ	Los Angeles, Cal.	1230	100
KGFL	Roswell, N. M.	1400	100
KGFW	Kearney, Neb.	1340	250
KGFX	Pierre, S. Dak.	630	200-D
KGGF	Coffeyville, Kan.	690	1,000-LS 500-N
KGGM	Alburquerque, N. M.	1260	1,000
KGHF	Pueblo, Col.	1350	1,000-LS
KGHI	Little Rock, Ark.	1230	250
KGHL	Billings, Mont.	790	5,000
KGIR	Butte, Mont.	1370	5,000
KGIW	Alamosa, Col.	1450	250
KGKB	Tyler, Tex.	1490	250
KGKL	San Angelo, Tex.	1400	250
KGKO	Ft. Worth, Tex.	570	5,000
KGKY	Scottsbluff, Neb.	1490	250
KGLO	Mason City, Ia.	1300	5,000

DIRECTORY OF U. S. BROADCASTING STATIONS

Call Letters	Location	Frequency in Kilocycles	Power in Watts
KNOE	Monroe, La.	1450	250
		*1230	
KNOW	Austin, Tex.	1490	250
KNX	Los Angeles, Cal.	1070	50,000
KOA	Denver, Col.	850	50,000
KOAC	Corvallis, Ore.	550	5,000-LS
			1,000-N
KOAL	Price, Utah	1450	250
KOAM	Pittsburgh, Kan.	810	1,000-D
KOB	Albuquerque, N. M.	1030	10,000
		‡770	50,000-LS
			‡25,000-N
			*50,000
KOCA	Kilgore, Tex.	1240	250
KOCY	Oklahoma City, Okla.	1340	250
KODL	The Dalles, Ore.	1230	250-LS
			100-N
KODY	N. Platte, Neb.	1240	250
KOH	Reno, Nev.	630	1,000
KOIL	Omaha, Neb.	1290	5,000
KONA	Portland, Ore.	970	5,000
KOKO	LaJunta, Col.	1400	250
KOL	Seattle, Wash.	1300	5,000
KOMA	Oklahoma City, Okla.	1520	5,000
			*50,000
KOME	Tulsa, Okla.	1340	250
KOMO	Seattle, Wash.	1000	5,000
KONO	San Antonio, Tex.	1400	250
KONP	Port Angeles, Wash.	1450	250
KOOS	Coos Bay, Ore.	1230	250
KORE	Eugene, Ore.	1450	250
KORN	Fremont, Neb.	1400	250
KOTA	Rapid City, S. D.	1360	5,000
KOTN	Pine Bluff, Ark.	1490	250
KOVC	Valley City, N. D.	1490	250
KOVO	Provo, Utah	1240	250
KOWH	Omaha, Neb.	660	500-D
KOY	Phoenix, Ariz.	550	1,000
KPAB	Laredo, Tex.	1490	250
KPAC	Port Arthur, Tex.	1250	1,000
KPAS	Pasadena, Cal.	1110	10,000
KPEN	Pampa, Tex.	1340	100
KPFA	Helena, Mont.	1240	250
KPHO	Phoenix, Ariz.	1230	250
KPKW	Pasco, Wash.	1340	250
KPLC	Lake Charles, La.	1490	250
KPLT	Paris, Tex.	1490	250
KPMC	Bakersfield, Cal.	1360	1,000
KPO	San Francisco, Cal.	680	50,000
KPOF	Denver, Col.	910	1,000
KPOW	Powell, Wyo.	1230	250
KPPC	Pasadena, Cal.	1240	100
KPQ	Wenatchee, Wash.	560	1,000
KPRC	Houston, Tex.	950	5,000
KPRO	Riverside, Cal.	1440	1,000
KQV	Pittsburgh, Pa.	1410	1,000
KQW	San Jose, Cal.	740	5,000
KRBA	Lufkin, Tex.	1340	250
KRBC	Abilene, Tex.	1450	250
KRBM	Bozeman, Mont.	1450	250
KRE	Berkeley, Cal.	1400	250
KRGV	Weslaco, Tex.	1290	1,000
KRIC	Beaumont, Tex.	1450	250
KRIS	Corpus Christi, Tex.	1360	1,000
KRJF	Miles City, Mont.	1340	250
KRKD	Los Angeles, Cal.	1150	2,500-LS
			1,000-N
KRKO	Everett, Wash.	1400	250
KRLC	Lewiston, Ida.	1400	250
KRLD	Dallas, Tex.	1080	50,000
KRMD	Shreveport, La.	1340	250
KRNR	Roseburg, Ore.	1490	250
KRNT	Des Moines, Ia.	1350	5,000

...ell ...ters	Location	Frequency in Kilocycles	Power in Watts
...U	Safford, Ariz.	1450	250
...IB	Honolulu, T. H.	590	5,000
...IC	Amarillo, Tex.	1440	5,000-LS
			1,000-N
...IO	Dodge City, Kan.	1370	1,000-LS
			250-N
...D	San Francisco, Cal.	810	7,500
...RH	Fayetteville, Ark.	1450	250
...I	Honolulu, T. H.	760	2,500-LS
			1,2,500-N
...VL	Greenville, Tex.	1400	
...VO	Missoula, Mont.	1290	5,000-LS
			1,000-N
...W	Portland, Ore.	620	5,000
...Y	Olympia, Wash.	1240	250
...C	Hastings, Neb.	1230	250
...IC	Hilo, T. H.	1230	250
...IG	Okmulgee, Okla.	1240	250
...	Los Angeles, Cal.	930	5,000
...MO	Hannibal, Mo.	1340	250
...ION	Honolulu, T. H.	590	5,000
...Q	Spokane, Wash.	1290	1,000
...SL	Chico, Cal.		
...UB	Watsonville, Cal.	1340	250
...A	Clovis, N. M.	1240	250
...D	Spencer, Iowa	1240	250-D
...	Idaho Falls, Ida.	1350	5,000-LS
			500-N
...OO	Boise, Ida.	1380	2,500-LS
			1,000-N
...M	Eureka, Cal.	1480	1,000
...IV	Glendale, Cal.	870	250-D
...O	Grand Forks, N. D.	1440	1,000-LS
			500-N
...NY	Juneau, Alaska	1460	5,000
...RO	Seattle, Wash.	710	50,000
...T	Yakima, Wash.	1280	1,000
...UL	Garden City, Kan.	1240	250
...UN	Pecos, Tex.	1400	100
...UP	Durango, Col.	1400	250
...IBS	San Francisco, Cal.	1100	1,000-LS
			1-1,000-N
...IR	Seattle, Wash.	950	5,000
...LAC	Los Angeles, Cal.	570	
...LBM	LaGrande, Ore.	1450	250
...LCN	Blytheville, Ark.	900	1,000-D
...LIZ	Brainerd, Minn.	1400	250
...LO	Ogden, Utah	1430	5,000
...LPM	Minot, N. D.	1390	1,000
...LRA	Little Rock, Ark.	1010	10,000-LS
			5,000-N
...LUF	Galveston, Tex.	1400	250
...LX	Oakland, Cal.	910	1,000
...LZ	Denver, Col.	560	5,000
...MA	Shenandoah, Ia.	960	5,000
...MAC	San Antonio, Tex.	1240	250
...MBC	Kansas City, Mo.	980	5,000
...MED	Medford, Ore.	1440	1,000
...MJ	Fresno, Cal.	580	5,000
...MLB	Monroe, La.	1230	250
		*1440	*1,000
...MMJ	Grand Island, Neb.	750	1,000-LS
			1-1,000-N
...MO	Tacoma, Wash.	1360	5,000
...MOX	St. Louis, Mo.	1120	50,000
...MPC	Los Angeles, Cal.	710	10,000
...MTR	Los Angeles, Cal.	570	1,000
...MYC	Marysville, Cal.	1450	250
...MYR	Denver, Col.	1340	250
...NAK	Salt Lake City, Utah	1400	250
...NEL	Brady, Tex.	1490	250-LS
			100-N
...NET	Palestine, Tex.	1450	100

DIRECTORY OF U. S. BROADCASTING STATIONS

Call Letters	Location	Frequency in Kilocycles	Power in Watts
KROC	Rochester, Minn.	1340	250
KROD	El Paso, Tex.	600	1,000-LS
			500-N
KROP	Brawley, Cal.	1300	1,000-LS
			500-N
KROS	Clinton, Iowa	1340	250
KROW	Oakland, Cal.	960	1,000
KROY	Sacramento, Cal.	1240	250
KRRV	Sherman, Tex.	910	1,000
KRSC	Seattle, Wash.	1150	1,000
KSAC	Manhattan, Kan.	580	1,000-LS
			500-N
KSAL	Salina, Kan.	1150	1,000
KSAM	Huntsville, Tex.	1490	250
KSAN	San Francisco, Cal.	1450	250
KSCJ	Sioux City, Ia.	1360	5,000
KSD	St. Louis, Mo.	550	5,000-LS
			1,000-N
KSEI	Pocatello, Ida.	930	1,000-LS
			250-N
KSFO	San Francisco, Cal.	560	5,000-LS
			1,000-N
†KSIL	Silver City, N. M.	1340	250
KSJB	Jamestown, N. D.	600	250-LS
			100-N
			*5,000
KSKY	Dallas, Tex.	660	1,000-D
KSL	Salt Lake City, Utah	1160	50,000
KSLM	Salem, Ore.	1390	1,000
KSMA	Santa Maria, Cal.	1450	250
KSO	Des Moines, Ia.	1460	5,000
KSOO	Sioux Falls, S. D.	1140	5,000-LS
			L-5,000-N
KSRO	Santa Rosa, Cal.	1350	1,000
†KSRV	Ontario, Ore.	1450	250
KSTP	St. Paul, Minn.	1500	50,000
KSUB	Cedar City, Utah	1340	250
KSUN	Lowell, Ariz.	1230	250
KSWO	Lawton, Okla.	1150	250-D
KTAR	Phoenix, Ariz.	620	5,000
KTBC	Austin, Tex.	590	1,000-LS
			250-N
			*5,000-LS
			*1,000-N
KTBI	Tacoma, Wash.	1490	250
KTBS	Shreveport, La.	1480	1,000
KTEM	Temple, Tex.	1400	250
KTFI	Twin Falls, Ida.	1270	1,000
KTHS	Hot Springs, Ark.	1090	10,000-LS
			1,000-N
KTHT	Houston, Tex.	1230	250
KTKC	Visalia, Cal.	940	5,000
KTKN	Ketchikan, Alaska	930	1,000
KTMC	†McAlester, Okla.	1400	250
KTMS	Santa Barbara, Cal.	1250	1,000
KTNM	Tucumcari, N. M.	1400	250
KTOH	Lihue, T. H.	1490	250
KTOK	Oklahoma City, Okla.	1400	250
KTRB	Modesto, Cal.	860	1,000
KTRH	Houston, Tex.	740	50,000
KTRI	Sioux City, Ia.	1450	250
KTSA	San Antonio, Tex.	550	5,000-LS
			1,000-N
KTSM	El Paso, Tex.	1380	1,000-LS
			500-N
KTSW	Emporia, Kan.	1400	250
KTTS	Springfield, Mo.	1400	250
KTUC	Tucson, Ariz.	1400	250
KTUL	Tulsa, Okla.	1430	5,000
KTW	Seattle, Wash.	1250	1,000
KTYW	Yakima, Wash.	1460	500
KUIN	Grants Pass, Ore.	1340	250
KUJ	Walla Walla, Wash.	1420	1,000

Call Letters	Location	Frequency in Kilocycles	Power in Watts
KUOA	Siloam Springs, Ark.	1290	5,000-D
KUOM	Minneapolis, Minn.	770	5,000-D
KUSD	Vermillion, S. D.	920	500
KUTA	Salt Lake City, Utah	1370	5,000
KVAK	Atchinson, Kan.	1450	250
KVAL	Brownsville, Tex.	1490	250-LS
			100-N
KVAN	Vancouver, Wash.	910	500-D
KVCV	Redding, Cal.	1230	250
KVEC	San Luis Obispo, Cal.	1230	250
†KVET	Austin, Tex.	1300	1,000
KVFD	Ft. Dodge, Ia.	1400	250
KVGB	Great Bend, Kan.	1400	250
KVI	Tacoma, Wash.	570	5,000
KVIC	Victoria, Tex.	1340	250
KVMV	Twin Falls, Idaho	1450	
KVNU	Logan, Utah	1230	250
KVOA	Tucson, Ariz.	1290	1,000
KVOD	Denver, Col.	630	5,000
KVOE	Santa Ana, Cal.	1490	250
KVOL	Lafayette, La.	1340	250
KVOO	Tulsa, Okla.	1170	50,000
KVOP	Plainview, Tex.	1400	250
KVOR	Colorado Spgs., Col.	1300	1,000
KVOS	Bellingham, Wash.	790	250
			*1,000
KVOX	Moorhead, Minn.	1340	250
KVRS	Rock Springs, Wyo.	1400	250
KVSF	Santa Fe, N. M.	1340	100
KVSO	Ardmore, Okla.	1240	250
KVWC	Vernon, Tex.	1490	250
KWAL	Wallace, Ida.	1450	250
KWAT	Watertown, S. D.	1240	250
KWBR	Oakland, Cal.	1310	1,000
KWBU	Corpus Christi, Tex.	1010	50,000-D
		‡1030	
KWBW	Hutchinson, Kan.	1450	250
KWEW	Hobbs, N. M.	1490	100
KWFC	Hot Springs, Ark.	1340	250
KWFT	Wichita Falls, Tex.	620	5,000-LS
			1,000-N
KWG	Stockton, Cal.	1230	250
KWK	St. Louis, Mo.	1380	5,000-LS
			1,000-N
KWKH	Shreveport, La.	1130	50,000
KWKW	Pasadena, Cal.	1430	1,000-D
KWLC	Decorah, Ia.	1240	250-D
KWLK	Longview, Wash.	1400	250
KWLM	Willmar, Minn.	1340	250
KWNO	Winona, Minn.	1230	250
KWOC	Poplar Bluff, Mo.	1340	250
KWON	Bartlesville, Okla.	1400	250
KWOR	Worland, Wyo.	1490	250
KWOS	Jefferson City, Mo.	1240	250
KWRC	Pendleton, Ore.	1240	250
KWSC	Pullman, Wash.	1250	5,000
KWTO	Springfield, Mo.	560	5,000-LS
			1,000-N
KWTX	Waco, Tex.	1290	1,000
KWYO	Sheridan, Wyo.	1400	250
KXA	Seattle, Wash.	770	1,000-LS
			L-1,000-N
KXEL	Waterloo, Ia.	1540	50,000
KXL	Portland, Ore.	750	10,000-LS
			L-10,000-N
KXLA	Pasadena, Cal.	1110	
KXLR	No. Little Rock, Ark.	1450	
KXO	El Centro, Cal.	1230	250
KXOA	Sacramento, Cal.	1490	250
KXOK	St. Louis, Mo.	630	5,000

DIRECTORY OF U. S. BROADCASTING STATIONS

Call Letters	Location	Frequency in Kilocycles	Power in Watts
KXOX	Sweetwater, Tex.	1240	250
KXRO	Aberdeen, Wash.	1340	250
KXYZ	Houston, Tex.	1320	5,000
KYA	San Francisco, Cal.	1260	5,000-LS 1,000-N
KYCA	Prescott, Ariz.	1490	250
KYOS	Merced, Cal.	1490	250
KYSM	Mankato, Minn.	1230	250
KYUM	Yuma, Ariz.	1240	250
KYW	Philadelphia, Pa.	1060	50,000
WAAB	Worcester, Mass.	1440	5,000
WAAF	Chicago, Ill.	950	1,000-D
WAAT	Newark, N. J.	970	1,000
WABC	New York, N. Y.	880	50,000-
WABI	Bangor, Me.	910	1,000 *5,000
WABY	Albany, N. Y.	1400	250
WACO	Waco, Tex.	1450	250
		*1460	*1,000
WADC	Akron, O.	1350	5,000
WAGA	Atlanta, Ga.	590	5,000
WAGC	Chattanooga, Tenn.	1450	250
WAGE	Syracuse, N. Y.	620	1,000
WAGF	Dothan, Ala.	1400	250
WAGM	Presque Isle, Me.	1450	100
WAIM	Anderson, S. C.	1230	250
WAIR	Winston-Salem, N. C.	1340	250
WAIT	Chicago, Ill.	820	5,000-LS L-5,000-N
WAJR	Morgantown, W. Va.	1230	250
WAKR	Akron, O.	1590	5,000
WALA	Mobile, Ala.	1410	5,000
WALB	Albany, Ga.	1590	1,000
WALL	Middletown, N. Y.	1340	250
WAML	Laurel, Miss.	1340	250
WAOV	Vincennes, Ind.	1450	250
WAPI	Birmingham, Ala.	1070	5,000
WAPO	Chattanooga, Tenn.	1150	5,000-LS 1,000-N
†WARD	Johnstown, Pa.	1490	250
WARM	Scranton, Pa.	1400	250
WASK	Lafayette, Ind.	1450	250
WATL	Atlanta, Ga.	1340	250
WATN	Watertown, N. Y.	1240	250
WATR	Waterbury, Conn.	1320	1,000
WATT	Cadillac, Mich.	1240	250
WATW	Ashland, Wis.	1400	250
WAVE	Louisville, Ky.	970	5,000
WAWZ	Zarepath, N. J.	1380	5,000-LS 1,000-N
WAYS	Charlotte, N. C.	610	1,000
WAYX	Waycross, Ga.	1230	250
WAZL	Hazleton, Pa.	1450	250
WBAA	W. Lafayette, Ind.	920	5,000-LS 1,000-N
WBAB	Atlantic City, N. J.	1490	250
WBAC	Cleveland, Tenn.	1340	250
WBAL	Baltimore, Md.	1090	50,000
WBAP	Ft. Worth, Tex.	820	50,000
WBAX	Wilkes-Barre, Pa.	1240	100
WBBB	Burlington, N. C.	920	1,000-D
WBBL	Richmond, Va.	1450	250
WBBM	Chicago, Ill.	780	50,000
WBBR	Brooklyn, N. Y.	1330	1,000
WBBZ	Ponca City Okla.	1230	250
WBCM	Bay City, Mich.	1440	1,000-LS 500-N
†WBEJ	Elizabethton, Tenn.	1240	250
WBEN	Buffalo, N. Y.	930	5,000
WBHP	Huntsville, Ala.	1230	250
WBIG	Greensboro, N. C.	1470	5,000
WBIR	Knoxville, Tenn.	1240	250
WBLJ	Dalton, Ga.	1230	250
WBLK	Clarksburg, W. Va.	1400	250
WBML	Macon, Ga.	1240	250
WBNS	Columbus, O.	1460	5,000-LS 1,000-N
WBNX	New York, N. Y.	1380	5,000
WBNY	Buffalo, N. Y.	1400	250
WBOC	Salisbury, Md.	1230	250
WBOW	Terre Haute, Ind.	1230	250
WBRC	Birmingham, Ala.	960	5,000
WBRE	Wilkes-Barre, Pa.	1340	250
WBRK	Pittsfield, Mass.	1340	250
WBRW	Welch, W. Va.	1340	250
WBRY	Waterbury, Conn.	1590	1,000
WBT	Charlotte, N. C.	1110	50,000
WBTA	Batavia, N. Y.	1490	250
WBTH	Williamson, W. Va.	1400	250
WBTM	Danville, Va.	1400	250
WBYN	Brooklyn, N. Y.	1430	1,000-LS 500-N
WBZ	Boston, Mass.	1030	50,000
WBZA	Springfield, Mass.	1030	1,000
WCAE	Pittsburgh, Pa.	1250	5,000
WCAL	Northfield, Minn.	770	5,000-D
WCAM	Camden, N. J.	1310	500
WCAO	Baltimore, Md.	600	5,000
WCAP	Asbury Park, N. J.	1310	500
WCAR	Pontiac, Mich.	1130	1,000-D
WCAT	Rapid City, S. D.	1230	100-D
WCAU	Philadelphia, Pa.	1210	50,000
WCAX	Burlington, Vt.	620	1,000
WCAZ	Carthage, Ill.	1080	250-D
WCBA	Allentown, Pa.		
WCBI	Columbus, Miss.	1340	250
WCBM	Baltimore, Md.	1400	250
WCBS	Springfield, Ill.	1450	250
WCBT	Roanoke Rpds., N. C.	1230	250
WCCO	Minneapolis, Minn.	830	50,000
WCED	DuBois, Pa.	1230	250
WCFL	Chicago, Ill.	1000	10,000
WCHS	Charleston, W. Va.	580	5,000
WCHV	Charlottesville, Va.	1240	250
WCKY	Cincinnati, O.	1530	50,000
WCLO	Janesville, Wis.	1230	250
WCMA	Corinth, Miss.	1230	250
WCMI	Ashland, Ky.	1340	250
WCNC	Elizabeth City, N. C.	1400	250
†WCNH	Concord, N. H.	1490	250
WCOA	Pensacola, Fla.	1370	1,000-LS 500-N
WCOC	Meridian, Miss.	940	1,000
WCOL	Columbus, O.	1230	250
WCOP	Boston, Mass.	1150	500
WCOS	Columbia, S. C.	1400	250
WCOU	Lewiston, Me.	1240	250
WCOV	Montgomery, Ala.	1240	250
WCPO	Cincinnati, O.	1230	250
WCRS	Greenwood, S. C.	1450	250
WCRW	Chicago, Ill.	1240	100
WCSC	Charleston, S. C.	1390	1,000-LS 500-N
WCSH	Portland, Me.	970	5,000
WDAD	Indiana, Pa.	1450	250
WDAE	Tampa, Fla.	1250	5,000
WDAF	Kansas City, Mo.	610	5,000
WDAK	Columbus, Ga.	1340	250
WDAN	Danville, Ill.	1490	250
WDAS	Philadelphia, Pa.	1400	250
WDAY	Fargo, N. D.	970	5,000
WDBC	Escanaba, Mich.	1490	250
WDBJ	Roanoke, Va.	960	5,000
WDBO	Orlando, Fla.	580	5,000
WDEF	Chattanooga, Tenn.	1400	250
WDEL	Wilmington, Del.	1150	5,000

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Call Letters	Location	Frequency in Kilocycles	Power in Watts
WDEV	Waterbury, Vt.	550	1,000-D
WDGY	Minneapolis, Minn.	1130	5,000-LS
			1-500-N
WDLP	Panama City, Fla.	1230	250
WDMJ	Marquette, Mich.	1340	250
			1,000-D
WDNC	Durham, N. C.	1490	250
WDOD	Chattanooga, Tenn.	1310	5,000
WDRC	Hartford, Conn.	1360	5,000
†WDSC	Dilion, S. C.	800	1,000-D
WDSM	Superior, Wis.	1230	250
			1,000-N
WDSU	New Orleans, La.	1280	5,000
WDSR	Lake City, Fla.	1340	250
WDWS	Champaign, Ill.	1400	250
WDZ	Tuscola, Ill.	1050	1,000-D
WEAF	New York, N. Y.	660	50,000
			5,000-N
WEAN	Providence, R. I.	790	5,000
WEAU	Eau Claire, Wis.	790	5,000-LS
			1,000-N
WEBC	Duluth, Minn.	1320	5,000
WEBQ	Harrisburg, Ill.	1240	250
			500-N
WEBR	Buffalo, N. Y.	1340	250
WEDD	McKeesport, Pa.	810	
WEDC	Chicago, Ill.	1240	250
WEED	Rocky Mount, N. C.	1450	250
WEEI	Boston, Mass.	590	5,000
			1,000-D
WEEU	Reading, Pa.	850	1,000-D
WEGO	Concord, N. C.	1410	1,000-D
WEIM	Fitchburg, Mass.	1340	250
WELI	New Haven, Conn.	960	1,000-LS
			500-N
WELL	Battle Creek, Mich.	1400	250
WELO	Tupelo, Miss.	1490	250
WEMP	Milwaukee, Wis.	1340	250
WENR	Chicago, Ill.	890	50,000
WENT	Gloversville, N. Y.	1340	250
WENY	Elmira, N. Y.	1230	250
WEOA	Evansville, Ind.	1400	250
WERC	Erie, Pa.	1230	250
WEST	Easton, Pa.	1400	250
WESX	Salem, Mass.	1230	250
WEVD	New York, N. Y.	1330	5,000
WEW	St. Louis, Mo.	770	1,000-D
WEXL	Royal Oak, Mich.	1340	250
WFAA	Dallas, Tex.	820	50,000
WFAS	White Plains, N. Y.	1230	250
			500-N
WFBC	Greenville, S. C.	1330	5,000
WFBG	Altoona, Pa.	1340	250
WFBL	Syracuse, N. Y.	1390	5,000
WFBM	Indianapolis, Ind.	1260	5,000
WFBR	Baltimore, Md.	1300	5,000
WFCI	Pawtucket, R. I.	1420	1,000
WFDF	Flint, Mich.	910	1,000
WFEA	Manchester, N. H.	1370	5,000
WFEB	Sylacauga, Ala.	1340	250
			100-D
WFHR	Wisconsin Rpds. Wis.	1340	250
WFIG	Sumter, S. C.	1340	250
WFIL	Philadelphia, Pa.	560	1,000
WFIN	Findlay, O.	1330	1,000-D
†WFKY	Frankfort, Ky.	1490	250
			100-D
WFLA	Tampa, Fla.	970	5,000
WFMD	Frederick, Md.	930	500
WFMJ	Youngstown, O.	1450	250
WFNC	Fayetteville, N. C.	1450	250
WFOR	Hattiesburg, Miss.	1400	250
WFOY	St. Augustine, Fla.	1240	250
WFPG	Atlantic City, N. J.	1450	250
WFTC	Kinston, N. C.	1230	250
WFVA	Fredericksburg, Va.	1230	250
WGAA	Cedartown, Ga.	1340	250
WGAC	Augusta, Ga.	1240	250
			100-D
WGAL	Lancaster, Pa.	1490	250
WGAN	Portland, Me.	560	5,000
†WGAP	Maryville, Tenn.	1400	250
WGAR	Cleveland, Ohio	1220	5,000

Call Letters	Location	Frequency in Kilocycles	Power in Watts
WGAU	Athens, Ga.	1340	250
WGBB	Freeport, N. Y.	1240	100
WGBF	Evansville, Ind.	1280	5,000-LS
			1,000-N
WGBG	Greensboro, N. C.	980	1,000-D
WGBI	Scranton, Pa.	910	1,000-LS
			500-N
WGBR	Goldsboro, N. C.	1400	250
WGBS	Miami, Fla.	710	10,000
WGCM	Gulfport, Miss.	1240	250
WGES	Chicago, Ill.	1390	5,000
WGGA	Gainesville, Ga.	1240	250
WGH	Newport News, Va.	1340	250
WGIL	Galesburg, Ill.	1400	250
WGKY	Charleston, W. Va.	1490	100
WGL	Ft. Wayne, Ind.	1450	250
WGN	Chicago, Ill.	720	50,000
WGNC	Gastonia, N. C.	1450	250
WGNY	Newburgh, N. Y.	1220	1,000-D
WGOV	Valdosta, Ga.	1450	250
WGPC	Albany, Ga.	1450	250
WGR	Buffalo, N. Y.	550	5,000-LS
			1,000-N
WGRC	Louisville, Ky.	1400	250
WGRM	Greenwood, Miss.	1240	250
WGST	Atlanta, Ga.	920	5,000-LS
			1,000-N
WGTC	Greenville, N. C.	1490	250
WGTM	Wilson, N. C.	1340	250
WGY	Schenectady, N. Y.	810	50,000
WHA	Madison, Wis.	970	5,000-D
WHAI	Greenfield, Mass.	1240	250
WHAM	Rochester, N. Y.	1180	50,000
WHAS	Louisville, Ky.	840	50,000
WHAT	Philadelphia, Pa.	1340	100
WHAZ	Troy, N. Y.	1330	1,000
WHB	Kansas City, Mo.	880	1,000-D
WHBB	Selma, Ala.	1490	100
WHBC	Canton, O.	1480	1,000
WHBF	Rock Island, Ill.	1270	5,000
WHBI	Newark, N. J.	1280	2,500-LS
			1,000-N
WHBL	Sheboygan, Wis.	1330	1,000-LS
			250-N
WHBQ	Memphis, Tenn.	1400	250
WHBU	Anderson, Ind.	1240	250
WHBY	Appleton, Wis.	1230	250
WHCU	Ithaca, N. Y.	870	1,000-LS
			1-1,000-N
WHDF	Calumet, Mich.	1400	250
WHDH	Boston, Mass.	850	5,000
WHDL	Allegany, N. Y.	1450	250
WHEB	Portsmouth, N. H.	750	1,000-LS
			1-1,000-N
WHEC	Rochester, N. Y.	1460	1,000-LS
			500-N
WHFC	Cicero, Ill.	1450	250
WHGB	Harrisburg, Pa.	1400	250
WHIO	Dayton, O.	1290	5,000
WHIS	Bluefield, W. Va.	1440	1,000-LS
			500-N
WHIT	New Bern, N. C.	1450	250
WHIZ	Zanesville, O.	1240	250
WHJB	Greensburg, Pa.	820	250-D
WHK	Cleveland, O.	1420	5,000
WHKC	Columbus, O.	610	1,000
WHKK	Akron, O.	640	1,000-LS
			1-1,000-N
WHKY	Hickory, N. C.	1290	5,000-LS
			1,000-N
WHLB	Virginia, Minn.	1400	250
WHLD	Niagara Falls, N. Y.	1290	1,000-D
WHLN	Harlan, Ky.	1230	250
WHLS	Port Huron, Mich.	1450	250

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Call Letters	Location	Frequency in Kilocycles	Power in Watts
WHMA	Anniston, Ala.	1450	250
WHN	New York, N. Y.	1050	50,000
WHNC	Henderson, N. C.	890	250-D
WHO	Des Moines, Ia.	1040	50,000
WHOM	Jersey City, N. J.	1480	1,000-LS 500-N
WHOP	Hopkinsville, Ky.	1230	250
WHOT	South Bend, Ind.	1490	250
WHP	Harrisburg, Pa.	1460	5,000-LS 1,000-N
WHTB	Talladega, Ala.	1230	250
WHTD	Hartford, Conn.	1410	5,000
WHUB	Cookeville, Tenn.	1400	250
WHYN	Holyoke, Mass.	1400	250
WIAC	Mato Rey, P. R.	580	5,000
WIBA	Madison, Wis.	1310	5,000
WIBC	Indianapolis, Ind.	1070	5,000
WIBG	Philadelphia, Pa.	990	10,000
WIBM	Jackson, Mich.	1450	250
WIBU	Poynette, Wis.	1240	250
WIBW	Topeka, Kans.	580	5,000
WIBX	Utica, N. Y.	1230	250
WICA	Ashtabula, O.	970	1,000-D
WICC	Bridgeport, Conn.	600	1,000-LS 500-N
WIGM	Medford, Wis.	1490	250
WIL	St. Louis, Mo.	1230	250
WILL	Urbana, Ill.	580	5,000-D
WILM	Wilmington, Del.	1450	250
WINC	Winchester, Va.	1400	250
WIND	Chicago, Ill.	560	5,000
WING	Dayton, O.	1410	5,000
WINK	Ft. Myers, Fla.	1240	250
WINN	Louisville, Ky.	1240	250
WINS	New York, N. Y.	1010	10,000 *50,000
WINX	Washington, D. C.	1340	250
WIOD	Miami, Fla.	610	5,000
WIP	Philadelphia, Pa.	610	5,000
WIRA	Ft. Worth, Tex.		
WIRE	Indianapolis, Ind.	1430	5,000
WIS	Columbia, S. C.	560	5,000
WISE	Asheville, N. C.	1230	250
WISH	Indianapolis, Ind.	1310	5,000-LS 1,000-N
WISN	Milwaukee, Wis.	1150	5,000
WISR	Butler, Pa.	680	250-D
WITH	Baltimore, Md.	1230	250
WITE	Springfield, O.	1340	250
WJAC	Johnstown, Pa.	1400	250
WJAG	Norfolk, Nebr.	780	1,000-LS L-1,000-N
WJAR	Providence, R. I.	920	5,000
WJAS	Pittsburgh, Pa.	1320	5,000
WJAX	Jacksonville, Fla.	930	5,000-LS 1,000-N
WJBC	Bloomington, Ill.	1230	250
WJBK	Detroit, Mich.	1490	250
WJBO	Baton Rouge, La.	1150	5,000
WJBW	New Orleans, La.	1230	250
WJBY	Gadsden, Ala.	1240	250
WJDX	Jackson, Miss.	1300	5,000-LS 1,000-N
WJEF	Grand Rapids, Mich.	1230	250
WJEJ	Hagerstown, Md.	1240	250
WJHL	Johnson City, Tenn.	910	1,000
WJHO	Opelika, Ala.	1400	250-LS 100-N
WJHP	Jacksonville, Fla.	1320	250
WJIM	Lansing, Mich.	1240	250
WJJD	Chicago, Ill.	1160	20,000-LS L-20,000-N
WJLB	Detroit, Mich.	1400	250
WJLD	Bessemer, Ala.	1400	250

Call Letters	Location	Frequency in Kilocycles	Power in Watts
WJLS	Beckley, W. Va.	560	250-LS 100-N
WJMC	Rice Lake, Wis.	1240	250
WJMS	Ironwood, Mich.	1450	250
WJNC	Jacksonville, N. C.	1240	250
WJNO	West Palm Beach, Fla.	1230	250
WJOB	Hammond, Ind.	1230	250
WJOI	Florence, Ala.	1340	250
WJOL	Joliet, Ill.	1340	250
WJPA	Washington, Pa.	1450	250
WJPF	Herrin, Ill.	1340	250
WJPR	Greenville, Miss.	1340	250
WJR	Detroit, Mich.	760	50,000
WJRD	Tuscaloosa, Ala.	1230	250
WJTN	Jamestown, N. Y.	1240	250
WJW	Cleveland, O.	850	5,000
WJXN	Jackson, Miss.	1490	250
WJZ	New York, N. Y.	770	50,000
WJZM	Clarksville, Tenn.	1400	250
WKAQ	San Juan, P. R.	620	5,000
WKAR	E. Lansing, Mich.	870	5,000-D
WKAT	Miami Beach, Fla.	1360	1,000
†WKAY	Glasgow, Ky.	1490	250
WKBB	Dubuque, Ia.	1490	250
WKBH	LaCrosse, Wis.	1410	1,000 *5,000
WKBN	Youngstown, O.	570	5,000
WKBO	Harrisburg, Pa.	1230	250
WKBV	Richmond, Ind.	1490	250
WKBW	Buffalo, N. Y.	1520	50,000
WKBZ	Muskegon, Mich.	1490	250
WKEU	Griffin, Ga.	1450	250
WKEY	Covington, Va.	1340	250
WKIP	Poughkeepsie, N. Y.	1450	250
WKIX	Columbia, S. C.	1490	250
WKLA	Ludington, Mich.	1450	250
WKMO	Kokomo, Ind.	1400	250
WKNE	Keene, N. H.	1290	5,000
WKNY	Kingston, N. Y.	1490	250
WKOK	Sunbury, Pa.	1240	250
WKPA	New Kensington, Pa.	1150	250-D
WKPT	Kingsport, Tenn.	1400	250
WKRC	Cincinnati, O.	550	5,000-LS 1,000-N
†WKRM	Columbia, Tenn.	1340	250
WKRO	Cairo, Ill.	1490	250
†WKRZ	Oil City, Pa.	1340	250
WKST	New Castle, Pa.	1280	1,000
WKVM	Arecibo, P. R.	1230	250
WKWF	Key West, Fla.	1600	500
WKWK	Wheeling, W. Va.	1400	250
†WKXL	Concord, N. H.	1450	250
WKY	Oklahoma City, Okla.	930	5,000
WKZO	Kalamazoo, Mich.	590	5,000
WLAC	Nashville, Tenn.	1510	50,000
WLAG	LaGrange, Ga.	1240	250
WLAK	Lakeland, Fla.	1340	250
WLAP	Lexington, Ky.	1450	250
†WLAR	Athens, Tenn.	1450	250
WLAT	Conway, S. C.	1490	250
WLAV	Grand Rapids, Mich.	1340	250
WLAW	Lawrence, Mass.	680	5,000
WLAY	Muscle Shoals City, Ala.	1450	250
WLBC	Muncie, Ind.	1340	250
WLBJ	Bowling Green, Ky.	1340	250
WLBL	Stevens Point, Wis.	930	5,000-D
WLBZ	Bangor, Me.	620	5,000
WLDS	Jacksonville, Ill.	1180	250-D
WLEE	Richmond, Va.	1450	250
WLEU	Erie, Pa.	1450	250
WLIB	Brooklyn, N. Y.	1190	1,000-LS L-1,000-N
WLLH	Lowell, Mass.	1400	250

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Call Letters	Location	Frequency in Kilocycles	Power in Watts
WINH	Laconia, N. H.	1340	250
WLOF	Orlando, Fla.	1230	250
WLOG	Logan, W. Va.	1230	250
WLOK	Lima, O.	1240	250
WLOL	Minneapolis, Minn.	1330	1,000
WLPM	Suffolk, Va.	1450	250
WLS	Chicago, Ill.	890	50,000
WLVA	Lynchburg, Va.	1230	250
WLW	Cincinnati, O.	700	50,000
WMAJ	State College, Pa.	1450	250
WMAL	Washington, D. C.	630	5,000
WMAM	Marinette, Wis.	370	250-LS 100-N
WMAN	Mansfield, O.	1400	250
WMAQ	Chicago, Ill.	670	50,000
WMAS	Springfield, Mass.	1450	250
WMAZ	Macon, Ga.	940	5,000
WMBC	Macon, Miss.	1400	250
WMBD	Peoria, Ill.	1470	5,000-LS 1,000-N
WMBG	Richmond, Va.	1380	5,000
WMBH	Joplin, Mo.	1450	250
WMBI	Chicago, Ill.	1110	5,000-LS 1-5,000-N
WMBO	Auburn, N. Y.	1340	250
WMBR	Jacksonville, Fla.	1400	250
WMBS	Uniontown, Pa.	590	1,000
WMC	Memphis, Tenn.	790	5,000
WMCA	New York, N. Y.	570	5,000
WMEX	Boston, Mass.	1510	5,000
WMFD	Wilmington, N. C.	1400	250
WMFF	Plattsburg, N. Y.	1340	250
WMFG	Hibbing, Minn.	1240	250
WMFJ	Daytona Beach, Fla.	1450	250
WMFR	High Point, N. C.	1230	250
WMFT	Florence, Ala.	1240	250
WMGA	Moultrie, Ga.	1400	250
†WMGR	Bainbridge, Ga.	1490	250
WMIN	St. Paul, Minn.	1400	250
WMIS	Natchez, Miss.	1240	250
WMJM	Cordele, Ga.	1490	250-LS 100-N
WMLT	Dublin, Ga.	1340	250
WMMN	Fairmont, W. Va.	920	5,000
WMOB	Mobile, Ala.	1230	250
WMOG	Brunswick, Ga.	1490	250-LS 100-N
WMOH	Hamilton, O.	1450	250
WMON	Montgomery, W. Va.	1400	
WMOX	Meridian, Miss.	1240	250
WMPC	Lapeer, Mich.	1230	250
WMPS	Memphis, Tenn.	1460	1,000-LS 500-N
WMRC	Greenville, S. C.	1490	250
WMRF	Lewiston, Pa.	1490	250
WMRN	Marion, O.	1490	250
WMRO	Aurora, Ill.	1280	250-D
WMSA	Massena, N. Y.	1340	250
WMSL	Decatur, Ala.	1400	250
WMT	Cedar Rapids, Ia.	600	5,000
WMUR	Manchester, N. H.	610	5,000-LS 1,000-N
WMVA	Martinsville, Va.	1450	250
†WMVG	Milledgeville, Ga.	1450	250
WNAB	Bridgeport, Conn.	1430	250
WNAC	Boston, Mass.	1260	5,000
WNAD	Norman, Okla.	640	1,000-D
WNAR	Norristown, Pa.	1110	
WNAX	Yankton, S. D.	570	5,000
WNBF	Binghamton, N. Y.	1290	5,000
WNBH	New Bedford, Mass.	1340	250
WNBZ	Saranac Lake, N. Y.	1320	100-D
WNEL	San Juan, P. R.	1320	5,000
WNEW	New York, N. Y.	1130	10,000
WNEX	Macon, Ga.	1400	250
WNHC	New Haven, Conn.	1340	250
WNLC	New London, Conn.	1490	250
WNOC	Norwich, Conn.	1400	
WNOE	New Orleans, La.	1450	250
WNOX	Knoxville, Tenn.	990	10,000
†WNVA	Norton, Va.	1450	250
WNYC	New York, N. Y.	830	1,000-LS 1-1,000-N
WOAI	San Antonio, Tex.	1200	50,000
WOC	Davenport, Iowa	1420	5,000
WOCS	W. Yarmouth, Mass.	1240	250
WOI	Ames, Ia.	640	5,000-D
WOKO	Albany, N. Y.	1460	1,000-LS 500-N
WOL	Washington, D. C.	1260	1,000
WOLF	Syracuse, N. Y.	1490	250
WOLS	Florence, S. C.	1230	250
WOMI	Owensboro, Ky.	1490	250
WOMT	Manitowoc, Wis.	1240	250
WOOD	Grand Rapids, Mich.	1300	5,000
WOPI	Bristol, Tenn.	1490	250
WOR	New York, N. Y.	710	50,000
WORC	Worcester, Mass.	1310	1,000
WORD	Spartanburg, S. C.	1400	250
WORK	York, Pa.	1350	1,000
WORL	Boston, Mass.	950	1,000-D
WOSH	Oshkosh, Wis.	1490	250
WOSU	Columbus, O.	820	5,000-LS 1-5,000-N
WOV	New York, N. Y.	1280	5,000
WOW	Omaha, Neb.	590	5,000
WOWO	Ft. Wayne, Ind.	1190	10,000
WPAB	Ponce, P. R.	1370	1,000
WPAD	Paducah, Ky.	1450	250
WPAG	Ann Arbor, Mich.	1050	250-D
WPAR	Parkersburg, W. Va.	1450	250
WPAT	Paterson, N. J.	930	1,000-D
WPAX	Thomasville, Ga.	1240	250
WPAY	Portsmouth O.	1400	250
WPDQ	Jacksonville, Fla.	1270	5,000
WPEN	Philadelphia, Pa.	950	5,000
WPIC	Sharon, Pa.	790	1,000-D
WPIK	Alexandria, Va.	730	250-D
†WPOR	Portland, Me.	1450	250
WPRA	Mayaguez, P. R.	990	5,000-LS 1,000-N
WPRO	Providence, R. I.	630	5,000
WPRP	Ponce, P. R.	1420	250
WPTF	Raleigh, N. C.	680	50,000
†WPUV	Pulaski, Va.	1230	250
WQAM	Miami, Fla.	560	5,000-LS 1,000-N
WQAN	Scranton, Pa.	910	1,000-LS 500-N
WQBC	Vicksburg, Miss.	1420	1,000-LS 500-N
WQXR	New York, N. Y.	1560	10,000
WRAK	Williamsport, Pa.	1400	250
WRAL	Raleigh, N. C.	1240	250
WRAW	Reading, Pa.	1340	250
WRBL	Columbus, Ga.	1230	250
WRC	Washington, D. C.	980	5,000
WRDO	Augusta, Me.	1400	250
WRDW	Augusta, Ga.	1480	5,000
WREC	Memphis, Tenn.	600	5,000
WREN	Lawrence, Kan.	1250	5,000-LS 1,000-N
WRGA	Rome, Ga.	1490	250
WRHI	Rock Hill, S. C.	1340	250
WRJN	Racine, Wis.	1400	250
WRLC	Tacoma, Ga.	1450	250
WRLD	West Point, Ga.	1490	250
WRNL	Richmond, Va.	910	5,000

DIRECTORY OF U. S. BROADCASTING STATIONS

Call Letters	Location	Frequency in Kilocycles	Power in Watts
WROK	Rockford, Ill.	1440	1,000-LS 500-N
WROL	Knoxville, Tenn.	620	1,000-LS 500-N
†WROW	Athens, Tenn.	1490	250
WROX	Clarksdale, Miss.	1450	250
WRR	Dallas, Tex.	1310	5,000
WRRF	Washington, N. C.	930	1,000-D
WRRN	Warren, O.	1400	250
WRUF	Gainesville, Fla.	850	5,000-LS 1-5,000-N
WRVA	Richmond, Va.	1140	50,000
WSAI	Cincinnati, O.	1360	5,000
WSAJ	Grove City, Pa.	1340	100
WSAM	Saginaw, Mich.	1400	250
WSAN	Allentown, Pa.	1470	500
WSAP	Portsmouth, Va.	1490	250
WSAR	Fall River, Mass.	1480	1,000
WSAU	Wausau, Wis.	1400	250
WSAV	Savannah, Ga.	1340	250
WSAY	Rochester, N. Y.	1370	1,000
WSAZ	Huntington, W. Va.	930	1,000
WSB	Atlanta, Ga.	750	50,000
WSBA	York, Pa.	900	1,000-D
WSBC	Chicago, Ill.	1240	250
WSBT	South Bend, Ind.	960	1,000
WSFA	Montgomery, Ala.	1440	1,000-LS 500-N
WSGN	Birmingham, Ala.	610	5,000-LS 1,000-N
WSIV	Pekin, Ill.	1140	5,000
WSIX	Nashville, Tenn.	980	5,000
WSJS	Winston-Salem, N. C.	600	5,000
WSKB	McComb, Miss.	1230	250
WSLB	Ogdensburg, N. Y.	1400	250
WSLI	Jackson, Miss.	1450	250
WSLS	Roanoke, Va.	1240	250
WSM	Nashville, Tenn.	650	50,000
WSMB	New Orleans, La.	1350	5,000
WSNJ	Bridgeton, N. J.	1240	250
WSNY	Schenectady, N. Y.	1240	250
WSOC	Charlotte, N. C.	1240	250
WSON	Henderson, Ky.	860	500-D
WSOO	Sault Ste. Marie, Mich.	1230	250-LS 100-N
WSOY	Decatur, Ill.	1340	250
WSPA	Spartanburg, S. C.	950	5,000-LS 1,000-N *5,000
WSPB	Sarasota, Fla.	1450	250
WSPD	Toledo, O.	1370	5,000
WSPR	Springfield, Mass.	1270	1,000-LS 500-N
WSRR	Stamford, Conn.	1400	250
WSSV	Petersburg, Va.	1240	250
WSTC	Stamford, Conn.	1400	
WSTP	Salisbury, N. C.	1490	250
WSTV	Steubenville, O.	1340	250
WSUI	Iowa City, Ia.	910	5,000
WSUN	St. Petersburg, Fla.	620	5,000
WSVA	Harrisonburg, Va.	550	1,000-D
WSYB	Rutland, Vt.	1380	1,000
WSYR	Syracuse, N. Y.	570	5,000
WTAD	Quincy, Ill.	930	1,000
WTAG	Worcester, Mass.	580	5,000
WTAL	Tallahassee, Fla.	1340	250
WTAM	Cleveland, O.	1100	50,000
WTAQ	Green Bay, Wis.	1360	5,000
WTAR	Norfolk, Va.	790	5,000
WTAW	College Station, Tex.	1150	1,000-D
WTEL	Philadelphia, Pa.	1340	250
WTHT	Hartford, Conn.	1230	250
WTIC	Hartford, Conn.	1080	50,000
WTAX	Springfield, Ill.	1240	100
WTBO	Cumberland, Md.	1450	250
WTCM	Traverse City, Mich.	1400	250
WTCN	Minneapolis, Minn.	1280	5,000-LS 1,000-N
WTJS	Jackson, Tenn.	1390	1,000
WTMA	Charleston, S. C.	1250	1,000
WTMC	Ocala, Fla.	1490	250
WTMJ	Milwaukee, Wis.	620	5,000
WTMV	E. St. Louis, Ill.	1490	250
WTNJ	Trenton, N. J.	1310	500
WTOC	Savannah, Ga.	1290	5,000
WTOL	Toledo, O.	1230	250
†WTON	Staunton, Va.	1400	250
WTOP	Washington, D. C.	1500	50,000
WTRC	Elkhart, Ind.	1340	250
WTRY	Troy, N. Y.	980	1,000
WTSP	St. Petersburg, Fla.	1380	1,000-LS 500-N
WTTM	Trenton, N. J.	920	1,000
WTUL	Waterville, Me.	1490	
†WTWS	Clearfield, Pa.	1490	250
WWDC	Washington, D. C.	1450	250
WWJ	Detroit, Mich.	950	5,000
WWL	New Orleans, La.	870	50,000
WWNC	Asheville, N. C.	570	1,000
WWNY	Watertown, N. Y.	790	1,000
WWPG	Palm Beach, Fla.	1340	250
WWRL	Woodside, N. Y.	1600	250
WWSR	St. Albans, Vt.	1420	1,000-D
WWSW	Pittsburgh, Pa.	1490	250
WWVA	Wheeling, W. Va.	1170	50,000
WXYZ	Detroit, Mich.	1270	5,000

Calls Unassigned—AM CPS

†.....	Cullman, Ala.	1340	250
†.....	Montgomery, Ala.	800	1,000
†.....	Brawley, Cal.	1490	250
†.....	San Mateo, Cal.	1050	250-D
†.....	Ft. Lauderdale, Fla.	1400	250
†.....	Ft. Pierce, Fla.	1400	250
†.....	Lake City, Fla.	1340	250
†.....	Pekin, Ill.	1140	250-D
†.....	Cartersville, Ga.	1450	250
†.....	Marietta, Ga.	1230	250
†.....	Coeur d'Alene, Ida.	1430	1,000
†.....	New Iberia, La.	1240	250
†.....	Waterville, Me.	1490	250
†.....	Ely, Nev.	1230	250
†.....	Asheville, N. C.	1340	250
†.....	Lexington, N. C.	1190	250
†.....	Lumberton, N. C.	1340	250
†.....	Shelby, N. C.	730	250-D
†.....	Whiteville, N. C.	1240	250
†.....	Wilmington, N. C.	1340	250
†.....	Marietta, O.	1490	250
†.....	Marietta, O.	1340	250
†.....	Pottsville, Pa.	1360	500-D
†.....	Hartsville, S. C.	1450	250
†.....	Dyersburg, Tenn.	1450	250
*.....	Greenville, Tenn.	1340	250
†.....	Greenville, Tex.	1400	250
†.....	Odessa, Tex.	1410	1,000
†.....	Ellensburg, Wash.	1400	250
†.....	Marshfield, Wis.	1450	250

COMMERCIAL FM STATIONS

Call Letter	City	Channel No.	Frequency (mc.)
KDKA-FM	Pittsburgh, Pa.	231	94.1
KHJ-FM	Los Angeles, Calif.	259	99.7
KMBC-FM	Kansas City, Mo.	250	97.9
KOZY	Kansas City, Mo.	260	99.9
KSL-FM	Salt Lake City, Utah	261	100.1
KTLO	Los Angeles, Calif.	261	100.1
KYW-FM	Philadelphia, Pa.	262	100.3
WAAW	Jersey City, N. J.	239	95.7
WABC-FM	New York, N. Y.	245	96.9
WABF	New York, N. Y.	253	98.5
WABW	Indianapolis, Ind.	235	94.9
WBAM	New York, N. Y.	243	96.5
WBBM-FM	Chicago, Ill.	257	99.3
WBCA	Schenectady, N. Y.	266	101.1
WBRL	Baton Rouge, La.	241	96.1
WBZ-FM	Boston, Mass.	264	100.7
WBZA-FM	Springfield, Mass.	246	97.1
WCAU-FM	Philadelphia, Pa.	274	102.7
WDLM	Chicago, Ill.	259	99.7
WDRC-FM	Hartford, Conn.	232	94.3
WDUL	Superior, Wis.	222	92.3
WEAF-FM	New York, N. Y.	247	97.3
WEHS	Chicago, Ill.	261	100.1
WELD	Columbus, Ohio	233	94.5
WENA	Detroit, Mich.	245	96.9
WFGG	New York, N. Y.	259	99.7
WFIL-FM	Philadelphia, Pa.	260	99.9
WFMN	Alpine, N. J.	255	98.9
WGFM	Schenectady, N. Y.	264	100.7
WGNB	Chicago, Ill.	255	98.9
WGTR	Boston, Mass.	276	103.1
WGYN	New York, N. Y.	241	96.1
WHEF	Rochester, N. Y.	253	98.5
WHFM	Rochester, N. Y.	255	98.9
WHNF	New York, N. Y.	257	99.3
WIBG-FM	Philadelphia, Pa.	246	97.1
WIP-FM	Philadelphia, Pa.	248	97.5
WLOU	Detroit, Mich.	243	96.5
WMIT	Winston-Salem, N. C.	247	97.3
WMLL	Evansville, Ind.	234	94.7
WMOT	Pittsburgh, Pa.	445	
WMQT	Pittsburgh, Pa.	233	94.5
WMTW	Boston, Mass.	251	98.1
WNBF-FM	Binghamton, N. Y.	242	96.3
WNYC-FM	New York, N. Y.	233	94.5
WOWO-FM	Ft. Wayne, Ind.	240	95.9
WPEN-FM	Philadelphia, Pa.	258	99.5
WQXQ	New York, N. Y.	249	97.7
WSFB	South Bend, Ind.	267	101.3
WSM-FM	Nashville, Tenn.	261	100.1
WTAG-FM	Worcester, Mass.	274	102.7
WTIC-FM	Hartford, Conn.	228	93.5
WTMJ-FM	Milwaukee, Wis.	222	92.3
WWZR	Chicago, Ill.	253	98.5

COMMERCIAL TELEVISION STATIONS

Call Letter	Location
†KTSL	Los Angles, Calif.
WABD	New York, N. Y.
WBKB	Chicago, Ill.
WCBW	New York, N. Y.
WMJT	Milwaukee, Wis.
WNBT	New York, N. Y.
†WPTZ	Philadelphia, Pa.
WRGB	Schenectady, N. Y.
†WTZR	Chicago, Ill.

† Construction Permit

INTERNATIONAL STATIONS

Call Letter	Location
KCBA	Delano, Calif.
KCBF	Delano, Calif.
KCBR	Delano, Calif.
KGEI	Belmont, Calif.
KGEX	Belmont, Calif.
KNBA	Dixon, Calif.
KNBC	Dixon, Calif.
KNBI	Dixon, Calif.
KNBX	Dixon, Calif.
KWID	San Francisco, Calif.
KWIX	San Francisco, Calif.
WBOS	Hull, Mass.
WCBN	Brentwood, L. I., N. Y.
WCBX	Brentwood, L. I., N. Y.
WCDA	Brentwood, L. I., N. Y.
WCRC	Brentwood, L. I., N. Y.
WGEA	Schenectady, N. Y.
WGEO	Schenectady, N. Y.
WGEX	Schenectady, N. Y.
WLWK	Mason, O.
WLWL	Mason, O.
WLWO	Mason, O.
WLWR	Mason, O.
WLWS	Mason, O.
WNBI	Bound Brook, N. J.
WNRA	Bound Brook, N. J.
WNRE	Bound Brook, N. J.
WNRI	Bound Brook, N. J.
WNRX	Bound Brook, N. J.
WOOC	Wayne, N. J.
WCOW	Wayne, N. J.
WRCA	Bound Brook, N. J.
WRUA	Scituate, Mass.
WRUL	Scituate, Mass.
WRUS	Scituate, Mass.
WRUW	Scituate, Mass.
WRUX	Scituate, Mass.

RMA RADIO COLOR CODES

Standard color codes have been adopted by the Radio Manufacturers Association for the ready identification of values and connections for standard components.

RESISTOR-CAPACITOR COLOR CODE

Color	*Significant Figure*	*Decimal Multiplier*	*Tolerance (%)*	*Voltage Rating**
Black	0	1	—	—
Brown	1	10	1*	100
Red	2	100	2*	200
Orange	3	1,000	3*	300
Yellow	4	10,000	4*	400
Green	5	100,000	5*	500
Blue	6	1,000,000	6*	600
Violet	7	10,000,000	7*	700
Gray	8	100,000,000	8*	800
White	9	1,000,000,000	9*	900
Gold	- -	0.1	5	1000
Silver	—	0.01	10	2000
No color	—	—	20	500

**Applies to capacitors only.*

Mica Capacitors

If one row of three colored markers appears on the capacitor, the voltage rating is 500 volts and the capacitance is expressed in uuf. to two significant figures, in micromicrofarads as follows: First dot on left, first significant figure. Second dot, second significant figure. Third dot, decimal multiplier.

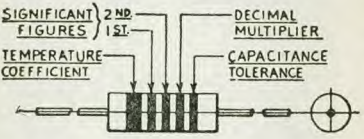
Example: A capacitor has one row of colored markers, as follows: brown, black and brown. Its capacity is 100 uuf.

When two rows of three colored markers appear on the capacitor the top row represents the significant figures, reading from left to right; the bottom row indicates the decimal multiplier, tolerance and voltage rating, reading from right to left. Capacitance is in uuf.

Example: A capacitor has two rows of colored markers, as follows: Top row: left, brown; center, black; right, no color. Bottom row: right, brown; center, green; left, blue. Its ratings are 100 uuf.; ±5%, 600 volts.

Ceramic Capacitors

These capacitors are small, temperature-sensitive, fixed capacitors of ceramic construction with varying amounts of temperature coefficient of capacitance. Values range over four physical sizes. The inside plate is connected at the marked end. Temperature coefficient values and tolerance and color-coding are in accordance with R.M.A. standards. Colors are of non-conducting material. Colors may be either bands or dots.



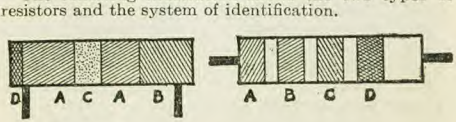
Color	Capacity MMF Significant Figure 1st	2nd	Multiplier	Temp. Coef. Of Capacitance End Color	Tolerance Values For Cap. Greater Than 10 MMF	For Cap. of 10 MMF or Less
Black	0	0	1	0	±20%	±2.0 mmf
Brown	1	1	10	− 30	±1 %	
Red	2	2	100	− 80	±2%	
Orange	3	3	1000	−150	±2½%	
Yellow	4	4		−220		
Green	5	5		−330	±5%	±0.5 mmf
Blue	6	6		−470		
Violet	7	7		−750		
Gray	8	8	.01	+ 30		±0.25 mmf
White	9	9	.1		±10%	±1.0 mmf

Resistors:

Values of resistance and tolerances are indicated by colored dots, bands or stripes on the resistor.

Two types of resistors are commonly used, one having radial and the other axial leads.

The following illustration shows the two types of resistors and the system of identification.



Radial	*Axial*	
Body A	Band A	Indicates first significant figure.
End B	Band B	Indicates second significant figure.
Band C (or dot)	Band C	Indicates decimal multiplier.
Band D	Band D	Indicates tolerance in per cent.

RCA BATTERIES

Type	*Description*	*Voltage*	*Size in Inches*
VS001	Flashlight Cell	1½	2 3/8x1 5/16
VS002	Portable A	4½	4 x1 3/8x 4 11/16
VS003	Portable A	7½	3 7/8x2 5/8x 4 9/16
VS004	Portable A	1½	2 5/8x2 5/8x 4 1/8
VS005	Portable B	1½	3 13/16x1 3/8x 5 5/8
VS006s	Ignition (Screw Term.)	1½	2 5/8x6 9/16
VS006c	Ignition (Clip Term.)	1½	2 5/8x6 9/16
VS007	Portable A	1½	3 15/16x2 5/8x 4 1/8
VS008	Portable A	1½	3 7/8x1 7/16x10 3/4
VS009	Portable A	6	2 5/8x2 5/8x 4 1/2
VS010	Portable A	6	3 7/8x2 15/16x 5 1/2
VS011	Portable A	6	3 7/8x1 7/16x10 3/4
VS012	Portable B	45	4 1/2x2 9/16x 5 5/16
VS013	Portable B	45	3 9/16x1 13/16x 5 7/16
VS014	Portable B	45	3 7/16x2 1/4x 4 1/2
VS015	Portable B	45	3 x2 3/8x 4
VS016	Portable B	67½	2 1/16x1 5/16x 3 1/16
VS017	Portable AB Pack	6–90	10 3/4x2 13/16x 3 15/16
VS018	Portable AB Pack	9–7½–90	10 5/8x3 7/16x 4 1/8
VS019	Portable AB Pack	9–7½–90	9 5/8x2 7/8x 4 1/2
VS020	Portable AB Pack	7½–67½	9 1/2x2 1/16x 4 7/16
VS021	Farm AB Pack	1½–90	10 13/16x2 3/4x 6 3/8
VS022	Farm AB Pack	1½	15 3/4x4 1/4x 6 7/8
VS023	Farm AB Pack	1½	15 3/4x4 1/4x 6 7/8
VS024	Farm A	1½	7 3/4x2 7/8x 7 1/16
VS025	Farm A	3	12 x4 x 6 7/16
VS026	Farm B	45	8 1/16x3 5/16x 7 3/16
VS027	Farm B	45	8 1/16x4 5/16x 7 3/16
VS028	Farm C	4½	2 3/4x1 5/16x 2 9/16
VS029	Farm C	7½	4 x 7/8x 3 1/8
VS030	Farm C	4½	4 1/16x1 7/16x 3 1/16
VS031	Farm BC	22½	4 x2 1/2x 3
VS032	Farm BC	BC–Block	9 3/4x6 11/16x13 1/4
VS033	Flashlight (Baby)	1½	1 x1 7/8
VS034	Penlight	1½	9/16x1 15/16
VS036	Flashlight (Seal Tight)	1½	2 3/4x1 5/16
VS037	Portable AB Packs	1½	11 7/8x1 1/2x 6 7/16
VS038	Portable AB Packs	7½	8 5/8x2 5/8x 4
VS039	Multiple (Industrial)	6	10 3/4x2 3/4x 7 1/2
VS040	Lantern	6	2 5/8x2 5/8x 4
VS042s	Telephone (Screw Term.)	1½	2 5/8x6 9/16
VS042c	Telephone (Clip Term.)	1½	2 5/8x6 9/16
VS043	Portable AB Pack	1½–90	5 9/16x2 1/16x 6 7/8
VS044	Portable AB Pack	6–90	11 15/16x4 1/8x 2 11/16
VS045	Portable AB Pack	1½–90	12 1/4x6 1/2x 5 1/4
VS046	Portable AB Pack	6–75	12 1/2x4 x 2 3/4
VS047	Portable AB Pack	9–90	14 x4 1/2x 2 3/4


THE WORLD
Mercator Projection
Steamship Lines
Distances in Nautical Miles
International Date Line
ARCTIC CIRCLE
TROPIC OF CANCER
EQUATOR
TROPIC OF CAPRICORN
ASIA
EUROPE
AFRICA
NORTH AMERICA
SOUTH AMERICA
AUSTRALIA
DOMINION OF CANADA
UNITED STATES
ALASKA
SAHARA
PACIFIC OCEAN
ATLANTIC OCEAN
INDIAN OCEAN
Yakutsk
Irkutsk
Vladivostok
Peiping
Tokyo
Yokohama
Shanghai
Nanking
Canton
Hong Kong
Calcutta
Manila
PHILIPPINE ISLANDS
Singapore
JAVA
BORNEO
NEW GUINEA
Perth
Sydney
Melbourne
TASMANIA
NEW ZEALAND
Coral Sea
Bering Sea
Sea of Okhotsk
SAKHALIN
ALEUTIAN IS.
HAWAIIAN IS. (U.S.)
Honolulu
Juneau
Seattle
Winnipeg
Montreal
Ottawa
Chicago
St. Louis
San Francisco
Los Angeles
New York
Washington
New Orleans
Halifax
St. Johns
NEWFOUNDLAND
LABRADOR
Hudson Bay
MEXICO
Mexico
CENTRAL AMERICA
WEST INDIES
Panama Canal
Guayaquil
Lima
Belem
Recife
São Paulo
Rio de Janeiro
Valparaiso
Santiago
Montevideo
Buenos Aires
FALKLAND IS.
Str. of Magellan
ICELAND
BRITISH ISLES
North Sea
London
Paris
Berlin
Madrid
Stockholm
Leningrad
Arkhangelsk
Moskva
Omsk
Istanbul
Baku
Caspian Sea
Black Sea
Aral Sea
Algiers
Marrakesh
Cairo
Suez Canal
Red Sea
Aden
Khartoum
Lagos
Str. of Gibraltar
Mediterranean Sea
Delhi
Calcutta
Bombay
Madras
CEYLON
Arabian Sea
ZANZIBAR
MADAGASCAR
Johannesburg
Durban
Capetown
Longitude West
Longitude East
Greenwich

WASHINGTON
Seattle
Tacoma
Olympia
Spokane
Bellingham
Mt. Vernon
Ellensburg
North Yakima
Walla Walla
Astoria
Portland
Columbia R.
Salem
OREGON
Albany
Eugene
Dalles
Pendleton
Heppner
Union
Baker
Huntington
Canyon City
Burns
Marshfield
Medford
Roseburg
IDAHO
Lewiston
Moscow
Boise
Weiser
Idaho City
St. Anthony
Idaho Falls
Pocatello
Shoshone
Albion
Montpelier
Challis
Salmon
MONTANA
Helena
Butte
Dillon
BRITISH COLUMBIA
Lethbridge
ALB.
VANCOUVER I.
Victoria
CALIFORNIA
Eureka
Redding
Yreka
MT. SHASTA
Susanville
Ukiah
Woodland
Truckee
Sacramento
San Francisco
Oakland
Stockton
Bridgeport
Merced
YOSEMITE NAT. PARK
Fresno
Visalia
Tulare
Bakersfield
MT. WHITNEY
Keeler
Owens L.
DEATH VALLEY
Randsburg
MOJAVE DESERT
Barstow
Needles
Santa Barbara
Pasadena
Los Angeles
San Bernardino
San Jacinto
Oceanside
San Diego
National City
Colorado
NEVADA
Virginia City
Carson City
Austin
Eureka
Belmont
Tonopah
Goldfield
Pioche
Caliente
Las Vegas
UTAH
Ogden
Great Salt L.
Salt Lake City
GREAT SALT LAKE DESERT
Provo
Eureka
Deseret
Manti
Milford
Beaver
Parowan
Escalante
Kanab
Logan
ARIZONA
GRAND CANON
Kingman
Prescott
Williams
Flagstaff
Tuba
Holbrook
St. Johns
Phoenix
Globe
Yuma
Florence
Tucson
Tombstone
Nogales
Bisbee
Hermosillo
Guaymas
ALASKA
ARCTIC OCEAN
DEMARCATION PT.
Ft. Yukon
Circle
Nome
Fairbanks
St. Michael
Dawson
MT. MCKINLEY
Skagway
Juneau
Bering Sea
G. of Alaska
PACIFIC OCEAN
ALEUTIAN IS.
ASIA
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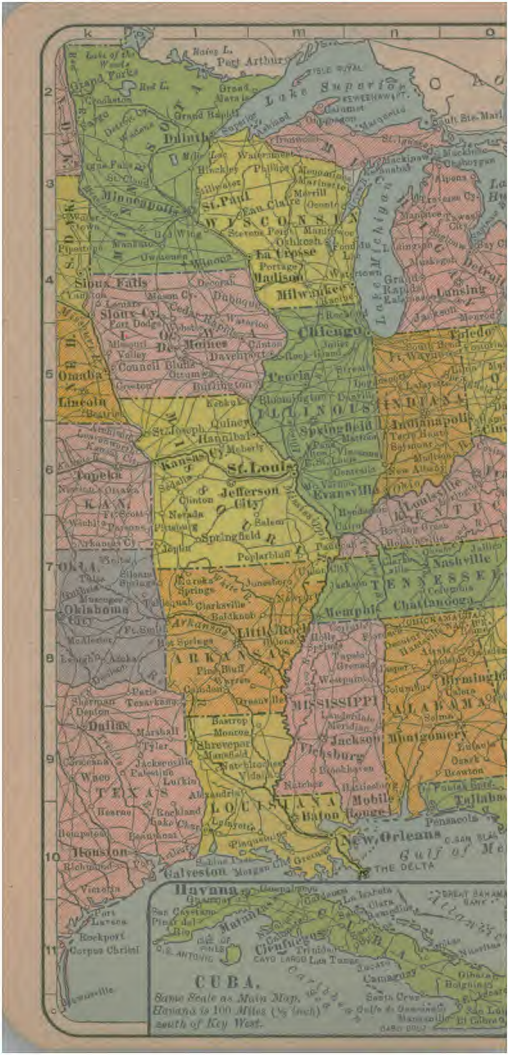
Lake of the Woods
Rainy L.
Port Arthur
Grand Portage
Lake Superior
Duluth
Minneapolis
St. Paul
WISCONSIN
La Crosse
Madison
Milwaukee
Sioux Falls
Sioux City
Des Moines
Chicago
Omaha
Council Bluffs
Davenport
Peoria
Lincoln
Burlington
ILLINOIS
INDIANA
Springfield
Indianapolis
Kansas City
St. Louis
Topeka
Jefferson City
Evansville
Springfield
Nashville
Joplin
Poplar Bluff
TENNESSEE
Oklahoma
Little Rock
Memphis
Chattanooga
ARKANSAS
MISSISSIPPI
ALABAMA
Dallas
Vicksburg
Montgomery
Shreveport
Jackson
TEXAS
LOUISIANA
Mobile
Baton Rouge
Houston
New Orleans
Gulf of Mexico
THE DELTA
Galveston
Havana
Matanzas
Cienfuegos
Trinidad
CUBA.
Same Scale as Main Map.
Havana is 100 Miles (⅝ Inch) south of Key West.

UNITED STATES
Western Half
0 50 100 150 200 250 300
320 MILES TO ONE INCH
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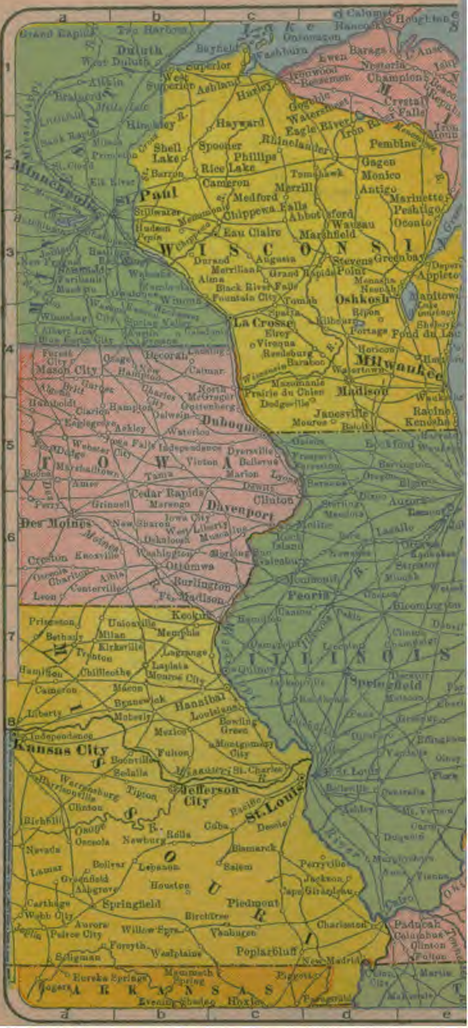
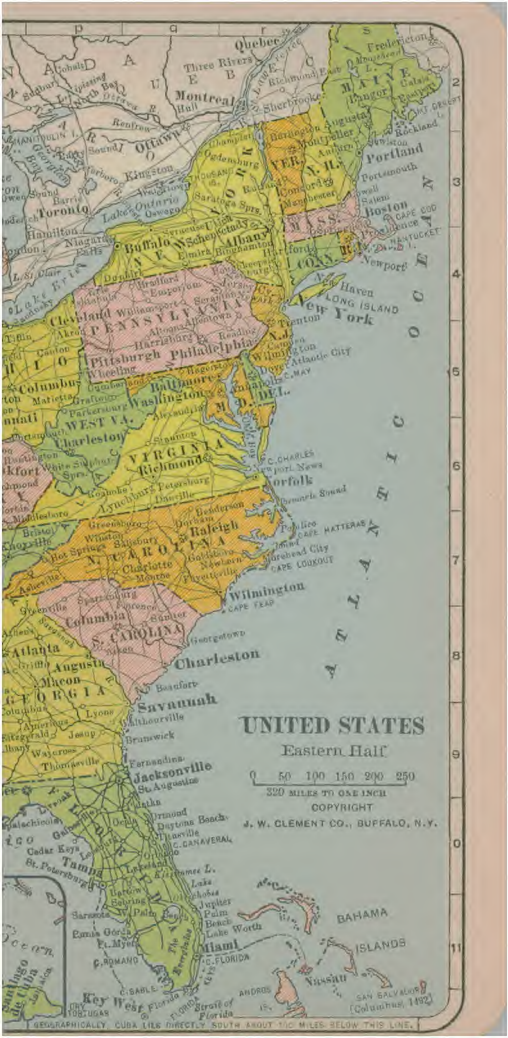
J. W. CLEMENT CO., BUFFALO, N. Y.
f g h i k
1 2 3 4 6 7 8 9 0 11
SASKATCHEWAN
MANITOBA
Winnipeg
Regina
Moose Jaw
Brandon
Estevan
Morris
Great Falls
NORTH DAKOTA
Minot
Grand Forks
Jamestown
Fargo
Bismarck
Mandan
Ellendale
Eureka
Aberdeen
Redfield
Watertown
SOUTH DAKOTA
Pierre
Deadwood
Chamberlain
Mitchell
Huron
Madison
Sioux Falls
Yankton
Hot Springs
Edgemont
Livingston
Billings
Forsyth
Fort Custer
YELLOWSTONE NATIONAL PARK
Sheridan
Buffalo
Newcastle
Sundance
WYOMING
Lander
Casper
Douglas
LARAMIE PK.
Rawlins
Rock Spgs.
Carbon
Laramie
Cheyenne
Alliance
Chadron
Ainsworth
O'Neill
Sioux City
NEBRASKA
Broken Bow
Grand Island
Kearney
North Platte
Sidney
Omaha
Lincoln
Fremont
Beatrice
Indianola
Hastings
Fort Collins
Greeley
Sterling
Akron
Denver
Leadville
Aspen
Colorado Springs
Hugo
COLORADO
Pueblo
La Junta
Walsenburg
Trinidad
Alamosa
Grand Jc.
Montrose
Durango
Oberlin
Colby
Beloit
Topeka
Junction City
Salina
KANSAS
Jetmore
Larned
Hutchinson
Newton
Wichita
Dodge City
Liberal
Medicine Lodge
Winfield
Beaver
OKLAHOMA
Kingfisher
Guthrie
Oklahoma City
Purcell
Tierra Amarilla
Raton
Mora
Texline
Santa Fe
Las Vegas
Albuquerque
Ft. Wingate
Ft. Defiance
NEW MEXICO
Puerto de Luna
Magdalena
Socorro
Lincoln
Roswell
Tularosa
Las Cruces
Carlsbad
Deming
Silver City
El Paso
Ciudad Juarez
Canadian R.
Amarillo
Panhandle
Clarendon
Childress
Quanah
Wichita Falls
Seymour
Henrietta
Lubbock
Llano Estacado
Dallas
Fort Worth
Sweetwater
Colorado
Big Spring
Midland
Coleman
San Angelo
Dublin
Corsicana
Waco
Temple
Lampasas
Pecos
Sierra Blanca
TEXAS
Ft. Stockton
Alpine
Burnet
Junction
Kerrville
Austin
Brenham
San Antonio
Columbus
Victoria
Del Rio
Uvalde
Eagle Pass
Pearsall
Port Lavaca
Cotulla
Laredo
San Diego
Porfirio Diaz
Rio Grande
MEXICO
Casas Grandes
Moctezuma



WISCONSIN
IOWA
ILLINOIS
MISSOURI
ARKANSAS
Lake Superior
Duluth
West Duluth
Superior
Ashland
Hurley
Bayfield
Washburn
Ontonagon
Hancock
Houghton
Calumet
Ewen
Baraga
Ironwood
Bessemer
Champion
Crystal Falls
Watersmeet
Eagle River
Iron River
Pembine
Rhinelander
Hayward
Spooner
Shell Lake
Phillips
Rice Lake
Barron
Cameron
Tomahawk
Merrill
Gagen
Monico
Antigo
Marinette
Peshtigo
Oconto
Medford
Chippewa Falls
Abbotsford
Wausau
Marshfield
Eau Claire
St. Paul
Minneapolis
Stillwater
Hudson
Menomonie
Durand
Augusta
Merrillan
Alma
Black River Falls
Fountain City
Tomah
Winona
Grand Rapids
Stevens Point
Green bay
Appleton
Menasha
Neenah
Oshkosh
Manitowoc
La Crosse
Sparta
Kilbourn
Portage
Fond du Lac
Ripon
Elroy
Viroqua
Reedsburg
Baraboo
Horicon
Milwaukee
Watertown
Madison
Mazomanie
Prairie du Chien
Dodgeville
Janesville
Racine
Kenosha
Monroe
Beloit
Mason City
Decorah
Calmar
Osage
Charles City
Hampton
North McGregor
Guttenberg
Humboldt
Clarion
Oelwein
Dubuque
Eagle Grove
Ackley
Waterloo
Iowa Falls
Independence
Dyersville
Bellevue
Webster City
Fort Dodge
Vinton
Marion
Tama
Lyons
Boone
Marshalltown
Ames
Clinton
Cedar Rapids
Marengo
Davenport
Grinnell
Perry
Iowa City
Des Moines
West Liberty
Muscatine
Oskaloosa
Washington
Ottumwa
Burlington
Creston
Knoxville
Chariton
Albia
Centerville
Leon
Ft. Madison
Keokuk
Princeton
Unionville
Bethany
Milan
Memphis
Kirksville
Trenton
Lagrange
Hamilton
Chillicothe
Laplata
Macon
Cameron
Brunswick
Hannibal
Louisiana
Liberty
Moberly
Bowling Green
Mexico
Independence
Kansas City
Fulton
Boonville
Sedalia
St. Charles
Warrensburg
Harrisonville
Tipton
Jefferson City
Clinton
St. Louis
Rolla
Cuba
Osceola
Newburg
Nevada
Bismarck
Lamar
Bolivar
Lebanon
Salem
Perryville
Greenfield
Houston
Jackson
Cape Girardeau
Carthage
Springfield
Piedmont
Webb City
Aurora
Joplin
Pierce City
Willow Sprs.
Birch Tree
Charleston
Forsyth
Poplar Bluff
New Madrid
Seligman
Eureka Springs
Rogers
Piggott
Paragould
Hoxie
Peoria
Springfield
Quincy
Rock Island
Moline
Galena
Freeport
Rockford
Dixon
Elgin
Aurora
Lasalle
Ottawa
Bloomington
Decatur
Jacksonville
Belleville
Centralia
Cairo
Paducah
Columbus
Clinton
Fulton
Lake Michigan
Mississippi R.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Eastern Half
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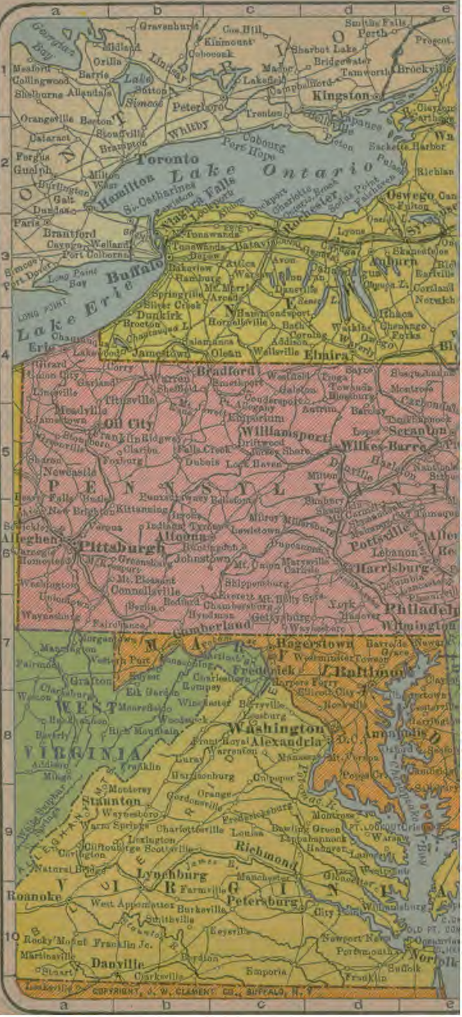
Albany
Boston
Portland
New York
Philadelphia
Baltimore
Washington
Pittsburgh
Cleveland
Columbus
Cincinnati
Charleston
Richmond
Norfolk
Raleigh
Wilmington
Columbia
Augusta
Atlanta
Macon
Savannah
Jacksonville
St. Augustine
Tampa
Key West
Miami
Palm Beach
Nassau
BAHAMA ISLANDS
SAN SALVADOR (Columbus, 1492)
Havana
CUBA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Georgian Bay
Lake Simcoe
Toronto
Hamilton
Lake Ontario
Kingston
Oswego
Rochester
Niagara Falls
Lockport
Buffalo
Lake Erie
Dunkirk
Jamestown
Olean
Elmira
Ithaca
Auburn
Bradford
Oil City
Williamsport
Wilkes-Barre
Scranton
Pittsburgh
Altoona
Johnstown
Harrisburg
Philadelphia
Pottsville
Cumberland
Hagerstown
Baltimore
Annapolis
Frederick
Washington
Alexandria
West Virginia
Staunton
Lynchburg
Richmond
Petersburg
Roanoke
Danville
Norfolk
Virginia
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Detroit
Lansing
Grand Rapids
Saginaw
Bay City
Chicago
Indianapolis
Ft. Wayne
Terre Haute
Evansville
Louisville
Frankfort
Lexington
Nashville
Knoxville
Charleston W. VA.
VIRGINIA
N. C.
Lake Huron
Georgian Bay
ONTARIO
Erie
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Montpelier
St. Albans
Rutland
Concord
Manchester
Portland
Portsmouth
Lowell
Lynn
Boston
Worcester
Springfield
Hartford
Providence
Fall River
New Bedford
Newport
New London
New Haven
Bridgeport
Albany
Troy
Schenectady
Utica
Kingston
Newburgh
Trenton
Camden
Paterson
Long Branch
Atlantic City
Cape May
LONG ISLAND
ADIRONDACK MTS.
CATSKILL MTS.
WHITE MTS.
BOROUGH OF THE BRONX
BOROUGH OF QUEENS
BOROUGH OF BROOKLYN
BOROUGH OF RICHMOND
Brooklyn
Newark
Jersey City
Jamaica
Flushing
ATLANTIC OCEAN
SANDY HOOK


MEXICO, CENTRAL AMERICA AND THE WEST INDIES
Statute Miles
0
600
© J. W. CLEMENT CO., BUFFALO, N. Y.
100 Longitude West from 90 Greenwich
UNITED STATES
Mexicali
El Paso
Dallas
Savannah
Mobile
Jacksonville
Nogales
Ciudad Juarez
Hermosillo
Chihuahua
Guaymas
Houston
San Antonio
Galveston
New Orleans
Tampa
Piedras Negras
Nuevo Laredo
Parral
Torreon
Gulf of California
Gulf of Mexico
ATLANTIC OCEAN
BAHAMA ISLANDS (Br.)
Nassau
Miami
Key West
Saltillo
Monterrey
Matamoros
Durango
C. San Lucas
PACIFIC OCEAN
Mazatlan
Zacatecas
San Luis Potosi
Aguascalientes
Tampico
Havana
CUBA
WEST INDIES
Guadalajara
Leon
Queretaro
Progreso
Merida
Santiago
HISPANIOLA
Pachuca
Campeche
Bay of Campeche
GREATER ANTILLES
HAITI
DOM. REP.
San Juan
VIRGIN IS (U. S. Br.)
ANTIGUA (Br.)
GUADELOUPE (Fr.)
DOMINICA (Br.)
MARTINIQUE (Fr.)
ST. LUCIA (Br.)
BARBADOS
ST. VINCENT (Br.)
GRENADA (Br.)
REVILLA GIGEDO IS.
Manzanillo
Morelia
México
Veracruz
Puebla
Orizaba
Oaxaca
Puerto Mexico
Acapulco
Salina Cruz
JAMAICA (Br.)
Kingston
Port au Prince
Ciudad Trujillo
PUERTO RICO (U. S.)
Belize
BR. HON.
G. of Honduras
GUATEMALA
HONDURAS
Tegucigalpa
Caribbean Sea
LESSER ANTILLES
CURACAO (Du.)
Caracas
Port of Spain
TRINIDAD (Br.)
Guatemala
San Salvador
SALVADOR
NICARAGUA
Leon
Managua
L. Nicaragua
CENTRAL AMERICA
COSTA RICA
San José
Colon
Panama Canal
PANAMA
Panama
Barranquilla
SOUTH AMERICA


SOUTH AMERICA
Statute Miles
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Washington
New York
UNITED STATES
Charleston
Jacksonville
BERMUDA (Br.)
Miami
BAHAMA IS. (Br.)
CUBA
WEST INDIES
HISPANIOLA
LESSER ANTILLES
ATLANTIC OCEAN
TROPIC OF CANCER
Caribbean Sea
Barranquilla
Maracaibo
CURAÇAO (Neth.)
Caracas
TRINIDAD (Br.)
Georgetown
Paramaribo
Cayenne
Valencia
Barquisimeto
VENEZUELA
GUIANA
Medellin
Bogotá
Cali
COLOMBIA
EQUATOR
Quito
Guayaquil
ECUADOR
Río Negro
Manaos
Belem (Para)
Amazon
Fortaleza
Recife (Pernambuco)
Maceió
PERU
Lima
Callao
Cuzco
Titicaca
La Paz
Mt. Illimani
BOLIVIA
Sucre
BRAZIL
São Salvador (Bahia)
Cuyaba
Arequipa
Arica
Iquique
TROPIC OF CAPRICORN
Bello Horizonte
Rio de Janeiro
São Paulo
Curitiba
Santos
Antofagasta
Asuncion
PARAGUAY
Tucuman
Porte Alegre
Córdoba
Santa Fe
Valparaiso
Santiago
Rosario
URUGUAY
Montevideo
Concepcion
Buenos Aires
La Plata
Temuco
Bahia Blanca
CHILOE I.
CHONOS ARCHIPELAGO
Gulf of St. George
FALKLAND IS. (Br.)
Str. of Magellan
Magallanes
TIERRA DEL FUEGO
J. W. CLEMENT CO., BUFFALO, N. Y.
70° W. from 60 Longitude 50 West from Greenwich 30


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As of August 1, 1946.
Statute Miles
0 50 100 200 300
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Copyright, J. W. CLEMENT CO.
Buffalo, N. Y.
NORWAY
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Aalesund
Bergen
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Stavanger
Kristiansand
Lindesnes
Oslo
Drammen
Skien
Arendal
Hamar
Sognefjord
Hardangerfjord
Voss
JOTUM FJELD
DOVRE FJELD
Steinkjer
Östersund
Sylhätt
Mora
Elverum
Kongsvinger
Karlstad
Vänern
Borås
Göteborg
Skagerrak
Kattegat
DENMARK
Aarhus
København (Copenhagen)
NORTH SEA
HELGOLAND
FRISIAN IS.
NETHERLANDS
Amsterdam
Rotterdam
Gravenhage (The Hague)
BELGIUM
Bruxelles (Brussels)
Lille
LUXEMBOURG
GERMANY
Hamburg
Bremen
Altona
Lübeck
Hannover
Magdeburg
Berlin
Elbe
Essen
Dortmund
Düsseldorf
Köln (Cologne)
Frankfurt
Halle
Erfurt
Dresden
Plauen
Mannheim
Nürnberg
Stuttgart
Danube
Passau
Augsburg
München (Munich)
Rhine
BRITISH ISLES
GREAT BRITAIN
SCOTLAND
ENGLAND
WALES
NORTHERN IRELAND
Belfast
IRELAND
EIRE
Baile Átha Cliath (Dublin)
Cobh (Queenstown)
LEWIS
HEBRIDES
SKYE
MULL
ORKNEY ISLANDS
Pentland Firth
Moray Firth
Inverness
Aberdeen
Perth
Dundee
Firth of Forth
Edinburgh
Glasgow
Newcastle
Irish Sea
Liverpool
Bradford
Leeds
Hull
Manchester
Sheffield
Nottingham
Birmingham
The Wash
London
Thames
Dover
Strait of Dover
Cardiff
Bristol
Bristol Channel
St. George's Chan.
Southampton
Portsmouth
Plymouth
Lands End
SCILLY IS.
English Channel
CHANNEL IS. (Br.)
FRANCE
Cherbourg
Le Havre
Caen
Calais
Amiens
Rouen
Seine
St. Denis
Reims
Paris
Versailles
Metz
Nancy
Brest
Rennes
Le Mans
Troyes
Strasbourg
Mulhouse
Orléans
Angers
St. Nazaire
Nantes
Loire
Tours
Dijon
Besançon
Nevers
La Rochelle
Clermont-Ferrand
Lyon
Geneva
Limoges
Angoulême
St. Etienne
Grenoble
Valence
Rhône
Bordeaux
Agen
Nîmes
Toulouse
Montpellier
Béziers
Bayonne
Marseille
Nice
Toulon
Perpignan
Gulf of the Lion
MONACO
ANDORRA
BAY OF BISCAY
SWITZERLAND
Bern
Zürich
LIECHTENSTEIN
Mt. Blanc 15 782
ITALY
Milano (Milan)
Torino (Turin)
Genova (Genoa)
Brescia
Verona
Padova
Udine
Ferrara
Bologna
SAN MARINO
Spezia
Lucca
Firenze (Florence)
Livorno (Leghorn)
Siena
ELBA
APENNINES
CORSE (CORSICA) (Fr.)
Bastia
Ajaccio
Strait of Bonifacio
SARDEGNA (SARDINIA) (It.)
Sassari
Oristano
Cagliari
LIGURIAN SEA
TYRRHENIAN SEA
SPAIN
Gijón
Santander
Bilbao
Vitoria
S. Sebastián
Pamplona
León
Burgos
Valladolid
Zaragoza (Saragossa)
Lérida
PYRENEES
Barcelona
Salamanca
Madrid
Tortosa
Toledo
Castellón
Valencia
Albacete
Alcoy
Alicante
Linares
Murcia
Lorca
Cartagena
Almería
MENORCA
MALLORCA
Palma
ISLAS BALEARES (BALEARIC ISLANDS)
MEDITERRANEAN
Alger (Algiers)
Oran
Constantine
Philippeville
Bône
Tunis
Trapani
PANTELLERIA (It.)
Longitude East from Greenwich
0
10
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40

20
30
60
50
40
20
FINLAND
Kokkola
Vaasa
Kristinestad
Kuopio
Joensuu
Mikkeli
Pori
Tampere
Kotka
Usikaupunki
Turku
Åbo
Helsinki
Helsingfors
Hanko
Gulf of Finland
Petrozavodsk
Lake Onega
Vytegra
Sortavala
Olonets
Lake Ladoga
Viipuri
Viborg
Leningrad
Narva
Chudovo
Novgorod
Ilmen L.
Bologoe
VALDAI HILLS
Kalinin
Lake Peipus
Pskov
Tallinn
(Reval)
ESTONIA
Tartu
(Dorpat)
Vannas
Umeå
Örnsköldsvik
Härnösand
Sundsvall
Hudiksvall
EDEN
Bollnäs
Söderhamn
GULF OF B
ÅLAND ISLANDS
Gävle
Avesta
Uppsala
Örebro
Stockholm
Norrköping
Linköping
Jönköping
Kalmar
Karlskrona
GOTLAND
ÖLAND
SAARE
Gulf of Riga
BALTIC SEA
BORNHOLM
(Den.)
LATVIA
Riga
Jelgava
Daugavpils
Liepāja
(Libau)
Klaipėda
(Memel)
LITHUANIA
Niemen
Kaunas
(Kovno)
Wilno
(Vilna)
SOVIET
UNION
Moskva
(Moscow)
Rzhev
Vitebsk
Smolensk
Polotsk
Orsha
Borisov
Mogilev
Minsk
WHITE
RUSSIA
Bobruisk
Bryansk
Gomel
Dnepr
Chernigov
Konotop
Priluki
Pinsk
Pripyat
Brest Litovsk
Grodno
Białystok
Königsberg
Danzig
RÜGEN
Stettin
Bydgoszcz
Toruń
Łomża
Włocławek
Wisła
Poznań
(Posen)
Warszawa
(Warsaw)
Łódź
Kalisz
POLAND
Radom
Lublin
Kielce
Breslau
Częstochowa
Katowice
Sosnowiec
Kraków
Przemyśl
Lwów
(Lemberg)
Równe
Zhitomir
Kiev
UKRAINE
Cherkassy
Vinnitsa
Uman
Tarnopol
Stanisławów
Mogilev
Dnestr
Balta
Kishinev
BESSARABIA
Prut
Odessa
Mouths of the Danube
CARPATHIAN MTS.
Praha
(Prague)
Plzeň
CZECHOSLOVAKIA
Mor. Ostrava
Brno
(Brünn)
Košice
Černăuţi
Bratislava
Linz
Wien
(Vienna)
Budapest
STRIA
Graz
HUNGARY
Kecskemét
Szeged
Subotica
Debrecen
Oradea
Satu Mare
Iaşi
(Jassy)
Cluj
TRANSYLVANIA
Arad
ROMANIA
Timişoara
Braşov
TRANSYLVANIAN ALPS
Galaţi
Brăila
Ploeşti
Bucureşti
(Bucharest)
Constanţa
BLACK SEA
Drava
Zagreb
Trieste
Fiume
Venezia
(Venice)
Sava
Osijek
Novi Sad
Vel. Bečkerek
Beograd
(Belgrade)
Danube
Craiova
Ruse
(Ruschuk)
Varna
YUGOSLAVIA
Sarajevo
Kragujevac
Zara
Split
Niš
BALKAN MTS.
Pleven
Stara Zagora
Sliven
Burgas
Sofiya
(Sofia)
BULGARIA
Plodiv
(Philippopolis)
Edirne
(Adrianople)
İstanbul
(Constantinople)
Sea of Marmara
Bursa
Dubrovnik
Skoplje
Kavalla
Shkodër
ALBANIA
Tiranë
Bitolj
Thessaloníki
(Salonika)
Mt. Olympus
SASENO
Dardanelles
Balikesir
TURKEY
Manisa
İzmir
(Smyrna)
Aydin
ADRIATIC SEA
Ancona
Perugia
Pescara
Aquila
Roma (Rome)
ALY
Foggia
Mt. Vesuvius
Bari
Napoli
(Naples)
Salerno
Taranto
Yanina
Lárisa
GREECE
AEGEAN SEA
MYTILENE
EVVOIA
Corfu
IONIAN SEA
IONIAN ISLANDS
Athínai
(Athens)
Patrai
CYCLADES
DODECANESE
RODI
(Rhodes)
Kalámai
Catanzaro
LIPARI IS.
Messina
Reggio
Strait of Messina
Palermo
SICILIA
(SICILY)
Catania
Siracusa
C. Passero
Malta Channel
MALTA
(Br.)
C. Matapan
Sea of Candia
KRÉTÉ
(CRETE)
Khania
Iraklion
(Candia)
ENIAN
SEA
ANEAN


THE FAEROES (Den.)
SHETLAND IS (Br.)
HEBRIDES
Glasgow
GREAT BRITAIN
N. I.
EIRE
London
North Sea
Eng. Chan.
Bay of Biscay
C. Finisterre
PORTUGAL
Lisboa
C. St. Vincent
Str. of Gibraltar
Madrid
SPAIN
Gibraltar (Br.)
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Paris
NETH.
BEL.
GERMANY
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Stockholm
SWED.
NOR.
Helsinki
FIN.
Tallinn
Baltic Sea
Riga
LAT.
LITH.
Kaunas
Danzig
DEN.
Berlin
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Warsaw
Dnep.
Kiev
CZECH.
Vienna
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SW.
Budapest
ROM.
Milan
Belgrade
Danube
BULG.
Istanb
ITALY
Rome
ALB.
GREECE
Athens
MEDITERRANEAN SEA
Alexandria
Madeira Is. (Port.)
Rabat
MOROCCO
Algier
Tunis
TUNISIA
Tripoli
Bengasi
Cairo
EGYPT
Canary Is. (Sp.)
Villa Cisneros
IFNI (Sp.)
RIO DE ORO (Sp.)
ALGERIA
SAHARA
LIBYA (It.)
Tropic of Cancer
C. Blanco
FRENCH WEST AFRICA
C. Verde
Dakar
Bathurst
PORT. GUINEA
SENEGAL
FRENCH SUDAN
Tombouctou
Niger
Chad
Sierra Leone
Monrovia
LIBERIA
FR. GUINEA
IVORY COAST
TOGO
G.C.
NIGERIA (Br.)
Lagos
FRENCH EQUAT. AFRICA
CAMEROONS (Fr. Mdt.)
Accra
Gulf of Guinea
RIO MUNI
Yaounde
ANGLO-EGYPTIAN SUDAN
Khartoum
Addis Ab
SÃO THOMÉ (Port.)
Brazzaville
Cabinda (Port.)
BELGIAN CONGO
Leopoldville
Tanganyika
Ascension I. (Br.)
St. Helena I. (Br.)
Benguela
ANGOLA (Port.)
Nova Lisboa
NOR. RHO.
Lusaka
C. Frio
SOUTH WEST AFRICA
Walvis Bay (U. of S. A.)
Windhoek
Salisbury
SOU. RHO.
BECH.
ATLANTIC OCEAN
Johannesburg
SOUTH AFRICA
Cape Town
C. of Good Hope
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Duina
Molotov
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C I A L I S T
R E P U B L I C S
Gorki
Sverdlovsk
Tomsk
Moskva
(Moscow)
Kazan
Omsk
Irtysh R.
Novosibirsk
Samara
Voronezh
Volga R.
Saratov
Stalingrad
KIRGHIZ STEPPE
L. Balkhash
Rostov
Aral Sea
Caspian Sea
Tashkent
Tiflis
Baku
SINKIANG
Samarkand
CHINA
Tehran
Baghdad
Kabul
AFGHAN-
ISTAN
TIBET
IRAQ
IRAN
(PERSIA)
Lahore
THE HIMALAYAS
Persian Gulf
Indus R.
New Delhi
Ganges R.
KUWAIT
SAUDI
Riyadh
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ARABIA
Masqat
Calcutta
Mecca
Ahmedabad
Bombay
Hyderabad
ARABIAN SEA
Gulf of Aden
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ADEN
Bay of Bengal
Asmara
Aden
GOA (Port.)
SOCOTRA I.
Berbera
Guardafui
BR. SOM.
C. Comorin
CEYLON
ETHIOPIA
(ABYSSINIA)
Colombo
MALDIVE IS. (Br.)
Equator
KENYA
Mogadiscio
Nairobi
I N D I A N
Mombasa
SEYCHELLES IS. (Br.)
Zanzibar (Br.)
AFRICAN IS (Br.)
CHAGOS IS.
Dar es Salaam
AMIRANTE IS (Br.)
COMORO IS. (Fr.)
O C E A N
MADAGASCAR
Tananarive
RODRIGUEZ IS. (Br.)
MAURITIUS I. (Br.)
RÉUNION I. (Fr.)
Mozambique Channel
Tropic of Capricorn
C. Ste Marie
AFRICA
and parts of
EUROPE AND ASIA
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