

Inductance, capacity and resistance—The capacity, inductance and resistance of transmission lines are linear functions, and are computed in terms of unit length. Except as noted, the symbols are the same as before.

Concentric and coaxial conductors:

$$L = 0.14 \log \frac{b}{a} \mu\text{h./ft.}$$

$$C = \frac{7.35}{\log \frac{b}{a}} \mu\text{fd./ft.}$$

$$R = \frac{\sqrt{f}}{2a} \text{ microhms/ft.}$$

where f is the operating frequency in cycles.

Parallel conductors:

$$L = 0.279 \log \frac{D}{a} \mu\text{h./ft.}$$

$$C = \frac{3.66}{\log \frac{D}{a}} \mu\text{fd./ft.}$$

$$R = \frac{\sqrt{f}}{a} \text{ microhms/ft.}$$

Reactance, resonant impedance and Q —

For lines less than one-quarter of a wavelength long at the operating frequency,

$$X_L = Z_0 \tan \frac{360^\circ l}{\lambda}$$

where l is the length of the line and λ is one wavelength at the operating frequency (both measured in the same units).

To tune such a line to resonance, capacitive reactance equal to the inductive reactance must be connected across the line. The capacity required to tune a given line to resonance is

$$C = \frac{1}{Z_0 \tan \frac{360^\circ l}{\lambda}}$$

The parallel-resonant or input (sending-end) impedance of the line is

$$Z_s = \frac{X_L^2}{R} = \frac{L}{RC} = X_L Q$$

For high parallel-resonant impedance (maximum gain), the b/a or D/a ratio should be made between 6 and 12.

The Q of a resonant line is

$$Q = \frac{2\pi f L}{R} = \frac{1}{R} \sqrt{\frac{L}{C}}$$

For high Q (maximum selectivity) the b/a or D/a ratio should be made between 2.5 and 5. Where the conductor spacing is within these limits,

$$Q = 0.22 b \sqrt{f}$$

as an approximation within ± 10 per cent.

Table of Dielectric Constants

Dielectric	K	Power factor ¹	Puncture voltage ²
Air (normal pressure)...	1.0	—	19.8–22.8
Amber.....	2.0	0.2–0.5	—
Asphalts.....	2.7–3.1	2.3 ³	25–30
Bakelite — See Phenol			
Beeswax.....	2.9–3.2	—	—
Casein plastics ⁴	6.1–6.4	5.2–6	165
Castor oil.....	4.3–4.7	7	380
Celluloid.....	4–16	5–10	—
Cellulose acetate ⁵	6–8	3–6	300–800
Cellulose nitrate ⁶	4–7	2.8–5	300
Ceresin wax.....	2.5–2.6	0.12–0.21	—
Enamel (wire covering).....	—	—	500–750
Fibre.....	5–7.5	4.5–5	150–180
Glass:			
Cobalt.....	7.3	0.7	—
Common window.....	7.6–8	1.4	200–250
Crown.....	6.2–7	1 ³	500
Electrical.....	4–5	0.5	2000
Flint.....	7–10	0.4	—
Nonex.....	4.2	0.25	—
Photographic.....	7.5	0.8–1	—
Plate.....	6.8–7.6	0.6–0.8	—
Pyrex.....	4.5	0.7	335
Gutta percha.....	2.5–4.9	—	200–500
Lucite ⁷	2.5–3	1.5–3	500
Mica.....	2.5–8	1–6	—
Mica (clear India).....	6.4–7.3	1–2	600–1500
Mycalex.....	6–8	0.2–0.3	250
Nylon.....	3.6	2.2	—
Paper.....	2.0–2.6	—	1250
Paraffin wax (solid).....	1.9–2.6	0.1–0.3	300
Phenol: ⁸			
Pure.....	5	1	400–475
Asbestos base.....	7.5	15	90–150
Black molded.....	5–5.5	3.5	400–500
Fabric base.....	5–6.5	3.5–11	150–500
Mica-filled.....	5–6	0.8–1	475–600
Paper base.....	3.8–5.5	2.5–4	650–750
Yellow.....	5.3–5.4	0.36–0.7	500
Polystyrene ⁹	2.4–2.9	0.02	500
Porcelain (dry process).....	6.2–7.5	0.7–15	40–100
Porcelain (wet process).....	6.5–7	0.6	150
Pressboard (untreated).....	2.9–4.5	—	125–300
Pressboard (oiled).....	5	—	750
Quartz (fused).....	4.2–5.1	0.015–0.03	200
Rubber (hard) ¹⁰	2–3.5	0.5–1	450
Shellac.....	2.5–4	0.09	900
Steatite ¹¹	6.1	0.06–0.2	150–315
Titanium dioxide ¹²	90–170	0.1	—
Urea formaldehyde ¹³	5–7	2–4	300–400
Varnished cloth ¹⁴	2–2.5	2–3	440–550
Vinyl resins.....	4	1.4–1.7	400–500
Vitrolux.....	6.4	0.3	—
Wood (dry oak).....	2.5–6.8	3.85	—
Wood (paraffined maple).....	4.1	—	115

¹ At 1 Mc.

² In kilovolts per inch. Most data applies to relatively thin sections and cannot be multiplied directly to give breakdown for thicker sections without added safety factor.

³ At 1 kc.

⁴ Includes such products as Aladdin, Ameroid, Galalith, Erinoid, Lactoid, etc.

⁵ Includes Fibestas, Lumerith, Nixonite, Plastacele, Tenite, etc.

⁶ Includes Amerith, Nitron, Nixonoid, Pyralin, etc.

⁷ Methylmethacrylate resin.

⁸ Phenolaldehyde products include Acrolite, Bakelite, Catalin, Celeron, Dielecto, Durez, Durite, Formica, Gemstone, Heresite, Indur, Makalot, Marblette, Micarta, Opalon, Prystal, Resinox, Synthane, Textolite, etc. Yellow bakelite is so-called "low-loss" bakelite.

⁹ Includes Amphphenol 912A, Distrene, Intelin IN 45, Loalin, Lustron, QuartzQ, Rezoglas, Rhodolene M, Ronilla L, Styraflex, Styron, Trolitul, Vietron, etc.

¹⁰ Also known as Ebonite.

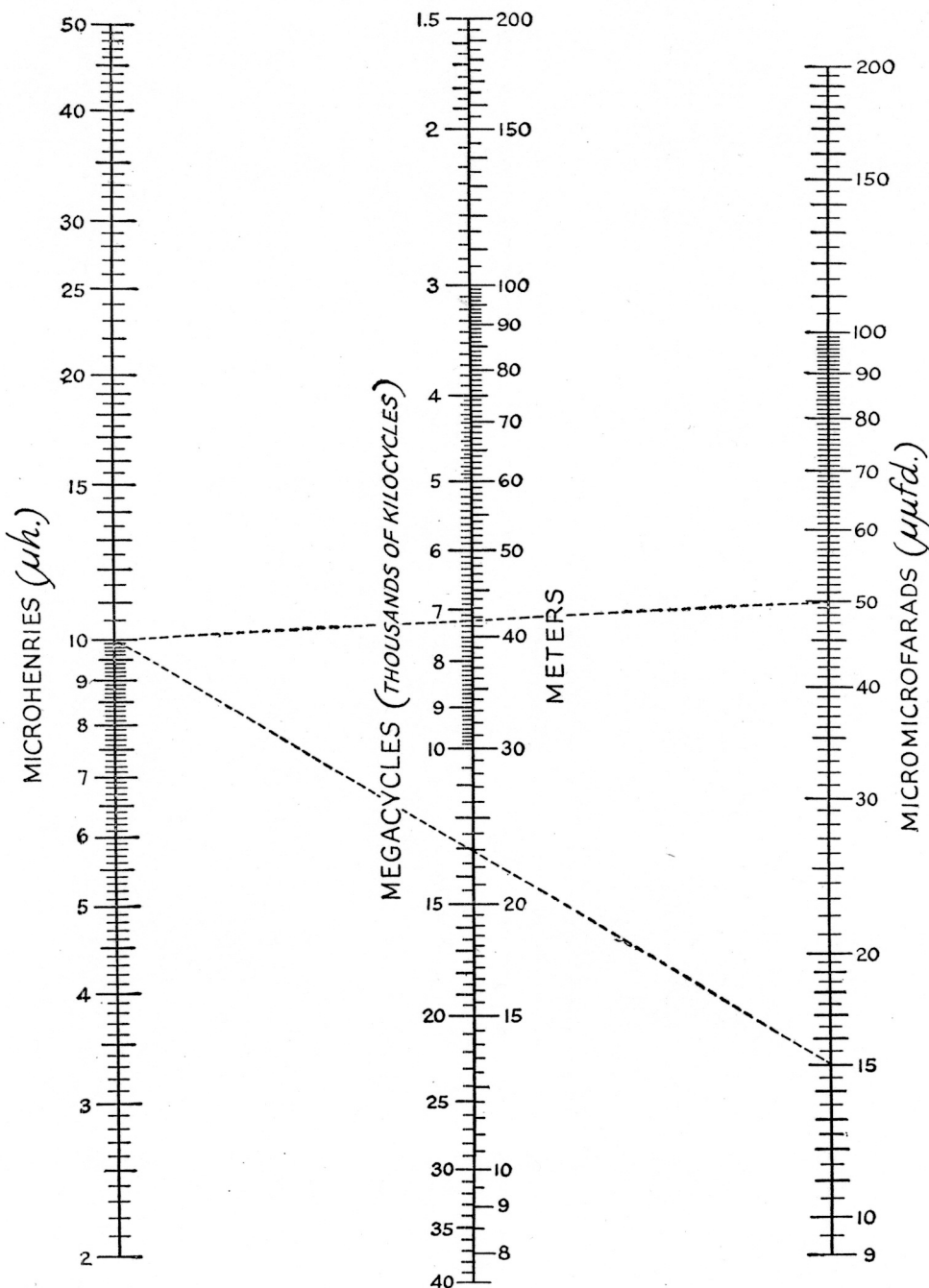
¹¹ Soapstone — Alberene, Alsimag, Isolantite, Lava, etc.

¹² Rutile. Used in low temperature-coefficient fixed condensers.

¹³ Includes Aldur, Beetle, Plaskon, Pollopas, Prystal, etc.

¹⁴ Includes Empire cloth.

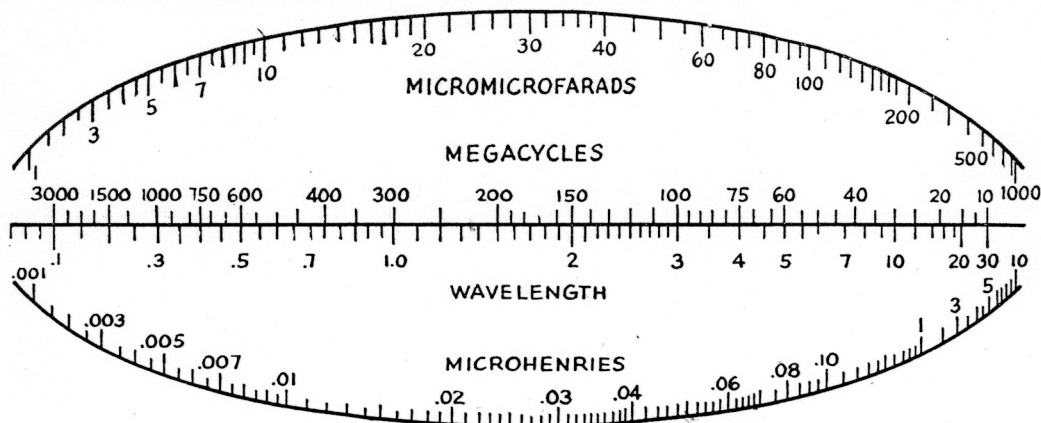
INDUCTANCE, CAPACITY AND FREQUENCY — CHART I, 1.5–30 MC.



This chart may be used to find the values of inductance and capacity required to resonate at any given frequency in the medium- or high-frequency ranges; or, conversely, to find the frequency to which any given coil-condenser combination will tune. In the example shown by the dashed lines, a condenser has a minimum capacity of 15 $\mu\mu fd$ and a maximum capacity of 50 $\mu\mu fd$. If it is to be used with a coil of 10- $\mu h.$ inductance, what frequency range will be covered? The straight-edge is connected between 10 on the left-hand scale and 15 on the right, giving 13 Mc. as the high-frequency limit. Keeping the straight-edge at 10 on the left-hand scale, the other end is swung to 50 on the right-hand scale, giving a low-frequency limit of 7.1 Mc. The tuning range would, therefore, be from 7.1 Mc. to 13 Mc., or 7100 kc. to 13,000 kc. The center scale also serves to convert frequency to wavelength.

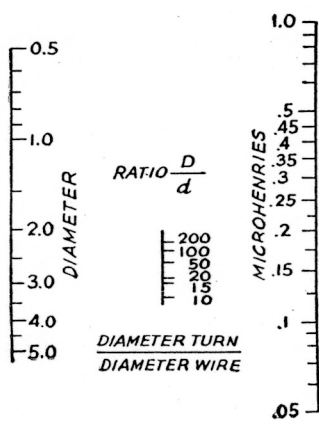
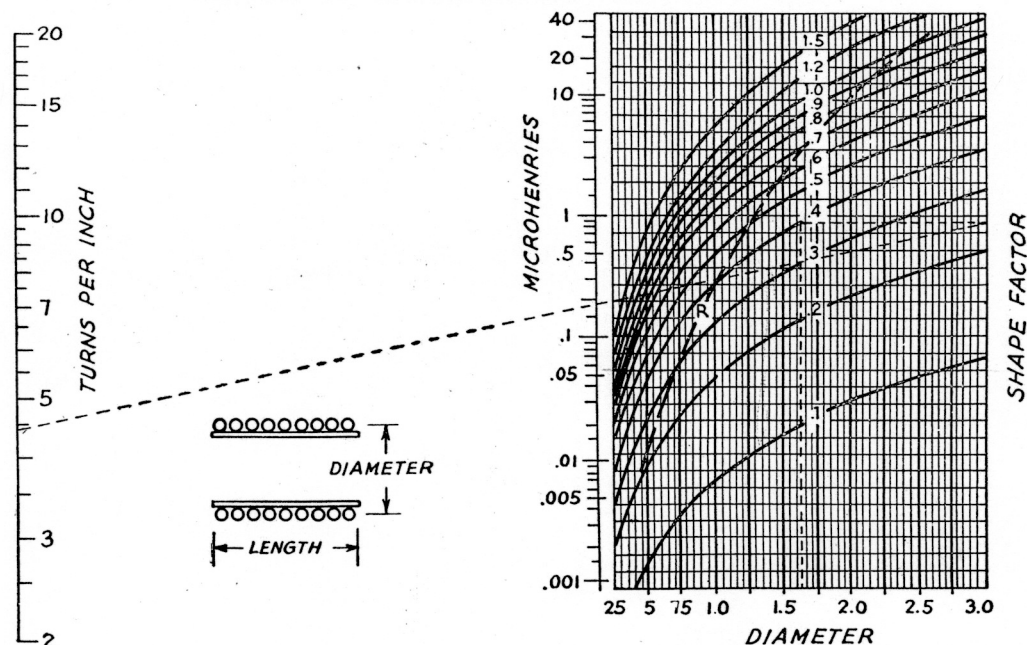
The range of the chart can be extended by multiplying each of the scales by 0.1 or 10. In the example above, if the capacities are 150 and 500 $\mu\mu fd$. and the inductance 100 $\mu h.$, the range becomes approximately 231 to 422 meters or 0.7 to 1.3 Mc. Alternatively, 1.5 to 5 $\mu\mu fd$. and 1 $\mu h.$ will give a range of approximately 71 to 130 Mc.

INDUCTANCE, CAPACITY AND FREQUENCY — CHART II, 30-300 MC.



The chart above is an extension of the chart on the facing page, by means of which the same values of L , C and F can be found for the very-high- and ultrahigh-frequency ranges. It is used in the same manner as Chart I.

INDUCTANCE DESIGN CHARTS FOR V.H.F. COILS



The charts on this page, prepared by Ralph R. Batcher, make possible the design of small coils for very-high frequency use with reasonable accuracy. The inductance of coils with two or more turns, or the dimensions required for a given value of inductance, may be determined from the chart above. The inductance of single-turn coils or loops can be obtained from the chart at the left.

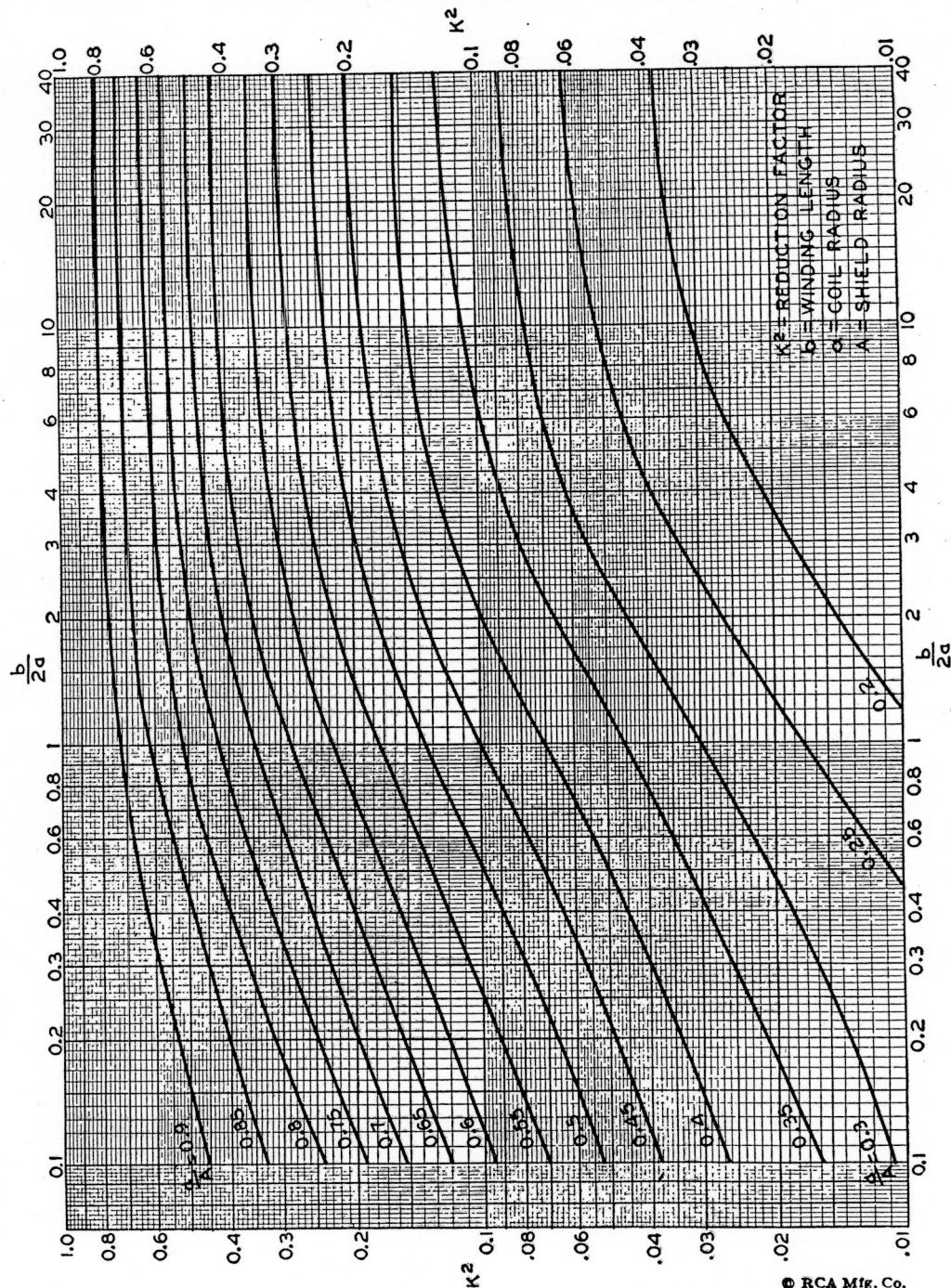
To find the inductance of a given coil from the chart above, first locate the diameter in inches on the abscissa at the bottom. Draw a vertical line upward to intersect the curved scale corresponding to the length in inches. From this intersection project a line at right angles to locate the "shape factor" on the right-hand ordinate. Draw a line from this point to the "turns per inch" scale at the left; the point where this line crosses the "microhenries" scale is the inductance of the coil. In the example shown by the dashed lines, a coil of 1 3/4-inch diameter wound with 1 3/4 turns, 0.4 inches long, or 4.4 turns per inch, has an inductance of approximately 0.18 μ h.

To find the inductance of a single-turn coil or loop, draw a line from the diameter scale on the chart at the left through the point on the center scale which corresponds to the ratio of turn diameter to conductor diameter. The point where this line crosses the "microhenries" scale will give the inductance. Thus, a 2-inch loop of No. 12 wire has an inductance of approximately 0.11 μ h.

In computing dimensions, the diameter of the coil is taken between centers of turns (diameter of form plus diameter of wire), while the length is the overall length of the coil (number of turns times distance between centers).

Courtesy Electronic Industries

EFFECT OF COIL SHIELDS ON INDUCTANCE



Enclosing a coil in a shield decreases the inductance of the coil (§ 2-11). Considering the shield as a single turn having low resistance compared to its reactance, the following formula gives the actual inductance of the coil within the shield: $L = L_a(1 - K^2)$, where L is the desired inductance, L_a is the inductance of the coil outside the shield, and K^2 is a factor from the chart above. b — length of winding of coil; a — radius of coil; A — radius of shield. The curves are sufficiently accurate for all practical purposes throughout the range shown when the length of the shield is greater than that of the coil by at least the radius of the coil. If the shield can is square instead of circular, A may be taken as 0.6 times the width of one side. The reduction factor, K^2 , is plotted against $b/2a$ (ratio of length to diameter of coil), for a series of values of a/A , the ratio of coil radius to shield radius (or coil diameter to shield diameter). The reduction in inductance does not become serious with coils of $b/2a$ ratios of 2 or less, until the shield diameter becomes less than twice the coil diameter. With an a/A ratio of 0.5, the reduction will be of the order of 15 per cent.

COPPER WIRE TABLE

Gauge No. B. & S.	Diam. in Mils. ¹	Circular Mil Area	Turns per Linear Inch ²			Turns per Square Inch ²			Feet per Lb.		Ohms per 1000 ft. 25° C.	Current Carrying Capacity at 1500 C.M. per Amp. ³	Diam. in mm.	Nearest British S.W.G. No.
			Enamel	S.C.C.	D.S.C. or S.C.C.	D.C.C.	S.C.C.	Enamel S.C.C.	Bare	D.C.C.				
1	289.3	83690	—	—	—	—	—	—	3.947	—	.1264	55.7	7.348	1
2	257.6	66370	—	—	—	—	—	—	4.977	—	.1593	44.1	6.544	3
3	229.4	52640	—	—	—	—	—	—	6.276	—	.2009	35.0	5.827	4
4	204.3	41740	—	—	—	—	—	—	7.914	—	.2533	27.7	5.189	5
5	181.9	33100	—	—	—	—	—	—	9.980	—	.3195	22.0	4.621	7
6	162.0	26250	—	—	—	—	—	—	12.58	—	.4028	17.5	4.115	8
7	144.3	20820	—	—	—	—	—	—	15.87	—	.5080	13.8	3.665	9
8	128.5	16510	—	—	—	—	—	—	20.01	—	.6405	11.0	3.264	10
9	114.4	13090	7.6	8.2	7.4	—	—	—	25.23	19.6	.8077	8.7	2.906	11
10	101.9	10380	8.6	9.3	8.4	—	87.5	84.8	31.82	30.9	1.018	6.9	2.588	12
11	90.74	8234	10.7	10.3	9.3	—	110	105	40.12	38.8	1.284	5.5	2.305	13
12	80.81	6530	12.0	11.5	10.9	—	136	131	50.59	48.9	1.619	4.4	2.053	14
13	71.96	5178	13.5	12.8	12.0	—	170	162	63.80	61.5	2.042	3.5	1.828	15
14	64.08	4107	15.0	14.2	13.8	—	211	198	80.44	77.3	2.575	2.7	1.628	16
15	57.07	3257	16.8	15.8	14.7	—	262	250	101.4	97.3	3.247	2.2	1.450	17
16	50.82	2583	18.9	17.9	16.4	—	321	306	127.9	119	4.094	1.7	1.291	18
17	45.26	2048	21.2	19.9	18.1	—	397	372	161.3	150	5.163	1.3	1.150	19
18	40.30	1624	23.6	22.0	20.4	—	493	454	205.4	188	6.510	1.1	1.024	20
19	35.89	1288	26.4	24.4	22.4	—	592	553	256.5	237	8.210	.86	.9116	21
20	31.96	1022	29.4	27.0	24.8	—	775	725	323.4	298	10.35	.68	.8118	22
21	28.46	810.1	33.1	30.5	28.1	—	940	895	407.8	370	13.05	.54	.7230	23
22	25.35	642.4	37.0	34.1	30.0	—	1150	1070	514.2	461	16.46	.43	.6438	24
23	22.57	509.5	41.3	40.6	37.6	—	1400	1300	648.4	584	20.76	.34	.5733	25
24	20.10	404.0	46.3	45.3	41.5	—	1700	1570	817.7	745	26.17	.27	.5106	26
25	17.90	320.4	51.7	50.4	45.6	—	2060	1910	1031	903	33.00	.21	.4547	27
26	15.94	254.1	58.0	55.6	50.2	—	2500	2300	1300	1118	41.62	.17	.4049	28
27	14.20	201.5	64.9	61.5	55.0	—	3030	2780	1639	1422	52.48	.13	.3606	29
28	12.64	159.8	72.7	68.6	60.2	—	3670	3350	2067	1759	66.17	.11	.3211	30
29	11.26	126.7	81.6	74.8	65.4	—	4300	3900	2607	2207	83.44	.084	.2859	31
30	10.03	100.5	90.5	83.3	71.5	—	5040	4660	3287	2534	105.2	.067	.2546	32
31	8.928	79.70	101	92.0	77.5	—	5920	5280	4145	2768	132.7	.053	.2268	33
32	7.950	63.21	113	101	83.6	—	7060	6250	5227	3137	167.3	.042	.2019	34
33	7.080	50.13	127	110	90.3	—	8120	7360	6591	4697	211.0	.033	.1798	35
34	6.305	39.75	143	120	97.0	—	9600	8310	8310	6168	266.0	.026	.1601	36
35	5.615	31.52	158	132	104	—	10900	8700	10480	6737	335.0	.021	.1426	37
36	5.000	25.00	175	143	111	—	12200	10700	13210	7877	423.0	.017	.1270	38
37	4.453	19.83	198	154	118	—	—	—	16660	9309	533.4	.013	.1131	39
38	3.965	15.72	224	166	126	—	—	—	21010	10666	672.6	.010	.1007	40
39	3.531	12.47	248	181	133	—	—	—	26500	11907	848.1	.008	.0897	41
40	3.145	9.88	282	194	140	—	—	—	33410	14222	1069	.006	.0799	42

1 A mil is 1/1000 (one thousandth) of an inch.
 2 The figures given are approximate only, since the thickness of the insulation varies with different manufacturers.
 3 The current-carrying capacity at 1000 C.M. per ampere is equal to the circular-mil area (Column 3) divided by 1000.

Current Capacity of Power Wiring

The National Board of Fire Underwriters has established the following as maximum current densities for commonly-used sizes of copper wire in electrical power circuits:

Gauge No. B. & S.	Circular Mil Area	Amperes	
		Rubber Insulation	Other Insulation
1	83690	100	150
2	66370	90	125
4	41740	70	90
6	26250	50	70
8	16510	35	50
10	10380	25	30
12	6530	20	25
14	4107	15	20
16	2583	6	10
18	1624	3	6

Relative Electrical Conductivity of Metals at Ordinary Temperatures

(Based on Copper as 100)

Aluminum (2S; pure) 59	Iron (cast).....	2-12
Aluminum (alloys):	Iron (wrought).....	11.4
Soft-annealed..... 45-50	Lead.....	7
Heat-treated..... 30-45	Manganin.....	3.7
Brass..... 28	Mercury.....	1.66
Cadmium..... 19	Molybdenum.....	33.2
Chromium..... 55	Monel.....	4
Climax..... 1.83	Nichrome.....	1.45
Cobalt..... 16.3	Nickel.....	12-16
Constantin..... 3.24	Phosphor Bronze...	36
Copper (hard drawn) 89.5	Platinum.....	15
Copper (annealed) 100	Silver.....	106
Everdur..... 6	Steel.....	3-15
German Silver (18%) 5.3	Tin.....	13
Gold..... 65	Tungsten.....	28.9
Iron (pure)..... 17.7	Zinc.....	28.2

Approximate relations:

- An increase of 1 in A. W. G. or B. & S. wire size increases resistance 25%.
- An increase of 2 increases resistance 60%.
- An increase of 3 increases resistance 100%.
- An increase of 10 increases resistance 10 times.

RMA Radio Color Codes

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

Resistors and condensers:

For identification of resistance and capacitance values of small carbon-type resistors and midget mica condensers, numbers are represented by the following colors:

0 — Black	5 — Green
1 — Brown	6 — Blue
2 — Red	7 — Violet
3 — Orange	8 — Gray
4 — Yellow	9 — White

Three colors are used on each resistor to identify its value. The body color represents the first figure of the resistance value; one

end or tip is colored to represent the second figure; a colored band or dot near the center of the resistor gives the number of zeros following the first two figures. A 25,000-ohm resistor, for example, would be marked as follows: body, red (2); tip, green (5); band, orange (3 zeros).

Small mica condensers usually are marked with three colored dots, with an arrow or other symbol indicating the sequence of colors. Readings are in micromicrofarads ($\mu\mu\text{fd.}$), with the color code as above. For example, a 0.00025- $\mu\text{fd.}$ (250- $\mu\mu\text{fd.}$) condenser would be marked as follows: red (2), green (5), brown (1 zero).

I.f. transformers:

Blue — plate lead.

Red — "B" + lead.

Green — grid (or diode) lead.

Black — grid (or diode) return.

NOTE: If the secondary of the i.f.t. is center-tapped, the second diode plate lead is green-and-black striped, and black is used for the center-tap lead.

A.f. transformers:

Blue — plate (finish) lead of primary.

Red — "B" + lead (this applies whether the primary is plain or center-tapped).

Brown — plate (start) lead on center-tapped primaries. (Blue may be used for this lead if polarity is not important.)

Green — grid (finish) lead to secondary.

Black — grid return (this applies whether the secondary is plain or center-tapped).

Yellow — grid (start) lead on center-tapped secondaries. (Green may be used for this lead if polarity is not important.)

NOTE: These markings apply also to line-to-grid, and tube-to-line transformers.

Loudspeaker voice coils:

Green — finish.

Black — start.

Field coils:

Black and red — start.

Yellow and red — finish.

Slate and Red — tap (if any).

Power transformers:

1) Primary Leads.....Black

If tapped:

Common.....Black

Tap.....Black and Yellow Striped

Finish.....Black and Red Striped

2) High-Voltage Plate Winding.....Red

Center-Tap...Red and Yellow Striped

3) Rectifier Filament Winding.....Yellow

Center-Tap..Yellow and Blue Striped

4) Filament Winding No. 1.....Green

Center-Tap..Green and Yellow Striped

5) Filament Winding No. 2.....Brown

Center-Tap..Brown and Yellow Striped

6) Filament Winding No. 3.....Slate

Center-Tap...Slate and Yellow Striped

Standard Metal Gauges

Gauge No.	American or B. & S. ¹	U. S. Standard ²	Birmingham or Stubs ³
1	.2893	.28125	.300
2	.2576	.265625	.284
3	.2294	.25	.259
4	.2043	.234375	.238
5	.1819	.21875	.220
6	.1620	.203125	.203
7	.1443	.1875	.180
8	.1285	.171875	.165
9	.1144	.15625	.148
10	.1019	.140625	.134
11	.09074	.125	.120
12	.08081	.109375	.109
13	.07196	.09375	.095
14	.06408	.078125	.083
15	.05707	.0703125	.072
16	.05082	.0625	.065
17	.04526	.05625	.058
18	.04030	.05	.049
19	.03589	.04375	.042
20	.03196	.0375	.035
21	.02846	.034375	.032
22	.02535	.03125	.028
23	.02257	.028125	.025
24	.02010	.025	.022
25	.01790	.021875	.020
26	.01594	.01875	.018
27	.01420	.0171875	.016
28	.01264	.015625	.014
29	.01126	.0140625	.013
30	.01003	.0125	.012
31	.008928	.0109375	.010
32	.007950	.01015625	.009
33	.007080	.009375	.008
34	.006350	.00859375	.007
35	.005615	.0078125	.005
36	.005000	.00703125	.004
37	.004453	.006640625	
38	.003965	.00625	
39	.003531		
40	.003145		

¹ Used for aluminum, copper, brass and non-ferrous alloy sheets, wire and rods.

² Used for iron, steel, nickel and ferrous alloy sheets, wire and rods.

³ Used for seamless tubes; also by some manufacturers for copper and brass.

Metric Prefixes

μ	$\frac{1}{1,000,000}$	One-millionth	micro-
m	$\frac{1}{1,000}$	One-thousandth	milli-
c	$\frac{1}{100}$	One-hundredth	centi-
d	$\frac{1}{10}$	One-tenth	deci-
	1	One	uni-
dk	10	Ten	deka-
h	100	One hundred	hekto-
k	1,000	One thousand	kilo-
	10,000	Ten thousand	myria-
M	1,000,000	One million	mega-

Multiples and Sub-Multiples

Ampere	= 1,000,000 microamperes
Ampere	= 1,000 milliamperes
Cycle	= 0.000,001 megacycle
Cycle	= 0.001 kilocycle
Farad	= 1,000,000,000,000 micro-microfarads
Farad	= 1,000,000 microfarads
Farad	= 1,000 millifarads
Henry	= 1,000,000 microhenrys
Henry	= 1,000 millihenrys
Kilocycle	= 1,000 cycles
Kilovolt	= 1,000 volts
Kilowatt	= 1,000 watts
Megacycle	= 1,000,000 cycles
Megohm	= 1,000,000 ohms
Mho	= 1,000,000 micromhos
Mho	= 1,000 millimhos
Microampere	= 0.000,001 ampere
Microfarad	= 0.000,001 farad
Microhenry	= 0.000,001 henry
Micromho	= 0.000,001 mho
Micro-ohm	= 0.000,001 ohm
Microvolt	= 0.000,001 volt
Microwatt	= 0.000,001 watt
Micromicrofarad	= 0.000,000,000,001 farad
Micromicro-ohm	= 0.000,000,000,001 ohm
Milliampere	= 0.001 ampere
Millihenry	= 0.001 henry
Millimho	= 0.001 mho
Milliohm	= 0.001 ohm
Millivolt	= 0.001 volt
Milliwatt	= 0.001 watt
Volt	= 1,000,000 microvolts
Volt	= 1,000 millivolts
Watt	= 1,000,000 microwatts
Watt	= 1,000 milliwatts
Watt	= 0.001 kilowatt

Decimal Equivalents of Fractions

1/32	.03125	17/32	.53125
1/16	.0625	9/16	.5625
3/32	.09375	19/32	.59375
1/8	.125	5/8	.625
5/32	.15625	21/32	.65625
3/16	.1875	11/16	.6875
7/32	.21875	23/32	.71875
1/4	.25	3/4	.75
9/32	.28125	25/32	.78125
5/16	.3125	13/16	.8125
11/32	.34375	27/32	.84375
3/8	.375	7/8	.875
13/32	.40625	29/32	.90625
7/16	.4375	15/16	.9375
15/32	.46875	31/32	.96875
1/2	.5	1	1.0

Units of Length

English	Metric
1 mil = 0.001 inch	1 millimeter = 39.37 mils
= 0.0254 millimeter	
1 inch = 2.54 centimeters	1 centimeter = 0.3937 inch
	= 0.0328 foot
1 foot = 30.48 centimeters	1 meter = 3.28 feet
1 yard = 0.9144 meter	= 1.094 yards
1 mile = 1.6093 kilometers	1 kilometer = 0.6214 mile
1 micron = 10 ⁻⁶ meter	
= 0.0001 centimeter	
= 10,000 Angstrom units (A°)	
1 Angstrom = 10 ⁻¹⁰ meter	
= 10 ⁻⁸ centimeter	
= 0.0001 micron	

ABBREVIATIONS FOR ELECTRICAL AND RADIO TERMS

Alternating current	a.c.	Medium frequency	m.f.
Ampere (amperes)	a.	Megacycles (per second)	Mc.
Amplitude modulation	a.m.	Megohm	MΩ
Antenna	ant.	Meter	m.
Audio frequency	a.f.	Microfarad	μfd.
Centimeter	cm.	Microhenry	μh.
Continuous waves	c.w.	Micromicrofarad	μμfd.
Cycles per second	c.p.s.	Microvolt	μv.
Decibel	db.	Microvolt per meter	μv/m.
Direct current	d.c.	Microwatt	μw.
Electromotive force	e.m.f.	Milliampere	ma.
Frequency	f.	Millivolt	mv.
Frequency modulation	f.m.	Milliwatt	mw.
Ground	gnd.	Modulated continuous waves	m.c.w.
Henry	h.	Ohm	Ω
High frequency	h.f.	Power	P.
Intermediate frequency	i.f.	Power factor	p.f.
Interrupted continuous waves	i.c.w.	Radio frequency	r.f.
Kilocycles (per second)	kc.	Ultrahigh frequency	u.h.f.
Kilovolt	kv.	Very-high frequency	v.h.f.
Kilowatt	kw.	Volt (volts)	v.
Magnetomotive force	m.m.f.	Watt (watts)	w.

Symbols for Electrical Quantities

Admittance	Y, y
Angular velocity ($2\pi f$)	ω
Capacitance	C
Conductance	G, g
Conductivity	γ
Current	I, i
Difference of potential	E, e
Dielectric constant	K
Dielectric flux	Ψ
Energy	W
Frequency	f
Impedance	Z, z
Inductance	L
Magnetic intensity	H
Magnetic flux	Φ
Magnetic flux density	B
Magnetomotive force	F
Mutual inductance	M
Number of conductors or turns	N
Period	T
Permeability	μ
Phase displacement	θ
Power	P, p
Quantity of electricity	Q, q
Reactance	X, x
Reactance, Capacitive	X_c
Reactance, Inductive	X_L
Reluctivity	v
Resistance	R, r
Resistivity	ρ
Susceptance	b
Speed of rotation	n
Voltage	E, e
Work	W

Greek Alphabet

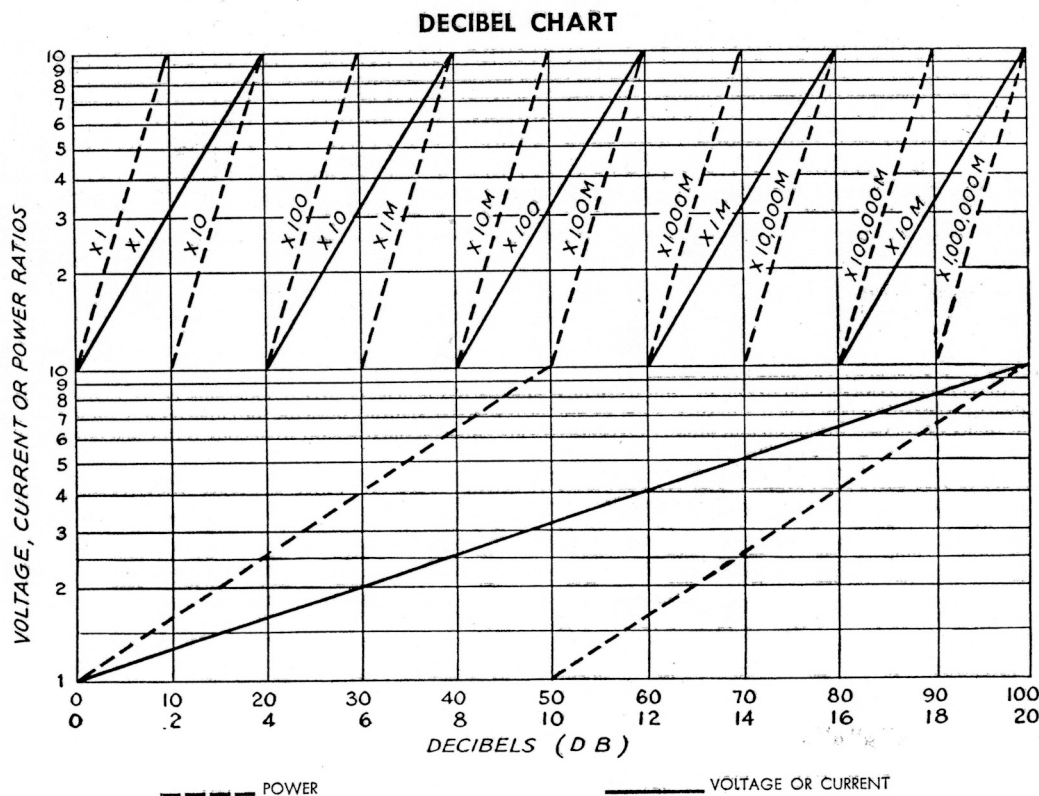
Since Greek letters are used to stand for many electrical and radio quantities, the names and symbols of the Greek alphabet with the equivalent English characters are given.

Greek Letter	Greek Name	English Equivalent
A α	Alpha	a
B β	Beta	b
Γ γ	Gamma	g
Δ δ	Delta	d
E ε	Epsilon	e
Z ζ	Zeta	z
H η	Eta	é
Θ θ	Theta	th
I ι	Iota	i
K κ	Kappa	k
Λ λ	Lambda	l
M μ	Mu	m
N ν	Nu	n
Ξ ξ	Xi	x
O ο	Omicron	δ
Π π	Pi	p
Ρ ρ	Rho	r
Σ σ	Sigma	s
T τ	Tau	t
Υ υ	Upsilon	u
Φ φ	Phi	ph
Χ χ	Chi	ch
Ψ ψ	Psi	ps
Ω ω	Omega	ō

Numerical Values

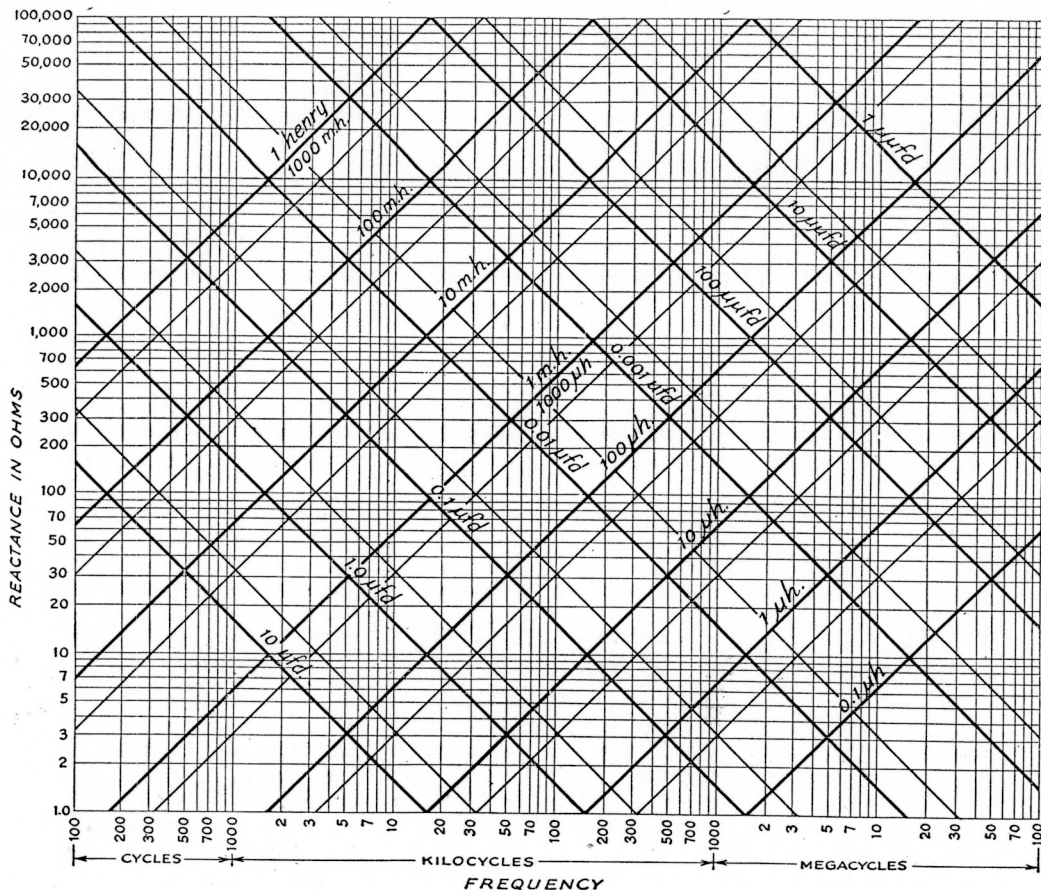
Area of circle = $(\pi/4) \times D^2 = 0.7854 D^2$
 Volume of sphere = $(\pi/6) \times D^3 = 0.5236 D^3$
 1 radian = $57^\circ 17' 44'' .8$
 = $57^\circ 17' .7468$
 = $57^\circ .29578$
 1° = 0.001745 radian

NOTE. — Small letters refer to instantaneous values.



The chart above is direct-reading in terms of decibels for all power, voltage or current ratios. The top scale goes from 0 to 100 db, and is useful for very large ratios; the lower scale permits closer reading between 0 and 20 db., or one cycle of the extended scale. Solid lines show voltage or current ratios; dotted lines, power ratios. To find db. gain, divide output power by corresponding input power and read db. value for this ratio, using the appropriate curve (i.e., " $\times 1$ " for ratios from 1 to 10, " $\times 10$ " for ratios from 10 to 100, " $\times 100$ " for ratios from 100 to 1000, and so on). To find db. loss, as where output is less than input, divide input value by output impedances are the same. Power, voltage and current values must be in the same units (watts, millivolts, microamperes, etc.).

INDUCTIVE AND CAPACITIVE REACTANCE VS. FREQUENCY CHART



By use of the chart above, the approximate reactance of any capacity from 1.0 $\mu\text{fd.}$ to 10 $\mu\text{fd.}$ at any frequency from 100 cycles to 100 megacycles, or the reactance of any inductance from 0.1 $\mu\text{h.}$ to 1.0 henry, can be read directly. Intermediate values can be estimated by interpolation. In making interpolations, remember that the rate of change between lines is logarithmic. Use the frequency or reactance scales as a guide in estimating intermediate values on the capacity or inductance scales.

This chart also can be used to find the approximate resonance frequencies of LC combinations, or the frequency to which a given coil and condenser will tune. First locate the respective slanting lines for the capacity and inductance. The point where they intersect, i.e., where the reactances are equal, is the resonant frequency (projected downward and read on the frequency scale).

TABLE OF REACTANCES AT COMMONLY USED AUDIO AND RADIO FREQUENCIES

X_C in Ohms at:						X_L in Ohms at:					
	2	4	8	12	16 $\mu\text{fd.}$		2	4	6	8	10 henries
60 cycles	1310	655	332	221	166	60 cycles	752	1500	2260	3000	3760
100 "	796	398	199	131	99.5	100 "	1260	2520	3770	5020	6280
400 "	199	99.5	49.7	33.2	24.9	400 "	5030	10500	15100	21000	25100
1000 "	79.6	39.8	19.9	13.1	9.95	1000 "	12600	25200	37700	50200	62800
5000 "	15.9	7.96	3.98	2.65	1.99	5000 "	62800	126000	188000	252000	314000
X_C in Ohms at:						X_L in Ohms at:					
	10	30	50	70	90 $\mu\text{fd.}$		20	40	60	80	100 $\mu\text{h.}$
100 kc.	159000	53100	31800	22700	17700	100 kc.	12.6	25.2	37.7	50.2	62.8
455 "	35000	11700	7000	5000	3890	455 "	57.2	114	171	228	286
1600 "	9960	3320	1990	1420	1110	1600 "	200	400	600	800	1000
1750 "	9100	3030	1820	1300	1010	1750 "	220	440	660	880	1100
2000 "	7960	2650	1590	1140	885	2000 "	252	504	756	1008	1260
5000 "	3180	1090	635	454	353	5000 "	628	1260	1880	2520	3140

To find reactance for other values of L or C , move the decimal point in the reactance figure to correspond with the difference in the L or C figure — to the left for increasing capacity and to the right for increasing inductance, and vice versa.

To find reactance for higher-frequency multiples, multiply the reactance figure by the multiple of the frequency, according to the sign of the reactance (i.e., multiply for inductive reactance; divide for capacitive reactance).

Example 1: The reactance of a 1000- $\mu\text{fd.}$ condenser at 1750 kc. is the value for 10 $\mu\text{fd.}$ with the decimal point moved two places to the left, or 91 ohms. At 7 Mc. the reactance of this condenser is its value at 1750 kc. divided by 4, or 22.8 ohms.

Example 2: The reactance of a 60-henry choke at 60 cycles is the value for 6 henries with the decimal moved one place to the right, or 22,600 ohms. At 120 cycles the reactance of this choke is its value at 60 cycles multiplied by 2, or 45,200 ohms.

VACUUM-TUBE RATINGS

The data in the classified tube tables on pages 443-472 are of two kinds — maximum ratings, and typical operating conditions.

As explained in §3-1, vacuum tubes are designed to be operated within definite maximum (and minimum) ratings. These ratings are the maximum safe operating voltages and currents for the electrodes, based on inherent limiting factors such as permissible cathode temperature, emission, and power dissipation in electrodes. In addition to the maximum ratings for each type performance data is given in the form of typical operating conditions showing applications and circuit-design considerations.

In the transmitting-tube tables, maximum ratings for electrode voltage, current and dissipation are given separately from the typical operating conditions for the recommended classes of operation. In the receiving-tube tables, because of space limitations, ratings and operating data are combined. Where only one set of operating conditions appears, the positive electrode voltages shown (plate, screen, etc.) are, in general, also the maximum rated voltages for those electrodes.

The maximum ratings are intended to apply under conditions of normal operation. In practice, power-supply or primary-source voltage fluctuations result in appreciable variation around the normal or designed operating con-

ditions. The maximum limits of these variations must be taken into account in the design of equipment. Recommended practice is to assume a "design-center voltage," which is the normal voltage supplied by the primary power source. The over-all design is made such that the maximum upward variation (design-maximum voltage) will not cause the maximum ratings of components to be exceeded, while operation at the design-minimum voltage will not result in impaired performance. The usual ranges of variation for the three common power sources are given in the following table.

Power-Supply Design Voltages

Source	Design-Center Voltage	Design-Minimum Voltage	Design-Maximum Voltage
"115-volt" a.c. power line ¹	117 ¹	105	130
"6-volt" storage battery.....	6	5.25	6.3 ²
	6.3 ³		7-8 ³
"1.5-volt" dry cell ⁴	1.4	1.1 ⁵	1.6

¹ Also applies to a.c.-d.c. equipment which may be operated from "110-volt" d.c. lines.

² Maximum terminal potential without load for fully charged battery with specific gravity of 1.300.

³ For storage battery connected to charger, as in automotive service. Maximum voltage will vary with system; equipment should be rated to withstand 7 volts continuously, 8 volts intermittently.

⁴ Values given are for filament operation. For "B" batteries, use standard rating as design-center voltage (45, 90, etc.); minimum and maximum voltages will be as shown multiplied by the number of cells.

⁵ In some types of equipment, design-minimum voltages can be carried as low as 0.9 volts per cell.

ARMY-NAVY PREFERRED LIST OF VACUUM TUBES

Receiving

Filament Volts	Diodes	Diode-Triodes	Triodes	Twin Triodes	Remote Pentodes	Sharp Pentodes	Rectifiers	Converters	Power	Indicators
1.4	1A3	1LH4	1G4GT	3A5 1291	1T4	1L4 1LN5 1S5		1LC6 1R5	3A4 3Q4 3Q5GT 1299	991
5.0							5U4G 5Y3GT			
6.3	6H6* 9006	6SQ7* 6SR7*	2C22 2C26 6C4 6J5* 1201 9002	6J6 6SL6GT 6SN7GT	6AG5 6AK5 6SG7* 6SK7* 9003	6AC7* 6AG7* 6SH7* 6SJ7* 9001	6X5GT 1005	6SA7*	6B4G 6G6G 6L6G 6N7GT 6V6GT 6Y6G	6E5
12.6	1246*	12SQ7* 12SR7*	12J5GT	12SL7GT 12SN7GT	12SG7* 12SK7*	12SH7* 12SJ7*		12SA7*	12A6*	1629

Transmitting

Triodes	Tetodes	Twin Tetodes	Pentodes
304TH	807	815	2E22
801-A	813	829	803
811	814	832	837
826	1625		
833-A			
838			
1626			
8005			
8025			

Miscellaneous

Rectifiers	Grid-Control Rectifiers	Voltage Regulators	Photo-tubes	Cathode-Ray
Vacuum	Gas			
2X2	4B25	394-A	VR90-30	918
3B24	83	884	VR105-30	927
5R4GY	866-A	2050	VR150-30	
73R	872-A	C1B		
371-A		C5B		
705-A				
836				
1616				
8020				

* Where direct interchangeability is assured, GT and L counterparts of the preferred metal types may be used.

VOLTAGE AMPLIFIERS, DETECTORS, OSCILLATORS					
Radiation m.v.	single unit	1G4-GT/G (1H4-G, 30)	27, 56, 483	(6C5, 6C5-GT/G), (6J5, 6J5-GT/G, 7A4), (6P5-G, 76), 6L5-G, 6AL5-GT/G, 3T,	12J5-GT
	twain unit	3A5*		6CB-G, 6H-G 6J6, 6SN7-G	12AH7-GT 12SN7-GT

	Cathode Volts	1.4	2.0	2.5 to 5.0	6.3	12.6 to 117
DIODE DETECTORS & RECTIFIERS						
Detectors	single	1A3				19H6 12Z3, 3Z23, 3Z24-GT/G, 35Z4-GS1/G, 45Z5-GT 45Z5-GT
	twin				1-v	39L7-GT, 70L7-GT, 117L M7-GT, 117N7-GT, 117P7-GT
	half-wave					12A7 25A3GT/G
Rectifiers						
	half-wave, with power pentode			(514, 5U4-G, 5Y4-G, 5Z4-G, (5W4) (5W4)	(6X5, 6X5-GT/G, 84), 6Y5, 6Z5, 6ZV5-G, 7Y4	
	full-wave			5W4-GT/G, 5Y3-GT/G, 5Y4-G, 80), (5Y4-G, 83-8)		
				mercury gas	0Z4-G.	
Rectifier-Doublers						
					Cold-Cathode Types: 0Z4, 0Z4-G.	(95Z6 25Z6-GT/G), 25Z5, 23Y5, 50Y6-GT/G, 50Z7-G, 117Z6-G/G/G
DIODE DETECTORS with AMPLIFIERS						
One Diode	with high-mu triode	(1H5-G, 1H5-GT), 1L4-G				
	with medium-mu triode, r-f pentode	3AB-GT*				
	with medium-mu triode, power pentode	TDB-GT				
	with pentode	155				
Two Diodes	with power pentode	1N6-G				
	with medium mu-triode	(1B5, 1H6-G)		55	(6SR7, 6R7, 6R7-G, 6R7-GT, 6S17, 6V7-G, 83), 6CT, 7E6	12SR7
	with high-mu triode			2A6	(6SQ7, 6SQ7-GT/G, 6Q7, 6Q7-G, 6Q7-GT, 6B6-G, 6I7-G, 75), 7B6, 7C6	(1RSQ7, 1G7-G, 12C7-G)
	with pentode	(1F7-G, 1F6)		2B7	(6B9, 6B9-G, 6B7, 6B7-S), 63P7, 7E7	12C8, 12SF7
CONVERTERS & MIXERS						
Pentagrid Converters		(1A7-G, 1A7-GT), RS 1B7-GT, 1LA6		2A7	(6SA7, 6SA7-GT/G, 6A8, 6A8-G, 6A8-GT, 6D8-G, 6A7, 6A7S), 7B8, 7Q7	(1PSA7, 1PSA7-GT/G, 12A8-G)
Triode-Hexode Converters					(6K8, 6K8-G, 6K8-GT), 6J8-G, 7J7	12K8
Triode-Hoplate Converters					1A3	
Oxide Converters					(6) 7, 6L7-G	

Pentagrid Mixers

VACUUM-TUBE CLASSIFIED DATA TABLES AND INDEX

In the tables on pages 443-472 will be found essential characteristics and typical operating data for all U. S.-made standard receiving, transmitting and special-purpose vacuum tubes on which data is available, classified by use. Base diagrams are shown on pages 437-442. For convenience in locating types whose essential characteristics are not known, the index below lists all types in numerical/alphabetical order with the page on which data is to be found.

TUBE NO.	PAGE	TUBE NO.	PAGE	TUBE NO.	PAGE	TUBE NO.	PAGE
00-A	454	2V3G	458	6D6	447	6Y7G	446
01-A	454	2W3	458	6D7	447	6Z3	458
0A4G	456	2X2	458	6D8G	445	6Z4	458
0B3/VR90-30	456	2Y2	458	6E5	447	6Z4 (84/6Z4)	459
0D3/VR150-30	456	2Z2	458	6E6	447	6Z5	458
0Z4	458	3A4	454, 469	6E7	447	6Z7G	446
1	458	3A5	454, 460	6E8G	445	6ZY5G	458
1A3	450	3A8GT	454	6F5	443	7A4	446
1A4P	449	3AP1/906-P1	456	6F6	443	7A5	446
1A4T	449	3AP4/906-P4	456	6F7	447	7A6	446
1A5G	450	3B5GT	454	6F8G	445	7A7	446
1A6	449	3B7/1291	451	6G5/6U5	447	7A8	446
1A7G	450	3BP1	456	6G6G	445	7AP4	457
1B4P/951	449	3C5GT	454	6H4GT	445	7B4	446
1B5/258	449	3D6/1299	451	6H5	447	7B5	446
1B7G	450	3EP1/1806-P1	457	6H6	443	7B6	446
1B8GT	450	3LE4	454	6H8G	445	7B7	446
1C5G	450	3LF4	454	6J5	443	7B8	446
1C6	449	3Q4	454	6J6	447, 454, 460	7C4/1203	455
1C7G	450	3Q5GT	454	6J7	443	7C5	446
1C21	456	3S4	454	6J8G	445	7C6	446
1D5GP	450	4A6G	454	6K5G	445	7C7	446
1D5GT	450	5AP1/1805-P1	457	6K6G	445	7CP1/1811-P1	457
1D7G	450	5AP4/1805-P4	457	6K7	443	7D7	446
1D8GT	450	5BP1/1802-P1	457	6K8	443	7E5 (1201)	455
1E4G	450	5RP4/1802-P4	457	6L5G	445	7E5/1221	448
1E5GP	450	5HP1 (5HP4)	457	6L6	443, 470	7E6	446
1E7G	450	5HP4 (5HP1)	457	6L6GX	470	7E7	446
1F4	449	5R4GY	458	6L7	443	7F7	446
1F5G	450	5T4	458	6M6G	445	7G7/1232	446
1F6	449	5U4G	458	6M7G	445	7H7	446
1F7GV	450	5V4G	458	6M8GT	445	7J7	446
1G4G	450	5W4	458	6N5	447	7K7	446
1G5G	450	5X3	458	6N6G	445	7L7	446
1G6G	450	5X4G	458	6N7	443	7N7	447
1H4G	450	5Y3G	458	6P5G	445	7Q7	447
1H5G	450	5Y4G	458	6P7G	445	7R7	447
1H6G	450	5Z3	458	6P8G	445	7S7	447
1J5G	450	5Z4	458	6Q6G	445	7T7	447
1J6G	450	6A3	447	6Q7	443	7V7	447
1LA	450	6A4	447	6R6G	445	7W7	447
1LA4	450	6A5G	444	6R7	443	7Y4	458
1LA6	450	6A6	447	6S6GT	445	7Z4	458
1LB4	450	6A7	447	6S7	443	9AP4/1804-P4	457
1LB6GL	450	6A8	443	6SA7	443	9CP4	457
1LC5	450	6AB5	447	6SC7	443	9JP1/1809-P1	457
1LC6	450	6AB6G	444	6SD7GT	445	10	454
1LD5	451	6AB7 (1853)	443	6SE7GT	445	10 (RK10)	460
1LE3	451	6AC5G	444	6SF5	443	11/12	454
1LH4	451	6AC6G	444	6SF7	443	12 (11/12)	454
1LN5	451	6AC7 (1852)	443	6SG7	444	12A5	452
1N5G	451	6AD5G	444	6SH7	444	12A6	452
1N6G	451	6AD6G	444	6SJ7	444	12A7	452, 458
1P5G	451	6AD7G	444	6SK7	444	12A8GT	452
1Q5G	451	6AE5G	445	6SL7GT	445	12A4HGT	452
1R4/1294	451	6AE6G	445	6SN7GT	445	12AP4/1803-P4	457
1R5	451	6AE7GT	445	6SQ7	444	12B6M	452
1S4	451	6AF5G	445	6SR7	444	12B7 (14A7/12B7)	452
1S5	451	6AF6G	445, 447	6SS7	444	12B7ML	452
1SA6GT	451	6AF7G	445	6ST7	444	12B8GT	452
1SB6GT	451	6AG5	454	6T5	447	12C8	452
1T4	451	6AG6G	445	6T6GM	445	12CP4	457
1T5GT	451	6AG7	443	6T7	444	12E5GT	452
1-V	458	6AH5G	445	6U5 (6G5/6U5)	447	12F5GT	452
2A3	448	6AH7GT	445	6U6GT	445	12G7G	452
2A4G	456	6AL6G	445	6U7G	445	12H6	452
2A5	448	6B4G	445	6V6	444	12J5GT	452
2A6	448	6B5	447	6V7G	445	12J7GT	452
2A7	448	6B6G	445	6W5G	458	12K7GT	452
2AP1	456	6B7	447	6W6GT	445	12K8	452
2B6	448	6B8	443	6W7G	446	12Q7GT	452
2B7	448	6C4	454, 460	6X5	458	12SA7	452
2C21 (1642/2C21)	446	6C5	443	6X6G	446	12SC7	452
2C22	444, 460	6C6	447	6Y3	458	12SF5	452
2E5	448	6C7	447	6Y5	458	12SF7	452
2G5	448	6C8G	445	6Y6G	446	12SG7	452

TUBE NO.	PAGE	TUBE NO.	PAGE	TUBE NO.	PAGE	TUBE NO.	PAGE
12SH7	452	45	448	304TTL (HK304-L)	468	904	457
12SJ7	452	45Z3	459	305-A	471	905	457
12SK7	452	45Z5GT	459	306-A	469	905 (805)	466
12SL7GT	452	46	448	307-A	469	906-P1 (3AP1/906-P1)	456
12S7NGT	452	47	449	308-B	468	906-P4 (3AP4/906-P4)	456
12SQ7	452	48	453	310	460	907	457
12SR7	452	49	449	311 (211, 835)	465	908	457
12Z3	458	50	454	312-A	471	909	457
12Z5	458	50A5	453	312-E (212-E, 241-B)	468	910	457
14A4	452	50C6G	453	316-A	461	911	457
14A5	452	50L6GT	453	342-B (242-B)	465	912	457
14A7/12B7	452	50T	464	356-A	462	913	457
14AF7	452	50Y6GT	459	361-A (261-A)	465	914	457
14B6	452	50Z6G	459	376-A (276-A)	465	930-B (830-B)	463
14B8	452	50Z7G	459	482-B (182-B/482-B)	455	938 (838)	465
14C5	452	53	449	483 (183/483)	455	950	449
14C7	452	55	449	485	455	951 (1B4P/951)	449
14E6	452	56	449	756	462	954	455
14E7	452	57	449	800	461	955	455
14F7	453	58	449	801 (801-A/801)	460	956	455
14H7	453	59	449	801 (HY801-A)	460	957	455
14J7	453	70A7GT	453, 459	801-A/801	460	958	455
14N7	453	70L7GT	453, 459	802	469	959	455
14Q7	453	71-A	454	803	472	967	456
14R7	453	75	448	804	471	975-A	459
14S7	453	75T	464	805 (905)	466	991	456
14W7	453	76	448	805 (RK57/805)	466	1201 (7E5)	455
14Y4	458	77	448	806	467	1203 (7C4/1203)	455
14Z3	458	78	448	807 (HY61/807)	470	1204	455
15	449	79	448	807 (1625)	470	1221 (7E5/1221)	448
19	449	80	459	808	463	1223	446
20	454	81	459	809	461	1231	446
20J8GM	453	82	459	810 (1627)	467	1232 (7G7/1232)	446
21A7	453	83	459	811	463	1284	453
22	454	83-V	459	812	463	1291 (3B7/1291)	451
24-A	448	84 (6Z4)	459	813	471	1293	451
24-XH	457	85	448	814	471	1294 (1R4/1294)	451
25A6	453	85AS	448	815	470	1299 (3D6/1299)	451
25A7G	453, 458	89	448	816	459	1602	460
25AC5G	453	99	455	825	462, 471	1603	448
25B5	453	100TH	464	826	463	1608	460
25B6G	453	100TL	464	828	471	1609	455
25B8GT	453	111H	464	829	470	1610	469
25C6G	453	112-A	455	829-A	470	1611	444
25D8GT	453	117L7GT/117M7GT	453, 459	830	462	1612	444
25L6	453	17M17GT (117L7GT/117M7GT)	453, 459	830-B (930-B)	463	1613	469
25N6G	453	117M7GT	453, 459	831	468	1614	470
25S (1B5/25S)	449	117N7GT	453, 459	832	469	1616	459
25X6GT	458	117P7GT	453, 459	832-A	469	1619	469
25Y4GT	458	117Z4GT	459	833-A	468	1620	444
25Y5	458	117Z6GT	459	834	463	1621	444
25Z3	458	150T	466	835 (211, 311)	465	1622	444
25Z4	458	152TL (HK252-L)	466	836	459	1623	461
25Z5	458	182-B/482-B	455	837 (RK44)	469	1624	470
25Z6	458	183/483	455	838 (938)	465	1625	470
26	454	203-A (303-A)	465	840	449	1626	460
27	448	203-H	465	841	460	1627 (810)	467
28D7	454	204-A (304-A)	468	841-A	463	1628	461
30	449	205-D	460	841SW	463	1629	453
31	449	211 (311, 835)	465	843	460	1631	453
32	449	212-E (241-B, 312-E)	468	844	469	1632	453
32L7GT	453, 458	217-A	459	849	468	1633	453
33	449	217-C	459	850	472	1634	453
34	449	241-B (212-E, 312-E)	468	852	466	1635	446
35	448	242-A	464	860	472	1642/2C21	446
35A5	453	242-B (342-B)	465	861	472	1644	453
35L6G	453	242-C	465	864	455	1800	457
35T	463	250TH	467	865	469	1801	457
35TG	463	250TL	467	866 (866-A/866)	459	1802-P1 (5BP1)	457
35Y4	458	254-A	469	866-A/866	459	1802-P4 (5BP4)	457
35Z3LT	458	254-B	470	866B	459	1803-P4 (12AP4)	457
35Z4GT	458	257	455	866Jr	459	1804-P4 (9AP4)	457
35Z5G	458	261-A (361-A)	465	871	459	1805-P1 (5AP1)	457
35Z6G	458	270-A	468	872 (872-A/872)	459	1805-P4 (5AP4)	457
36	448	276-A (376-A)	465	872-A/872	459	1806-P1 (3EP1)	457
37	448	282-A	471	874	456	1809-P1 (9JP1)	457
38	448	284-B	465	876	459	1811-P1 (7CP1)	457
39/44	448	284-D	464	878	459	1840	472
40	454	295-A	465	879	459	1847	472
40Z5GT	459	300T	468	884	456	1848	472
41	448	303-A (202-A)	465	885	456	1849	472
42	448	304-A (204-A)	468	886	456	1850	472
43	453	304-A (304-B)	462	902	457	1851	444
44 (39/44)	448	304-B (304-A)	462	903	457		

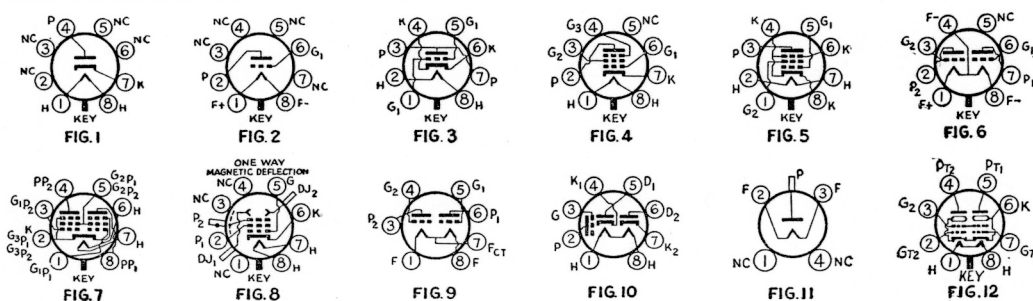
TUBE NO.	PAGE	TUBE NO.	PAGE	TUBE NO.	PAGE	TUBE NO.	PAGE
1852 (6AC7).....	443	HF250.....	466	HY866 Jr.....	459	RK57/805.....	466
1853 (6AB7).....	443	HF300.....	467	HY1231Z (HY312)...	461	RK58.....	465
1898.....	472	HK24.....	461	HY1269.....	470	RK59.....	460
1899.....	472	HK54.....	462	KY21.....	456	RK60.....	459
2002.....	457	HK154.....	462	KY866.....	456	RK62.....	456
2005.....	457	HK158.....	462	M54.....	455	RK63 (RK63-A).....	467
2050.....	456	HK252-L (152TL)...	466	M64.....	455	RK63-A (RK63).....	467
2051.....	456	HK253.....	459	M74.....	455	RK64.....	469
2203.....	472	HK254.....	465	RK10 (10).....	460	RK65.....	472
7000.....	446	HK257.....	471	RK11.....	461	RK66.....	470
7700.....	448	HK304-L (304TL)...	468	RK12.....	461	RK100.....	448, 460
8000.....	467	HK354.....	466	RK15.....	449	RK866.....	459
8001.....	471	HK354C.....	466	RK16.....	449	RM208.....	456
8003.....	466	HK354D.....	466	RK17.....	449	RM209.....	456
8005.....	464	HK354E.....	467	RK18.....	461	T20.....	460
8008.....	459	HK354F.....	467	RK19.....	459	T21.....	470
8010-R.....	462	HK454-H.....	468	RK20 (RK20-A, RK46)	470	T40.....	462
8012.....	461	HK454-L.....	468	RK20-A (RK20, RK46)	470	T55.....	463
8013.....	459	HK654.....	468	RK21.....	459	T125.....	466
8016.....	459	HV12 (T814).....	467	RK22.....	459	T200.....	467
9001.....	455	HV18 (HF200).....	466	RK23 (RK25, RK25-B)	469	T814 (HV12).....	467
9002.....	455	HV27 (T822).....	467	RK24.....	449, 460	T822 (HV27).....	467
9003.....	455	HY6J5GTX.....	460	RK25 (RK23, RK25-B)	469	TW75.....	464
9004.....	455	HY6L6GTX.....	470	RK25-B (RK23, RK25)	469	TW150.....	466
9005.....	455	HY6V6GTX.....	469	RK28.....	471	Twin 30.....	461
BA.....	458	HY24.....	460	RK28-A.....	472	TZ20.....	461
BH.....	458	HY25.....	461	RK30.....	461	TZ40.....	462
BR.....	458	HY30Z.....	461	RK31.....	461	UH35.....	463
CK501.....	451	HY31Z (HY1231Z)...	461	RK32.....	462	UH50.....	462
CK502.....	451	HY40.....	461	RK33.....	460	UH51.....	462
CK503.....	451	HY40Z.....	462	RK34.....	460	V70.....	463
CK504.....	451	HY51A.....	463	RK35.....	462	V70A.....	463
CK505.....	451	HY51B.....	463	RK36.....	464	V70B.....	463
GL146.....	466	HY51Z.....	463	RK37.....	462	V70C.....	463
GL152.....	466	HY57.....	462	RK38.....	464	V70D.....	464
GL159.....	467	HY60.....	469	RK39 (RK41).....	470	VR75-30.....	456
GL169.....	468	HY61/807.....	470	RK41 (RK39).....	470	VR90-30.....	456
HD203-A.....	466	HY63.....	469	RK42.....	451	(0B3/VR90-30)....	456
HF60.....	463	HY65.....	469	RK43.....	451	VR105-30.....	456
HF75.....	464	HY67.....	471	RK44 (837).....	469	VR150-30.....	456
HF100.....	464	HY69.....	470	RK46 (RK20, RK20-A)	470	(0D3/VR150-30)...	456
HF120.....	465	HY75.....	460	RK47.....	471	XXB.....	455
HF125.....	465	HY113.....	451	RK48 (RK48-A).....	471	XXD.....	454
HF130.....	466	HY114-B.....	460	RK48-A (R4K8).....	471	XXL.....	447
HF140.....	465	HY115.....	451	RK49.....	463	XXFM.....	455
HF150.....	466	HY125.....	451	RK51.....	463	Z225.....	459
HF175.....	466	HY615.....	460	RK52.....	463	ZB120.....	464
HF200 (HV18).....	466	HY801-A (801).....	460	RK56.....	469		

VACUUM-TUBE BASE DIAGRAMS

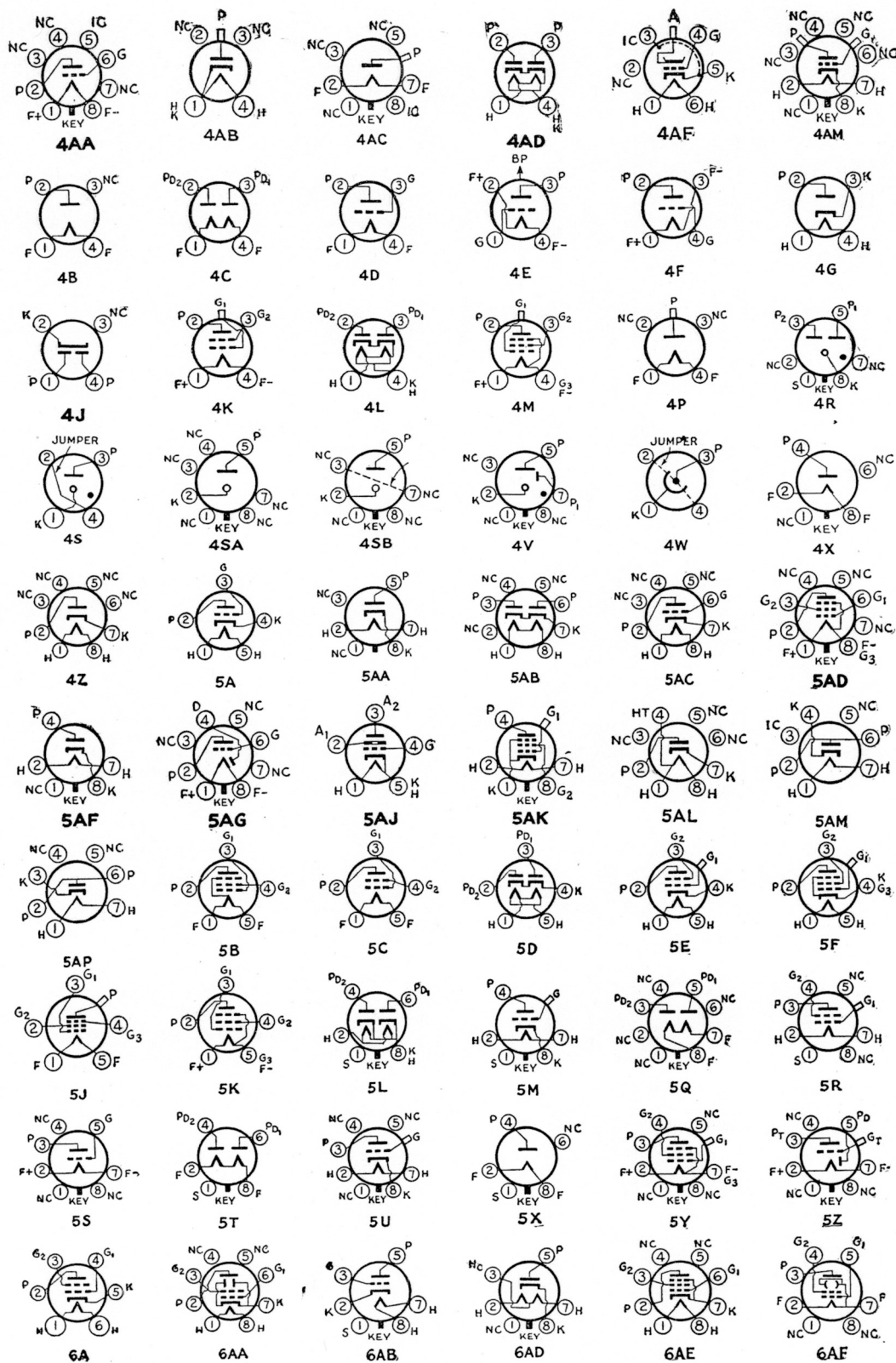
The diagrams on this and the following four pages show standard socket connections corresponding to the base designations given in the column headed "Socket Connections" in the classified tube data tables on pages 443-472. Footnotes under each table indicate in which of the five groups a given base diagram is to be found. In one group pages (438-441) are contained all receiving tubes having base designations corresponding to the standard RMA registry system. Diagrams for acorn and cathode-ray tubes are shown separately on page 441. Transmitting tube diagrams are given on page 442. Supplementary base diagrams not included under these classifications are shown below. All diagrams are in uniform style. Bottom views are shown throughout. Terminal designations are as follows:

A = Anode G = Grid K = Cathode PBF = Beam-Forming Plates TA = Target
 BP = Bayonet Pin H = Heater NC = No Connection ● = Gas-Type Tube
 D = Deflecting Plate IC = Internal Connection RC = Ray-Control Electrode U = Unit
 F = Filament IS = Internal Shield P₁ = Starter-Anode S = Shell SH = Internal Shield

Alphabetical subscripts D, P, T and HX indicate, respectively, diode unit, pentode unit, triode unit or hexode unit in multi-unit types. Subscript M, T or CT indicates filament or heater tap.

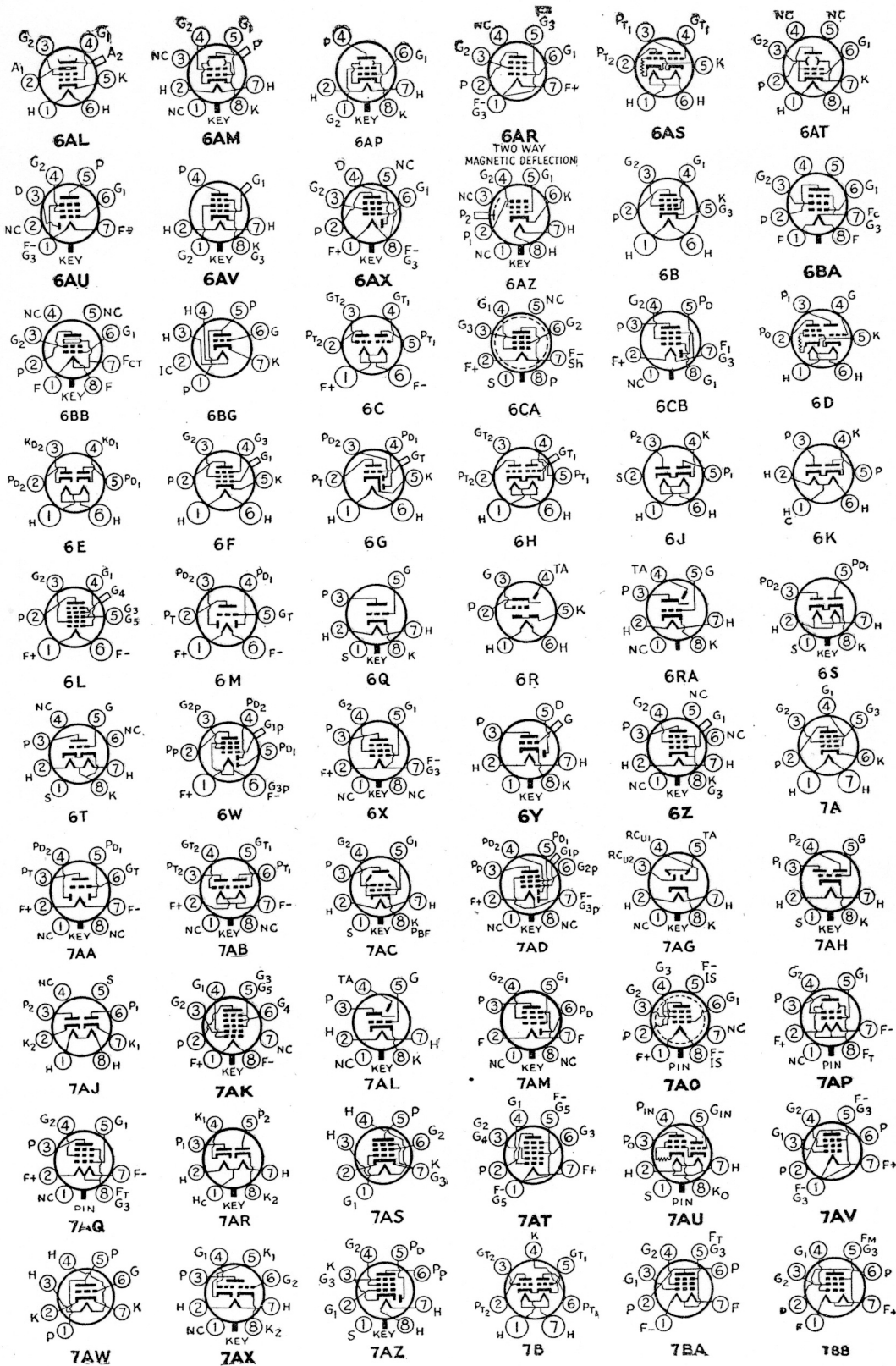


SUPPLEMENTARY BASE DIAGRAMS



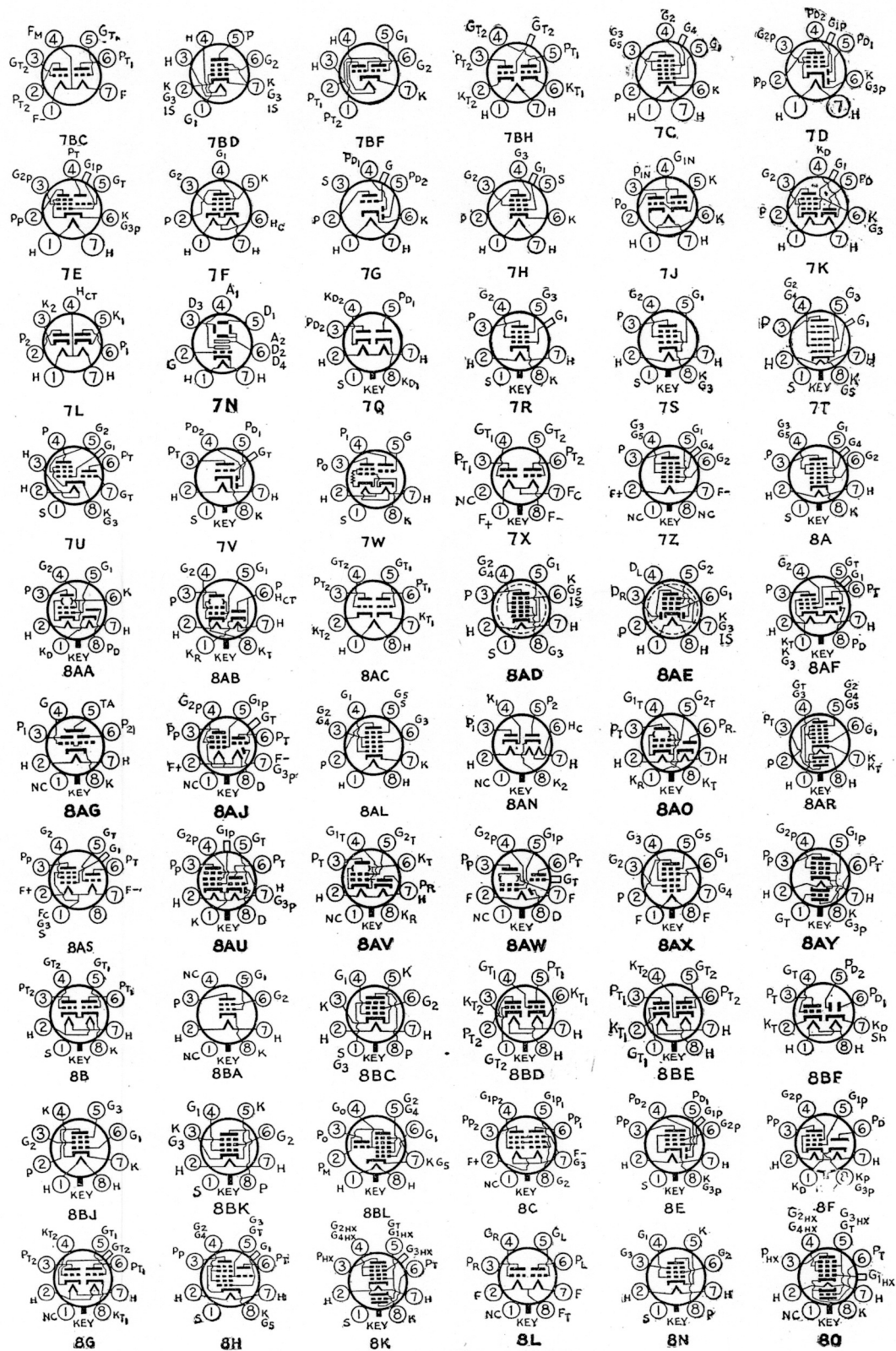
RECEIVING TUBE DIAGRAMS

Bottom views are shown. Terminal designations on sockets are given on page 437.



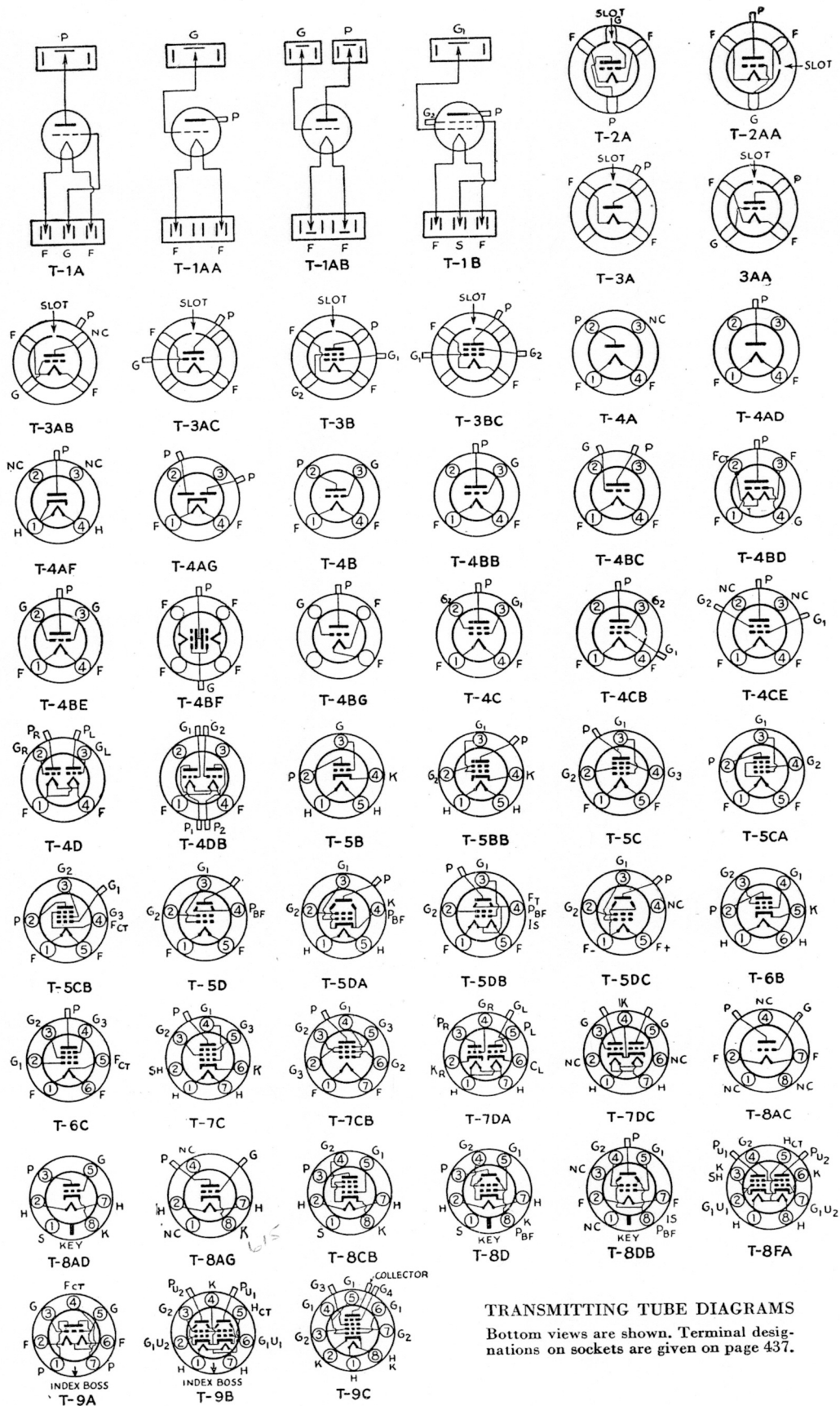
RECEIVING TUBE DIAGRAMS

Bottom views are shown. Terminal designations on sockets are given on page 437.



RECEIVING TUBE DIAGRAMS

Bottom views are shown. Terminal designations on sockets are given on page 437.



TRANSMITTING TUBE DIAGRAMS

Bottom views are shown. Terminal designations on sockets are given on page 437.

TABLE 1 — METAL RECEIVING TUBES

Characteristics given in this table apply to all tubes having type numbers shown, including metal tubes, glass tubes with "G" suffix, and bantam tubes with "GT" suffix. For "G" and "GT" tubes not listed (not having metal count parts), see Tables II, VII, VIII and IX.

Type	Name	Socket Connections ¹	Cathode	Fil. or Heater	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
6A8	Pentagrid Converter	8A	Htr.	6.3	Osc.-Mixer	250	-3.0	100	3.2	3.3	Anode-grid (No. 2) 250 volts max. thru 20,000-ohms	5000	3500	—	—	6A8
6AB7 1853	Television Amp. Pentode	8N	Htr.	6.3	Class-A Amplifier	300	-3.0	900 ²	3.2	12.5	700000	9000	6750	—	—	6AB7 1853
6AC7 1852	Television Amp. Pentode	8N	Htr.	6.3	Class-A Amplifier	300	-2.0 ⁴	150 ²	2.5	10	750000	9000	6750	—	—	6AC7 1852
6AG7	Video Beam Power Amp.	8Y	Htr.	6.3	Class-A ₁ Amplifier ⁵	250	-2.0	140	8.5	33	100000	7700	—	1700	—	6AG7
6B8	Duplex-Diode Pentode	8E	Htr.	6.3	Class-A Amplifier	250	-3.0	125	2.3	9.0	650000	1125	730	—	—	6B8
6C5	Triode Detector, Amplifier	6Q	Htr.	6.3	Class-A Amplifier	250	-8.0	—	—	8.0	10000	2000	20	—	—	6C5
6F5	High- μ Triode	5M	Htr.	6.3	Class-A Amplifier	250	-1.3	—	—	0.2	66000	1500	100	—	—	6F5
6F6	Pentode Power Amplifier	7S	Htr.	6.3	Class-A Pentode	250	-16.5	250	6.5	34	80000	2500	200	7000	3.0	6F6
6H6	Twin Diode	7Q	Htr.	6.3	Class-A Amplifier	250	-16.5	250	8.0	42	75000	2650	200	7000	5.0	6H6
6J5	Detector Amplifier Triode	6Q	Htr.	6.3	R.F. Amplifier	315	-20.0	315	—	31	2600	2700	7.0	4000	0.85	6J5
6J7	Triode-Grid Variable- μ Amplifier	7R	Htr.	6.3	Class-A Triode ³	250	-20.0	—	—	17	Power output for 2 tubes at stated load, plate-to-plate	10000	10000	19.0	—	6J7
6K7	Triode-Grid Variable- μ Amplifier	7R	Htr.	6.3	Push-Pull Class-AB Pentode Triode Connection ³	375	-26.0	250	2.5	22.5	Max. a.c. voltage per plate = 100 r.m.s. Max. output current 4.0 ma. d.c.	6000	6000	18.0	—	6K7
6K8	Triode Hexode Converter	8K	Htr.	6.3	Rectifier	350	-38.0	—	—	9	7700	2600	20	—	—	6K8
6L6	Beam Power Amplifier	7AC	Htr.	6.3	Class-A Amplifier	250	-8.0	100	0.5	2.0	1.5 meg.	1925	1500	—	—	6L6
6L7	Pentagrid Mixer Amplifier	7T	Htr.	6.3	R.F. Amplifier	250	-3.0	100	2.6	10.5	600000	1650	990	—	—	6L7
6N7	Twin Triode	8B	Htr.	6.3	Bias Detector	250	-10.0	100	—	—	—	—	—	—	—	6N7
6Q7	Duplex-Diode Triode	7V	Htr.	6.3	Mixer	250	-3.0	100	6	2.5	Triode Plate (No. 2) 100 volts, 3.8 ma.	2500	—	4500	6.5	6Q7
6R7	Duplex-Diode Triode	7V	Htr.	6.3	Osc.-Mixer	300	—	200	5.4-7.2	75-78	—	—	—	—	—	6R7
6S7	Triode-Grid Variable- μ	7R	Htr.	6.3	Single-Tube A ₁ ⁶ Cathode Bias	250	-14.0	250	3.0-4.6	51-54.5	—	—	—	—	—	6S7
6SA7	Pentagrid Converter	8R ¹²	Htr.	6.3	Single-Tube A ₁ ⁶ Cathode Bias	350	-18.0	250	5.0-7.3	72-79	22500	6000	—	2500	6.5	6SA7
6SC7	Twin Triode Amplifier	8S	Htr.	6.3	Push-Pull A ₁ ⁶ Cathode Bias	270	-18.0	250	2.5-7.0	54-66	33000	5200	—	5000	18.5	6SC7
6SF5	High- μ Triode	6AB	Htr.	6.3	Push-Pull A ₁ ⁶ Cathode Bias	270	-16.0	250	11-17	134-145	—	—	—	5500	14.5	6SF5
6SF7	Diode Variable- μ Pentode	7AZ	Htr.	6.3	Push-Pull AB ₁ ⁶ Cathode Bias	270	-17.5	270	10-16	120-140	24500	5700	—	5000	17.5	6SF7
					Push-Pull AB ₂ ⁶ Fixed Bias	360	-22.5	270	5-17	88-100	—	—	—	9000	24.5	
					Push-Pull AB ₂ ⁶ Fixed Bias	360	-22.5	270	5-15	88-132	—	—	—	6000 ¹¹	26.5	
					Push-Pull AB ₂ ⁶ Fixed Bias	360	-18.0	225	3.5-11	78-142	—	—	—	6000	31.0	
					Push-Pull AB ₂ ⁶ Fixed Bias	360	-22.5	270	5-16	88-205	—	—	—	3800	47.0	
					R.F. Amplifier	250	-3.0	100	5.5	5.3	800000	1100	—	—	—	
					Mixer	250	-6.0	150	8.3	3.3	Over 1 meg.	Oscillator-grid (No. 3) voltage = -15.0	—	8000	10.0	
					Class-B Amplifier	300	0	—	—	35-70	—	—	70	—	—	
					Triode Amplifier	250	-3.0	—	—	1.1	58000	1200	—	—	—	
					Triode Amplifier	250	-9.0	—	—	9.5	8500	1900	16	10000	0.28	
					Class-A Amplifier	250	-3.0	103	2.0	8.5	1000000	1750	1750	—	—	
					Osc.-Mixer	250	-3.0	100	8.0	3.4	800000	Grid No. 1 Resistor 20000 ohms	—	—	—	
					Class-A Amplifier	250	-2.0	—	—	2.0	53000	1325	70	—	—	
					Class-A Amplifier	250	-2.0	—	—	0.9	66000	1500	100	—	—	
					Class-A Amplifier	250	-1.0	100	3.3	12.4	700000	2050	—	—	—	

TABLE I—METAL RECEIVING TUBES—Continued

Type	Name	Socket Connections ¹	Cathode	Fil. or Heater Volts	Amps.	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
6SG7	Triple-Grid Semi-Variable- μ	8BK	Htr.	6.3	0.3	H. F. Amplifier	250	— 2.5	150	3.4	9.2	Over 1 meg.	4000	—	—	—	6SG7
6SH7	Triple-Grid Amplifier	8BK	Htr.	6.3	0.3	H. F. Amplifier	250	— 1.0	150	4.1	10.8	900000	4900	—	—	—	6SH7
6SJ7	Triple-Grid Amplifier	8N	Htr.	6.3	0.3	Class-A Amplifier	250	— 3.0	100	0.8	3	1500000	1650	2500	—	—	6SJ7
6SK7	Triple-Grid Variable- μ	8N	Htr.	6.3	0.3	Class-A Amplifier	250	— 3.0	100	2.4	9.2	800000	2000	1600	—	—	6SK7
6SQ7	Duplex-Diode Triode	8Q	Htr.	6.3	0.3	Class-A Amplifier	250	— 2.0	—	—	0.8	91000	1100	100	—	—	6SQ7
6SR7	Duplex-Diode Triode	8Q	Htr.	6.3	0.3	Class-A Amplifier	250	— 9.0	—	—	9.5	8500	1900	16	—	—	6SR7
6SS7	Triple-Grid Variable- μ	8N	Htr.	6.3	0.15	Class-A Amplifier	250	— 3.0	100	2.0	9.0	1000000	1850	—	—	—	6SS7
6ST7	Duplex-Diode Triode	8Q	Htr.	6.3	0.15	Class-A Amplifier	250	— 9.0	—	—	9.5	8500	1900	16	—	—	6ST7
6T7	Duplex-Diode Triode	7V	Htr.	6.3	0.15	Class-A Amplifier	250	— 3.0	—	—	1.2	62000	1050	65	—	—	6T7
6V6	Beam Power Amplifier	7AC	Htr.	6.3	0.45	Class-A Amplifier	250	— 12.5	250	4.5/7.0	45-47	52000	4100	218	5000	4.5	6V6
1611	Pentode Power Amplifier	7S	Htr.	6.3	0.7	Class-AB Amplifier 2 Tubes	285	— 15.0	250	5/13	70-79	60000	3750	—	10000	10.0	1611
1612	Pentagrid Amplifier	7T	Htr.	6.3	0.3	Relay Tube	285	— 19.0	285	4/13.5	70-92	65000	3600	—	8000	14.0	1612
1620	Triple-Grid Det.-Amp.	7R	Htr.	6.3	0.3	Class-A Amplifier	250	— 3.0	100	6.5	5.3	600000	1100	880	—	—	1620
1621	Power Amplifier Pentode	7S	Htr.	6.3	0.7	Class-A, Pentode P. P.	300	— 30.0	300	6.5/13	38/69	—	—	—	4000	5.0	1621
1622	Beam Power Amplifier	7AC	Htr.	6.3	0.9	Class-A Triode ³ P. P.	327.5	— 27.5 ¹⁴	—	—	55/59	—	—	—	5000	2.0	1622
1851	Television Amp. Pentode	7R	Htr.	6.3	0.45	Class-A Amplifier	300	— 20.0	250	4/10.5	86/125	—	—	6750	—	—	1851

¹ See Receiving Tube Diagrams.² From fixed screen supply. If series resistor from plate supply is used, value for 6AB7/1853 is 30,000 ohms, for 6AC7/1852 and 1851 60,000 ohms. Series resistor gives variable- μ characteristic, fixed screen supply gives sharp cut-off.³ Screen tied to plate.⁴ Cathode bias resistor should be adjusted for plate current of 10 ma.; minimum value 160 ohms.⁵ Typical operation for 4-Mc. bandwidth video voltage amplifier; 70 volts output with 4 volts input.⁶ Subscript 1 indicates no grid-current flow.⁷ Subscript 2 indicates grid-current flow over part of input cycle.⁸ Cathode resistor 170 ohms.
⁹ Cathode resistor 125 ohms.
¹⁰ Cathode resistor 250 ohms.¹¹ Output 18 watts with 3800-ohm load.¹² For 6SA7G1, use Base Diagram 8AD.¹³ Grid bias — 2 volts if separate oscillator excitation is used.¹⁴ Cathode resistor 500 ohms.

TABLE II—6.3-VOLT GLASS TUBES WITH OCTAL BASES

(For "G" and "GT" -Type Tubes Not Listed Here, See Equivalent Type in Table I; Characteristics and Connections Will Be Identical)

Type	Name	Socket Connections ¹	Cathode	Fil. or Heater Volts	Amps.	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
6C22	Triode Amplifier	4AM	Htr.	6.3	0.3	Class-A Amplifier	300	— 10.5	—	—	11	6600	3000	20	—	—	2022
6A5G	Triode Power Amplifier	6T	Htr.	6.3	1.0	Class-A Amplifier	250	— 45.0	—	—	60	800	—	4.2	2500	3.75	6A5G
6AB6G	Direct-Coupled Amplifier	7W	Htr.	6.3	0.5	Push-Pull Class AB	325	— 68.0	—	—	80 ²	—	5250	—	3000	15.0	6A5G
6AC5G	High- μ Power Amplifier	6Q	Htr.	6.3	0.4	Push-Pull Class AB	250	850 Ohm Cathode Resistor	—	—	80 ²	—	—	—	5000	10.0	6A5G
6AC6G	Direct-Coupled Amplifier	7W	Htr.	6.3	1.1	Class-A Amplifier	250	0	Input	—	5.0	40000	1800	72	8000	3.5	6AB6G
6AD5G	High- μ Triode	6Q	Htr.	6.3	0.3	Push-Pull Class-B	250	0	Output	—	34	—	—	—	10000	8.0	6AC5G
6AD6G	Electron-Ray Tube	7AG	Htr.	6.3	0.15	Dynamic-Coupled Amp.	250	—	—	—	32	36700	3400	125	7000	3.7	6AC5G
6AD7G	Triode-Pentode	8AY	Htr.	6.3	0.85	Class-A Amplifier	180	0	Input	—	7.0	—	3000	54	4000	3.8	6AC6G
						Indicator Tube	180	0	Output	—	45	—	—	—	—	—	6AD5G
						Triode Amplifier	250	— 2.0	—	—	0.9	—	1500	100	—	—	6AD6G
						Pentode Amplifier	100	—	—	0 for 90°, — 23 for 135°, 45 for 0°	4.0	19000	325	—	—	—	6AD7G
							250	— 25.0	250	6.5	34	80000	2500	—	7000	3.2	6AD7G

TABLE II—6.3-VOLT GLASS TUBES WITH OCTAL BASES—Continued

Type	Name	Socket Connections ¹	Cathode	Fil. or Heater Volts	Amps.	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resist- ance, Ohms	Transcon- ductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
6AE5G	Triode Amplifier	6Q	Htr.	6.3	0.3	Class-A Amplifier	95	-15.0	—	—	7.0	3500	1200	4.2	—	—	6AE5G
6AE6G	Twin-Plate Triode	7AH	Htr.	6.3	0.15	Indicator Control	250	-1.5	—	—	6.5 ⁴	25000	1000	25	—	—	6AE6G
6AE7GT	Twin-Input Triode ⁷	7AX	Htr.	6.3	0.5	Driver Amplifier	250	-1.5	—	—	4.5 ⁵	35000	950	33	—	—	6AE7GT
6AF5G	Triode Amplifier	6Q	Htr.	6.3	0.3	Class-A Amplifier	250	-13.5	—	—	5.0	9300	1500	14	—	—	6AF5G
6AF6G	Electron-Ray Tube	7AG	Htr.	6.3	0.3	Indicator Tube	180	-18.0	—	—	7.0	—	—	7.4	—	—	6AF6G
6AF7G	Twin Electron Ray	8AG	Htr.	6.3	0.3	Indicator Tube	100	—	—	—	—	—	—	—	—	—	6AF7G
6AG6G	Power Amplifier Pentode	7S	Htr.	6.3	1.25	Class-A Amplifier	250	-6.0	250	6.0	32	—	10000	—	8500	3.75	6AG6G
6AH5G	Beam Power Amplifier	6AP	Htr.	6.3	0.9	Class-A Amplifier	350	-18	250	—	—	33000	5200	—	4200	10.8	6AH5G
6AH7GT	Twin Triode	8BE	Htr.	6.3	0.3	Converter and Amp.	250	-9.0	—	—	12 ³	6600	2400	16	—	—	6AH7GT
6AL6G	Beam Power Amplifier	6AM	Htr.	6.3	0.9	Class-A Amplifier	250	-14.0	250	5.0	72	22500	6000	—	2500	6.5	6AL6G
6B4G	Triode Power Amplifier	5S	Fil.	6.3	1.0	Power Amplifier	—	—	—	—	—	—	—	—	—	—	6B4G
6B6G	Duplex Diode High- μ Triode	7V	Htr.	6.3	0.3	Detector-Amplifier	—	—	—	—	—	—	—	—	—	—	6B6G
6B8G	Twin Triode	8G	Htr.	6.3	0.3	Amp. 1 Section	250	-4.5	100	—	3.1	26000	1450	38	—	—	6B8G
6D8G	Pentagrid Converter	8A	Htr.	6.3	0.15	Converter	250	-3.0	100	Cathode current 13.0 Ma.	—	—	—	—	—	—	6D8G
6E8G	Triode-Hexode Converter	8O	Htr.	6.3	0.3	Osc.-Mixer	250	-2.0	—	—	—	—	—	—	—	—	6E8G
6F8G	Twin Triode	8G	Htr.	6.3	0.6	Amplifier	250	-8.0	180	2.5	9 ³	7700	2600	20	—	—	6F8G
6G6G	Pentode Power Amplifier	7S	Htr.	6.3	0.15	Class-A Amplifier	180	-9.0	100	—	15	175000	2300	400	10000	1.1	6G6G
6H4GT	Diode Rectifier	5AF	Htr.	6.3	0.15	Detector	100	—	—	—	4.0	—	—	—	—	—	6H4GT
6H8G	Duo-Diode High- μ Pentode	8E	Htr.	6.3	0.3	Class-A Amplifier	250	-2.0	100	—	8.5	650000	2400	—	—	—	6H8G
6J8G	Triode Heptode	8H	Htr.	6.3	0.3	Converter	250	-3.0	100	2.8	1.2	—	—	—	—	—	6J8G
6K5G	High- μ Triode	5U	Htr.	6.3	0.3	Class-A Amplifier	250	-3.0	—	—	1.1	50000	1400	70	—	—	6K5G
6K6G	Pentode Power Amplifier	7S	Htr.	6.3	0.4	Class-A Amplifier	—	—	—	—	—	—	—	—	—	—	6K6G
6L5G	Triode Amplifier	6Q	Htr.	6.3	0.15	Class-A Amplifier	250	-9.0	250	4.0	8.0	—	1900	17	—	—	6L5G
6M6G	Power Amplifier Pentode	7S	Htr.	6.3	1.2	Class-A Amplifier	250	-6.0	125	2.8	10.5	900000	3400	—	7000	4.4	6M6G
6M7G	Triode-Grid Amplifier	7R	Htr.	6.3	0.3	R. F. Amplifier	100	—	—	—	0.5	91000	1100	—	—	—	6M7G
6M8GT	Diode Triode Pentode	8AU	Htr.	6.3	0.6	Triode Amplifier	100	-3.0	100	—	8.5	200000	1900	—	—	—	6M8GT
6N6G	Direct-Coupled Amplifier	7AU	Htr.	6.3	0.8	Pentode Amplifier	—	—	—	—	—	—	—	—	—	—	6N6G
6P5G	Triode Amplifier	6Q	Htr.	6.3	0.3	Power Amplifier	250	-13.5	—	—	5.0	9500	1450	13.8	—	—	6P5G
6P7G	Triode Pentode	7U	Htr.	6.3	0.3	Class-A Amplifier	—	—	—	—	—	—	—	—	—	—	6P7G
6P8G	Triode-Hexode Converter	8K	Htr.	6.3	0.3	Class-A Amplifier	250	-2.0	75	1.4	1.5	—	—	—	—	—	6P8G
6Q6G	Diode-Triode	6Y	Htr.	6.3	0.15	Osc.-Mixer	250	-3.0	—	—	1.2	—	1050	65	—	—	6Q6G
6R6G	Pentode Amplifier	6AA	Htr.	6.3	0.3	Class-A Amplifier	250	-3.0	100	1.7	7.0	—	1450	1160	—	—	6R6G
6S6GT	Triple-Grid Variable- μ	5AK	Htr.	6.3	0.45	Class-A Amplifier	250	-2.0	100	3.0	13	350000	4000	—	—	—	6S6GT
6SD7GT	Triple-Grid Semi-Variable- μ	8N	Htr.	6.3	0.3	R. F. Amplifier	250	-2.0	100	1.9	6.0	1000000	3600	—	—	—	6SD7GT
6SE7GT	Triode-Grid Amplifier	8N	Htr.	6.3	0.3	R. F. Amplifier	250	-1.5	100	1.5	4.5	1100000	3400	3750	—	—	6SE7GT
6SL7GT	Twin Triode	8BD	Htr.	6.3	0.3	Amplifier	250	-2.0	—	—	2.3 ³	44000	1600	70	—	—	6SL7GT
6SN7GT	Twin Triode	8BD	Htr.	6.3	0.3	Amplifier	250	-2.0	—	—	9.0 ³	7700	2600	20	—	—	6SN7GT
6T6GM ⁸	Triple-Grid Amplifier	6Z	Htr.	6.3	0.45	R. F. Amplifier	250	-1.0	100	2.0	10	1000000	5500	—	—	—	6T6GM
6U6GT	Beam Power Amplifier	7AC	Htr.	6.3	0.75	Class-A Amplifier	200	-14.0	135	3.0	56	20000	6200	—	3000	5.5	6U6GT
6U7G	Triode Grid Variable- μ	7R	Htr.	6.3	0.3	R. F. Amplifier	—	—	—	—	—	—	—	—	—	—	6U7G
6V7G	Duplex Diode-Triode	7V	Htr.	6.3	0.3	Detector-Amplifier	—	—	—	—	—	—	—	—	—	—	6V7G
6W6GT	Beam Power Amplifier	7AC	Htr.	6.3	1.25	Class-A Amplifier	—	—	—	—	—	—	—	—	—	—	6W6GT

TABLE II — 6.3-VOLT GLASS TUBES WITH OCTAL BASES — Continued

Type	Name	Socket Connections ¹	Cathode	Fil. or Heater Volts	Amps.	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resist- ance, Ohms	Transcon- ductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
6W7G	Triode-Grid Det. Amp.	7R	Htr.	6.3	0.15	Class-A Amplifier	250	-3.0	100	2.0	0.5	1500000	1925	1850	—	—	5W7G
6X6G	Electron-Ray Tube	7AL	Htr.	6.3	0.3	Indicator Tube	250	—	—	—	—	—	—	—	—	—	5X6G
6Y6G	Beam Power Amplifier	7AC	Htr.	6.3	1.25	Class-A Amplifier	135	-13.5	135	3.0	60.0	9300	7000	—	2000	3.6	6Y6G
6Y7G	Twin Triode Amplifier	8B	Htr.	6.3	0.3	Class-B Amplifier	180	0	—	—	—	—	—	—	—	—	6Y7G
						Characteristics same as Type 79 — Table IV											
6Z7G	Twin Triode Amplifier	8B	Htr.	6.3	0.3	Class-B Amplifier	135	0	—	—	—	—	—	—	12000	4.2	6Z7G
						Characteristics same as Type 6C6 — Table IV											1223
1233	Pentode Amplifier	7R	Htr.	6.3	0.3	Class-A Amplifier	300	-2.5	150	2.5	10	700000	5500	3850	—	—	1231
1231	Pentode Amplifier	8V	Htr.	6.3	0.45	Class-A Amplifier	400	—	—	—	—	10 ² /63	—	—	14000	17	1635
1635	Twin Triode Amplifier	8B	Htr.	6.3	0.6	Class-B Amplifier	250	-16.5	—	—	—	8.3	7600	1375	10.4	—	1642/ 2C21
1642/ 2C21	Twin-Triode Amplifier	7BH	Htr.	6.3	0.6	Class-A Amplifier	250	—	—	—	—	—	—	—	—	—	7000
7000	Low-Noise Amplifier	7R	Htr.	6.3	0.3	Class-A Amplifier	—	—	—	—	—	—	—	—	—	—	—
						Characteristics same as Type 6J7 — Table I											

¹ Refer to Receiving Tube Diagrams. No connection to Pin No. 1.
² No-signal value for 2 tubes.

⁴ Plate No. 1, remote cut-off.
⁵ Plate No. 2, sharp cut-off.

⁶ Through 200-ohm cathode resistor.
⁷ Common plate.

⁸ Metal-sprayed glass envelope.
⁹ Through 20,000-ohm dropping resistor.

TABLE III — 7-VOLT LOKTAL-BASE TUBES

For other loktal-base types see Tables VIII, IX, X and XIII.

Type	Name	Socket Connections	Cathode	Heater [*] Volts	Amps.	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen ¹ Current Ma.	Plate ¹ Current Ma.	Plate Resistance, Ohms	Trans- conduct- ance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
7A4	Triode Amplifier	5 AC	Htr.	7.0	0.32	Class-A Amplifier	250	-8.0	—	—	9.0	7700	2600	20	—	—	7A4
7A5	Beam Power Amplifier	6 AT	Htr.	7.0	0.75	Class-A Amplifier	125	-9.0	125	3.2/8	37.5/40	17000	6100	—	2700	1.9	7A5
7A6	Twin Diode	7 AJ	Htr.	7.0	0.16	Rectifier	250	-3.0	100	2.0	8.6	800000	2000	1600	—	—	7A6
7A7	Remote Cut-off Pentode	8 V	Htr.	7.0	0.16	R.F. Amplifier	250	-3.0	100	3.1	3.0	50000	1500	100	—	—	7A7
7A8	Multirid Converter	8 U	Htr.	7.0	0.16	Osc.-Mixer	250	-2.0	—	—	0.9	66000	—	—	—	—	7A8
7B4	High- μ Triode	5 AC	Htr.	7.0	0.32	Class-A Amplifier	250	-18.0	250	5.5/10	32/33	68000	2300	—	7600	3.4	7B4
7B5	Pentode Power Amplifier	6 AE	Htr.	7.0	0.43	Class-A Amplifier	250	-2.0	—	—	1.0	91000	1100	100	—	—	7B5
7B6	Remote Cut-off Pentode	8 W	Htr.	7.0	0.32	Class-A Amplifier	250	-3.0	100	2.0	8.5	700000	1700	1200	—	—	7B6
7B7	Duo-Diode Triode	8 V	Htr.	7.0	0.16	R.F. Amplifier	250	-3.0	100	2.7	3.5	360000	—	—	—	—	7B7
7B8	Pentagrid Converter	8 X	Htr.	7.0	0.32	Osc.-Mixer	250	-12.5	250	4.5/7	45/47	52000	4100	—	5000	4.5	7B8
7C5	Tetrode Power Amplifier	6 AA	Htr.	7.0	0.48	Class-A Amplifier	250	-1.0	—	—	1.3	100000	1000	100	—	—	7C5
7C6	Duo-Diode Triode	8 W	Htr.	7.0	0.16	Class-A Amplifier	250	-3.0	100	—	—	—	—	—	—	—	7C6
7C7	Pentode Amplifier	8 V	Htr.	7.0	0.16	R.F. Amplifier	250	-3.0	100	0.5	2.0	2 meg.	1300	—	—	—	7C7
7D7	Triode-Hexode Converter	8 AR	Htr.	7.0	0.48	Osc.-Mixer	250	-3.0	—	—	—	—	—	—	—	—	7D7
7E6	Duo-Diode Triode	8 W	Htr.	7.0	0.32	Class-A Amplifier	250	-9.0	—	—	9.5	8500	1900	16	—	—	7E6
7E7	Duo-Diode Pentode	8 W	Htr.	7.0	0.32	Class-A Amplifier	250	-3.0	100	1.6	7.5	700000	1300	—	—	—	7E7
7F7	Twin Triode	8 AC	Htr.	7.0	0.32	Class-A Amplifier ³	250	-2.0	—	—	2.3	44000	1600	70	—	—	7F7
7G7/ 1232	Triode-Grid Amplifier	8 V	Htr.	7.0	0.48	Class-A Amplifier	250	-2.0	100	2.0	6.0	800000	4500	—	—	—	7G7/ 1232
7H7	Triode-Grid Semi-Variable- μ	8 V	Htr.	7.0	0.32	R.F. Amplifier	250	-2.5	150	2.5	9.0	1000000	3500	—	—	—	7H7
7J7	Triode-Hexode Converter	8 AR	Htr.	7.0	0.32	Osc.-Mixer	250	-3.0	100	2.9	1.3	—	—	—	—	—	7J7
7K7	Duo-Diode High- μ Triode	8BF	Htr.	7.0	0.32	Class-A Amplifier	250	-2.0	—	—	2.3	44000	1600	70	—	—	7K7
7L7	Triode-Grid Amplifier	8 V	Htr.	7.0	0.32	Class-A Amplifier	250	-1.5	100	1.5	4.5	100000	3100	Cathode Resistor 250 ohms	—	—	7L7

TABLE III — 7-VOLT LOKTAL-BASE TUBES — Continued

Type	Name	Socket Connections	Cathode	Heater	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate ¹ Current Ma.	Plate Resistance, Ohms	Transconductance, Micromhos	Amp. Factor	Load Resistance, Ohms	Power Output Watts	Type
7N7	Twin Triode	8AC	Htr.	7.0 0.6	Class-A Amplifier ³	250	- 8.0	—	—	9.0	7700	2600	20	—	—	7N7
7Q7	Pentagrid Converter	8AL	Htr.	7.0 0.32	Osc.-Mixer	250	0	100	8.0	3.4	800000	Grid No. 1 resistor 20000 ohms	—	—	—	7Q7
7R7	Duo-Diode Pentode	8AE	Htr.	7.0 0.32	Class-A Amplifier	250	- 1.0	100	1.7	5.7	1000000	3200	—	—	—	7R7
7S7	Triode Hexode Converter	8AR	Htr.	7.0 0.32	Osc.-Mixer	250	- 2.0	100	2.2	1.7	2000000	Triode Plate 250 v. Max. ²	—	—	—	7S7
7T7	Triode-Grid Amplifier	8V	F-tr.	7.0 0.32	Class-A Amplifier	250	- 1.0	150	4.1	10.8	900000	4900	—	—	—	7T7
7V7	Triple-Grid Variable- μ	8B7	F-tr.	7.0 0.48	Class-A Amplifier	300	- 2.2	150	3.9	10	300000	5800	—	—	—	7V7
XXL	Triode Oscillator	5AC	Htr.	7.0 0.32	Oscillator	250	- 8.0	—	—	8.0	300000	2300	20	—	—	XXL

¹ Values to left of diagonal lines are for "no-signal" condition; normal rating is 6.3 v. for 117-v. line. ² Each triode. ³ Cathode bias resistor, 160 ohms. ⁴ Applied through 20000-ohm dropping resistor. ⁵ From fixed screen supply. If series resistor from plate supply is used, value should be 40,000 ohms. Series resistor gives extended cut-off (variable- μ) characteristic, fixed screen supply gives sharp cut-off.

TABLE IV — 6.3-VOLT GLASS RECEIVING TUBES

Type	Name	Base ¹	Socket Connections ¹	Cathode	Fil. or Heater	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance, Micromhos	Amp. Factor	Load Resistance, Ohms	Power Output Watts	Type
6A3	Triode Power Amplifier	4-pin M.	4D	Fil.	6.3 1.0	Class-A Amplifier	250	- 45	—	—	60	800	5250	4.2	2500	3.5	6A3
6A4 ²	Pentode Power Amplifier	5-pin M.	5B	Fil.	6.3 0.3	Push-Pull Amplifier	300	- 62	Fixed Bias	—	40	Power output for 2 tubes load plate-to-plate	—	—	3000	15	6A4
6A6	Twin Triode Amplifier	7-pin M.	7B	Htr.	6.3 0.8	Class-A Amplifier	180	- 12.0	180	3.9	22	45000	2200	100	8000	1.4	6A6
6A7	Pentagrid Converter	7-pin S.	7C	Htr.	6.3 0.3	Converter	250	0	—	—	—	Power output is for one tube at stated load, plate-to-plate	—	—	10000	10.0	6A7
6AB5	Electron-Ray Tube	6-pin S.	6R	Htr.	6.3 0.15	Indicator Tube	135	155 ¹⁰	0 ¹¹	—	—	360000	Anode grid (No. 2) 200 volts max.	—	—	—	6AB5
6AF6G	Twin Indicator Type	7-pin S.	7AG	Htr.	6.3 0.15	Indicator Tube	135	81 ¹⁰	0 ¹¹	—	—	—	Target current 3.75 ma.	—	—	—	6AF6G
6B5	Direct-Coupled Power Amplifier	6-pin M.	6AS	Htr.	6.3 0.8	Class-A Amplifier	300	0	—	—	45	241000	2400	58	7000	4.0	6B5
6B7	Duplex-Diode Pentode	7-pin S.	7D	Htr.	6.3 0.3	Push-Pull Amplifier	400	- 13.0	—	—	4.5 ⁶	—	—	—	10000	20	6B7
6C6	Triple-Grid Amplifier	6-pin S.	6F	Htr.	6.3 0.3	Pentode R.F. Amplifier	250	- 3.0	125	2.3	9.0	650000	1125	730	—	—	6C6
6C7	Duplex Diode Triode	7-pin S.	7G	Htr.	6.3 0.3	R.F. Amplifier	250	- 3.0	100	0.5	2.0	1500000	1225	1500	—	—	6C7
6D6	Triple-Grid Variable- μ	6-pin S.	6F	Htr.	6.3 0.3	Class-A Amplifier	250	- 9.0	—	—	4.5	—	20	1250	—	—	6D6
6D7	Triple-Grid Amplifier	7-pin S.	7H	Htr.	6.3 0.3	R.F. Amplifier	250	- 3.0	100	2.0	8.2	800000	1600	1280	—	—	6D7
6E5	Electron-Ray Tube	6-pin S.	6R	Htr.	6.3 0.3	Indicator Tube	250	- 3.0	100	0.5	2.0	—	1600	1280	—	—	6E5
6E6	Twin Triode Amplifier	7-pin M.	7B	Htr.	6.3 0.6	Class-A Amplifier	250	0	—	—	0.25	—	—	—	—	—	6E6
6E7	Triple-Grid Variable- μ	7-pin S.	7H	Htr.	6.3 0.3	R.F. Amplifier	250	- 27.5	—	—	—	3500	1700	6.0	14000	1.6	6E7
6F7	Triode Pentode	7-pin S.	7E	Htr.	6.3 0.3	Triode Unit Amplifier	100	- 3.0	—	—	3.5	16000	500	8	—	—	6F7
6G5/6U5	Electron-Ray Tube	6-pin S.	6R	Htr.	6.3 0.3	Pentode Unit Amplifier	250	- 3.0	100	1.5	6.5	850000	1100	900	—	—	6G5/6U5
6H5	Electron-Ray Tube	6-pin S.	6R	Htr.	6.3 0.45	Indicator Tube	250	Cut-off Grid Bias = 28 v.	—	—	0.24	—	—	—	—	—	6H5
6J6	Twin Triode	7-pin M.	7BF	Htr.	6.3 0.15	Indicator Tube	100	Cut-off Grid Bias = 8 v.	—	—	0.19	—	—	—	—	—	6J6
6N5	Electron-Ray Tube	6-pin S.	6R	Htr.	6.3 0.3	Indicator Tube	150	50 ¹²	—	—	8.5	6000	5300	32	—	—	6N5
6T5	Electron-Ray Tube	6-pin S.	6R	Htr.	6.3 0.3	Indicator Tube	180	Cut-off Grid Bias = -12 v.	—	—	0.5	—	—	—	—	—	6T5
							250	Cut-off Grid Bias = -12 v.	—	—	0.24	—	—	—	—	—	

Characteristics same as 6U7G — Table II

Same characteristics as Type 6G5 — Circular Pattern

TABLE IV — 6.3-VOLT GLASS RECEIVING TUBES — Continued

Type	Name	Base ¹	Socket Connections ¹	Cathode	Fil. or Heater		Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type		
					Volts	Amps.														
36	Tetrode R.F. Amplifier	5-pin S.	5E	Htr.	6.3	0.3	R.F. Amplifier	250	- 3.0	90	1.7	3.2	550000	1080	595	—	—	36		
37	Triode Detector Amplifier	5-pin S.	5A	Htr.	6.3	0.3	Class-A Amplifier	250	-18.0	—	—	7.5	8400	1100	9.2	—	—	37		
38	Pentode Power Amplifier	5-pin S.	5F	Htr.	6.3	0.3	Class-A Amplifier	250	-25.0	250	3.8	22.0	100000	1200	120	10000	2.5	38		
39/44	Variable- μ R.F. Amplifier	5-pin S.	5F	Htr.	6.3	0.3	R.F. Amplifier	250	- 3.0	90	1.4	5.8	1000000	1050	1050	—	—	39/44		
41	Pentode Power Amplifier	6-pin S.	6B	Htr.	6.3	0.4	Class-A Amplifier	250	-18.0	250	5.5	32.0	68000	2200	150	7600	3.4	41		
42	Pentode Power Amplifier	6-pin M.	6B	Htr.	6.3	0.7	Class-A Amplifier	250	-16.5	250	6.5	34.0	100000	2200	220	7000	3.0	42		
75	Duplex-Diode Triode	6-pin S.	6G	Htr.	6.3	0.3	Triode Amplifier	250	- 1.35	—	—	0.4	91000	1100	100	—	—	75		
76	Triode Detector Amplifier	5-pin S.	5A	Htr.	6.3	0.3	Class-A Amplifier	250	-13.5	—	—	5.0	9500	1450	13.8	—	—	76		
77	Triode-Grid Detector	6-pin S.	6F	Htr.	6.3	0.3	R.F. Amplifier	250	- 3.0	100	0.5	2.3	1500000	1250	1500	—	—	77		
78	Triode-Grid Variable- μ	6-pin S.	6F	Htr.	6.3	0.3	R.F. Amplifier	250	- 3.0	100	1.7	7.0	800000	1450	1160	—	—	78		
79	Twin Triode Amplifier	6-pin S.	6H	Htr.	6.3	0.6	Class-B Amplifier	250	0	—	—	—	Power output is for one tube				14000	8.0	79	
85	Duplex-Diode Triode	6-pin S.	6G	Htr.	6.3	0.3	Class-A Amplifier	250	-20.0	—	—	8.0	7500	1100	8.3	20000	0.35	85		
85AS	Duplex-Diode Triode	6-pin S.	6G	Htr.	6.3	0.3	Class-A Amplifier	250	- 9.0	—	—	5.5	—	1250	20	—	—	85AS		
89	Duplex-Diode Triode	6-pin S.	6G	Htr.	6.3	0.3	Triode Amplifier ⁶	250	-31.0	—	—	32.0	2600	1800	4.7	5500	0.9	89		
	Triode-Grid Power Amplifier	6-pin S.	6F	Htr.	6.3	0.4	Pentode Amplifier ⁷	250	-25.0	250	5.5	32.0	70000	1800	125	6750	3.4	89		
7E5/1281 ⁹	Triode-Grid Amplifier	6-pin S.	6F	Htr.	6.3	0.3	Class-A Amplifier	Characteristics same as 6C6										7E5/1281		
1603 ⁹	Triode-Grid Amplifier	6-pin M.	6F	Htr.	6.3	0.3	Class-A Amplifier	Characteristics same as 6C6										1603		
7700 ⁹	Triode-Grid Amplifier	6-pin S.	6F	Htr.	6.3	0.3	Class-A Amplifier	Characteristics same as 6C6										7700		
RK100	Mercury-vapor Triode	6-pin M.	6A	Htr.	6.3	0.6	Amplifier	100	-2.5	Cathode (G1) current 250 ma.		20000	50	—	—	—	—	RK100		

¹ Refer to Receiving Tube Diagrams.² Suppressor grid, connected to cathode inside tube, not shown on base diagram.³ Also known as Type LA.⁴ S. — small; M. — medium.⁵ Current to input plate (P₁).⁶ Grids Nos. 2 and 3 connected to plate.⁷ Grid No. 2, screen; grid No. 3, suppressor.⁸ Cathode resistor, 780 ohms.⁹ Low noise, non-microphonic, tubes.¹⁰ Ray control voltage for shadow angle of 0°.¹¹ Ray control voltage for shadow angle of 100°.¹² Cathode bias resistor-ohms. Fixed bias not recommended.

TABLE V — 2.5-VOLT RECEIVING TUBES

Type	Name	Base ¹	Socket Connections ¹	Cathode	Fil. or Heater Volts	Amps.	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
2A3	Triode Power Amplifier	4-pin M.	4D	Fil.	2.5	2.5	Class-A Amplifier	—	—	—	—	—	—	—	—	—	—	2A3
2A5	Pentode Power Amplifier	6-pin M.	6B	Htr.	2.5	1.75	Class-A Amplifier	—	—	—	—	—	—	—	—	—	—	2A5
2A6	Duplex-Diode Triode	6-pin S.	6G	Htr.	2.5	0.8	Class-A Amplifier	—	—	—	—	—	—	—	—	—	—	2A6
2A7	Pentagrid Converter	7-pin S.	7C	Htr.	2.5	0.8	Osc.-Mixer	250	-24.0	—	—	40.0	5150	3500	18.0	5000	4.0	2A7
2B6	Direct-Coupled Amplifier	7-pin M.	7J	Htr.	2.5	2.25	Amplifier	—	—	—	—	—	—	—	—	—	—	2B6
2B7	Duplex-Coupled Pentode	7-pin S.	7D	Htr.	2.5	0.8	Pentode Amplifier	—	—	—	—	—	—	—	—	—	—	2B7
2E5	Electron-Ray Tube	6-pin S.	6R	Htr.	2.5	0.8	Indicator Tube	—	—	—	—	—	—	—	—	—	—	2E5
2G5	Electron-Ray Tube	6-pin S.	6R	Htr.	2.5	0.8	Indicator Tube	—	—	—	—	—	—	—	—	—	—	2G5
24-A	Tetrode R.F. Amplifier	5-pin M.	5E	Htr.	2.5	1.75	Screen-Grid R.F. Amp. Bias Detector	250	-3.0	90	1.7	4.0	600000	1050	630	—	—	24-A
27	Triode Detector-Amplifier	5-pin M.	5A	Htr.	2.5	1.75	Class-A Amplifier	250	-5.0	20	—	5.2	9250	975	9.0	—	—	27
35	Variable- μ Amplifier	5-pin M.	5E	Htr.	2.5	1.75	Screen-Grid R.F. Amp. Bias Detector	250	-30.0	—	—	—	—	—	—	—	—	35
45	Triode Power Amplifier	4-pin M.	4D	Fil.	2.5	1.5	Class-A Amplifier	275	-56.0	—	—	36.0	1700	2050	3.5	4600	2.00	45
46	Dual-Grid Power Amplifier	5-pin M.	5C	Fil.	2.5	1.75	Class-A Amplifier ⁴	250	-33.0	—	—	92.0	2380	2350	5.6	6400	1.25	46
Power output for 2 tubes																		

TABLE V — 2.5-VOLT RECEIVING TUBES — Continued

Type	Name	Base ¹	Socket Connections ¹	Cathode	Fill. or Heater	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
47	Pentode Power Amplifier	5-pin M.	5B	Fil.	2.5	1.75	250	-16.5	250	6.0	31.0	60000	2500	150	7000	2.7	47
53	Twin Triode Amplifier	7-pin M.	7B	Htr.	2.5	2.0	Characteristics same as Type 6A6, Table IV										53
55	Duplex-Diode Triode	6-pin S.	6G	Htr.	2.5	1.0	Characteristics same as Type 85, Table IV										55
56	Triode Amplifier, Detector	5-pin S.	5A	Htr.	2.5	1.0	Characteristics same as Type 76, Table IV										56
57	Triode-Grid Amplifier	6-pin S.	6F	Htr.	2.5	1.0	250	-3.0	100	0.5	2.0	1500000	1225	1500	—	—	57
58	Triode-Grid Variable- μ	6-pin S.	6F	Htr.	2.5	1.0	250	-3.0	100	2.0	8.2	800000	1600	1280	—	—	58
59	Triode-Grid Power Amplifier	7-pin M.	7A	Htr.	2.5	2.0	250	-18.0	250	9.0	35.0	2300	2600	6.0	5000	1.25	59
RK15	Triode Power Amplifier	4-pin M.	4D ²	Fil.	2.5	1.75	Characteristics same as Type 46 with Class-B connections										RK15
RK16	Triode Power Amplifier	5-pin M.	5A	Htr.	2.5	2.0	Characteristics same as Type 59 with Class-A triode connections										RK16
RK17	Pentode Power Amplifier	5-pin M.	5F	Htr.	2.5	2.0	Characteristics same as Type 2A5										RK17

¹ Refer to Receiving Tube Diagrams.² Grid connection to cap; no connection to No. 3 pin.³ S. — small; M. — medium.⁴ Grid No. 2 tied to plate.⁵ Grids Nos. 1 and 2 tied together.⁶ Grids Nos. 2 and 3 connected to plate.⁷ Grid No. 2, screen; grid No. 3, suppressor.

TABLE VI — 2.0-VOLT BATTERY RECEIVING TUBES

Type	Name	Base ²	Socket Connections ¹	Cathode	Fill. or Heater	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
1A4P	Variable- μ Pentode	4-pin S.	4M	Fil.	2.0	0.06	180	-3.0	67.5	0.8	2.3	1000000	750	750	—	—	1A4P
1A4T	Variable- μ Tetrode	4-pin S.	4K	Fil.	2.0	0.06	180	-3.0	67.5	0.7	2.3	960000	750	720	—	—	1A4T
1A6	Pentagrid Converter	6-pin S.	6L	Fil.	2.0	0.06	180	-3.0	67.5	2.4	1.3	500000	Anode grid (No. 2)	1000	180 max. volts	—	1A6
1B4P/951	Pentode R.F. Amplifier	4-pin S.	4M	Fil.	2.0	0.06	180	-3.0	67.5	0.6	1.7	1500000	650	550	—	—	1B4P/951
1B5/955	Duplex-Diode Triode	6-pin S.	6M	Fil.	2.0	0.06	135	-3.0	—	—	0.8	35000	575	20	—	—	1B5/955
1C6	Pentagrid Converter	6-pin S.	6L	Fil.	2.0	0.12	180	-3.0	67.5	2.0	1.5	750000	Anode grid (No. 2)	135 max. volts	—	—	1C6
1F4	Pentode Power Amplifier	5-pin M.	5K	Fil.	2.0	0.12	135	-4.5	135	2.6	8.0	200000	1700	340	16000	0.34	1F4
1F6	Duplex-Diode Pentode	6-pin S.	6W	Fil.	2.0	0.6	180	-1.5	67.5	0.6	2.0	1000000	650	650	—	—	1F6
15	R.F. Pentode	5-pin S.	5F	Htr.	2.0	0.22	135	-1.0	135	0.3	1.85	800000	Plate 0.25 megohm Screen 1.0 megohm	Amp. = 48	—	—	15
19	Twin-Triode Amplifier	6-pin S.	6C	Fil.	2.0	0.26	135	-1.5	67.5	—	—	—	Load plate-to-plate	600	10000	2.1	19
30	Triode Detector Amplifier	4-pin S.	4D	Fil.	2.0	0.06	180	-13.5	—	—	3.1	10300	900	9.3	—	—	30
31	Triode Power Amplifier	4-pin S.	4D	Fil.	2.0	0.13	180	-30.0	—	—	12.3	3600	1050	3.8	5700	0.375	31
32	Tetrode R.F. Amplifier	4-pin M.	4K	Fil.	2.0	0.06	180	-3.0	67.5	0.4	1.7	1500000	650	780	—	—	32
33	Pentode Power Amplifier	5-pin M.	5K	Fil.	2.0	0.26	180	-18.0	180	5.0	22.0	55000	1700	90	6000	1.4	33
34	Variable- μ Pentode	4-pin M.	4M	Fil.	2.0	0.06	180	-3.0	67.5	1.0	2.8	1000000	620	620	—	—	34
49	Dual-Grid Power Amplifier	5-pin M.	5C	Fil.	2.0	0.12	135	-20.0	—	—	6.0	4175	1125	4.7	11000	0.17	49
840	R.F. Pentode	5-pin S.	5J	Fil.	2.0	0.13	180	0	—	—	—	Power output for 2 tubes	—	400	18000	3.5	840
950	Pentode Power Amplifier	5-pin M.	5B	Fil.	2.0	0.12	135	-16.5	135	2.0	7.0	100000	1000	100	13500	0.45	950
RK24	Triode Amplifier	4-pin M.	4D	Fil.	2.0	0.12	180	-13.5	—	—	8.0	5000	1600	8.0	12000	0.25	RK24

¹ See Receiving Tube Diagrams.² S. — small; M. — medium.³ Grid No. 2 tied to plate.⁴ Grids Nos. 1 and 2 tied together.

TABLE VII—2.0-VOLT BATTERY TUBES WITH OCTAL BASES

Type	Name	Socket Connections	Cathode	Fil. or Heater	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
1C7G	Pentagrid Converter	7Z	Fil.	2.0 0.06	Converter	—	—	—	Characteristics same as Type 1C6—Table VI	—	—	—	—	—	—	1C7G
1D5GP	Variable- μ R.F. Pentode	5Y	Fil.	2.0 0.06	R.F. Amplifier	—	—	—	Characteristics same as Type 1A4P—Table VI	—	—	—	—	—	—	1D5GP
1D5GT	Variable- μ R.F. Tetrode	5R	Fil.	2.0 0.06	R.F. Amplifier	180	-3.0	67.5	0.7	2.2	600000	650	—	—	—	1D5GT
1D7G	Pentagrid Converter	7Z	Fil.	2.0 0.06	Converter	—	—	—	Characteristics same as Type 1A6—Table VI	—	—	—	—	—	—	1D7G
1E5GP	R.F. Amplifier Pentode	5Y	Fil.	2.0 0.06	R.F. Amplifier	—	—	—	Characteristics same as Type 1B4—Table VI	—	—	—	—	—	—	1E5GP
1E5GP	Double Pentode Power Amp.	8C	Fil.	2.0 0.24	Class-A Amplifier	135	-7.5	135	2.0 ²	6.5 ²	920000	1600	350	24000	0.65	1E7G
1E7G	Pentode Power Amplifier	6X	Fil.	2.0 0.12	Class-A Amplifier	—	—	—	Characteristics same as Type 1F4—Table VI	—	—	—	—	—	—	1E7G
1F5G	Duplex-Diode Pentode	7AD	Fil.	2.0 0.06	Detector-Amplifier	—	—	—	Characteristics same as Type 1F6—Table VI	—	—	—	—	—	—	1F5G
1G5G	Pentode Power Amplifier	6X	Fil.	2.0 0.12	Class-A Amplifier	135	13.5	135	2.5	8.7	1600000	1550	950	9000	0.55	1G5G
1H4G	Triode Amplifier	5S	Fil.	2.0 0.06	Detector-Amplifier	—	—	—	Characteristics same as Type 30—Table VI	—	—	—	—	—	—	1H4G
1H6G	Duplex-Diode Triode	7AA	Fil.	2.0 0.06	Detector-Amplifier	—	—	—	Characteristics same as Type 1B5—Table VI	—	—	—	—	—	—	1H6G
1J5G	Pentode Power Amplifier	6X	Fil.	2.0 0.12	Class-A Amplifier	135	-16.5	135	2.0	7.0	—	950	100	13500	0.75	1J5G
1J6G	Twin Triode	7AB	Fil.	2.0 0.24	Class-B Amplifier	—	—	—	Characteristics same as Type 19—Table VI	—	—	—	—	—	—	1J6G

² Total current for both sections; no signal.¹ Refer to Receiving Tube Diagrams.

TABLE VIII—1.5-VOLT FILAMENT DRY-CELL TUBES

See also Table X for Special 1.4-volt Tubes

Type	Name	Base	Socket Connections ¹	Filament	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Milliwatts	Type
1A3	H. F. Diode	7-pin B ¹⁰	5AP	1.4 0.15	Detector	85 ²	-4.5 ³	85	0.7	3.5	300000	800	240	25000	100	1A3L
1A5G	Pentode Power Amplifier	7-pin O.	6X	1.4 0.05	Class-A Amplifier	90	0	45 ⁴	0.6	0.55	600000	—	—	Anode-grid volts 90	—	1A5G
1A7G	Pentagrid Converter	8-pin O.	7Z	1.4 0.05	Osc.-Mixer	90	0	45	1.3	1.5	350000	—	—	Grid No. 1 resistor 200,000 ohms	—	1A7G
1B7G	Pentagrid Converter	6-pin O.	7Z	1.4 0.1	Osc.-Mixer	90	0	—	—	0.15	240000	275	—	—	—	1B7G
1B8GT	Diode Triode Tetrode	8-pin O.	8AW	1.4 0.1	Triode Amplifier	90	-6.0	90	1.4	6.3	—	1150	—	14000	210	1B8GT
1C5G	Pentode Power Amplifier	7-pin O.	6X	1.4 0.1	Class-A Amplifier	83 ³	-7.0 ³	83	1.6	7.0	110000	1500	165	9000	200	1C5G
1D8GT	Diode Triode Pentode	8-pin O.	8AJ	1.4 0.1	Pentode Amplifier	90	-9.0	90	1.0	5.0	200000	925	25	—	—	1D8GT
1E4G	Triode Amplifier	8-pin O.	5S ¹²	1.4 0.05	Class-A Amplifier	90	0	—	—	4.5	11000	1325	14.5	—	—	1E4G
1G4G	Triode Amplifier	7-pin O.	5S	1.4 0.05	Class-A Amplifier	90	-3.0	—	—	1.5	17000	825	14	—	—	1G4G
1G6G	Twin Triode	6-pin O.	7AB	1.4 0.1	Class-A Amplifier	90	-6.0	—	—	2.3	10700	825	8.8	—	—	1G6G
1H5G	Diode High- μ Triode	7-pin O.	5Z	1.4 0.05	Class-A Amplifier	90	0	—	—	1.0	45000	675	30	—	—	1H5G
1L4	R. F. Pentode Amplifier	7-pin B ¹⁰	6AR	1.4 0.05	Class-A Amplifier	90	0	—	—	1.7 ⁶	34 volts input per grid	275	65	12000	675	1H5G
1LA4	Pentode Power Amplifier	8-pin L.	5AD	1.4 0.05	Class-A Amplifier	90	0	—	—	0.14	240000	1025	—	—	—	1L4
1LB4	Pentagrid Converter	8-pin L.	7AK	1.4 0.05	Osc.-Mixer	90	0	45	0.6	0.55	—	—	—	Anode Grid Volts 90	—	1LA4
1LB4	Pentode Power Amplifier	8-pin L.	5AD	1.4 0.05	Class-A Amplifier	90	-9	90	1.0	5.0	200000	925	—	12000	200	1LB4
1LB6GL	Heptode Converter	8-pin L.	8AX	1.4 0.05	Osc.-Mixer	90	0	67.5	2.2	0.4	—	—	—	Grid No. 4—67.5 v., No. 5—0 v.	—	1LB6GL
1LC5	Triple-Grid Variable- μ	8-pin L.	7AO	1.4 0.05	R.F. Amplifier	90	0	45	0.2	1.15	1500000	775	—	—	—	1LC5
1LC6	Pentagrid Converter	8-pin L.	7AK	1.4 0.05	Osc.-Mixer	90	0	35 ⁹	0.7	0.75	—	—	—	Anode Grid Volts 45	—	1LC6

Characteristics same as 1A5G

TABLE VIII—1.5-VOLT FILAMENT DRY-CELL TUBES—Continued

Type	Name	Base	Socket Connections ¹	Filament		Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Milliwatts	Type
				Volts	Amps.												
1LD5	Diode Pentode	7-pin L.	6AX	1.4	0.05	Class-A Amplifier	90	0	45	0.1	0.6	950000	600	—	—	—	1LD5
1LE3	Triode Amplifier	8-pin L.	4AA	1.4	0.05	Class-A Amplifier	90	-3	—	—	4.5	11200	1300	14.5	—	—	1LE3
1LH4	Diode High- μ Triode	8-pin L.	5AG	1.4	0.05	Class-A Amplifier	90	0	—	—	0.15	240000	275	65	—	—	1LH4
1LN5	Triode-Grid Amplifier	8-pin L.	7AO	1.4	0.05	Class-A Amplifier	90	0	90	0.3	1.2	1500000	750	—	—	—	1LN5
1N5G	Pentode R.F. Amplifier	7-pin O.	5Y	1.4	0.05	Class-A Amplifier	90	0	90	0.3	1.2	1500000	750	1160	—	—	1N5G
1N6G	Diode-Power-Pentode	6-pin O.	7AM	1.4	0.05	Class-A Amplifier	90	-4.5	90	0.6	3.1	300000	800	—	25000	100	1N6G
1P5G	Triode-Grid Pentode	5-pin O.	5Y	1.4	0.05	R.F. Amplifier	90	0	90	0.7	2.3	800000	800	640	—	—	1P5G
1Q5G	Tetrode Power Amplifier	5-pin O.	6AF	1.4	0.1	Class-A Amplifier	85	-5.0	85	1.2	7.2	70000	1950	—	9000	260	1Q5G
1R5	Pentagrid Converter	7-pin B. ¹⁰	7AT	1.4	0.05	Osc.-Mixer	90	0	67.5	3.0	1.7	500000	2100	—	8000	270	1R5
1S4	Pentagrid Power Amplifier	7-pin B. ¹⁰	7AV	1.4	0.1	Class-A Amplifier	90	-7.0	67.5	1.4	7.4	100000	1575	—	—	—	1S4
1S5	Diode Pentode	7-pin B. ¹⁰	6AU	1.4	0.05	Class-A Amplifier	67.5	0	67.5	0.4	1.6	600000	625	—	—	—	1S5
1SA6GT	R.F. Pentode	8-pin O.	6CA	1.4	0.05	Resistor-Coupled Amp.	90	0	90	—	—	—	—	—	1 meg.	50 ¹³	1SA6GT
1SB6GT	Diode Pentode	7-pin O.	6CB	1.4	0.05	R.F. Amplifier	90	0	67.5	0.68	2.45	800000	970	—	—	—	1SB6GT
1T4	Triode-Grid Variable- μ	7-pin B. ¹⁰	6AR	1.4	0.05	Class-A Amplifier	90	0	67.5	0.38	1.45	700000	665	—	—	110 ¹³	1T4
1T5GT	Beam Power Amplifier	7-pin O.	6AF	1.4	0.05	Resistance-Coupled Amp.	90	0	45	0.65	2.0	800000	750	—	1 meg.	170	1T5GT
3BT/1291	U.h.f. Twin Triode	8-pin L.	Fig. 6 ¹⁴	1.4	0.92	Class-A Amplifier	90	-6.0	90	1.4	6.5	—	1150	14000	—	—	1991
1293	U.h.f. Triode	8-pin L.	Fig. 2 ¹⁴	1.4	0.11	Class-A Amplifier	90	0	—	—	5.2	11350	1850	21	—	—	1293
1R4/1294	U.h.f. Diode	8-pin L.	Fig. 1 ¹⁴	1.4	0.15	Class-A Amplifier	90	0	—	—	4.7	10750	1300	14	—	—	1294
3D6/1299	U.h.f. Tetrode	8-pin L.	6BB	1.4	0.22	Rectifier	135	-6	90	0.7	5.7	—	2200	—	13000	0.5	1299
CK501	Pentode Voltage Amplifier	5-pin P. ⁶	6X	1.25	0.033	Class-A Amplifier	30	0	30	0.06	0.3	1000000	325	—	—	—	CK501
CK502	Pentode Output Amplifier	5-pin P. ⁶	6X	1.25	0.033	Class-A Amplifier	45	-1.25	45	0.055	0.28	1500000	300	—	—	—	CK502
CK503	Pentode Output Amplifier	5-pin P. ⁶	6X	1.25	0.033	Class-A Amplifier	30	0	30	0.13	0.55	500000	400	—	60000	3	CK503
CK504	Pentode Output Amplifier	5-pin P. ⁶	6X	1.25	0.033	Class-A Amplifier	30	0	30	0.33	1.5	1500000	600	—	20000	6 ⁷	CK504
CK505	Pentode Voltage Amplifier	5-pin P. ⁶	6X	0.625 ¹¹	0.03	Class-A Amplifier	30	-1.25	30	0.09	0.4	500000	350	—	60000	3 ⁷	CK505
HY113	Triode Amplifier	5-pin P. ⁶	5K ⁸	1.4	0.07	Class-A Amplifier	45	-1.25	45	0.07	0.17	1100000	140	—	—	—	HY113
HY115	Pentode Voltage Amplifier	5-pin P. ⁶	5K	1.4	0.07	Class-A Amplifier	45	-4.5	—	0.08	0.4	250000	250	6.3	40000	6.5	HY115
HY125	Pentode Power Amplifier	5-pin P. ⁶	5K	1.4	0.07	Class-A Amplifier	90	-1.5	22.5	0.008	0.03	5200000	58	300	—	—	HY125
RK42	Triode Amplifier	4-pin S.	4D	1.5	0.6	Class-A Amplifier	45	-1.5	45	0.1	0.48	1300000	270	370	—	—	HY125
RK43	Twin Triode Amplifier	6-pin S.	6C	1.5	0.12	Class-A Amplifier	45	-3.0	45	0.2	0.9	825000	310	255	50000	11.5	HY125
Characteristics same as Type 30—Table VI																	RK42
Max. r.m.s. voltage per plate — 30																	RK43
Max. d.c. output current — 340 μ a.																	RK43
Max. d.c. output current — 340 μ a.																	RK43
Max. d.c. output current — 340 μ a.																	RK43
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Max. d.c. output current — 340 μ a.																	RK43
Max. d.c. output current — 340 μ a.																	RK43

¹ Refer to Receiving Tube Diagrams.
² M. — medium; S. — small; O. — octal; L. — lokal.
³ Grid bias obtained from 90-volt "B" supply through self-biasing resistor.
⁴ Obtained from 90-volt supply through 70,000-ohm dropping resistor.
⁵ Per tube. Values to left of diagonal line for no-signal condition; values to right are with signal.
⁶ Special miniature 5-pin peanut base. Also available with small-shell octal base.
⁷ With 5-megohm grid resistor and 0.02- μ fd. grid coupling condenser.
⁸ No screen connection.
⁹ Through series resistor. Screen voltage must be at least 10 volts lower than oscillator anode.
¹⁰ Special 7-pin "button" base, miniature type.
¹¹ Two tubes connected in series for 1.4-volt operation.
¹² Internal shield connected to pin 1.
¹³ Voltage gain.
¹⁴ See Supplementary Base Diagrams.

TABLE IX — HIGH-VOLTAGE HEATER TUBES

Type	Name	Base ³	Socket Connections ¹	Heater		Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Trans-conductance, Micromhos	Amp. Factor	Load Resistance, Ohms	Power Output, Watts	Type
				Volts	Amps.												
12A5	Pentode Power Amplifier	7-pin M.	7F	12.6	0.3	Class-A Amplifier	100	-15	100	3/6.5	17/19	50000	1700	—	4500	0.8	12A5
12A6	Beam Power Amplifier	7-pin O.	7AC	6.3	0.6	Class-A ₁ Amplifier	180	-25	180	8/14	45/48	35000	2400	—	3300	3.4	12A6
12A7	Rectifier-Amplifier ²	7-pin M.	7K	12.6	0.5	Class-A Amplifier	250	-12.5	250	3.5	30	70000	3000	—	7500	3.4	12A7
12A8GT	Pentagrid Converter	8-pin O.	8A	12.6	0.3	Osc.-Mixer	135	-13.5	135	2.5	9.0	102000	975	100	13500	0.55	12A8GT
12AH7GT	Twin Triode	8-pin O.	8BE	12.6	0.15	Converter and Amplifier	Characteristics same as 6A8—Table I										
12B6M ³	Diode Triode	8-pin O.	6Y	12.6	0.15	Class-A Amplifier	250	-3.0	100	2.6	9.2	800000	2000	100	—	—	12B6M
12B7ML	Pentode Amplifier	8-pin O.	8V	12.6	0.15	Class-A Triode	100	-1	—	—	0.6	73000	1500	110	—	—	12B7ML
12B8GT	Triode-Pentode	8-pin O.	8T	12.6	0.3	Class-A Pentode	100	-3	100	2	8	170000	2100	360	—	—	12B8GT
12C8	Duplex-Diode Pentode	8-pin O.	8E	12.6	0.15	Class-A Amplifier	Characteristics same as 6B8—Table I										
12E5GT	Triode Amplifier	6-pin O.	6Q	12.6	0.15	Class-A Amplifier	250	-13.5	—	—	50	—	1450	13.8	—	—	12E5GT
12F5GT	Triode Amplifier	5-pin O.	5M	12.6	0.15	Class-A Amplifier	Characteristics same as 6F5—Table I										
12G7G	Duplex-Diode Triode	7-pin O.	7V	12.6	0.15	Class-A Amplifier	250	-3.0	—	—	—	58000	1200	70	—	—	12G7G
12H6	Twin Diode	7-pin O.	6Q	12.6	0.15	Rectifier	Characteristics same as 6H6—Table I										
12J5GT	Triode Amplifier	6-pin O.	6Q	12.6	0.15	Class-A Amplifier	Characteristics same as 6J5—Table I										
12J7GT	Pentode Voltage Amplifier	7-pin O.	7R	12.6	0.15	Class-A Amplifier	Characteristics same as 6J7—Table I										
12K7GT	Remote Cut-off Pentode	7-pin O.	7R	12.6	0.15	R.F. Amplifier	Characteristics same as 6K7—Table I										
12K8	Triode Hexode Converter	8-pin O.	8K	12.6	0.15	Osc.-Mixer	Characteristics same as 6K8—Table I										
12Q7GT	Duplex-Diode Triode	7-pin O.	7V	12.6	0.15	Class-C Amplifier	Characteristics same as 6Q7—Table I										
12SA7	Pentagrid Converter	8-pin O.	8R	12.6	0.15	Osc.-Mixer	Characteristics same as 6SA7—Table I										
12SC7	Twin Triode	8-pin O.	8S	12.6	0.15	Class-A Amplifier	Characteristics same as 6SC7—Table I										
12SF5	High- μ Triode	8-pin O.	8P	12.6	0.15	Class-A Amplifier	Characteristics same as 6SF5—Table I										
12SF7	Diode Variable- μ Pentode	8-pin O.	7AZ	12.6	0.15	Class-A Amplifier	Characteristics same as 6SF7—Table I										
12SG7	Triode-Grid Variable- μ	8-pin O.	8BC	12.6	0.15	Class-A Amplifier	Characteristics same as 6SG7—Table I										
12SH7	H-F Amplifier Pentode	8-pin O.	8BK	12.6	0.15	H-F Amplifier	Characteristics same as 6SH7—Table I										
12SJ7	Pentode Voltage Amplifier	8-pin O.	8N	12.6	0.15	Class-A Amplifier	Characteristics same as 6SJ7—Table I										
12SK7	Remote Cut-off Pentode	8-pin O.	8N	12.6	0.15	R.F. Amplifier	Characteristics same as 6SK7—Table I										
12SL7GT	Twin Triode	8-pin O.	8BD	12.6	0.15	Class-A Amplifier	Characteristics same as 6SL7GT—Table II										
12SN7GT	Duplex-Diode Triode	8-pin O.	8BD	12.6	0.3	Class-A Amplifier	Characteristics same as 6SN7GT—Table II										
12SQ7	Duplex-Diode Triode	8-pin O.	8Q	12.6	0.15	Class-A Amplifier	Characteristics same as 6SQ7—Table I										
12SR7	Triode Amplifier	8-pin L.	5AC	14 ⁴	0.16	Class-A Amplifier	Characteristics same as 6SR7—Table I										
14A4	Beam Power Amplifier	8-pin L.	6AA	14 ⁴	0.16	Class-A Amplifier	Characteristics same as 7A4—Table III										
14A5	Triode-Grid Variable- μ	8-pin L.	8V	14 ⁴	0.16	Class-A Amplifier	250	-12.5	250	3.5/5.5	30/32	70000	3000	—	7500	2.8	14A5
14A7/12B7	Twin Triode	8-pin L.	8W	14 ⁴	0.16	Class-A Amplifier	250	-3.0	100	2.6	9.2	800000	2000	—	—	—	14A7/12B7
14AF7	Duplex-Diode Triode	8-pin L.	8AC	14	0.16	Class-A Amplifier	250	-10	—	—	9	7600	2100	16	—	—	14AF7
14B6	Pentagrid Converter	8-pin L.	8X	14 ⁴	0.16	Osc.-Mixer	Characteristics same as 7B6—Table III										
14B8	Beam Power Amplifier	8-pin L.	6AA	14 ⁴	0.24	Class-A Amplifier	Characteristics same as 7B8—Table III										
14C5	Triode-Grid Amplifier	8-pin L.	8V	14 ⁴	0.16	Class-A Amplifier	Characteristics same as 6C5—Table I										
14C7	Duplex-Diode Triode	8-pin L.	8W	14 ⁴	0.16	Class-A Amplifier	Characteristics same as 6C7—Table I										
14E6	Duplex-Diode Pentode	8-pin L.	8AE	14 ⁴	0.16	Class-A Amplifier	Characteristics same as 7E6—Table III										
14E7	Duplex-Diode Pentode	8-pin L.	8AE	14 ⁴	0.16	Class-A Amplifier	Characteristics same as 7E7—Table III										

TABLE IX — HIGH-VOLTAGE HEATER TUBES — Continued

Type	Name	Base ³	Socket Connections ¹	Heater Volts Amps.	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance Ohms	Transcon- ductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
14F7	Twin Triode	8-pin L.	8AC	14 ¹	0.16	Class-A Amplifier	250	— 2.5	150	3.5	9.5	800000	—	—	—	14F7
14H7	Triple-Grid Semi-Variable- Triode-Hexode Converter	8-pin L.	8V	14 ¹	0.16	Class-A Amplifier	250	— 2.2	150	3.9	10	3800	—	—	—	14H7
14J7	Triode-Hexode Converter	8-pin L.	8AR	14 ¹	0.16	Osc.-Mixer	250	— 3.0	100	3.4	1.5	—	—	—	—	14J7
14N7	Twin Triode	8-pin L.	8AC	14 ¹	0.16	Class-A Amplifier	250	— 3.0	100	3.4	1.5	—	—	—	—	14N7
14Q7	Heptode Pentagrid Converter	8-pin L.	8AL	14 ¹	0.16	Osc.-Mixer	250	— 3.0	100	2.8	1.3	—	—	—	—	14Q7
14R7	Duplex-Diode Pentode	8-pin L.	8AE	14 ¹	0.16	Class-A Amplifier	250	— 3.0	100	3.5	3.5	—	—	—	—	14R7
14S7	Triode Heptode	8-pin L.	8BL	14 ¹	0.16	Osc.-Mixer	250	— 2.0	100	3	1.8	1250000	—	—	—	14S7
14W7	Pentode	8-pin L.	8BJ	14 ¹	0.24	Class-A Amplifier	300	— 2.2	150	3.9	10	3800	—	—	—	14W7
20J8GM ²	Triode Heptode Converter	8-pin O.	8H	20	0.15	Osc.-Mixer	250	— 3.0	100	3.4	1.5	—	—	—	—	20J8GM
21A7	Triode Hexode Converter	8-pin L.	8AR	21	0.16	Osc.-Mixer	250	— 3.0	100	2.8	1.3	—	—	—	—	21A7
25A6	Pentode Power Amplifier	7-pin O.	7S	25	0.3	Class-A Amplifier	135	— 20.0	135	8	37	35000	—	—	—	25A6
25A7G	Rectifier-Amplifier ⁵	8-pin O.	8F	25	0.3	Class-A Amplifier	100	— 15.0	100	4	20.5	1800	—	—	—	25A7G
25AC5G	Triode Power Amplifier	6-pin O.	6Q	25	0.3	Class-A Amplifier	165	+15.0	—	—	45	3800	—	—	—	25AC5G
25B5	Direct-Coupled Triodes	6-pin S.	6D	25	0.3	Class-A Amplifier	110	0	110	7	45	2200	—	—	—	25B5
25B6G	Pentode Power Amplifier	7-pin O.	7S	25	0.3	Class-A Amplifier	95	— 15.0	95	4	45	4000	—	—	—	25B6G
25B8GT	Triode Pentode	8-pin O.	8T	25	0.15	Class-A Amplifier	95	— 15.0	95	4	45	4000	—	—	—	25B8GT
25C6G	Beam Power Amplifier	7-pin O.	7AC	25	0.3	Class-A Amplifier	135	— 13.5	135	3.5/11.5	58/60	7000	—	—	—	25C6G
25D8GT	Diode Triode Pentode	8-pin O.	8AF	25	0.15	Triode Amplifier	100	— 1.0	—	—	0.5	91000	—	—	—	25D8GT
25L6	Beam Power Amplifier	7-pin O.	7AC	25	0.3	Pentode Amplifier	100	— 3.0	100	2.7	8.5	200000	—	—	—	25L6
25N6G	Direct-Coupled Triodes	7-pin O.	7W	25	0.3	Class-A Amplifier	110	— 8.0	110	3.5/10.5	45/48	10000	—	—	—	25N6G
32L7GT	Diode-Beam Tetrode ⁵	8-pin O.	8F	32.5	0.3	Class-A Amplifier	110	— 7.5	110	3	40	15000	—	—	—	32L7GT
35A5	Beam Power Amplifier	8-pin L.	6AA	35	0.15	Class-A Amplifier	110	— 7.5	110	3/7	40/41	14000	—	—	—	35A5
35L6G	Beam Power Amplifier	7-pin O.	7AC	35	0.15	Class-A Amplifier	110	— 7.5	110	3/7	40/41	13800	—	—	—	35L6G
43	Pentode Power Amplifier	6-pin M.	6B	25	0.3	Class-A Amplifier	95	— 15.0	95	4.0	20.0	2000	—	—	—	43
48	Tetrode Power Amplifier	6-pin M.	6A	30	0.4	Class-A Amplifier	96	— 19.0	96	9.0	52.0	3800	—	—	—	48
50A5	Beam Power Amplifier	8-pin L.	6AA	50	0.15	Class-A Amplifier	110	— 7.5	110	4/11	49/50	10000	—	—	—	50A5
50C6G	Beam Power Amplifier	7-pin O.	7AC	50	0.15	Class-A Amplifier	135	— 13.5	135	3.5/11.5	58/60	9300	—	—	—	50C6G
50L6GT	Beam Power Amplifier	7-pin O.	7AC	50	0.15	Class-A Amplifier	110	— 7.5	110	4/11	49/50	—	—	—	—	50L6GT
70A7GT	Diode-Beam Tetrode ⁵	8-pin O.	8AB ⁷	70	0.15	Class-A Amplifier	110	— 7.5	110	3.0	40	—	—	—	—	70A7GT
70L7GT	Diode-Beam Tetrode ⁵	8-pin O.	8AA	70	0.15	Class-A Amplifier	110	— 7.5	110	3/6	40/43	15000	—	—	—	70L7GT
11L7GT/ 11M7GT	Rectifier-Amplifier ⁵	8-pin O.	8AO	117	0.09	Class-A Amplifier	105	— 5.2	105	4/5.5	43	17000	—	—	—	11L7GT/ 11M7GT
117N7GT	Rectifier-Amplifier ⁵	8-pin O.	8AV	117	0.09	Class-A Amplifier	100	— 6.0	100	5.0	51	16000	—	—	—	117N7GT
117P7GT	Rectifier-Amplifier ⁵	8-pin O.	8AV	117	0.09	Class-A Amplifier	105	— 5.2	105	4/5.5	43	17000	—	—	—	117P7GT
1284	U.h.f. Pentode	7-pin O.	Fig. 4 ⁴	12.6	0.15	Indicator Tube	250	— 3.0	100	2.5	9.0	800000	—	—	—	1284
1659	Electron-Ray Tube	8-pin O.	6RA	12.6	0.15	Indicator Tube	250	— 3.0	100	2.5	9.0	800000	—	—	—	1659
1631	Beam Power Amplifier	7-pin O.	7AC	12.6	0.45	Class-A Amplifier	100	— 6.0	100	5.0	51	16000	—	—	—	1631
1632	Beam Power Amplifier	7-pin O.	7AC	12.6	0.6	Class-A Amplifier	105	— 5.2	105	4/5.5	43	17000	—	—	—	1632
1633	Twin Triode	8-pin-O.	8BD	25	0.15	Class-A Amplifier	180	— 9.0	180	2.8/4.6	13	160000	—	—	—	1633
1634	Twin Triode	8-pin-O.	8S	12.6	0.15	Class-A Amplifier	180	— 9.0	180	2.8/4.6	13	160000	—	—	—	1634
1644	Twin Pentode	8-pin O.	Fig. 7 ⁶	12.6	0.15	Class-A Amplifier	180	— 9.0	180	2.8/4.6	13	160000	—	—	—	1644

TABLE IX — HIGH-VOLTAGE HEATER TUBES — Continued

Type	Name	Base ²	Socket Connections ¹	Heater		Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
				Volts	Amps.												
XXD	Twin Triode	8-pin L.	8AC	12.6	0.15	Class-A Amplifier	250	-10	28 ⁸	0.7 ⁸	9.0	—	2100	16	4000 ⁸	0.08 ⁸	XXD
28D7	Double Beam Power Amplifier	8-pin L.	Fig. 12 ⁶	28.0	0.4	Class-A ₂ Amplifier	28	390 ¹⁰ 180 ¹⁰	28 ⁹	1.2 ⁹	18.5 ⁹	—	—	—	6000 ¹¹	0.175 ⁹	28D7

¹ Refer to Receiving Tube Diagrams.

² M. — medium S. — small; O. — octal; L. — loktal.

³ Metal-sprayed glass envelope.

⁴ Maximum rating, corresponding to 130-volt line condition; normal rating is 12.6 v. for 117-v. line.

⁵ For rectifier data, see Table XIII. ⁶ See Supplementary Base Diagrams.

⁷ 6.3-volt pilot lamp must be connected between pins 6 and 7.

⁸ Per section (except heater) — resistance coupled.

⁹ P. P. operation — values for both sections, resistance coupled.

¹⁰ Cathode resistor — ohms.

TABLE X — SPECIAL RECEIVING TUBES

Type	Name	Base ²	Socket Connections ¹	Fil. or Heater		Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance Micromhos	Amp. Factor	Load Resistance Ohms	Power Output Watts	Type
				Volts	Amps.												
00-A	Triode Detector	4-pin M.	4D	5.0	0.25	Grid Leak Detector	45	—	—	—	1.5	30000	666	20	—	—	00-A
01-A	Triode Detector Amplifier	4-pin M.	4D	5.0	0.25	Class-A Amplifier	135	-9.0	—	—	3.0	10000	800	8.0	—	—	01-A
3A4	Power Amplifier Pentode	7-pin B.	7BB	1.4	0.2	Class-A Amplifier	135	-7.5	90	2.6	14.8	90000	1900	—	8000	0.6	3A4
3A5	H.F. Twin Triode	7-pin B.	7BC	2.8	0.1	Class-A Amplifier	150	-8.4	90	2.2	13.3	100000	—	—	—	—	3A5
3A5	H.F. Twin Triode	7-pin B.	7BC	1.4	0.22	Class-A Amplifier	90	-2.5	—	—	3.7	8300	1800	15	—	—	3A5
3A8GT	Diode Triode Pentode	8-pin O.	8AS	2.8	0.11	Class-A Triode	90	0	—	—	0.15	240000	275	65	—	—	3A8GT
3B5GT	Beam Power Amplifiers	7-pin O.	7AP	2.8	0.05	Class-A Pentode	90	0	90	0.3	1.2	600000	750	—	—	—	3B5GT
3C5GT	Power Output Pentode	7-pin O.	7AQ	1.4	0.1	Class-A Amplifier	67.5	-7.0	67.5	0.6	8.0	100000	1500	—	5000	0.2	3C5GT
3LE4	Power Amplifier Pentode	8-pin L.	6BA	2.8	0.05	Class-A Amplifier	90	-9.0	90	1.8	9.0	110000	1600	—	8000	0.24	3LE4
3LF4	Power Amplifier Tetrode	8-pin L.	6BB	1.4	0.1	Class-A Amplifier	90	-4.5	90	1.3	9.5	75000	2200	—	8000	0.27	3LF4
3Q4	Power Amplifier Pentode	7-pin O.	7BA	2.8	0.05	Class-B Amplifier	90	-4.5	90	2.1	9.5	100000	2150	—	10000	0.24	3Q4
3Q5GT	Beam Power Amplifier	7-pin O.	7AP	1.4	0.1	Class-A Amplifier	90	-4.5	90	1.6	9.5	120000	2000	—	8000	0.27	3Q5GT
3S4	Power Amplifier Pentode	7-pin B.	7BA	2.8	0.05	Class-A Amplifier	90	-7.0	67.5	1.4	7.4	100000	1575	—	8000	0.25	3S4
10	Triode Power Amplifier	4-pin M.	4D	7.5	1.25	Class-A Amplifier	425	-39.0	—	—	18.0	5000	1600	8.0	10200	1.6	10
11/12	Triode Detector Amplifier	4-pin M.	4D	1.1	0.25	Class-A Amplifier	135	-10.5	—	—	3.0	15000	440	6.6	—	—	11/12
20	Triode Power Amplifier	4-pin S.	4D	3.3	0.132	Class-A Amplifier	135	-22.5	—	—	6.5	6300	525	3.3	6500	0.11	20
22	Tetrode R.F. Amplifier	4-pin M.	4K	3.3	0.132	R.F. Amplifier	135	-1.5	67.5	1.3	3.7	325000	500	160	—	—	22
26	Triode Amplifier	4-pin M.	4D	1.5	1.05	Class-A Amplifier	180	-14.5	—	—	6.2	7300	1150	8.3	—	—	26
40	Triode Voltage Amplifier	4-pin M.	4D	5.0	0.25	Class-A Amplifier	180	-3.0	—	—	0.2	150000	200	30	—	—	40
4A6G	Twin Triode Amplifier	8-pin O.	8L	4.3	0.06	Class-A Amplifier ⁴	90	-1.5	—	—	2.2	13300	1500	20	—	—	4A6G
50	Triode Power Amplifier	4-pin M.	4D	7.5	1.25	Class-B Amplifier	450	-84.0	—	—	55.0	1800	2100	3.8	4350	1.0	50
6AG5	Pentode R.F. Amplifier	7-pin M.	7BD	6.3	0.3	Class-A Amplifier	250	200 ¹⁶	150	2.0	7.0	800000	5000	—	—	4.6	6AG5
6C4	Triode Amplifier	7-pin B.	6BG	6.3	0.15	Class-A Amplifier	100	100 ¹⁶	100	1.6	5.5	300000	4750	—	—	—	6C4
6J6	Twin Triode	7-pin M.	7BF	6.3	0.45	Class-A Amplifier	250	-8.5	—	—	10.5	7700	2200	1.7	—	—	6J6
71-A	Triode Power Amplifier	4-pin M.	4D	5.0	0.25	Class-A Amplifier	180	-43.0	—	—	20.0	1750	1700	3.0	4800	0.79	71-A

TABLE X—SPECIAL RECEIVING TUBES—Continued

Type	Name	Base ²	Socket Connections ¹	Cathode	Fil. or Heater	Use	Plate Supply Volts	Grid Bias	Screen Volts	Screen Current Ma.	Plate Current Ma.	Plate Resistance, Ohms	Transconductance, Micromhos	Amp. Factor	Load Resistance, Ohms	Power Output, Watts	Type
99	Triode Detector Amplifier	4-pin S.	4D	Fil.	3.3 0.063	Class-A Amplifier	90	-4.5	—	—	2.5	15500	425	6.6	—	—	99
112A	Triode Detector Amplifier	4-pin M.	4D	Fil.	5.0 0.25	Class-A Amplifier	180	-13.5	—	—	7.7	4700	1800	8.5	—	—	112A
182B/482B	Triode Amplifier	4-pin M.	4D	Fil.	5.0 1.25	Class-A Amplifier	250	-35.0	—	—	18.0	—	1500	5.0	—	—	182B/482B
183/483	Power Triode	4-pin M.	4D	Fil.	5.0 1.25	Class-A Amplifier	250	-60.0	—	—	25.0	18000	1800	3.2	4500	2.0	183/483
257	Power Pentode	5-pin M.	5B	Fil.	5.0 0.3	Class-A Amplifier	110	-21.5	110	7.0	20.0	41000	1350	55	6000	0.8	257
485	Triode	5-pin S.	5A	Htr.	3.0 1.3	Class-A Amplifier	180	-9.0	—	—	6.0	9300	1350	12.5	—	—	485
864	Triode Amplifier	4-pin S.	4D	Fil.	1.1 0.25	Class-A Amplifier	90	-4.5	—	—	2.9	13500	610	8.2	—	—	864
954 ⁷	Pentode Detector, Amplifier	Special	A ⁷	Htr.	6.3 0.15	Class-A Amplifier	250	-3.0	100	0.7	2.0	1.5 megohms	1400	2000	—	—	954
955 ⁷	Triode Detector, Amplifier	Special	B ⁷	Htr.	6.3 0.15	Class-A Amplifier	250	-7.0	—	—	6.3	11400	2200	25	—	—	955
956 ⁷	Triple-Grid Variable-μ R.F. Amplifier	Special	A ⁷	Htr.	6.3 0.15	R.F. Amplifier	250	-3.0	100	2.7	7.0	D.C. Grid Current App. 1.5 ma.	1800	1440	—	—	956
957 ⁷	Triode Det., Amp., Osc.	Special	C ⁷	Fil.	1.25 0.05	Mixer	250	-10.0	100	—	—	20800	650	13.5	—	—	957
958 ⁷	Triode A.F. Amp., Osc.	Special	C ⁷	Fil.	1.25 0.1	Class-A Amplifier	135	-5.0	—	—	2.0	10000	1200	12	—	—	958
959 ⁷	Pentode Det., Amplifier	Special	D ⁷	Fil.	1.25 0.05	Class-A Amplifier	135	-7.5	—	—	3.0	10000	600	480	—	—	959
7E5/1201	U.h.f. Triode	8-pin L	Fig. 3 ¹¹	Htr.	6.3 0.15	Class-A Amplifier	180	-3	67.5	0.4	5.5	19000	—	36	—	—	7E5/1201
7C4/1203	U.h.f. Diode	8-pin L	Fig. 1 ¹¹	Htr.	6.3 0.15	Rectifier	250	-2	100	0.6	1.75	80000	1200	—	—	—	7C4/1203
1204	U.h.f. Pentode	8-pin L	Fig. 5 ¹¹	Htr.	6.3 0.15	Class-A Amplifier	135	-1.5	67.5	0.65	2.5	40000	725	300	—	—	1204
1609	Pentode Amplifier	5-pin S.	5B	Fil.	1.1 0.25	Class-A Amplifier	250	-3.0	100	0.7	2.0	Over 1 meg.	1400 ¹⁰	—	—	—	1609
9001	Triple-Grid Detector, Amplifier	7-pin B ⁸	7AS	Htr.	6.3 0.15	Mixer	250	-5.0	100	—	—	Osc. peak voltage 4 volts	550	—	—	—	9001
9002	Triode Det., Amp., Osc.	7-pin B ⁸	7AW	Htr.	6.3 0.15	Class-A Amplifier	250	-7.0	—	—	6.3	11400	2200	25	—	—	9002
9003	Triple-Grid Variable-μ R.F. Amplifier	7-pin B ⁸	7AS	Htr.	6.3 0.15	Class-A Amplifier	250	-3.0	100	2.7	6.7	70000	1800	—	—	—	9003
9004	U.h.f. Diode	Special	E ⁷	Htr.	6.3 0.15	Detector	250	-10.0	100	—	—	Osc. peak voltage 9 volts	600	—	—	—	9004
9005	U.h.f. Diode	Special	F ⁷	Htr.	3.6 0.165	Detector	30	0	30	0.06	0.5	13000	200	26	35000	0.005	9005
M54	Tetrode Power Amplifier	None ⁹	—	Fil.	0.625 ¹⁰	Class-A Amplifier	30	0	—	—	0.03	200000	110	25	—	—	M54
M64	Tetrode Voltage Amplifier	None ⁹	—	Fil.	0.625 ¹⁰	Class-A Amplifier	30	0	7.0	0.01	0.02	500000	125	70	—	—	M64
M74	Tetrode Voltage Amplifier	None ⁹	—	Fil.	0.625 ¹⁰	Class-A Amplifier	30	0	—	—	0.02	500000	125	70	—	—	M74
XXB	Twin Triode Frequency Converter	7-pin L	Fig. 9 ¹¹	Fil. ¹²	9.8 0.05 1.4 / 0.10 3.9 ¹³ / 1.6	Frequency Converter ¹⁷	90 ¹²	0	—	—	4.5 ¹⁹ 4.5 ²⁰ 1.4 ²⁰	11200 ¹⁹ 11200 ²⁰ 1900 ²⁰	1300 ¹⁹ 1300 ²⁰ 760 ²⁰	14.5 ¹²	—	—	XXB
XXFM	Twin-Diode Triode	8-pin L	Fig. 10 ¹¹	Htr.	6.3 0.3	Special Detector Amplifier	250 ¹³ 100 ¹³ 100 ¹⁴	-1 0 —	—	—	1.9 1.2 4 ¹⁵	6700 85000 —	1500 1000 —	100 85 —	—	—	XXFM

¹ Refer to Receiving Tube Diagrams.² M—medium, S—small; O—octal; L—lokal.³ Cathode terminal is mid-point of filament; use series connection with 4 volts, parallel with 9 volts. ⁴ Filament current, both plates.⁵ Filament mid-point tap permits series or parallel connection.⁷ "Acorn" type; miniature unbase tubes for ultrahigh frequency.⁸ See Acorn Tube Socket Connections.⁹ Special 7-pin "button" base, miniature type.¹⁰ No base; tinned wire leads. Dimensions 0.36" x 1.10".¹¹ Intended for series-parallel operation on 1.4-volt dry cell.¹² See Supplementary Base Diagrams.¹³ Both Sections.¹⁴ Diode plates (A.C. max. volts per plate).¹⁵ Max. D.C. output.¹⁶ Dry battery operation.¹⁷ Section No. 1.¹⁸ Section No. 2.¹⁹ Series operation, pin 8 is neg. & pin 9 pos.²⁰ Parallel operation, pins 1 & 8 tied together for pos.

TABLE XI—CONTROL AND REGULATOR TUBES

Type	Name	Base ¹	Socket Connections ²	Cathode	Fil. or Heater Volts	Amps.	Use	Peak Anode Voltage	Max. Anode Current ³	Minimum Starting Anode Voltage	Operating Voltage	Operating Current	Grid Resistor	Tube Voltage Drop	Type
0A4G	Gas Triode Starter-Anode Type	6-pin O.	4V	Cold	—	—	Cold-Cathode Starter-Anode Relay Tube	With 105-120-volt a.c. anode supply, peak starter-anode a.c. voltage is 70, peak r.f. voltage 55	25	66 ¹⁵	—	—	—	73	0A4G
1C91	Gas Triode Glow-Discharge Type	6-pin O.	4V	Cold	—	—	Relay Tube	125-145	0.1 ¹⁵	180 ¹⁷	—	—	—	55 ¹⁵	1C91
2A4G	Gas Triode Grid Type	7-pin O.	5S	Fil.	2.5 ¹⁶	2.5	Voltage Regulator	200	100	—	—	—	—	15	2A4G
874	Voltage Regulator	4-pin M.	4S	—	—	—	Control Tube	—	—	—	90	10-50	—	—	874
876	Current Regulator	Mosul	—	—	—	—	Voltage Regulator ⁵	—	—	—	40-60	1.7	—	—	876
884	Gas Triode Grid Type	6-pin O.	6Q	Htr.	6.3	0.6	Current Regulator ⁵	300	300	—	—	—	25000 ⁴	—	884
885	Gas Triode Grid Type	5-pin S.	5A	F.tr.	2.5	1.4	Sweep Circuit Oscillator	350	300	—	—	75	25000 ⁴	—	885
886	Current Regulator	Mosul	—	—	—	—	Grid-Controlled Rectifier	—	—	—	40-60	2.05	—	—	886
967	Mercury Vapor Triode	4-pin M.	F ¹⁰	Fil.	2.5	5.0	Current Regulator ⁵	2500	500	—	55-60	2.0	—	10-24	967
991	Voltage Regulator	8-pin O.	8BA	Htr.	6.3	0.6	Grid-Controlled Rectifier	650	100	—	—	—	0.1-10 ¹⁸	8	991
2050	Gas Tetrode	8-pin O.	8BA	Htr.	6.3	0.6	Grid-Controlled Rectifier	350	75	—	—	—	0.1-10 ¹⁸	14	2050
KY21	Gas Triode Grid Type	4-pin M.	—	Fil.	2.5	10.0	Grid-Controlled Rectifier	—	—	—	3000	500	—	—	KY21
RK62	Gas Triode Grid Type	4-pin S.	4D	Fil.	1.4	0.05	Relay Tube ⁶	45	1.5	—	30-45	0.1-1.5	—	15	RK62
RM208	Permatron	4-pin M.	—	Fil.	2.5	5.0	Controlled Rectifier ⁷	7500 ⁸	1000	—	—	—	—	15	RM208
RM209	Permatron	4-pin M.	—	Fil.	5.0	10.0	Controlled Rectifier ⁷	7500 ⁸	5000	—	—	—	—	15	RM209
VR75-30	Voltage Regulator	6-pin O.	4SB	—	—	—	Voltage Regulator	—	—	105	75	5-30 ⁹	—	—	VR75-30
OB3/VR90-30	Voltage Regulator	7-pin O.	4SB	—	—	—	Voltage Regulator	—	—	125	90	5-30 ⁹	—	—	OB3/VR90-30
VR105-30	Voltage Regulator	6-pin O.	4SB	—	—	—	Voltage Regulator	—	—	137	105	5-30 ⁹	—	—	VR105-30
OD3/VR150-30	Voltage Regulator	6-pin O.	4SB	—	—	—	Voltage Regulator	—	—	180	150	5-40 ⁹	—	—	OD3/VR150-30
KY866	Mercury Vapor Triode	4-pin M.	F ¹⁰	Fil.	2.5	5.0	Grid-Controlled Rectifier	10000	1000	—	100-150	—	—	—	KY866

1 M—medium; S—small; O—octal.

2 Refer to Rectifying Tube Diagrams.

3 In ma.

4 Not less than 1000 ohms per grid volt; 500,000 ohms max.

5 For use in series with power transformer primary.

6 For use as self-quenching super-regenerative detector with high-resistance relay (3000-10000 ohms) in anode circuit.

7 For use as grid-controlled rectifier or with external magnetic control, RM-208 has characteristics of 866, RM-209 of 872.

8 When under control peak inverse rating is reduced to 2500.

9 Sufficient resistance must be used in series with tube to limit current to maximum current rating.

10 Refer to Transmitting Tube Diagrams.

11 At 1000 anode volts.

12 At 350 anode volts and 0 Grid No. 2 volts.

13 At 650 anode volts and 0 Grid No. 2 volts.

14 Candelabra type, double contact.

15 Filament voltage should be applied 2 seconds before using.

16 Grid tied to plate.

17 Grid tied to plate.

TABLE XII—CATHODE-RAY TUBES AND KINESCOPIES

Type	Name	Socket Connections ¹	Heater Volts	Amps.	Use	Size	Anode No. 1 Voltage	Cut-Off Grid Voltage ²	Grid No. 2 Voltage	Signal-Swing Voltage	Max. Input Voltage ³	Screen Input Power ⁴	Deflection Sensitivity ⁵ D ₁ D ₂ D ₃ D ₄	Screen Persistence ⁶	Pattern Color ⁶	Type
2AP1	Electrostatic Cathode-Ray	11B	6.3	0.6	Oscillograph Television	2"	1000	250	—	—	660	—	0.11 0.13 0.26	Med.	Green	2AP1
3AP1/906-P1	Electrostatic Cathode-Ray	7N	2.5	2.1	Oscillograph Television	3"	1500	475	—	—	600	10	0.22 0.23 0.35	P1	Green	3AP1/906-P1
3AP4/906-P4	Electrostatic Cathode-Ray	14A	6.3	0.6	Oscillograph Television	3"	1000	285	—	—	—	—	0.33 0.35 0.58	P4	White	3AP4/906-P4
3BP1	Electrostatic Cathode-Ray	14A	6.3	0.6	Oscillograph Television	3"	2000	575	—	—	550	—	0.115 0.155 0.207	Med.	Green	3BP1

TABLE XII—CATHODE-RAY TUBES AND KINESCOPES—Continued

Type	Name	Socket Connections ¹	Heater Volts Amps.	Use	Size	Anode No. 2 Voltage	Anode No. 1 Voltage	Cut-Off Grid Voltage ²	Grid No. 2 Voltage	Signal- Swing Voltage	Max. Input Voltage ³	Screen Input Power ⁴	Deflection Sensitivity ⁵ D ₁ D ₂ D ₃ D ₄	Screen Persist- ence ⁶	Pattern Color ⁸	Type
3EP1/ 1806-P1	Electrostatic Cathode-Ray	11A	6.3 0.6	Oscillograph Television	3"	2000 1500	575 430	— 60 — 45	—	—	550	—	0.115 0.153	Med.	Green	3EP1/ 1806-P1
5AP1/ 1805-P1	Electrostatic Picture Tube	10A	6.3 0.6	Oscillograph Television	5"	2000 1500	575 430	— 35 — 27	—	—	500	10	0.17 0.21 0.23 0.28	P1 P4	Green White	5AP1/ 1805-P1
5AP4/ 1805-P4	Electrostatic Picture Tube	10A	6.3 0.6	Oscillograph Television	5"	2000 1500	485 310	— 35 — 21	—	—	500	10	0.3 0.33 0.4 0.44	P1 P4	Green White	5AP4/ 1805-P4
5BP1/ 1802-P1	Electrostatic Cathode-Ray	10A	6.3 0.6	Oscillograph	5"	2000 1500	425 310	— 40 — 30	—	—	500	—	0.3 0.33 0.4 0.44	P1 P4	Green White	5BP1/ 1802-P1
5BP4/ 1802-P4	Electrostatic Cathode-Ray	10A	6.3 0.6	Oscillograph	5"	2000 1500	425 310	— 40 — 30	—	—	500	—	0.3 0.33 0.4 0.44	P1 P4	Green White	5BP4/ 1802-P4
5HP1/ 5HP4	Electromagnetic Picture Tube	5AJ	2.5 2.1	Television	7"	3500 1000	1000 —	— 67.5 — 45	—	—	—	—	—	—	White	5HP1/ 5HP4
7CP1/ 1811-P1	Electromagnetic Cathode-Ray	6AZ	6.3 0.6	Oscillograph	7"	7000 4000	1470 840	— 45 — 45	250 250	—	—	—	—	—	White	7CP1/ 1811-P1
9AP4/ 1804-P4	Electromagnetic Picture Tube	6AL	2.5 2.1	Television	9"	7000 6000	1425 1225	— 40 — 38	250 —	25	—	10	—	—	White	9AP4/ 1804-P4
9CP4	Electromagnetic Picture Tube	4AF	2.5 2.1	Television	9"	7000	1225	— 110	—	25	—	10	—	—	White	9CP4
9JP1/ 1809-P1	Electrostatic Cathode-Ray	Fig. 16 ¹¹	2.5 2.1	Oscillograph	9"	5000 2500	1570 785	— 90 — 45	—	—	3000	—	0.136 0.272	P1	Green	9JP1/ 1809-P1
12AP4/ 1803-P4	Electromagnetic Picture Tube	6AL	2.5 2.1	Television	12"	7000 6000	1460 1240	— 75 — 110	250 —	25	—	10	—	—	White	12AP4/ 1803-P4
13CP4	Electromagnetic Picture Tube	4AF	2.5 2.1	Television	12"	7000	—	— 110	—	25	—	10	—	—	White	13CP4
902	Electrostatic Cathode-Ray	A ⁹	6.3 0.6	Oscillograph	9"	600	150	— 60	—	—	350	5	0.19 0.22	P1	Green	902
903 ¹⁰	Electromagnetic Cathode-Ray	6AL	2.5 2.1	Oscillograph	9"	7003	1360	— 120	250	—	—	10	—	—	Green	903
904	Electrostatic-Magnetic Cathode-Ray	C ⁹	2.5 2.1	Oscillograph	5"	4600	970	— 75	250	—	4000	10	0.09	P1	Green	904
905	Electrostatic Cathode-Ray	D ⁹	2.5 2.1	Oscillograph	5"	2000	450	— 35	—	—	1000	10	0.19 0.23	P1	Green	905
907	Electrostatic Cathode-Ray	D ⁹	2.5 2.1	Oscillograph	5"	—	—	—	—	—	—	—	—	—	Blue	907
908	Electrostatic Cathode-Ray	7N	2.5 2.1	Oscillograph	3"	—	—	—	—	—	—	—	—	—	Blue	908
909	Electrostatic Cathode-Ray	D ⁹	2.5 2.1	Oscillograph	5"	—	—	—	—	—	—	—	—	—	Blue	909
910	Electrostatic Cathode-Ray	7N	2.5 2.1	Oscillograph	3"	—	—	—	—	—	—	—	—	—	Blue	910
911 ¹⁰	Electrostatic Cathode-Ray	7N	2.5 2.1	Oscillograph	3"	—	—	—	—	—	—	—	—	—	Blue	911
912	Electrostatic Cathode-Ray	F ⁹	2.5 2.1	Oscillograph	5"	10000	2000	— 66	250	—	7000	10	0.041 0.051	P1	Green	912
913	Electrostatic Cathode-Ray	A ⁹	6.3 0.6	Oscillograph	1"	500	100	— 65	—	—	250	5	0.07 0.10	P1	Green	913
914	Electrostatic Cathode-Ray	G ⁹	2.5 2.1	Oscillograph	9"	7000	1450	— 50	250	—	3000	10	0.073 0.093	P1	Green	914
1800 ¹⁰	Electromagnetic Kinescope	6AL	2.5 2.1	Television	9"	6000	1250	— 75	250	25	—	10	—	—	Yellow	1800
1801 ¹⁰	Electromagnetic Kinescope	H ⁹	2.5 2.1	Television	5"	3000	450	— 35	—	20	—	10	—	—	Yellow	1801
2002	Electrostatic Cathode-Ray	A ⁹	6.3 0.6	Oscillograph	2"	600	120	—	—	—	—	—	0.16 0.17	Med.	Green	2002
2005	Electrostatic Cathode-Ray	A ⁹	2.5 2.1	Television	5"	2000	1000	— 35	200	—	—	10	0.5 0.56	—	—	2005
24-XH	Electrostatic Cathode-Ray	A ⁹	6.3 0.6	Oscillograph	2"	600	120	— 60	—	—	—	10	0.14 0.16	Short	Green	24-XH

¹ Refer to Receiving Tube Diagrams.
² For current cut-off, in terms of average center values, should be adjustable to ± 50 per cent to take care of individual tubes.
³ Control grid should never be allowed to go positive.
⁴ In mw./sq. cm., max.

⁵ In mm./volt d.c.
⁶ Phosphorescent material used in screen determines persistence. P1 is phosphor of medium persistence, P2 long, P3 also medium but especially suited for television, P4 same as P3 but white, and P5 short persistence for oscillographic use.

⁷ The 911 is identical to 906 except for the gun material, which is designed to be especially free from magnetization effects.

⁸ Cathode connected to pin 7.

⁹ Refer to Cathode-Ray Tube Base Diagrams.

¹⁰ Obsolete type.

¹¹ See Supplementary Base Diagrams.

TABLE XIII — RECTIFIERS — RECEIVING AND TRANSMITTING

See also Table XI — Control and Regulator Tubes

Type No.	Name	Base ²	Socket Connections ¹	Cathode	Fil. or Heater		Max. A.C. Voltage Per Plate	Max. D.C. Output Current Ma.	Max. Inverse Peak Voltage	Max. Peak Plate Current Ma.	Type ⁷
					Volts	Amps.					
BA	Full-Wave Rectifier	4-pin M.	4J	Cold	—	—	350	350	Tube drop 80 v.		G
BH	Full-Wave Rectifier	4-pin M.	4J	Cold	—	—	350	125	Tube drop 90 v.		G
BR	Half-Wave Rectifier	4-pin M.	4J	Cold	—	—	300	50	Tube drop 60 v.		G
8Z4	Full-Wave Rectifier	6-pin O.	4R	Cold	—	—	350	30-75	1250	200	G
1 ⁵	Half-Wave Rectifier	4-pin S.	4G	Htr.	6.3	0.3	350	50	1000	400	M
1-V ⁵	Half-Wave Rectifier	4-pin S.	4G	Htr.	6.3	0.3	350	50	—	—	V
2V3G	Half-Wave Rectifier	6-pin O.	6BA	Fil.	2.5	5.0	—	2.0	16500	12	V
2W3	Half-Wave Rectifier	5-pin O.	4X	Fil.	2.5	1.5	350	55	—	—	V
2X2	Half-Wave Rectifier	4-pin M.	4B	Fil.	2.5	1.75	4500 ¹¹	7.5	—	—	V
2Y2	Half-Wave Rectifier	4-pin M.	4P	Fil.	2.5	1.75	4400 ¹¹	5.0	—	—	V
2Z2	Half-Wave Rectifier	4-pin M.	4B	Fil.	2.5	1.5	350	50	—	—	V
5R4GY	Full-Wave Rectifier	5-pin M.	5T	Fil.	5.0	2.0	900 ¹⁰	150 ¹⁰	2800	650	V
							950 ¹⁸	175 ¹⁸			
							450	250	1250	800	
5T4 ³	Full-Wave Rectifier	5-pin O.	5T	Fil.	5.0	3.0	Same as Type 5Z3				V
5U4G	Full-Wave Rectifier	8-pin O.	5T	Fil.	5.0	3.0	Same as Type 5Z3				V
5V4G	Full-Wave Rectifier	8-pin O.	5L	Htr.	5.0	2.0	Same as Type 83V				V
5W4	Full-Wave Rectifier	5-pin O.	5T	Fil.	5.0	1.5	350	110	1000	—	V
5X3	Full-Wave Rectifier	4-pin M.	4C	Fil.	5.0	2.0	1275	30	—	—	V
5X4G	Full-Wave Rectifier	8-pin O.	5Q	Fil.	5.0	3.0	Same as 5Z3				V
5Y3G	Full-Wave Rectifier	5-pin O.	5T	Fil.	5.0	2.0	Same as Type 80				V
5Y4G	Full-Wave Rectifier	8-pin O.	5Q	Fil.	5.0	2.0	Same as Type 80				V
5Z3	Full-Wave Rectifier	4-pin M.	4C	Fil.	5.0	3.0	500	250	1400	—	V
5Z4 ³	Full-Wave Rectifier	5-pin O.	5L	Htr.	5.0	2.0	400	125	1100	—	V
6W5G	Full-Wave Rectifier	6-pin O.	6S	Htr.	6.3	0.9	350	100	1250	350	V
6X5 ³	Full-Wave Rectifier	6-pin O.	6S	Htr.	6.3	0.5	350	75	—	—	V
6Y3	Half-Wave Rectifier	—	4AC	Fil.	6.3	0.7	5000	7.5	14000	100	V
6Y5	Full-Wave Rectifier	6-pin S.	6J	Htr.	6.3	0.8	350	50	—	—	V
6Z3	Half-Wave Rectifier	4-pin M.	4G	Fil.	6.3	0.3	350	50	—	—	V
6Z4	Full-Wave Rectifier	5-pin S.	5D	Htr.	6.3	0.5	350	50	—	—	V
6Z5	Full-Wave Rectifier	6-pin S.	6K	Htr.	6.3	0.6	230	60	—	—	V
6ZY5G	Full-Wave Rectifier	6-pin O.	6S	Htr.	6.3	0.3	350	35	1000	150	V
7Y4	Full-Wave Rectifier	8-pin L.	5AB	Htr.	7.0 ¹²	0.53	350	60	—	—	V
7Z4	Full-Wave Rectifier	8-pin L.	5AB	Htr.	7.0 ¹²	0.96	450 ⁶ 325 ¹⁰	100	1250	300	V
12A7	Rectifier-Pentode ¹⁴	7-pin S.	7K	Htr.	12.6	0.3	125	30	—	—	V
12Z3	Half-Wave Rectifier	4-pin S.	4J	Htr.	12.6	0.3	250	60	—	—	V
12Z5	Voltage-Doubling Rectifier	7-pin M.	7L	Htr.	12.6	0.3	225	60	—	—	V
14Y4	Full-Wave Rectifier	8-pin L.	5AB	Htr.	14.0 ¹²	0.32	450 ⁶ 325 ¹⁰	70	1250	210	V
14Z3	Half-Wave Rectifier	4-pin S.	4G	Htr.	14 ¹²	0.3	250	60	—	—	V
25A7G	Rectifier-Pentode ¹⁴	8-pin O.	8F	Htr.	25	0.3	125	75	—	—	V
25X6GT	Voltage-Doubling Rectifier	7-pin O.	7Q	Htr.	25	0.15	125	60	—	—	V
25Y4GT	Half-Wave Rectifier	6-pin O.	5AA	Htr.	25	0.15	125	75	—	—	V
25Y5	Voltage-Doubling Rectifier	6-pin S.	6E	Htr.	25	0.3	250	85	—	—	V
25Z3	Half-Wave Rectifier	4-pin S.	4G	Htr.	25	0.3	250	50	—	—	V
25Z4	Half-Wave Rectifier	6-pin O.	5AA	Htr.	25	0.3	125	125	—	—	V
25Z5	Rectifier-Doubler	6-pin S.	6E	Htr.	25	0.3	125	100	—	500	V
25Z6	Rectifier-Doubler	7-pin O.	7Q	Htr.	25	0.3	125	100	—	500	V
32L7GT	Rectifier-Tetrode ¹⁴	8-pin O.	8F	Htr.	32.5	0.3	125	60	—	—	V
35Y4	Half-Wave Rectifier	8-pin O.	5AL	Htr.	35 ⁸	0.15	235	100	700	600	V
35Z3-LT	Half-Wave Rectifier	8-pin L.	4Z	Htr.	35	0.15	250 ¹³	100	700	600	V
35Z4GT	Half-Wave Rectifier	6-pin O.	5AA	Htr.	35	0.15	250	100	—	—	V
35Z5G	Half-Wave Rectifier	6-pin O.	6AD	Htr.	35 ⁸	0.15	125	100	—	—	V
35Z6G	Voltage Doubler	6-pin O.	7Q	Htr.	35	0.3	125	110	—	500	V

TABLE XIII—RECTIFIERS—RECEIVING AND TRANSMITTING—Continued

See also Table XI—Control and Regulator Tubes

Type No.	Name	Base ²	Socket Connections ¹	Cathode	Fil. or Heater		Max. A.C. Voltage Per Plate	Max. D.C. Output Current Ma.	Max. Inverse Peak Voltage	Max. Peak Plate Current Ma.	Type ⁷
					Volts	Amps.					
40Z5GT	Half-Wave Rectifier	6-pin O.	6AD	Htr.	40 ⁸	0.15	125	100	—	—	V
45Z3	Half-Wave Rectifier	7-pin B.	5AM	Htr.	45	0.075	117	65	350	390	V
45Z5GT	Half-Wave Rectifier	6-pin O.	6AD	Htr.	45 ⁸	0.15	125	100	—	—	V
50Y6GT	Full-Wave Rectifier	7-pin O.	7Q	Htr.	50	0.15	125	85	—	—	V
50Z6G	Voltage-Doubling Rectifier	7-pin O.	7Q	Htr.	50	0.3	125	150	—	—	V
50Z7G	Voltage-Doubling Rectifier	8-pin O.	8AN	Htr.	50	0.15	117	65	—	—	V
70A7GT	Rectifier-Tetrode ¹⁴	8-pin O.	8AA	Htr.	70	0.15	125	60	—	—	V
70L7GT	Rectifier-Tetrode ¹⁴	8-pin O.	8AA	Htr.	70	0.15	117	70	—	350	V
80	Full-Wave Rectifier	4-pin M.	4C	Fil.	5.0	2.0	350 400 550	125 110 135	—	—	V
81	Half-Wave Rectifier	4-pin M.	4B	Fil.	7.5	1.25	700	85	—	—	V
82	Full-Wave Rectifier	4-pin M.	4C	Fil.	2.5	3.0	500	125	1400	400	M
83	Full-Wave Rectifier	4-pin M.	4C	Fil.	5.0	3.0	500	250	1400	800	M
83-V	Full-Wave Rectifier	4-pin M.	4L	Htr.	5.0	2.0	400	200	1100	—	V
84/6Z4	Full-Wave Rectifier	5-pin S.	5D	Htr.	6.3	0.5	350	60	1000	—	V
117L7GT/117M7GT	Rectifier-Tetrode ¹⁴	8-pin O.	8AO	Htr.	117	0.09	117	75	—	—	V
117N7GT	Rectifier-Tetrode ¹⁴	8-pin O.	8AV	Htr.	117	0.09	117	75	350	450	V
117P7GT	Rectifier-Tetrode ¹⁴	8-pin O.	8AV	Htr.	117	0.09	117	75	350	450	V
117Z4GT	Half-Wave Rectifier	6-pin O.	5AA	Htr.	117	0.04	117	90	350	—	V
117Z6GT	Full-Wave Rectifier	7-pin O.	7Q	Htr.	117	0.075	235	60	700	360	V
217-A	Half-Wave Rectifier	4-pin J.	T-3A ⁴	Fil.	10	3.25	—	—	3500	600	V
217-C	Half-Wave Rectifier	4-pin J.	T-3A ⁴	Fil.	10	3.25	—	—	7500	600	V
Z225 ¹⁷	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Fil.	2.5	5.0	—	250 ¹⁰	10000	1000	M
HK253	Half-Wave Rectifier	4-pin J.	T-3A ⁴	Fil.	5.0	10	—	350	10000	1500	V
816	Half-Wave Rectifier	4-pin S.	T-4AD ⁴	Fil.	2.5	2.0	—	125	5000	500	M
836	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Htr.	2.5	5.0	—	—	5000	1000	V
866A/866	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Fil.	2.5	5.0	—	250 ¹⁰	10000	1000	M
866B	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Fil.	5.0	5.0	—	—	8500	1000	M
866Jr.	Half-Wave Rectifier	4-pin M.	4B	Fil.	2.5	2.5	1250	250 ⁹	—	—	M
HY866 Jr.	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Htr.	2.5	3.0	1250	250 ⁹	3500	—	M
RK866	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Fil.	2.5	5.0	—	250 ¹⁰	10000	1000	M
871	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Fil.	2.5	2.0	1750	250	5000	500	M
878 ¹¹	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Fil.	2.5	5.0	7100	5	20000	—	V
879 ¹¹	Half-Wave Rectifier	4-pin S.	T-4AD ⁴	Fil.	2.5	1.75	2650	7.5	7500	100	V
872A/872	Half-Wave Rectifier	4-pin J.	T-3A ⁴	Fil.	5.0	7.5	—	1250	10000	5000	M
975A	Half-Wave Rectifier	4-pin J.	T-3A ⁴	Fil.	5.0	10.0	—	1500	15000	6000	M
1616	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Fil.	2.5	5.0	—	130	5500	800	V
8008	Half-Wave Rectifier	4-pin ¹⁶	Fig. 9 ¹⁵	Fil.	5.0	7.5	—	1250	10000	5000	M
8013	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Fil.	2.5	5.0	—	20	40000	150	V
8016	Half-Wave Rectifier	6-pin O.	Fig. 18 ¹⁵	Fil.	1.25	0.2	—	2.0	10000	7.5	V
RK19	Full-Wave Rectifier	4-pin M.	T-3A ⁴	Htr.	7.5	2.5	1250	200 ¹⁰	3500	600	V
RK21	Half-Wave Rectifier	4-pin M.	T-4AD ⁴	Htr.	2.5	4.0	1250	200 ¹⁰	3500	600	V
RK22	Full-Wave Rectifier	4-pin M.	T-4AG ⁴	Htr.	2.5	8.0	1250	200 ¹⁰	3500	600	V
RK60	Full-Wave Rectifier	4-pin M.	T-4AG ⁴	Fil.	5	3.0	750	250	2120	—	V

¹ Refer to Receiving Tube Diagrams.

² M.—medium; S.—small; O.—octal; L.—loktal; J.—jumbo B.—button.

³ Metal tube series.

⁴ Refer to Transmitting Tube Diagrams.

⁵ Types 1 and 1-V interchangeable.

⁶ With input choke of at least 20 henrys.

⁷ M.—Mercury-vapor type; V.—high-vacuum type; G.—Gas-ous type.

⁸ Tapped for pilot lamps.

⁹ Per pair with choke input.

¹⁰ Condenser input.

¹¹ For use with cathode-ray tubes.

¹² Maximum rating, corresponding to 130-volt line condition; normal rating is 12.6 v. for 117-v. line.

¹³ With 100 ohms min. resistance in series with plate; without series resistor, maximum r.m.s. plate rating is 117 volts.

¹⁴ For other data, see Table IX.

¹⁵ See Supplementary Base Diagrams.

¹⁶ Same as 872A/872 except for heavy-duty push-type base. Fil. connected to pins 2 and 3, plate to top cap.

¹⁷ Same as 872A/872 except for small envelope.

¹⁸ Choke input.

TABLE XIV — TRIODE TRANSMITTING TUBES

Type	Max. Plate Dissipation Watts	Cathode		Max. Plate Voltage	Max. Plate Current Ma.	Max. D.C. Grid Current Ma.	Amp. Factor	Inter-electrode Capacitances (pfd.)			Base ¹	Socket Connections ²	Typical Operation	Plate Voltage	Grid Voltage	Plate Current Ma.	D.C. Grid Current Ma.	Approx. Grid Driving Power Watts ³	Approx. Carrier Output Power Watts	Type
		Volts	Amps.					Grid to Fil.	Grid to Plate	Plate to Fil.										
RK24**	1.5	2.0	0.12	180	20	6.0	8.0	3.5	5.5	3.0	4-pin S.	T-4B	Class-C Amp.-Oscillator	180	-45	16.5	6.0	0.5	2.0	RK24
6J6 ⁷	1.5	6.3	0.75	150	30	16	32	2.2	1.6	0.4	7-pin M.	7BF ¹⁵	Class-C Amp. (Telephony)	150	-10	30	16	0.35	3.5	6J6
HY14B***	1.75	1.4	0.155	180	12	2.5	12	1.0	1.3	1.0	5-pin O.	T-8AC	Class-C Amp.-Oscillator	180	-30	12	1.5	0.15	1.6 ¹¹	HY14B
3A5 ⁷	2.0	1.4	0.22	135	30	5.0	15	0.9	3.2	1.0	7-pin B.	7BC ¹⁵	Class-C Amp.-Oscillator	135	-20	30	5.0	0.2	2.0	3A5
HY24* ⁵	2.0	2.0	0.13	180	20	4.5	9.3	2.7	5.4	2.3	4-pin S.	T-4B	Class-C Amp. (Telephony)	180	-45	20	4.5	0.2	2.7	HY24
RK33* ¹⁷	2.5	2.0	0.12	250	20	6.0	10.5	3-2 ⁷	3-2 ⁷	2.5	7-pin S.	I-7DA	Class-C Amp.-Oscillator	250	-45	20	4.5	0.3	2.5	RK33
9C22	3.5	6.3	0.3	500	—	—	20	2.2 ¹⁶	3.6	0.7	8-pin O.	4AM ¹⁵	Class-C Amp. (Telephony)	250	-60	20	6.0	0.54	3.5	9C22
HY615***	3.5	6.3	0.175	300	20	4.0	20	1.4	1.6	1.2	5-pin O.	T-8AG	Class-C Amp.-Oscillator	300	-35	20	1.4	0.4	4.0 ¹¹	HY615
HY615GTX *	3.5	6.3	0.3	250	20	4.0	20	3.8	2.7	3.0	6-pin O.	T-8AD	Class-C Amp. (Telephony)	250	-30	20	2.0	0.2	3	HY615GTX
6C4	5.0	6.3	0.15	300	25	8.0	17	1.8	1.6	1.3	7-pin B.	6BG ¹⁵	Class-C Amp.-Oscillator	300	-27	25	7.0	0.35	5.5	6C4
1626	5.0	12.6	0.25	250	25	8.0	5.0	3.2	4.4	3.0	8-pin O.	T-8AD	Class-C Amp.-Oscillator	250	-30	25	5.0	0.5	4.0	1626
RK34 *** ⁷	10	6.3	0.8	300	80	20	13	4.2	2.7	0.8	7-pin M.	T-7DC	Class-C Amp.-Oscillator	300	-36	80	20	1.8	16	RK34
205D	14	4.5	1.6	400	50	10	7.2	5.2	4.8	3.3	4-pin M.	T-4B	Class-C Amp.-Oscillator	400	-112	45	10	1.5	10	205D
843	15	2.5	2.5	450	40	7.5	7.7	4.0	4.5	4.0	5-pin M.	T-5B	Class-C Amp.-Oscillator	450	-140	30	5.0	1.0	7.5	843
RK59 ⁷	15	6.3	1.0	500	90	25	25	5.0	9.0	1.0	4-pin M.	T-4D	Class-C Amp.-Oscillator	500	-60	90	14	1.3	32	RK59
HY75 * ⁸	15	6.3	2.5	450	100	20	10	1.8	—	0.95	5-pin O.	T-8AC	Class-C Amp.-Oscillator	450	-60	100	15	1.5	21 ¹¹	HY75
1602	15	7.5	1.25	450	60	15	8.0	4.0	7.0	3.0	4-pin M.	T-4B	Class-C Amp. (Telephony)	450	-115	55	15	3.3	13	1602
841	15	7.5	1.25	450	60	20	30	4.0	7.0	3.0	4-pin M.	T-4B	Class-C Amp. (Telephony)	450	-135	45	15	3.5	8.0	841
10	15	7.5	1.25	450	65	15	8.0	3.0	8.0	4.0	4-pin M.	T-4B	Class-C Amp. (Telephony)	450	-47	50	15	2.0	11	10
RK10 * ⁴	15	7.5	1.25	450	65	15	8.0	3.0	8.0	4.0	4-pin M.	T-4B	Class-C Amp. (Telephony)	450	-100	65	15	3.2	19	RK10
RK100 ⁴	15	6.3	0.9	150	250	100	40	23	19	3.0	6-pin M.	T-68	Class-C Oscillator ¹⁰	350	-100	50	12	2.2	12	RK100
1608	20	2.5	2.5	425	95	25	20	8.5	9.0	3.0	4-pin M.	T-4B	Class-C Amplifier ¹⁰	425	-90	95	20	2.1	12	1608
310	20	7.5	1.25	600	70	15	8.0	4.0	7.0	2.2	4-pin M.	T-4B	Class-C Amp. (Telephony)	600	-150	65	15	4.0	25	310
801-A/801 *	20	7.5	1.25	600	70	15	8.0	4.5	6.0	1.5	4-pin M.	T-4B	Class-C Amp. (Telephony)	600	-150	65	15	4.5	18	801-A/801
HY801-A/801 *	20	7.5	1.25	600	70	15	8.0	4.5	6.0	1.5	4-pin M.	T-4B	Class-C Amp. (Telephony)	600	-190	55	15	4.5	18	HY801-A/801
T20 * ⁶	20	7.5	1.75	750	85	25	20	4.9	5.1	0.7	4-pin M.	T-4BB	Class-C Amp. (Telephony)	750	-85	85	15	3.6	44	T20
													Class-C Amp. Plate-Mod.	750	-140	70	15	3.6	38	

TABLE XIV — TRIODE TRANSMITTING TUBES — Continued

Type	Max. Plate Dissipation Watts	Cathode		Max. Plate Voltage	Max. Plate Current Ma.	Max. D.C. Grid Current Ma.	Amp. Factor	Inter-electrode Capacitances ($\mu\text{fd.}$)			Base ²	Socket Connections ¹	Typical Operation	Plate Voltage	Grid Voltage	Plate Current Ma.	D.C. Grid Current Ma.	Approx. Grid Driving Power Watts ⁵	Approx. Carrier Output Power Watts	Type
		Volts	Amps.					Grid to Fil.	Grid to Plate	Plate to Fil.										
TZ20 * 6	20	7.5	1.75	750	85	30	62	5.3	5.0	0.6	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	750	— 40	85	28	3.75	44	TZ20
RK11 * 4	25	6.3	3.0	750	105	35	20	7.0	7.0	0.9	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	750	— 120	105	21	3.2	55	RK11
RK12 *	25	6.3	3.0	750	105	40	100	7.0	7.0	0.9	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	750	— 120	85	24	3.7	38	RK12
HK24 *	25	6.3	3.0	2000	75	30	25	2.5	1.7	0.4	4-pin S.	T-4BB	Class-C Amp. (Telegraphy)	2000	— 140	56	18	4.0	90	HK24
HY25 *	25	7.5	2.25	800	75	25	55	4.2	4.6	1.0	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	750	— 45	75	15	2.0	42	HY25
Twin 30 * 3.7	30	6.0	4.0	1500	85	25	32	1.9	2.0	0.3	4-pin M.	T-4DB	Class-C Amp. (Telegraphy)	1500	— 100	150 ⁸	40 ⁸	15	225	Twin 30
HY30Z *	30	6.3	2.25	850	90	25	87	6.0	4.85	1.0	4-pin M.	T-43E	Class-C Amp.-Oscillator	850	— 75	90	25	2.5	58	HY30Z
HY31Z * 7 HY1231Z * 5.7	30	6.3 12.6	3.5 1.7	500	150	30	45	5.0	5.5	1.9	5-pin M.	T-4D	Class-C Amp. (Telegraphy)	500	— 45	150	25	2.5	56	HY31Z HY1231Z
316A ****	30	2.0	3.65	450	80	12	6.5	1.2	1.6	0.8	None ⁹	—	Class-C Amp. (Telephony)	450	—	80	12	—	7.5	316A
809 * 6	30	6.3	2.5	1000	125	—	50	5.7	6.7	0.9	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1000	— 75	100	25	3.8	75	809
1623 * 6	30	6.3	2.5	1000	100	25	20	5.7	6.7	0.9	4-pin M.	T-4BB	Class-C Amp.-Oscillator	1000	— 90	100	20	3.1	75	1623
RK30 * 4	35	7.5	3.25	1250	80	25	15	2.75	2.5	2.75	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1250	— 180	90	18	5.2	85	RK30
800 *	35	7.5	3.25	1250	80	25	15	2.75	2.5	2.75	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1250	— 175	70	15	4.0	65	800
1628 ****	40	3.5	3.25	1000	60	15	23	2.0	2.0	0.4	None ⁹	—	Class-C Amp.-Oscillator	1000	— 65	50	15	1.7	35	1628
8012 ****	40 ¹⁴	6.3	2.0	1000	80	20	18	2.7	2.8	0.35	None ⁹	—	Grid-Modulated Amp.	1000	— 120	50	3.5	5.0	20	8012
RK18 * 4	40	7.5	3.0	1250	100	40	18	6.0	4.8	1.8	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1250	— 105	40	10.5	1.4	22	RK18
RK31	40	7.5	3.0	1250	100	35	170	7.0	1.0	2.0	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1250	— 80	100	28	3.5	70	RK31
HY40 *	40	7.5	2.25	1000	125	25	25	5.8	5.6	0.9	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1000	— 90	125	20	5.0	94	HY40
													Class-C Amp. Plate-Mod.	1000	— 90	125	15	3.5	82	
													Grid-Modulated Amp.	1000	—	125	—	—	20 ¹²	

TABLE XIV — TRIODE TRANSMITTING TUBES — Continued

Type	Max. Plate Dissipation Watts	Cathode		Max. Plate Voltage	Max. Plate Current Ma.	Max. D.C. Grid Current Ma.	Amp. Factor	Inter-electrode Capacitances ($\mu\text{ufd.}$)			Base ²	Socket Connections ¹	Typical Operation	Plate Voltage	Grid Voltage	Plate Current Ma.	D.C. Grid Current Ma.	Approx. Grid Driving Power Watts ⁵	Approx. Carrier Output Power Watts	Type
		Volts	Amps.					Grid to Fil.	Grid to Plate	Plate to Fil.										
HY40Z *	40	7.5	2.5	1000	125	30	80	6.2	6.3	1.1	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1000	-27.5	125	25	5.0	94	HY40Z *
													Class-C Amp. Plate-Mod.	850	-30	125	30	7.0	82	
T40 ¹⁶ *	40	7.5	2.5	1500	150	40	25	4.5	4.8	0.8	4-pin M.	T-4BB	Grid-Modulated Amp.	1000	—	60	—	—	20 ¹³	
													Class-C Amp.-Oscillator	1500	—	150	28	9.0	158	T40
TZ40 ¹⁶ *	40	7.5	2.5	1500	150	45	62	4.8	5.0	0.8	4-pin M.	T-4BB	Class-C Amp. Plate-Mod.	1250	-115	115	20	5.25	104	
													Class-C Amp.-Oscillator	1500	-90	150	38	10	165	TZ40
													Class-C Amp. Plate-Mod.	1250	-100	125	30	7.5	116	
HY57 *	40	6.3	2.25	850	110	25	50	4.9	5.1	1.7	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	850	-48	110	15	2.5	70	HY57
													Class-C Amp. Plate-Mod.	700	-45	90	17	5.0	47	
													Grid-Modulated Amp.	850	—	70	—	—	20 ¹²	
756 ¹	40	7.5	2.0	850	110	25	8.0	3.0	7.0	2.7	4-pin M.	T-4B	Class-C Amplifier	850	—	110	25	—	—	756
825 ¹	40	7.5	2.0	850	110	20	20	3.5	8.0	2.7	4-pin M.	T-4B	Class-C Amplifier	850	—	110	20	—	—	825
830 ¹	40	10	2.15	750	110	18	8.0	4.9	9.9	2.2	4-pin M.	T-4B	Class-C Amplifier	750	-180	110	18	7.0	55	830
8010-R ****	50	6.3	2.4	1350	150	20	30	2.3	1.5	0.07	Special	—	Grid-Modulated Amp.	1000	-200	50	2.0	3.0	15	8010-R
RK32 **4	50	7.5	3.25	1250	100	25	11	2.5	3.4	0.7	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1250	-225	100	14	4.8	90	RK32
													Class-C Amp. Plate-Mod.	1000	-310	100	21	8.7	70	
RK35 ¹ *4	50	7.5	4.0	1500	125	20	9.0	3.5	2.7	0.4	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1500	-250	115	15	5.0	130	RK35
													Class-C Amp. Plate-Mod.	1250	-250	100	14	4.6	93	
													Grid-Modulated Amp.	1500	-180	37	—	2.0	25	
RK37 *	50	7.5	4.0	1500	125	35	28	3.5	3.2	0.2	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1500	-130	115	30	7.0	122	RK37
													Class-C Amp. Plate-Mod.	1250	-150	100	23	5.6	90	
													Grid-Modulated Amp.	1500	-50	50	—	2.4	26	
UH50 *	50	7.5	3.25	1250	125	25	10.6	2.2	2.6	0.3	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1250	-225	125	20	7.5	115	UH50
													Class-C Amp. Plate-Mod.	1250	-325	125	20	10	115	
													Grid-Modulated Amp.	1500	-200	60	2.0	3.0	25	
UH51 *	50	5.0	6.5	2000	175	25	10.6	2.2	2.3	0.3	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	2000	-500	150	20	15	225	UH51
													Class-C Amp. Plate-Mod.	1500	-400	165	20	15	200	
													Grid-Modulated Amp.	1500	-400	85	2.0	8.0	65	
HK54 *	50	5.0	5.0	3000	150	30	27	1.9	1.9	0.2	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	3000	-290	100	25	10	250	HK54
													Class-C Amp. Plate-Mod.	2500	-250	100	20	8.0	210	
													Grid-Modulated Amp.	2000	-150	39	1.5	3.0	28	
HK154 ¹	50	5.0	6.5	1500	175	30	6.7	4.3	5.9	1.1	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1500	-590	167	20	15	200	HK154
													Class-C Amp. Plate-Mod.	1250	-460	170	20	12	162	
													Grid-Modulated Amp.	1500	-450	52	—	5.0	28	
HK158 *	50	12.6	2.5	2000	200	40	25	4.7	4.6	1.0	4-pin M.	T-4BC	Class-C Amp.-Oscillator	2000	-150	125	25	6.0	200	HK158
													Class-C Amp. Plate-Mod.	2000	-140	105	25	5.0	170	
304A ¹ *	50	7.5	3.25	1250	100	25	11	2.0	2.5	0.7	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1250	-200	100	—	—	85	304A
304B *	50	7.5	3.25	1250	100	25	11	2.0	2.5	0.7	4-pin M.	T-4BC	Class-C Amp. Plate-Mod.	1000	-180	100	—	—	65	304B
356A *	50	5.0	5.0	1500	120	35	50	2.25	2.75	1.0	Special	T-4BD	Class-C Amp. (Telegraphy)	1500	-60	100	—	—	100	356A
													Class-C Amp. Plate-Mod.	1250	-100	100	35	—	85	

TABLE XIV — TRIODE TRANSMITTING TUBES — Continued

Type	Max. Plate Dissipation Watts	Cathode		Max. Plate Voltage	Max. Plate Current Ma.	Amp. Factor	Inter-electrode Capacitances (p.f.d.)			Base ²	Socket Connections ¹	Typical Operation	Plate Voltage	Grid Voltage	Plate Current Ma.	D.C. Grid Current Ma.	Approx. Grid Driving Power Watts ³	Approx. Carrier Output Power Watts	Type
		Volts	Amps.				Grid to Fil.	Grid to Plate	Plate to Fil.										
808	50	7.5	4.0	1500	150	47	5.3	2.8	0.15	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1500	-200	125	30	9.5	140	808
834 *	50	7.5	3.1	1250	100	10.5	2.2	2.6	0.6	4-pin M.	T-4BC	Class-C Amp. Plate-Mod.	1250	-225	100	32	10.5	105	834
841A ⁴	50	10	2.0	1250	150	14.6	3.5	9.0	2.5	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1250	-225	90	15	4.5	75	834
841SW	50	10	2.0	1000	150	14.6	—	9.0	—	4-pin M.	T-4BB	Class-C Amp. Plate-Mod.	1000	-310	90	17.5	6.5	58	841A
155 **	55	7.5	3.0	1500	150	40	5.0	3.9	1.2	4-pin M.	T-4BB	Class-C Amplifier	—	—	—	—	—	85	841SW
811 * ⁶	55	6.3	4.0	1500	150	50	5.5	5.5	0.6	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1500	-170	150	18	6.0	170	155
812 * ⁶	55	6.3	4.5	1500	150	35	5.3	5.3	0.8	4-pin M.	T-4BB	Class-C Amp. Plate-Mod.	1500	-195	125	15	5.0	145	811
RK51 *	60	7.5	3.75	1500	150	40	6.0	6.0	2.5	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1250	-175	150	25	6.5	170	812
RK52 *	60	7.5	3.75	1500	130	170	6.6	12	2.2	4-pin M.	T-4BB	Class-C Amp. Plate-Mod.	1250	-250	150	31	10	170	RK51
HF60	60	10	2.5	1600	150	—	—	5.2	—	4-pin M.	T-4BC	Grid-Modulated Amp.	1600	-150	105	17	4.5	96	RK52
826 ***	60	7.5	4.0	1000	125	40	3.7	2.9	1.4	Special	T-9A	Class-C Amp. (Telephony)	1000	-50	65	8.5	3.7	22	826
830B	60	10	2.0	1000	150	30	5.0	11	1.8	4-pin M.	T-4BB	Class-C Amp. Oscillator	1000	-110	140	30	7.0	90	830B
930B	60	10	2.0	1000	150	30	5.0	11	1.8	4-pin M.	T-4BB	Class-C Amp. Plate-Mod.	800	-150	95	20	5.0	50	930B
HY51A *	65	7.5	3.5	1000	175	25	6.5	7.0	0.8	4-pin M.	T-4BB	Class-B Amp. (Telephony)	1000	-75	175	20	7.5	131	HY51A
HY51B *	65	10	2.25	1000	175	25	6.5	7.0	0.8	4-pin M.	T-4BB	Class-C Amp. Plate-Mod.	1000	-67.5	150	15	7.5	104	HY51B
HY51Z *	65	7.5	3.5	1000	175	35	7.9	7.2	0.8	4-pin M.	T-4BE	Grid-Modulated Amp.	1000	—	100	—	—	33 ¹²	HY51Z
UH35 *	70	5.0	4.0	1500	150	30	1.4	1.6	0.2	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1000	-22.5	175	35	10	131	UH35
35T *	70	5.0	4.0	2000	150	30	3.8	1.9	0.2	4-pin M.	T-4BB	Class-C Amp. Plate-Mod.	1500	-120	100	30	5.0	120	35T
35TG	70	5.0	4.0	2000	150	30	1.9	1.9	0.2	4-pin M.	T-4BC	Class-C Amp. Plate-Mod.	1500	-120	100	30	5.0	120	35TG
V70	70	10	2.5	1500	140	25	5.0	9.0	2.3	4-pin J.	T-3AB	Grid-Modulated Amp.	2000	-400	60	3.0	3.0	50	V70
V70B	70	10	2.5	1500	140	25	5.0	9.0	2.3	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1500	-215	130	6.0	3.0	140	V70B
V70A	70	10	2.5	1500	140	20	5.0	9.5	2.0	4-pin J.	T-3AB	Class-C Amp. Plate-Mod.	1250	-250	130	6.0	3.0	120	V70A
V70C	70	10	2.5	1500	140	20	5.0	9.5	2.0	4-pin M.	T-4BB	Class-C Amp. Plate-Mod.	1000	-110	140	30	7.0	90	V70C

TABLE XIV — TRIODE TRANSMITTING TUBES — Continued

Type	Cathode		Max. Plate Voltage	Max. Plate Current Ma.	Max. D.C. Grid Current Ma.	Amp. Factor	Interelectrode Capacitances (pufd.)			Base ²	Socket Connections ¹	Typical Operation	Plate Voltage	Grid Voltage	Plate Current Ma.	D.C. Grid Current Ma.	Approx. Grid Driving Power Watts ³	Approx. Carrier Output Power Watts	Type
	Max. Plate Dissipation Watts	Volts					Grid to Fil.	Grid to Plate	Plate to Fil.										
V70D	70	10	3.0	1500	165	40	4.5	4.5	1.75	4-pin M.	T-4BB	Class-C Amp. (Telegraphy)	1500	-200	130	20	6.0	140	V70D
50T ⁴	75	5.0	6.0	3000	100	30	2.0	2.0	0.4	4-pin M.	T-4BC	Class-C Amp. Plate-Mod. Class-C Amplifier	1000 3000	-140 3000	165 100	30 25	7.0 —	120 250	50T
75T [*]	75	5.0	6.5	3000	175	30	2.2	2.3	0.3	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1500	-300	175	30	10	200	75T
HF75 [*]	75	10	3.25	2000	120	—	—	—	—	4-pin M.	T-4BC	Grid-Modulated Amp.	1500	-400	85	2.0	8.0	65	HF75
TW75 [*]	75	7.5	4.15	2000	175	60	3.35	1.5	0.7	4-pin M.	T-4BC	Class-C Amp.-Oscillator Class-C Amp. Plate-Mod.	2000 2000	-175 -260	150 125	37 32	12.7 13.2	225 198	TW75
HF100	75	10	2.0	1500	150	30	3.5	4.5	1.4	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	1500	-200	150	18	6.0	170	HF100
111H	75	10	2.25	1500	150	—	—	—	—	4-pin M.	T-4BC	Class-C Amp. Plate-Mod. Grid-Modulated Amp.	1250 1500	-250 -280	110 72	21 1.5	8.0 6.0	105 42	111H
ZB120	75	10	2.0	1250	160	40	5.3	5.2	3.2	4-pin J.	T-3AA	Class-C Amp. (Telegraphy)	1000	-150	120	21	5.0	95	ZB120
242A	85	10	3.25	1250	150	50	6.5	13	4.0	4-pin J.	T-3AA	Class-C Amp. (Telegraphy)	1250	-175	150	—	—	130	242A
284D	85	10	3.25	1250	150	100	6.0	8.3	5.6	4-pin J.	T-3AA	Class-C Amp. (Telegraphy)	1000	-500	150	—	—	125	284D
8005 ^{*6}	85	10	3.25	1500	200	45	6.4	5.0	1.0	4-pin M.	T-4BB	Class-C Amp. Plate-Mod. Class-B Amp. (Telephony)	1500 1500	-130 -195	200 190	32 28	7.5 9.0	220 170	8005
RK36 ^{*4}	100	5.0	8.0	3000	165	35	4.5	5.0	1.0	4-pin M.	T-4BC	Class-C Amp. (Telephony)	2000	-360	150	30	15	200	RK36
RK38 ^{*4}	100	5.0	8.0	3000	165	40	4.6	4.3	0.9	4-pin M.	T-4BC	Grid-Modulated Amp. Class-B Amp. (Telephony)	2000 2000	-270 -180	72 75	1.0 3.0	3.5 10	42 50	RK38
100TH	100	5.0	6.5	3000	225	50	2.2	2.0	0.3	4-pin M.	T-4BC	Class-C Amp. (Telegraphy)	3000	-200	160	30	10	225	100TH
100TL	100	5.0	6.5	3000	225	35	2.0	2.3	0.4	4-pin M.	T-4BC	Class-C Amp. Plate-Mod. Class-B Amp. (Telephony)	3000 3000	-400 -600	167 167	30 35	7.0 18	100 400	100TL
												Grid-Modulated Amp.	3000	-560	60	2.0	7.0	90	

TABLE XIV — TRIODE TRANSMITTING TUBES — Continued

Type	Cathode		Max. Plate Voltage	Max. Plate Current Ma.	Max. D.C. Grid Current Ma.	Amp. Factor	Inter-electrode Capacitances (pfd.)			Base ²	Socket Connections ¹	Typical Operation	Plate Voltage	Grid Voltage	Plate Current Ma.	D.C. Grid Current Ma.	Approx. Grid Driving Power Watts ³	Approx. Carrier Output Power Watts	Type
	Max. Plate Dissipation Watts	Volts	Amps.				Grid to Fil.	Grid to Plate	Plate to Fil.										
HK254	100	5.0	7.5	200	40	25	3.3	3.4	1.1	4-pin J.	T-3AC	Class-C Amp. (Telegraphy)	4000	-380	150	35	20	475	HK254
												Class-C Amp. Plate-Mod.	3000	-290	135	40	23	320	
												Class-B Amp. (Telephony)	3000	-125	51	2.0	3.0	54	
RK58 ⁶	100	10	3.25	175	70	—	8.5	6.5	10.5	4-pin J.	T-3AB	Grid-Modulated Amp.	3000	—	51	3.0	4.0	58	RK58
												Class-C Amp. (Telegraphy)	1250	-90	150	30	6.0	130	
												Class-C Amp. Plate-Mod.	1000	-135	150	50	16	100	
HF120	100	10	3.25	175	—	12	—	10.5	—	4-pin J.	—	Class-B Amp. (Telephony)	1250	—	106	15	6.0	42.5	HF120
HF125	100	10	3.25	175	—	25	—	11.5	—	4-pin J.	—	Class-C Amp.-Oscillator	1500	—	175	—	—	200	HF125
HF140	100	10	3.25	175	—	12	—	12.5	—	4-pin J.	—	Class-C Amp.-Oscillator	1250	—	175	—	—	150	HF140
203A 303A	100	10	3.25	175	60	25	6.5	14.5	5.5	4-pin J.	T-3AA	Class-C Amp. (Telephony)	1250	-125	150	25	7.0	130	203A 303A
												Class-C Amp. (Telephony)	1000	-135	150	50	14	100	
												Class-B Amp. (Telephony)	1250	-45	105	3.0	3.0	42.5	
203H	100	10	3.25	175	60	25	6.5	11.5	1.5	4-pin J.	T-3AB	Class-C Amp. (Telephony)	1500	-200	170	12	3.8	200	203H
												Class-C Amp. (Telephony)	1250	-160	167	19	5.0	160	
												Class-B Amp. (Telephony)	1500	-48	100	3.0	2.0	52	
211 311 835 ⁴	100	10	3.25	175	50	12	6.0 6.0	14.5 9.25	5.5 5.0	4-pin J.	T-3AA	Class-C Amp. (Telephony)	1250	-225	150	18	7.0	130	211 311 835
												Class-C Amp. (Telephony)	1000	-260	150	35	14	100	
												Class-B Amp. (Telephony)	1250	-100	106	1.0	7.5	42.5	
242B 342B	100	10	3.25	150	50	12.5	7.0	13.6	6.0	4-pin J.	T-3AA	Class-C Amp. (Telephony)	1250	-175	150	—	—	130	242B 342B
												Class-C Amp. Plate-Mod.	1000	-160	150	50	—	100	
												Class-B Amp. (Telephony)	1250	-80	120	—	—	50	
242C	100	10	3.25	150	50	12.5	6.1	13.0	4.7	4-pin J.	T-3AA	Class-C Amp. (Telephony)	1250	-175	150	—	—	130	242C
												Class-C Amp. Plate-Mod.	1000	-160	150	50	—	100	
												Class-B Amp. (Telephony)	1250	-90	120	—	—	50	
261A 361A	100	10	3.25	150	50	12	6.5	9.0	4.0	4-pin J.	T-3AA	Class-C Amp. (Telephony)	1250	-175	125	—	—	100	261A 361A
												Class-C Amp. Plate-Mod.	1000	-160	150	50	—	100	
												Class-B Amp. (Telephony)	1250	-100	125	—	—	50	
276A 376A	100	10	3.0	125	50	12	6.0	9.0	4.0	4-pin J.	T-3AA	Class-C Amp. (Telephony)	1250	-175	125	—	—	100	276A 376A
												Class-C Amp. Plate-Mod.	1000	-160	125	—	—	85	
												Class-B Amp. (Telephony)	1250	-100	125	—	—	50	
284B	100	10	3.25	150	100	5.0	4.2	7.4	5.3	4-pin J.	T-3AB	Class-C Amp. (Telephony)	1250	-500	150	—	—	135	284B
												Class-C Amp. Plate-Mod.	1000	-430	150	50	—	100	
												Class-B Amp. (Telephony)	1250	-270	150	—	—	50	
295A	100	10	3.25	175	50	25	6.5	14.5	5.5	4-pin J.	T-3AA	Class-C Amp. (Telephony)	1250	-125	150	—	—	125	295A
												Class-C Amp. Plate-Mod.	1000	-125	150	50	—	100	
												Class-B Amp. (Telephony)	1250	-75	105	—	—	42.5	
838 938	100	10	3.25	175	70	—	6.5	8.0	5.0	4-pin J.	T-3AA	Class-C Amp. (Telephony)	1250	-90	150	30	6.0	130	838 938
												Class-C Amp. (Telephony)	1000	-135	150	60	16	100	
												Class-B Amp. (Telephony)	1250	0	106	15	6.0	42.5	

TABLE XIV — TRIODE TRANSMITTING TUBES — Continued

Type	Max. Plate Dissipation Watts	Cathode		Max. Plate Voltage	Max. D.C. Grid Current Ma.	Amp. Factor	Inter-electrode Capacitances (p.f.d.)			Base ²	Socket Connections ¹	Typical Operation	Plate Voltage	Grid Voltage	Plate Current Ma.	D.C. Grid Current Ma.	Approx. Grid Driving Power Watts ⁵	Approx. Carrier Output Power Watts	Type
		Volts	Amps.				Grid to Fil.	Grid to Plate	Plate to Fil.										
852	100	10	3.25	3000	40	12	1.9	2.6	1.0	4-pin M.	T-4BC	Class-C Amp. (Telephony) Class-C Amp. (Telephony) Class-B Amp. (Telephony) Class-C Amp.-Oscillator	3000 2000 3000 1350	-600 -500 -250 -180	85 67 43 245	15 30 0 35	12 23 7.0 11	165 75 40 950	852
8003	100	10	3.25	1500	50	12	5.8	11.7	3.4	4-pin J.	T-3AB	Class-C Amp. Plate-Mod. Class-B Amp. (Telephony) Class-C Amp. (Telephony) Class-C Amp. (Telephony)	1100 1350 1500 1250	-260 -110 -105 -160	200 110 200 60	40 1.5 40 60	15 8 7.5 16	50 50 215 140	8003
RK57/ 805	125	10	3.25	1500	70	—	6.5	8.0	5.0	4-pin J.	T-3AB	Class-C Amp. (Telephony) Class-C Amp. (Telephony) Class-B Amp. (Telephony) Class-C Amp. (Telephony)	1500 1250 1500 2500	-105 -160 -200 -215	200 110 115 200	40 1.5 15 31	8.5 7.5 11 10	50 215 475 320	RK57/ 805
T125 *	125	10	4.5	2500	60	25	6.3	6.0	1.3	4-pin J.	T-3AC	Class-C Amp. Plate-Mod. Class-C Amp.-Oscillator	2000 1250	-215 -210	200 —	28 —	— —	— —	T125
HF130	125	10	3.25	1250	210	—	—	9.0	—	4-pin J.	—	Class-C Amp.-Oscillator	1500	—	—	—	—	—	170
HF150	125	10	3.25	1500	210	—	—	7.2	—	4-pin J.	—	Class-C Amp.-Oscillator	2000	—	—	—	—	—	200
HF175	125	10	4.0	2000	250	—	—	6.3	—	4-pin J.	—	Class-C Amp.-Oscillator	1250	—	—	—	—	—	300
GL146	125	10	3.25	1500	200	78	7.2	9.2	3.9	4-pin GL	T-4BG	Class-C Amp. Plate-Mod. Class-B Amp. (Telephony) Class-C Amp.-Oscillator	1000 1250 1250	-200 0 -150	160 132 180	40 — 30	— — —	100 55 150	GL146
GL152	125	10	3.25	1500	200	25	7.0	8.8	4.0	4-pin GL	T-4BG	Class-C Amp. Plate-Mod. Class-B Amp. (Telephony) Class-C Amp. (Telephony)	1000 1250 1500	-200 -40 -105	160 132 200	30 — 40	— — 8.5	100 55 215	GL152
805 905	125	10	3.25	1500	210	40/60	8.5	6.5	10.5	4-pin J.	T-3AB	Class-C Amp. (Telephony) Class-C Amp. Plate-Mod. Class-B Amp. (Telephony)	1250 1500 1500	-160 -10 -600	160 115 200	60 15 35	16 7.5 —	140 57.5 450	805 905 150T
150T	150	5.0	10	3000	50	13	3.0	3.5	0.5	4-pin J.	T-3AC	Class-C Amp. (Telephony) Class-C Amp.-Oscillator	3000 3000	-170 -260	200 165	45 40	17 17	470 400	TW150
TW150	150	10	4.1	3000	60	35	3.9	2.0	0.8	4-pin J.	T-3AC	Class-C Amp. Plate-Mod. Class-C Amp.-Oscillator	3000 3000	-350 -400	250 250	30 35	15 16	610 500	159TL HK252-L
159TL HK252-L**6	150	5/10 ¹³	13/6.5	3000	75	10	7.0	5.0	0.4	Special	T-4BF	Class-C Amp. Plate-Mod. Class-C Amp. (Telephony) Class-C Amp. Plate-Mod.	2500 2000 2500	-300 -350 -350	200 160 90	18 20 —	8.0 9.0 4.0	380 250 80	HF200 HV18
HF200 HV18	150	10-11	3.4	2500	50	18	5.2	5.8	1.2	4-pin J.	T-3AC	Class-C Amp. (Telephony) Class-B Amp. (Telephony) Class-C Amplifier	2500 2500 —	-140 — —	— — 200	— — —	— — —	— — 375	HD203A HF250
HD203A	150	10	4.0	2000	60	25	—	12	—	4-pin J.	T-3AB	Class-C Amp.-Oscillator	2500	—	200	—	—	—	375
HF250	150	10.5	4.0	2500	200	18	—	5.8	—	4-pin J.	T-3AC	Class-C Amp. (Telephony) Class-C Amp. Plate-Mod.	4000 3000	-690 3000	245 210	50 50	48 35	830 525	HK354 HK354C
HK354	150	5.0	10	4000	300	14	4.5	3.8	1.1	4-pin J.	T-3AC	Class-B Amp. (Telephony) Grid-Modulated Amp.	3000 3000	-205 -400	78 78	2.0 3.0	10 12	82 85	HK354C
HK354C	150	5.0	10	4000	300	14	4.5	3.8	1.1	4-pin J.	T-3AC	Class-C Amp. (Telephony) Class-C Amp. Plate-Mod.	3000 3500	-490 -425	240 210	50 55	38 36	690 525	HK354D

TABLE XIV — TRIODE TRANSMITTING TUBES — Continued

Type	Cathode		Max. Plate Voltage	Max. Plate Current Ma.	Max. D.C. Grid Current Ma.	Amp. Factor	Interelectrode Capacitances (pF.)			Base ²	Socket Connections ¹	Typical Operation	Plate Voltage	Grid Voltage	Plate Current Ma.	D.C. Grid Current Ma.	Approx. Grid Driving Power Watts ³	Approx. Carrier Output Power Watts	Type
	Volts	Amps.					Grid to Fil.	Grid to Plate	Plate to Fil.										
HK354E	5.0	10	4000	300	60	35	4.5	3.8	1.1	4-pin J.	T-3AC	Class-C Amp. (Telegraphy)	3500	-448	240	60	45	690	HK354E
HK354F	5.0	10	4000	300	75	50	4.5	3.8	1.1	4-pin J.	T-3AC	Class-C Amp. (Telegraphy)	3500	-368	250	75	50	720	HK354F
810 ⁶ 1627	10 5.0	4.5 9.0	2250	275	70	36	8.7	4.8	12	4-pin J.	T-3AC	Class-C Amp. (Telegraphy)	2250	-160	275	40	12	475	810 1627
8000 ⁶	10	4.5	2250	275	40	16.5	5.0	6.4	3.3	4-pin J.	T-3AC	Class-B Amp. (Telephony)	2250	-140	100	20	4.0	75	8000
RK63 RK63A	5.0 6.3	10 14	3000	250	60	37	2.7	3.3	1.1	4-pin J.	T-3AC	Class-C Amp. (Telegraphy)	3000	-200	233	45	17	525	RK63 RK63A
T200	10	5.75	2500	350	80	16	9.5	7.9	1.6	4-pin J.	T-3AC	Class-C Amp. (Telegraphy)	2500	-280	350	54	25	685	T200
HF300	11-12	4.0	3000	275	60	23	6.0	6.5	1.4	4-pin J.	T-3AC	Class-C Amp. (Telegraphy)	3000	-300	250	36	17	385	HF300
T814 HV12	10	4.0	2500	200	60	12	8.5	12.8	1.7	4-pin J.	T-3AB	Class-C Amp. (Telegraphy)	2500	-240	300	30	10	575	T814 HV12
T822 HV27	10	4.0	2500	300	60	27	8.5	13.5	2.1	4-pin J.	T-3AB	Class-C Amp. (Telegraphy)	2500	-175	300	50	15	585	T822 HV27
806 ⁶	5.0	10	3300	300	50	12.6	6.1	4.2	1.1	4-pin J.	T-3AC	Class-B Amp. (Telephony)	3300	-600	300	40	34	780	806
250TH*	5.0	10.5	3000	350	100	32	3.5	3.3	0.3	4-pin J.	T-3AC	Class-C Amp. (Telegraphy)	3000	-210	330	75	42	750	250TH
250TL*	5.0	10.5	3000	350	50	13	3.0	3.5	0.5	4-pin J.	T-3AC	Class-C Amp. (Telegraphy)	3000	-280	102	—	10.3	115	250TL
GL159	10	9.6	2000	400	100	20	11	17.6	5.0	4-pin GL	T-4BG	Class-C Amp.-Oscillator	2000	-200	400	17	6.0	620	GL159
												Class-B Amp. (Telephony)	2000	-90	190	—	2.5	130	

TABLE XIV — TRIODE TRANSMITTING TUBES — Continued

Type	Max. Plate Dissipation Watts	Cathode		Max. Plate Voltage	Max. Plate Current Ma.	Max. D.C. Grid Current Ma.	Amp. Factor	Interelectrode Capacitances (pfd.)			Base ²	Socket Connections ¹	Typical Operation	Plate Voltage	Grid Voltage	Plate Current Ma.	D.C. Grid Current Ma.	Approx. Grid Driving Power Watts ⁵	Approx. Carrier Output Power Watts	Type
		Volts	Amps.					Grid to Fil.	Grid to Plate	Plate to Fil.										
GL169	250	10	9.6	2000	400	100	85	11.5	19	4.7	4-pin GL	T-4BG	Class-C Amp.-Oscillator	2000	-100	400	42	10	620	GL169
204A	250	11	3.85	2500	275	80	23	12.5	15	2.3	Special	T-1A	Class-C Amp. (Telephony)	2000	-100	400	45	10	450	204A
304A	250	11	3.85	2500	275	80	23	12.5	15	2.3	Special	T-1A	Class-C Amp. (Telephony)	2500	-250	250	30	15	450	304A
308B	250	14	4.0	2250	325	75	8.0	13.6	17.4	9.3	4-pin W.E.	T-2A	Class-B Amp. (Telephony)	1750	-400	300	75	—	350	308B
HK454H ^{3,6}	250	5.0	11	5000	375	85	30	4.6	3.4	1.4	4-pin J.	T-3AC	Class-C Amplifier	3500	-275	270	60	28	760	HK454H
HK454-L ^{3,6}	250	5.0	11	5000	375	60	12	4.6	3.4	1.4	4-pin J.	T-3AC	Class-C Amplifier	3500	-450	270	45	30	760	HK454-L
219E	275	14	4.0	3000	350	75	16	14.9	18.8	8.6	4-pin W.E.	T-2A	Class-C Amp. (Telephony)	2000	-200	300	75	—	400	219E
241B	275	14	4.0	3000	350	75	16	14.9	18.8	8.6	4-pin W.E.	T-2A	Class-C Amp. (Telephony)	1500	-200	300	75	—	300	241B
312E	300	8.0	11.5	3500	350	75	16	4.0	4.0	0.6	4-pin J.	T-3AC	Class-B Amp. (Telephony)	2000	-120	300	60	—	200	312E
300T ⁴	300	5/10 ¹³	26/13	3000	1000	150	10	12	9.0	0.8	Special	T-4BF	Class-C Amplifier	3500	-600	300	60	—	800	300T
304TL ⁵	300	7.5	15	4000	600	100	22	6.2	5.5	1.5	4-pin J.	T-3AC	Class-C Amp. (Telephony)	2000	-380	500	75	57	800	304TL
HK304-L ^{3,6}	300	7.5	15	4000	600	100	22	6.2	5.5	1.5	4-pin J.	T-3AC	Class-C Amp. (Telephony)	2000	-365	450	110	70	655	HK304-L
HK654	300	10	10	3000	500	100	35	12.3	6.3	8.5	Special	T-1AB	Grid-Modulated Amp.	3500	-210	150	15	15	210	HK654
833A	300	10	10	3000	500	100	35	12.3	6.3	8.5	Special	T-1AB	Class-C Amp. (Telephony)	2000	-200	475	65	25	740	833A
270A	350	10	4.0	3000	375	75	16	18	21	2.0	Special	T-1A	Class-C Amp. (Telephony)	2500	-300	335	75	30	635	270A
849	400	11	5.0	2500	350	125	19	17	33.5	3.0	Special	T-1A	Class-B Amp. (Telephony)	3000	-375	350	2.0	10	150	849
831 ¹	400	11	10	3500	350	75	14.5	3.8	4.0	1.4	Special	T-1A	Class-C Amp. (Telephony)	3000	-500	200	60	50	360	831
													Class-B Amp. (Telephony)	3500	-220	146	—	—	160	

¹ S. — small; M. — medium; J. — jumbo; O. — octal.

² Refer to Transmitting Tube Diagrams.

³ See Chapter Five for discussion of grid driving power.

⁴ Obsolete type.

⁵ Instant-heating filament for mobile use.

⁶ Intermittent commercial and amateur service ratings.

⁷ Twin triode. Values, except inter-element capacitances, are for both sections, in push-pull.

⁸ The 805 has a variable high- μ grid.

⁹ All wire leads. Ratings at 500 Mc.

¹⁰ Gaseous discharge tube for use on 110-volt d.c.

¹¹ Output at 112 Mc.

¹² Calculated at 33% efficiency for 100% modulation.

¹³ Multiple-unit tube with dual filaments which can be connected in series or parallel.

¹⁴ Forced-air cooling is recommended at ratings above 75 per cent of maximum.

¹⁵ See Receiving Tube Base Diagrams.

¹⁶ Input resonant frequency approximately 335 Mc.

Frequency limits:

* May be used at full ratings on 56-60 Mc. band and lower.

** May be used at full ratings on 112-Mc. band and lower.

*** May be used at full ratings on 224-Mc. band and lower.

**** May be used at full rating above 300 Mc.

TABLE XV — TETRODE AND PENTODE TRANSMITTING TUBES

Type	Max. Plate Dissipation Watts	Cathode		Max. Plate Voltage	Max. Screen Voltage	Max. Screen Dissipation Watts	Inter-electrode Capacitances (pF)			Base ¹	Socket Connections ²	Typical Operation	Plate Voltage	Screen Voltage	Suppressor Voltage	Grid Voltage	Plate Current Ma.	Screen Current Ma.	Grid Current Ma.	Screen Resistor Ohms	Approx. Grid Driving Power Watts ⁴	Approx. Carrier Output Power Watts
		Volts	Amps.				Grid to Fil.	Grid to Plate	Plate to Fil.													
3A4	2.0	1.4 2.8	0.2 0.1	150	135	0.9	4.8	0.2	4.2	7-pin B.	7BB ¹⁵	Class-C Amp.-Oscillator	150	135	0	-26	18.3	6.5	0.13	2300	—	1.2
HY63 ^{*6}	3.0	2.5 1.25	0.125 0.225	200	100	0.6	8.0	0.1	8.0	7-pin O.	T-8DB	Class-C Amp.-Osc.	200	100	—	-22.5	20	4.0	2.0	—	0.1	3.0
RK64 ^{*6}	6.0	6.3	0.5	400	100	3.0	10	0.4	9.0	5-pin M.	T-5BB	Class-C Amp. (Telegraphy)	400	100	30	-35	15	3.0	2.0	—	0.2	2.0
1610	6.0	2.5	1.75	400	200	2.0	8.6	1.2	13	5-pin M.	T-5CA	Class-C Amp. Plate-Mod.	300	—	30	-30	26	8.0	4.0	30000	0.18	10
RK56 [*]	8.0	6.3	0.55	300	300	4.5	10	0.2	9.0	5-pin M.	T-5BB	Class-C Amp. Plate-Mod.	400	150	—	-50	22.5	7.0	1.5	—	0.1	5.0
RK23	10	2.5	2.0	500	250	8	10	0.2	10	7-pin M.	T-7C	Class-C Amp. (Telephony)	400	150	0	-90	40	1.6	1.6	2800	0.28	8.5
RK25	10	6.3	0.9	500	250	8	10	0.2	10	7-pin M.	T-7C	Class-C Amp. (Telephony)	400	150	0	-90	40	1.6	1.6	2800	0.28	8.5
RK25B ^s	10	6.3	0.9	500	250	8	10	0.2	10	7-pin M.	T-7C	Class-C Amp. (Telephony)	400	150	0	-90	40	1.6	1.6	2800	0.28	8.5
1613	10	6.3	0.7	350	275	2.5	8.5	0.5	11.5	7-pin O.	T-8CB	Suppressor-Modulated Amp.	350	200	-45	-90	31	3.9	4.0	20000	0.22	9
837	12	12.6	0.7	500	300	8	16	0.2 ¹¹	10	7-pin M.	T-7C	Class-C Amp. (Telephony)	500	200	—	-35	42	10	2.8	10000	0.16	6.0
RK44 ^s	12	12.6	0.7	500	300	8	16	0.2 ¹¹	10	7-pin M.	T-7C	Class-C Amp. (Telephony)	500	200	—	-35	42	10	2.8	10000	0.16	6.0
802 ⁷	13	6.3	0.9	600	250	6.0	12	0.15 ¹¹	8.5	7-pin M.	T-7C	Class-C Amp. (Telephony)	600	250	40	-40	45	15	4.0	20000	0.4	22
HY6V ⁶	15	6.3	0.5	300	225	2.5	10	0.4	8.5	7-pin O.	T-8D	Class-C Amp.-Osc.	300	200	—	-45	60	7.5	2.5	—	0.25	12
HY60 [*]	15	6.3	0.5	425	225	2.5	10	0.19	8.5	5-pin M.	T-5BB	Class-C Amp. (Telegraphy)	425	200	—	-45	60	7.0	3.0	15000	0.4	10
HY65 ^{*6}	15	6.3	0.85	450	250	2.5	8.4	0.11	8.2	7-pin O.	T-8DB	Class-C Amp.-Osc.	450	200	—	-45	60	8.5	2.5	—	0.2	14
306A	15	2.75	2.0	300	300	6.0	13	0.35	13	5-pin M.	T-5CB	Class-C Amp. Plate-Mod.	300	180	—	-50	36	15	3.0	8000	—	7.0
307A	15	5.5	1.0	500	250	6.0	15	0.55	12	5-pin M.	T-5C	Class-C Amp. (Telegraphy)	500	250	0	-35	60	13	1.4	20000	—	20
832 ^{*10}	15	6.3	1.6	500	250	5.0	7.5	0.05 ¹¹	3.8	Special	T-9B	Suppressor-Modulated Amp.	500	200	-50	-35	40	20	1.5	14000	—	307A
832A ^{*10}	15	6.3	0.8	750	250	5.0	7.5	0.05 ¹¹	3.8	Special	T-9B	Class-C Amp. (Telephony)	425	200	—	-65	72	14	2.6	21000	0.18	26
844 ^s	15	2.5	2.5	500	180	3.0	9.5	0.15	7.5	5-pin M.	T-5BB	Class-C Amp. (Telephony)	500	175	—	-125	25	—	5.0	—	—	9.0
865	15	7.5	2.0	750	175	3.0	8.5	0.1 ¹¹	8.0	4-pin M.	T-4C	Class-C Amp. (Telephony)	750	150	—	-100	20	—	—	—	—	4.0
1619	15	2.5	2.0	400	300	3.5	10.5	0.35	12.5	7-pin O.	T-8D	Class-C Amp. (Telephony)	400	300	—	-55	75	10.5	5.0	9500	0.36	16
254A	20	5.0	3.25	750	175	5.0	4.6	0.1	9.4	4-pin M.	T-4C	Class-C Amp. Plate-Mod.	325	295	—	-90	60	—	—	5000	0.18	13
												Class-C Amplifier	750	175	—	—	60	—	—	—	—	25

TABLE XV — TETRODE AND PENTODE TRANSMITTING TUBES — Continued

Type	Max. Plate Dissipation Watts	Cathode		Max. Plate Voltage	Max. Screen Voltage	Max. Screen Dissipation Watts	Interelectrode Capacitances (μfd.)				Base ¹	Socket Connections ²	Typical Operation	Plate Voltage	Screen Voltage	Suppressor Voltage	Grid Voltage	Plate Current Ma.	Screen Current Ma.	Grid Current Ma.	Screen ³ Resistor Ohms	Approx. Grid Driving Power Watts ⁴	Approx. Carrier Output Power Watts ⁵	Type	
		Volts	Amps.				Grid to Fil.	Grid to Plate	Plate to Fil.																
6L6	21	6.3	0.9	375	300	3.5	13	0.5	12.5	7-pin O.	T-8D	Class-C Amp.-Oscillator	375	200	—	—	—	88	9.0	3.5	—	0.18	17	6L6	
6L6GX	21	6.3	0.9	500	300	3.5	11	1.5	7.0	7-pin O.	T-8D	Class-C Amp. (Telegraphy)	500	250	—	—	—	90	9.0	2.0	—	0.25	30	6L6GX	
HY6L6-GTX*	21	6.3	0.9	500	300	3.0	11	0.5	8.0	7-pin O.	T-8D	Class-C Amp.-Osc.	500	250	—	—	—	90	9.0	2.0	—	0.25	20	HY6L6-GTX*	
T21 *	21	6.3	0.9	400	300	3.5	13	0.7	12	6-pin M.	T-6B	Class-C Amp. (Telegraphy)	400	250	—	—	—	95	8.0	3.0	16000	0.8	20	T21	
RK49	21	6.3	0.9	400	300	3.5	11.5	1.4	10.6	6-pin M.	T-6B	Class-C Amp. Plate-Mod.	400	250	—	—	—	95	8.0	3.0	—	0.2	25	RK49	
1614 *	21	6.3	0.9	375	300	3.5	10	0.4	12.5	7-pin O.	T-8D	Class-C Amp. (Telephony)	375	250	—	—	—	60	15	5.0	6700	0.34	12	1614	
RK41 *	25	2.5	2.4	600	300	3.5	13	0.2	10	5-pin M.	T-5BB	Class-C Amp. (Telegraphy)	600	300	—	—	—	93	10	3.0	10000	0.1	15	RK41	
RK39 *	25	6.3	0.9	600	300	3.5	11	0.2	7.0	5-pin M.	T-5BB	Class-C Amp. (Telephony)	475	250	—	—	—	85	9.0	2.5	25000	0.2	26	RK39	
HY61 / 807 *	25	6.3	0.9	600	300	3.5	11	0.2	7.0	5-pin M.	T-5BB	Class-C Amp. (Telegraphy)	600	250	—	—	—	100	9.0	3.0	39000	0.22	40	HY61 / 807 *	
815 ** 7 10	25	6.3	1.6	500	200	4.0	13.3	0.2 ¹¹	8.5	8-pin O.	T-8FA ¹²	Class-C Amp.-Oscillator	500	200	—	—	—	83	9.0	2.0	25000	0.13	27.5	815	
254B	25	7.5	3.25	750	150	5.0	11.2	0.085	5.4	4-pin M.	T-4C	Class-C Amp. Plate-Mod.	400	175	—	—	—	45	150	3.0	—	0.16	45	254B	
1624 *	25	2.5	2.0	600	300	3.5	11	0.25	7.5	5-pin M.	T-5DC	Class-C Amplifier	750	150	—	—	—	75	—	—	—	—	30	1624	
RK66 *	30	6.3	1.5	600	300	3.5	12	0.25	10.5	5-pin M.	T-5C	Class-C Amp. (Telegraphy)	600	300	—	—	—	90	10	5.0	30000	0.43	35	RK66	
807 * 7 1625 * 7	30	6.3	0.9	750	300	3.5	11	0.2 ¹¹	7.0	5-pin M.	T-5BB	Class-C Amp.-Oscillator	500	—	—	—	—	75	8.0	3.2	25000	0.23	25	807	
RK20 ⁵	40	7.5	3.0	1250	300	15	14	0.01	12	5-pin M.	T-5C	Class-C Amp. Plate-Mod.	750	250	—	—	—	100	8.0	3.0	—	0.22	50	RK20	
RK20A	40	7.5	3.25	1250	300	15	14	0.01	12	5-pin M.	T-5C	Class-C Amp. (Telephony)	1000	300	—	—	—	100	75	3.0	23000	1.3	52	RK20A	
RK46 ¹	40	12.6	2.5	—	—	—	—	—	—	—	—	Suppressor-Modulated Amp.	1250	300	—	—	—	100	6.5	4.0	—	1.5	20	RK46	
HY69 *	40	6.3	1.5	600	300	5.0	15.4	0.23	6.5	5-pin M.	T-5D	Grid-Modulated Amp.	1250	300	45	—	—	90	100	6.5	—	0.4	42.5	HY69	
829 ** 10	40	6.3	2.25	500	925	40	14.5	0.1 ¹¹	7.0	Special	T-9B	Class-C Amp. Plate-Mod.	600	250	—	—	—	100	12.5	4.0	30000	0.25	42	829	
829A ** 10	40	6.3	2.25	750	925	40	14.5	0.1 ¹¹	7.0	Special	T-9B	Class-C Amp. (Telegraphy)	500	200	—	—	—	90	11.5	6.0	35000	2.8	27	829A	
HY1269 *	40	6.3	3.5	750	300	5.0	15.35	0.23	6.5	5-pin M.	T-5DB ¹³	Grid-Modulated Amp.	600	200	—	—	—	240	32	12	9300	0.7	83	HY1269	
												Grid-Modulated Amp.	425	200	—	—	—	60	212	35	11	6400	0.8	63	
												Grid-Modulated Amp.	500	200	—	—	—	38	120	10	2.0	—	0.5	23	
												Class-C Amp.-Oscillator	750	200	—	—	—	150	30	12	18300	0.8	87		
												Class-C Amp. Plate-Mod.	600	200	—	—	—	70	150	30	12	13300	0.9	70	
												Grid-Modulated Amp.	750	200	—	—	—	80	5.0	0	—	0.7	24		
												Class-C Amp.-Oscillator	750	300	—	—	—	70	120	12.5	4	—	0.25	63	
												Class-C Amp. Plate Mod.	600	250	—	—	—	100	10.0	4	—	0.5	52.5		
												Grid-Modulated Amp.	750	300	—	—	—	80	—	—	—	—	20		

TABLE XV — TETRODE AND PENTODE TRANSMITTING TUBES — Continued

Type	Max. Plate Dissipation Watts	Cathode		Max. Plate Voltage	Max. Screen Voltage	Max. Screen Dissipation Watts	Inter-electrode Capacitances (p.f.)			Base ¹	Socket Connections ²	Typical Operation	Plate Voltage	Screen Voltage	Suppressor Voltage	Grid Voltage	Plate Current Ma.	Screen Current Ma.	Grid Current Ma.	Screen Resistor Ohms	Approx. Grid Driving Power Watts ⁴	Approx. Carrier Output Power Watts
		Volts	Amps.				Grid to Fil.	Grid to Plate	Plate to Fil.													
RK47	50	10	3.25	1250	300	10	13	0.12	10	5-pin M.	T-5D	Class-C Amp. (Telegraphy)	1250	300	—	—	138	14	7.0	—	1.0	120
												Class-C Amp. Plate-Mod.	900	300	—	-150	120	17.5	6.0	—	1.4	87
												Grid-Modulated Amp.	1250	300	—	-30	60	2.0	0.9	—	4.0	25
312A	50	10	2.8	1250	500	20	15.5	0.15	12.3	6-pin M.	T-6C	Class-C Amp. (Telegraphy)	1250	300	30	-55	100	36	5.5	—	0.7	90
												Class-C Amp. Plate-Mod.	1000	300	40	-40	95	35	7.0	22000	1.0	65
												Suppressor-Mod. Amp.	1250	300	—	-85	50	42	5.0	29000	0.55	23
804 ⁷	50	7.5	3.0	1500	300	15	16	0.01 ¹¹	14.5	5-pin M.	T-5C	Class-C Amp. (Telegraphy)	1500	300	45	-100	100	35	7.0	34000	1.95	110
												Class-C Amp. Plate-Mod.	1250	250	50	-90	75	20	6.0	50000	0.75	65
												Grid-Modulated Amp.	1500	300	45	-130	50	13.5	3.7	—	1.3	28
												Suppressor-Mod. Amp.	1500	300	—	-115	50	32	7.0	—	0.95	28
825 ⁸ ***14	50	6.3	0.75	2000	3600	—	3.4	—	—	Special	T-9C	Class-C Amp. (Telegraphy)	1500	3600	800	-40	45	1.5	2.3	—	—	35
												Grid-Modulated Amp.	1500	3600	800	-33	25	1.3	0.5	—	—	9.0
305A	60	10	3.1	1000	200	6	10.5	0.14	5.4	4-pin M.	T-4CE	Class-C Amp. (Telegraphy)	1000	200	—	-200	125	—	—	—	—	85
												Class-C Amp. (Telephony)	800	200	—	-270	125	—	—	—	—	70
HY67	65	6.3 12.6	4.0 2.0	1250	300	10	—	0.19	14.5	5-pin M.	T-5DB	Class-C Amp. (Telegraphy)	1250	300	—	-80	175	22.5	10	—	1.5	152
												Class-C Amp. Plate-Mod.	1000	300	—	-150	145	17.5	14	—	2.0	101
												Grid-Modulated Amp.	1250	300	—	-150	78	—	—	—	—	32.5
814 ⁷	65	10	3.25	1500	300	10	13.5	0.1 ¹¹	13.5	5-pin M.	T-5D	Class-C Amp. (Telegraphy)	1500	300	—	-90	150	24	10	50000	1.5	160
												Class-C Amp. Plate-Mod.	1250	300	—	-150	145	20	10	43000	3.2	130
												Grid-Modulated Amp.	1500	250	—	-120	60	3.0	2.5	—	4.2	35
282A	70	10	3.0	1000	250	5.0	12.2	0.2	6.8	4-pin M.	T-4C	Class-C Amp. (Telegraphy)	1000	150	—	-160	100	—	—	—	—	33
												Class-C Amp. Plate-Mod.	750	150	—	-180	100	—	—	—	—	50
8001 ⁷	75	5.0	7.5	2000	500	25	11	0.1 ¹¹	5.5	7-pin J.	T-7CB	Class-C Amp. (Telegraphy)	2000	500	—	-200	150	11	6.0	33000	1.4	230
												Suppressor-Mod. Amp.	1800	400	—	-130	135	11	8.0	16000	1.7	178
												Class-C Amp. Plate-Mod.	2000	500	300	-130	55	27	3.0	—	0.4	35
HK257 [*]	75	5.0	7.5	4000	500	25	13.8	0.04	6.7	7-pin J.	T-7CB	Class-C Amp. (Telegraphy)	2000	500	60	-200	150	11	6.0	—	1.4	230
												Suppressor-Modulated Amp.	1800	400	60	-130	135	11	8.0	—	1.7	178
												Class-C Amp. Plate-Mod.	2000	500	—	-130	55	27	3.0	—	0.4	35
828 ⁷	80	10	3.25	2000	750	23	13.5	0.05 ¹¹	14.5	5-pin M.	T-5C	Class-C Amp. (Telegraphy)	1500	400	75	-100	180	28	12	40000	2.2	200
												Class-C Amp. Plate-Mod.	1250	400	75	-140	160	28	12	30000	2.7	150
												Grid-Modulated Amp.	1500	400	75	-150	80	4.0	1.3	—	1.3	41
												Class-C Amp. (Telegraphy)	2000	400	45	-100	150	55	13	21000	2.0	210
RK28 ⁵	100	10	5.0	2000	400	35	15	0.02	15	5-pin J.	T-5C	Class-C Amp. (Telephony)	1500	400	45	-100	135	52	13	21000	2.0	155
												Suppressor-Modulated Amp.	2000	400	—	-100	85	65	13	—	1.8	60
												Grid-Modulated Amplifier	2000	400	45	-140	80	20	4.0	—	0.9	75
RK48 ⁵ RK48A	100	10	5.0	2000	400	22	17	0.13	13	5-pin J.	T-5D	Class-C Amp. (Telegraphy)	1500	400	—	-100	180	40	6.5	—	1.0	250
												Class-C Amp. (Telephony)	1500	400	—	-100	148	50	6.5	22000	1.0	165
												Grid-Modulated Amplifier	1500	400	—	-145	77	10	1.5	—	1.6	40
813	100	10	5.0	2000	400	22	16.3	0.2 ¹¹	14	7-pin J.	T-7DA	Class-C Amp. (Telegraphy)	2000	400	—	-90	180	15	3.0	107000	0.5	260
												Class-C Amp. (Telephony)	1600	400	—	-130	150	20	6.0	21600	1.2	175
												Grid-Modulated Amplifier	2000	400	—	-120	75	3.0	—	—	—	50

TABLE XV — TETRODE AND PENTODE TRANSMITTING TUBES — Continued

Type	Max. Plate Dissipation Watts	Cathode	Max. Plate Voltage	Max. Screen Voltage	Max. Screen Dissipation Watts	Inter-electrode Capacitances (pF)		Base ¹	Socket Connections ²	Typical Operation	Plate Voltage	Screen Voltage	Suppressor Voltage	Grid Voltage	Plate Current Ma.	Screen Current Ma.	Grid Current Ma.	Screen Resistor Ohms	Approx. Grid Driving Power Watts ⁴	Approx. Carrier Output Power Watts	Type
		Volts	Amps.			Grid to Fil.	Plate to Fil.														
850	100	10	3.25	1950	175	17	0.25 ¹¹	25	4-pin J.	T-3B	1250	175	—	—150	160	—	35	—	10	130	850
860	100	10	3.25	3000	500	10	7.75	0.08 ¹¹	7.5	4-pin M.	3000	300	—	—150	85	25	15	—	7.0	165	860
RK28A	125	10	5.0	2000	400	35	15	0.02	15	5-pin J.	1500	400	—	—100	135	54	10	18500	1.6	150	RK28A
803	125	10	5.0	2000	600	30	17.5	0.15 ¹¹	29	5-pin J.	2000	500	—	—110	150	20	4.0	30000	1.5	210	803
RK65	215	5.0	14	3000	500	35	10.5	0.24	4.75	4-pin J.	3000	400	—	—100	240	70	22	30000	6.3	380	RK65
861	400	11	10	3500	750	35	14.5	0.11	10.5	Special	3000	375	—	—200	300	40	40	70000	35	400	861

1 S. — small; M. — medium; O. — octal; J. — jumbo.

2 See Transmitting Tube Base Diagrams.

3 In plate-and-screen modulated Class-C amplifiers, connect screen-dropping resistor direct to plate and by-pass for r.f. only. This does not apply to the 828.

4 See Chapter 4-8 for discussion of grid driving power.

5 Obs. plate type. 6 Instant-heating filament for mobile operation.

7 Intermittent commercial and amateur service ratings.

8 Triode connection — screen-grid tied to plate.

9 Calculated on basis of 33% efficiency at 100% modulation.

10 Dual tube. Values for both sections, in push-pull.

11 With external shielding.

12 Terminals 3 and 6 must be connected together.

13 Early tubes of this type do not have center-tapped filament.

14 Inductive output amplifier, with separate output and current-collecting electrodes, for operation above 300 Mc. In using

values shown in tables, for "plate" read "Collector" for "Screen" read "Grids No. 2 & 3," for "Suppressor" read "Grid No. 4," and for "Grid" read "D.C. Grid No. 1."

15 See Receiving Tube Base Diagrams.

Frequency limits:

** May be used at full ratings on 56-60 Mc. band and lower.

*** May be used at full ratings on 112-Mc. band and lower.

**** May be used at full ratings on 224-Mc. band and lower.

TABLE XVI — TELEVISION TRANSMITTING TUBES

Type	Name	Socket Connections ¹	Heater		Use	Collector Voltage	Pattern Electrode Voltage	Anode No. 2 Voltage	Anode No. 1 Voltage	Cut-off Grid Voltage ²	Signal Plate Voltage	Collector Current μ a. ³	Beam Current μ a.	Pattern Electrode Current ⁴	Signal Plate Input	Beam Resolution Capability	Signal Output Volts	Type
			Volts	Amps.														
1840	Orthicon	M	6.3	0.6	Direct and film pickup	—	—	300 ⁷	300	—40	—	—	1.0	—	—	—	0.03-0.15	1840
1847	Iconoscope	A	6.3	0.6	Direct pickup	600	—	600	150	—120	—	—	—	—	—	—	—	1847
1848	Iconoscope	N	6.3	0.6	Direct pickup	1200	—	1000 ⁷	300	—40	—	0.1	0.25	—	—	—	0.015-0.075	1848
1849	Iconoscope	J	6.3	0.6	Film pickup	1000	—	1000	360	—25	—	0.1	—	—	—	—	—	1849
1850	Iconoscope	J	6.3	0.6	Direct pickup	—	—	—	—	—	—	—	—	—	—	—	—	1850
1898	Monoscope	E	2.5	2.1	Test pattern	—	950	1000	300	—60	—	—	2.0	—	—	—	—	1898
1899	Monoscope	K	2.5	2.1	Test pattern	1700	1500	1500	390	—60	—	—	4.0	—	—	500	—	1899
2203	Monotron	L	2.5	2.1	Test pattern	—	—	1000	400	—20	—150	—	—	—	5	300	0.1	2203

1 Refer to Cathode Ray Tube Socket Connections.

2 Adjust bias for minimum (most negative) value for satisfactory signal. Max. resistance in grid circuit should not exceed 1 meg.

3 Collector current measurements made with mosaic not illuminated.

4 Peak-to-peak signal value in μ a.

5 In mw./sq. cm. max.

6 With full scanning.

7 Accelerating electrode (Grid No. 2) voltage same as Anode No. 2 voltage.