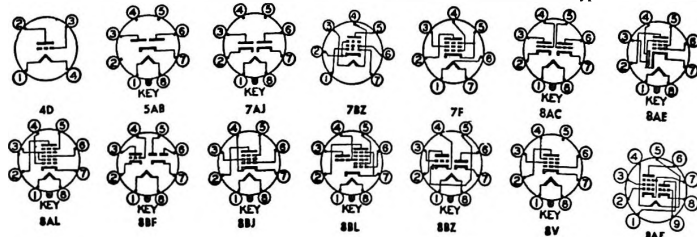


| Tube Type | Classification by Construction     | Base Connections | Out-line Dwg | Type Cathode | Filament Volts | Filament Amp | Max Plate Volts                                   | Max Screen Volts | Capacitance in Micromicrofarads                 |         |            |
|-----------|------------------------------------|------------------|--------------|--------------|----------------|--------------|---------------------------------------------------|------------------|-------------------------------------------------|---------|------------|
|           |                                    |                  |              |              |                |              |                                                   |                  | Input                                           | Out-put | Grid-plate |
| 7K7       | Duplex-Diode High-Mu Triode        | 8BF              | 9-30         | Htr          | 6.3            | 0.3          | 250                                               | —                | —                                               | —       | —          |
| 7L7       | Sharp-Cutoff Pentode               | 8V               | 9-30         | Htr          | 6.3            | 0.3          | 300                                               | 125              | 8.0                                             | 6.5     | 0.01       |
| 7N7       | Medium-Mu Twin Triode              | 8AC              | 9-31         | Htr          | 6.3            | 0.6          | 300                                               | —                | —                                               | —       | —          |
| 7Q7       | Pentagrid Converter                | 8AL              | 9-30         | Htr          | 6.3            | 0.3          | 300                                               | 100              | Osc $I_{g1} = 0.5$ ma<br>$R_{g1} = 20,000$ ohms | —       | —          |
| 7R7       | Duplex-Diode Remote-Cutoff Pentode | 8AE              | 9-30         | Htr          | 6.3            | 0.3          | 250                                               | 125              | 5.6                                             | 5.3     | 0.004      |
| 7S7       | Triode-Heptode Converter           | 8BL              | 9-30         | Htr          | 6.3            | 0.3          | 300                                               | 100              | Osc $I_{g1} = 0.4$ ma<br>$R_{g1} = 50,000$ ohms | —       | —          |
| 7T7       | Sharp-Cutoff RF Pentode            | 8V               | 9-30         | Htr          | 6.3            | 0.3          | 300                                               | 150              | 7.5                                             | 5.5     | 0.005      |
| 7V7       | Sharp-Cutoff RF Pentode            | 8V               | 9-30         | Htr          | 6.3            | 0.45         | 300                                               | 150              | —                                               | —       | —          |
| 7W7       | Sharp-Cutoff RF Pentode            | 8BJ              | 9-30         | Htr          | 6.3            | 0.45         | 300                                               | 150              | —                                               | —       | —          |
| 7X6       | High-Vacuum Rectifier-Doubler      | 7AJ              | 9-31         | Htr          | 6.3            | 1.2          | Tube Voltage Drop: $\Delta$<br>22 v at 150 ma d-c |                  |                                                 |         |            |
| 7X7       | Duplex-Diode High-Mu Triode        | 8BZ              | 9-31         | Htr          | 6.3            | 0.3          | 300                                               | —                | —                                               | —       | —          |
| 7Y4       | Full-Wave High-Vacuum Rectifier    | 5AB              | 9-30         | Htr          | 6.3            | 0.5          | Tube Voltage Drop: $\Delta$<br>22 v at 70 ma d-c  |                  |                                                 |         |            |
| 7Z4       | Full-Wave High-Vacuum Rectifier    | 5AB              | 9-31         | Htr          | 6.3            | 0.9          | Tube Voltage Drop: $\Delta$<br>40 v at 100 ma     |                  |                                                 |         |            |
| 9BM6      | Power Amplifier Pentode            | 7BZ              | 5-3          | Htr          | 9.5            | 0.3          | 250                                               | 250              | 8.0                                             | 5.5     | 0.5        |
| 9BW6      | Beam Power Amplifier               | 9AM              | 6-3          | Htr          | 9.45           | 0.3          | 315                                               | 285              | —                                               | —       | —          |
| 9U8       | Triode-Pentode                     | 9AE              | 6-2          | Htr          | 9.45           | 0.3          | 300                                               | 150              | Pentode Section                                 |         |            |
|           |                                    |                  |              |              |                |              | 300                                               | —                | Triode Section                                  |         |            |
| 10        | Power Amplifier Triode             | 4D               | T-X          | Fil          | 7.5            | 1.25         | 425                                               | —                | 4.0                                             | 3.0     | 7.0        |
| 12A       | Detector Amplifier Triode          | 4D               | 14-1         | Fil          | 5.0 DC         | 0.25         | 180                                               | —                | 4.0                                             | 2.0     | 8.5        |
| 12A4      | Medium-Mu Triode                   | 9AG              | 6-3          | Htr          | 12.6<br>6.3    | 0.3<br>0.6   | 450                                               | —                | 4.9                                             | 0.9     | 5.6        |
| 12A5      | Power Amplifier Pentode            | 7F               | 12-5         | Htr          | 12.6<br>6.3    | 0.3<br>0.6   | 180                                               | 180              | —                                               | —       | —          |

Metal tubes are shown in bold-face type, miniature tubes in italics.

③ Subminiature type.



| Service                       | Plate Volts                                                                                                                                                   | Screen Volts | Neg Grid Volts | Plate Milli-amperes | Screen Milli-amperes | $R_p$ , Ohms         | $G_m$ , $\mu$ hos | # Factor | Load for Rated Out-put, Ohms | Power Out-put, Watts | Tube Type |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|---------------------|----------------------|----------------------|-------------------|----------|------------------------------|----------------------|-----------|
|                               |                                                                                                                                                               |              |                |                     |                      |                      |                   |          |                              |                      |           |
| Class A Amplifier             | 250                                                                                                                                                           | —            | 2.0            | 2.3                 | —                    | 44,000               | 1,600             | 70       | —                            | —                    | 7K7       |
| Class A Amplifier             | 250                                                                                                                                                           | 100          | 1.5            | 4.5                 | 1.5                  | 1,000,000            | 3,100             | —        | —                            | —                    | 7L7       |
| Class A Amplifier             | 250                                                                                                                                                           | —            | 8.0            | 9.0                 | —                    | 7,700                | 2,600             | 20       | —                            | —                    | 7N7       |
| Converter                     | 250                                                                                                                                                           | 100          | 2.0            | 3.5                 | 8.5                  | 1,000,000            | 550 #             | —        | —                            | —                    | 7Q7       |
| Class A Amplifier             | 250<br>100                                                                                                                                                    | 100<br>100   | 1.0<br>1.0     | 5.7<br>5.5          | 2.1<br>2.2           | 1,000,000<br>350,000 | 3,200<br>3,000    | —        | —                            | —                    | 7R7       |
| Converter                     | 250                                                                                                                                                           | 100          | 2.0            | 1.8                 | 3.0                  | 1,250,000            | 525 #             | —        | —                            | —                    | 7S7       |
| Class A Amplifier             | 250                                                                                                                                                           | 150          | 1.0            | 10.8                | 4.1                  | 900,000              | 4,900             | —        | —                            | —                    | 7T7       |
| Class A Amplifier             | 300                                                                                                                                                           | 150          | $R_b = 180$    | 10                  | 3.9                  | 300,000              | 5,800             | —        | —                            | —                    | 7V7       |
| Class A Amplifier             | 300                                                                                                                                                           | 150          | $R_b = 160$    | 10                  | 3.9                  | 300,000              | 5,800             | —        | —                            | —                    | 7W7       |
| Rectifier or Doubler          | Max d-c output current per plate = 75 ma; max peak inverse voltage = 700 volts; rms supply voltage per plate = 235 volts; max peak current per plate = 450 ma |              |                |                     |                      |                      |                   |          |                              |                      | 7X6       |
| Class A Amplifier             | 250                                                                                                                                                           | —            | 1.0            | 1.9                 | —                    | 67,000               | 1,500             | 100      | —                            | —                    | 7X7       |
| Full-Wave Rectifier           | Max d-c output current = 70 ma; max peak inverse voltage = 1250 volts; max rms supply voltage per plate = 325 volts; max peak current per plate = 210 ma      |              |                |                     |                      |                      |                   |          |                              |                      | 7Y4       |
| Full-Wave Rectifier           | Max d-c output current = 100 ma; max peak inverse voltage = 1,250 volts; max rms supply voltage per plate = 325 volts; max peak current per plate = 300 ma    |              |                |                     |                      |                      |                   |          |                              |                      | 7Z4       |
| Class A Amplifier             | 250                                                                                                                                                           | 250          | 6.0            | 30†                 | 3.0†                 | 60,000               | 7,000             | —        | 7,000                        | 3.5                  | 9BM6      |
| Class A Amplifier             | 250                                                                                                                                                           | 250          | 12.5           | 45†                 | 4.5†                 | 52,000               | 4,100             | —        | 5,000                        | 4.5                  | 9BW6      |
| Class A Amplifier             | 250                                                                                                                                                           | 110          | $R_b = 68$     | 10                  | 3.5                  | 400,000              | 5,200             | —        | —                            | —                    | 9U8       |
| Class A Amplifier             | 150                                                                                                                                                           | —            | $R_b = 56$     | 18                  | —                    | 5,000                | 8,500             | 40       | —                            | —                    |           |
| Class A Amplifier             | 425                                                                                                                                                           | —            | 40             | 18†                 | —                    | 5,000                | 1,600             | 8.0      | 10,200                       | 1.6                  | 10        |
| Class A Amplifier             | 180                                                                                                                                                           | —            | 13.5           | 7.7†                | —                    | 4,700                | 1,800             | 8.5      | 10,650                       | 0.285                | 12A       |
| Vertical Deflection Amplifier | 250                                                                                                                                                           | —            | 9.0            | 23                  | —                    | 2,500                | 8,000             | 20       | —                            | —                    | 12A4      |
|                               | Max positive pulse plate voltage; $\Phi = 1,000$ volts; max plate dissipation = 5.9 watts; max d-c cathode current = 30 ma                                    |              |                |                     |                      |                      |                   |          |                              |                      |           |
| Class A Amplifier             | 180                                                                                                                                                           | 180          | 25             | 45†                 | 8†                   | 35,000               | 2,400             | —        | 3,300                        | 3.4                  | 12A5      |
|                               | 100                                                                                                                                                           | 100          | 15             | 17†                 | 3†                   | 50,000               | 1,700             | —        | 4,600                        | 0.8                  |           |

§ Approximate.

† Without external shield.

‡ Zero signal.  
§ Grids 3 and 5 are screen. Grid 4 is signal-input grid.

¶ Conversion transconductance.

\* Maximum.

♥ Grids 2 and 4 are screen. Grid 3 is signal-input grid.

✱ Screen supply voltage.

① Absolute maximum rating.

1. Plate-to-plate.

② Per section.

③ For both sections.

\* Minimum.

¶ Heater warm-up time controlled for series-string service.

‡ Plate supply voltage.

§ Input plate.

♥ The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

✱ Section 1.

① Section 2.

② A resistor of 3 ohms must be put in series with heater.

