ELECTRICAL DATA

HEATER OPERATION

	3BE6	4BE6	12BE6	6BE6
Heater Voltage	3.15	4.2	12.6	6.3 Volts
Heater Current	600	450	150	300 Ma
Heater Warm-up Time	11	11	—	— Seconds
Maximum Heater-Cathode Voltage				
Heater Negative with Respect to Cathode				
Total DC and Peak				200 Volts
Heater Positive with Respect to Cathode				
DC				100 Volts
Total DC and Peak				200 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded (2)	Unshielded
Grid No. 3 to Plate (Max.)	0.25	0.30 Pf
Grid No. 3 to Grid No. 1 (Max.)	0.15	0.15 Pf
Grid No. 3 Input: g3 to (h+k+g1+g2+g4+g5+p)	7.0	7.0 Pf
Grid No. 1 Input: g1 to (h+k+g2+g4+g3+g5+p)	5.5	5.5 Pf
Output: p to (h+k+g1+g2+g4+g3+g5)	13.0	8.0 Pf
Grid No. 1 to Cathode	3.0	3.0 Pf
Grid No. 1 to Plate	0.05	0.1 Pf
Cathode to All Electrodes Except Grid No. 1	20.0	15.0 Pf

RATINGS (Design Center Rating System)

Plate Voltage (Max.)	300 Volts
Plate Dissipation (Max.)	1.0 Watt
Grid No. 2 Voltage (Max.)	100 Volts
Grid No. 2 Supply Voltage (Max.)	300 Volts
Grid No. 2 Dissipation (Max.)	1.0 Watt
Positive Grid No. 3 Voltage (Max.)	0 Volt
Negative Grid No. 3 Voltage (Max.)	50 Volts
Cathode Current (Max.)	14 Ma

CHARACTERISTICS AND TYPICAL OPERATION

Separate Excitation (2)

Plate Voltage	100	250 Volts
Grid No. 2 Voltage	100	100 Volts
Grid No. 3 Voltage	−1.5	−1.5 Volts
Grid No. 1 Resistance	20,000	20,000 Ohms
Grid No. 1 Current	0.5	0.5 Ma
Conversion Transconductance	455	475 μmhos
Plate Resistance (Approx.)	0.4	1.0 Megohm
Plate Current	2.6	2.9 Ma
Grid No. 2 Current	7.0	6.8 Ma
Cathode Current	10.1	10.2 Ma
Grid No. 3 Voltage (Approx.) for Gc = 10 μmhos	−30	−30 Volts

Oscillator Section Characteristics (non-Oscillating)

Grid No. 3 Voltage	0 Volt
Grid No. 1 Voltage	0 Volt
Grid No. 2 Connected to Plate	100 Volts
Cathode Current	25 Ma
Transconductance Between Grid No. 1 and Grid No. 2 Connected to Plate	7250 μmhos
Amplification Factor	20
Grid No. 3 Voltage (Approx.) for Ib = 10 μa	−11 Volts

NOTES:

(1) Shield No. 316 connected to cathode.

(2) Data for self-excitation in a zero bias circuit corresponds very closely to that for separate excitation.

6BF11

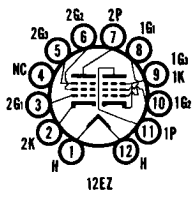
12BF11, 17BF11, 24BF11

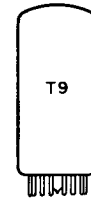
Color Television Type

AUDIO POWER AMPLIFIER FM DETECTOR

Beam Pentode and Sharp Cutoff Pentode

Construction ..... Compactron T-9
Base ..... Button 12 Pin, E12-70
Basing 12EZ
Outline 9-59
Maximum Diameter ..... 1.188 In.
Maximum Seated Height ..... 2.250 In.
Maximum Overall Height ..... 2.625 In.





ELECTRICAL DATA

HEATER OPERATION

	24BF11	17BF11	12BF11	6BF11
Heater Voltage	24.2	16.8	12.6	6.3 Volts
Heater Current	315	450	600	1200 Ma
Heater Warm-up Time	11	11	11	— Seconds

Maximum Heater-Cathode Voltage
- Heater Negative with Respect to Cathode
  - Total DC and Peak ..... 200 Volts
- Heater Positive with Respect to Cathode
  - DC ..... 100 Volts
  - Total DC and Peak ..... 200 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Section No. 1 (Power Amplifier)

Grid to Plate	0.24 Pf
Input: g to (h + 1k + 1g2 + 1g3 + IS)	13.0 Pf
Output: p to (h + 1k + 1g2 + 1g3 + IS)	10.0 Pf

Section No. 2 (FM Detector)

Grid No. 1 to Plate (Max.)	0.036 Pf
Grid No. 3 to Plate	3.2 Pf
Grid No. 1 to (h + 2k + 2g2 + 2g3 + IS)	6.5 Pf
Grid No. 3 to (h + 2k + 2g2 + 2g3 + 2p + IS)	8.0 Pf
Grid No. 1 to Grid No. 3	*0.11 Pf*
Plate No. 1 to Plate No. 2	0.13 Pf

RATINGS (Design Maximum Rating System)

Section No. 1 (Power Amplifier)

Plate Voltage (Max.)	165 Volts
Screen Voltage (Max.)	150 Volts
Plate Dissipation (Max.)	6.5 Watts
Screen Dissipation (Max.)	1.8 Watts
DC Cathode Current (Max.)	65 Ma
Grid No. 1 Circuit Resistance	
Fixed Bias (Max.)	0.25 Megohm
Cathode Bias (Max.)	0.5 Megohm

Section No. 2 (FM Detector)

Plate Voltage (Max.)	330 Volts
Suppressor Voltage (Max.)	28 Volts
Screen Supply Voltage (Max.)	330 Volts
Positive DC Grid Voltage (Max.)	0 Volt
Plate Dissipation (Max.)	1.7 Watts
Screen Dissipation (Max.)	1.1 Watts

CHARACTERISTICS AND TYPICAL OPERATION

Section No. 1

Class A1 Amplifier (Power Amplifier)

Plate Voltage	145 Volts
Screen Voltage	110 Volts
Grid No. 1 Voltage	–6.0 Volts
Peak AF Grid Voltage	6.0 Volts
Plate Resistance (Approx.)	30,000 Ohms
Transconductance	8600 μmhos
Zero Signal Plate Current	36 Ma
Maximum Signal Plate Current	40 Ma
Zero Signal Screen Current	3.0 Ma
Maximum Signal Screen Current	9.0 Ma
Load Resistance	3000 Ohms
Total Harmonic Distortion (Approx.)	10 Percent
Maximum Signal Power Output	2.4 Watts

Section No. 2 (FM Detector)

Plate Voltage	150 Volts
Suppressor Voltage	0 Volt
Screen Voltage	100 Volts
Cathode Resistor	560 Ohms
Plate Resistance (Approx.)	150,000 Ohms
Transconductance (G1)	1000 μmhos
Transconductance (G3)	400 μmhos
Plate Current	1.3 Ma
Screen Current	2.1 Ma
Ec1 for Ib = 30 μa	–4.5 Volts
Ec3 for Ib = 50 μa	–4.5 Volts