

ELECTRICAL DATA
HEATER OPERATION

	17GV5	6GV5
Heater Voltage.....	16.8	6.3 Volts
Heater Current	450	1200 Ma
Heater Warm-up Time	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)

Grid No. 1 to Plate	0.6 Pf
Input	16 Pf
Output	7 Pf

RATINGS (Design Maximum Rating System)
Horizontal Deflection Amplifier⁽¹⁾

DC Plate Supply Voltage (Boost + DC Power Supply) (Max.)	770 Volts
Peak Positive Pulse Plate Voltage	6500 Volts
Peak Negative Pulse Plate Voltage	1500 Volts
Plate Dissipation (Max.) ⁽²⁾	17.5 Watts
Peak Negative Grid No. 1 Voltage (Max.)	330 Volts
Grid No. 2 Voltage (Max.)	220 Volts
Grid No. 2 Dissipation (Max.)	3.5 Watts
Average Cathode Current (Max.).....	175 Ma
Peak Cathode Current (Max.)	550 Ma
Grid No. 1 Circuit Resistance (Max.)	1.0 Megohm
Bulb Temperature (At Hottest Point) (Max.)	220 °C

CHARACTERISTICS AND TYPICAL OPERATION

Plate Voltage	5000	250 Volts
Grid No. 2 Voltage	150	150 Volts
Grid No. 1 Voltage	—	-22.5 Volts
Plate Current	—	65 Ma
Grid No. 2 Current	—	1.8 Ma
Transconductance	—	7300 μ mhos
Plate Resistance.....	—	18,000 Ohms
Amplification Factor ⁽³⁾	—	4.4
Ec1 for Ib = 1.0 Ma (Approx.)	-100	-42 Volts

INSTANTANEOUS PLATE KNEE VALUES

Eb = 60 V; Ec2 = 150 V and Ec1 = 0
Ib = 345 Ma, and Ic2 = 27 Ma

NOTES:

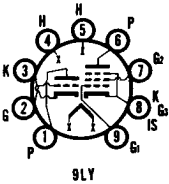
- (1) For operation in a 525 line, 30 frame system as described in "Standards of Good Engineering Practice for Television Broadcast Stations; Federal Communications Commission," the duty cycle of the voltage pulse must not exceed 15% of one horizontal scanning cycle.
- (2) In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.
- (3) Amplification factor with tube operating as a triode with 150 volts on the plate and Grid No. 2 and -22.5 volts on Grid No. 1.

VERTICAL DEFLECTION
AMPLIFIER

6GV8
9GV8, 18GV8

Triode and Pentode

Construction Miniature T-6½
Base Button 9 Pin, E9-1
Basing 9LY
Outline
 Maximum Diameter 0.875 In.
 Maximum Seated Height 2.812 In.
 Maximum Overall Height 3.062 In.



ELECTRICAL DATA**HEATER OPERATION**

	18GV8	9GV8	6GV8
Heater Voltage.....	18	9.5	6.3 Volts
Heater Current	300	600	900 Ma
Maximum Heater-Cathode Voltage			
Heater Negative with Respect to Cathode			200 Volts
Heater Positive with Respect to Cathode			220 Volts

RATINGS (Absolute Maximum Rating System)**Pentode Section**

Plate Voltage, Cut-off Condition (Max.)	550 Volts
Plate Voltage (Max.)	250 Volts
Peak Plate Voltage (Max.) ⁽¹⁾	2000 Volts
Plate Dissipation (Max.)	7 Watts
Screen Grid Voltage, Cut-off Condition (Max.)	550 Volts
Screen Grid Voltage (Max.)	250 Volts
Screen Grid Dissipation (Max.)	2 Watts
Cathode Current (Max.).....	75 Ma
Series Grid Resistor (Fixed Bias) (Max.)	1 Megohm
Series Grid Resistor (Automatic Bias) (Max.)	2.2 Megohms
Heater-Cathode Resistance (Max.)	20,000 Ohms

Triode Section

Plate Supply Voltage (Max.)	550 Volts
Plate Voltage (Max.)	250 Volts
Plate Dissipation (Max.)	0.5 Watt
Cathode Current (Max.).....	15 Ma
Peak Cathode Current (Max.) ⁽²⁾	200 Ma
Series Grid Resistor (Fixed Bias) (Max.)	1 Megohm
Series Grid Resistor (Automatic Bias) (Max.)	3.3 Megohm
Heater-Cathode Resistance (Max.)	20,000 Ohms

CHARACTERISTICS AND TYPICAL OPERATION**Pentode Section**

Plate Voltage	170 Volts
Screen Grid Voltage	170 Volts
Plate Current	41 Ma
Screen Grid Current	2.7 Ma
Negative Control Grid Voltage	15 Volts
Transconductance	7500 μ mhos
Amplification Factor—Grid No. 1 to Grid No. 2	7
Internal Plate Resistance	25,000 Ohms

Pentode Section**Knee Current of Average Tube**

Plate Voltage	50	65 Volts
Screen Grid Voltage	170	210 Volts
Plate Current	200	240 Ma
Screen Grid Current	40	50 Ma
Negative Control Grid Voltage	1	1 Volt

Triode Section

Plate Voltage	100 Volts
Plate Current	5 Ma
Negative Grid Voltage	0.8 Volt
Transconductance	6500 μ mhos
Amplification Factor	50
Internal Plate Resistance.....	7600 Ohms

Pentode Section⁽³⁾

Plate Voltage at End of the Scan (Min.).....	55 ⁽⁴⁾	55 ⁽⁴⁾	75 ⁽⁵⁾ Volts
Screen Grid Voltage	170	200	210 Volts
Negative Control Grid Voltage at End of the Scan ⁽³⁾	6	9.5	11 Volts
Peak Plate Current	135	135	125 Ma
Nominal Screen Grid Dissipation	1.1	1.4	1.35 Watts

NOTES:

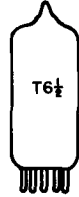
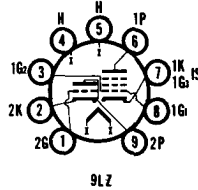
- (1) Maximum pulse duration 5% of a cycle with a maximum of 1 Msec.
- (2) Maximum pulse duration 200 μ sec. If a larger flyback is required Peak Cathode Current = 100 Ma with a maximum pulse duration of 400 μ sec.
- (3) If the vertical sweep circuit is designed so that full deflection is obtained at the nominal line voltage, and Eb minimum, Ec2 and Ib have their specified values, full deflection can still be obtained, with an end of life tube at the lower limit of the spread in characteristics, provided Ec1 at the end of the scan is -1V. This even holds for a line voltage that is 10% below its nominal value.
- (4) Non-stabilized circuits.
- (5) Stabilized circuits.
- (6) For an average tube.

AF VOLTAGE AMPLIFIER and AUDIO POWER AMPLIFIER

6GW8/ECL86

Triode and Pentode

Construction	Miniature T-6½
Base	Button 9 Pin, E9-1
Basing	9LZ
Outline	6-4
Maximum Diameter	0.875 In.
Maximum Seated Height	2.812 In.
Maximum Overall Height	3.062 In.



ELECTRICAL DATA

HEATER OPERATION

Heater Voltage	6.3 Volts
Heater Current	700 Ma
Maximum Heater-Cathode Voltage	100 Volts

DIRECT INTERELECTRODE CAPACITANCES

Pentode Section

Control Grid to All Other Elements except Plate	10 Pf
Plate to All Other Elements except Control Grid	9.5 Pf
Plate to Control Grid (Max.)	0.5 Pf
Control Grid to Heater (Max.)	0.2 Pf

Triode Section

Grid to All Other Elements except Plate	2 Pf
Plate to All Other Elements except Control Grid	1.8 Pf
Plate to Grid	1.6 Pf
Grid to Heater (Max.)	0.04 Pf

Coupling

Plate of Triode to Control Grid of Pentode (Max.)	0.2 Pf
Grid of Triode to Plate of Pentode (Max.)	0.02 Pf
Grid of Triode to Control Grid of Pentode (Max.)	0.02 Pf
Plate of Triode to Plate of Pentode (Max.)	0.2 Pf

RATINGS (Design Center Rating System)

Pentode Section

Plate Voltage (Zero Plate Current) (Max.)	550 Volts
Plate Voltage (Max.)	300 Volts
Screen Grid Voltage (Zero Grid Current) (Max.)	550 Volts
Screen Grid Voltage (Max.)	300 Volts
Plate Dissipation (Max.)	9 Watts
Screen Grid Dissipation (Max.)	1.5 Watts
Peak Screen Grid Dissipation (Max.)	3 Watts
Cathode Current (Max.)	55 Ma
External Resistance Between Control Grid and Ground (Self Bias) (Max.)	1 Megohm
Negative Control Grid Voltage (Control Grid Current = 0.3 μa) (Max.)	1.3 Volts
Cathode-Heater Resistance (Max.)	20,000 Ohms

Triode Section

Plate Voltage (Zero Plate Current) (Max.)	550 Volts
Plate Voltage (Max.)	300 Volts
Plate Dissipation (Max.)	0.5 Watts
Cathode Current (Max.)	8 Ma
External Resistance Between Grid and Ground (Self Bias) (Max.)	2 Megohms
External Resistance Between Grid and Ground (Grid Leak Bias) (Max.)	10 Megohms
Negative Grid Voltage (Grid Current = 0.3 μa) (Max.)	1.3 Volts
Cathode-Heater Resistance (Max.)	20,000 Ohms
Cathode-Heater Resistance (Max.) (In Phase Splitting Circuits) (Max.)	120,000 Ohms

CHARACTERISTICS AND TYPICAL OPERATION

Triode Section

Plate Voltage	250 Volts
Negative Grid Voltage	1.7 Volts
Plate Current	1.2 Ma
Transconductance	1600 μmhos
Amplification Factor	100

Pentode Section

Plate Voltage	250 Volts
Screen Grid Voltage	250 Volts
Negative Control Grid Voltage	7 Volts
Plate Current	36 Ma