TRIODE PENTODE CONVERTER TYPES 5AT8, 6AT8 AND 6AT8A

The 5AT8, 6AT8 and 6AT8A are 9-pin miniature medium-mu triode and sharp-cutoff pentode types designed for service as combined oscillator and mixer tubes in VHF television circuits. Except for the common cathode, the triode and pentode units are electrically independent.

The 5AT8 and 6AT8A have been designed for use in receivers which employ series-connected heaters, especially in television receivers where the picture-tube heater is in series with other heaters. When each is employed in this type of circuit with other tubes having the same heater current rating, heater voltage surges across individual tubes are minimized inasmuch as the heater warm-up characteristic is controlled.

ELECTRICAL

Cathode . . . . . Coated Unipotential

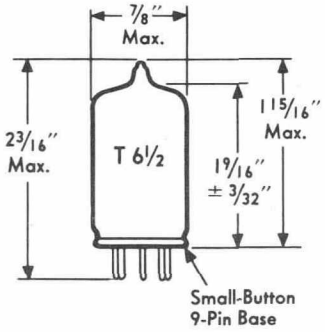
Heater:	5AT8	6AT8	6AT8A	
Voltage	4.7	6.3 ± 10%	6.3	Volts
Current	0.6 ±6%	0.45	0.45 ±6%	Ampere
Warm-Up Time (Note 1)	11	–	11	Seconds

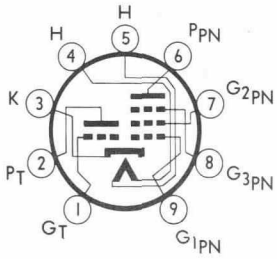
Direct Interelectrode Capacitances:

	Unshielded		Shielded (Note 2)		
Triode Unit:					
Grid to Plate	1.5		1.5		pf
Input	2.0		2.4		pf
Output	0.5		1.0		pf
Pentode Unit:					
Grid 1 to Plate	0.06	max.	0.03	max.	pf
Input	4.6		4.8		pf
Output	0.9		1.6		pf
Pentode Grid 1 to Triode Plate	0.05	max.	0.04	max.	pf
Pentode Plate to Triode Plate	0.05	max.	0.008	max.	pf
Heater to Cathode	6.0		6.0 (Note 3)		pf

MECHANICAL

Bulb T-6½
Base . . . . . Miniature 9-Pin (JEDEC E9-1)
Outline 6-2
Basing 9DW
Mounting Position . . . . . Any





9DW

MAXIMUM RATINGS

Design Maximum Values

	Triode	Pentode		
Plate Voltage	275	275	max.	Volts
Grid 2 Supply Voltage	–	275	max.	Volts
Grid 2 Voltage	See Grid 2 Input Rating Curve			
Grid 1 (Control Grid) Voltage				
Positive Bias Value	0	0	max.	Volts
Plate Dissipation	1.7	2.3	max.	Watts
Grid 2 Input	–	0.45	max.	Watt
Heater-Cathode Voltage				
Heater Negative with Respect to Cathode				
Total DC + Peak	200		max.	Volts
Heater Positive with Respect to Cathode				
DC	100		max.	Volts
Total DC + Peak	200		max.	Volts

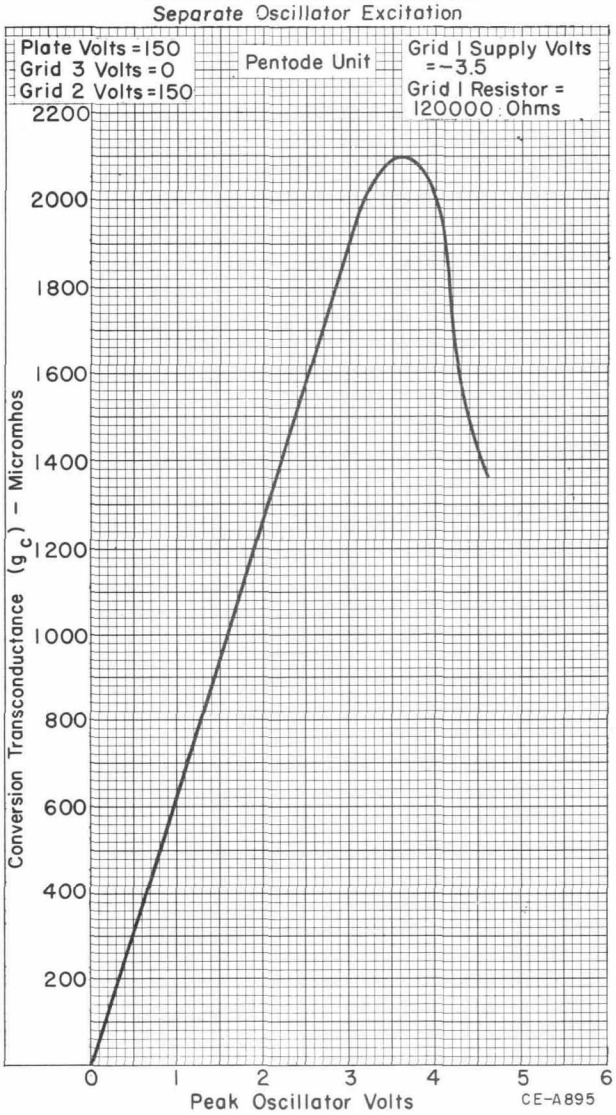
TYPICAL OPERATING CHARACTERISTICS

	Triode Unit	Pentode Unit	
Plate Voltage	125	125	Volts
Grid 3 (Suppressor)	–	Connected to Cathode at Socket	
Grid 2 Voltage	–	125	Volts
Grid 1 Voltage	–1.0	–1.0	Volts
Amplification Factor	40	–	–
Plate Resistance (Approx.)	6000	300000	Ohms
Transconductance	6500	5500	μmhos
Grid 1 Bias 20 μamp. Plate Current	–7	–6.5	Volts
Plate Current	12	9	Ma.
Grid 2 Current	–	2.2	Ma.

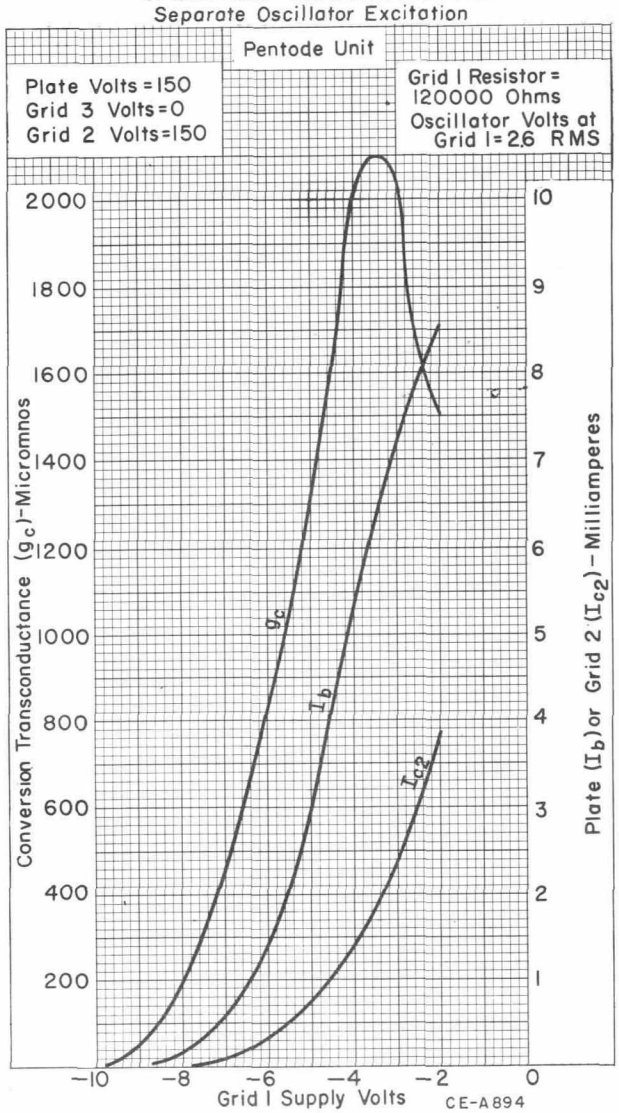
NOTES

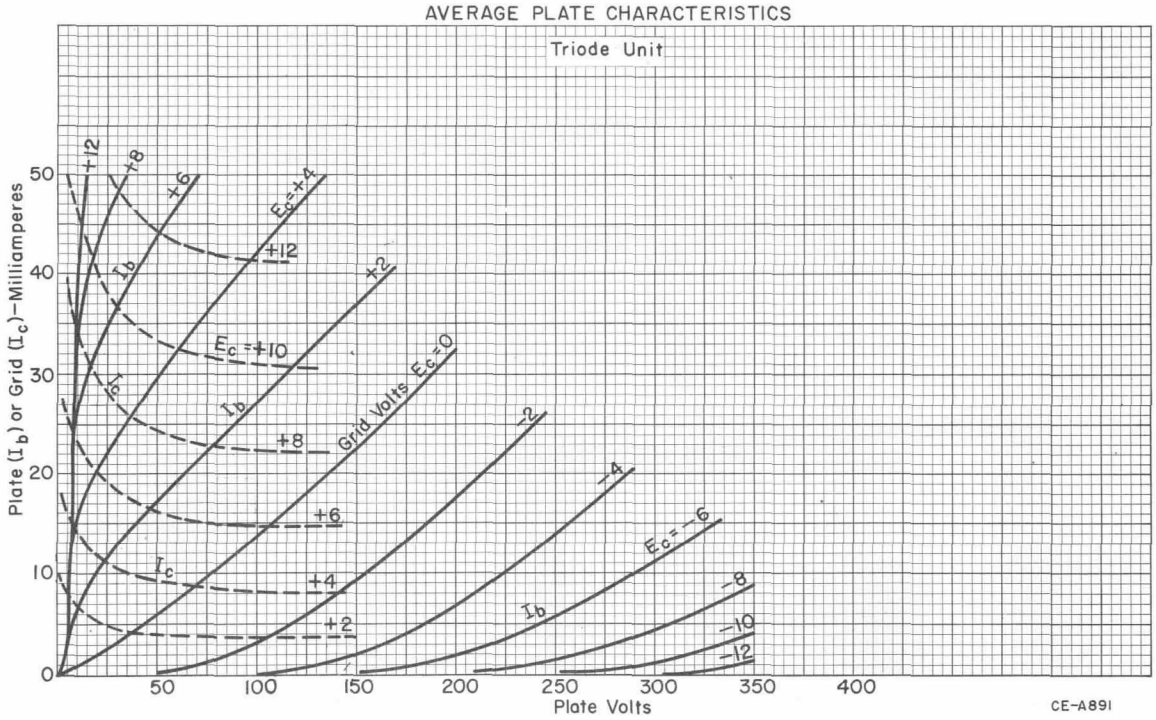
1. Heater Warm-up Time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times rated heater voltage divided by rated heater current.
2. JEDEC Shield #315 connected to pin 3.
3. JEDEC Shield #315 connected to ground.

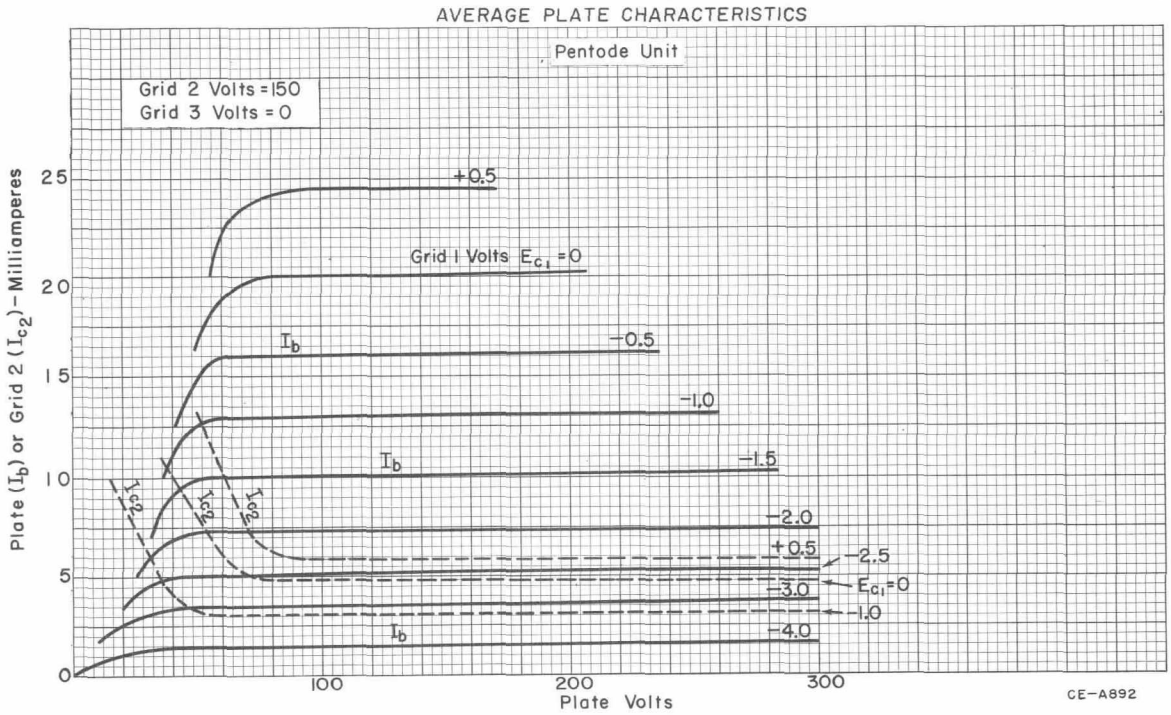
OPERATION CHARACTERISTIC
Separate Oscillator Excitation



OPERATION CHARACTERISTICS
Separate Oscillator Excitation




AVERAGE PLATE CHARACTERISTICS
Triode Unit
Plate (I_b) or Grid (I_c)—Milliamperes
Plate Volts
Grid Volts E_c=0
E_c=+4
E_c=+10
E_c=−6
I_b
I_c
CE-A891


AVERAGE PLATE CHARACTERISTICS
Pentode Unit
Grid 2 Volts = 150
Grid 3 Volts = 0
Plate (I_b) or Grid 2 (I_{c2})—Milliamperes
Plate Volts
Grid 1 Volts E_{c_1} = 0
I_b
I_{c2}
E_{c_1}=0
CE-A892

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