

## HYTRON CERAMIC-BASE TUBES

The attached characteristics for the Hytron "GT" "Bantams" are applicable to ceramic-base "GTX" "Bantam" tubes.

These ceramic-based "Bantams" for high-frequency circuits are designated by the suffix letter "X" after "GT".

The tubes have the same physical dimensions as the Hytron "GT" series and identical static characteristics. However, because of the low-loss base, the Hytron "X" "Bantams" have improved dynamic characteristics, particularly at the higher frequencies.

Furthermore, the ceramic-base "Bantams" are specially selected and subjected to rigid tests.

These tubes are supplied with metal shields that contact the metal base ring or shell. This ring is connected to the #1 or ground pin. Therefore, the Hytron ceramic-base "Bantams" are interchangeable with metal tubes.

**TYPE 6A8GT**



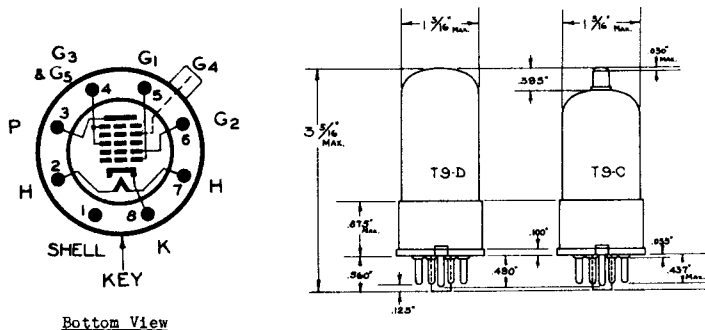
**HYTRON BANTAM**

GENERAL DESCRIPTION

Application: The Hytron 6A8GT is a cathode type pentagrid converter designed for use as a combined oscillator and mixer tube in superheterodyne circuits. The tube construction is such that independent control of these functions is available.

The 6A8GT is a glass tube equipped with a small octal base and may be used interchangeably with the 6A8G glass tube,

Physical Characteristics: Bulb T-9C



Bottom View

RATING AND CHARACTERISTICS

Heater:

Voltage 6.3 Volts AC or DC  
Current 0.3 Ampere

Note: Voltage between heater and cathode should be kept at a minimum if direct connection is not possible.

MAXIMUM RATINGS

Plate Voltage	250	Volts
Screen Voltage (Grids No. 3 and No. 5)	100	Volts
Anode Grid Voltage (Grid No. 2)	200	Volts
*Anode Grid Voltage Supply	250	Volts
Control Grid Voltage (Grid No. 4)	-3	Volts Min.
Total Cathode Current	14	Milliamperes

\*A 20,000 ohm voltage dropping resistor must be used for supply voltages above 200 volts.

CONVERTER OPERATION

Plate Voltage	100	250	Volts
Screen Voltage	50	100	Volts
Anode Grid Voltage	100	250*	Volts
Control Grid Voltage	-1.5	-3	Volts Min.
Plate Current	1.2	3.3	Milliamperes
Screen Current	1.5	3.2	Milliamperes
Anode Grid Current	1.6	4.0	Milliamperes
Oscillator Grid Current (Grid No. 1)	0.25	0.5	Milliamperes
Oscillator Grid Resistor	50,000	50,000	Ohms
Conversion Conductance	350	500	Micromhos
Control Grid Voltage			
Conversion Conductance = 2 Micromhos	-20	-45	Volts Approx.

\*Anode Grid Supply Voltage - requires 20,000 ohm voltage dropping resistor.

Direct Interelectrode Capacitances:

Grid No. 4 to Plate	.20	μf.
Grid No. 4 to Grid No. 2	.19	μf.
Grid No. 4 to Grid No. 1	.13	μf.
Grid No. 1 to Grid No. 2	1.0	μf.
Grid No. 4 to all other electrodes (R F Input)	7.5	μf.
Grid No. 2 to all other electrodes (Osc. Output)	5.0	μf.
Plate to all other electrodes (Mixer Output)	7.5	μf.
Grid No. 1 to all other electrodes (Osc. Input)	6.2	μf.
°With shield can.		

Note: For characteristic curves refer to the type 6A8G



TYPE 6J5GT

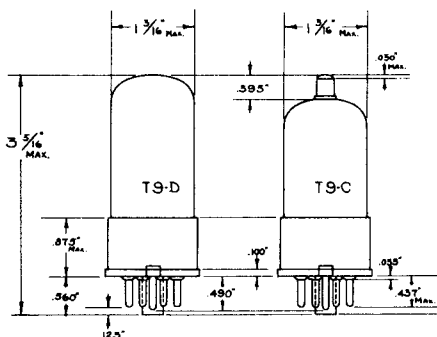
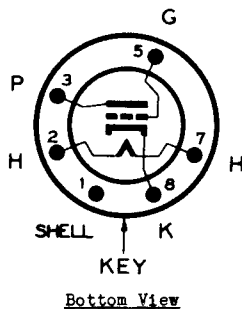


HYTRON BANTAM

GENERAL DESCRIPTION

Application: The Hytron 6J5GT is a cathode type general purpose amplifier triode designed for use in resistance coupled amplifiers or in super-heterodyne circuits as an oscillator. The high mutual conductance and low output capacitance make the tube especially suited for high frequency oscillator service. The 6J5GT is a glass tube equipped with a small octal base. In general, the application and operation of this tube parallels that of the 6C5G.

Physical Characteristics: Bulb T-9D

RATING AND CHARACTERISTICS

## Heater:

Voltage	6.3	Volts AC or DC
Current	0.3	Ampere

Note: Voltage between heater and cathode should be kept at a minimum if direct connection is not possible.

Operating Conditions: (Class A Amplifier)

Plate Voltage	250	Volts Max.
Grid Voltage	-8	Volts
Plate Current	9.0	Milliamperes
Plate Resistance	7700	Ohms Approx.
Mutual Conductance	2600	Micromhos Approx.
Amplification Factor	20	

## Direct Interelectrode Capacitances:

Grid to Plate	2.7	$\mu\text{f.}$
Input	3.8	$\mu\text{f.}$
Output	3.0	$\mu\text{f.}$

TYPE 6J7GT



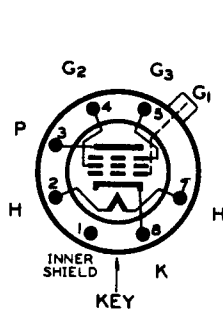
HYTRON BANTAM

GENERAL DESCRIPTION

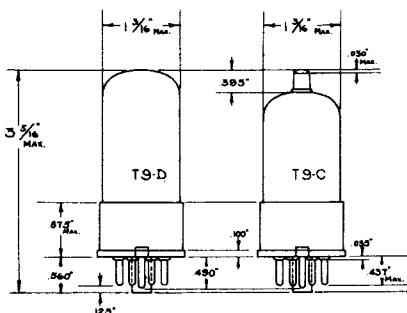
Application: The Hytron 6J7-GT is a cathode type pentode designed primarily for service as a biased detector and in such use is capable of comparatively high gain. It may also be employed as a high gain amplifier of radio or audio frequency signals. An internal shield is connected to the No. 1 base pin.

The Hytron 6J7GT is a glass tube equipped with a small octal base and may be used interchangeably with the Hytron 6J7G glass tube.

Physical Characteristics: Bulb T-9C



Bottom View



RATING AND CHARACTERISTICS

Heater:  
 Voltage 6.3 Volts AC or DC  
 Current 0.3 Ampere  
 Note: Voltage between heater and cathode should be kept at a minimum if direct connection is not possible.

AMPLIFIER OPERATION (CLASS A)

Plate Voltage	100	250 Max.	Volts
Screen Voltage	100	**100	Volts
***Grid Voltage	-3	-3	Volts
Suppressor	Connected to cathode at socket.		
Plate Current	2.0	2.0	Milliamperes
Screen Current	0.5	0.5	Milliamperes
Plate Resistance	1.0	1.5 Min.	Megohm
Amplification Factor	1185	1500 Min.	
Mutual Conductance	1185	1825	Micromhos
*Grid Voltage	-7	-7	Approx. Volts

\* Voltage for Cathode Current Cut-Off.  
 \*\* Screen Voltage = 125 Max. Volts.  
 \*\*\* Grid Circuit Resistance must not exceed 1.0 Megohm.

BIASED DETECTOR OPERATION

*Plate Supply Voltage	250	250	250	250	Volts
Screen Voltage	50	33	100	100	Volts
Grid Voltage	-2	-1.7	-3.9	-4.3	Volts
Cathode Resistor	3000	8000	4000	10,000	Ohms
Suppressor	Connected to Cathode at Socket.				
Cathode Current (Zero Signal)	0.65	0.21	0.97	0.43	Milliamperes
Plate Resistor	0.25	0.50	0.25	0.50	Megohm
Blocking Condenser	0.03	0.03	0.03	0.03	µf.
Grid Resistor of Following Tube	0.25	0.25	0.25	0.25	Megohm
**RMS RF Signal	1.18	1.21	1.38	1.37	Volts

\* Effective plate voltage will be this value minus the voltage drop in the plate resistor.  
 \*\* 20% Modulation. Output voltage for each set of conditions 17 peak audio volts at grid of following tube.

Direct Interelectrode Capacitances:

°Grid No. 1 to Plate	0.005	µµf. Max.
Grid No. 1 to all other electrodes	4.3	µµf.
Plate to all other electrodes	9.0	µµf.
°With shield can.		

Note: For characteristic curves refer to the type 6J7G

B-2 3-39



TYPE 6K7GT



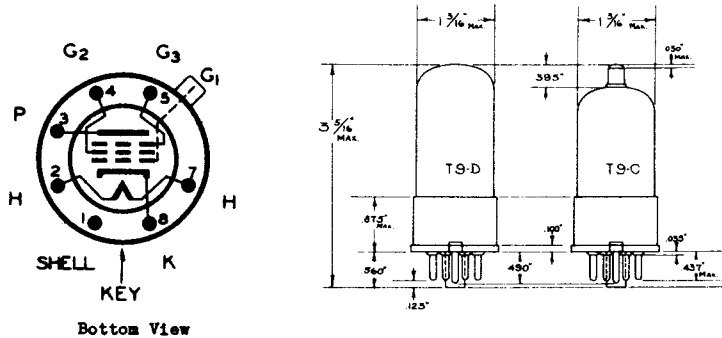
HYTRON BANTAM

GENERAL DESCRIPTION

Application: The Hytron 6K7-GT is a cathode type super-control pentode primarily designed for amplifier service in radio or intermediate frequency circuits. It may also be used as a mixer tube in superheterodyne circuits. An internal shield is connected to cathode within the tube.

The Hytron 6K7GT is a glass tube equipped with a small octal base and may be used interchangeably with the Hytron 6K7G glass tube.

Physical Characteristics: Bulb T-9C



RATING AND CHARACTERISTICS

Heater: Voltage 6.3 Volts AC or DC  
Current 0.3 Ampere

Note: Voltage between heater and cathode should be kept at a minimum if direct connection is not possible.

AMPLIFIER OPERATION (CLASS A)

Plate Voltage	90	180	250	250 Max.	Volts
Screen Voltage	30	75	100	125 Max.	Volts
Grid Voltage	-3	-3	-3	-3 Min.	Volts
Suppressor			Connected to Cathode at Socket		
Plate Current	5.4	4.0	7.0	10.5	Milliamperes
Screen Current	1.3	1.0	1.7	2.6	Milliamperes
Plate Resistance	0.515	1.0	0.8	0.6	Megohm
Amplification Factor	400	1100	1160	990	
Mutual Conductance	1275	1100	1450	1650	Micromhos
*Grid Voltage	-38.5	-32.5	-42.5	-52.5	Volts

\* Mutual Conductance = 2 Micromhos.

MIXER OPERATION (VARIABLE BIAS)

Plate Voltage 250 Max. Volts  
Screen Voltage 100 Volts  
Grid Voltage -10 Approx. Volts  
Suppressor Connected to Cathode at Socket.  
Values shown are optimum. Grid voltage is minimum for 7 volts peak oscillator voltage.

Direct Interelectrode Capacitances:

Grid No. 1 to Plate	0.005	µf. Max.
Grid No. 1 to all other electrodes	4.1	µf.
Plate to all other electrodes	9.3	µf.

<sup>o</sup>With shield can.

TYPE 6K8GT



HYTRON BANTAM

GENERAL DESCRIPTION

Application: The Hytron 6K8GT is a cathode type triode-hexode converter tube designed for the purpose of eliminating the faults found in pentagrid type converter tubes. The Hytron 6K8GT, through unique geometric and electrical design, either totally overcomes or greatly reduces in severity:

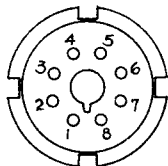
1. Interlock between oscillator and signal circuits.
2. Load transconductance in the oscillator section.
3. Change in transconductance of the oscillator section with signal grid bias.
4. Loading of the RF input circuit under ordinary operating conditions due to transit time effect.
5. Loading of the input circuit due to space charge coupling.

In addition to the above advantages, further enhancement of performance is possible due to the following improvements over typical pentagrid converter tubes:

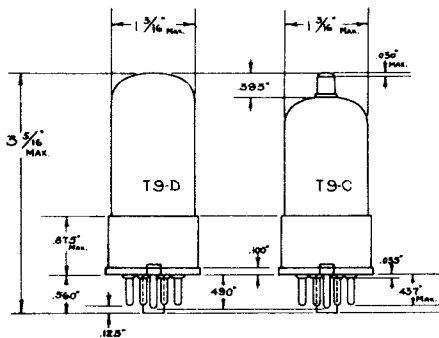
1. Lower interelectrode capacities in all important circuits.
2. Less feed-back required for satisfactory oscillator operation.
3. Higher output impedances.
4. Oscillator plate voltage may be the same as the screen voltage.
5. In 100 volt operation, the screen may be operated at the same voltage as the plate.
6. A negligible amount of voltage at oscillator frequency appears on the signal grid.

The Hytron 6K8GT is a glass tube equipped with a small octal base and may be used interchangeably with the Hytron 6K8G glass tube.

Physical Characteristics: Bulb T-9C  
Base Connections



Bottom View

RATING AND CHARACTERISTICS

Heater:	Voltage	6.3	Coated Unipotential Cathode
	Current	0.3	a-c or d-c volts
Direct Interelectrode Capacitances: (Approx.)*			amp.
Hexode Grid No. 3 to Hexode Plate			0.03 uuf
Hexode Grid No. 3 to Triode Plate			0.01 uuf
Hexode Grid No. 3 to Triode Grid & Hexode Grid No. 1			0.1 uuf
Triode Grid & Hexode Grid No. 1 to Triode Plate			1.1 uuf
Triode Grid & Hexode Grid No. 1 to Hexode Plate			0.06 uuf
Hexode Grid No. 3 to All Other Electrodes - RF Input			6.5 uuf
Triode Plate to All Other Electrodes (except Triode Grid and Hexode Grid No. 1) - Osc. Output			3.2 uuf
Triode Grid & Hexode Grid No. 1 to All Other Electrodes (except Triode Plate) - Osc. Input			6.0 uuf
Hexode Plate to All Other Electrodes - Mixer Output			3.5 uuf
Maximum Overall Length			3-5/16"
Maximum Diameter			1-5/16"
Bulb			Glass T-9
Cap			Miniature
Base			Bantam Octal 8-Pin
Mounting position			Vertical, base down

Pin 1 - Shell	Pin 6 - Triode Plate
Pin 2 - Heater	Pin 7 - Heater
Pin 3 - Hexode Plate	Pin 8 - Cathode
Pin 4 - Hexode Grid #2 & #4	Cap - Hexode Grid #3
Pin 5 - Hexode Grid #1 & Triode Grid	

CONVERTER SERVICE

Hexode Plate Voltage		250 max.	volts
Hexode Screen (Grids #2 & #3) Voltage		100 max.	volts
Hexode Control-Grid (Grid #3) Voltage		-3 min.	volts
Triode Plate Voltage		200 max.	volts
Total Cathode Current		16 max.	ma.
Typical Operation:			
Heater Voltage*	6.3	6.5	volts
Hexode Plate Voltage	100	100	volts
Hexode Screen Voltage	100	100	volts
Hexode Control-Grid Voltage	-3	-3	volts
Triode Plate Voltage	100	100	volts
Triode Grid Resistor	50000	50000	ohms
Hexode Plate Resistance	0.4	0.6 approx.	megohm
Conversion Transconductance	325	350	umhos
Hexode Control-Grid Bias for Conver. Transcond. - 2 umhos			
Hexode Plate Current	-30	-30 approx.	volts
Hexode Screen Current	2.3	2.5	ma.
Triode Plate Current	6.2	6.0	ma.
Triode Grid & Hexode Grid #1 Current	3.8	3.3	ma.
	0.15	0.15	ma.

Note: The transconductance of the oscillator portion (not oscillating) of the 6K8GT is approximately 3000 umhos when the triode plate voltage is 100 volts, and the triode grid voltage is 0 volts.

\* With shell connected to cathode.

o In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible.

Note: For characteristic curves refer to type 6K8G.

B-3 9-36

