

TECHNICAL DATA

PRELIMINARY
SPECIFICATIONS
5-21-35

ARCTURUS

GLASS TUBES EQUIPPED WITH OCTAL BASES

REPLACEABLE BY METAL TUBES

<u>TYPE</u>	<u>PURPOSE</u>	<u>COUNTER- PART</u>	<u>METAL REPLACE- MENT</u>	<u>BASE PINS</u>	<u>TOP CAP</u>	<u>BULB</u>
5Y3	Full-Wave Rectifier	80	5Z4	5		ST-14
5Z4-G	Full-Wave Rectifier	85V	5Z4	5		ST-14
6A8-G	Pentagrid Converter	6A7	6A8	8	**	ST-12
6C5-G	Detector-Amplifier Triode	*	6C5	6		ST-12
6D5-G	Power Output Triode	*	6D5	6		ST-14
6F6-G	Power Output Pentode	42	6F6	7		ST-14
6H6-G	Double-Diode	*	6H6	7		ST-12
6J7-G	Detector-Amplifier Triple Grid	77	6J7	7	**	ST-12
6K7-G	Super-Control-Amplifier Triple Grid	78	6K7	7	**	ST-12
6L7-G	Pentagrid-Mixer-Amplifier	*	6L7	7	**	ST-12

* These have different electrical characteristics from standard glass type tubes, therefore no glass counter-parts exist.

** Top Cap used on this type.

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CHARACTERISTICS OF TUBES WITH OCTAL BASES

	5Y3	5Z4 5Z4-G	6A8 6A8-G	6C5 6C5-G	6D5 & 6D5-G	
					A	B
Heater Voltage	5.0 ^a	5.0	6.3	6.3	6.3	6.3
Heater Current	2.0	2.0	0.3	0.3	0.7	0.7
Plate Voltage (Max.)	400 ^b	400 ^b	250	250	275	300
Screen Voltage (G3-G5)			100			
Anode Grid Voltage (G2)			250 ^c			
Control Grid Voltage (G1)			-3 ^d	-8	-40	-50 Fixed Bias
Oscillator Grid Voltage			42.5 ^e			
Plate Current			2.6	8.0	31.0	23.0 (per tube)
Screen Current			4.2			
Anode Grid Current			5.0			
Oscillator Grid Current			1.0			
Amplification Factor				20	4.7	
Plate Resistance (Ohms)				10000	2250	
Mutual Conductance				2000	2100	
Conversion Conductance			675			
D.C. Output Current (Max.)	110	125				
Load Resistance					7200	5300 ^f
Undistorted Output (Watts)					1.4	5.0

A - Single-tube Class A Amplifier
 B - Push-pull Class AB Amplifier

(a) Filamentary type
 (b) R.M.S. per plate

(c) With 20,000 ohm dropping resistor

(d) Grid No. 4

(e) R.M.S. volts with 50,000 ohm dropping resistor

(f) Plate to Plate

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CHARACTERISTICS OF TUBES WITH OCTAL BASES

	6F6	6H6	6J7	6K7	6L7	
	6F6-G	6H6-G	6J7-G	6K7-G	C	D
Heater Voltage	6.3	6.3	6.3	6.3	6.3	6.3
Heater Current	0.7	0.3	0.3	0.3	0.3	0.3
Plate Voltage (Max.)	250	100 ^b	250	250	250	250
Screen Voltage (G2)	250		100	100	150 ^g	100 ^g
Control Grid Voltage (G1)	-16.5		-3	-3 ^h	-6 (Min)	-3
Control Grid Voltage (G3)					-20	-3
Suppressor Grid (G3)			k	k		
Oscillator Voltage (G3)					25 ^j	
Plate Current	34.0		2.0	7.0	3.5	5.3
Screen Current	6.5		0.5	1.7	8.0	5.5
Amplification Factor	220		1500 (Min)	1160		880
Plate Resistance (Megohms)	0.1		1.5 (Min)	0.8	2.0 (Min)	0.8
Mutual Conductance	2200		1225	1450		1100
Conversion Conductance					325	
D.C. Output Current (Max)		2.0				
Load Resistance (Ohms)	7000					
Undistorted Output (Watts)	3.0					

C - Mixer Operation.
D - Amplifier Operation.

(b) R.M.S. per Plate.

(g) Also Grid No. 4.
(h) At -42.5 Volts $G_m = 2$.
(j) Peak Voltage applied to Grid #3 from Separate Oscillator.
(k) Tied to cathode at socket.

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PHYSICAL DIMENSIONS OF METAL TUBES AND GLASS SUBSTITUTES

TYPE	A	B	C	D	E	F	G
5Y3				4-3/32"		1-13/16"	1-3/8"
5Z4							
5Z4-G				4-3/32"		1-13/16"	1-3/8"
6A8	2-1/16"	2-1/4"	3-1/8"				
6A8-G				3-17/32"	3-15/16"	1-9/16"	1-5/32"
6C5	2-1/16"						
6C5-G				3-17/32"		1-9/16"	1-5/32"
6D5	2-11/16"						
6D5-G				4-3/32"		1-13/16"	1-3/8"
6H6	1-1/16"						
6H6-G				3-21/32"		1-9/16"	1-5/32"
6F6	2-11/16"						
6F6-G				4-3/32"		1-13/16"	1-3/8"
6J7	2-1/16"	2-1/4"					
6J7-G				3-17/32"	3-15/16"	1-9/16"	1-5/32"
6K7	2-1/16"	2-1/4"	3-1/8"				
6K7-G				3-17/32"	3-15/16"	1-9/16"	1-5/32"
6L7	2-1/16"	2-1/4"	3-1/8"				

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BASING CONNECTIONS FOR TUBES WITH OCTAL BASES

TYPE	NUMBER OF BASE PINS	P O S I T I O N S								TOP CAP
		1	2	3	4	5	6	7	8	
5Y3	5	Xa	H	X	P1	X	P2	X	H	X
5Z4	5	S	H	X	P1	X	P2	X	H	X
5Z4-G	5	Xa	H	X	P1	X	P2	X	H	X
6A8	8	S	H	P	G3-G5	G1	G2	H	K	G4
6A8-G	8	Xa	H	P	G3-G5	G1	G2	H	K	G4
6C5	6	S	H	P	X	G1	X	H	K	X
6C5-G	6	S	H	P	X	G1	X	H	K	X
6D5	6	S	H	P	X	G1	X	H	K	X
6D5-G	6	Xa	H	P	X	G1	X	H	K	X
6H6	7	S	H	P1	K1	P2	X	H	K2	X
6H6-G	7	Xa	H	P1	K1	P2	X	H	K2	X
6F6	7	S	H	P	G2	G1	X	H	K	X
6F6-G	7	Xa	H	P	G2	G1	X	H	K	X
6J7	7	S	H	P	G2	G3	X	H	K	G1
6J7-G	7	S	H	P	G2	G3	X	H	K	G1
6K7	7	S	H	P	G2	G3	X	H	K	G1
6K7-G	7	S	H	P	G2	G3	X	H	K	G1
6L7	7	S	H	P	G2-G4	G3	X	H	K-G5	G1

X - Indicates omission of terminal.

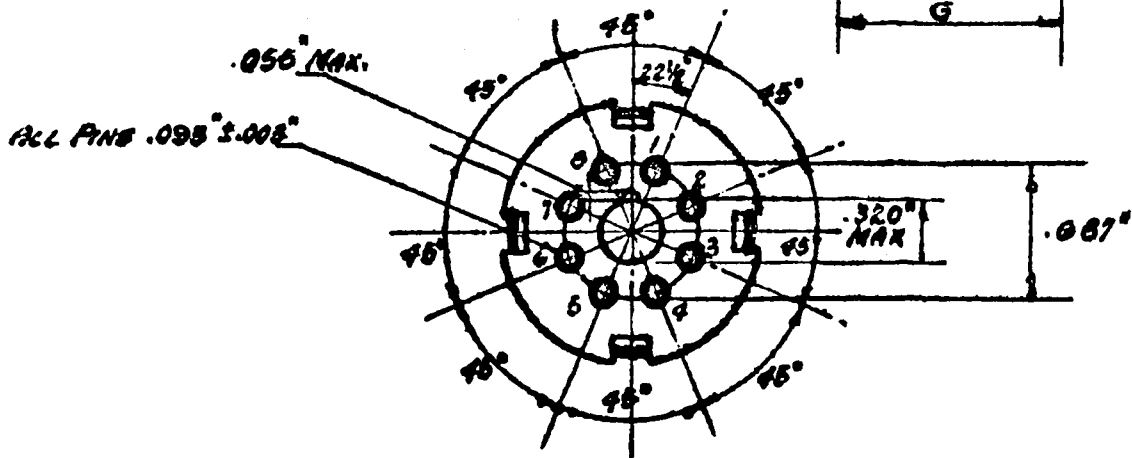
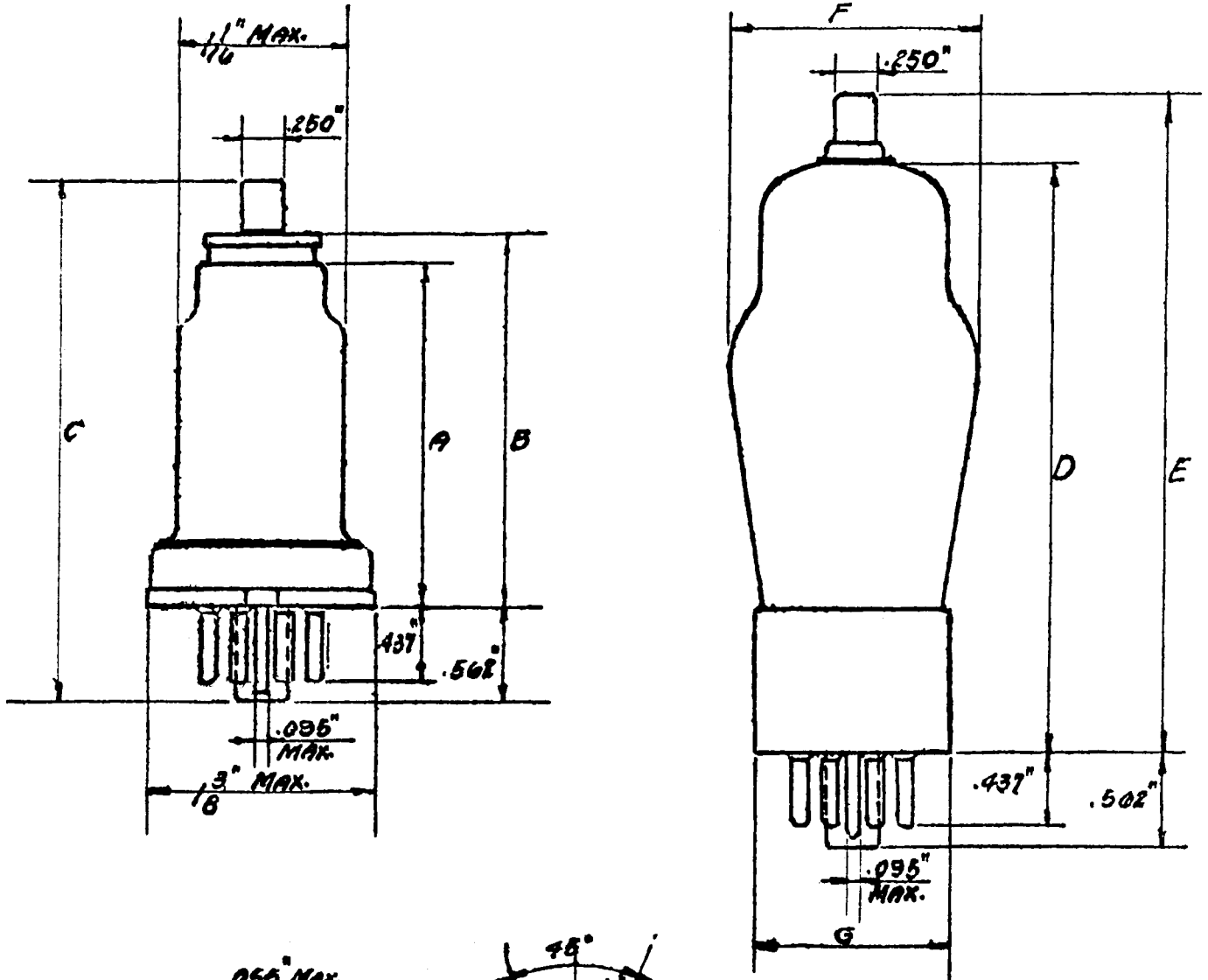
Xa - Pin provided but no internal connection. Corresponding contact in socket should be grounded to accommodate metal tube replacement.

NOTE: Base is viewed from bottom, with key pointing upward - 1st pin in clockwise direction is #1; 2nd is #2, etc.

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PHYSICAL DIMENSIONS OF METAL
TUBES AND GLASS SUBSTITUTES.

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BOTTOM VIEW OF BASE