

6.C.9

MAZDA

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TRIODE HEPTODE FREQUENCY CHANGER

Indirectly heated - for parallel operation

TENTATIVE

RATING		Triode	Heptode
Heater Voltage (volts)	V_h		6.3
Heater Current (amps)	I_h		0.45
Maximum Anode Voltage (volts)	$V_a(\max)$	150	250
Maximum Screen Voltage (volts)	V_{g2}		250
Maximum Mean Cathode Current-Heptode (mA)	$I_{k(h)av(\max)}$		10
Maximum Mean Cathode Current-Triode (mA)	$I_{k(t)av(\max)}$	6	
Mutual Conductance (mA/V)	g_m		‡ 2.5
Amplification Factor	μ		
Maximum Potential Heater/Cathode (volts DC)	$V_h-k(\max)$		150

‡ Taken at $V_a = 250v$; $V_{g2(h)} = 100v$; $V_{g(h)} = -2.5v$.**INTER-ELECTRODE CAPACITANCES****(Triode Section)**

		¶	§
Anode/Earth (μF)	$C_{out(t)}$	1.7	3.0
Anode/Grid 1 (μF)	$C_{a(t),g(t)}$	1.8	2.0
Grid 1/Earth (μF)	$C_{in(t)}$	7.7	9.0

(Heptode Section)

Anode/All (μF)	$C_{a(h),all}$	3.0	4.5
Anode/Grid 1 (μF)	$C_{a(h),g1(h)}$.003	.0045
Grid 1/All (μF)	$C_{g1(h),all}$	8.3	9.8
Heptode Grid/Triode Grid (μF)	$C_{g1(h),g(t)}$.12	.13
Heptode Grid/Triode Anode (μF)	$C_{g1(h),a(t)}$.013	.014

¶ Inter-electrode capacitances with holder capacitance balanced out

§ These capacitances include a Benjamin BSA holder measured at a frequency of 1 Mc/s.

"Earth" denotes electrodes of any second valve section and the remaining earthy potential electrodes of the section under measurement, heater and shields joined to Cathode.

DIMENSIONS

Maximum Overall Length (mm)	67
Maximum Diameter (mm)	22
Maximum Seated Height (mm)	54
Radius Over Location Key (mm)	12.25
Approximate Nett Weight (ozs)	$\frac{1}{2}$
Approximate Packed Weight (ozs)	1

MOUNTING POSITION - Unrestricted.

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TYPICAL OPERATION

Triode Section

Anode Voltage (volts)	$V_a(t)$	80
Approximate Anode Current (mA)	$I_a(t)$	4 to 6

Heptode Section

Anode Voltage (volts)	$V_a(h)$	250
Initial Screen Voltage (volts)	$V_{g2}(h)$	100
Grid Bias (volts-ve)	$V_{g1}(h)$	-2.5
Peak Heterodyne Voltage (volts)	$V(pk)_{het}$	9.0
Conversion Conductance ($\mu A/Volt$)	g_c	650
Approximate Anode Current (mA)	$I_a(h)$	3.0
Approximate Screen Current (mA)	$I_{g2}(h)$	6.0
Approximate Anode Impedance (megohms)	$r_a(w)$	3.0
Input Loss at 45 Mc/s	$r_{g1,k}(w)$	5,500
Input Capacitance Working (Hot) (μF)	$C_{in}(w)$	9.7
Change in input capacitance produced by biasing valve to cut-off (μF)	$\Delta C_{in}(w)$	1.3
Equivalent grid noise resistance (ohms)	r_{eq}	60,000

Inter-electrode capacitance with holder capacitance balanced out.

BULB Clear

BASE B.8.A.



Viewed from free end of pins.

CONNEXIONS

Pin 1	Heater	h
Pin 2	Heptode Anode	ah
Pin 3	Triode Anode	at
Pin 4	Triode Grid 1 and Heptode Grid 3	$E1(t)$ $E3(h)$
Pin 5	Heptode Grid 2 and Grid 4	$E2(h)$ $E4(h)$
Pin 6	Heptode Grid 1	$E1(h)$
Pin 7	Cathode & Shield	k & s
Pin 8	Heater	h