

HEPTODE FREQUENCY CHANGER TYPE 15A.2

The BRIMAR 15A.2 is an indirectly heated frequency changer of the heptode or pentagrid type, designed to perform simultaneously the functions of mixer and oscillator in receivers of the super-heterodyne class.

These functions are accomplished in a single valve comprising a triode unit and a screened grid or tetrode unit coupled by a common electron stream.

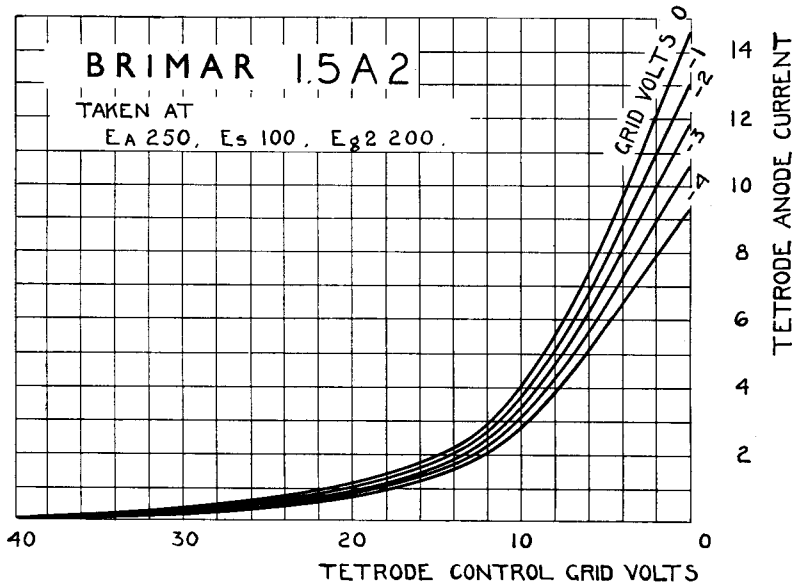
The triode unit functions as an oscillator, the oscillations modulating the electron stream of the tetrode unit, producing in the anode circuit the required I.F. frequency.

The tetrode portion of the valve is designed with a variable μ characteristic; thus enabling the conversion gain to be varied over a wide range by variation of tetrode control grid bias. Great care has been taken in the design of this valve to eliminate frequency drift. How far the designers have been successful may be gathered from the following information. At 1,500 K.C. the application of 40 volts bias to the grid of the tetrode portion produces a frequency drift of less than 150 cycles.

Operation details and characteristics are given overleaf. The valve is fitted with a seven-pin base, connections being as shown on page 51.

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CHARACTERISTICS



Heater Voltage	4 volts \pm 5%
Heater Current	0.65 amp.
Tetrode Anode Voltage (maximum)	250 volts
Screen Voltage (maximum)	...	...	...	...	...	100 volts
Triode Anode Voltage (maximum)	...	...	...	...	...	200 volts
Conversion Conductance	...	...	...	...	...	550 Micromhos *

* Taken at anode volts (tetrode) 250, screen volts 100.
anode volts (triode) 200, control grids -3 volts.

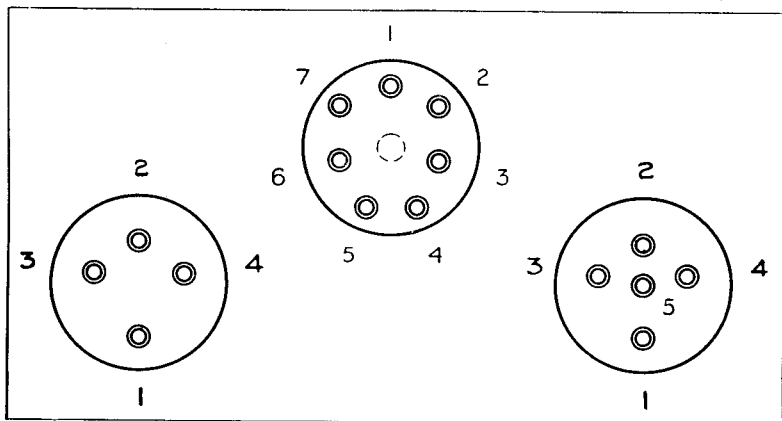
OPERATING CONDITIONS

Anode Volts	...	...	...	250	150	100
Screen Volts (G.3 & 5)	...	...	...	100	100	50
Triode Anode Volts (G.2)	...	...	...	200	120	100
Grid Volts (G.4)	...	...	...	-3.0	-2.5	-1.5
Grid Leak (G.1) (ohms)	...	...	...	50,000	25,000	10,000
Auto Bias Resistance (ohms)	...	...	...	300	300	150
Screen Supply Resistance (ohms)	...	...	...	—	15,000	20,000
Triode Anode Supply Resistance (ohms)	...	...	...	15,000	10,000	—
Anode Current (mA.)	3.5	3.0	1.5
Screen Current (mA.)	2.0	2.5	2.5
Triode Anode Current (mA.)	4.0	4.0	3.5

VALVES

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BASE CONNECTIONS OF VALVES



UNDERSIDE VIEW OF BASES
4-PIN VALVES

TYPE	1	2	3	4
HLB.1, PB.1	A	G	F.M	F
R.1, R.2, R.3, 1A.7	A1	A2	H	H.C
4037A.	A	—	F	F

5-PIN VALVES

TYPE	1	2	3	4	5	Top Cap
8A.1, 9A.1 ...	G2	G1	H	H	C.M	—
HLA.2, PA.1 ...	A	G	H	H	C.M	—
PenB.1, PenA.1 ...	A	G1	F	F	G2	—
4039A ...	A	G	H	H	C	—
ID5 ...	A	—	H	H	C	—

7-PIN VALVES

TYPE	1	2	3	4	5	6	7	Top Cap
4D.1 ...	—	—	—	H	H	C	A	G
7A.3, 7D.8, 7D.6, 7A.2, & 7D.3 ...	—	G1	G2	H	H	C	A	—
9D.2 ...	—	A	G3	H	H	C	G2	G1
11A.2, 11D.3	D1	M	D2	H	H	C	A	G1
15A.2, 15D.1	G2	G1	G3.G5	H	H	C	A	G4

A. Anode. G1, G2, G3, G4, 1st, 2nd, 3rd and 4th Grids.
F. Filament. H. Heater. C. Cathode. D1, D2, Diodes.
M. Metallising.

VALVES