

GENERAL

This valve is a dual type, consisting of a Triode and an Output Beam Tetrode in the same envelope, each section having its own cathode. It is suitable for use in the Audio Amplifier or Frame Time-Base stages of television receivers designed for AC/DC mains operation and having series connected heater chains.

RATING

		Tetrode	Triode
Heater Current (amps)	I_h	0.3	
Heater Voltage (volts)	V_h	13.0	
Maximum Anode Voltage (volts)	$V_a(\text{max})$	250	250
Maximum Screen Voltage (volts)	$V_{g1}(\text{max})$	250	
Maximum Anode Dissipation (watts)	$P_a(\text{max})$	5.5†	2.0†
Maximum Screen Dissipation (Continuous) (watts)	$P_{g1}(\text{max})$	1.5†	
Maximum Screen Dissipation (Speech and Music) (watts)	P_{g2}	2.2	
Mutual Conductance (mA/V)	g_m	6.5‡	3.4*
Amplification Factor	μ		18*
Anode Impedance (ohms)	r_a		5,300*
Maximum Heater to Cathode Voltage (volts) (r.m.s.)	$V_{h-k}(\text{max})$	150‡	

* Measured at $V_a = 200\text{v}$. $I_a = 10\text{mA}$.

‡ Measured with $V_a = 170\text{v}$. $V_{g2} = 180\text{v}$. $I_a = 32\text{mA}$.

† The total anode dissipation of both sections not to exceed 6 watts.

‡ Measured with respect to the higher potential heater pin.

The characteristics for the triode section of the 30PL1 are the same as for the 6/30L2 triode.

MOUNTING POSITION—Unrestricted

TYPICAL OPERATION—Class A Power Output

Tetrode Section

Anode Supply Voltage (volts)	$V_a(b)$	170
Screen Supply Voltage (volts)	$V_{g1}(b)$	180
Grid Bias Voltage (volts)	V_{g1}	-9.6
Anode Current (quiescent) (mA)	$I_a(o)$	28
Screen Current (quiescent) (mA)	$I_{g1}(o)$	6.5
Anode Load (ohms)	R_a	6,000† 5,300 ‡
Power Output (watts)	P_{out}	2.0† 2.35 ‡
Input Swing (volts) (r.m.s.)	$V_{in}(\text{r.m.s.})$	3.3† 3.9 ‡

The above operating conditions are taken with fixed D.C. potentials.

† For 5% Third Harmonic and Second Harmonic not exceeding 5%.

‡ For 7% Third Harmonic and Second Harmonic not exceeding 7%.

The grid to cathode circuit resistance of the tetrode must not exceed 0.5 megohms with cathode self-bias when used at the maximum wattage rating.

INTER-ELECTRODE CAPACITANCES (pF)

Triode Section

		†	‡
Grid/Earth	$C_{in}(t)$	2.6	3.7
Anode/Earth	$C_{out}(t)$	2.0	3.0
Anode/Grid	$C_a(t).g(t)$	2.4	2.7

Tetrode Section

Grid 1/Earth	$C_{in}(q)$	9.8	11.0
Anode/Earth	$C_{out}(q)$	7.3	8.6
Anode/Grid 1	$C_a(q).g_1(q)$	0.21	0.21
Tetrode Anode/Triode Anode	$C_a(q).a(t)$	1.0	1.0
Tetrode Grid 1/Triode Grid	$C_{g1}(q).g(t)$	0.014	0.016
Tetrode Anode/Triode Grid	$C_a(q).g(t)$	0.093	0.093
Tetrode Grid 1/Triode Anode	$C_{g1}(q).a(t)$	0.1	0.18

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

† Inter-electrode capacitances with holder capacitance balanced out.

‡ Total capacity including ceramic B9A unskirted holder without radial shield. Carr Fastener holder type 77/076.

DIMENSIONS

Maximum Overall Length	(mm)	67.5
Maximum Diameter	(mm)	22.2
Maximum Seated Height	(mm)	60.5
Approximate Nett Weight	(ozs)	$\frac{1}{2}$
Approximate Packed Weight	(ozs)	$\frac{3}{4}$

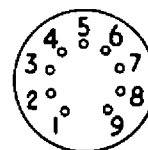
TYPICAL OPERATION—Frame Time-Base

The frame output stage should be designed to allow for valve spread and deterioration during life in addition to component variation. Values of total tetrode peak anode current available for a new average valve and at the assumed end of life point on any valve are as follows :

	V_a	V_{g1}	V_{g1}	$I_a(\text{mA})$
Average New Valve	50	180	-1	96
Assumed End of Life Condition	50	180	-1	62

BULB—Clear $T 6 \frac{1}{2}$

BASE—Noval (B9A) $E 9-1$



Viewed from Free End of Pins

CONNECTIONS 9KZ

Pin 1	Triode Anode	a_t
Pin 2	Triode Grid	g_t
Pin 3	Triode Cathode	k_t
Pin 4	Heater	h
Pin 5	Heater	h
Pin 6	Tetrode Anode	a_q
Pin 7	Tetrode Cathode, Beam Plates	k_q, bp
Pin 8	Tetrode Screen Grid	g_s
Pin 9	Tetrode Control Grid	g_1

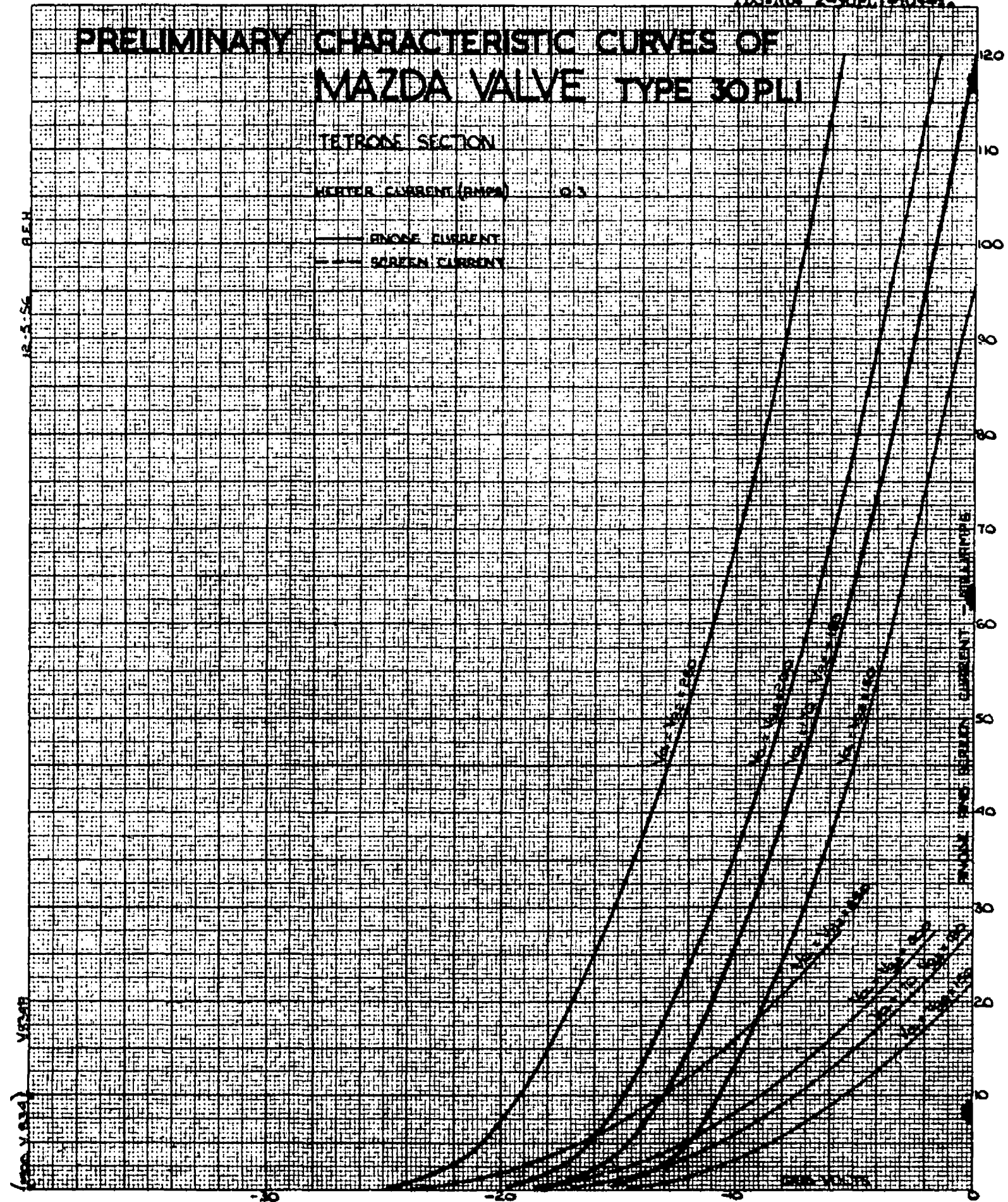
PRELIMINARY CHARACTERISTIC CURVES OF MAZDA VALVE TYPE 30PL1

TETRODE SECTION

HEATER CURRENT (AMPS) 0.3

— GRID CURRENT

- - - SCREEN CURRENT



PRELIMINARY CHARACTERISTIC CURVES OF MAZDA VALVE TYPE 30PL1

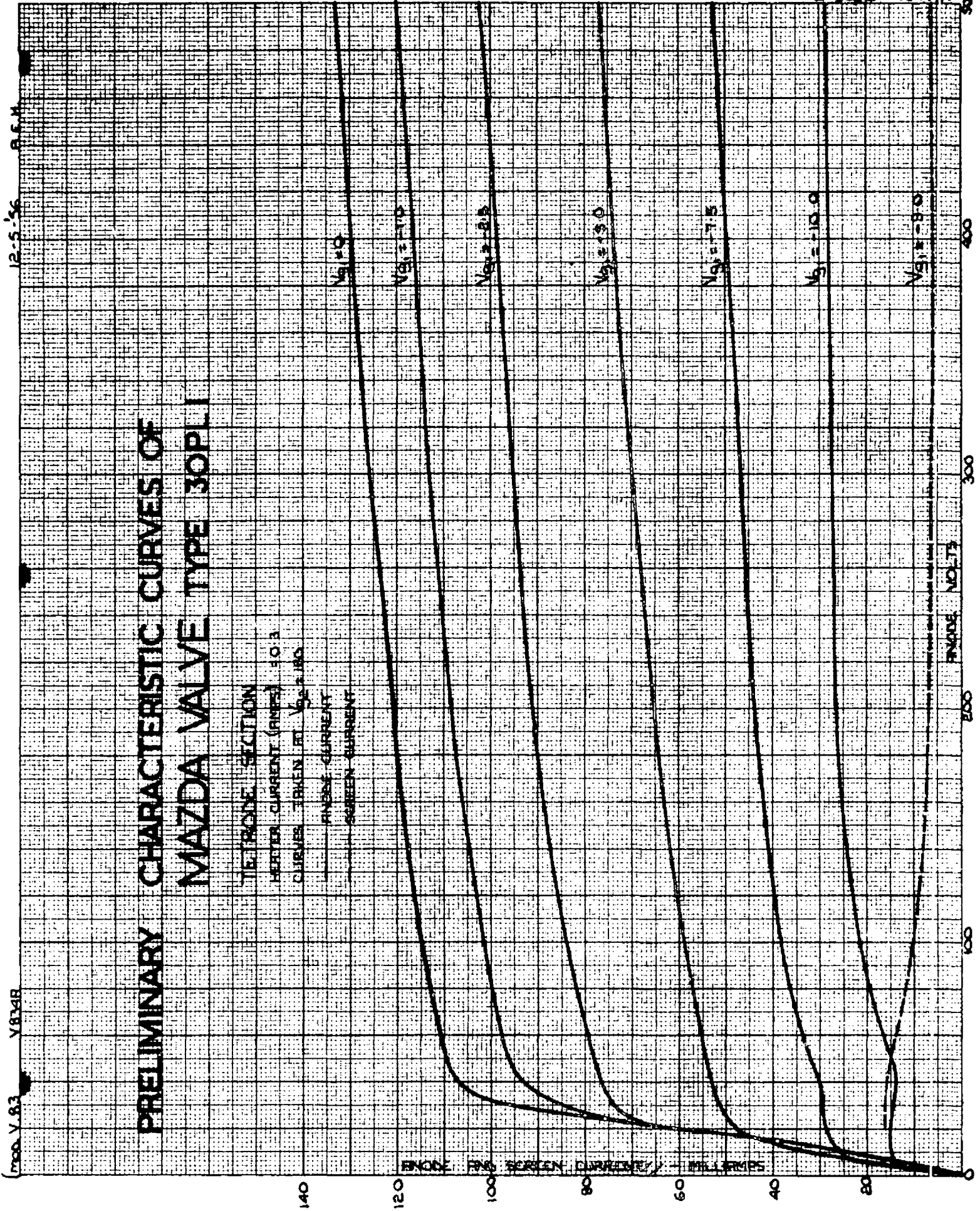
TELEPHONE SECTION

ANODE CURRENT (AMPS) 10.3

CURVES TAKEN AT $V_g = 180$

— ANODE CURRENT

— SCREEN CURRENT



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8.6.4