MAZDA

30PL1

TRIODE—OUTPUT BEAM TETRODE
Indirectly heated—for series operation

TENTATIVE

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)	$V_{a(max)}$	250	250
Maximum Screen Voltage (volts)	$V_{g_2(max)}$	250	
Maximum Anode Dissipation (watts)	$P_{a(max)}$	5·5†	2·0†
Maximum Screen Dissipation (Continuous) (watts)	$P_{g_2(max)}$	1·5†	
Maximum Screen Dissipation (Speech and Music) (watts)	P_{g_2}	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.)	$V_{h-k(max)}$	150‡	

* Measured at V_a = 200v. I_a = 10mA.

§ Measured with V_a = 170v. V_{g_2} = 180v. I_a = 32mA.

† 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.

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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	$c_{a(q)\text{-}g1(q)}$	0·21	0·21
Tetrode Anode/Triode Anode	$c_{a(q)\text{-}a(t)}$	1·0	1·0
Tetrode Grid 1/Triode Grid	$c_{g1(q)\text{-}g(t)}$	0·014	0·016
Tetrode Anode/Triode Grid	$c_{a(q)\text{-}g(t)}$	0·093	0·093
Tetrode Grid 1/Triode Anode	$c_{g1(q)\text{-}a(t)}$	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)	$\frac{3}{4}$

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MOUNTING POSITION—Unrestricted

TYPICAL OPERATION—Class A Audio Output ←

Tetrode Section

		Fixed Bias		*Self Bias*	
Anode Voltage (anode to earth) (volts)	V_a	170		180	
Screen Voltage (screen to earth) (volts)	V_{g2}	180		190	
Anode Current (Quiescent) (mA)	$I_{a(o)}$	28		28	
Screen Current (Quiescent) (mA)	$I_{g2(o)}$	6.5		6.5	
Grid Bias Applied (volts)	V_{g1}	−9.6		—	
Cathode Bias Resistance (ohms)	R_k	—		270	
Anode Load (ohms)	R_a	6000 §	5300†	7000 §	6200†
Power Output (watts)	P_{out}	2.0 §	2.35†	1.85 §	2.2†
Input Swing (volts r.m.s.)	$V_{in(rms)}$	3.3 §	3.9†	3.1 §	3.8†

The above operating conditions are taken with constant anode and screen supply voltages.

§ 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.

Indicates a change ←

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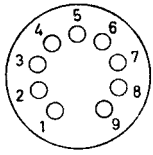
TYPICAL OPERATION—Frame Time-Base ←

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 (volts)	V_{g2} (volts)	V_{g1} (volts)	I_a (mA)
Average New Valve	50	170	—1	88
Assumed End of Life Condition	50	170	—1	57
Average New Valve	50	180	—1	96
Assumed End of Life Condition	50	180	—1	62
Average New Valve	55	190	—1	104
Assumed End of Life Condition	55	190	—1	67

BASE—Noval (B9A)



Viewed from free end of pins

CONNECTIONS

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_2
Pin 9	Tetrode Control Grid	g_1

Indicates a change ←