

MAZDA

30PLI

TRIODE—OUTPUT BEAM TETRODE
Indirectly heated—for series operation

TENTATIVE

30PLI

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)	$V_{g_2}(\text{max})$	250	
Maximum Anode Dissipation (watts)	$P_a(\text{max})$	5.5†	2.0†
Maximum Screen Dissipation (Continuous) (watts)	$P_{g_2}(\text{max})$	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.)	$V_{h-k}(\text{max})$	150‡	

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

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

† 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 30PLI are the same as for the 6/30L2 triode.

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TENTATIVEINTER-ELECTRODE CAPACITANCES (pF)

		†	‡
<u>Triode Section</u>			
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
<u>Tetrode Section</u>			
Grid I/Earth	$c_{in}(q)$	9.8	11.0
Anode/Earth	$c_{out}(q)$	7.3	8.6
Anode/Grid I	$c_{a(q)-g_1(q)}$	0.21	0.21
Tetrode Anode/Triode Anode	$c_{a(q)-a(t)}$	1.0	1.0
Tetrode Grid I/Triode Grid	$c_{g_1(q)-g(t)}$	0.014	0.016
Tetrode Anode/Triode Grid	$c_{a(q)-g(t)}$	0.093	0.093
Tetrode Grid I/Triode Anode	$c_{g_1(q)-a(t)}$	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)	$\frac{3}{4}$

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MOUNTING POSITION—Unrestricted

TYPICAL OPERATION—Class A Audio Output



Tetrode Section

		<i>Fixed Bias</i>	<i>Self Bias</i>
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 ←

30PL1

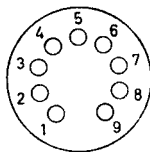
EDISWAN**MAZDA****30PL1****TRIODE—OUTPUT BEAM TETRODE**

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TENTATIVE**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, b_p
Pin 8	Tetrode Screen Grid	g_2
Pin 9	Tetrode Control Grid	g_1

Indicates a change ←

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VALVE & CRT DIVISION

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