

RMA Release # 296

GOVERNMENT CONFIDENTIAL

3DP1-S1

TENTATIVE CHARACTERISTICS and RATINGS

HEATER VOLTAGE (A.C. or D.C.)	6.3	Volts
HEATER CURRENT	0.6	Ampere
FOCUSING METHOD	Electrostatic	
DEFLECTION METHOD	Electrostatic	
Electrodes DJ1 and DJ2 are nearest to screen and designated as "upper."		
DJ1 is on same side of tube as pin No. 5.		
Electrodes DJ3 and DJ4 are nearest to base and designated as "lower."		
DJ3 is on same side of tube as pin No. 2.		
Radial-Deflection Electrode DJ5 is aligned with tube axis.		
PHOSPHOR	No. 1	
FLUORESCENT COLOR	Green	
PERSISTENCE	Medium	
DIRECT INTERELECTRODE CAPACITANCES (Approx.):		
Grid to All Other Electrodes	3	μmf
Cathode to All Other Electrodes	7	μmf
Deflecting Electrode DJ1 to Deflecting Electrode DJ2	2	μmf
Deflecting Electrode DJ3 to Deflecting Electrode DJ4	2	μmf
Deflecting Electrode DJ1 to All Other Electrodes	9	μmf
Deflecting Electrode DJ3 to All Other Electrodes	7	μmf
Deflecting Electrode DJ1 to All Other Electrodes except Deflecting Electrode DJ2	7	μmf
Deflecting Electrode DJ2 to All Other Electrodes except Deflecting Electrode DJ1	7	μmf
Deflecting Electrode DJ3 to All Other Electrodes except Deflecting Electrode DJ4	5	μmf
Deflecting Electrode DJ4 to All Other Electrodes except Deflecting Electrode DJ3	6	μmf
Radial Deflection Electrode DJ5 to Anode No. 2	2	μmf
OVERALL LENGTH	10-7/16"	$\pm 5/16"$
GREATEST DIAMETER of BULB	3"	$\pm 1/16"$
MINIMUM USEFUL SCREEN DIAMETER	2-3/4"	
BASE	Diheptal 12-Pin	
RMA BASING DESIGNATION	14C	

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

Maximum Ratings Are Absolute Values

ANODE No. 2 (High-Voltage Electrode) VOLTAGE	2200 max. Volts		
ANODE No. 1 (FOCUSING Electrode) VOLTAGE	1100 max. volts		
GRID (Control Electrode) VOLTAGE	Never positive		
PEAK VOLTAGE BETWEEN ANODE No. 2 and ANY DEFLECTING ELECTRODE	550 max. Volts		
D-C HEATER-CATHODE POTENTIAL*	125 max. Volts		
GRID-CIRCUIT RESISTANCE	1.5 max. Megohms		
IMPEDANCE of ANY DEFLECTING-ELECTRODE CIRCUIT at HEATER-SUPPLY FREQUENCY	1.0 max. Megohm		
TYPICAL OPERATION:			
Anode No. 2 Voltage**	1500	2000	Volts
Anode No. 1 Voltage for Focus at 75% of			
Grid Voltage for Cut-Off***	450	575	Volts
Grid Voltage for Visual Cut-Off†	-45	-60	Volts
Values subject to variation of	± 50	± 50	Per cent

TYPICAL OPERATION: (continued)

Deflection Sensitivity:

Electrodes DJ1 and DJ2	0.153	0.115 mm/volt D.C.
Electrodes DJ3 and DJ4	0.207	0.155 mm/volt D.C.
Radial-Deflection Electrode DJ5	2.63	1.97 ##

Deflection Factor:

Electrodes DJ1 and DJ2	166	221 volts D.C./in.
Values subject to variation of	± 20	Per cent
Electrodes DJ3 and DJ4	123	164 volts D.C./in.
Radial-Deflection Electrode DJ5	245	327 ###
Ratio of DJ1-DJ2 to DJ3-DJ4 Factor	1.35	1.35
Values subject to variation of	100 ± 15	100 ± 15 Per cent

- * With heater negative. Cathode should be connected to the mid-tap or to one side of the heater transformer winding.
- ** Brilliance and definition decrease with decreasing anode No. 2 voltage. In general, anode No. 2 voltage should not be less than 1500 volts.
- *** Individual tubes may require between +20% and -35% of these values with grid voltage between zero and cut-off.
- # Visual extinction of stationary focused spot.
- ## mm/volt for unit circle diameter in mm. Since deflection sensitivity is inversely proportional to circle diameter, sensitivity for any desired circle diameter is unit value/D(in mm).
- ### Volts D.C./inch for unit circle diameter in inches. Since deflection factor is directly proportional to circle diameter, deflection factor for any desired circle diameter is unit value x D(in inches).

SPOT POSITION

The undeflected focused spot will fall within a 15-mm square centered at the geometric center of the tube face and having one side parallel with the trace produced by DJ1 and DJ2.

Suitable test conditions are: anode No. 2 voltage, 2000 volts; anode No. 1 voltage, adjusted for focus; deflecting electrode resistors, 1 megohm each, connected to anode No. 2; the tube shielded from all extraneous fields. To avoid damage to the tube, make the test with grid voltage near cut-off.

BASING and DEFLECTING ELECTRODE ALIGNMENT

The angle between the trace produced by DJ1 and DJ2 and its intersection with the plane through the tube axis and pin No. 5 will not exceed 10°.

The angle between the trace produced by DJ1 and DJ2 and the trace produced by DJ3 and DJ4 will be 90° \pm 4°.

With DJ1 (pin 11) positive with respect to DJ2 (pin 10), the spot will be deflected toward pin 5; likewise, with DJ3 (pin 7) positive with respect to DJ4 (pin 8), the spot will be deflected toward pin 2.

ANODE No. 2 CURRENT vs GRID VOLTAGE CHARACTERISTIC

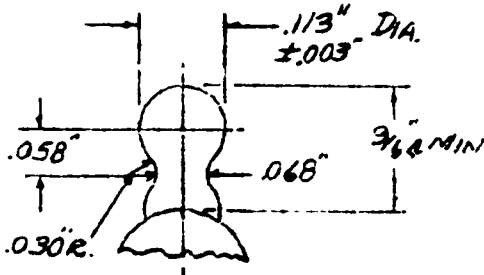
Anode No. 2 Voltage.....2000 Volts

Anode No. 1 Voltage.....adjusted for focus

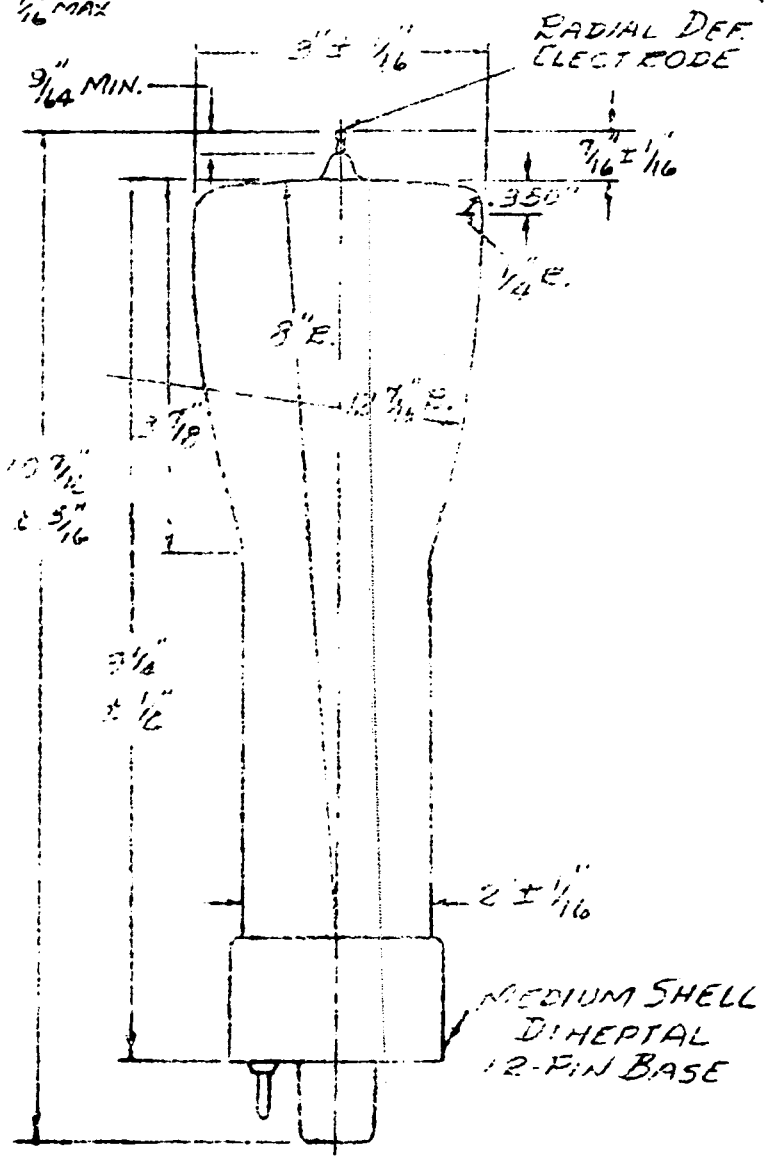
<u>Anode No. 2 Current, Microamperes</u>	<u>Grid Voltage</u>
1200	0
765	-10
445	-20
225	-30
83	-40
14	-50
0	-60

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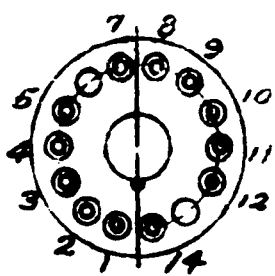
RADIAL-DEFLECTION ELECTRODE TERMINAL MAY BE ECCENTRIC WITH RESPECT TO THE TUBE AXIS BY $\frac{1}{16}$ " MAX



ENLARGED VIEW OF
RADIAL DEF. ELECTRODE

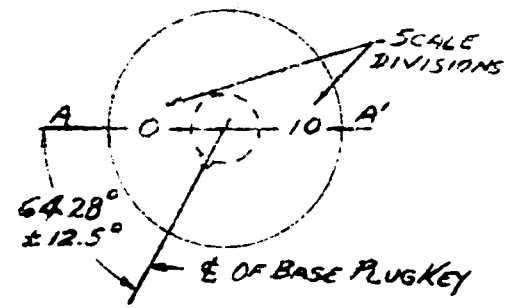


BOTTOM VIEW OF BASE



Pin No.	ELEMENTS
1	HEATER
2	CATHODE
3	GRID No. 1
4	INTERNAL CONN. DO NOT USE
5	ANODE NO. 1
7	DEFLECTING ELECTRODE D ₃
8	DEF. ELECTRODE D ₄
9	ANODE NO. 2 & GRID No. 2
10	DEFLECTING ELECTRODE D ₂
11	DEF. ELECTRODE D ₁
12	NO CONNECTION
14	HEATER

LOCATION OF SCALE
TOP VIEW OF TUBE



TRACE PRODUCED BY DEFLECTING ELECTRODES D₁ AND D₂ IS ALONG LINE A-A'
SCALE MAY BE ECCENTRIC WITH RESPECT TO THE TUBE AXIS BY $\frac{3}{16}$ " MAX.
THE LINE THROUGH THE ZERO AND THE CENTER OF THE SCALE MAY VARY FROM THE LINE A-A' BY 2.5° (MEASURED ABOUT THE TUBE AXIS.)