

GOVERNMENT RESTRICTED

3227

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. | | |
| PHOSPHOR | No. 7 | |
| DIRECT INTERELECTRODE CAPACITANCES (Approx.): | | |
| Grid to All Other Electrodes | 8 | 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 |
| OVERALL LENGTH | 10" $\pm 1/4$ " | |
| GREATEST DIAMETER of BULB | 3" $\pm 1/16$ " | |
| MINIMUM USEFUL SCREEN DIAMETER | 2-1/2" | |
| BULB SIDE TERMINAL | Snap Connector | |
| BASE | Diheptal 12-Pin | |
| RMA BASING DESIGNATION | 14B | |

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

Maximum Ratings Are Absolute Values

| | | | | |
|---|------------------|------|------|-------|
| ANODE No. 3 (Supplementary High-Voltage Electrode) VOLTAGE | 4400 max. Volts | | | |
| 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-to-CATHODE POTENTIAL* | 125 max. Volts | | | |
| IMPEDANCE of ANY DEFLECTING-ELECTRODE CIRCUIT at HEATER-SUPPLY FREQUENCY | 1.0 max. Megohm | | | |
| GRID-CIRCUIT RESISTANCE | 1.5 max. Megohms | | | |
| TYPICAL OPERATION: | | | | |
| Anode No. 3 Voltage** | 2000 | 3000 | 4000 | Volts |
| Anode No. 2 Voltage*** | 2000 | 1500 | 2000 | Volts |
| Anode No. 1 Voltage for Focus at 75% of Grid Voltage for Cut-Off# | 575 | 430 | 575 | Volts |

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TYPICAL OPERATION: (continued)

| | | | | |
|-----------------------------------|-------|-------|--------------------|----------|
| Grid Voltage for Visual Cut-Off## | -60 | -45 | -60 | Volts |
| Values subject to variation of | ±50 | ±50 | ±50 | Per cent |
| Deflection Sensitivity: | | | | |
| Electrodes DJ1 and DJ2 | 0.115 | 0.115 | 0.086 mm/volt D.C. | |
| Electrodes DJ3 and DJ4 | 0.155 | 0.156 | 0.117 mm/volt D.C. | |
| Deflection Factor: | | | | |
| Electrodes DJ1 and DJ2 | 221 | 221 | 295 volts D.C./in. | |
| Electrodes DJ3 and DJ4 | 164 | 163 | 217 volts D.C./in. | |
| Values subject to variation of | ±20 | ±25 | ±25 | Per cent |

* With heater negative. The cathode should be connected to the mid-tap or to one side of the heater transformer winding.

** For high-velocity scanning, it is recommended that the anode No. 3 voltage be not less than 3000 volts.

*** Brilliance and definition decrease with decreasing anode voltage. In general, anode 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.

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 to the trace produced by DJ1 and DJ2.

Suitable test conditions are: anode No. 3 voltage, 4000 volts; 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° ±4°.

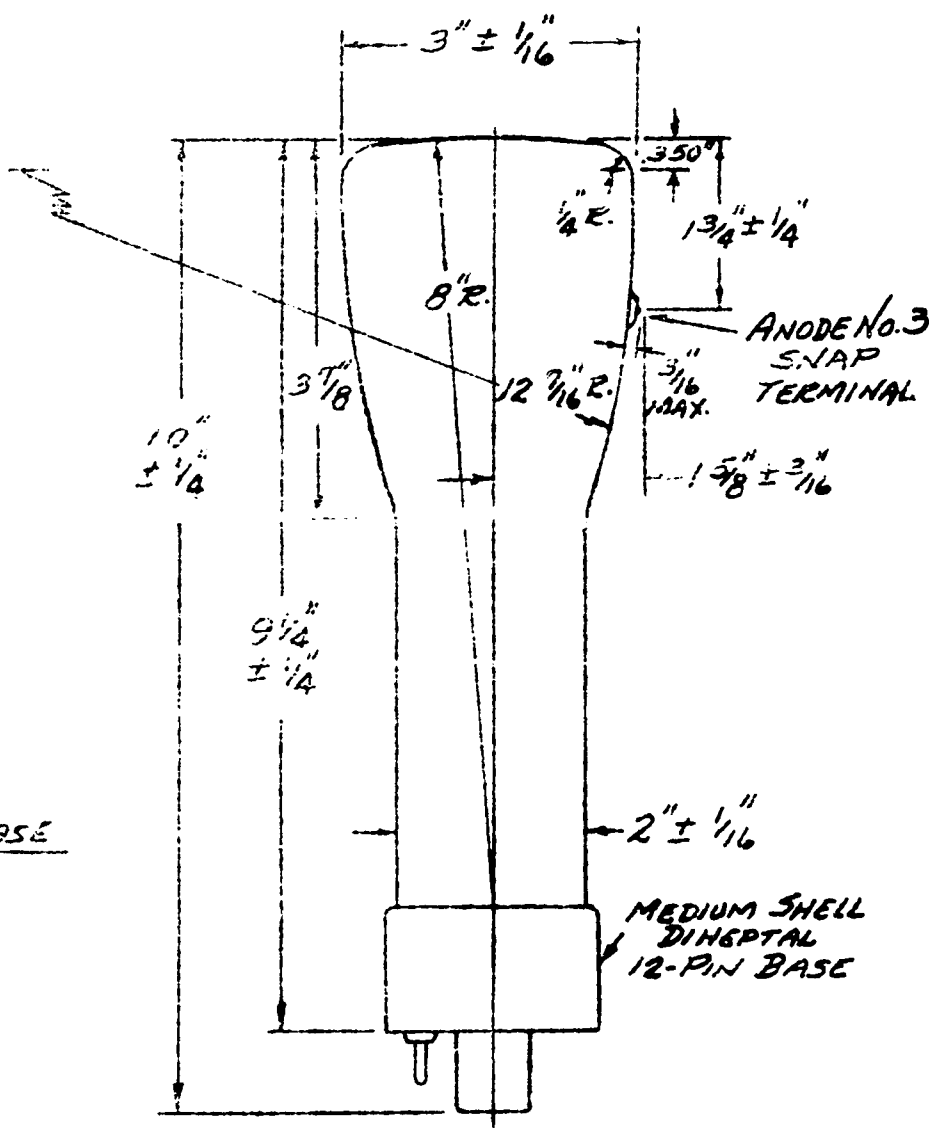
With DJ1 (pin 11) positive with respect to DJ2 (pin 10), the spot will be deflected toward pin 5; likewise, with DJ3 (pin 7) positive with respect to DJ4 (pin 8), the spot will be deflected toward pin 2.

The bulb side terminal for anode No. 3 is on the same side of the tube as pin 5. It is in a plane parallel with the trace produced by DJ1 and DJ2 within 10°.

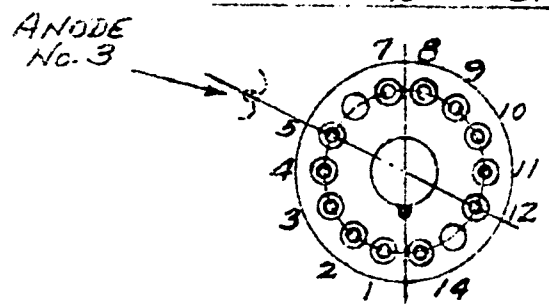
ANODE No. 3 CURRENT vs GRID VOLTAGE CHARACTERISTIC

Anode No. 3 Voltage.....4000 volts
 Anode No. 2 Voltage.....2000 volts
 Anode No. 1 Voltage.....adjusted for focus

| <u>Anode No. 3 Current, Microamperes</u> | <u>Grid Voltage</u> |
|--|---------------------|
| 250 | 0 |
| 165 | -10 |
| 100 | -20 |
| 55 | -30 |
| 23 | -40 |
| 4.5 | -50 |
| 0 | -60 |



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 ₁₃ |
| 8 | DEF. ELECTRODE D ₁₄ |
| 9 | ANODE No. 2 & GRID No. 2 |
| 10 | DEF. ELECTRODE D ₁₂ |
| 11 | DEF. ELECTRODE D ₁₁ |
| 12 | NO CONNECTION |
| 14 | HEATER |