

DU MONT

CATHODE-RAY TUBES

Types 14AP1, 14AP2, 14AP4, 14AP5

(Formerly designated as Types 2531A14, 2531B14, 2531D14, 2531C14)

The Type 14AP Cathode-Ray Tubes are designed for television and other large screen applications. The insulation employed, the type of sealing, and the wide spacing of the lead wires enable these tubes to be operated at high accelerating potentials.

The 14AP types have a glass bulb approximately fourteen inches in diameter.

The screen will provide a brilliant television picture measuring eight inches by ten inches, or for oscillographic applications, a usable screen diameter of about eleven inches. The shape of the glass bulb has been specially designed to withstand stresses induced by atmospheric pressure, and it is tested in production under a pressure greater than three atmospheres.

CHARACTERISTICS

HEATER

Voltage, a.c. or d.c.	2.5 volts
Current	2.1 amperes

DEFLECTION

Electrostatic

FOCUS

Electrostatic

SCREEN

	14AP1	14AP2	14AP4	14AP5
Phosphor	P1	P2	P4	P5
Fluorescence	Green	Green	White	Blue
Persistence	Medium	Long	Medium	Short

MECHANICAL CHARACTERISTICS

Overall Length	24¼ ± ¾ inches
Maximum Diameter	13⅝ ± ¼ inches
Bulb	C107Z3C
Base	12 contact peripheral
Basing	RMA Basing Designation 12A

The basing is such that:

1. The direction of the trace produced on the screen by deflecting electrodes D₃ and D₄ will not deviate more than ±10° from a plane through the center of the locating key and the axis of the tube, while the angle between the direction of this trace and that of the trace produced on the screen by deflecting electrodes D₁ and D₂ will be 90° ± 3°.
2. With deflecting electrode D₁ (pin No. 11) positive with respect to D₂ (pin No. 9) the spot will be deflected approximately toward pin No. 9; while with D₃ (pin No. 12) positive with respect to D₄ (pin No. 8) the spot will be deflected approximately toward pin No. 7.

DIRECT INTERELECTRODE CAPACITANCES

Control Electrode (grid) to all other electrodes	6.0 uuf
Deflecting Plate D ₁ to Deflecting Plate D ₂	2.7 uuf
Deflecting Plate D ₃ to Deflecting Plate D ₄	1.0 uuf
Deflecting Plate D ₁ to all other electrodes	8.3 uuf
Deflecting Plate D ₃ to all other electrodes	7.7 uuf
D ₁ to all other electrodes except D ₂	5.6 uuf
D ₂ to all other electrodes except D ₁	5.7 uuf
D ₃ to all other electrodes except D ₄	6.7 uuf
D ₄ to all other electrodes except D ₃	6.8 uuf

RATINGS

Heater voltage	2.5 volts
Heater current	2.1 ± 0.3 amp
Anode #3 (Intensifier Electrode) voltage (E _{b3})	8000 volts (max.)
Anode #2 (Accelerating Electrode) voltage (E _{b2})	4000 volts (max.)
Anode #1 (Focusing Electrode) voltage (E _{b1})	1800 volts (max.)
Grid (Control Electrode) voltage (E _{c1})	Never positive
Resistance of grid circuit	1.5 megohms (max.)
Impedance of any deflecting electrode circuit at heater supply frequency	1.0 megohms (max.)

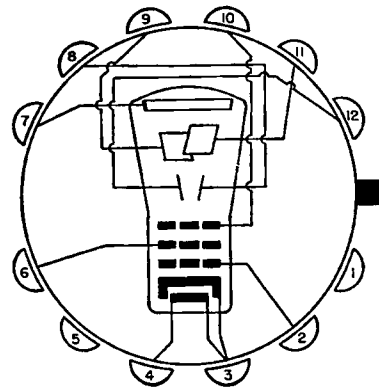
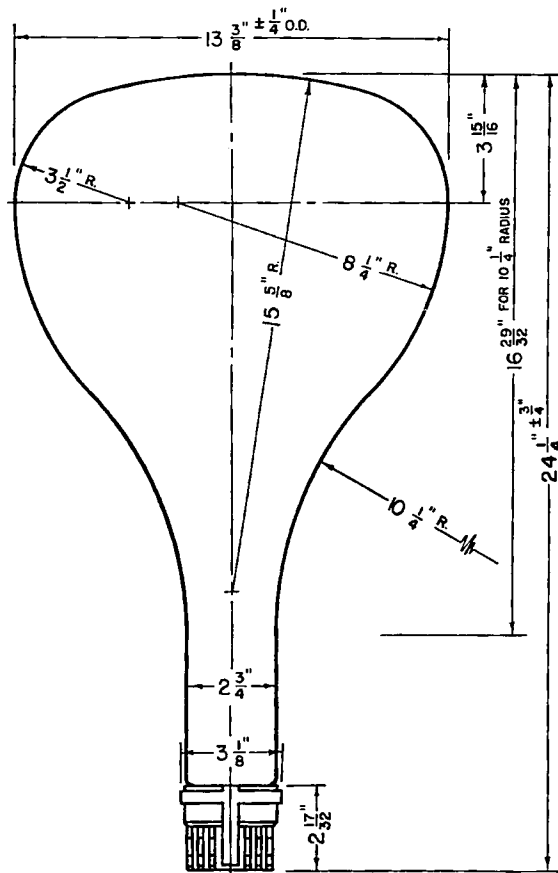
TYPICAL OPERATION

Heater voltage	2.5	2.5	volts
Anode #3 voltage (E_{b3})	4000	8000	volts
Anode #2 voltage (E_{b2})	2000	4000	volts
Anode #1 voltage (E_{b1}) for focus when $E_{c1} = 75\%$ of cut-off	500	1000	volts $\pm 20\%$
Grid voltage (E_{c1}) for beam cut-off	-40	-80	volts $\pm 50\%$
Deflection Factor:			
D_1D_2	65	130	d.c. volts/inch $\pm 20\%$
D_3D_4	65	130	d.c. volts/inch $\pm 20\%$
Deflection Sensitivity:			
D_1D_2	0.39	0.20	mm/d.c. volt (av.)
D_3D_4	0.39	0.20	mm/d.c. volt (av.)
Deflection with Intensifier at Second Anode Potential:			
	FACTOR	SENSITIVITY	
D_1D_2	28 d.c. volts/kv. in. $\pm 20\%$	0.91 mm. kv./d.c. volt	
D_3D_4	28 d.c. volts/kv. in. $\pm 20\%$	0.91 mm. kv./d.c. volt	

SPECIAL INSTALLATION NOTES

The 14AP Type Cathode-Ray Tubes are mechanically capable of withstanding shocks encountered in ordinary handling and room temperature variations. Because of its large evacuated volume, the glass bulb is under considerable strain due to atmospheric pressure, and the tube must be protected from hard bumps and extreme, sudden changes in temperature. Care should also be taken to avoid scratching the glass bulb since such scratches weaken the glass. It is suggested that a piece of plate glass be placed before the screen of the tube, when mounted in television receivers, to protect it from accidental shocks.

The base of the 14AP types fits a twelve-contact socket which can be supported by the base of the cathode-ray tube. The tube may be mounted in any position. One convenient horizontal mounting consists of a rubber block supporting the neck of the bulb, the screen end resting on a padded support, and the socket supported by the base of the tube itself.



Bottom View of Base

- | | |
|---------|------------------------|
| Pin # 1 | No Connection |
| 2 | Control Electrode |
| 3 | Heater & Cathode |
| 4 | Heater |
| 5 | No Connection |
| 6 | Focusing Electrode |
| 7 | Intensifier Electrode |
| 8 | Deflection Plate D_4 |
| 9 | Deflection Plate D_2 |
| 10 | Accelerating Electrode |
| 11 | Deflection Plate D_1 |
| 12 | Deflection Plate D_3 |

ALLEN B. DU MONT LABORATORIES, INC.
Passaic, N. J., U. S. A.