ADVANTAGES OF THE
CHROMATRON
A SINGLE GUN TRI-COLOR
TELEVISION TUBE

RETMA #23AP22.
The Model PDF 22-4 single-gun Chromatron has

WIDE DEFLECTION ANGLE - 75°, which makes it a

SHORT TUBE - Its overall length for the 22 1/2" picture tube is 32". It gives a

LARGE PICTURE - over 60% larger than the three-gun shadow mask tube.
It produces a

BRIGHT PICTURE - at an anode voltage of 18 KV, the brightness measured
through a 66% efficient filter face plate is above 50 ft. lamberts
in the highlights. It requires

LOW RASTER SCANNING POWER - the deflected beam is only 1/4 the
potential of the final acceleration, and

LOW COLOR DEFLECTION POWER - for 3.58 mc switching with the NTSC
system, 25 to 30 watts dc power input.

RESOLUTION - in the horizontal direction is equivalent to present black
and white, in the vertical direction, limited only by the number of
color strips, totaling 720.

STANDARD DEFLECTION COMPONENTS - uses standard, low cost black-
and-white deflection yoke and focus coils.

QUICK SET-UP - Set-up time in a matter of minutes, since there are no
problems of raster registry or dynamic convergence.

SIMPLIFIED CIRCUITRY - in a receiver designed for a single-gun tube

FRINGE-FREE COLOR PICTURES

FRINGE-FREE STANDARD BROADCAST BLACK-AND-WHITE PICTURES

INEXPENSIVE TO PRODUCE - Low cost single-gun tube type of construction.
Color control assembly a practical production item requiring
only reasonable production tolerances.

RELIABLE - Color control assembly not subject to damage even during extended
periods of operation and high current density input to small areas.

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CHROMATIC
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CHROMATRON — TYPE PDF 22-4

DIMENSIONAL OUTLINE

DIAGONAL MIN. 7''

MIN. 14 1/4''

HEIGHT 10 7/8''

MIN. 16 3/4''

REFERENCE LINE

(see note 1)

6.481'' MAX.

SCREEN

22'' ± 1/8''

20 3/8'' ± 1/8''

22'' ± 5/8''

12 3/4'' ± 1/8''

7 1/16''

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20 3/8'' ± 1/8''

22'' ± 5/8''

12 3/4'' ± 1/8''

7 1/16''

NOTE:

Reference line determined by position where your reference line goes will rest on cone.

RECTANGLE LEFT UNPRINTED OR GROUNDING SHIELD.

SHIELD MOUNTING LUGS.

HIGH VOLTAGE TERMINAL

GROUND TAP.
DATA ON CHROMATRON DEVELOPMENTAL TUBE
Type PDF 22-4/5 MMI

Wide Angle Magnetic Deflection and Magnetic Focus
Metal Cone Envelope Post Deflection Focusing Aluminized, high brightness and high contrast tricolor screen
Min. Picture size - 10 3/4" x 14 1/4"
Max. Bulb Diameter - 22 5/8"
Max. Length - 22 1/2"

GENERAL

Heater, for unipotential cathode
Voltage (AC or DC) .................................. 6.3 volts
Current ............................................... 0.8 amperes

Direct Interelectrode Capacitances
Grid No. 1 to all other electrodes ................................ 5 uuf
Cathode to all other electrodes .................................. 5 uuf
Color grid wires to each other ................................... 1400 uuf
Color grid wires to all other electrodes .......................... 35 uuf

Phosphors ................................................. special mix - red, blue and green primaries

Electron Gun Focusing Method ................................ magnetic
Electron Gun Deflection Method ................................ magnetic
Deflection Angle (approximately) ................................ 72°

No Ion Trap Required ..................................... phosphor screen aluminized

Overall length (max) ..................................... 22 5/8"
Greatest diameter ......................................... 22 5/8"
Raster size (approx.) ..................................... 10 7/8" x 14 3/8"
Base ...................................................... small-shell duodecal 7 pin

Mounting position ........................................ any

MAXIMUM RATINGS DESIGN CENTER VALUES

Total accelerating voltage, \( E_{k-p} \) ........................................ 18,000 V
Electron gun voltage, \( E_{k-G3} \) ........................................... 5,000 V
Color grid deflection voltage, \( E_{G4-G5} \) .................................. 1,000 V
Seeker voltage, \( E_{G3-G4G5} \) .................................................. 600 V
Voltage between color grid and phosphor plate, \( E_{G4,EG5-p} \) ........... 13,000 V
Grid No. 2 voltage ............................................... 1,000 V
Grid No. 1 voltage - Negative bias value ................................ 125 max. volts
Positive bias value ................................................. 0 max. volts
Positive peak value ................................................ 2 max. volts
Peak heater - cathode voltage:
Heater negative with respect to cathode
a. during equipment warmup, period not exceeding 15 seconds .......................... 410 max. volts
b. after equipment warmup ......................... 180 max. volts

Heater positive with respect to cathode .......................... 100 max. volts

Seeker voltage is defined as the dc potential between the color grids and metal cone. This voltage is such that the color grids are negative with respect to the metal cone. This is an installation adjustment.

TYPICAL OPERATION:

Total acceleration voltage, \(E_k-p\) .......................... 18,000
Electron gun voltage, \(E_k-G3\) .......................... 3,500 to 6,000
Focus current ........................................... 55 ma to 70 ma
as specified with the RTMA focus coil #109
positioned so that the center of focus coil
gap is located three inches behind the yoke
reference line.
Color grid deflection voltage, \(E_{G4-G5}\) .......................... 500 peak
* Seeker voltage, \(E_{G3-G4-G5}\) .......................... 300
Grid No. 2 voltage .......................... 300 to 1,000
Grid No. 1 voltage .......................... -33 to -77

Note:
This experimental tube is supplied for use only in research and development work. Equipment design using this developmental tube should not be crystalized because no guarantee can be made that identical tubes will be placed in production. No licensing agreement is expressed or implied in the sale of this developmental tube.

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Courtesy of Joe Bashlow