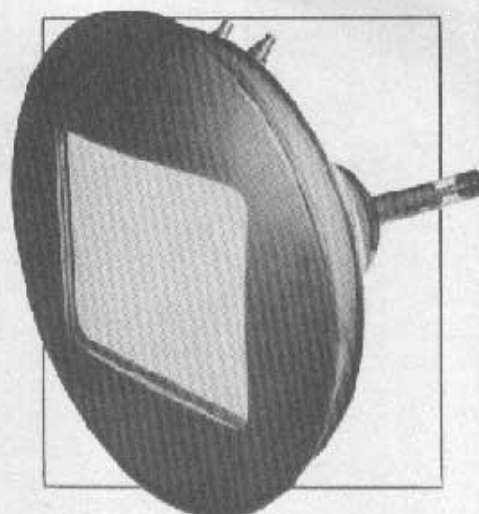


ADVANTAGES OF THE **CHROMATRON**

A SINGLE GUN TRI-COLOR TELEVISION TUBE

RETMA #23AP22

The Model PDF 22-4 single-gun Chromatron has



- WIDE DEFLECTION ANGLE** - 72° , which makes it a
- SHORT TUBE** - Its overall length for the $22\frac{1}{2}$ " picture tube is 22". 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.

△

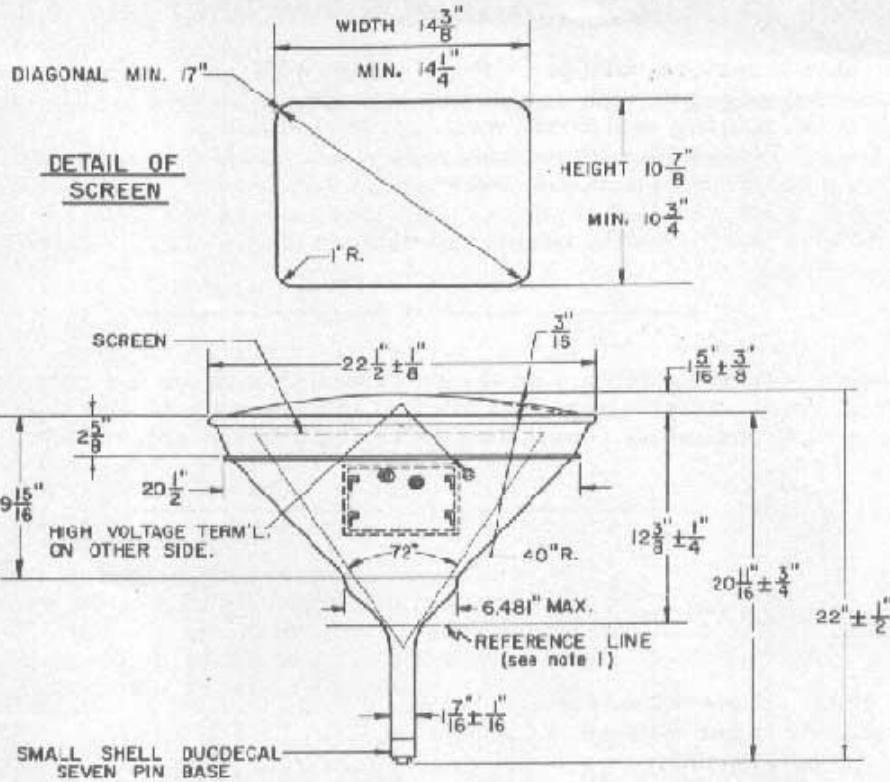
CHROMATIC
TELEVISION LABORATORIES, INC.

PARAMOUNT BUILDING
1501 BROADWAY
NEW YORK 36, NEW YORK BRyant 9-8700

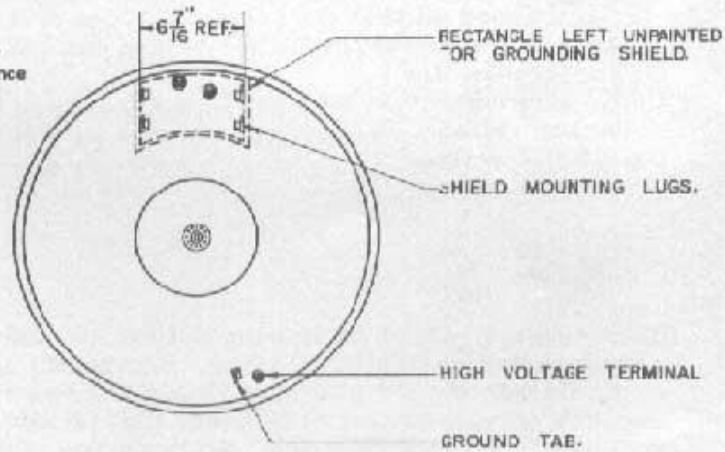
WEST COAST DEVELOPMENT LABORATORY
703 - 37th AVENUE
OAKLAND 1, CALIFORNIA KEllog 2-6978

CHROMATRON — TYPE PDF 22-4

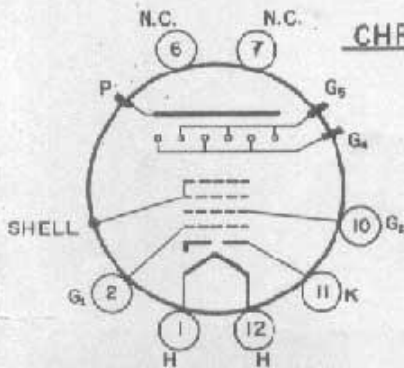
DIMENSIONAL OUTLINE



NOTE:
1. Reference Line determined by position where yoke reference line gauge RMA #110 will rest on cone.



CHROMATRON — TYPE PDF 22-4 SOCKET CONNECTIONS
BOTTOM VIEW



- PIN 1 — HEATER
- PIN 2 — GRID NO. 1, CONTROL GRID
- PIN 5 — NO CONNECTION
- PIN 7 — NO CONNECTION
- G₄, G₅ — COLOR GRIDS, EXTERNAL CONNECTIONS BROUGHT THRU SHELL.
- P — ANODE, ALUMINIZED BACKING OF PHOSPHOR SCREEN, HIGHEST ACCELERATING VOLTAGE ELECTRODE IN TUBE. EXTERNAL CONNECTION BROUGHT THRU SHELL.
- PIN 10 — GRID NO. 2
- PIN 11 — CATHODE
- PIN 12 — HEATER
- SHELL — METAL CONE AND GRID NO. 3

TENTATIVE

1/9/53

DATA ON CHROMATRON DEVELOPMENTAL TUBE

Type PDF 22-4/15 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 | 0.6 amperes |
| Direct Interelectrode Capacitances | |
| Grid No. 1 to all other electrodes | 6 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 1/2" |
| 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 |
| Electron gun voltage, E_{k-G3} | 5,000 |
| Color grid deflection voltage, E_{G4-G5} | 1,000 |
| * Seeker voltage, $E_{G3-G4G5}$ | 600 |
| Voltage between color grid and phosphor plate, $E_{G4, E_{G5-p}}$ | 13,000 |
| Grid No. 2 voltage | 1,000 |
| 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 130 max. volts

Heater positive with respect to cathode 180 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, $E_{G3-G4G5}$ | 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.

9/18/53