TELEVISION PICTURE TUBE TYPE 23VP4

114° Magnetic Deflection
Rectangular Glass
Aluminized Screen
Gray Filter Glass

ELECTRICAL:
Focusing Method: Electrostatic
Deflection Angles (Approx.):
  Horizontal: 102 Degrees
  Vertical: 84 Degrees
  Diagonal: 114 Degrees
Direct Inter-electrode Capacitances:
  Cathode to all other electrodes, approximate: 5 µµµf
  Grid #1 to all other electrodes, approximate: 6 µµµf
  External Conductive Coating to Anode: 2500 max. µµµf
  2000 min. µµµf
Heater Current at 6.3 volts: 300 ± 30 Ma.
Heater Warm-up Time: 18 Seconds

OPTICAL
Phosphor Number: Aluminized P4
Light Transmittance at Center (Approx.): 78 Percent

MECHANICAL:
Overall Length: 13-3/4 ± 1/16 Inches
Greatest Dimensions of Tube:
  Width: 20-1/2 ± 1/16 - 1/8 Inches
  Height: 16-1/2 ± 1/8 Inches
Minimum Useful Screen Dimensions (Projected):
  Diagonal: 22-5/16 Inches
  Horizontal axis: 19-1/4 Inches
  Vertical axis: 15-3/16 Inches
  Area: 278 Sq. Inches
Neck Length: 4-1/2 ± 1/8 Inches
Bulb Contact: J1-21
Base: 87-206
Bosung: 8HR
Bulb Contact Alignment:
  J1-21 contact aligns with pin position #4, ± 30 Degrees
Base Alignment:
  Pin #4 aligns with horizontal picture axis, ± 30 Degrees

Heater warm-up time refers to the time required for the voltage across the heater to reach 80% of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times rated heater voltage divided by rated heater current.

RATINGS
Design Maximum System

Unless Otherwise Specified, Voltage Values are Positive and Measured with Respect to Cathode

Maximum Anode Voltage: 22000 Volts
Minimum Anode Voltage: 1000 Volts
Maximum Grid 4 Voltage: +1100–550 Volts
Maximum Grid 2 Voltage: 550 Volts
Minimum Grid 2 Voltage: 200 Volts
Grid 1 Voltage:
  Maximum Negative Bias Value: 154 Volts
  Maximum Positive Bias Value: 270 Volts
  Maximum Positive Peak Value: 2 VoX
  Maximum Negative Peak Value: 2 Volts
  Maximum Heater Voltage: 6.93 Volts
  Minimum Heater Voltage: 5.67 Volts

Maximum Heater-Cathode Voltage
  Heater negative with respect to cathode
  During warm-up period not to exceed 45 seconds.. 450 Volts
  After equipment warm-up period... 200 Volts
  Heater positive with respect to cathode... 200 Volts

TYPICAL OPERATING CONDITIONS
Grid Drive Service

Unless otherwise specified, all voltage values are positive with respect to cathode.

Anode Voltage: 14000 Volts DC
Grid 4 Voltage (Focusing Electrode): 200 Volts DC
Grid 2 Voltage: 450 Volts DC
Grid 1 Voltage for raster cutoff: 45 to 105 Volts DC

Cathode Drive Service:

Unless otherwise specified, all voltage values are positive with respect to Grid 1.

Anode Voltage: 14000 Volts DC
Grid 4 Voltage (Focusing Electrode): 250 Volts DC
Grid 2 Voltage: 500 Volts DC
Cathode Voltage for raster cutoff: 45 to 95 Volts DC

LIMITING CIRCUIT VALUES
Maximum Grid #1 Circuit Resistance: 1.5 Megohms
Minimum Grids 2 & 4 Circuit Resistance: 10000 Ohms

With the combined grid 1 bias voltage and video-signal voltage adjusted to give an anode current of 150 microamperes on a 15-3/16" x 19-1/4" pattern from type 2F21 Monoscope or equivalent, individual tubes will have satisfactory focus at some value between 0 and 400 volts.

Protective resistance in the grid 2 and grid 4 (focusing electrode) circuit is advisable to prevent damage.

X-RAY WARNING: Operation with voltages in excess of 16KV may require shielding to limit radiation of very soft X-rays.

Television Picture Tube Section
WESTINGHOUSE ELECTRIC CORPORATION, ELECTRONIC TUBE DIVISION, ELMIRA, NEW YORK
from JEDEC release #2697, Jan. 18, 1960
NOTE 1: Yoke Reference Line is determined by plane surface of flared end of JEDEC Reference-Line Gauge No. 126 when seated on funnel of tube. With a minimum neck length tube, the PM centering magnet (0 to 9 gausse) should extend no more than 2-1/8" from Yoke Reference Line.

NOTE 2: Lateral strains on the base pins must be avoided. The socket should have flexible leads permitting free movement. The perimeter of the base wafer will be inside a 1-3/4" diameter circle concentric with tube axis.

NOTE 3: External conductive coating forms supplementary filter capacitor and must be grounded.

NOTE 4: Neck diameter may be a maximum of 1.168" at the splice.