TELEVISION PICTURE TUBE TYPE 23FP4

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 μF
  Grid #1 to all other electrodes, approximate 6 μF
  External Conductive Coating to Anode 2500 max. μF
  2000 min. μF
Heater Current at 6.3 volts 600 ± 60 mA
Heater Warm-up Time 11 Seconds

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

MECHANICAL:
Overall Length .................................. 13-3/4 ± 5/16 Inches
Greatest Dimensions of Tube:
  Diagonal .................................. 23-25/64 ± 3/32 ± 1/8 Inches
  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 ........................................ B7-208
Besig ..................................... 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 is defined as 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 ................................ 11000 Volts
  Maximum Grid 4 Voltage ................................ 11000 Volts
  Minimum Grid 4 Voltage ................................ 550 Volts
  Maximum Grid 2 Voltage ................................ 200 Volts
  Minimum Grid 2 Voltage ................................ 200 Volts
  Grid 1 Voltage:
    Maximum Negative Bias Voltage .............. 154 Volts
    Maximum Positive Bias Voltage ........... 220 Volts
  Maximum Heater Voltage ................................ 6.93 Volts
  Minimum Heater Voltage ................................ 5.67 Volts
  Maximum Heater-Cathode Voltage ............ 450 Volts
  Heater negative with respect to cathode
    During warm-up period not to exceed 15 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 2FP1 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 (focus 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 8 gauss) 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.