

19ZP4  
CATHODE RAY TUBE

|                             |                               |
|-----------------------------|-------------------------------|
| 19 INCH, RECTANGULAR, GLASS | FACE PLATE --- SPHERICAL GRAY |
| FOCUS -- ELECTROSTATIC      | NON ION TRAP GUN              |
| DEFLECTION -- MAGNETIC      | ALUMINIZED SCREEN             |
| 114 DEGREE DEFLECTION ANGLE | EXTERNAL CONDUCTIVE COATING   |

-----DESCRIPTION AND RATING-----

The 19ZP4 is a 19 inch electrostatic-focus and magnetic deflection glass picture tube. Outstanding features include a short over-all length, a small neck diameter and a non ion trap gun. The fluorescent screen is aluminized to increase light output and reduce undesirable screen charging. An external conductive coating is provided to serve as a filter capacitor when grounded.

ELECTRICAL DATA

|                                              |                   |
|----------------------------------------------|-------------------|
| Focusing Method                              | Electrostatic     |
| Deflection Angle, Approximate                |                   |
| Horizontal                                   | 102 degrees       |
| Vertical                                     | 87 degrees        |
| Diagonal                                     | 114 degrees       |
| Direct Interelectrode Capacitance            |                   |
| Cathode to all other electrodes, approximate | 5 uuf             |
| Grid #1 to all other electrodes, approximate | 6 uuf             |
| External Conductor Coating to Anode          | 1500 max. uuf     |
|                                              | 1000 min. uuf     |
| Heater Current at 6.3 volts                  | 600 $\pm$ 10% ma. |
| Heater Warm Up Time                          | 11 sec.           |

OPTICAL DATA

|                                       |               |
|---------------------------------------|---------------|
| Phosphor Number                       | P4 Aluminized |
| Light Transmittance at Center Approx. | 76 Percent    |

CATHODE RAY TUBE DEPARTMENT

**GENERAL  ELECTRIC**

Syracuse, N. Y.

# MECHANICAL DATA

|                                                   |                       |
|---------------------------------------------------|-----------------------|
| Overall Length                                    | 11 1/2 ± 5/16 inches  |
| Greatest Dimensions of Tube                       |                       |
| Diagonal                                          | 18 5/8 ± 1/8 inches   |
| Width                                             | 16 13/32 ± 1/8 inches |
| Height                                            | 13 11/32 ± 1/8 inches |
| Minimum Useful Screen Dimensions (Projected)      |                       |
| Diagonal                                          | 17 9/16 inches        |
| Horizontal Axis                                   | 15 1/8 inches         |
| Vertical Axis                                     | 12 inches             |
| Area                                              | 172 sq. inches        |
| Neck Length                                       | 4 1/4 ± 3/16 inches   |
| Bulb                                              | J149-A1               |
| Bulb Contact                                      | JETEC No. J1-21       |
| Base                                              | JETEC No. B6-226      |
| Basing                                            | 8JS                   |
| Bulb Contact Alignment                            |                       |
| Anode Contact Aligns with Rev. No. 4 ± 30 degrees |                       |

## RATINGS (Design Maximum System)

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

|                                             |                     |
|---------------------------------------------|---------------------|
| Maximum Anode Voltage                       | 20,000 volts        |
| Minimum Anode Voltage                       | 15,000 volts        |
| Maximum Grid 4 (Focusing Electrode) Voltage | -500 to +1000 volts |
| Minimum Grid 2 Voltage                      | 400 volts           |
| Maximum Grid 2 Voltage                      | 700 volts           |
| Grid 1 Voltage                              |                     |
| Maximum Negative Value                      | 140 volts DC        |
| Maximum Negative Peak Value                 | 200 volts           |
| Maximum Positive Value                      | 0 volts DC          |
| Maximum Positive Peak Value                 | 2 volts             |
| Maximum Heater Voltage                      | 6.9 volts           |
| Minimum Heater Voltage                      | 5.7 volts           |
| Maximum Heater-Cathode Voltage              |                     |
| Heater negative with respect to cathode     |                     |
| During warm up period not to exceed 15 sec. | 410 volts           |
| After equipment warm-up period              | 180 volts           |
| Heater positive with respect to cathode     | 180 volts           |

## TYPICAL OPERATING CONDITIONS

|                                                  |                     |
|--------------------------------------------------|---------------------|
| Anode Voltage                                    | 16,500 volts DC     |
| Grid #4 Voltage (Focusing Electrode(Notes 2 & 3) | 250 volts DC        |
| Grid #2 Voltage                                  | 450 volts DC        |
| Grid #1 Voltage (Note 1)                         | -28 to -72 volts DC |

MAXIMUM CIRCUIT VALUES

|                                       |                 |
|---------------------------------------|-----------------|
| Maximum Grid #1 Circuit Resistance    | 1.5 max. megohm |
| Grid No. 2 Circuit Resistance         | 0.1 min. megohm |
| Focusing Electrode Circuit Resistance | 0.1 min. megohm |

Protective resistance in Grid No. 2 and focusing electrical circuits is advisable to prevent damage to tube. If applicable, one resistor common to both circuits may be used.

NOTES:

1. Visual extinction of focused raster.
2. With the combined Grid #1 bias voltage and video-signal voltage adjusted to give an anode current of 150 microamperes on a 15 1/8 x 11 15/16" pattern from RCA 2F21 monoscope or equivalent.
3. Individual tubes will have satisfactory focus at some value between 0 and 500 volts.

4/14/60

CATHODE RAY TUBE DEPARTMENT

**GENERAL  ELECTRIC**

Syracuse, N. Y.

192P4

PAGE 4

SCREEN DIMENSIONS  
 DIAGONAL — 17 9/16  
 WIDTH — 15 1/8  
 HEIGHT — 12  
 AREA — 172 SQ. IN.

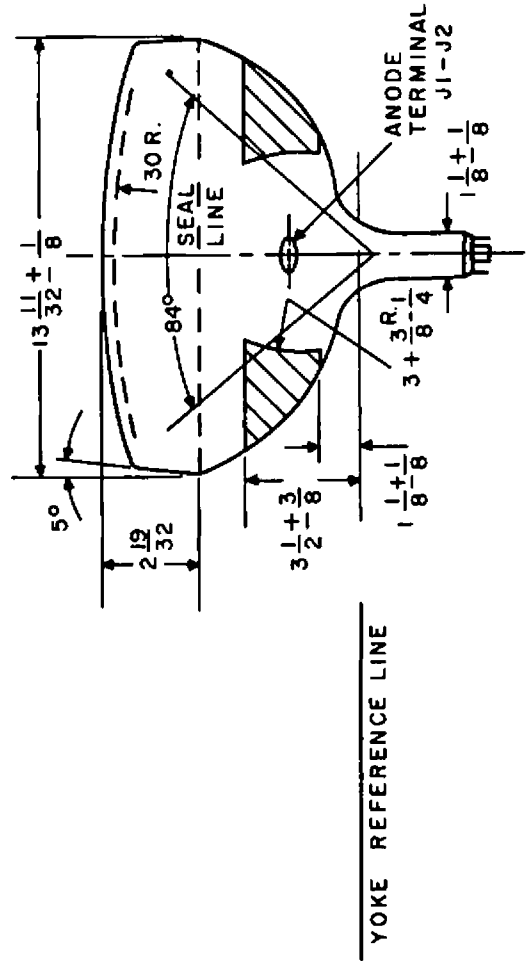
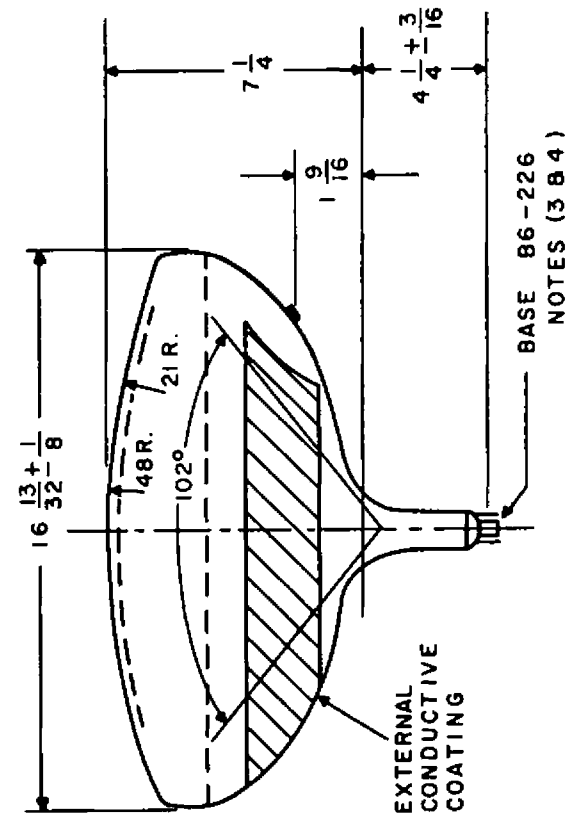
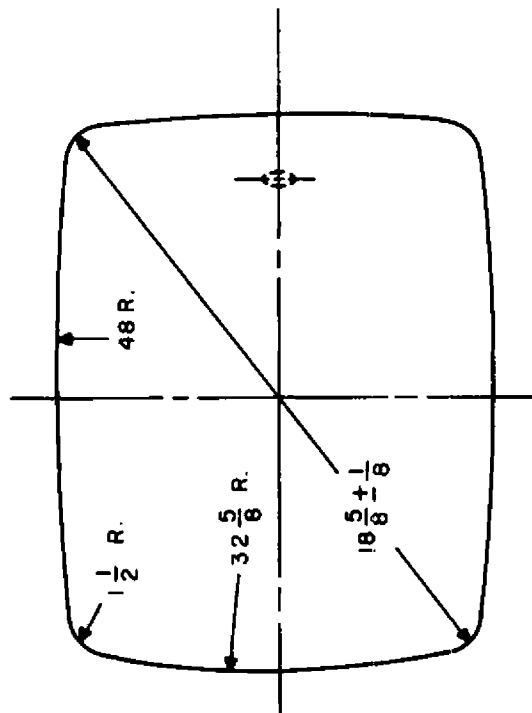
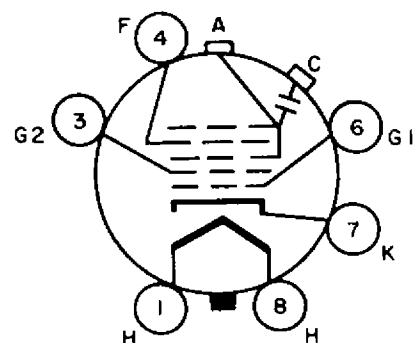


DIAGRAM NOTES

1. THE REFERENCE LINE IS DETERMINED BY THE INTERSECTION OF THE PLANE C-C' OF GAGE (EIA NO. 126) WITH THE GLASS FUNNEL.
2. DEFLECTION ANGLE ON THE DIAGONAL IS  $114^{\circ}$ .
3. ANODE TERMINAL ALIGNS WITH PIN NO. 4  $\pm 30$  DEGREES.
4. USE A NON-RIGIDLY MOUNTED SOCKET WITH FLEXIBLE LEADS. BOTTOM CIRCUMFERENCE OF BASE WAFER WILL FALL WITHIN 1-3/4 INCH DIAMETER CIRCLE CONCENTRIC WITH THE BULB AXIS.



BASING DIAGRAM  
8JS

CATHODE RAY TUBE DEPARTMENT  
GENERAL ELECTRIC COMPANY  
SYRACUSE, NEW YORK