

October 1, 1960

## TELEVISION PICTURE TUBE TYPE 19AHP4

114° Magnetic Deflection  
Rectangular Glass  
Aluminized Screen  
Gray Filter Glass

6.3 Volt, 450 Ma. Heater  
Electrostatic Focus  
Short Neck Length

External Conductive Coating  
Spherical Faceplate  
No Ion Trap  
12" x 15-1/8" Screen Size

### ELECTRICAL:

|                                            |                           |
|--------------------------------------------|---------------------------|
| Focusing Method                            | Low Voltage Electrostatic |
| Deflection Method                          | Magnetic                  |
| Deflection Angles (Approx.):               |                           |
| Horizontal                                 | 103 Degrees               |
| Vertical                                   | 86 Degrees                |
| Diagonal                                   | 114 Degrees               |
| Direct Interelectrode Capacitances:        |                           |
| Cathode to all other electrodes, (Approx.) | 5 $\mu\mu\text{f}$        |
| Grid 1 to all other electrodes, (Approx.)  | 6 $\mu\mu\text{f}$        |
| External Conductive Coating to Anode:      |                           |
| Maximum                                    | 1500 $\mu\mu\text{f}$     |
| Minimum                                    | 1000 $\mu\mu\text{f}$     |
| Heater Current at 6.3 volts                | 450 $\pm$ 5% Ma.          |
| Heater Warm-up Time <sup>Ⓢ</sup>           | 11 Seconds                |

### OPTICAL:

|                                            |               |
|--------------------------------------------|---------------|
| Phosphor Number                            | Aluminized P4 |
| Light Transmittance at Center, Approximate | 78 Percent    |

### MECHANICAL:

|                                               |                    |            |
|-----------------------------------------------|--------------------|------------|
| Overall Length                                | 11-3/8 $\pm$ 1/4   | Inches     |
| Greatest Dimensions of Tube:                  |                    |            |
| Diagonal                                      | 18-5/8 $\pm$ 1/8   | Inches     |
| Width                                         | 16-13/32 $\pm$ 1/8 | Inches     |
| Height                                        | 13-11/32 $\pm$ 1/8 | Inches     |
| Minimum Useful Screen Dimensions (Projected): |                    |            |
| Diagonal                                      | 17-9/16            | Inches     |
| Horizontal                                    | 15-1/8             | Inches     |
| Vertical                                      | 12                 | Inches     |
| Area                                          | 172                | Sq. Inches |
| Neck Length                                   | 4-1/8 $\pm$ 1/8    | Inches     |
| Bulb                                          | J149               |            |
| Bulb Contact                                  | J1-21              |            |
| Base                                          | B7-208             |            |
| Basing                                        | BHR                |            |
| Weight                                        | 13-1/2 Lbs.        |            |

### RATINGS:

|                                                                                 |                   |
|---------------------------------------------------------------------------------|-------------------|
| Design Maximum System                                                           |                   |
| Unless Otherwise Specified, Voltage Values are Positive with Respect to Grid 1. |                   |
| Maximum Anode Voltage                                                           | 17600 Volts       |
| Minimum Anode Voltage <sup>▲</sup>                                              | 12000 Volts       |
| Maximum Grid 4 Voltage (Focusing Electrode)                                     | +1100, -550 Volts |
| Maximum Grid 2 Voltage                                                          | 650 Volts         |
| Cathode Voltage:                                                                |                   |
| Maximum Negative Value                                                          | 0 Volts DC        |
| Maximum Negative Peak Value                                                     | 2 Volts           |
| Maximum Positive Value                                                          | 154 Volts DC      |
| Maximum Positive Peak Value                                                     | 220 Volts         |
| Maximum Heater-Cathode Voltage                                                  |                   |
| 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:

#### 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)                                                 | 0 to 400 Volts DC |
| Grid 2 Voltage                                                                      | 500 Volts DC      |
| Cathode Voltage for raster cutoff                                                   | 40 to 63 Volts DC |

#### LIMITING CIRCUIT VALUES:

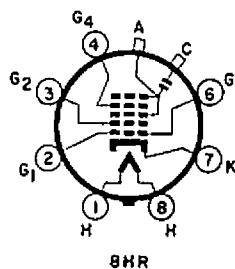
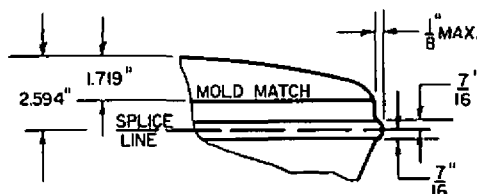
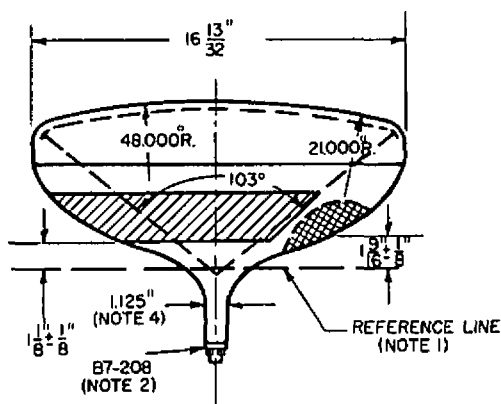
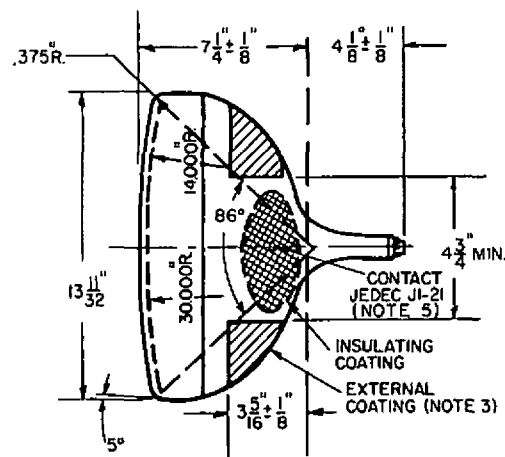
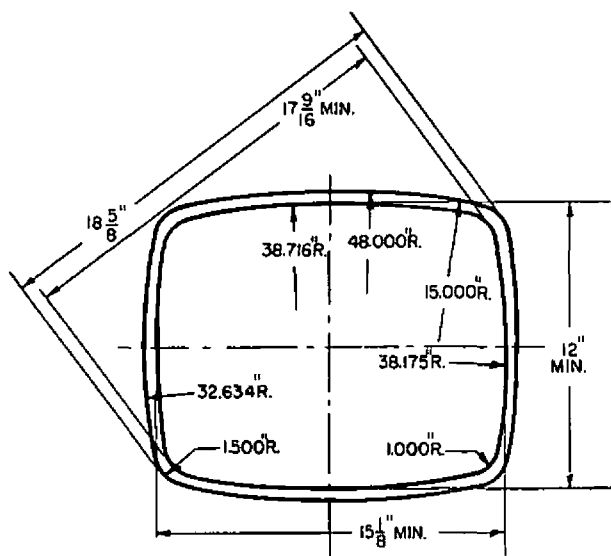
|                                                     |             |
|-----------------------------------------------------|-------------|
| Maximum Grid 1 Circuit Resistance                   | 1.5 Megohms |
| Minimum Grids 2 & 4 Circuit Resistance <sup>†</sup> | 10000 Ohms  |

<sup>Ⓢ</sup> 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.

<sup>▲</sup> Brilliance and definition decrease with decreasing anode voltage. Operation with anode voltage less than 12000 volts is not recommended.

<sup>†</sup> Protective resistance in the grid 2 and grid 4 (focus electrode) circuits is advisable to prevent damage to the tube.

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



CE-C1634

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.

NOTE 5: Anode terminal alignment with pin 4 has angular tolerance about tube axis of  $\pm 30^\circ$ .