

## CHARACTERISTICS

### GENERAL DATA

|                               |                   |
|-------------------------------|-------------------|
| Focusing Method               | Magnetic          |
| Deflection Method             | Magnetic          |
| Deflection Angle (Approx.)    | 54 Degrees        |
| Phosphor                      | P7                |
| Fluorescence                  | Blue-White        |
| Phosphorescence               | Yellow            |
| Persistence                   | Long              |
| Faceplate                     | Gray Filter Glass |
| Light Transmittance (Approx.) | 74 Percent        |

In addition to the type shown the 12SP- can be supplied with several other screen phosphors.

### ELECTRICAL DATA

|                                                    |                       |
|----------------------------------------------------|-----------------------|
| Heater Voltage                                     | 6.3 Volts             |
| Heater Current                                     | $0.6 \pm 10\%$ Ampere |
| Direct Interelectrode Capacitances (Approx.)       |                       |
| Cathode to All Other Electrodes                    | 5 $\mu\text{mf}$      |
| Grid No. 1 to All Other Electrodes — 12SP7D        | 8 $\mu\text{mf}$      |
| Grid No. 1 to All Other Electrodes — 12SP7, 12SP7B | 6 $\mu\text{mf}$      |

### MECHANICAL DATA

|                                          |                                   |
|------------------------------------------|-----------------------------------|
| Minimum Useful Screen Diameter           | 11 Inches                         |
| Bulb                                     | J99 $\frac{1}{2}$ A or Equivalent |
| Bulb Contact (Recessed Small Cavity Cap) | J1-21                             |
| Base (Small Shell Dudecal 5-Pin)         | B5-57                             |
| Basing                                   | 12D                               |

## RATINGS

### MAXIMUM RATINGS (Absolute Maximum Values)

|                                         | 12SP7  | 12SP7B | 12SP7D |          |
|-----------------------------------------|--------|--------|--------|----------|
| Anode Voltage                           | 11,000 | 11,000 | 15,000 | Volts dc |
| Grid No. 2 Voltage                      | 450    | 550    | 770    | Volts dc |
| Grid No. 1 Voltage                      |        |        |        |          |
| Negative Bias Value                     | 140    | 140    | 200    | Volts dc |
| Positive Bias Value                     | 0      | 0      | 0      | Volts dc |
| Positive Peak Value                     | 2      | 2      | 2      | Volts    |
| Peak Heater-Cathode Voltage             |        |        |        |          |
| Heater Negative with Respect to Cathode | 150    | 200    | 200    | Volts    |
| Heater Positive with Respect to Cathode | 150    | 200    | 200    | Volts    |

### TYPICAL OPERATING CONDITIONS

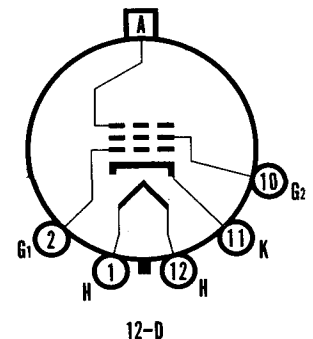
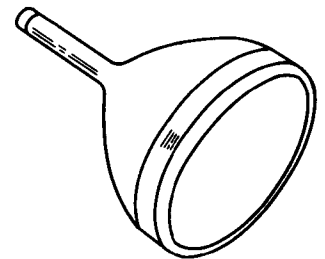
|                                                     |            |       |      |
|-----------------------------------------------------|------------|-------|------|
| Anode Voltage <sup>1</sup>                          | 9000       | Volts | dc   |
| Grid No. 2 Voltage                                  | 250        | Volts | dc   |
| Grid No. 1 Voltage Required for Cutoff <sup>2</sup> | -27 to -63 | Volts | dc   |
| Focusing Coil Current (Approx.) <sup>3</sup>        | 110        | Ma    | dc   |
| Line Width A <sup>4</sup> — 12SP7D Only             | 0.38       | MM    | Max. |
| Spot Position <sup>4</sup>                          | 20         | MM    | Max. |

### CIRCUIT VALUES

|                               |             |      |
|-------------------------------|-------------|------|
| Grid No. 1 Circuit Resistance | 1.5 Megohms | Max. |
|-------------------------------|-------------|------|

## QUICK REFERENCE DATA

Radar Indicator Tube  
12" Direct Viewed  
Round Glass Type  
Spherical Faceplate  
Gray Filter Glass  
Magnetic Deflection  
Magnetic Focus  
Aluminized Screen  
(12SP7B - 12SP7D)  
Non-Aluminized (12SP7)



## SYLVANIA ELECTRONIC TUBES

A Division of  
Sylvania Electric Products Inc.

### PICTURE TUBE OPERATIONS SENECA FALLS, NEW YORK

Prepared and Released By The  
TECHNICAL PUBLICATIONS SECTION  
EMPORIUM, PENNSYLVANIA

JUNE, 1961

PAGE 1 OF 3

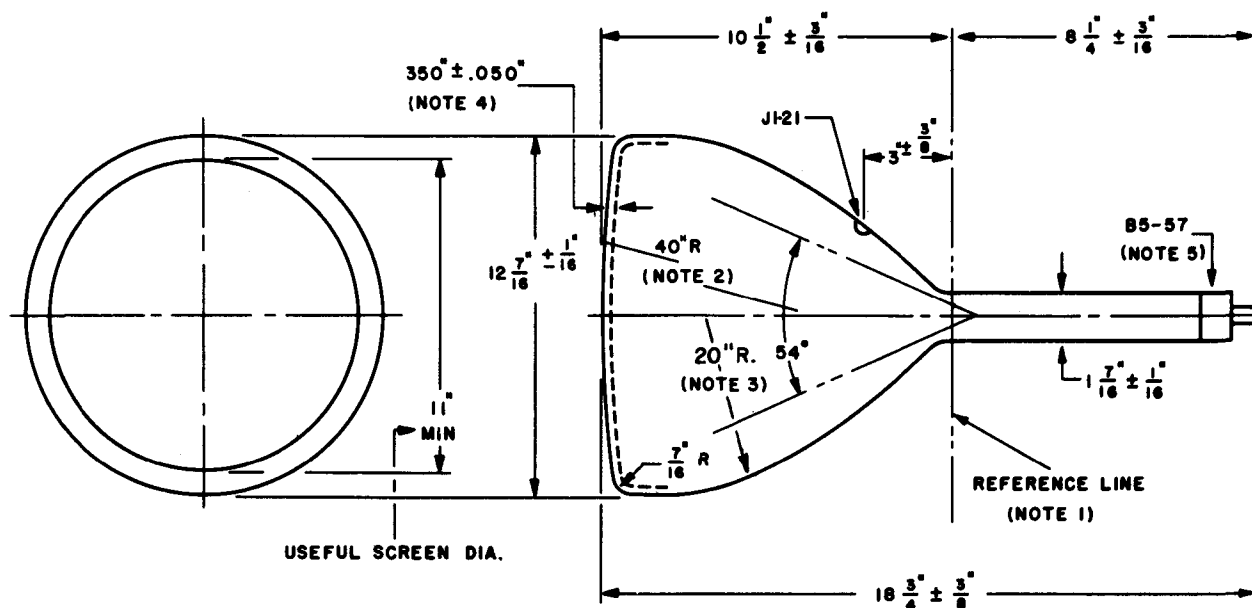
File Under  
SPECIAL AND GENERAL PURPOSE  
CATHODE RAY TUBES

**NOTES:**

1. Brightness and focus quality decrease with decreasing anode voltage. In general, the anode voltage should not be less than 4000 volts.
2. For visual extinction of undeflected focused spot.
3. For RETMA focusing coil No. 106 with distance from the yoke reference line to center of air gap equal to 3¼ inches.
4. Measured by compressed raster method of an anode current at 200 micro-amperes.
5. The center of the undeflected, unfocused spot will fall within a circle of 20 mm radius concentric with the tube face.

**WARNING:**

X-Ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at higher than the manufacturer's Maximum Rated Anode Voltage or 16,000 volts, whichever is less.

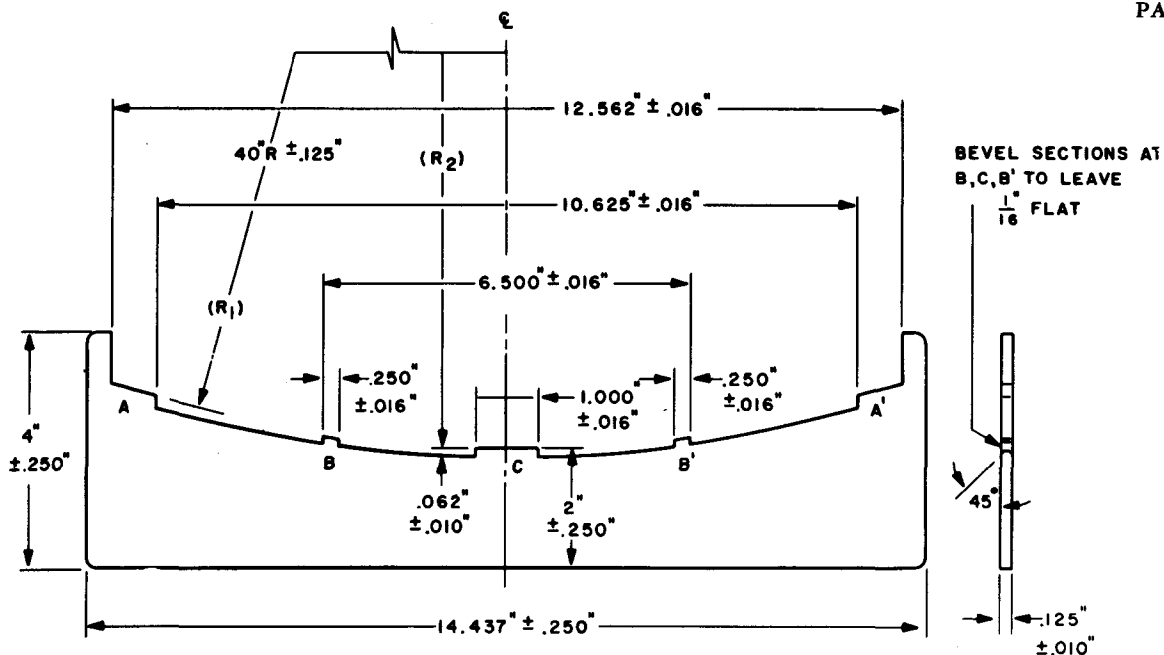


858050A

**DIAGRAM NOTES:**

1. Reference line is determined by the plane of the upper edge of the reference line gauge (JEDEC No. 112) when the gauge is seated against the glass cone.
2. To meet requirements of faceplate contour gauge shown. (12SP7D only)
3. To meet requirements of bulb contour gauge shown. (12SP7D only)
4. Faceplate thickness over entire useful screen area. (12SP7D only)
5. Base Pin Position No. 3 aligns with anode Contact (J1-21), within 10 degrees.

# FACEPLATE CONTOUR GAUGE (12SP7D — Only)

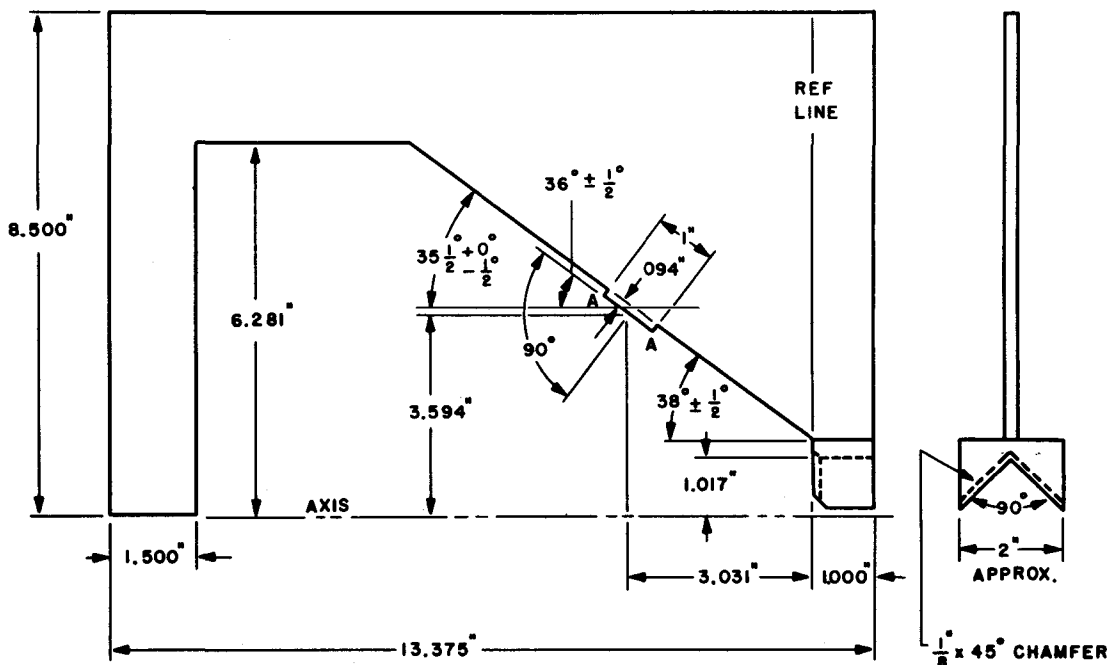


358052

*R2 shall be equal to the Absolute Value of  $R1 + .050'' \pm .002''$*

*The contour of the Bulb Face shall be checked with this Gauge at two orientations approximately 90 degrees apart. The gap between the bulb face and gauge points B, B', or C shall not exceed 0.100", and the bulb shall seat on steps A and A'.*

# BULB CONTOUR GAUGE (12SP7D — Only)



358051

*With the Bulb Neck seated in V-Blocks, the bulb shall rest on flat A-A.*