

# TYPE 10WP- CATHODE-RAY TUBES

The Type 10WP- is a 10-inch electrostatic focus and magnetic deflection cathode-ray tube suitable for radar applications. A low-voltage electrostatic focus lens is employed, designed to operate at or near cathode potential to afford substantially automatic focus, independent of accelerator voltage variations. In addition, the 10WP- employs a high resolution electron gun.

The Type 10WP-A utilizes an aluminized screen for greater light output and to minimize screen charging effects; it is otherwise identical to the 10WP. If a P19 screen is selected, the aluminized version should be used.



## GENERAL CHARACTERISTICS

### Electrical

Heater Voltage .....	6.3 Volts		
Heater Current .....	0.6 ± 10% Ampere		
Focusing Method .....	Electrostatic		
Deflecting Method .....	Magnetic		
Deflecting Angle (Approx.) .....	50 Degrees		
Phosphor	No. 7	No. 14	No. 19
Fluorescence	Blue	Blue	Orange
Phosphorescence	Yellow	Orange	Orange
Persistence	Long	Medium-long	Long
Direct Interelectrode Capacitances, Approx.			
Cathode to all other electrodes .....	5 μmf.		
Grid No. 1 to all other electrodes .....	6 μmf.		

### Mechanical

Overall Length .....	16-15/16 ± 3/8 Inches
Greatest Diameter of Bulb .....	10 1/2 ± 1/8 Inches
Minimum Useful Screen Diameter .....	9 Inches
Bulb Contact (Recessed Small Cavity Cap) .....	J1-21
Base (Small Shell Duodecal 6-pin) .....	B6-63
Basing .....	12M
Bulb Contact Alignment	
J1-21 Contact aligns with vacant pin position No. 3 .....	±10 Degrees

## MAXIMUM RATINGS—(Design Center Values)

Accelerator Voltage .....	12,000 Max. Volts	D-C
Focusing Electrode Voltage .....	-500 to +1000 Max. Volts	D-C
Grid No. 2 Voltage .....	700 Max. Volts	D-C
Grid No. 1 Voltage		
Negative Bias Value .....	180 Max. Volts	D-C
Positive Bias Value <sup>1</sup> .....	0 Max. Volts	D-C
Positive Peak Value .....	0 Max. Volts	
Peak Heater-Cathode Voltage		
Heater Negative with respect to cathode .....	180 Max. Volts	D-C
Heater Positive with respect to cathode .....	180 Max. Volts	D-C

## TYPICAL OPERATING CONDITIONS

Accelerator Voltage <sup>2</sup> .....	10,000 Volts	D-C
Focusing Electrode Voltage <sup>3</sup> .....	0 to 300 Volts	D-C
Focusing Electrode Current .....	-15 to +15 μA.	D-C
Grid No. 2 Voltage .....	300 Volts	D-C
Grid No. 1 Voltage <sup>4</sup> .....	-28 to -72 Volts	D-C
Line Width A <sup>5</sup> .....	.017 Inch	Max.
Spot Position (Undelected) <sup>6</sup> .....	1/2 Inch	
Alignment Magnet Field Strength .....	0-4 Gauss	

## MAXIMUM CIRCUIT VALUES

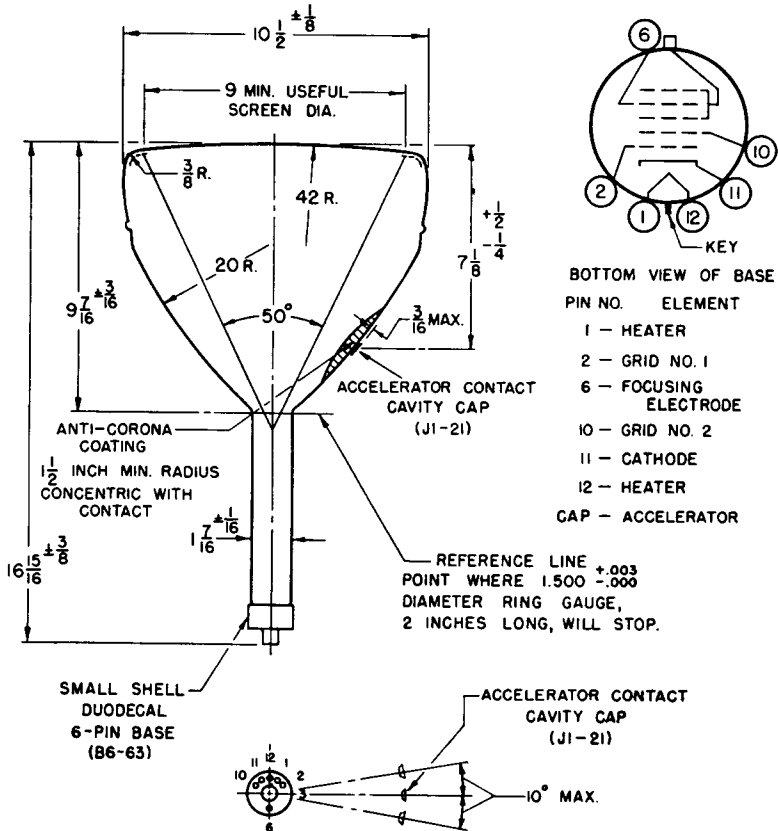
Grid No. 1 Circuit Resistance .....	1.5 Max. Megohms
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## NOTES

1. At or near this rating, the effective resistance of the accelerator supply should be adequate to limit the accelerator input power to 6 watts. The screen of the 10WP19 can be permanently damaged should the current density be permitted to rise too high. To prevent burning, minimum beam current densities should be employed.
2. Brilliance and definition decrease with decreasing accelerator voltage. In general, accelerator voltage should not be less than 7,000 volts.
3. With Grid No. 1 voltage adjusted to produce an accelerator current of 100  $\mu$ A. with the pattern adjusted for best overall focus. Measured with a 525-line interlaced and synchronized 6 x 8-inch pattern, with interlaced line blanking (current measured before applying blanking).
4. Visual extinction of focused 6 x 8-inch raster pattern.
5. Measured with a 525-line interlaced and synchronized pattern with interlaced line blanking. Pattern width adjusted to 90% of minimum useful screen diameter.  $I_b = 100 \mu$ A., measured before applying blanking. Line width is the merged raster height divided by the number of lines (262.5) (measured in center of tube face). To avoid damage to the screen of the 10WP19, it is recommended that the screen current be not more than 50  $\mu$ A. when measuring line width. The line width under this condition will be .016 inch maximum (current measured before applying blanking).
6. The center of the undeflected, focused spot will fall within a circle of 1/2-inch radius concentric with the center of the tube face, with tube shielded.
7. For optimum quality of the focused spot the use of a beam alignment magnet is recommended. This may be obtained by the use of an adjustable magnet of the specified strength, located approximately 5-7/16 inches from the reference line.

TYPE 10WP-

12 M



NOTE:                      BOTTOM VIEW OF TUBE  
1-DO NOT HANDLE TUBE BY THE PART OF THE BULB  
HAVING THE ANTI-CORONA COATING.