

12SP-, 12SP-B CATHODE-RAY TUBES

The Type 12SP- Cathode-ray Tubes are 12-inch magnetically focussed and deflected cathode-ray tubes for radar applications requiring a long persistence screen. The Type 12SP-, designed to be operated at an overall accelerating potential of approximately 9000 volts, produces a brilliant trace with good resolution. In addition, the Type 12SP- features an improved bulb design with grey filter face plate, which combines a minimum of length with a maximum of useful screen diameter. The Type 12SP- is similar to the 5-inch 5FP-, the 7-inch 7BP-, the 10-inch 10KP-, and the 12-inch 12SP-.

The Type 12SP-B utilizes an aluminized screen for greater light output and to minimize screen charging effects; it is otherwise identical to the 12SP-. If a P19 screen is selected, the aluminized version should be used.



GENERAL CHARACTERISTICS

Electrical

Heater Voltage	6.3 Volts
Heater Current	$0.6 \pm 10\%$ Ampere
Focusing Method	Magnetic
Deflecting Method	Magnetic
Deflecting Angle (Approx.)	55 Degrees
Phosphor	No. 7
Fluorescence	Blue
Phosphorescence	Yellow
Persistence	Long
Direct Interelectrode Capacitances, Approx.	
Cathode to all other electrodes	5 μf .
Grid No. 1 to all other electrodes	6 μf .

Mechanical

Overall Length	$18\frac{3}{4} \pm \frac{3}{8}$ Inches
Greatest Diameter of Bulb	$12\text{-}7/16 \pm \frac{1}{8}$ Inches
Minimum Useful Screen Diameter	11 Inches
Bulb Contact (Recessed small cavity cap)	J1-21
Base (Small shell duodecal 7-Pin)	B7-51
Basing	12D
Bulb Contact Alignment J1-21 contact aligns with vacant pin position No. 3	± 10 Degrees

MAXIMUM RATINGS—(Design Center Values)

Anode Voltage	10,000 Max. Volts D-C
Grid No. 2 Voltage	500 Max. Volts D-C
Grid No. 1 Voltage	
Negative Bias Value	125 Max. Volts D-C
Positive Bias Value	0 Max. Volts D-C
Positive Peak Value	2 Max. Volts
Peak Heater-Cathode Voltage	
Heater negative with respect to cathode	
During warm-up period not to exceed 15 seconds	410 Max. Volts D-C
After equipment warm-up period	180 Max. Volts D-C
Heater Positive with respect to cathode	180 Max. Volts D-C

TYPICAL OPERATING CONDITIONS

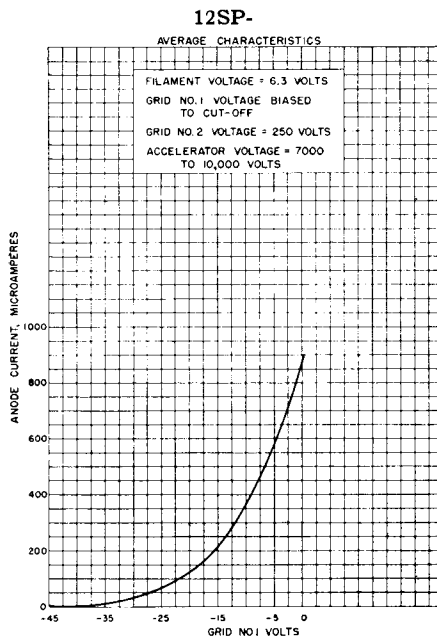
Anode Voltage	9,000 Volts D-C
Grid No. 2 Voltage	250 Volts D-C
Grid No. 1 Voltage ¹	—27 to —63 Volts D-C
Focusing Coil Current ²	105 Approx. Ma. D-C

MAXIMUM CIRCUIT VALUES

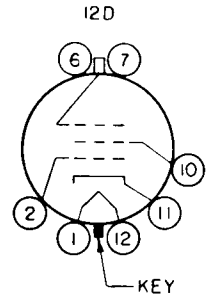
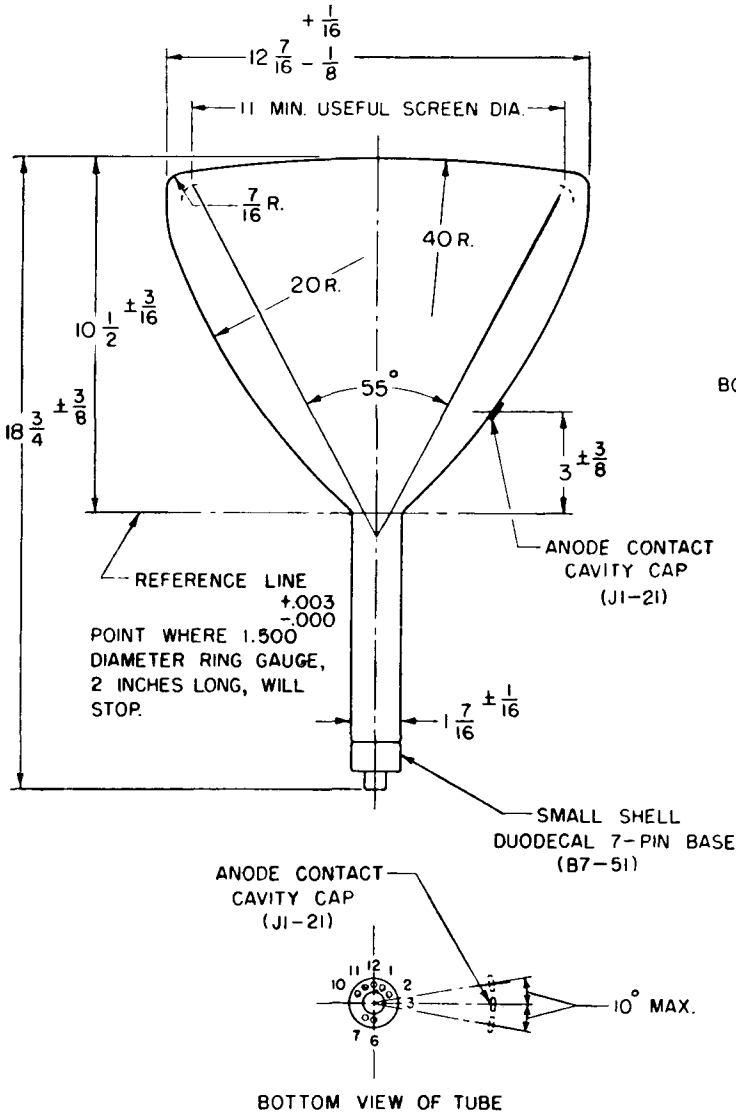
Grid No. 1 Circuit Resistance	1.5 Max. Megohms
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NOTES

1. Visual extinction of undeflected focused spot.
2. For JETEC standard focus coil No. 106, or equivalent, with the Grid No. 1 voltage adjusted to produce an anode current of 200 microamperes and with distance (D) from reference line to center of air gap equal to 3.25 inches.



TYPE 12SP-



BOTTOM VIEW OF BASE

PIN NO.	ELEMENT
1	HEATER
2	GRID NO. 1
10	GRID NO. 2
11	CATHODE
12	HEATER
CAP	ANODE