

R A U L A N D

TYPE 12AFP-, 12AFP-A CATHODE-RAY TUBES

The type 12AFP- is a 12" magnetic focus and magnetic deflection round metal envelope cathode ray tube, suitable for radar application.

It features an almost completely flat-face, which minimizes parallax error, a straight magnetic gun (no Ion Trap needed) and a gray filter glass (luxide) face to increase contrast. It has a long persistence screen.

The type 12AFP-A tube utilizes a metal backed (aluminized) screen for greater light output and to minimize screen charging effects. It is otherwise identical to the 12AFP-.

TENTATIVE CHARACTERISTICSGENERALElectrical Data

Heater voltage	6.3		Volts
Heater current	0.6 $\pm$ 10%		Amperes
Heater warm-up time (approx.)	11		Seconds
Focusing method	Magnetic		
Deflecting method	Magnetic		
Deflecting angle (approx.)	54		Degrees
Phosphor	No. 7	No. 14	No. 19
Fluorescence	Blue	Blue	Orange
Phosphorescence	Yellow	Orange	Orange
Persistence	Long	Mid-long	Long

Face Plate - Gray Filter Glass

Light Transmission (Approx.) 66%

Direct Interelectrode Capacitances, Approx.

Cathode to all other electrodes	5	uuf.
Grid #1 to all other electrodes	6	uuf.

Mechanical Data

Overall length	17 7/8 $\pm$ 7/16	Inches
Greatest diameter of envelope	12 7/16 $\pm$ 1/8	Inches
Minimum useful screen diameter	11 3/8 Dia.	Inches
Face Radius	125	Inches
Anode contact	Metal cone lip	
Base (small shell Duodecal 4-pin)	B5-57	
Basing connections	12D	

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MAXIMUM RATINGS Design Center Values

Accelerator voltage ¹	14,000	Max. Volts D-C
Grid #2 voltage	±1000	Max. Volts D-C
Grid #1 voltage (control electrode)		
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 ²		
Heater negative with respect to cathode	180	Max. Volts D-C
Heater positive with respect to cathode	180	Max. Volts D-C
Heater negative with respect to cathode during warm-up period, not to exceed 15 sec.	410	Max. Volts D-C

Typical Operating Conditions

Accelerator voltage ³	12,000	Volts D-C
Grid #2 voltage	±500	Volts
Grid #1 voltage ⁴	-33 to ±77	Volts
Spot Position (Undelected) ⁵	20	mm
Field strength of adjustable centering magnet	0 to 8	Gausses
Focusing coil current (approx.) ⁶	110 M.A. ± 20%	

Maximum Circuit Values

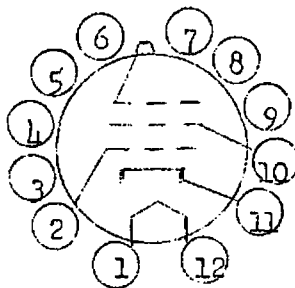
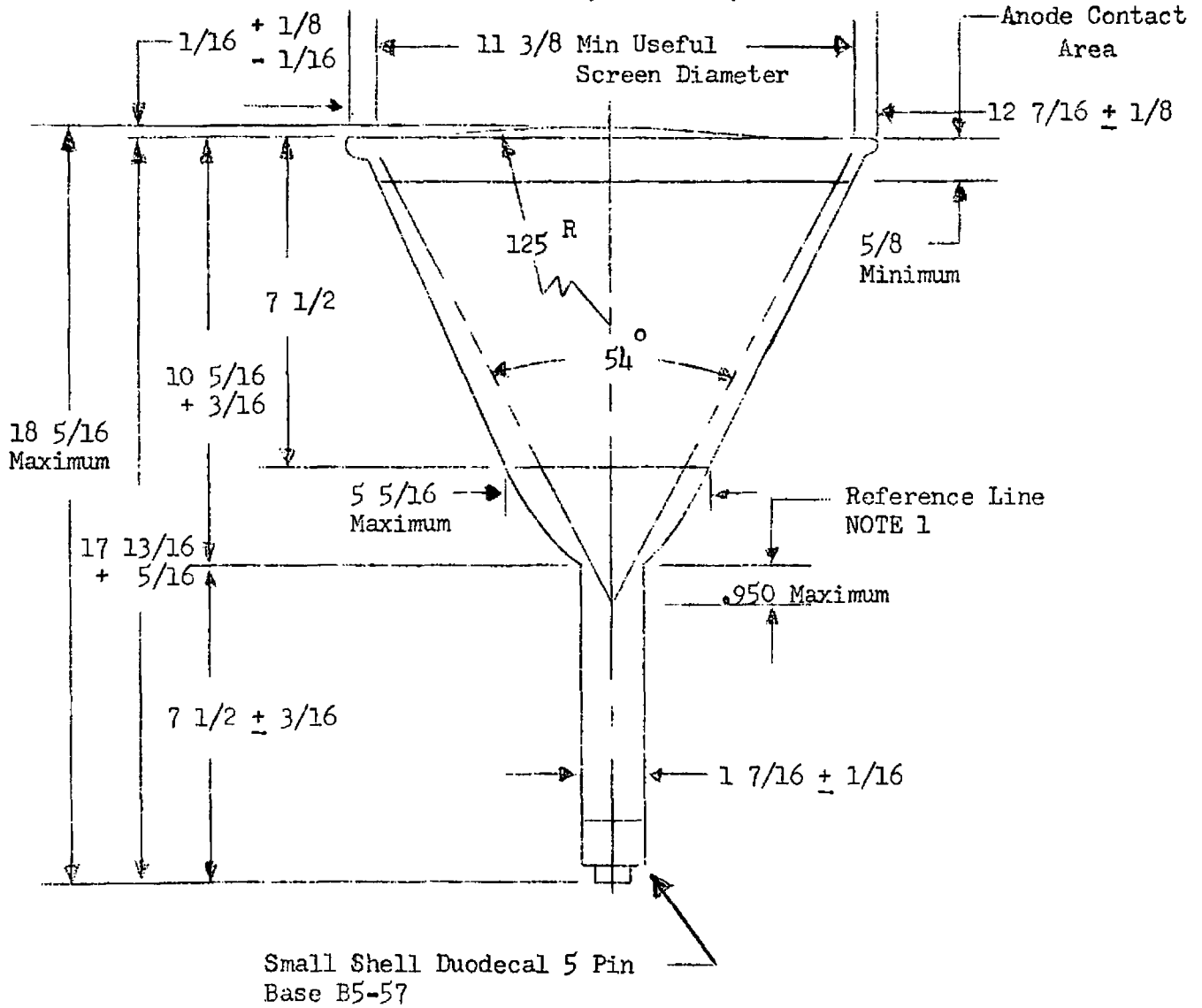
Grid #1 circuit resistance	1.5	Max. Megohms
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- Note 1: At or near this rating, the effective resistance of the accelerator supply should be adequate to limit the accelerator input power to six watts. The screen of the 12AFP- can be permanently damaged should the current density be permitted to rise too high. To prevent burning, minimum beam current densities should be employed.
- Note 2: Cathode should be returned to one side or to the mid-tap of the heater transformer windings.
- Note 3: Brilliance and definition decrease with decreasing accelerator voltage. In general, accelerator voltage should not be less than 8000 volts.
- Note 4: Visual extinction of undeflected focused spot.
- Note 5: The center of the undeflected, focused spot will fall within a circle of 20 mm radius concentric with the center of the tube face.
- Note 6: For standard focusing coil RTMA No. 106 or equivalent with a grid No. 1 bias to produce a 7-3/4" x 10-1/2" raster area. The coil to reference line (distance D) shall be 3-1/4 inches.

12AFP7 12AFP7A

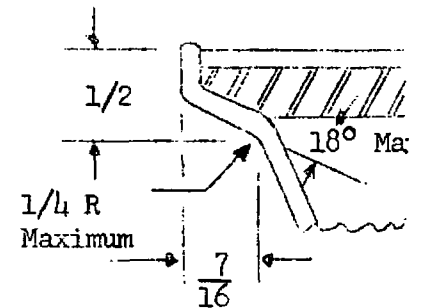
12AFP14 12AFP14A

12AFP19 12AFP19A



NOTE 1

Reference line determined by position where reference line gauge JETEC #112 will rest on glass funnel.



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