Electronic TUBES

12LP4-A

CATHODE-RAY TUBE

12-INCH ROUND, GLASS
FOCUS—MAGNETIC
DEFLECTION—MAGNETIC
54-DEGREE DEFLECTION ANGLE
11¼- BY 8½-INCH PICTURE SIZE
FACEPLATE—SPHERICAL, GRAY
ION-TRAP GUN
EXTERNAL CONDUCTIVE COATING

DESCRIPTION AND RATING

The 12LP4-A is a magnetic-focus and deflection, direct-view all-glass picture tube which provides a 11¼- by 8½-inch picture with rounded sides for television applications. The electron gun is used with an external double-field ion-trap magnet. Other features of this tube include a high-quality gray faceplace which increases picture contrast and detail under high-ambient-light conditions. An external conductive coating serves as a filter capacitor when grounded.

GENERAL

ELECTRICAL

Heater Voltage	6.3	Volts
Heater Current	0.6 ± 10%	Amperes
Focusing Method—Magnetic		
Deflecting Method—Magnetic		
Deflection Angle, approximate	54	Degrees
Direct Interelectrode Capacitances, approximate		
Cathode to All Other Electrodes	5	μμf
Grid-No. 1 to All Other Electrodes	6	μμf
External Conductive Coating to Anode		
Maximum	3000	μμf
Minimum	750	μμf

OPTICAL

Phosphor Number—P4, Sulfide Type
Fluorescent Color—White
Phosphorescent Color—White
Persistence—Short

Faceplate—Gray

Light Transmission at Center, approximate	66	Percent

GENERAL ELECTRIC

Supersedes ETR-116 dated 8-51

MECHANICAL

Over-all Length	$18\frac{3}{4} \pm \frac{3}{8}$	Inches
Greatest Bulb Diameter	$12\frac{7}{16} \pm \frac{1}{8}$	Inches
Minimum Useful Screen Diameter	$11\frac{1}{4}$	Inches
Neck Length	$8\frac{1}{4}$	Inches

Bulb Number, ASA Designation—J99½A1
Bulb Contact—Recessed Small-cavity Cap, JETEC No. J1-21
Base—Small-shell Duodecal 5-Pin, JETEC No. B5-57
Basing, JETEC Designation—12N
Bulb Contact Alignment
Anode Contact Aligns with Pin No. 3 Position ±30 Degrees

Mounting Position—Any

Net Weight, approximate	$11\frac{3}{4}$	Pounds

MAXIMUM RATINGS

DESIGN-CENTER VALUES*

Anode Voltage†	12,000 Max	Volts DC
Grid-No. 2 Voltage	410 Max	Volts DC
Grid-No. 1 Voltage		
Negative-Bias Value	125 Max	Volts DC
Positive-Bias Value	0 Max	Volts DC
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
After Equipment Warm-up Period	140 Max	Volts
Heater Positive with Respect to Cathode	140 Max	Volts

TYPICAL OPERATING CONDITIONS

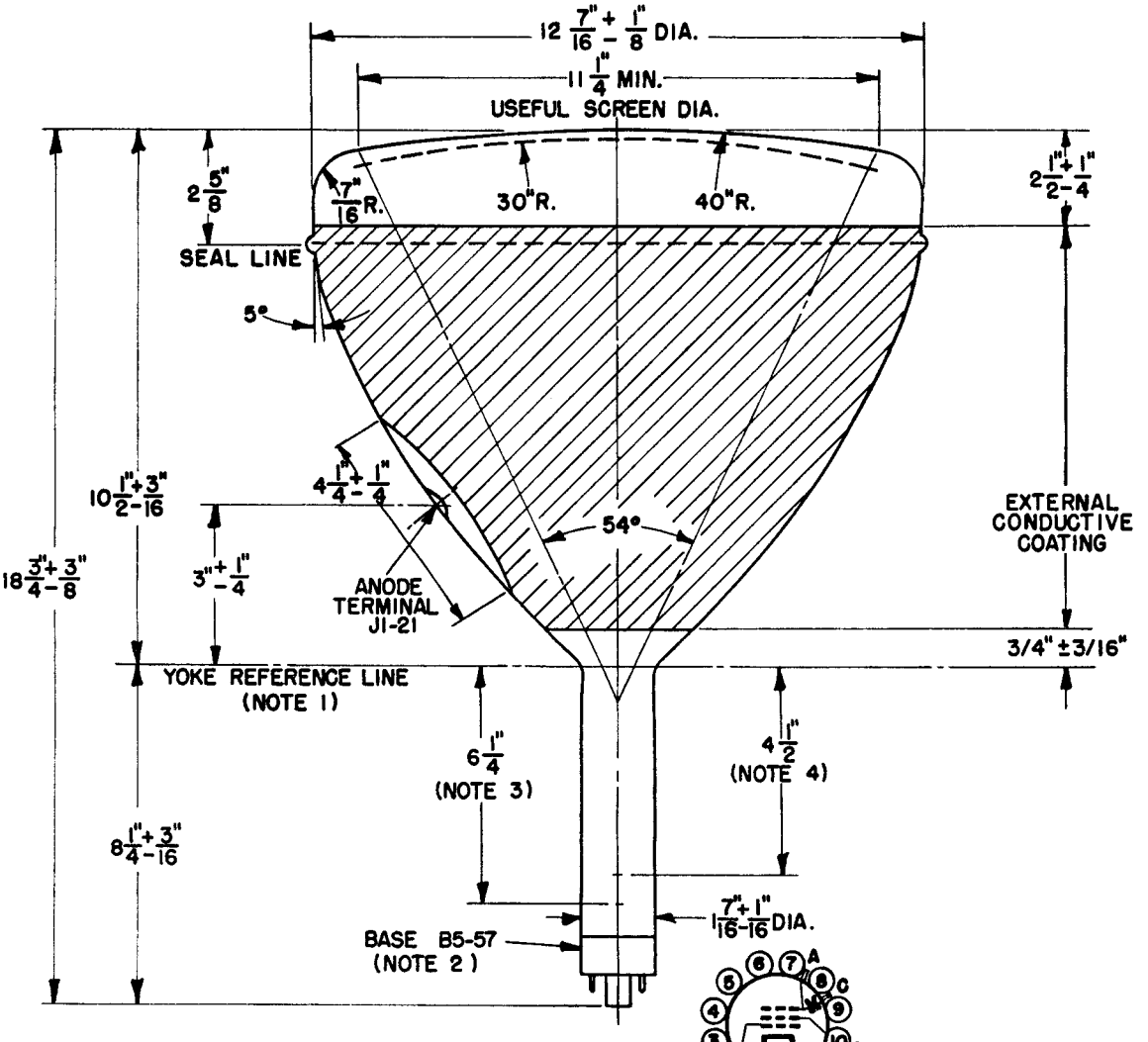
Anode Voltage§	11,000	Volts DC
Grid-No. 2 Voltage	300	Volts DC
Grid-No. 1 Voltageπ	−28 to −72	Volts DC
Focusing-Coil Current▲, approximate	96	Milliamperes DC
Ion-Trap Field Intensity♦, approximate	35	Gausses

MAXIMUM CIRCUIT VALUES

Grid-No. 1 Circuit Resistance	1.5 Max	Megohms

* The maximum ratings provide a ten-percent safety factor in accordance with the standard design-center system of rating cathode-ray tubes. The tube will withstand the combined effects of variations in line voltage and components provided the maximum design-center values are not exceeded by more than ten percent.
† Anode and grid-No. 3 which are connected together within the tube are referred to herein as anode.
‡ Cathode should be returned to one side or to the midtap of the heater transformer winding.

§ Brightness and focus quality decrease with decreasing anode voltage. In general, the anode voltage should not be less than 8000 volts.
π For visual extinction of focused raster.
▲For JETEC focusing coil No. 106 with distance from the yoke-reference-line to center-of-air-gap equal to 4½ inches.
♦ Double-field ion-trap magnet adjusted to optimum position, equivalent to 120 miliamperes through JETEC ion-trap magnet No. 108.



NOTES:
1. REFERENCE LINE IS DETERMINED BY THE PLANE OF THE UPPER EDGE OF THE REFERENCE-LINE GAGE (RETMA NO. 112) WHEN THE GAGE IS RESTING ON THE CONE.
2. ANODE TERMINAL ALIGNS WITH PIN-NO. 3 POSITION ± 30 DEGREES.
3. APPROXIMATE POSITION OF ION-TRAP MAGNET.
4. RECOMMENDED POSITION FOR CENTER OF FOCUSING FIELD.