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 faceplate 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 Interelectode 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
MECHANICAL

Over-all Length ........................................ 18\(\frac{3}{4}\) ± \(\frac{3}{8}\) Inches
Greatest Bulb Diameter ................................... 12\(\frac{7}{8}\) ± \(\frac{1}{6}\) Inches
Minimum Useful Screen Diameter ......................... 11\(\frac{1}{4}\) Inches
Neck Length ............................................... 8\(\frac{1}{4}\) Inches

Bulb Number, ASA Designation—J99\(\frac{1}{2}\)A1
Bulb Contact—Recessed Small-cavity Cap, JETEC No. J1-21
Base—Small-shell Duodecalf 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 Voltage ........................................... −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.

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 41/2 inches.

Double-field ion-trap magnet adjusted to optimum position, equivalent to 120 milliamperes 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 GONE.
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.