

NATIONAL VIDEO CORPORATION

CATHODE RAY TUBE TYPE 27UP₄

The tube type 27UP₄ is an electrostatic focus and magnetic deflection direct view picture tube. It has an all glass, rectangular bulb designed for 90° deflection. The faceplate is of gray glass and has a spherical contour. The electron gun is designed to be used with an external ion-trap magnet.

GENERAL CHARACTERISTICS

| | | |
|---|---------------|----------|
| Heater Voltage | 6.3 | Volts |
| Heater Current | 0.6 | Ampere |
| Focusing Method | Electrostatic | |
| Deflection Method | Magnetic | |
| Deflection Angle (Approx.) Horizontal | 85 | Degrees |
| Diagonal | 90 | Degrees |
| Face Plate Light Transmission (Neutral Density Filter) | 68% | Approx. |
| Phosphor | No. 4 | |
| Fluorescence | White | |
| Persistence | Medium | |
| Direct Interelectrode Capacitances (Approx.) | | |
| Cathode to all other electrodes | 5 | uuf |
| Grid No. 1 to all other electrodes | 6 | uuf |
| External conductive coating to anode | 750 | uuf Max. |
| | 500 | uuf Min. |

MECHANICAL DATA

| | | |
|--|-----------------|---------|
| Overall Length | 23 1/16 ± 3/8 | Inches |
| Greatest Dimensions of Bulb: | | |
| Diagonal | 26 13/16 ± 3/16 | Inches |
| Width | 25 9/32 ± 3/16 | Inches |
| Height | 20 7/32 ± 3/16 | Inches |
| Minimum Useful Screen Size | 24 x 18 1/2 | Inches |
| Bulb Contact | J1-21 | |
| Base | B6-63 | |
| Basing | 12L | |
| Bulb contact alignment | | |
| J1-21 Contact aligns with pin position 6 | +30 | Degrees |

MAXIMUM RATINGS

| | | |
|----------------------------|--------|-----------------|
| Anode Voltage ¹ | 20,000 | 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 | 180 | Max. Volts D.C. |
| Heater positive with respect to cathode | 180 | Max. Volts D.C. |

TYPICAL OPERATING CONDITIONS

| | | |
|---------------------------------|------------|------------|
| Anode Voltage | 16,000 | Volts D.C. |
| Grid No. 4 Voltage ³ | 0 to +396 | Volts D.C. |
| Grid No. 2 Voltage | 300 | Volts D.C. |
| Grid No. 1 Voltage ⁴ | -28 to -72 | Volts D.C. |
| Ion-Trap Magnet | 40 | gauss |

MAXIMUM CIRCUIT VALUES

| | | |
|-------------------------------|-----|--------------|
| Grid No. 1 Circuit Resistance | 1.5 | Max. Megohms |
|-------------------------------|-----|--------------|

NOTES

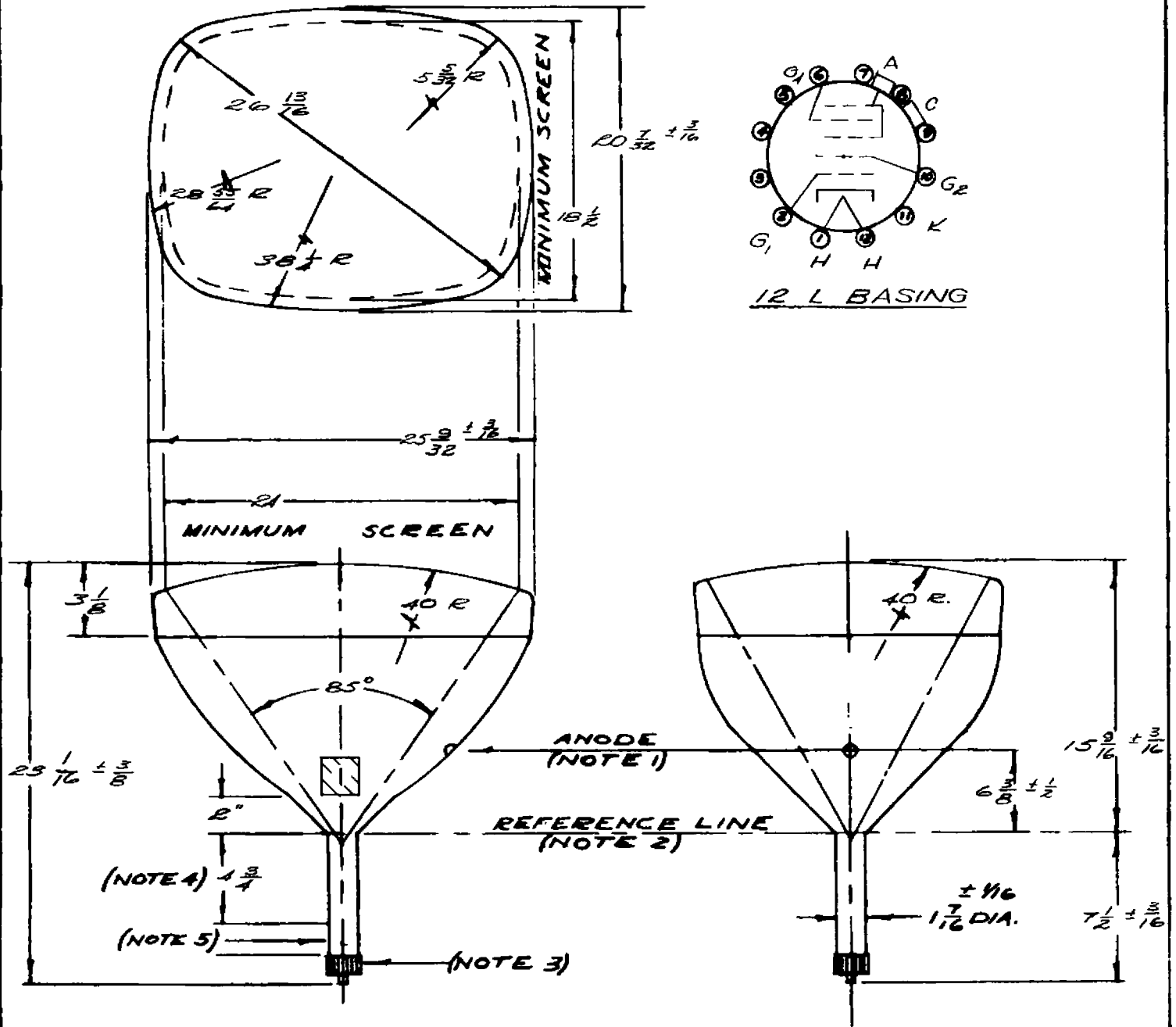
¹Because the rating of this tube permits anode voltages as high as 20 kilovolts (absolute maximum), shielding of x-ray radiation from the tube may be necessary. This precaution should be observed when the anode is operated in excess of 16 kilovolts.

²Grid number four in this tube is the focus control electrode.

³With the combined grid No. 1 bias voltages and video signal voltage adjusted to produce an anode current of 100 ua on a 24 x 18 1/2 inch picture adjusted for best overall focus. For other anode voltages, the focus voltage will be from -0.4% to +2.2% of the anode voltage.

⁴Visual extinction of undeflected, focused raster.

27UP4



NATIONAL VIDEO CORP.

CHICAGO 32, ILLINOIS

9.1.27UP4

| DRAWN BY | SCALE | EFFECTIVE | SUPERSEDES | DISTRIBUTION |
|-----------|-------|------------|------------|------------------------|
| J.E. KUS, | 8"=1" | 21 DEC. 54 | ORIGINAL | A, B, C, D, E, F, G, H |

NOTES

- NOTE 1: The plane through the tube axis and vacant pin position 6 aligns with the anode contact $\pm 30^\circ$.
- NOTE 2: Reference line is determined by the plane where the standard JETEC reference line gauge #116 will stop against the bulb.
- NOTE 3: Socket for this base should not be rigidly mounted. It should have flexible leads and be free to move.
- NOTE 4: Location of deflection yoke and centering device must be within this space.
- NOTE 5: Keep this space clear for ion-trap magnet.
- NOTE 6: Configuration of outer conductive coating optional, but must contain the 2 x 2 inch contact area as shown on drawing.