

September 26, 1958

TELEVISION PICTURE TUBE TYPE 21DWP4

110° Magnetic Deflection
 Rectangular Glass
 Aluminized
 Neutral Gray Glass

6.3 Volt, 300 Ma. Heater

External Conductive Coating
 Spherical Faceplate
 No Ion Trap
 19-1/16" x 15-1/16" Picture

The 21DWP4 is a low-voltage-electrostatic focus, rectangular glass picture tube. It has a spherical neutral gray glass faceplate, an aluminized screen and an external conductive coating.

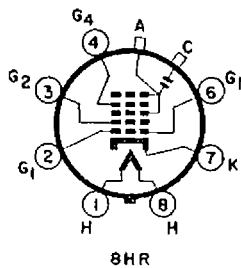
The 21DWP4 features wide angle (110°) deflection and an improved, short, electron gun. As a result of these features, the overall length is greatly reduced. Television receiver designers using this tube can employ more compact cabinets than were previously required for 21" tubes. The 21DWP4 also has a smaller diameter neck permitting more efficient deflection. By this means the power necessary to fully scan the picture area is little more than that required for a 90° Tube. The 21DWP4 has a low power heater.

ELECTRICAL:

| | |
|--|----------------------------|
| Cathode | Coated Unipotential |
| Heater: | |
| Voltage (ac or dc) | 6.3 Volts |
| Current | 0.60 300 Ampere |
| Direct Interelectrode Capacitances: | |
| Grid 1 to all other Electrodes | 6 uuf |
| Cathode to all other Electrodes | 5 uuf |
| External Conductive Coating to Anode: | |
| Maximum | 2500 uuf |
| Minimum | 2000 uuf |
| Screen: | |
| Phosphor | No. 4 Sulfide Type |
| Fluorescence | White |
| Persistence | Short |
| Focusing Method | Low Voltage Electrostatic |
| Deflection Method | Magnetic |
| Horizontal Angle | 105° |
| Vertical Angle | 87° |
| Diagonal Angle | 110° |
| No Ion Trap | No Magnet Required |

MECHANICAL:

| | |
|-----------------------------------|--|
| Mounting Position | Any |
| Screen Dimensions: Minimum | |
| Height | 15-1/16" |
| Width | 19-1/16" |
| Diagonal | 20-1/4" |
| Area | 262 sq. Inches |
| Faceplate | Spherical |
| Glass | Neutral Gray |
| Transmisson | 74% |
| Bulb Dimensions: | |
| Bulb No. | J171H1 or Equiv. |
| Height | 16-3/8" ± 1/8" |
| Width | 20-1/4" ± 1/8" |
| Diagonal | 21-3/8" ± 1/8" |
| Overall Length | 14-7/16" + 5/16" |
| Neck Length | 5-7/16" |
| Anode Terminal | Recessed Small Cavity Cap (JETEC J1-21) |
| Base | Small Button 7-Pin (JETEC B7-183) |
| Basing | 8HR |
| Net Weight | 23 Pounds |



MAXIMUM RATINGS:

Design Center Values

| | |
|--|-------------------------------|
| Anode Voltage | 18000 [▲] max. Volts |
| Grid 4 Voltage: | |
| Positive Value | 1000 max. Volts |
| Negative Value | 500 max. Volts |
| Grid 2 Voltage | 500 max. Volts |
| Grid 1 Voltage: | |
| Positive Bias Value | 0 max. Volts |
| Positive Peak Value | 0 max. Volts |
| Negative Bias Value | 140 max. Volts |
| Negative Peak Value | 200 max. Volts |
| Peak Heater-Cathode Voltage: | |
| Heater Negative with respect to Cathode #. | 180 max. Volts |
| Heater Positive with respect to Cathode | 180 max. Volts |

TYPICAL OPERATING CONDITIONS:

| | |
|----------------------------|------------------------------|
| Anode Voltage [♠] | 14000 Volts |
| Grid 4 Voltage | -50 to +350 Volts |
| Grid 2 Voltage | 450 Volts |
| Grid 1 Voltage for | |
| Raster Cutoff | -28 to -72 -45 to -105 Volts |

LIMITING CIRCUIT VALUES:

| | |
|--|-------------------|
| Grid 4 Resistance to Voltage Source [■] | 0.01 min. Megohms |
| Grid 2 Resistance to Voltage Source [■] | 0.01 min. Megohms |
| Grid 1 Circuit Resistance | 1.5 max. Megohms |

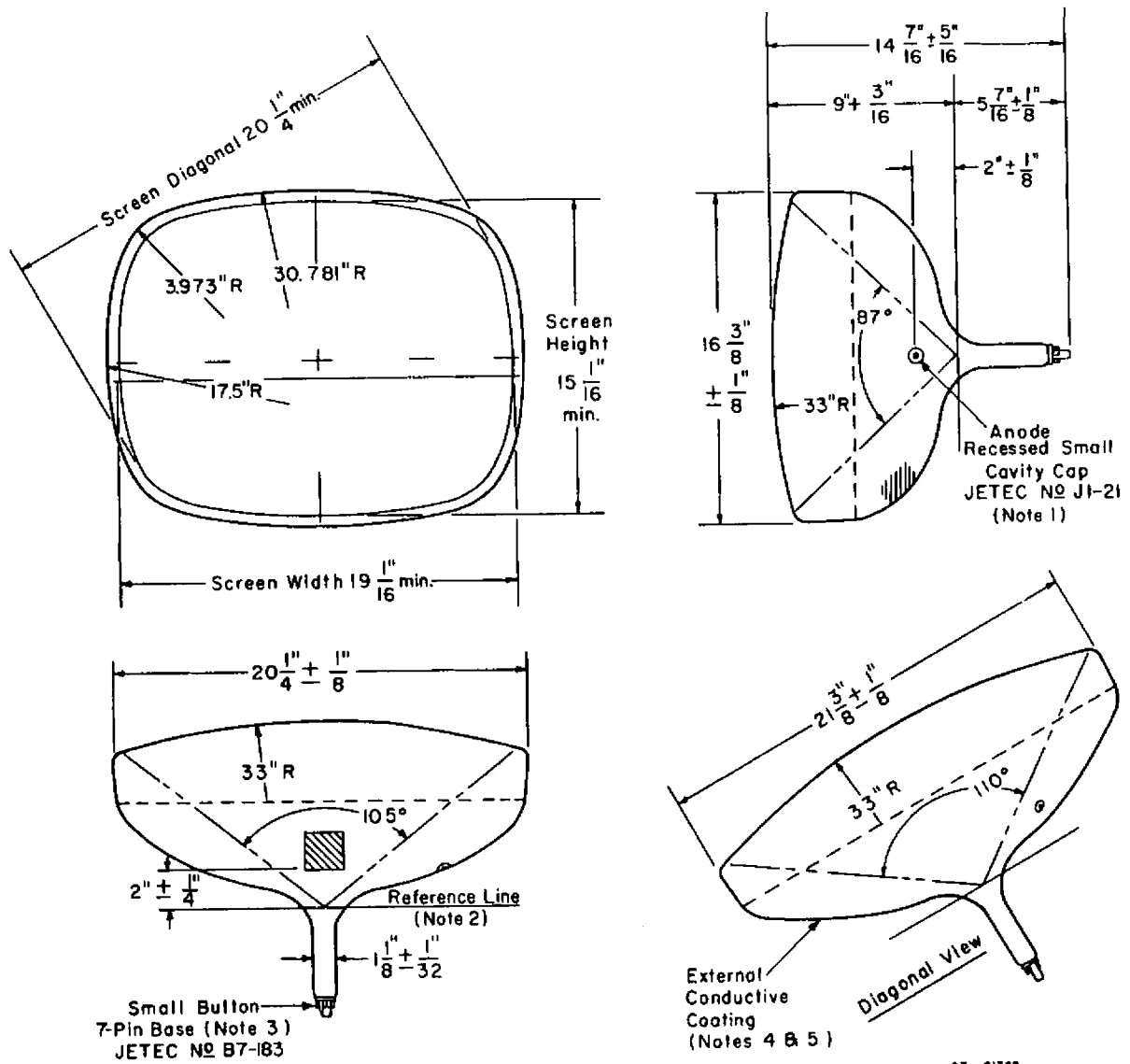
[♠] Operation with anode voltage or anode to grid 1 voltage less than 12000 volts is not recommended.

[■] Protective resistance in the grid 4 and grid 2 circuits is advisable to prevent damage to the tube. If applicable, one resistor common to both circuits may be used.

[▲] Inasmuch as the tube rating permits operation at voltages as high as 19.8 kilovolts (absolute value), shielding of the tube for x-ray radiation may be needed when operating conditions involve voltages in excess of 16 kilovolts.

[#] During 15 second warmup period this value may be 410 max. volts.

Note: With a minimum neck length tube, the PM centering magnet (0 to 8 gauss) should extend no more than 2-1/8" from the yoke reference line.



NOTE 1: The plane through the tube axis and base pin 4 may vary from the plane through the tube axis and the anode terminal by an angular tolerance of $\pm 30^\circ$. The anode terminal is on the same side of the tube as pin 4.

NOTE 2: With the tube neck inserted through the flared end of Reference Line Gauge JETEC No. 126 and with the tube seated in the gauge, the reference line is determined by the intersection of the plane face of the flared end of the gauge with the tube funnel.

NOTE 3: The socket should not be mounted rigidly, but should be allowed to move freely and have flexible leads. The associated wiring should not impress lateral strains on the base pins. The bottom circumference of the base wafer will lie within a circle concentric with the bulb axis and having a diameter of $1\text{-}3/4''$.

NOTE 4: External conductive coating forms supplementary filter capacitor and must be grounded.

NOTE 5: Contact area of external conductive coating $2'' \text{ min.} \times 2'' \text{ min.}$ located $2'' \pm 1/4''$ from Reference Line 90° counterclockwise from anode button as viewed from base end of tube.