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PICTURE TUBE

RECTANGULAR GLASS TYPE

LOW-VOLTAGE FOCUS

MAGNETIC DEFLECTION

DATA

General:

Heater, for Unipotential Cathode:

Voltage 6.3 ac or dc volts

Current $0.6 \pm 10\%$ amp

Direct Interelectrode Capacitances:

Grid No.1 to all other electrodes 6 μf Cathode to all other electrodes 5 μf External conductive coating to ultor. $\begin{cases} 750 \text{ max.} \\ 500 \text{ min.} \end{cases}$ μf

Faceplate, Spherical. Filterglass

Light transmission (Approx.). 74%

Phosphor (For curves, see front of this section). P4—Sulfide Type

Fluorescence. White

Phosphorescence White

Persistence Short

Focusing Method Electrostatic

Deflection Method Magnetic

Deflection Angles (Approx.):

Diagonal. 90° Horizontal. 85° Vertical. 68° Electron Gun. Ion-Trap Type Requiring
External Single-Field Magnet

Tube Dimensions:

Overall length. $20" \pm 3/8"$ Greatest width. $20-1/4" \pm 1/8"$ Greatest height $16-3/8" \pm 1/8"$ Diagonal. $21-3/8" \pm 1/8"$ Neck length $7-1/2" \pm 3/16"$

Screen Dimensions (Minimum):

Greatest width. $19-1/16"$ Greatest height $15-1/16"$ Diagonal. $20-1/4"$

Projected area. 262 sq. in.

Weight (Approx.). 24 lbs

Operating Position. Any

Cap Recessed Small Cavity (JETEC No. J1-21)

Bulb. J171 (90°)

Base. Small-Shell Duodecal 6-Pin (JETEC No. B6-63)

Basing Designation for BOTTOM VIEW. 12L

Pin 1—Heater

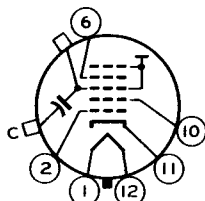
Pin 2—Grid No.1

Pin 6—Grid No.4

Pin 10—Grid No.2

Pin 11—Cathode

Pin 12—Heater



Cap—Ultor

(Grid No.3,
Grid No.5,
Collector)C—External
Conductive
Coating

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Maximum Ratings, Design-Center Values:

ULTOR VOLTAGE.	18000 max.	volts
GRID-No.4 VOLTAGE:		
Positive value	1000 max.	volts
Negative value*	500 max.	volts
GRID-No.2 VOLTAGE.	500 max.	volts
GRID-No.1 VOLTAGE:		
Negative peak value.	200 max.	volts
Negative bias value.	140 max.	volts
Positive bias value.	0 max.	volts
Positive peak value.	2 max.	volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode:		
During equipment warm-up period		
not exceeding 15 seconds	410 max.	volts
After equipment warm-up period	180 max.	volts
Heater positive with respect to cathode.	180 max.	volts

Equipment Design Ranges:

With any ultor voltage (E_{c5k}) between 14000 and 18000 volts
and grid-No.2 voltage (E_{c2k}) between 200 and 500 volts*

Grid-No.4 Voltage for focus with ultor current of 100 μ a.	-0.4% to +2.2% of E_{c5k}	volts
Grid-No.1 Voltage for visual extinction of focused raster	-9.3% to -24% of E_{c2k}	volts
Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak positive).	9.3% to 24% of E_{c2k}	volts
Grid-No.4 Current.	-25 to +25	μ a
Grid-No.2 Current.	-15 to +15	μ a
Ion-Trap Magnet Current (Average)**	$\sqrt{\frac{E_{c5k}}{16000}} \times 30$	ma
Minimum Field Strength of PM Ion-Trap Magnet§.	$\sqrt{\frac{E_{c5k}}{16000}} \times 33$	gausses
Field Strength of Adjustable Centering Magnet	0 to 8	gausses

Examples of Use of Design Ranges:

With ultor voltage of	14000	18000	volts
and grid-No.2 voltage of	300	300	volts
Grid-No.4 Voltage for focus with ultor current of 100 μ a.	-55 to +300	-72 to +396	volts

*, #, **, §: See next page.



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Grid-No.1 Voltage for visual extinction of focused raster	-28 to -72	-28 to -72	volts
Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value.	28 to 72	28 to 72	volts
Minimum Field Strength of PM Ion-Trap Magnet	33	35	gausses

Maximum Circuit Values:

Grid-No.1-Circuit Resistance 1.5 max. megohms

* This value has been specified to take care of the condition where an ac voltage is provided for dynamic focusing.

Brilliance and definition decrease with decreasing ultor voltage. In general, the ultor voltage should not be less than 14000 volts.

** For JETEC Ion-Trap Magnet No.117, or equivalent, located with the trailing edge of the pole pieces located over the gap between grid No.1 and grid No.2 and rotated to give maximum brightness.

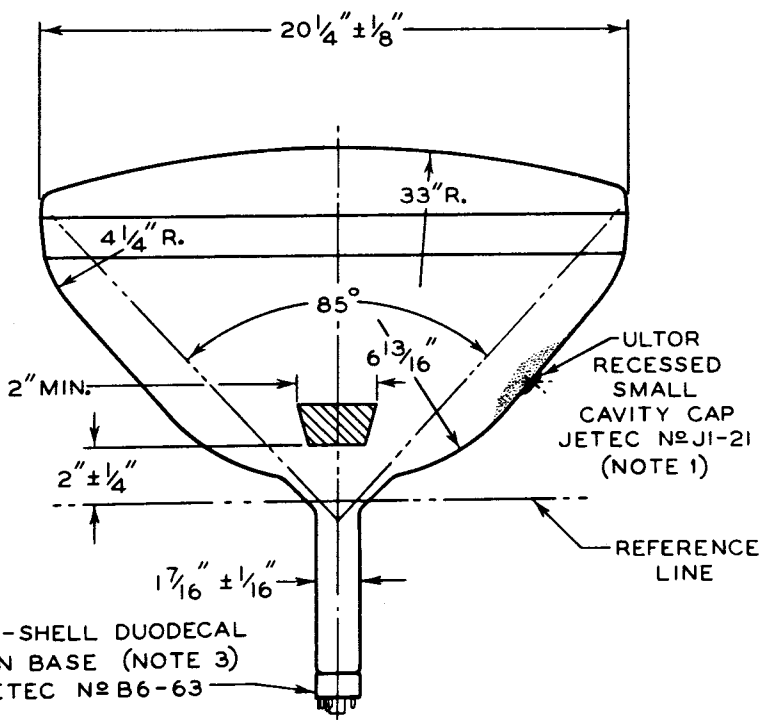
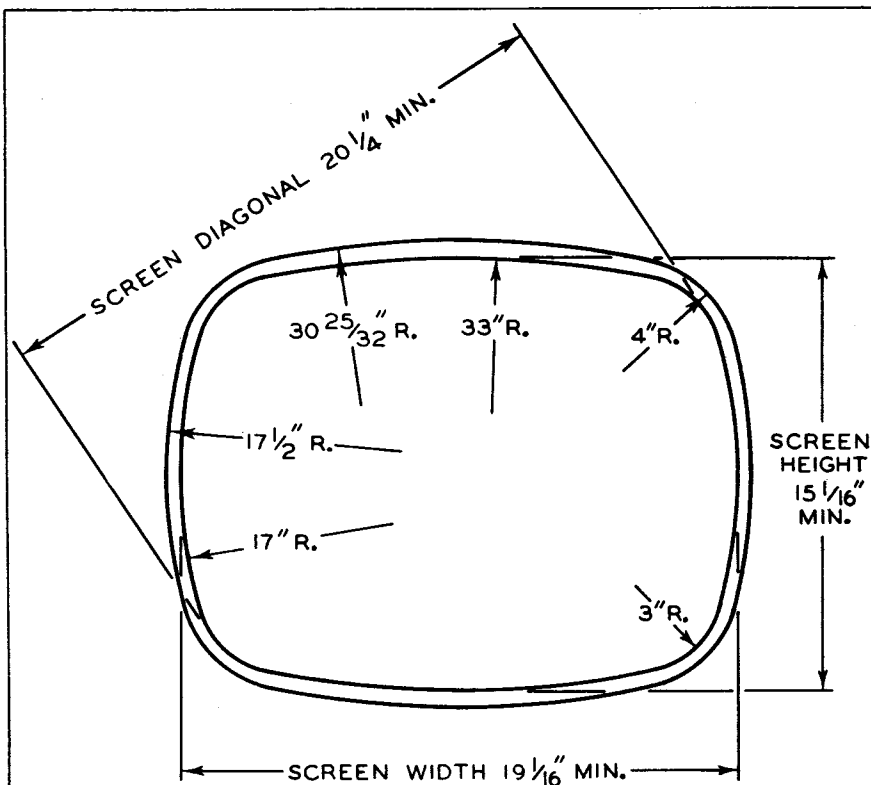
§ For specimen PM ion-trap magnet, such as Heppner Model No.E437, or equivalent, located in optimum position and rotated to give maximum brightness. For a given equipment application, the tolerance range for the strength of the PM ion-trap magnet should be added to the minimum value. The maximum strength of this magnet should not exceed the specified minimum value by more than 6 gauss. This procedure will insure use of a PM ion-trap magnet allowing adequate adjustment to permit satisfactory performance without loss of highlight brightness.

*For X-ray shielding considerations, see sheet
X-RAY PRECAUTIONS FOR CATHODE-RAY TUBES
at front of this Section*

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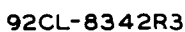
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Technical drawing of a propeller with the following dimensions and labels:

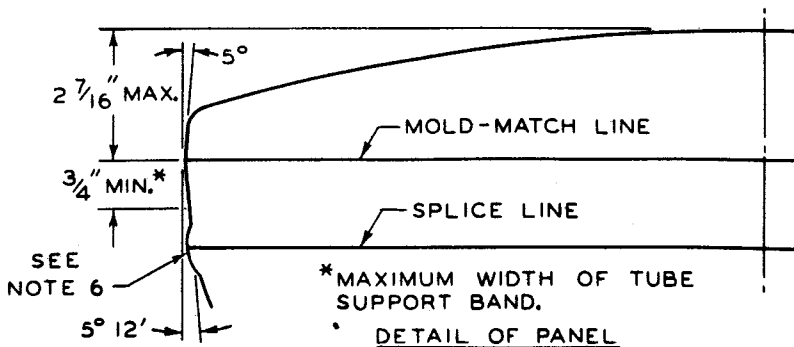
- Overall width: $20 \pm \frac{3}{8}$ "
- Distance from left edge to centerline: $12 \frac{1}{2} \pm \frac{3}{16}$ "
- Distance from centerline to right edge: $7 \frac{1}{2} \pm \frac{3}{16}$ "
- Top left radius: $\frac{7}{16}$ " R.
- Top right radius: 12 " R.
- Bottom left radius: $16 \frac{3}{8}$ " $\pm \frac{1}{8}$ "
- Bottom right radius: $3 \frac{3}{4}$ " R.
- Angle: 68°
- Reference line (Note 2)
- Minimum thickness: 2 " MIN.
- Bottom edge dimension: $4 \frac{1}{8} \pm \frac{1}{4}$ "



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NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND PIN 6 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ULTOR TERMINAL BY ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF $\pm 30^\circ$. ULTOR TERMINAL IS ON SAME SIDE AS PIN 6.

NOTE 2: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE-LINE GAUGE JETEC No. 116 (SHOWN AT FRONT OF THIS SECTION) AND WITH TUBE SEATED IN GAUGE, THE REFERENCE LINE IS DETERMINED BY THE INTERSECTION OF THE PLANE CC' OF THE GAUGE WITH THE GLASS FUNNEL.

NOTE 3: SOCKET FOR THIS BASE SHOULD NOT BE RIGIDLY MOUNTED; IT SHOULD HAVE FLEXIBLE LEADS AND BE ALLOWED TO MOVE FREELY. BOTTOM CIRCUMFERENCE OF BASE SHELL WILL FALL WITHIN A CIRCLE CONCENTRIC WITH BULB AXIS AND HAVING A DIAMETER OF 3".

NOTE 4: THE DRAWING SHOWS THE MINIMUM SIZE AND LOCATION OF THE CONTACT AREA OF THE EXTERNAL CONDUCTIVE COATING. THE ACTUAL AREA OF THIS COATING WILL BE GREATER THAN THE CONTACT AREA SO AS TO PROVIDE THE REQUIRED CAPACITANCE. EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

NOTE 5: TO CLEAN THIS AREA, WIPE ONLY WITH SOFT DRY LINT-LESS CLOTH.

NOTE 6: BULGE AT SPLICE-LINE SEAL MAY INCREASE THE INDICATED MAXIMUM VALUE FOR ENVELOPE WIDTH, DIAGONAL, AND HEIGHT BY NOT MORE THAN $1/8$ ", BUT AT ANY POINT AROUND THE SEAL, THE BULGE WILL NOT PROTRUDE MORE THAN $1/16$ " BEYOND THE ENVELOPE SURFACE AT THE MOLD-MATCH LINE.



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AVERAGE GRID-DRIVE CHARACTERISTICS

$E_f = 6.3$ VOLTS
ULTOR VOLTS = 14000 TO 18000
GRID N₂ BIASED NEGATIVE WITH
RESPECT TO CATHODE TO GIVE
FOCUSED RASTER CUTOFF.

