24AEP4
PICTURE TUBE

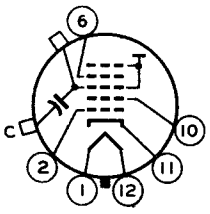
RECTANGULAR GLASS TYPE — ALUMINIZED SCREEN
LOW-VOLTAGE FOCUS — MAGNETIC DEFLECTION

DATA

General:

Heater, for Unipotential Cathode:		
Voltage	6.3	ac or dc volts
Current	0.6 ± 10%	amp
Direct Interelectrode Capacitances:		
Grid No.1 to all other electrodes	6	μμf
Cathode to all other electrodes	5	μμf
External conductive coating to ultor	2500 max. / 2000 min.	μμf
Faceplate, Spherical		Filterglass
Light transmission (Approx.)		75%
Phosphor (For curves, see front of this Section)		P4—Sulfide Type Aluminized
Fluorescence		White
Phosphorescence		White
Persistence		Short
Focusing Method		Electrostatic
Deflection Method		Magnetic
Deflection Angles (Approx.):		
Diagonal		90°
Horizontal		85°
Vertical		68°
Electron Gun		Type Requiring No Ion-Trap Magnet
Tube Dimensions:		
Overall length		19-1/8" ± 3/8"
Greatest width		22-11/16" ± 1/8"
Greatest height		18-7/16" ± 1/8"
Diagonal		24" ± 1/8"
Neck length		5-1/2" ± 3/16"
Screen Dimensions (Minimum):		
Greatest width		21-7/16"
Greatest height		16-7/8"
Diagonal		22-11/16"
Projected area		332 sq. in.
Weight (Approx.)		35 lbs
Operating Position		Any
Cap		Recessed Small Cavity (JETEC No.J1-21)
Bulb		J192
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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GRID-DRIVE▲ SERVICE

Unless otherwise specified, voltage values are positive with respect to cathode

Maximum Ratings, *Design-Center Values:*

ULTOR VOLTAGE	20000 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 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_{c_5k}) between 12000# and 20000 volts and grid-No.2 voltage (E_{c_2k}) between 200 and 500 volts

Grid-No.4 Voltage for focus§	−50 to +350	volts
Grid-No.1 Voltage (E_{c_1k}) for visual extinction of focused raster	*See Raster-Cutoff-Range Chart for Grid-Drive Service*	
Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak positive)	Same value as determined for E_{c_1k} except video drive is a positive voltage	
Grid-No.4 Current	−25 to +25	μa
Grid-No.2 Current	−15 to +15	μa
Field Strength of Adjustable Centering Magnet†	0 to 8	gausses

Examples of Use of Design Ranges:

With ultor voltage of	*16000*	*18000*	*volts*
and grid-No.2 voltage of	*300*	*400*	*volts*
Grid-No.4 Voltage for focus	−50 to +350	−50 to +350	volts
Grid-No.1 Voltage for visual extinction of focused raster	−28 to −72	−36 to −94	volts

▲,*,#,§,†: See next page.

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Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value.	28 to 72	36 to 94	volts

Maximum Circuit Values:

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

CATHODE-DRIVE■ SERVICE

Unless otherwise specified, voltage values are positive with respect to grid No.1

Maximum Ratings, *Design-Center Values:*

ULTOR-TO-GRID-No.1 VOLTAGE	20000 max.	volts
GRID-No.4-TO-GRID-No.1 VOLTAGE:		
Positive value	1000 max.	volts
Negative value*	500 max.	volts
GRID-No.2-TO-GRID-No.1 VOLTAGE	640 max.	volts
GRID-No.2-TO-CATHODE VOLTAGE	500 max.	volts
CATHODE-TO-GRID-No.1 VOLTAGE:		
Positive bias value.	140 max.	volts
Negative bias value.	0 max.	volts
Negative 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-to-grid-No.1 voltage ($E_{c_5g_1}$) between 12000# and 20000 volts and grid-No.2-to-grid-No.1 voltage ($E_{c_2g_1}$) between 220 and 640 volts

Grid-No.4-to-Grid-No.1 Voltage for focus§	-50 to +350	volts
Cathode-to-Grid-No.1 Voltage (E_{kg_1}) for visual extinction of focused raster.	*See Raster-Cutoff-Range Chart for Cathode-Drive Service*	
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak negative).	Same value as determined for E_{kg_1} except video drive is a negative voltage	
Grid-No.4 Current.	-25 to +25	μa

▲,*,#,§,†,■: See next page.

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Grid-No.2 Current.	-15 to +15		μa
Field Strength of Adjustable Centering Magnet†	0 to 8		gausses

Examples of Use of Design Ranges:

With ultor-to-grid-No.1 voltage of	*16000*	*18000*	*volts*
and grid-No.2-to-grid-No.1 voltage of	*300*	*400*	*volts*
Grid-No.4-to-Grid-No.1 Voltage for focus. . . .	-50 to +350	-50 to +350	volts
Cathode-to-Grid-No.1 Voltage for visual extinction of focused raster. . . .	28 to 60	36 to 78	volts
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value. . . .	-28 to -60	-36 to -78	volts

Maximum Circuit Values:

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

▲ Grid drive is the operating condition in which the video signal varies the grid-No.1 potential with respect to cathode.

* 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 or ultor-to-grid-No.1 voltage. In general, the ultor voltage or ultor-to-grid-No.1 voltage should not be less than 12000 volts.

§ The grid-No.4 voltage or grid-No.4-to-grid-No.1 voltage required for focus of any individual tube is independent of ultor current and will remain essentially constant for values of ultor voltage (or ultor-to-grid-No.1 voltage) or grid-No.2 voltage (or grid-No.2-to-grid-No.1 voltage) within design ranges shown for these items.

† Distance from *Reference Line* for suitable PM centering magnet should not exceed 2-1/2". Excluding extraneous fields, the center of the undeflected focused spot will fall within a circle having a 7/16-inch radius concentric with the center of the tube face. It is to be noted that the earth's magnetic field can cause as much as 1/2-inch deflection of the spot from the center of the tube face.

■ Cathode drive is the operating condition in which the video signal varies the cathode potential with respect to grid No.1 and the other electrodes.

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

Curves and Charts shown under Type 24AHP4 also apply to the 24AEP4

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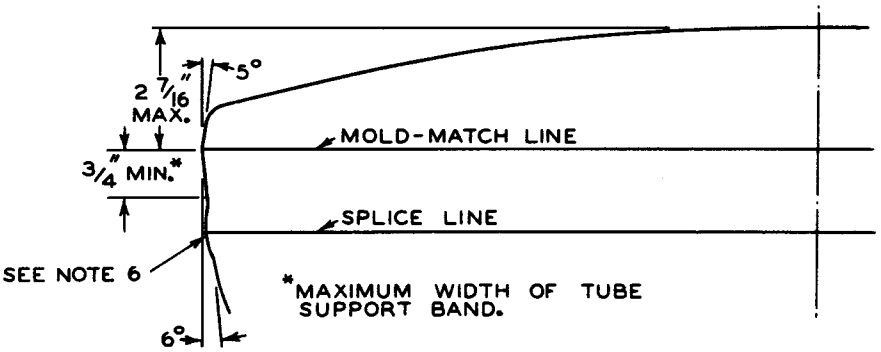

DETAIL OF PANEL

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 ± 30°. 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 LINTLESS 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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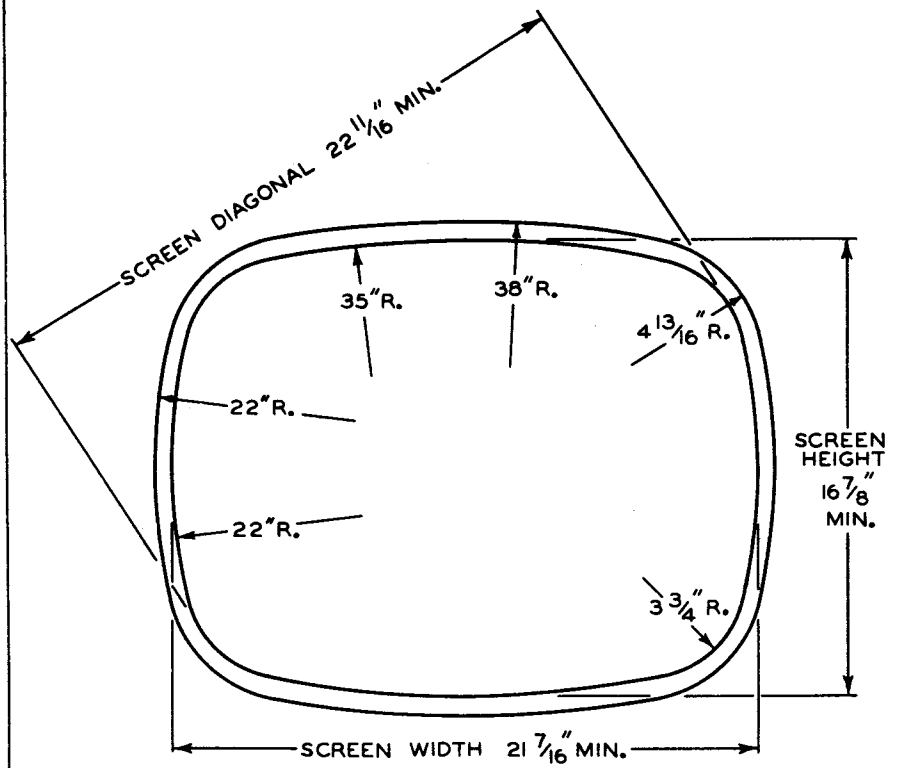

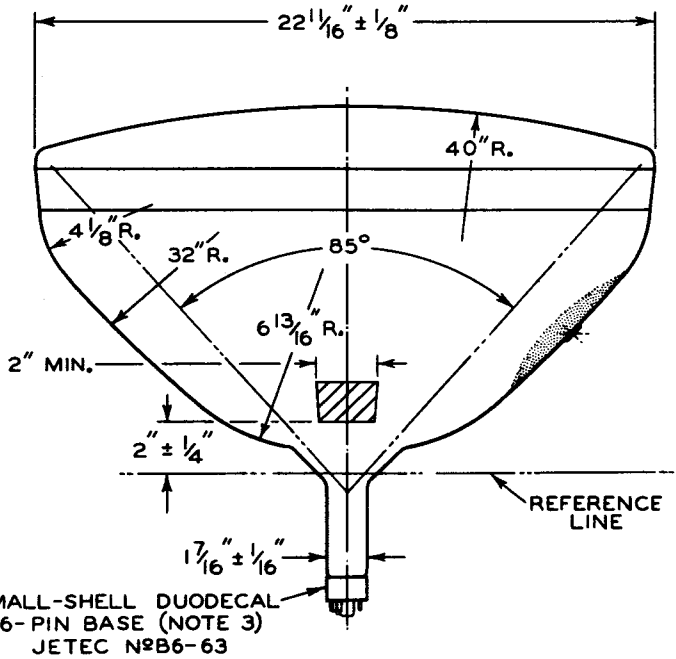

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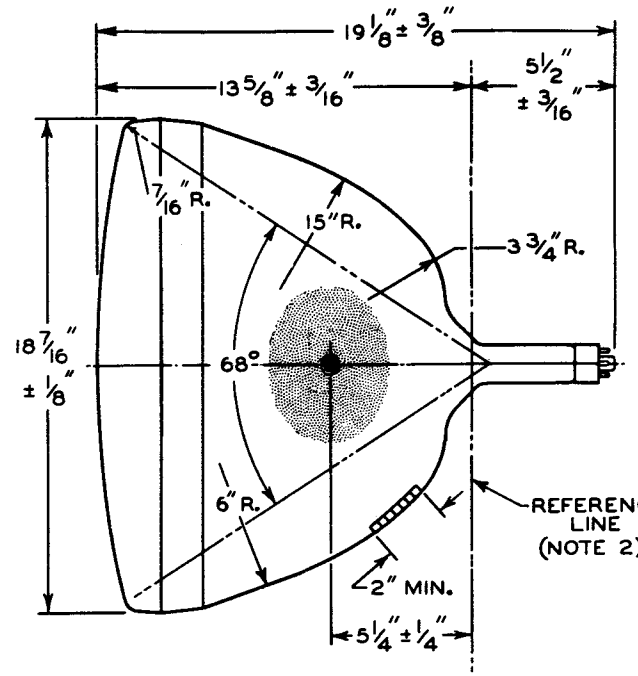

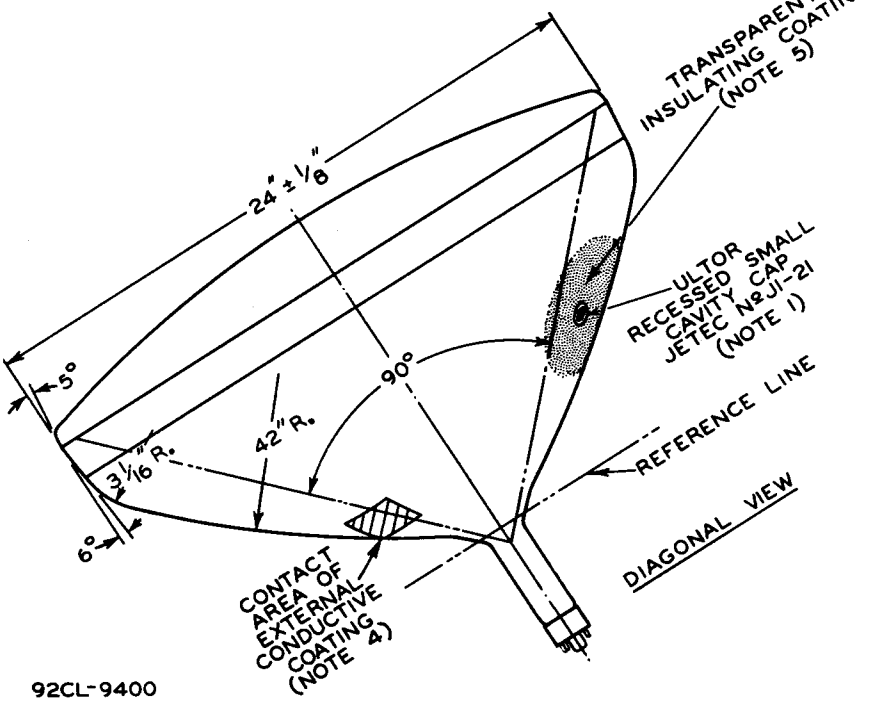

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