17DXP4

Picture Tube

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

With Heater Having Controlled Warm-Up Time

DATA

General:

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3	volts
Current at 6.3 volts	0.45	amp
Warm-up time (Average)	11	sec
Direct Interelectrode Capacitances:		
Grid No.1 to all other electrodes	6	μμf
Cathode to all other electrodes	5	μμf
External conductive coating to ultor	1500 max. 1000 min.	μμf μμf
Faceplate, Spherical	Filterglass	
Light transmission (Approx.)	77%	
Phosphor (For Curves, see front of this Section)	P4—Sulfide Type Aluminized	
Fluorescence	White	
Phosphorescence	White	
Persistence	Medium Short	
Focusing Method	Electrostatic	
Deflection Method	Magnetic	
Deflection Angles (Approx.):		
Diagonal	110°	
Horizontal	105°	
Vertical	87°	
Electron Gun	Type Requiring No Ion-Trap Magnet	
Tube Dimensions:		
Overall length	10-11/16" ± 1/4"	
Greatest width	15-5/8" ± 1/8"	
Greatest height	12-3/4" ± 1/8"	
Diagonal	16-9/16" ± 1/8"	
Neck length	3-9/16" ± 1/8"	
Radius of curvature of faceplate (External surface)	20-3/4"	
Screen Dimensions (Minimum):		
Greatest width	14-3/4"	
Greatest height	11-11/16"	
Diagonal	15-3/4"	
Projected area	155 sq. in.	
Weight (Approx.)	10 lbs	
Operating Position	Any	
Cap	Recessed Small Cavity (JEDEC No.J1-21)	
Bulb	J132-1/2 A/B	
Socket	Ucinite Part No.115446, or equivalent	
Base	Small-Button Neoeightar 7-Pin, Arrangement 1, (JEDEC No.B7-208)	

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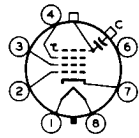
Basing Designation for BOTTOM VIEW. 8JR

Pin 1 – Heater
Pin 2 – Grid No. 1
Pin 3 – Grid No. 2
Pin 4 – Grid No. 3
Pin 6 – Internal Connection—Do Not Use
Pin 7 – Cathode



Pin 8 – Heater
Cap – Ultor (Grid No. 4, Collector)
C – External Conductive Coating

GRID-DRIVE▲ SERVICE

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

Maximum and Minimum Ratings, *Design-Center Values:*

ULTOR VOLTAGE	16000 max.	volts
	12000● min.	volts
GRID-No.3 (FOCUSING) VOLTAGE	650 max.	volts
GRID-No.2 VOLTAGE	550 max.	volts
	300 min.	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_{c_4k}) between 12000 and 16000 volts and grid-No.2 voltage (E_{c_2k}) between 400 and 550 volts

Grid-No.3 Voltage for focus§	0 to 400	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.3 Current	−25 to +25	μa
Grid-No.2 Current	−15 to +15	μa

Field Strength of Adjustable Centering Magnet♦ . .	0 to 12		gauss

Examples of Use of Design Ranges:

With ultor voltage of	*16000*	*16000*	*volts*
and grid-No.2 voltage of	*400*	*500*	*volts*
Grid-No.3 Voltage for focus.	0 to 400	0 to 400	volts
Grid-No.1 Voltage for visual extinction of focused raster.	−34 to −63	−43 to −78	volts
Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value.	34 to 63	43 to 78	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 and Minimum Ratings, *Design-Center Values:*

ULTOR-TO-GRID-No.1 VOLTAGE.	16000	max.	volts
	12000♦	min.	volts
GRID-No.3-TO-GRID-No.1 (FOCUSING) VOLTAGE	650	max.	volts
GRID-No.2-TO-GRID-No.1 VOLTAGE.	690	max.	volts
GRID-No.2-TO-CATHODE VOLTAGE.	550	max.	volts
	300	min.	volts
CATHODE-TO-GRID-No.1 VOLTAGE:			
Positive-peak value	200	max.	volts
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 ($E_{c_{ug_1}}$) between 12000 and 16000 volts and grid-No.2-to-grid-No.1 voltage ($E_{c_{2g_1}}$) between 400 and 690 volts

Grid-No.3-to-Grid-No.1 Voltage for focus§.	0 to 400	volts

Cathode-to-Grid-No.1 Voltage (Ek_{g_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 Ek_{g_1} except video drive is a negative voltage	
Grid-No.3 Current	-25 to +25	μa
Grid-No.2 Current	-15 to +15	μa
Field Strength of Adjustable Centering Magnet♦. .	0 to 12	gauss

Examples of Use of Design Ranges:

With ultor-to-grid-No.1 voltage of	*16000*	*16000*	*volts*
and grid-No.2 to-grid-No.1 voltage of	*400*	*500*	*volts*
Grid-No.3 to-Grid-No.1 Voltage for focus	0 to 400	0 to 400	volts
Cathode-to-Grid-No.1 Voltage for visual extinction of focused raster.	34 to 56	41 to 69	volts
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value	-34 to -56	-41 to -69	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 is a working design-center minimum. The equivalent *absolute minimum* ultor- or ultor-to-grid-No.1 voltage is 11,000 volts, below which the serviceability of the 17DXP4 will be impaired. The equipment designer has the responsibility of determining a minimum design value such that under the worst probable operating conditions involving supply-voltage variation and equipment variation the absolute minimum ultor- or ultor-to-grid-No.1 voltage is never less than 11,000 volts.

§ The grid-No.3 voltage required for optimum focus of any individual tube may have a value anywhere between 0 and 400 volts and is a function of the value of the ultor voltage, ultor current, and grid-No.2 voltage. It changes directly with the ultor voltage at the rate of approximately 46 volts for each 1000-volt change in ultor voltage; inversely with grid-No.2 voltage at the rate of about 60 volts for each 100-volt change in grid-No.2 voltage; and inversely with ultor current at the rate of about 60 volts for each 100-microampere change in ultor current. Because the 17DXP4 has a narrow depth of focus, it is necessary to provide means such as a potentiometer or a 4-tap switch for adjusting the focusing voltage. In general, commercially acceptable focus is obtained if the focusing voltage is within 75 volts of the value required for optimum focus and if the focusing voltage is maintained to within 75 volts of the optimum value during line-voltage fluctuations.

♦ Distance from *Reference Line* for suitable PM centering magnet should not exceed 2-1/4". Excluding extraneous fields, the center of the undeflected focused spot will fall within a circle having a 5/16-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.

OPERATING CONSIDERATIONS

Shatter-Proof Cover Over the Tube Face. Following conventional picture-tube practice, it is recommended that the cabinet be provided with a shatter-proof, glass cover over the face of the 17DXP4 to protect it from being struck accidentally and to protect against possible damage resulting from tube implosion under some abnormal condition. This safety cover can also provide X-ray protection when required.

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

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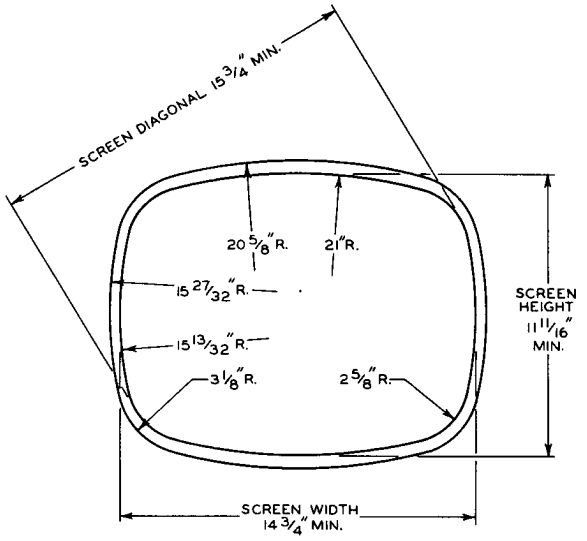
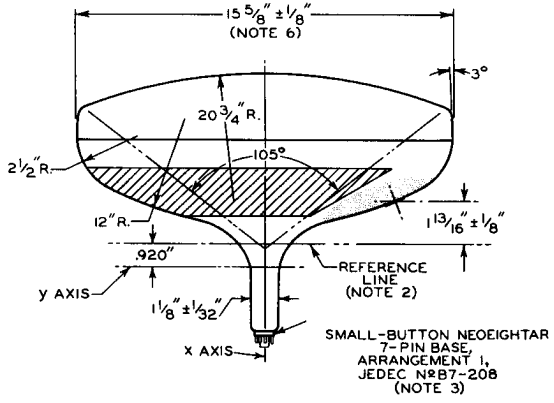
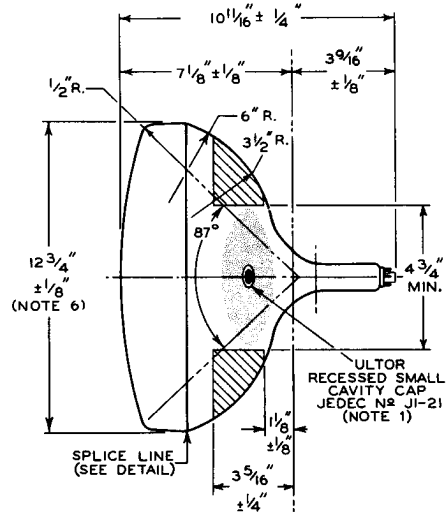
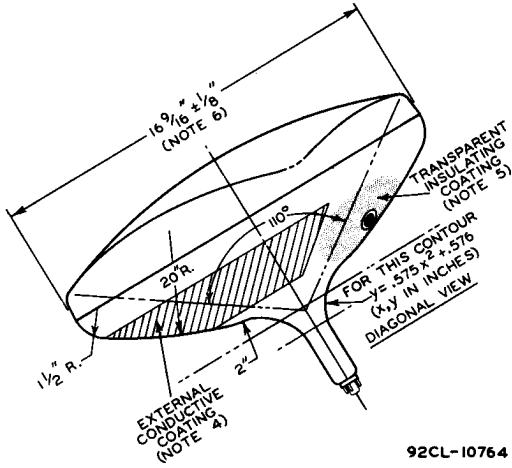

SCREEN DIAGONAL 15 3/4" MIN.
20 5/8" R.
21" R.
15 27/32" R.
15 13/32" R.
3 1/8" R.
2 5/8" R.
SCREEN HEIGHT 11 11/16" MIN.
SCREEN WIDTH 14 3/4" MIN.


15 5/8" ± 1/8" (NOTE 6)
3°
20 3/4" R.
105°
2 1/2" R.
12" R.
1 13/16" ± 1/8"
.920"
REFERENCE LINE (NOTE 2)
y AXIS
1 1/8" ± 1/32"
X AXIS
SMALL-BUTTON NEOEIGHTAR 7-PIN BASE, ARRANGEMENT 1, JEDEC NO. B7-208 (NOTE 3)


10 11/16" ± 1/4"
7 1/8" ± 1/8"
3 9/16" ± 1/8"
1/2" R.
6" R.
3 1/2" R.
87°
12 3/4" ± 1/8" (NOTE 6)
4 3/4" MIN.
ULTOR RECESSED SMALL CAVITY CAP JEDEC No. J1-21 (NOTE 1)
1 1/8" ± 1/8"
SPLICE LINE (SEE DETAIL)
3 5/16" ± 1/4"


16 9/16" ± 1/8" (NOTE 6)
TRANSPARENT INSULATING COATING (NOTE 5)
110°
20° R.
FOR THIS CONTOUR y = .575 x² + .576 (x, y IN INCHES)
DIAGONAL VIEW
1 1/2" R.
2"
EXTERNAL CONDUCTIVE COATING (NOTE 4)

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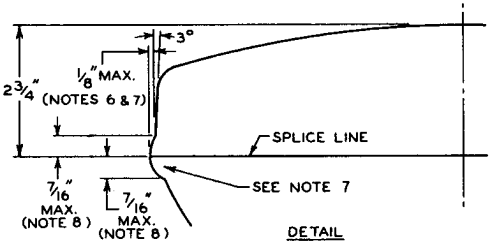


DETAIL

NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND PIN 4 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 4.

NOTE 2: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE-LINE GAUGE JEDEC No. G-126 (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. THE DESIGN OF THE SOCKET SHOULD BE SUCH THAT THE CIRCUIT WIRING CANNOT IMPRESS LATERAL STRAINS THROUGH THE SOCKET CONTACTS ON THE BASE PINS. BOTTOM CIRCUMFERENCE OF BASE WAFER WILL FALL WITHIN A CIRCLE CONCENTRIC WITH BULB AXIS AND HAVING A DIAMETER OF 1-3/4".

NOTE 4: EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

NOTE 5: TO CLEAN THIS AREA, WIPE ONLY WITH SOFT DRY LINTLESS CLOTH.

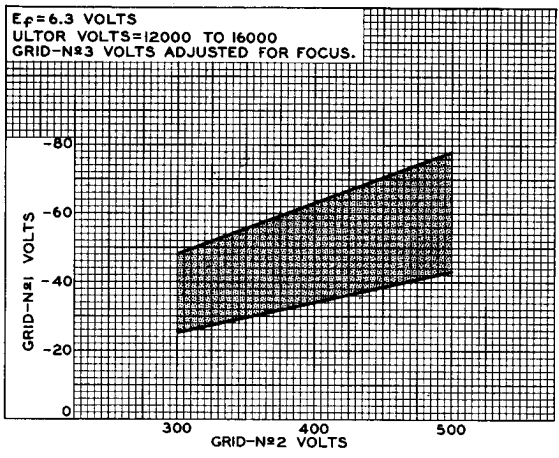
NOTE 6: MEASURED 2-9/32" ± 1/32" FROM THE PLANE TANGENT TO THE SURFACE OF THE FACEPLATE AT THE TUBE AXIS.

NOTE 7: BULGE AT SPLICE-LINE SEAL MAY INCREASE THE INDICATED MAXIMUM VALUE FOR ENVELOPE WIDTH, DIAGONAL, AND HEIGHT BY NOT MORE THAN 1/4", BUT AT ANY POINT AROUND THE SEAL, THE BULGE WILL NOT PROTRUDE MORE THAN 1/8" BEYOND THE ENVELOPE SURFACE AT THE LOCATION SPECIFIED FOR DIMENSIONING THE ENVELOPE WIDTH, DIAGONAL, AND HEIGHT.

NOTE 8: THE TUBE SHOULD BE SUPPORTED ON BOTH SIDES OF THE BULGE. THE MECHANISM USED SHOULD PROVIDE CLEARANCE FOR THE MAXIMUM DIMENSIONS OF THE BULGE. SUPPORTS MUST BE SPACED FROM THE TUBE BY THE USE OF CUSHIONING PADS MADE OF MATERIAL SUCH AS ASPHALT-IMPREGNATED FELT, OR EQUIVALENT.

NOTE 9: NECK DIAMETER IS MAINTAINED TO AT LEAST 2-7/16" FROM REFERENCE LINE.

RASTER-CUTOFF-RANGE CHARTS
Grid-Drive Service



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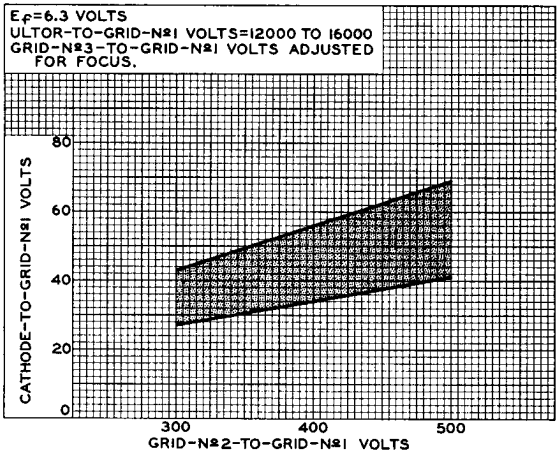
Cathode-Drive Service



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