



17DSP4

17DSP4 PICTURE TUBE

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	0.6	amp
Warm-up time (Average)	11	sec

Direct Interelectrode Capacitances:

Grid No.1 to all other electrodes	6	$\mu\mu\text{f}$
Cathode to all other electrodes	5	$\mu\mu\text{f}$
External conductive coating to ultor.	{1500 max. 1000 min.	$\mu\mu\text{f}$ $\mu\mu\text{f}$

Faceplate, Spherical Filterglass

Light transmission (Approx.) 78%

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	11-1/4" $\pm$ 3/16"
Greatest width	15-5/8" $\pm$ 1/8"
Greatest height	12-3/4" $\pm$ 1/8"
Diagonal	16-9/16" $\pm$ 1/8"
Neck length	4-1/8" $\pm$ 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 A1/B1

Socket Ucinite Part No. 115446, or equivalent



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Base. Small-Button Neoeightar 7-Pin, Arrangement 1,
(JEDEC No. B7-208)

Basing Designation for BOTTOM VIEW. 8HR

Pin 1 - Heater

Pin 2 - Grid No. 1

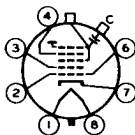
Pin 3 - Grid No. 2

Pin 4 - Grid No. 4

Pin 6 - Grid No. 1

Pin 7 - Cathode

Pin 8 - Heater



Cap - Ultor

(Grid No. 3,

Grid No. 5,

Collector)

C - External

Conductive

Coating

GRID-DRIVE^A SERVICE

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

Maximum and Minimum Ratings, Design-Center Values:

ULTOR VOLTAGE	{ 18000 max. volts
	{ 12000* min. volts

GRID-No. 4 (FOCUSING) VOLTAGE:

Positive value.	1000 max. volts
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Negative value.	500 max. volts
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GRID-No. 2 VOLTAGE	500 max. volts
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GRID-No. 1 VOLTAGE:

Negative-peak value	200 max. volts
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Negative-bias value	140 max. volts
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Positive-bias value	0 max. volts
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Positive-peak value	2 max. volts
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PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode:

During equipment warm-up period

not exceeding 15 seconds.	410 max. volts
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After equipment warm-up period.	180 max. volts
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Heater positive with respect to cathode.	180 max. volts
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Equipment Design Ranges:

With any ultor voltage (E_{c5k}) between 12000 and 18000 volts and grid-No. 2 voltage (E_{c2k}) between 200 and 500 volts*

Grid-No. 4 Voltage for focus§.	0 to 400 volts
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Grid-No. 1 Voltage (E_{c1k}) for visual extinction of focused raster	See Raster-Cutoff-Range Chart for Grid-Drive Service
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Grid-No. 1 Video Drive

from Raster Cutoff

(Black level):

White-level value

(Peak positive)	Same value as determined for E_{c1k} except video drive is a positive voltage
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Grid-No.4 Current.	-25 to +25	μ a
Grid-No.2 Current.	-15 to +15	μ a
Field Strength of Adjustable Centering Magnet*	0 to 8	gausses

Examples of Use of Design Ranges:

<i>With ultor voltage of</i>	<i>16000</i>	<i>16000</i>	<i>volts</i>
<i>and grid-No.2 voltage of</i>	<i>300</i>	<i>400</i>	<i>volts</i>
Grid-No.4 Voltage for focus.	0 to 400	0 to 400	volts
Grid-No.1 Voltage for visual extinction of focused raster	-38 to -72	-45 to -90	volts
Grid-No.1 Video Drive from Raster Cutoff (Black level):			
White-level value.	38 to 72	45 to 90	volts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance	1.5 max.	megohms
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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	{ 18000 max.	volts
	{ 12000* min.	volts
GRID-No.4-TO-GRID-No.1 (FOCUSING) 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-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



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Equipment Design Ranges:

With any ultor-to-grid-No.1 voltage (E_{c5g1}) between 12000* and 18000 volts and grid-No.2-to-grid-No.1 voltage (E_{c2g1}) between 225 and 640 volts

Grid-No.4-to-Grid-No.1

Voltage for focus 0 to 400 volts

Cathode-to-Grid-No.1 Voltage

(E_{kg1}) 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_{kg1} except video drive is a negative value

Grid-No.4 Current -25 to +25 μ a

Grid-No.2 Current -15 to +15 μ a

Field Strength of Adjustable Centering Magnet*

. 0 to 8 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 300 400 volts

Grid-No.4-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. 35 to 63 43 to 78 volts

Cathode-to-Grid-No.1 Video

Drive from Raster Cutoff

(Black level):

White-level value -35 to -63 -43 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 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 17DSP4 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.4 (or grid-No.4-to-grid-No.1) voltage required for optimum focus of any individual tube will have a value between 0 and 400 volts independent of ultor current and will remain essentially constant for values of ultor (or ultor-to-grid-No.1) voltage or grid-No.2 (or grid-No.2-to-grid-No.1) voltage within design ranges shown for these items.



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- * Distance from *Reference Line* for suitable PM centering magnet should not exceed $2\frac{1}{8}$ ". Excluding extraneous fields, the center of the undeflected focused spot will fall within a circle having a $\frac{5}{16}$ -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 $\frac{1}{2}$ -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 17DSP4 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.

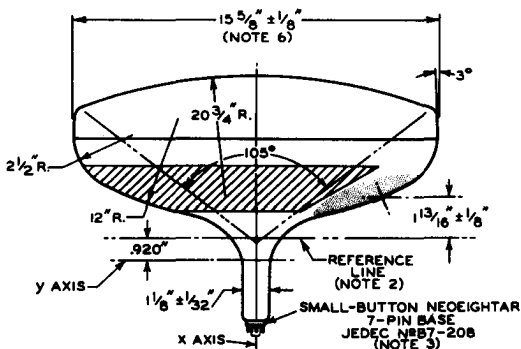
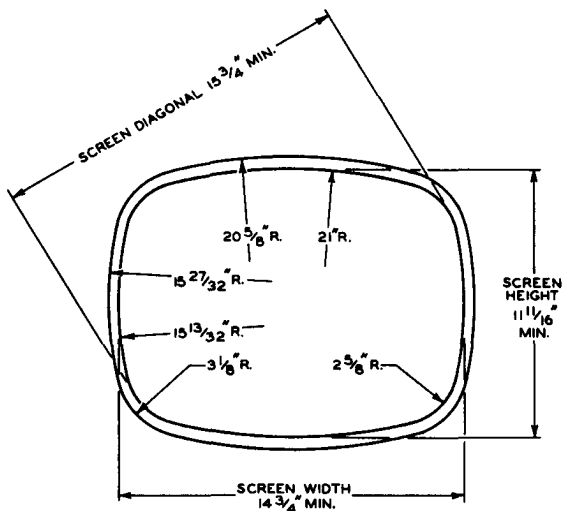
*For X-ray shielding considerations, see sheet
X-RAY PRECAUTIONS FOR CATHODE-RAY TUBES
at front of this Section*

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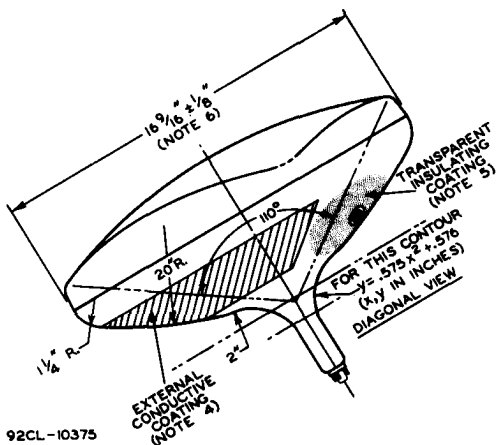
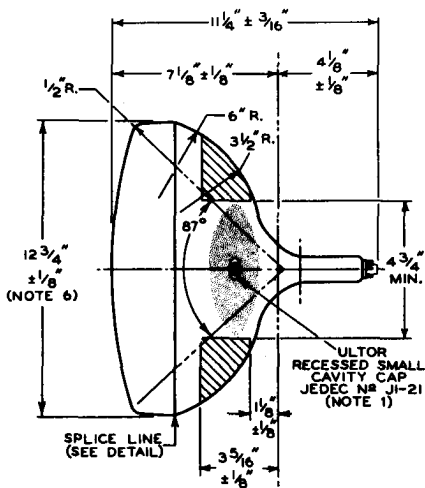




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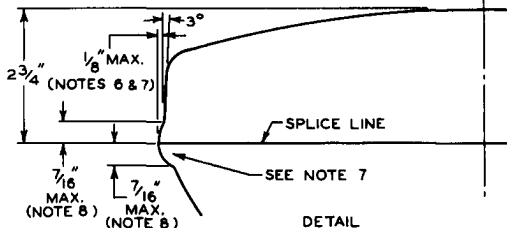


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NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND PIN 4 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ULTOR TERMINAL BY ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF $\pm 30^\circ$. ULTOR TERMINAL IS ON SAME SIDE AS PIN 4.

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 $1\text{--}3\frac{1}{4}"$.

NOTE 4: EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

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

NOTE 6: MEASURED $2\text{--}9\frac{3}{32}" \pm 1/32"$ 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.

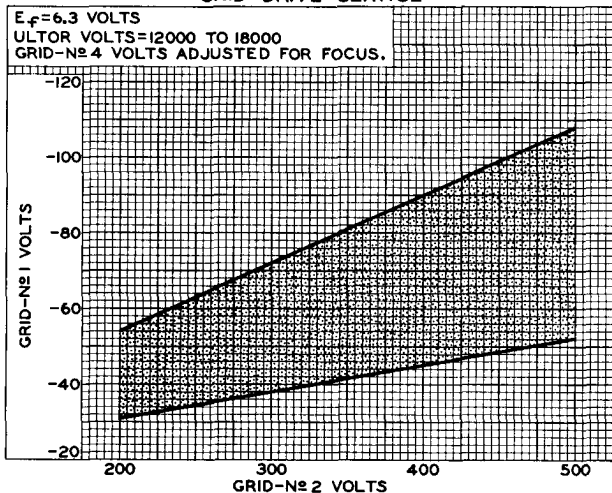
NOTE 8: THE TUBE SHOULD BE SUPPORTED ON BOTH SIDES OF THE BULGE. THE MECHANISM USED SHOULD PROVIDE CLEARANCE FOR THE MAXIMUM DIMENSIONS OF THE BULGE. SUPPORTS MUST BE SPACED FROM THE TUBE BY THE USE OF CUSHIONING PADS MADE OF MATERIAL SUCH AS ASPHALT-IMPREGNATED FELT, OR EQUIVALENT.



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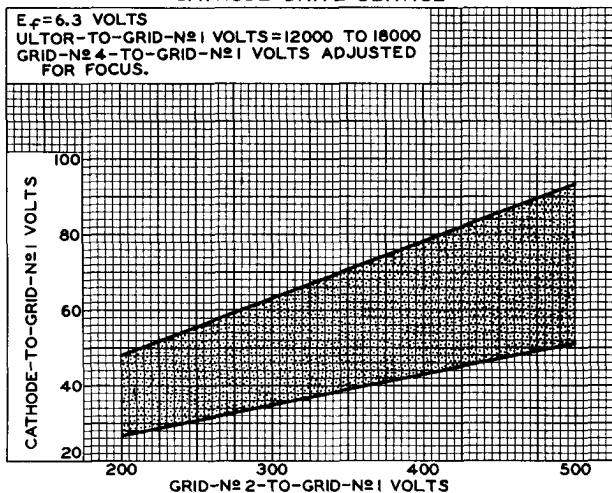
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RASTER-CUTOFF-RANGE CHARTS GRID-DRIVE SERVICE



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CATHODE-DRIVE SERVICE



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AVERAGE DRIVE CHARACTERISTICS

CATHODE-DRIVE SERVICE

$E_f = 6.3$ VOLTS

ULTOR-TO-GRID-N₂ VOLTS = 16000

CATHODE BIASED POSITIVE WITH
RESPECT TO GRID N₂ TO GIVE
FOCUSED RASTER CUTOFF.

RASTER FOCUSED
AT AVERAGE BRIGHTNESS.

RASTER SIZE = 14" x 10 1/2"

GRID-DRIVE SERVICE

$E_f = 6.3$ VOLTS

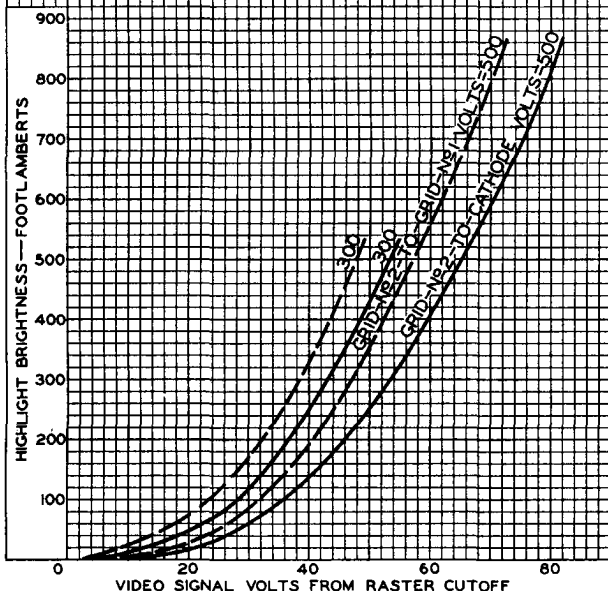
ULTOR VOLTS = 16000

GRID N₂ BIASED NEGATIVE WITH
RESPECT TO CATHODE TO GIVE
FOCUSED RASTER CUTOFF.

RASTER FOCUSED
AT AVERAGE BRIGHTNESS.

RASTER SIZE = 14" x 10 1/2"

--- CATHODE DRIVE
— GRID DRIVE





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AVERAGE DRIVE CHARACTERISTICS

