

Picture Tube

RECTANGULAR GLASS TYPE
LOW-VOLTAGE ELECTROSTATIC FOCUS
LOW GRID-No.2 VOLTAGE

ALUMINIZED SCREEN
MAGNETIC DEFLECTION
CATHODE-DRIVE TYPE

With Heater Having Controlled Warm-Up Time

GENERAL DATA

Electrical:

Heater Current at 6.3 volts.	600 ± 30	ma
Heater Warm-Up Time (Average).	11	seconds
Focusing Method.	Electrostatic	
Deflection Method.	Magnetic	
Deflection Angles (Approx.):		
Diagonal		92°
Horizontal		80°
Vertical		65°
Direct Interelectrode Capacitances:		
Grid No.1 to all other electrodes. . .	6	μuf
Cathode to all other electrodes. . .	5	μuf
External conductive coating to ultor .	{2500 max. 1700 min.	μuf
Electron Gun		Type Requiring No Ion-Trap Magnet

Optical:

Faceplate.	Filterglass	
Light transmission at center (Approx.)	78%	
Phosphor (For curves, see front of this section)	P4—Sulfide Type	
	Aluminized	
Fluorescence	White	
Phosphorescence.	White	
Persistence.	Medium Short	

Mechanical:

Tube Dimensions:		
Overall length	18" ± 3/8"	
Greatest width	20-1/2" + 1/16" - 1/8"	
Greatest height.	16-1/2" ± 1/8"	
Diagonal	23-25/64" + 3/32" - 1/8"	
Neck length.	5-1/2" ± 1/8"	
Curvature of faceplate (Radii):		
Center	.50"	
Edge	36-3/4"	
Screen Dimensions (Minimum):		
Greatest width	19-1/4"	
Greatest height.	15-1/8"	
Diagonal	22-5/16"	
Projected area	282 sq. in.	
Weight (Approx.)	25 lbs	
Operating Position	Any	
Cap.	Recessed Small Cavity (JEDEC No. J1-21)	
Bulb	J187C1	

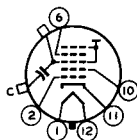


23AWP4

Base. Short Small-Shell Duodecal 6-Pin
(JEDEC Group 4, B6-203)

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

CATHODE-DRIVE[▲] SERVICE

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

Maximum and Minimum Ratings, Design-Maximum Values:

ULTOR-TO-GRID No.1 VOLTAGE.	{ 22000 max. 11000 min.	volts volts
GRID-No.4-TO-GRID-No.1 (FOCUSING) VOLTAGE:		
Positive value.	1250 max.	volts
Negative value.	400 max.	volts
GRID-No.2-TO-GRID-No.1 VOLTAGE.	{ 225 max. 40 min.	volts volts
GRID-No.2-TO-CATHODE VOLTAGE.	70 max.	volts
CATHODE-TO-GRID-No.1 VOLTAGE:		
Positive-peak value	220 max.	volts
Positive-bias value	154 max.	volts
Negative-bias value	0 max.	volts
Negative-peak value	2 max.	volts
HEATER VOLTAGE.	{ 6.9 max. 5.7 min.	volts volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode:		
During equipment warm-up period not exceeding 15 seconds.	450 max.	volts
After equipment warm-up period. . .	200 max.	volts
Heater positive with respect to cathode	200 max.	volts

Typical Operating Conditions:

With ultor-to-grid-No.1 voltage (E_{c5g1}) of	20000	volts
and grid-No.2-to-grid-No.1 voltage (E_{c8g1}) of	50	volts
Grid-No.4-to-Grid-No.1 Voltage for focus [●]	0 to 400	volts
Cathode-to-Grid-No.1 Voltage for visual extinction of focused raster [★]	36 to 78	volts
Field Strength of Adjustable Centering Magnet [◆]	0 to 12	gausses



Maximum Circuit Values:

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

- ▲ 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.
- The grid-No.4-to-grid-No.1 voltage required for optimum focus of any individual tube will have a value anywhere between 0 and 400 volts, is independent of ultor current and will remain essentially constant for values of ultor-to-grid-No.1 voltage or grid-No.2-to-grid-No.1 voltage within design-maximum ratings shown for these items.
- ★ See *Raster-Cutoff-Range Chart for Cathode-Drive Service.*
- ◆ Distance from *Reference Line* for suitable PM centering magnet should not exceed 2-1/4". The specified centering magnet compensates only for the effect which mechanical tube tolerances may have on the location of the undeflected focused spot with respect to the center of the tube face. Maximum field strength of adjustable centering magnet equals:

$$\sqrt{\frac{E_{C5k} \text{ or } E_{C591} \text{ (volts)}}{16000 \text{ (volts)}}} \times 10 \text{ gauss}$$

The equipment manufacturer must determine and supply additional compensation for the effects of the earth's magnetic field and extraneous fields due to choice of circuitry and components. The additional compensation should preferably be applied as part of the magnetic field of the deflecting yoke.

OPERATING CONSIDERATIONS

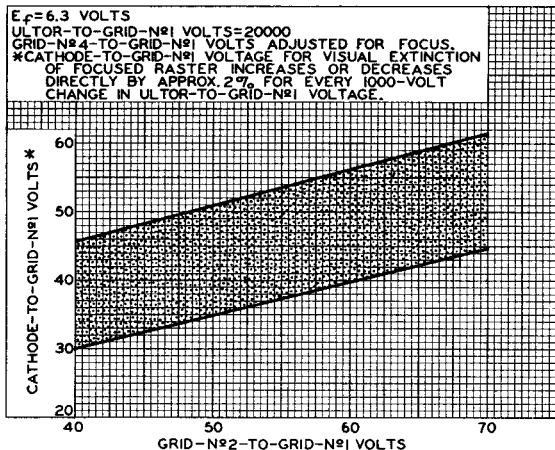
X-Ray Warning. When operated at ultor voltages up to 16 kilovolts, this picture tube does not produce any harmful X-ray radiation. However, because the rating of this type permits operation at voltages as high as 22 kilovolts (Design-maximum value), shielding of this picture tube for X-ray radiation may be needed to protect against possible injury from prolonged exposure at close range whenever the operating conditions involve voltages in excess of 16 kilovolts.

Shatter-Proof Cover Over the Tube Face. Following conventional picture tube practice, it is recommended that the cabinet be provided with a shatterproof, glass cover over the face of this picture tube 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.



23AWP4

RASTER-CUTOFF-RANGE CHART Cathode-Drive Service



92CS-10823

DIMENSIONAL OUTLINE and
BULB-CONTOUR DIMENSIONS
shown under Type 23AHP4 also apply to the 23AWP4

