

## TUNG-SOL

## CATHODE RAY

THE 27EP4 IS A DIRECT-VIEW PICTURE TUBE DESIGNED FOR USE IN TELEVISION APPLICATIONS. ITS FEATURES INCLUDE:

SPHERICAL FACEPLATE	ALUMINIZED SCREEN
GREY FILTER FACEPLATE	UNIPOTENTIAL CATHODE
MAGNETIC FOCUS & DEFLECTION	24" X 18 1/2" RASTER SIZE
RECTANGULAR GLASS CONSTRUCTION	EXTERNAL SINGLE FIELD ION TRAP

## ELECTRICAL DATA

FOCUSING METHOD		MAGNETIC
DEFLECTING METHOD		MAGNETIC
DEFLECTION ANGLE (APPROX.):		
HORIZONTAL	85	DEGREES
DIAGONAL	90	DEGREES
DIRECT INTERELECTRODE CAPACITANCES (APPROX.):		
CATHODE TO ALL OTHER ELECTRODES	5	$\mu\text{f}$
GRID #1 TO ALL OTHER ELECTRODES	6	$\mu\text{f}$

## OPTICAL DATA

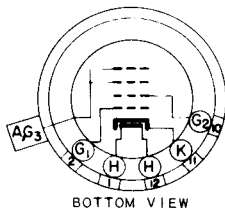
PHOSPHOR NUMBER	SULFIDE TYPE	NO. 4
FLUORESCENT COLOR		WHITE
PHOSPHORESCENT COLOR		WHITE
PERSISTENCE		SHORT
FACEPLATE LIGHT TRANSMISSION AT CENTER (APPROX.):	70	PERCENT

## MECHANICAL DATA

OVERALL LENGTH	23 1/16 $\pm$ 1/8	INCHES
GREATEST DIMENSIONS OF BULB:		
DIAGONAL	26 13/16 $\pm$ 3/16	INCHES
WIDTH	25 9/32 $\pm$ 3/16	INCHES
HEIGHT	20 7/32 $\pm$ 3/16	INCHES
MINIMUM USEFUL SCREEN DIMENSIONS:		
DIAGONAL	25 3/4	INCHES
WIDTH	24	INCHES
HEIGHT	18 1/2	INCHES
BULB CONTACT	RECESSED SMALL CAVITY CAP	J1-21
BASE	SMALL SHELL DUODECAL 5 PIN	B5-57
BASING		12D
BULB CONTACT ALIGNMENT		
J1-21 CONTACT ALIGNS WITH PIN POSITION #6 $\pm$ 30 DEGREES		

## PIN CONNECTIONS

PIN 1 - HEATER  
 PIN 2 - GRID NO. 1  
 PIN 10 - GRID NO. 2  
 PIN 11 - CATHODE



PIN 12 - HEATER  
 ANODE CAP:  
 GRID NO. 3

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**RATINGS<sup>A</sup>**  
 DESIGN CENTER VALUES

HEATER VOLTAGE	6.3	VOLTS
HEATER CURRENT	0.6	AMP.
MAXIMUM DC ANODE, GRID #3 VOLTAGE <sup>B</sup>	20 000	VOLTS
MAXIMUM DC GRID #2 VOLTAGE	500	VOLTS
MAXIMUM GRID #1 VOLTAGE:		
DC NEGATIVE-BIAS VALUE	125	VOLTS
DC POSITIVE-BIAS VALUE	0	VOLTS
POSITIVE-PEAK VALUE	2	VOLTS
MAXIMUM DC PEAK HEATER-CATHODE VOLTAGE <sup>C</sup>		
HEATER NEGATIVE WITH RESPECT TO CATHODE		
DURING WARM-UP PERIOD NOT TO EXCEED 15 SECONDS	410	VOLTS
AFTER EQUIPMENT WARM-UP PERIOD	180	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE	180	VOLTS

<sup>A</sup> THESE MAXIMUM RATINGS CONTAIN A 10% SAFETY FACTOR IN ACCORDANCE WITH THE STANDARD DESIGN CENTER SYSTEM IN RATING CATHODE-RAY TUBES. CONSEQUENTLY, THE TUBE WILL WITHSTAND VARIATIONS IN SUPPLY LINE VOLTAGE WHICH DO NOT CAUSE THE MAXIMUM RATINGS TO BE EXCEEDED BY MORE THAN 10%.

<sup>B</sup> IF THE TUBE IS OPERATED AT VOLTAGE IN EXCESS OF 16,000 VOLTS, X-RAY RADIATION SHIELDING MAY BE NECESSARY TO PREVENT DANGER FROM PROLONGED EXPOSURE AT CLOSE RANGE.

<sup>C</sup> CATHODE SHOULD BE RETURNED TO ONE SIDE OR TO THE MID-TAP OF THE HEATER TRANSFORMER WINDING.

**TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS**

DC ANODE, GRID #3 VOLTAGE	12 000	VOLTS
DC GRID #2 VOLTAGE	300	VOLTS
DC GRID #1 VOLTAGE <sup>D</sup>	-33 TO -77	VOLTS
DC FOCUSING COIL CURRENT (APPROX.) <sup>E</sup>	87 ± 20%	MA.
DC ION TRAP CURRENT STANDARD COIL #111 (APPROX.)	75 ± 50%	MA.
ION TRAP MAGNET (RATED STRENGTH) APPROX.	38	GAUSSSES

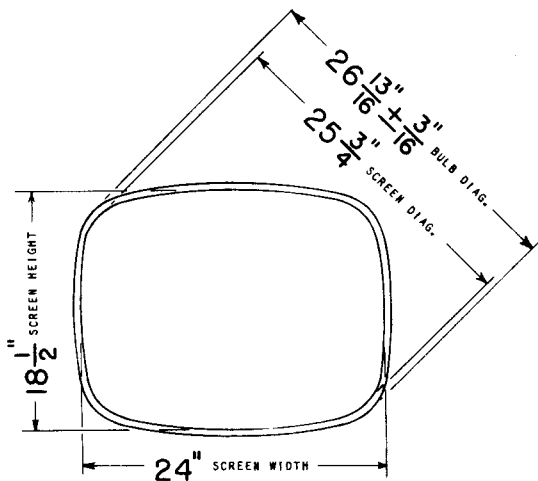
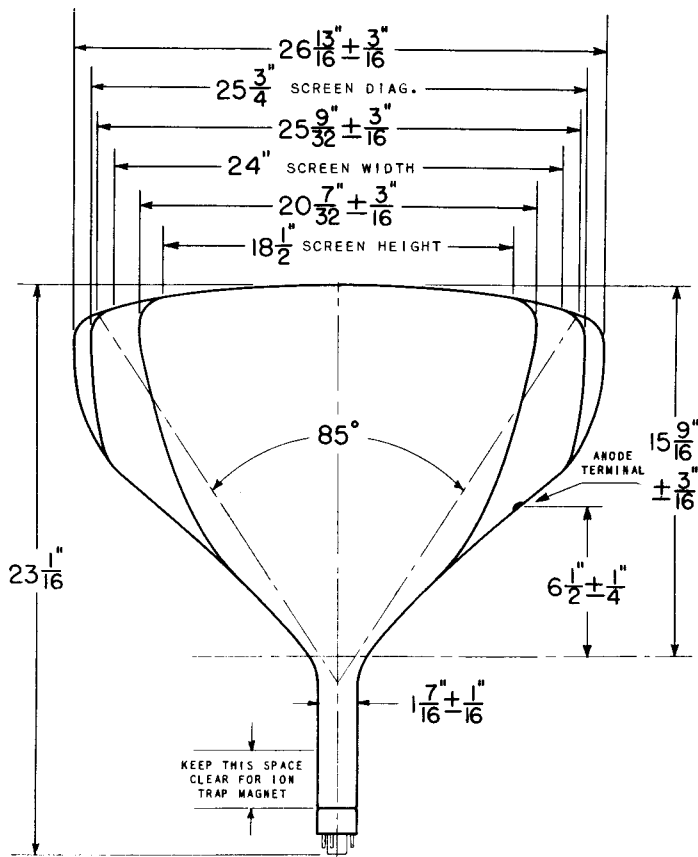
<sup>D</sup> VISUAL EXTINCTION OF UNDEFLECTED FOCUSED SPOT.

<sup>E</sup> FOR STANDARD FOCUS COIL #109, OR EQUIVALENT, WITH THE COMBINED GRID #1 BIAS VOLTAGE AND VIDEO-SIGNAL VOLTAGE ADJUSTED TO PRODUCE A HIGHLIGHT BRIGHTNESS OF 20 FOOT LAMBERTS ON A 24" BY 18 1/2" PICTURE SIZE. DISTANCE FROM REFERENCE LINE TO CENTER OF AIR GAP ON FOCUS COIL SHALL BE 3.0 INCHES.

**CIRCUIT VALUES**

MAXIMUM GRID #1 CIRCUIT RESISTANCE	1.5	MEGOHMS
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