

**TUNG-SOL**

**CATHODE RAY**

THE 24CP4 AND 24CP4A ARE DIRECT-VIEW PICTURE TUBES DESIGNED FOR USE IN TELEVISION APPLICATIONS. THEY ARE IDENTICAL *EXCEPT* THAT THE 24CP4A HAS AN ALUMINIZED SCREEN. THEIR COMMON FEATURES INCLUDE:

- |                                |                                |
|--------------------------------|--------------------------------|
| UNIPOTENTIAL CATHODE           | SPHERICAL FACEPLATE            |
| GREY FILTER FACEPLATE          | EXTERNAL CONDUCTIVE COATING    |
| MAGNETIC FOCUS AND DEFLECTION  | 16 1/4" X 21 1/4" RASTER SIZE  |
| RECTANGULAR GLASS CONSTRUCTION | EXTERNAL SINGLE FIELD ION TRAP |

**ELECTRICAL DATA**

FOCUSING METHOD		MAGNETIC
DEFLECTING METHOD		MAGNETIC
DEFLECTION ANGLE (APPROX.):		
DIAGONAL	90	DEGREES
HORIZONTAL	85	DEGREES
VERTICAL	68	DEGREES
DIRECT INTERELECTRODE CAPACITANCES (APPROX.):		
CATHODE TO ALL OTHER ELECTRODES	5	$\mu\mu\text{f}$
GRID #1 TO ALL OTHER ELECTRODES	6	$\mu\mu\text{f}$
MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	750	$\mu\mu\text{f}$
MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	500	$\mu\mu\text{f}$

**OPTICAL DATA**

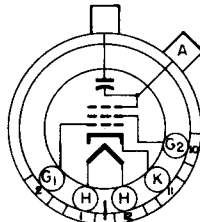
PHOSPHOR NUMBER		NO. 4
FLUORESCENT COLOR		WHITE
PHOSPHORESCENT COLOR		WHITE
PERSISTENCE		MEDIUM
FACEPLATE LIGHT TRANSMISSION AT CENTER (APPROX.)	73	PERCENT

**MECHANICAL DATA**

OVERALL LENGTH	21 1/8 $\pm$ 3/8	INCHES
GREATEST DIMENSIONS OF BULB:		
DIAGONAL	24 $\pm$ 1/8	INCHES
WIDTH	22 11/16	INCHES
HEIGHT	18 7/16 $\pm$ 1/8	INCHES
MINIMUM USEFUL SCREEN DIMENSIONS:		
WIDTH	21 1/4	INCHES
HEIGHT	16 1/4	INCHES
BULB CONTACT	RECESSED SMALL CAVITY CAP	J4-21
BASE	SMALL SHELL DUODECAL 5 PIN	B5-57
BASING		12N
BULB CONTACT ALIGNMENT		
J4-21 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

BOTTOM VIEW

CONTINUED ON FOLLOWING PAGE

PRINTED IN U. S. A.

## TUNG-SOL

CONTINUED FROM PRECEDING PAGE

## RATINGS

DESIGN CENTER VALUES

HEATER VOLTAGE	6.3	VOLTS
HEATER CURRENT	0.6	AMP.
MAXIMUM DC ANODE, GRID #3 VOLTAGE	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>A</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> 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	18 000	VOLTS
DC GRID #2 VOLTAGE	300	VOLTS
DC GRID #1 VOLTAGE <sup>B</sup>	-33 TO -77	VOLTS
DC FOCUSING COIL CURRENT (APPROX.) <sup>C</sup>	115 ± 20%	MA.
DC ION TRAP CURRENT STANDARD COIL #111 (APPROX.)	100 ± 50%	MA.

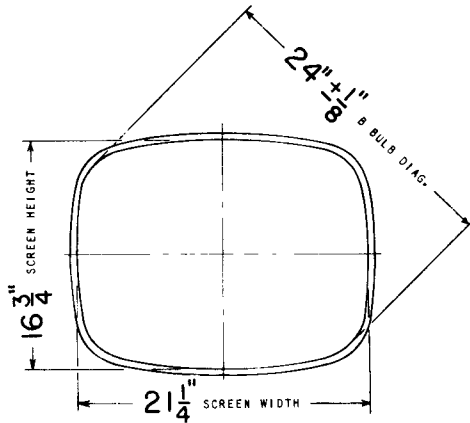
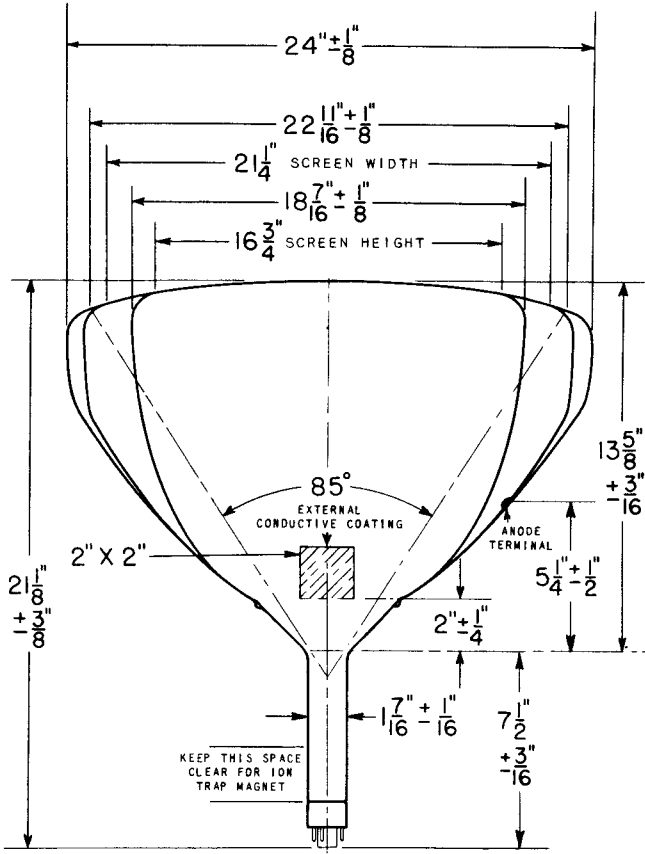
<sup>B</sup> VISUAL EXTINCTION OF UNDEFLECTED FOCUSED SPOT.

<sup>C</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 30 FOOT LAMBERTS ON A 21 1/4" BY 16 3/4" 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
------------------------------------	-----	---------

TUNG-SOL



PRINTED IN U. S. A.