# --- TUNG·SOL --

### CATHODE RAY

THE 21AVP4, 21AVP4A, AND 21AVP4B ARE DIRECT-VIEW PICTURE TUBES DESIGNED FOR TELEVISION APPLICATIONS. THEY ARE IDENTICAL EXCEPT FOR THE METAL BACKED SCREENS ON THE 21AVP4B AND 21AVP4B. THE 21AVP4B ALSO HAS AN INCREASED ANODE VOLTAGE. THEIR COMMON FEATURES INCLUDE:

MAGNETIC DEFLECTION UNIPOTENTIAL CATHODE RECTANGULAR GLASS CONSTRUCTION LOW VOLTAGE ELECTROSTATIC FOCUS

SPHERICAL FACEPLATE GREY FILTER FACEPLATE EXTERNAL CONDUCTIVE COATING EXTERNAL SINGLE FIELD ION TRAP 15" X 19 1/8" RASTER SIZE

### ELECTRICAL DATA

LECUTRICAL DATA		
FOCUSING METHOD	LOW VOLTAGE	ELECTROSTATIC
DEFLECTING METHOD		MAGNETIC
DEFLECTION ANGLE (APPROX.):		
HORIZONTAL	67	DEGREES
VERTICAL	53 72	DEGREES
DIAGONAL	72	DEGREES
DIRECT INTERELECTRODE CAPACITANCES (APPROX.): CATHODE TO ALL OTHER ELECTRODES	5	ии f
GRID #4 TO ALL OTHER ELECTRODES	5	uu f
MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	1500	иµ f
MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	750	ии f
OPTICAL DATA		
PHOSPHOR NUMBER	SULFIDE TYPE	P-4
FLUORESCENT COLOR		WHITE
PHOSPHORESCENT COLOR		WHITE
PERSISTENCE		SHORT
FACEPLATE TRANSMISSION AT CENTER (APPROX.)	71	PERCENT
RATINGS		
DESIGN CENTER VALUES HEATER VOLTAGE	6.3	VOLTS
HEATED CUDDENT	0.6	AMP.
, 21AVP	48 ONLY 0.0	VOLTS
MAXIMUM DC GRID #4 VOLTAGE:	000 19 000	VOLIS
POSITIVE	1 000	VOLTS
NEGATIVE	500	VOLTS
MAXIMUM DC GRID #2 VOLTAGE	500	VOL TS
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: HEATER NEGATIVE WITH RESPECT TO CATHODE		
DURING WARM-UP PERIOD NOT TO EXCEED 45 SECOND	s 410	VOLTS
AFTER EQUIPMENT WARM-UP PERIOD	180	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE	180	VOLTS
MAXIMUM GRID #4 CIRCUIT RESISTANCE	1.5	MEGOHMS

# TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

DC ANODE, GRID #3, GRID #5 VOLTAGE <sup>A</sup>	18 000	VOLTS
DC GRID #4 VOLTAGE <sup>B</sup>	−72 to <b>396</b>	VOL TS
DC GRID #2 VOLTAGE	300	VOLTS
DC GRID #1 VOLTAGE <sup>C</sup>	−28 to −72	VOLTS
DC ION TRAP MAGNET (RATED STRENGTH)	46	GAUSSES

A BRILLIANCE AND DEFINITION DECREASE WITH DECREASING ANODE VOLTAGE. IN GENERAL, THE ANODE VOLTAGE SHOULD NO BE LESS THAN 14,000 VOLTS.

INASMUCH AS THE TUBE RATING PERMITS OPERATION AT VOLTAGES AS HIGH AS 19.8 KILOVOLTS (ABSOLUTE VALUE), SHIELDING OF THE TUBE FOR X-RAY RADIATION MAY BE REEDED WHEREVER THE OPERATING CONDITIONS INVOLVE VOLTAGE IN EXCESS OF 16 KILOVOLTS-

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BFOR FOCUS WITH ANODE CURRENT OF 100 HAMPS.

 $<sup>^{\</sup>mathrm{C}}_{\mathrm{VISUAL}}$  extinction of focused raster.

D THE NON-UNIFORM MAGNETIC FIELD INHERENT IN THE DESIGN OF SOME EXTERNAL ION-TRAP MAGNETS USUALLY REQUIRES FOR OPTIMUM ADJUSTMENT THAT THE MAGNET SLUG BE LOCATED ON THE SAME SIDE OF THE TUBE NECK AS PIN 6.

# TUNG-SOL -

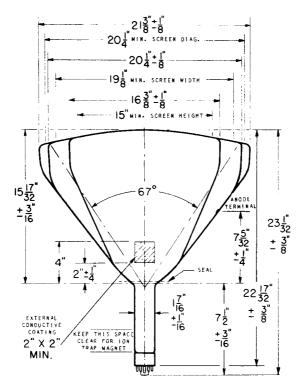
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# MECHANICAL DATA

MECHANICAL DATA				
OVERALL LENGTH	23 1/32 ±	3/8	INCHES	
GREATEST DIMENSIONS OF BULB:				
DIAGONAL	21	1/2	INCHES	
WIDTH	20	3/8	INCHES	
HEIGHT	16	1/2	INCHES	
MINIMUM USEFUL SCREEN DIMENSIONS:				
DIAGONAL	20	1/4	INCHES	
WIDTH	19	1/8	INCHES	
HEIGHT		15	INCHES	
BULB CONTACT	RECESSED SMALL CAVITY	CAP	J1-21	
BASE	SMALL SHELL DUODECAL 6	PIN	B6-63	
BASING			12L	

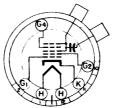
BULB CONTACT ALIGNMENT

J1-21 CONTACT ALIGNS WITH PIN POSITION #6 ± 30 DEGREES



## PIN CONNECTIONS

PIN 1 - HEATER
PIN 2 - GRID #1
PIN 6 - GRID #4
PIN 10 - GRID #2
PIN 11 - CATHODE



PIN 12 - HEATER ANODE CAP: GRID #3 GRID #5 COLLECTOR

BOTTOM VIEW SOCKET FOR THIS BASE SHOULD NOT BE RIGIDLY MOUNTED; IT SHOULD HAVE FLEXIBLE LEADS AND BE ALLOWED TO MOVE FREELY.