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 21AVP4A AND 21AVP4B. THE 21AVP4B ALSO HAS AN INCREASED ANODE VOLTAGE. THEIR COMMON FEATURES INCLUDE:

MAGNETIC DEFLECTION — **SPHERICAL FACEPLATE**
UNIPOTENTIAL CATHODE — **GREY FILTER FACEPLATE**
RECTANGULAR GLASS CONSTRUCTION — **EXTERNAL CONDUCTIVE COATING**
LOW VOLTAGE ELECTROSTATIC FOCUS — **EXTERNAL SINGLE FIELD ION TRAP**
15" X 19 1/8" RASTER SIZE

ELECTRICAL DATA

FOCUSING METHOD	LOW VOLTAGE ELECTROSTATIC	
DEFLECTING METHOD		MAGNETIC
DEFLECTION ANGLE (APPROX.):		
HORIZONTAL	67	DEGREES
VERTICAL	53	DEGREES
DIAGONAL	72	DEGREES
DIRECT INTERELECTRODE CAPACITANCES (APPROX.):		
CATHODE TO ALL OTHER ELECTRODES	5	μμf
GRID #1 TO ALL OTHER ELECTRODES	6	μμf
MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	1500	μμf
MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	750	μμf

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
HEATER CURRENT		0.6	AMP.
MAXIMUM DC ANODE, GRID #3, GRID #5 VOLTAGE[A]	21AVP4B ONLY 20 000	18 000	VOLTS
MAXIMUM DC GRID #4 VOLTAGE:			
POSITIVE		1 000	VOLTS
NEGATIVE		500	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:			
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
MAXIMUM GRID #1 CIRCUIT RESISTANCE		1.5	MEGOHMS

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

DC ANODE, GRID #3, GRID #5 VOLTAGE[A]	18 000	VOLTS
DC GRID #4 VOLTAGE[B]	-72 TO 396	VOLTS
DC GRID #2 VOLTAGE	300	VOLTS
DC GRID #1 VOLTAGE[C]	-28 TO -72	VOLTS
DC ION TRAP MAGNET (RATED STRENGTH)[D]	46	GAUSSES

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

[B] FOR FOCUS WITH ANODE CURRENT OF 100 μAMPS.

[C] 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.

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 NEEDED WHEREVER THE OPERATING CONDITIONS INVOLVE VOLTAGE IN EXCESS OF 16 KILOVOLTS.

CONTINUED ON FOLLOWING PAGE

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TUNG-SOL

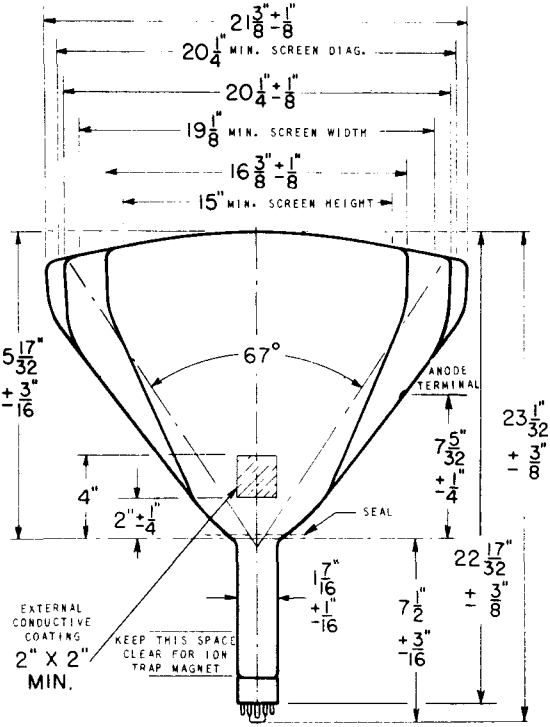
CONTINUED FROM PRECEDING PAGE

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

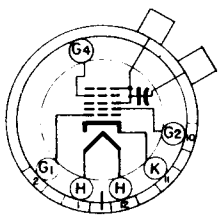
BULB CONTACT ALIGNMENT

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



BOTTOM VIEW

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

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