TUNG-SOL

CATHODE RAY

THE 21ALP4, 21ALP4A, AND 21ALP4B ARE DIRECT VIEW PICTURE TUBES DESIGNED FOR USE IN TELEVISION APPLICATIONS. THEY ARE IDENTICAL *EXCEPT* THAT THE 21ALP4A AND 21ALP4B HAVE METAL-BACKED SCREENS. THE 21ALP4B ALSO HAS AN INCREASED ANODE VOLTAGE. THEIR COMMON FEATURES INCLUDE:

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

ELECTRICAL DATA

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

OPTICAL DATA

PHOSPHOR NUMBER	SULFIDE TYPE	P-4
FLUORESCENT COLOR		WHITE
PHOSPHORESCENT COLOR		WHITE
PERSISTENCE		SHORT
FACEPLATE LIGHT TRANSMISSION AT CENTER (APPROX.)	75	PERCENT

RATINGS

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

		21ALP4B ONLY	
HEATER VOLTAGE		6.3	VOLTS
HEATER CURRENT		0.6	AMP.
MAXIMUM DC ANODE, GRID #3, GRID #5, VOLTAGE[B]	20 000	18 000	VOLTS
MAXIMUM DC GRID #4 VOLTAGE[C]	-500 TO +1000		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[B]	14 000	VOLTS
DC GRID #4 VOLTAGE[D]	-55 TO +300	VOLTS
DC GRID #2 VOLTAGE	300	VOLTS
DC GRID #1 VOLTAGE[E]	-28 TO -72	VOLTS
DC ION TRAP MAGNET (RATED STRENGTH)	40	GAUSSES

[A] EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

[B] BRILLIANCE AND DEFINITION DECREASE WITH DECREASING ANODE VOLTAGE. IN GENERAL, ANODE VOLTAGE SHOULD NOT BE LESS THAN 14,000 VOLTS

[C] THIS VALUE APPLIES WHERE AN AC VOLTAGE IS PROVIDED FOR DYNAMIC FOCUSING.

[D] WITH ANODE CURRENT OF 100 μAMP.

[E] VISUAL EXTINCTION OF FOCUSED RASTER.

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

*INDICATES AN ADDITION.

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PLATE 994-3

TUNG-SOL

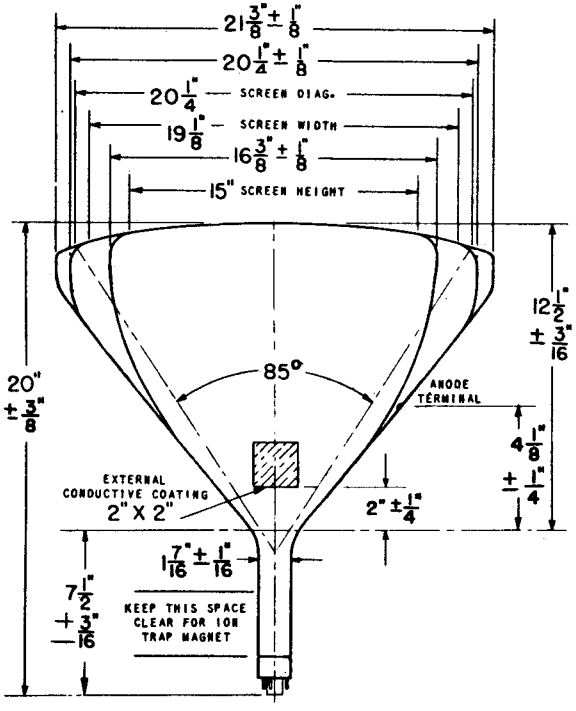
CONTINUED FROM PRECEDING PAGE

MECHANICAL DATA

OVERALL LENGTH	20 ± 3/8	INCHES
GREATEST DIMENSIONS OF BULB:		
DIAGONAL	21 3/8 ± 1/8	INCHES
WIDTH	20 1/4 ± 1/8	INCHES.
HEIGHT	16 3/8 ± 1/8	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

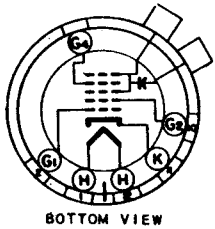
BULB CONTACT ALIGNMENT

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 NO. 3
GRID NO. 5
COLLECTOR

THE SOCKET SHOULD NOT BE MOUNTED RIGIDLY BUT IT SHOULD BE ALLOWED TO MOVE FREELY AND IT SHOULD HAVE FLEXIBLE LEADS.

→ INDICATES A CHANGE.