

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	mmf
GRID #1 TO ALL OTHER ELECTRODES	6	mmf
MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE ^A	750	mmf
MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE ^A	500	mmf

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

HEATER VOLTAGE	6.3	VOLTS
HEATER CURRENT	0.6	AMP.
MAXIMUM DC ANODE, GRID #3, GRID #5, VOLTAGE ^B	21ALP4B ONLY 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	MEG OHMS

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

^AEXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

^BBRIGHTNESS AND DEFINITION DECREASE WITH DECREASING ANODE VOLTAGE. IN GENERAL, ANODE VOLTAGE SHOULD NOT BE LESS THAN 14,000 VOLTS

^CTHIS VALUE APPLIES WHERE AN AC VOLTAGE IS PROVIDED FOR DYNAMIC FOCUSING.

^DWITH ANODE CURRENT OF 100 μ AMP.

^EVISUAL EXTINGUISH 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

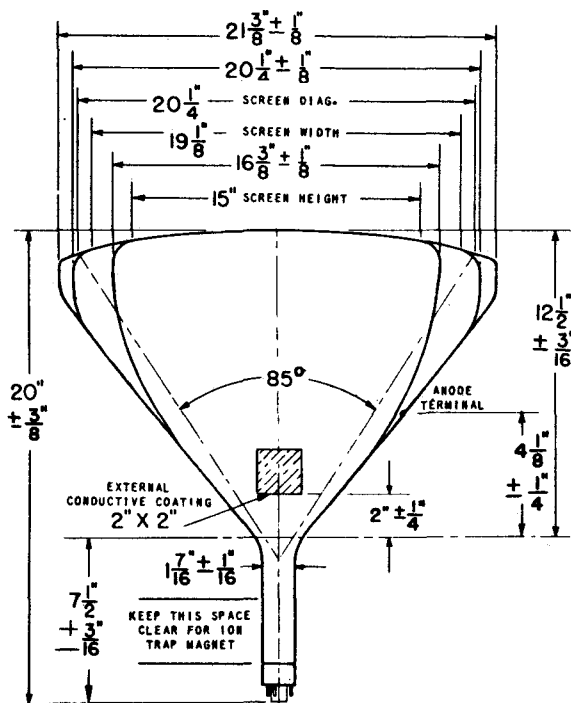
* INDICATES AN ADDITION.

TUNG-SOL

CONTINUED FROM PRECEDING PAGE

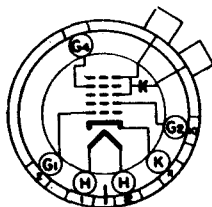
MECHANICAL DATA

OVERALL LENGTH	$20 \pm \frac{3}{8}$	INCHES
GREATEST DIMENSIONS OF BULB:		
DIAGONAL	$21 \frac{3}{8} \pm \frac{1}{8}$	INCHES
WIDTH	$20 \frac{1}{4} \pm \frac{1}{8}$	INCHES.
HEIGHT	$16 \frac{3}{8} \pm \frac{1}{8}$	INCHES
MINIMUM USEFUL SCREEN DIMENSIONS:		
DIAGONAL	$20 \frac{1}{4}$	INCHES
WIDTH	$19 \frac{1}{8}$	INCHES
HEIGHT	15	INCHES
BULB CONTACT	RECESSED SMALL CAVITY CAP	J1-21
BASE	SMALL SHELL DUODECAL 6 PIN	86-63
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 CHARGE.