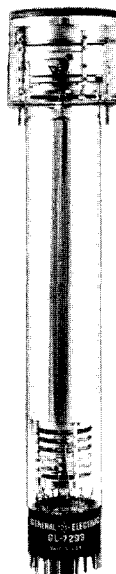


GL-7293

IMAGE ORTHICON

FIELD-MESH

MAGNETIC FOCUS AND DEFLECTION



The GL-7293 is a television camera tube for both outdoor and studio pickup service.

The tube features a field mesh in the scanning section which minimizes landing and shading errors, prevents geometric distortion, provides sharp transition from black to white without spurious effect, and improves corner resolution.

A suppressor grid assures excellent signal-to-noise ratio by preventing field-mesh secondary electrons from entering

the electron multiplier and reducing beam modulation.

A photocathode with a spectral response close to that of the eye permits portrayal of scenes in nearly their true tonal graduation.

In operation alignment is performed with the lens open on a chart or scene since dynode apertures are not visible with the lens capped.

The GL-7293 is interchangeable with the 5820. The field-mesh feature, however, results in improved performance.

Electrical

Cathode—Unipotential	
Heater Voltage, AC or DC	6.3 $\pm$ 10% Volts
Heater Current	0.6 Amperes
Photocathode—Semi-transparent	
Response—S-10	
Rectangular Image, 4 by 3 aspect ratio	
Useful Size, maximum diagonal	1.8 Inches
Orientation—Proper orientation is obtained when the vertical scan is essentially parallel to the plane passing through the center of the faceplate and pin No. 7 of the shoulder base.	
Focusing Method—Magnetic	
Deflecting Method—Magnetic	
Direct Interelectrode Capacitance	
Anode to all other Electrodes	12 μ f

Mechanical

Over-all Length	15.20 $\pm$ 0.25	Inches
Greatest Diameter of Bulb	3.00 $\pm$ 0.06	Inches
Minimum Deflecting-Coil Inside Diameter	2 $\frac{3}{8}$	Inches
Deflecting-Coil Length	5	Inches
Focusing-Coil Length	10	Inches
Alignment-Coil Length	1 $\frac{3}{16}$	Inches
Photocathode Distance Inside End of Focusing Coil	$\frac{1}{2}$	Inche
Weight, approximate	1.4	Pounds
Operating Position—Any, except with diheptal base up and the tube axis at an angle of less than 20 degrees from vertical.		

MAXIMUM RATINGS—ABSOLUTE VALUES

Photocathode Voltage	—550 Max	Volts
Photocathode Illumination	50 Max	Foot-Candles
Anode Supply Voltage*	1350 Max	Volts
Grid-No. 1 Voltage		
Negative-Bias Value	125 Max	Volts
Positive-Bias Value	0 Max	Volts
Grid-No. 2 and Dynode-No. 1 Voltage	350 Max	Volts
Grid-No. 3 Voltage	400 Max	Volts
Grid-No. 4 Voltage	300 Max	Volts
Grid-No. 5 Voltage	150 Max	Volts
Grid-No. 6 Voltage	—550 Max	Volts
Voltage Per Multiplier Stage	350 Max	Volts
Target Voltage		
Positive Value	10 Max	Volts
Negative Value	10 Max	Volts
Peak Heater-Cathode Voltage		
Heater Negative with Respect to Cathode	125 Max	Volts
Heater Positive with Respect to Cathode	10 Max	Volts
Operating Temperature of Any Part of Bulb	50 Max	C
Operating Temperature of Bulb at Large End of Tube, target section	35 Min	C
Temperature Difference Between Target Section and Any Part of Bulb Hotter than Target Section	5 Max	C

TYPICAL OPERATION

Photocathode Voltage, image focus	—400 to —540	Volts
Grid-No. 1 Voltage for Picture Cutoff, beam	—45 to —115	Volts
Grid-No. 2 and Dynode-No. 1 Voltage	300	Volts
Grid-No. 3 Voltage†, multiplier focus	225 to 330	Volts
Grid-No. 4 Voltage, beam focus	140 to 180	Volts
Grid-No. 5 Voltage, decelerator	0 to 125	Volts
Grid-No. 6 Voltage, accelerator—75 Percent of Photocathode Voltage, approximate	—300 to —405	Volts
Dynode-No. 2 Voltage	600	Volts
Dynode-No. 3 Voltage	800	Volts
Dynode-No. 4 Voltage	1000	Volts

Dynode-No. 5 Voltage	1200	Volts
Anode Voltage	1250	Volts
DC Anode Current	30	Microamperes
Signal Output Current, peak-to-peak	3 to 24	Microamperes
Target Voltage‡		
Target Cutoff Voltage‡	—3 to +1	Volts
Target Temperature Range	35 to 45	C
Ratio of Peak-to-Peak Highlight Video Signal Current to RMS Noise Current, approximate	35	
Minimum Peak-to-Peak Blanking Voltage	5	Volts
Field Strength at Center of Focusing Coil§	75	Gauss
Field Strength of Alignment Coil△, approximate	0 to 3	Gauss

* Ratio of dynode voltages is shown under Typical Operation.

† Adjust to give maximum signal.

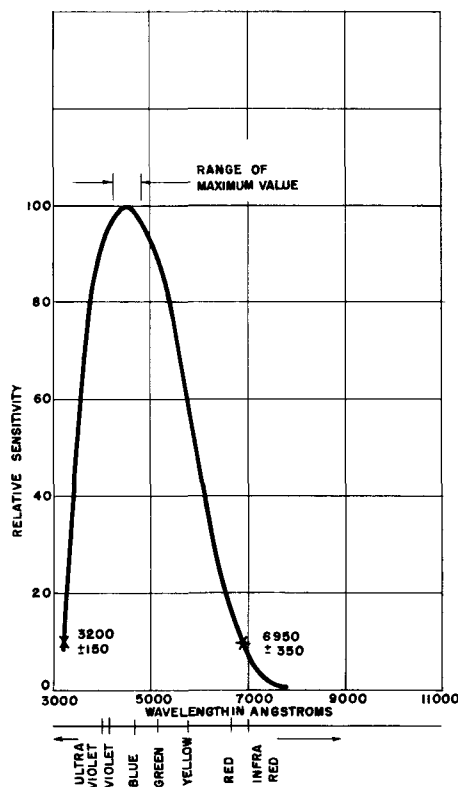
‡ Adjustable from —3 to +5 volts with blanking voltage off. Normal setting of target voltage is +2 volts from target cutoff.

§ Direction of current should be such that a north-seeking pole is attracted to the image end of the focusing coil, with the indicator located outside of and at the image end of the focusing coil.

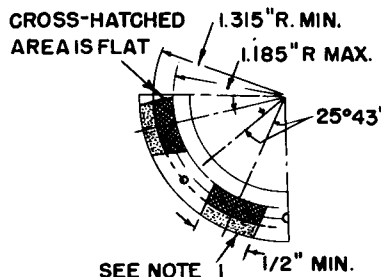
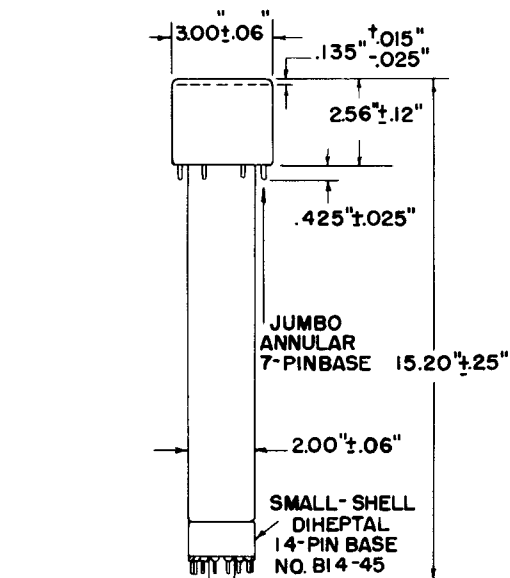
△ Adjusted to produce flattest field with maximum response. Alignment is correct when the center of the picture merely goes through focus and does not rotate when beam focus (Grid-No. 4) is varied.

SPECTRAL-SENSITIVITY CHARACTERISTIC—S10 RESPONSE

For Equal Values of Radiant Flux at All Wavelengths

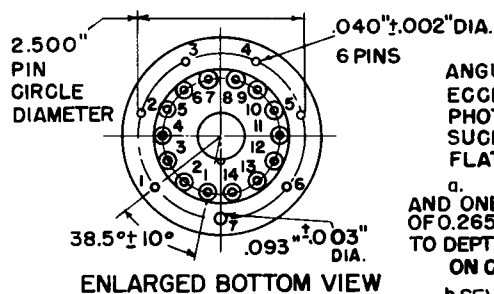


"x" - POINTS REPRESENT 10 PERCENT OF MAXIMUM RESPONSE.



DETAIL OF BOTTOM VIEW OF JUMBO
ANNULAR BASE

NOTE: DOTTED AREA IS FLAT OR EXTENDS
TOWARD DIHEPTAL-BASE END OF
TUBE BY 0.060" MAX.



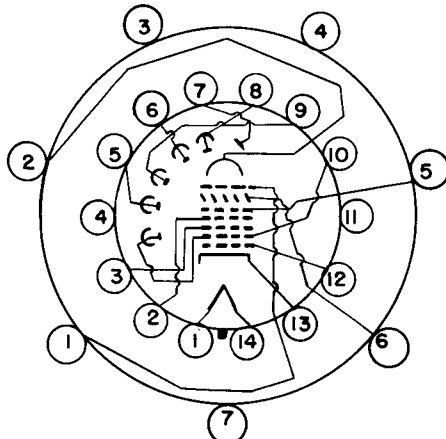
ENLARGED BOTTOM VIEW

ANNULAR BASE GAGE

ANGULAR VARIATIONS BETWEEN PINS AS WELL AS
EGGENTRICITY OF NECK CYLINDER WITH RESPECT TO
PHOTOCATHODE CYLINDER ARE HELD TO TOLERANCES
SUCH THAT PINS AND NECK CYLINDER WILL FIT
FLAT-PLATE GAGE WITH:

- SIX HOLES HAVING DIAMETER OF 0.065 ± 0.001 "
AND ONE HOLE HAVING DIA. OF 0.150 ± 0.001 ". ALL HOLES HAVE DEPTH
OF 0.265 ± 0.001 ". THE SIX 0.065 " HOLES ARE ENLARGED BY 45° TAPER
TO DEPTH OF 0.047 ". ALL HOLES ARE SPACED AT ANGLES OF $51^\circ 26' \pm 5'$
ON CIRCLE DIAMETER OF 2.500 ± 0.001 ".
- SEVEN STOPS HAVING HEIGHT OF 0.187 ± 0.001 ",
CENTERED BETWEEN PIN HOLES, TO BEAR AGAINST FLAT AREAS
OF BASE.
- RIM EXTENDING OUT OF A MINIMUM OF 0.125 " FROM 2.812 " DIAMETER
AND HAVING HEIGHT OF 0.126 ± 0.001 ".
- NECK CYLINDER CLEARANCE HOLE HAVING DIAMETER OF
 2.200 ± 0.001 ".

DIRECTION OF LIGHT:
PERPENDICULAR TO
LARGE END OF TUBE



WHITE INDEX LINE
ON FACE

BASING DIAGRAM

SMALL-SHELL DIHEPTAL 14-PIN BASE

PIN 1: HEATER	PIN 6: DYNODE NO. 4	PIN 11: INTERNAL CONNECTION
PIN 2: GRID NO. 4	PIN 7: ANODE	DO NOT USE
PIN 3: GRID NO. 3	PIN 8: DYNODE NO. 5	PIN 12: GRID NO. 1
PIN 4: INTERNAL CONNECTION- DO NOT USE	PIN 9: DYNODE NO. 3	PIN 13: CATHODE
PIN 5: DYNODE NO. 2	PIN 10: DYNODE NO. 1, GRID NO. 2	PIN 14: HEATER

KEYED JUMBO ANNULAR 7-PIN BASE

PIN 1: GRID NO. 6	PIN 5: GRID NO. 5
PIN 2: PHOTOCATHODE	PIN 6: TARGET
PIN 3: INTERNAL CONNECTION- DO NOT USE	PIN 7: INTERNAL CONNECTION DO NOT USE
PIN 4: INTERNAL CONNECTION DO NOT USE	

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