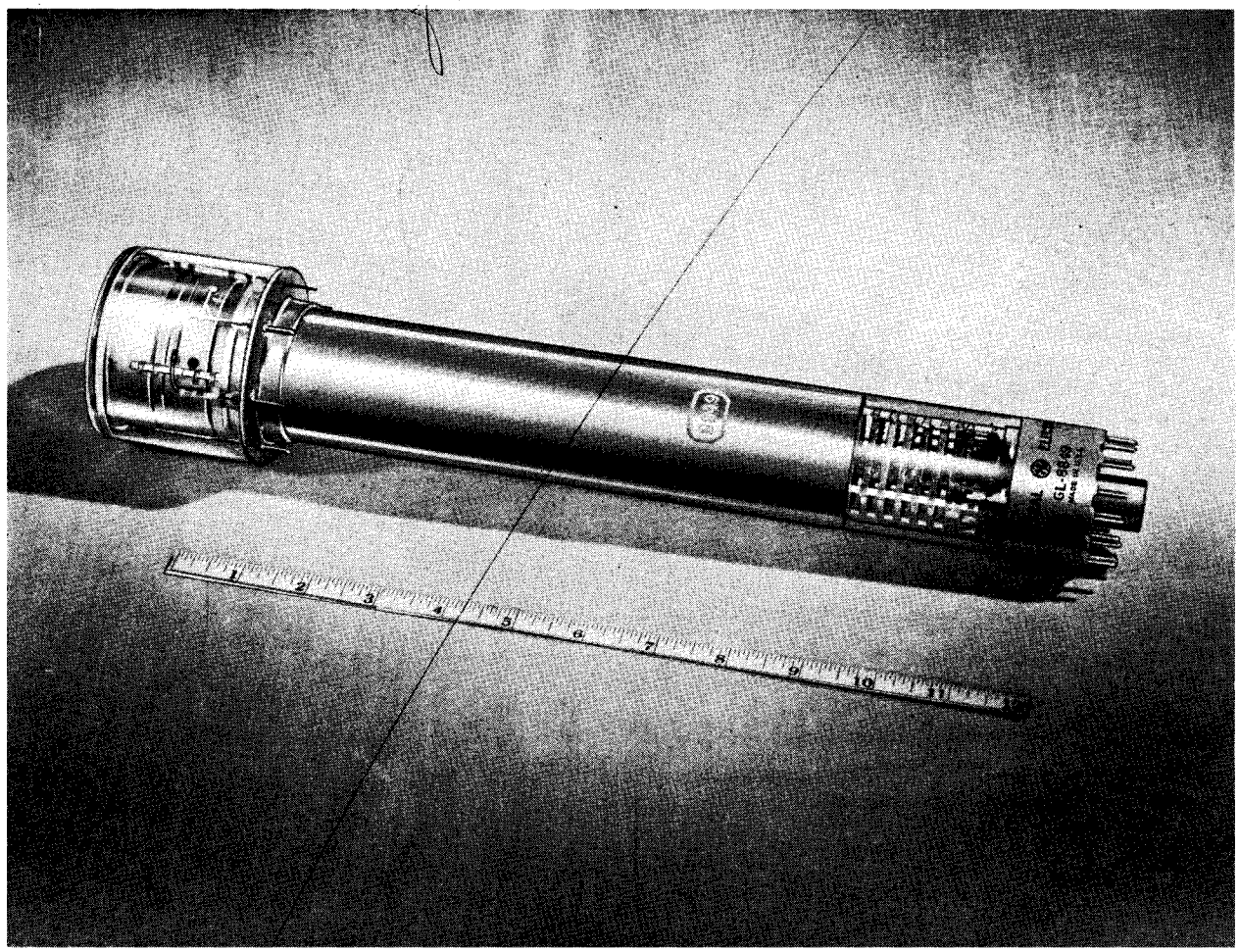


IMAGE ORTHICON

MAGNETIC FOCUS **MAGNETIC DEFLECTION**

LOW-LIGHT-LEVEL PICKUP

The GL-6849 is a television camera tube for extremely low-light-level pickup use. Typical applications are observation of fluoroscopic screens, scenes illuminated by starlight and direct images of stars.

Extremely wide target-to-mesh spacing reduces smearing or lag of moving images at low light levels by better beam modulation. This results in an increase in signal-to-noise ratio at low illumination levels. Wide spacing eliminates microphonics originating in the target-mesh assembly.

The GL-6849 photocathode is characterized by a spectral response with high blue and high green sensitivity, very good yellow sensitivity and good red sensitivity. It has practically no infra-red sensitivity. This characteristic of the response permits portrayal of colors in nearly their true tonal gradation since it prevents any color-masking by infra-red.

TECHNICAL INFORMATION

GENERAL

Electrical

Cathode—Unipotential		
Heater Voltage, AC or DC	6.3 ± 10%	Volts
Heater Current	0.6	Amperes
Photocathode—Semi-transparent		
Response—See spectral sensitivity curve on page 3 for details.		
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	μμf

TECHNICAL INFORMATION (CONT'D)

Mechanical

Over-all Length	15.20″ ± 0.25″	Inches
Greatest Diameter of Bulb	3.00″ ± 0.06″	Inches
Minimum Deflecting Coil Inside Diameter	2 3/8	Inches
Deflecting Coil Length	5	Inches
Focusing Coil Length	10	Inches
Alignment Coil Length	15/16	Inches
Photocathode Distance Inside End of Focusing Coil	1/2	Inches
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 AND TYPICAL OPERATING CONDITIONS

Maximum Ratings, Absolute Values

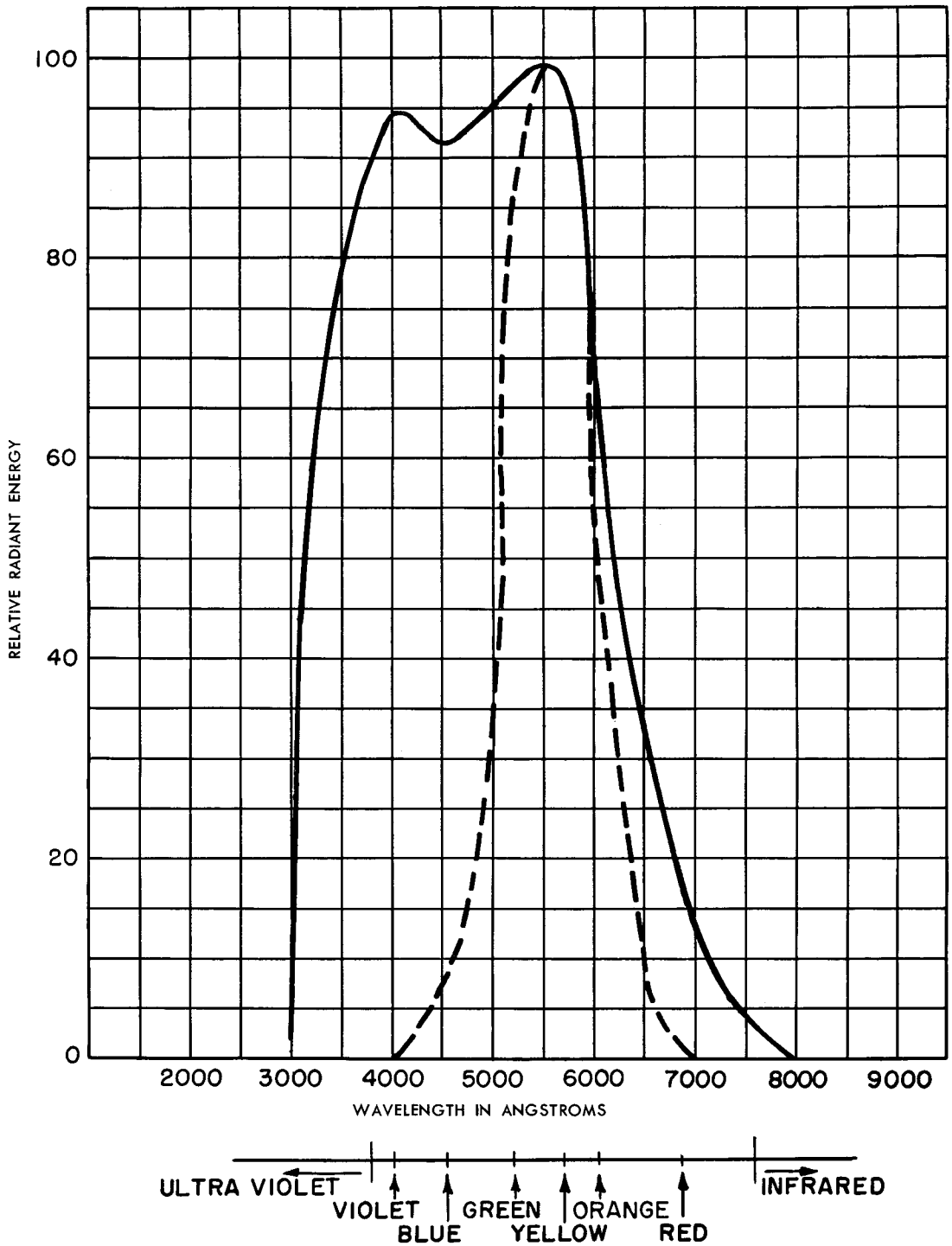
Photocathode Voltage	−550 Max	Volts
Photocathode Illumination	50 Max	Foot-Candles
Anode Supply Voltage*	1350 Max	Volts
Grid-No. 1 Voltage		
Negative Bias Value	125 Max	Volts
Positive Bias Value	0 Max	Volts
Grid-No. 2 and Dynode-No. 1 Voltage	350 Max	Volts
Grid-No. 3 Voltage	400 Max	Volts
Grid-No. 4 Voltage	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 Cut-off, 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	3	Microamperes
Signal Output Current, peak to peak	0.01 to 5	Microamperes
Target Voltage‡		
Target Cutoff Voltage‡	−3 to +1	Volts
Blanking Voltage, peak to peak	5 to 20	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	Gausses
Field Strength of Alignment Coil, approximate	0 to 3	Gausses

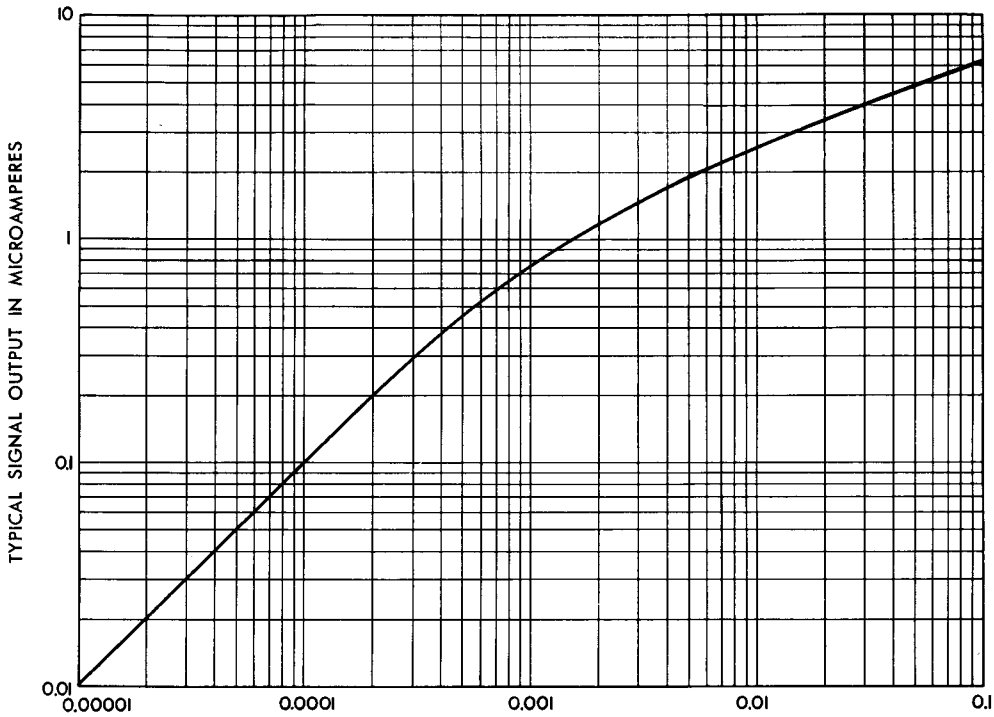
* Ratio of dynode voltages is shown under Typical Operation.
† Adjust to give the most uniformly shaded picture near maximum signal.
‡ Adjustable from −3 to +5 volts with blanking voltage off. Normal setting of target voltage is +2 volts from target cutoff.
§ Direction of current should be such that 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.
⊕Denotes a change.
□Denotes an addition.

SPECTRAL SENSITIVITY CHARACTERISTIC
FOR EQUAL VALUES OF RADIANT FLUX AT ALL WAVELENGTHS
DASHED CURVE SHOWS SPECTRAL CHARACTERISTIC OF AVERAGE HUMAN EYE



TYPICAL SIGNAL OUTPUT

SCENE: BLACK AND WHITE BALANCED
TUNGSTEN, DAYLIGHT, OR WHITE FLUORESCENT LIGHT



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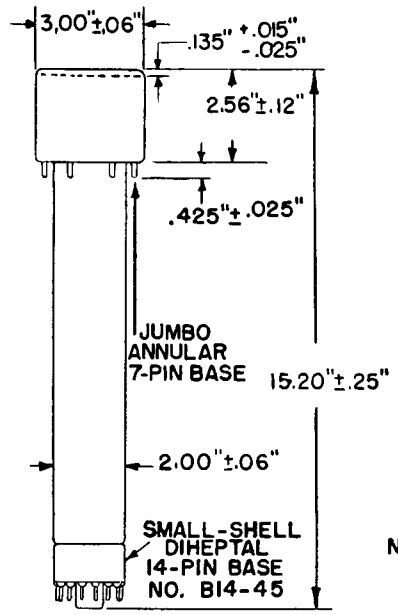
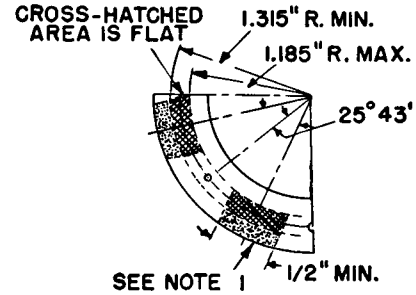
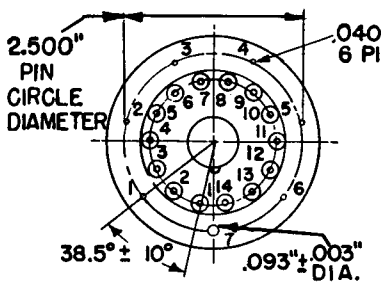




DETAIL OF BOTTOM VIEW OF JUMBO ANNULAR BASE

NOTE 1: DOTTED AREA IS FLAT OR EXTENDS TOWARD DIHEPTAL-BASE END OF TUBE BY 0.060" MAX.



ENLARGED BOTTOM VIEW

ANNULAR BASE GAGE

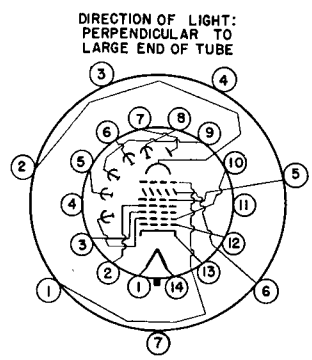
ANGULAR VARIATIONS BETWEEN PINS AS WELL AS ECCENTRICITY OF NECK CYLINDER WITH RESPECT TO PHOTOCATHODE CYLINDER ARE HELD TO TOLERANCES SUCH THAT PINS AND NECK CYLINDER WILL FIT FLAT-PLATE GAGE WITH:

a. 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°26' ±5' ON CIRCLE DIAMETER OF 2.500"± 0.001"

b. SEVEN STOPS HAVING HEIGHT OF 0.187"±0.001", CENTERED BETWEEN PIN HOLES, TO BEAR AGAINST FLAT AREAS OF BASE.

c. RIM EXTENDING OUT A MINIMUM OF 0.125" FROM 2.812" DIAMETER AND HAVING HEIGHT OF 0.126"± 0.001".

d. NECK-CYLINDER CLEARANCE HOLE HAVING DIAMETER OF 2.200"± 0.001."



BASING DIAGRAM

SMALL-SHELL DIHEPTAL 14-PIN BASE

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

KEYED JUMBO ANNULAR 7-PIN BASE

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

ELECTRONIC COMPONENTS DIVISION
GENERAL ELECTRIC
Schenectady 5, N. Y.