



7037

7037

IMAGE ORTHICON

For simultaneous color pickup

MAGNETIC FOCUS

MAGNETIC DEFLECTION

DATA

General:

Heater, for Unipotential Cathode:

Voltage 6.3 $\pm$ 10% . . . ac or dc volts

Current 0.6 amp

Direct Interelectrode Capacitance:

Anode to all other electrodes 12 μ f

Photocathode, Semitransparent:

Response. See accompanying Spectral-Sensitivity Characteristics curve

Rectangular image (4 x 3 aspect ratio):

Useful size of. 1.8" max. Diagonal

Note: The size of the optical image focused on the photocathode should be adjusted so that its maximum diagonal does not exceed the specified value. The corresponding electron image on the target should have a size such that the corners of the rectangle just touch the target ring.

Orientation of. . . . Proper orientation is obtained when the vertical scan is essentially parallel to the plane passing through center of faceplate and pin 7 of the shoulder base.

Focusing Method Magnetic

Deflection Method Magnetic

Overall Length. 15.20" $\pm$ 0.25"Greatest Diameter of Bulb 3.00" $\pm$ 0.06"

Minimum Deflecting-Coil Inside Diameter 2-3/8"

Deflecting-Coil Length. 5"

Focusing-Coil Length. 10"

Alignment-Coil Length 15/16"

Photocathode Distance Inside End of Focusing Coil . . . 1/2"

Operating Position. See Operating Considerations

Weight (Approx.). 1 lb 6 oz

End Base. . . . Small-Shell Diheptal 14-Pin (JETEC No. B14-45)

BOTTOM VIEW

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

■ See basing diagram on next page.

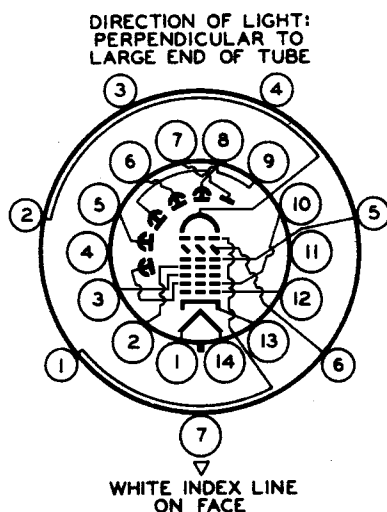


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IMAGE ORTHICON

Shoulder Base Keyed Jumbo Annular 7-Pin
BOTTOM VIEW

- 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

**Maximum and Minimum Ratings, Absolute Values:****PHOTOCATHODE:**

Voltage	-550 max.	volts
Illumination	50 max.	ft-c

OPERATING TEMPERATURE:

Of any part of bulb	50 max.	°C
Of bulb at large end of tube (Target section)	40 min.	°C

TEMPERATURE DIFFERENCE:

Between target section and any part of bulb hotter than target section. . .	5 max.	°C
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GRID-No.6 VOLTAGE	-550 max.	volts
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TARGET VOLTAGE:

Positive value	10 max.	volts
Negative value	10 max.	volts

GRID-No.5 VOLTAGE	150 max.	volts
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GRID-No.4 VOLTAGE	300 max.	volts
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GRID-No.3 VOLTAGE	400 max.	volts
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GRID-No.2 & DYNODE-No.1 VOLTAGE	350 max.	volts
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GRID-No.1 VOLTAGE:

Negative bias value	125 max.	volts
Positive bias value	0 max.	volts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode.	125 max.	volts
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Heater positive with respect to cathode.	10 max.	volts
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ANODE-SUPPLY VOLTAGE*	1350 max.	volts
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VOLTAGE PER MULTIPLIER STAGE	350 max.	volts
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*: See next page.



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IMAGE ORTHICON

Typical Operation and Characteristics Range Values:

Photocathode Voltage (Image Focus)	-400 to -540	volts
Grid-No.6 Voltage (Accelerator)— Approx. 75% of photocathode voltage.	-300 to -405	volts
Target-Cutoff Voltage ^o	-3 to +1	volts
Grid-No.5 Voltage (Decelerator).	0 to 125	volts
Grid-No.4 Voltage (Beam Focus)	140 to 180	volts
Grid-No.3 Voltage [#]	225 to 330	volts
Grid-No.2 & Dynode-No.1 Voltage.	300	volts
Grid-No.1 Voltage for picture cutoff	-45 to -115	volts
Dynode-No.2 Voltage.	600	volts
Dynode-No.3 Voltage.	800	
Dynode-No.4 Voltage.	1000	volts
Dynode-No.5 Voltage.	1200	volts
Anode Voltage.	1250	volts
Anode Current (DC)	30	μa
Signal-Output Current (Peak to peak).	3 to 24	μa
Target-Temperature Range	40 to 45	°C
Ratio of Peak-to-Peak Highlight Video-Signal Current to RMS Noise Current (Approx.).	60	
Minimum Peak-to-Peak Blanking Voltage.	5	volts
Field Strength at Center of Focusing Coil [▲]	75	gausses
Field Strength of Alignment Coil (Approx.)	0 to 3	gausses

* Ratio of dynode voltages is shown under *Typical Operation*.

^o Normal setting of target voltage is +2 volts from target cutoff. The target-supply voltage should be adjustable from -3 to +5 volts.

[#] Adjust to give the most uniformly shaded picture near maximum signal.

[▲] 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.

OPERATING CONSIDERATIONS

The *operating position* of the 7037 should preferably be such that any loose particles in the neck of the tube will not fall down and strike or become lodged on the target. Therefore, it is recommended that the tube never be operated in a vertical position with the Diheptal-base end up nor in any other position where the axis of the tube with base up makes an angle of less than 20° with the vertical.

When the equipment design or operating conditions are such that the maximum temperature rating or maximum temperature difference as given under *Maximum Ratings* will be exceeded, provision should be made to direct a blast of cooling air

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IMAGE ORTHICON

from the Diheptal-base end of the tube along the entire length of the bulb surface, i.e., through the space between the bulb surface and the surrounding deflecting-coil assembly and its extension. Any attempt to effect cooling of the tube by circulating even a large amount of air around the focusing coil will do little good, but a small amount of air directly in contact with the bulb surface will effectively drop the bulb temperature. For this purpose, a small blower is satisfactory, but it should be run at low speed to prevent vibration of the 7037 and the associated amplifier equipment. Unless vibration is prevented, distortion of the picture may occur.

Ordinarily, the temperature in a camera equipped with a blower will not exceed 45°C , except in very hot weather or unless the target heater is left on accidentally for a long period.

To keep the operating temperature of the large end of the tube from falling below 45°C , some form of controlled heating should be employed. Ordinarily, adequate heat will be supplied by the focusing coil, deflecting coils, and associated amplifier tubes so that the temperature can be controlled by the amount of cooling air directed along the bulb surface. If, in special cases, a target heater is required, it should fit between the focusing coil and the bulb near the shoulder of the tube, and be non-inductively wound.

Resolution in excess of 500 lines at the center of the picture can be produced by the 7037 when operated for color reproduction.

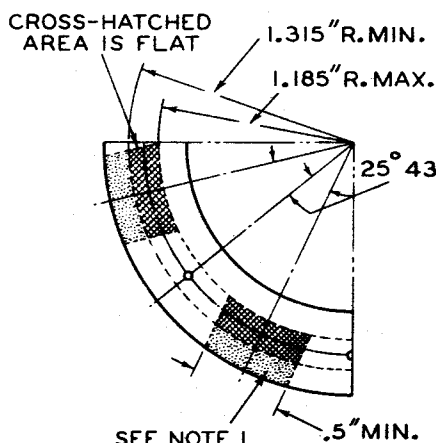
To utilize the resolution capability of the 7037 in the horizontal direction with the standard scanning rate of 525 lines, it is necessary to use a video amplifier having a bandwidth of at least 6 megacycles.



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IMAGE ORTHICON

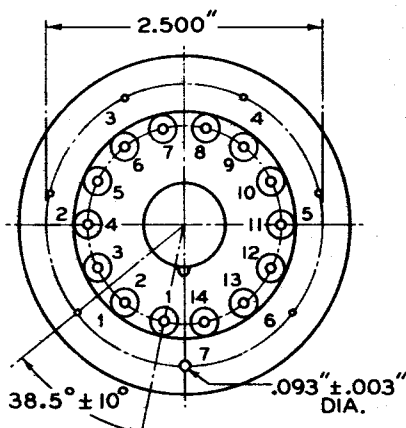
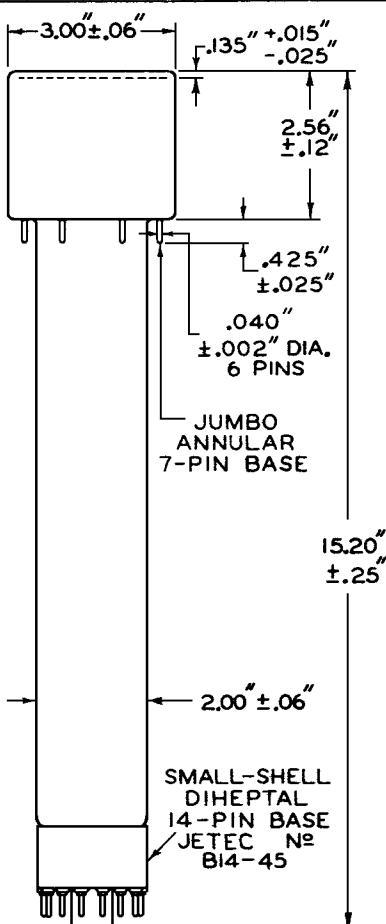
DETAIL OF BOTTOM VIEW
OF JUMBO ANNULAR BASE

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

ANNULAR-BASE GAUGE

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 GAUGE WITH:

- SIX HOLES HAVING DIAMETER
OF $0.065" \pm 0.001"$ AND ONE
HOLE HAVING DIAMETER OF
 $0.150" \pm 0.001"$. ALL HOLES
HAVE DEPTH OF $0.265" \pm 0.001"$.
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 DIAME-
TER OF $2.500" \pm 0.001"$.
- SEVEN STOPS HAVING HEIGHT OF
 $0.187" \pm 0.001"$, CENTERED
BETWEEN PIN HOLES, TO BEAR
AGAINST FLAT AREAS OF BASE.
- RIM EXTENDING OUT A MINIMUM
OF $0.125"$ FROM $2.812"$ DIAME-
TER AND HAVING HEIGHT OF
 $0.126" \pm 0.001"$.
- NECK-CYLINDER CLEARANCE
HOLE HAVING DIAMETER OF
 $2.200" \pm 0.001"$.



ENLARGED BOTTOM VIEW

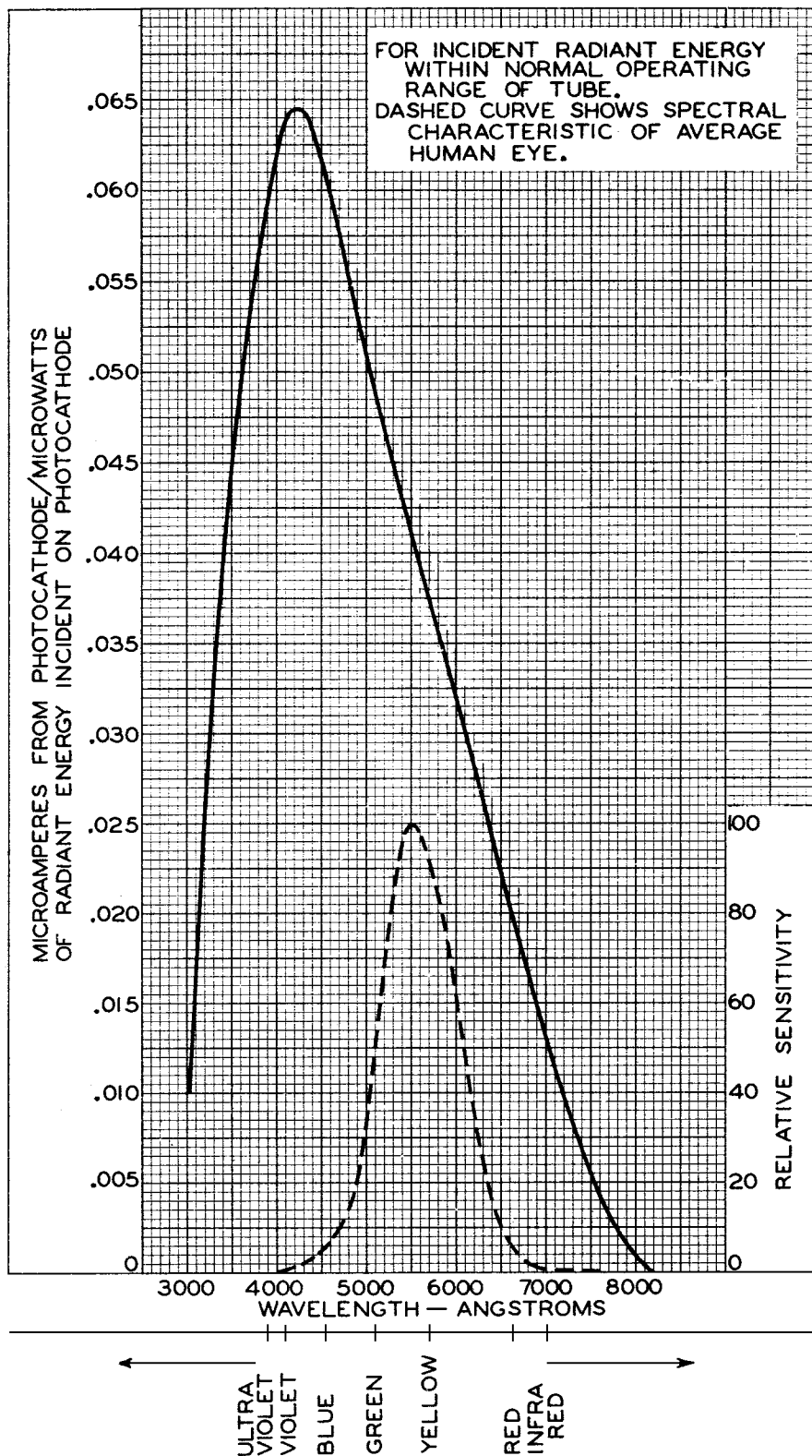
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SPECTRAL-SENSITIVITY CHARACTERISTICS

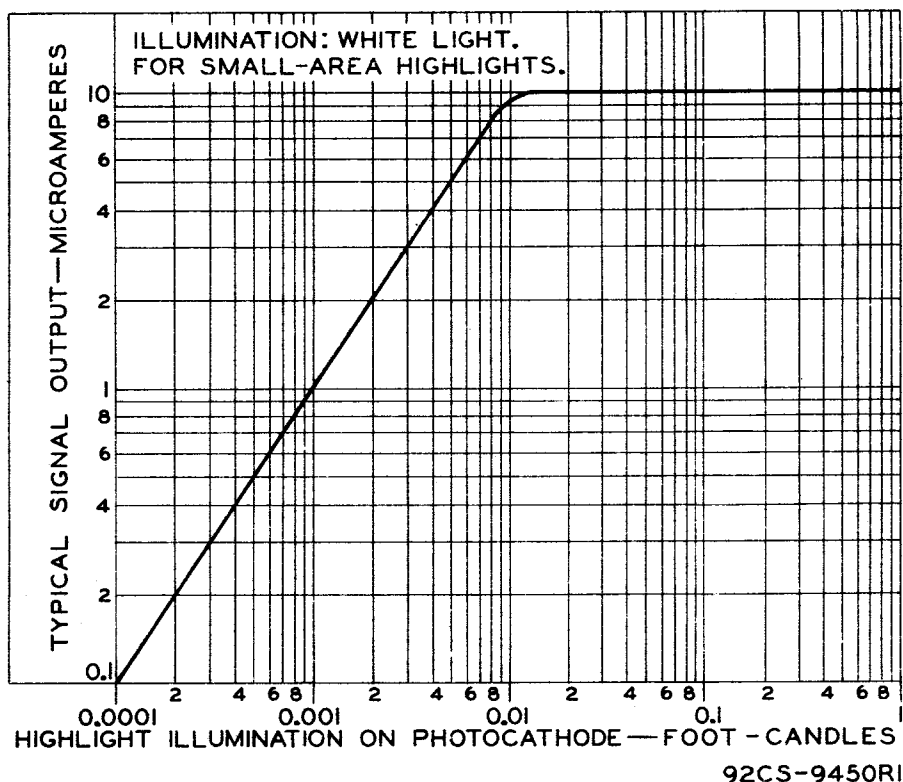




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BASIC LIGHT-TRANSFER CHARACTERISTIC



LIGHT-TRANSFER CHARACTERISTICS

