7295-A

Image Orthicon

MAGNETIC FOCUS **MAGNETIC DEFLECTION**
EXCELLENT RESOLUTION CAPABILITY

For Outdoor and Studio Pickup with High-Quality Black-and-White TV Cameras. The 7295-A is Unilaterally Interchangeable with Type 7295.

DATA

General:

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3 ± 10%	volts
Current at 6.3 volts	0.6	amp
Direct Interelectrode Capacitance:		
Anode to all other electrodes	12	μμf
Spectral Response		S-10
Wavelength of Maximum Response	4500 ± 300	angstroms
Photocathode, Semitransparent:		
Rectangular image (4 x 3 aspect ratio):		
Useful size of	1.6" 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 the faceplate and the grid-No.6 envelope terminal. The horizontal and vertical scan should start at the corner of the picture between the grid-No.6 and the photocathode envelope terminals.

Target-to-Mesh Spacing	0.002	in.
Focusing Method		Magnetic
Deflection Method		Magnetic
Overall Length	19.375" ± 0.310"	
Greatest Diameter of Bulb	4.500" ± 0.094"	
Minimum Deflecting-Coil Inside Diameter		3.2"
Deflecting-Coil Length		7"
Focusing-Coil Length		15"
Alignment-Coil:		
Position on neck. . .	Centerline of magnetic field should be located 9.25" from the flat area of the shoulder.	
Operating Position	See *Operating Considerations*	
Weight (Approx.)		2.3 lbs
Envelope Terminals		5

BOTTOM VIEW▲

Terminal Over Pin 2 - Field Mesh
Terminal Over Pin 4 - Photocathode (PC)
Terminal On Side of Envelope
Opposite Base Key - Grid No.6 (G_6)

▲ See basing diagram on next page.

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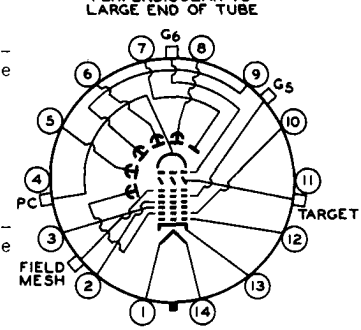
Terminal Over Pin 9 - Grid No.5 (G_5)
Terminal Over Pin 11 - Target

End Base. . . . . Small-Shell Diheptal 14-Pin
(JEDEC Group 5, 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



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

PHOTOCATHODE:		
Voltage.	-700 max.	volts
Illumination	50 max.	fc
OPERATING TEMPERATURE:		
Any part of bulb	65 max.	°C
Of bulb at large end of tube (Image section).	35 min.	°C
TEMPERATURE DIFFERENCE:		
Between image section and any part of bulb hotter than image section. . .	5 max.	°C
GRID-No.6 VOLTAGE.	-700 max.	volts
TARGET VOLTAGE:		
Positive value	10 max.	volts
Negative value	10 max.	volts
FIELD-MESH VOLTAGE●.	30 max.	volts
GRID-No.5 VOLTAGE.	300 max.	volts
GRID-No.4 VOLTAGE.	350 max.	volts
GRID-No.3 VOLTAGE.	400 max.	volts
GRID-No.2 & DYNODE-No.1 VOLTAGE.	350 max.	volts
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
Heater positive with respect to cathode. .	10 max.	volts
ANODE SUPPLY VOLTAGE★.	1650 max.	volts
VOLTAGE PER MULTIPLIER STAGE	350 max.	volts

Typical Operating Values:♦

Photocathode Voltage	-600	volts
Grid-No.6 Voltage (Image Focus)		
Approx. 50% of photocathode voltage♦	-250 to -350	volts
Target Voltage Above Cutoff♠	2 to 3	volts
Field-Mesh Voltage●	15 to 25	volts
Grid-No.5 Voltage (Decelerator)	40	volts
Grid-No.4 Voltage (Beam Focus)	70 to 90	volts
Grid-No.3 Voltage♣	250 to 275	volts
Grid-No.2 & Dynode-No.1 Voltage	280	volts
Grid-No.1 Voltage for picture cutoff	-45 to -115	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
Target-Temperature Range	35 to 45	°C
Minimum Peak-to-Peak Blanking Voltage	5	volts
Field Strength of Focusing Coil (Approx.):◉		
At center of scanning section	60	gausses
In plane of photocathode	120	gausses
Field Strength of Alignment Coil	0 to 3	gausses

Performance Data:

With conditions shown under Typical Operating Values, target voltage adjusted to 3 volts above cutoff, and with the camera lens adjusted so that the picture highlights are twice those required to reach the "knee" of the accompanying Basic Light-Transfer-Characteristic Curve except as otherwise specified

	Min.	*Average*	*Max.*	
Cathode Radiant Sensitivity at 4500 angstroms	–	0.028	–	μa/μw
Anode Current (DC)	–	30	–	μa
Signal-Output Current (Peak to Peak)	5	–	30	μa
Ratio of Peak-to-Peak High-light Video Signal Current to RMS Noise Current for Bandwidth of 4.5 Mc	–	65:1	–	
Photocathode Illumination at 2870° K Required to Reach "Knee" of Light Transfer Characteristic	–	0.04	0.075	fc
Amplitude Response at 400 TV Lines per Picture Height (Per cent of large-area black to large-area white)#	40	56	–	%

● With respect to grid No.4.

★ Dynode-voltage values are shown under Typical Operating Values.

♦ With 7295-A operated in RCA TK-12 camera at fixed photocathode voltage.

♦ Adjust for optimum focus.

♦ The target supply voltage should be adjustable from -5 to 5 volts.

♣ Adjust to give the most uniformly shaded picture near maximum signal.

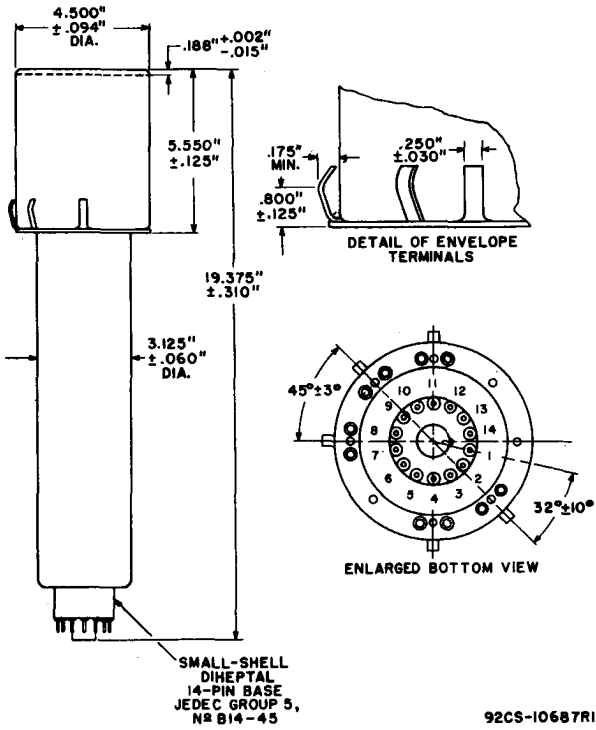
● Direction of current should be such that a north-seeking pole is attracted to the image end of the focusing coil, with the indicator located outside of and at the image end of the focusing coil.

Measured with amplifier having flat frequency response.

OPERATING CONSIDERATIONS

The *operating position* of the 7295-A 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.

SPECTRAL-SENSITIVITY CHARACTERISTIC
of Photosensitive Device having S-10 Response
is shown at the front of this Section


4.500"
±.094"
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.188"+.002"
-.015"
5.550"
±.125"
19.375"
±.310"
3.125"
±.060"
DIA.
SMALL-SHELL
DIHEPTAL
14-PIN BASE
JEDEC GROUP 5,
Nº B14-45
.175"
MIN.
.800"
±.125"
.250"
±.030"
DETAIL OF ENVELOPE
TERMINALS
45°±3°
32°±10°
ENLARGED BOTTOM VIEW
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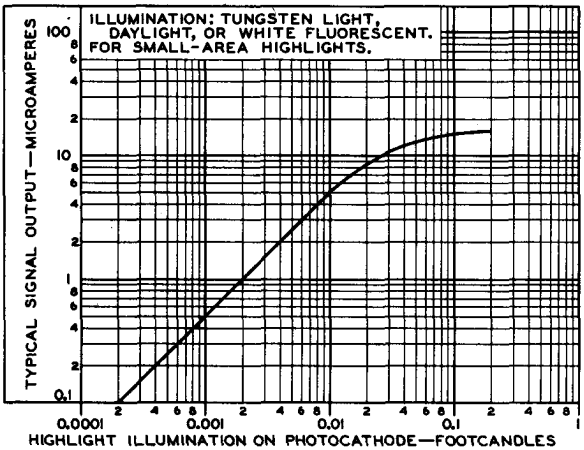
BASIC LIGHT-TRANSFER CHARACTERISTIC