

ENGINEERING DATA**CBS-HYTRON**

TUBES AND SEMICONDUCTORS

A Division of Columbia Broadcasting System, Inc.
Danvers, Massachusetts

CBS TYPE 5BYP5

**FIVE INCH ULTRA - HIGH RESOLUTION
PHOTOGRAPHIC CATHODE-RAY TUBE**

The CBS 5BYP5 is a five inch ultra-high resolution tube having a symmetrical clipped spot with a dimension of 0.7 mils (.0007") by 0.7 mils. This resolution figure is uniform throughout the screen area. This tube is especially designed for highly detailed precision photographic reproduction use. It will provide a minimum of 6000 TV lines at full scan conditions (a 4 1/2" line).

The P5 screen employed in the 5BYP5 is blue in color and of short persistence selected for photographic recording.

An optical flat non-browning glass is used for the faceplate to produce a distortionless flat screen. By using circuit correction, extreme accuracy of deflection linearity up to 0.1% can be achieved. Uncorrected linearity accuracy up to 1% is possible at optimum adjustment.

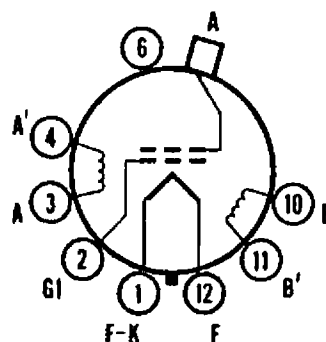
Special focus and deflection components are available from CBS-Hytron for use with the ultra-high resolution cathode-ray tube. Stock items are for side looking strip radar applications at 1000 c.p.s. scanning frequency. Other special scanning components such as raster types, are made to order.

MECHANICAL DATA

Overall length	18 3/4 ± 3/8 inch
Greatest diameter of bulb	5 1/8 inch
Maximum useful screen diameter	4 1/2 inch
Neck length	5 ± 1/4 inch
Bulb contact, recessed small cavity	J1-21
Base, small shell duodecal 7 pin	B7-51 B8-210
Bulb contact alignment	In line with key lug ± 20°
Key lug aligns with major axis	
Weight of tube only	5.5 lbs
Total weight of display package: tube deflection and focusing components	40.5 lbs

PIN CONNECTIONS

Pin 1. Filament and cathode
 Pin 2. Grid 1
 Pin 3. Alignment A control
 Pin 4. Alignment A' control
 Pin 6. No connection
 Pin 10. Alignment B control
 Pin 11. Alignment B' control
 Pin 12. Filament
 Top Cap - Anode



OPTICAL DATA

Phosphor number	P5
Fluorescent color	blue
Phosphorescence	blue
Persistence	10^{-5} sec. approx.
Resolution	1250 TV lines/inch
Faceplate	Optical flat, non-browning, glass

ELECTRICAL DATA

Focusing method	magnetic*
Deflecting method	magnetic
Deflection angle, diagonal	30° approx.
Beam alignment voltage, 6.3 volts a-c or d-c (between pins 3 and 4, 10 and 11) variable, max. current requirement 1 amp.	
* 14 inch long solenoid provides axial field.	

Direct Interelectrode Capacitances, (Approx.)

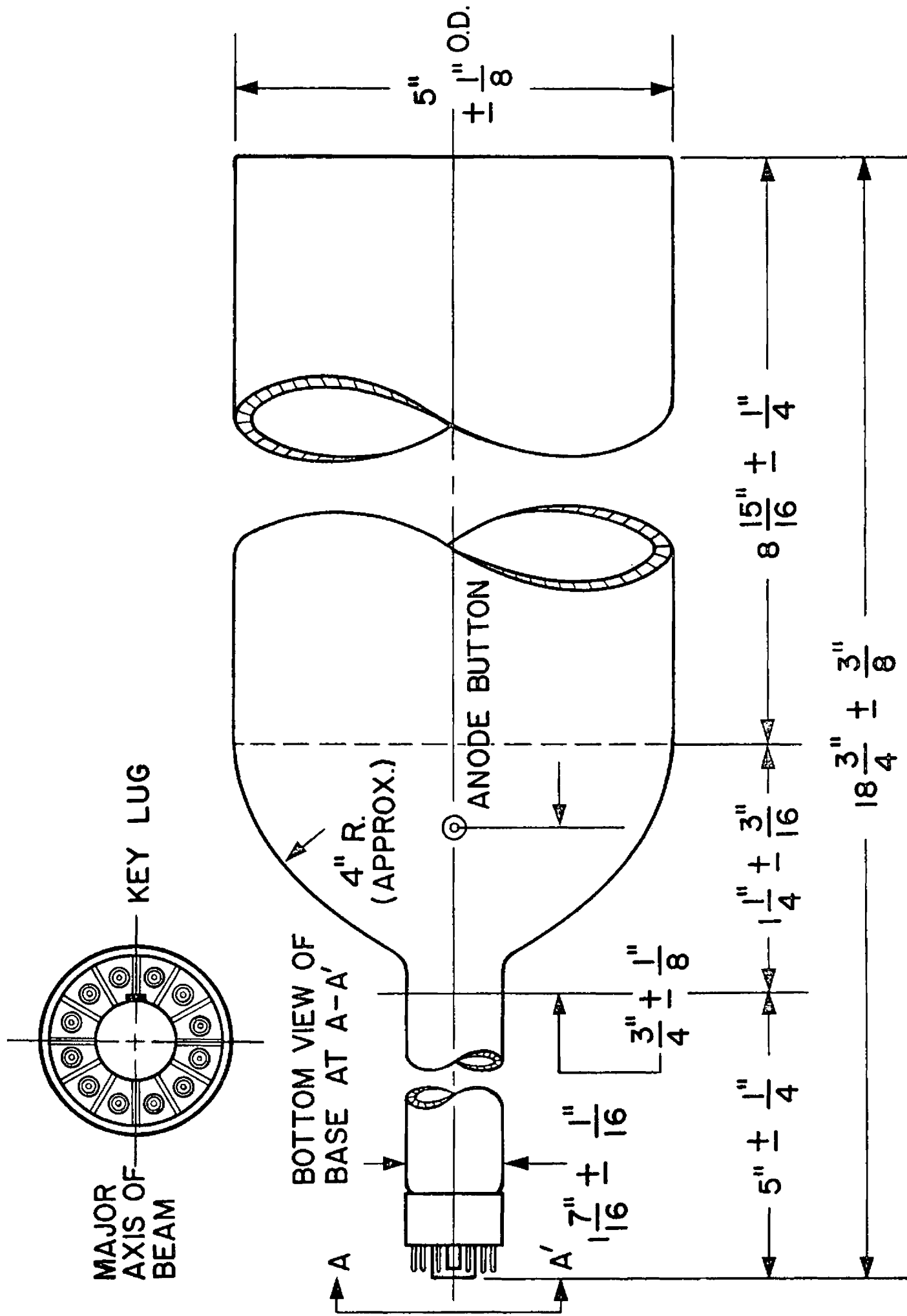
Grid 1 to all other electrodes	5 μ f max.
Filamentary cathode to all other electrodes	4 μ f max.

Heater Characteristics

Voltage, d-c \pm 20 %	0.9 volts
Current	0.160 amps

Maximum Ratings (Absolute maximum system)

Anode voltage	18 KV
Grid voltage	
Negative bias value	-50 volts
Positive bias value	0 volts
Positive peak value	+2 volts



COMPLETE TUBE & EXTERIOR DIMENSIONS

Typical Operation

Anode voltage	14 to 16 KV
Anode current, peak	500 μ a
Screen current, peak	25 μ a
Signal grid cut-off voltage	- 10 volts

Maximum Circuit Value

Grid 1 circuit resistance	1.0 megohm
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Caution

Shielding for X-rays is recommended for personal protection at close range if this tube is operated in excess of 16,000 volts or over Maximum Rated Anode Voltage, whichever is less. Safety glass covering tube's faceplate is usually sufficient.

