Electronic TUBES

7BP7-B

CATHODE-RAY TUBE

7-INCH ROUND, GLASS
FOCUS—MAGNETIC
DEFLECTION—MAGNETIC

53-DEGREE DEFLECTION ANGLE
FACEPLATE—SPHERICAL, CLEAR
HIGH-RESOLUTION GUN

PERSISTENCE—LONG

DESCRIPTION AND RATING

The 7BP7-B is a magnetic-focus and -deflection direct-view glass cathode-ray tube for oscilloscope and radar applications that require a long persistence. A particular feature of this tube is the high-resolution electron gun which provides a smaller spot size, an improved spot shape, high resolution, and considerable depth of focus.

GENERAL

ELECTRICAL

Heater Voltage	6.3	Volts
Heater Current	0.6 ± 10%	Amperes

Focusing Method—Magnetic
Deflecting Method—Magnetic

Deflection Angle, approximate	53	Degrees

Direct Interelectrode Capacitances, approximate

Cathode to All Other Electrodes	5	μμf
Grid-No. 1 to All Other Electrodes	8.0	μμf

OPTICAL

Phosphor Number—P7
- Fluorescent Color—Blue-White
- Phosphorescent Color—Yellow
- Persistence—Long

Faceplate—Clear

MECHANICAL

Over-all Length	13¼ ± ⅜	Inches
Greatest Bulb Diameter	7 ± ⅛	Inches
Minimum Useful Screen Diameter	6	Inches
Neck Length	7½	Inches

Bulb Number, ASA Designation—J56R or J56T
Bulb Contact—Recessed Small-ball Cap, JETEC No. J1-22
Base—Long Medium-shell Octal 8-Pin, JETEC No. B8-65
Basing—JETEC Designation—5AN
Bulb Contact Alignment
- Anode Contact Aligns with Pin No. 5 ± 10 Degrees

Mounting Position—Any

MAXIMUM RATINGS

DESIGN-CENTER VALUES*

Anode Voltage†	8000 Max	Volts DC
Grid-No. 2 Voltage	700 Max	Volts DC
Grid-No. 1 Voltage		
Negative-Bias Value	180 Max	Volts DC
Positive-Bias Value	0 Max	Volts DC
Positive-Peak Value	2 Max	Volts
Peak Grid-No. 1 Drive from Cutoff	65 Max	Volts
Peak Heater-Cathode Voltage		
Heater Negative with Respect to Cathode	180 Max	Volts
Heater Positive with Respect to Cathode	180 Max	Volts

TYPICAL OPERATING CONDITIONS

Anode Voltage§	7000	Volts DC
Grid-No. 2 Voltage	250	Volts DC
Grid-No. 1 Voltage¶	−25 to −70	Volts DC
Focusing-Coil Current▲, approximate	111	Milliamperes DC
Line Width A♦	0.28	Millimeters
Spot Position‡	12.0	Millimeters

MAXIMUM CIRCUIT VALUES

Grid-No. 1-Circuit Resistance	1.5 Max	Megohms

*The maximum ratings provide a ten-percent safety factor in accordance with the standard design-center system of rating cathode-ray tubes. The tube will withstand the combined effects of variations in line voltage and components provided the maximum design-center values are not exceeded by more than ten percent.

†Anode and grid-No. 3 which are connected together within the tube are referred to herein as anode.

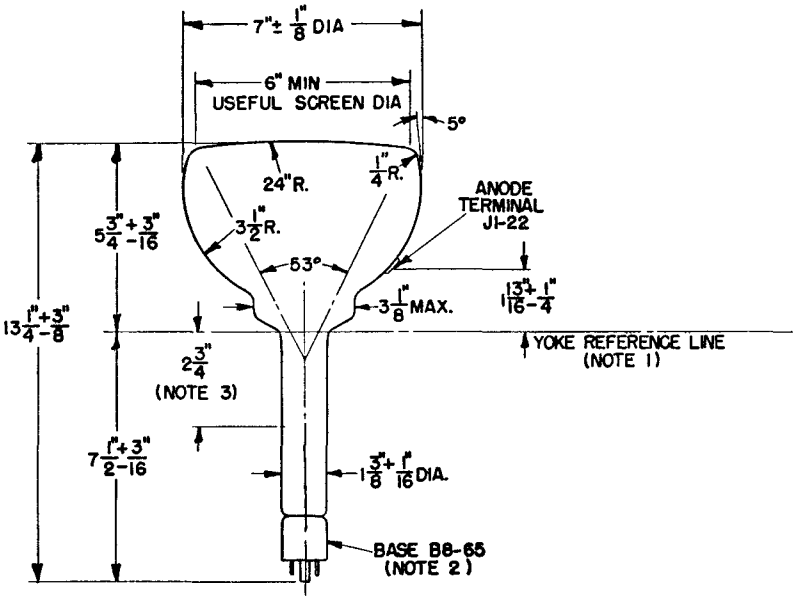
§Brightness and focus quality decrease with decreasing anode voltage. In general, the anode voltage should not be less than 4000 volts.

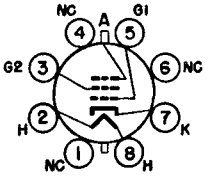
¶For visual extinction of undeflected focused spot.

▲For RETMA focusing coil No. 106 with distance from the yoke reference line to center of air gap equal to 2¾ inches.

♦Measured in accordance with specification MIL-E-1C paragraph 4.12.6.2 at an anode current of 200 microamperes.

‡The center of the undeflected, unfocused spot will fall within a circle of 12 millimeters radius concentric with the tube face.





BASING DIAGRAM
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NOTES:

1. REFERENCE LINE IS DETERMINED BY THE POINT WHERE A GAGE 1.430" $^{+.003"}_{-.000"}$ I.D. AND 2" LONG WILL STOP AGAINST THE BULB BODY.
2. ANODE TERMINAL ALIGNS WITH PIN-NO. 5 ±10 DEGREES.
3. RECOMMENDED POSITION FOR CENTER OF FOCUSING FIELD.

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