



7UP7 AND 7UP7-A CATHODE-RAY TUBE

7-INCH ROUND, GLASS
FOCUS—MAGNETIC
DEFLECTION—MAGNETIC
7UP7-A—HIGH-RESOLUTION GUN

53-DEGREE DEFLECTION ANGLE
FACEPLATE—SPHERICAL, CLEAR
PERSISTENCE—LONG
ALUMINIZED SCREEN

DESCRIPTION AND RATING

The 7UP7 is a magnetic-focus and -deflection, direct-view cathode-ray tube intended for radar and oscillographic applications that require a long persistence. A particular feature of this tube is the high-quality fluorescent screen which is aluminized to increase light output, reduce undesirable screen charging, and prevent ion-spot blemish.

The 7UP7-A is identical except that it has a high-resolution electron gun which gives a small spot size, an improved spot shape, increased resolution, and greater depth of focus.

GENERAL

ELECTRICAL

Heater Voltage	6.3	Volts
Heater Current	$0.6 \pm 10\%$	Amperes
Focusing Method—Magnetic		
Deflecting Method—Magnetic		
Deflection Angle, approximate	53	Degrees
Direct Interelectrode Capacitances, approximate		
Cathode to All Other Electrodes	5	$\mu\mu\text{f}$
Grid-No. 1 to All Other Electrodes	8.5	$\mu\mu\text{f}$

OPTICAL

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

MECHANICAL

Over-all Length	$13\frac{1}{4} \pm \frac{3}{8}$	Inches
Greatest Bulb Diameter	$7 \pm \frac{1}{8}$	Inches
Minimum Useful Screen Diameter	6	Inches
Bulb Number, ASA Designation—J56R		
Bulb Contact—Recessed Small-cavity Cap, JETEC No. J1-21		
Base—Long Medium-shell Octal 8-Pin, JETEC No. B8-65 or		
Long Medium-shell Octal 5-Pin, JETEC No. B5-80		
Basing, JETEC Designation—5AN		
Bulb Contact Alignment		
Anode Contact Aligns with Pin No. 5 ± 10 Degrees		
Mounting Position—Any		

GENERAL  ELECTRIC

MAXIMUM RATINGS

DESIGN-CENTER VALUES*	7UP7	7UP7-A
Anode Voltage†	12,000	12,000 Max Volts DC
Grid-No. 2 Voltage	700	700 Max Volts DC
Grid-No. 1 Voltage		
Negative-Bias Value	180	180 Max Volts DC
Positive-Bias Value	0	0 Max Volts DC
Positive-Peak Value	.2	2 Max Volts
Peak Grid-No. 1 Drive from Cutoff	.65	65 Max Volts
Peak Heater-Cathode Voltage‡		
Heater Negative with Respect to Cathode	180	180 Max Volts
Heater Positive with Respect to Cathode	180	180 Max Volts
Line Width Aφ		0.28 Millimeters
Spot Position♥		12 Millimeters

TYPICAL OPERATING CONDITIONS

Anode Voltage§	7000	Volts DC
Grid-No. 2 Voltage	250	Volts DC
Grid-No. 1 Voltageπ	—25 to —70	Volts DC
Focusing-Coil Current▲, approximate	111	Milliamperes DC

MAXIMUM CIRCUIT VALUES

Grid-No. 1 Circuit Resistance	1.5 Max	Megohms
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*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.

‡Cathode should be returned to one side or to the midtap of the heater transformer winding.

φMeasured in accordance with MIL-E-1C, paragraph 4.12.6.2, at an anode current of 100 microamperes.

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

§Brightness and focus quality decrease with decreasing anode voltage. In general, the anode voltage should not be less than 5000 volts.

πFor 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.