



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 ± 10%	Amperes
Focusing Method—Magnetic		
Deflecting Method—Magnetic		
Deflection Angle, approximate	53	Degrees
Direct Interelectrode Capacitances, approximate		
Cathode to All Other Electrodes5	μμf
Grid-No. 1 to All Other Electrodes	8.5	μμf

OPTICAL

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

MECHANICAL

Over-all Length	13 1/4 ± 3/8	Inches
Greatest Bulb Diameter7 ± 1/8	Inches
Minimum Useful Screen Diameter6	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		



MAXIMUM RATINGS

DESIGN-CENTER VALUES*

	7UP7	
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 $A\phi$		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 Voltage π	-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.

ϕ Measured 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.

π 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.