



5AUP24

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COLOR FLYING-SPOT CATHODE-RAY TUBE

HIGH-RESOLUTION CAPABILITY
ELECTROSTATIC FOCUS

ALUMINIZED SCREEN
MAGNETIC DEFLECTION

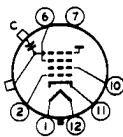
For use as flying-spot scanner in color video-signal generators

DATA

General:

Heater, for Unipotential Cathode:		
Voltage	6.3	ac or dc volts
Current	0.6 ± 10%	amp ←
Direct Interelectrode Capacitances:		
Grid No.1 to all other electrodes	8	μf
Cathode to all other electrodes	5	μf
External conductive neck coating to ultor	{ 500 max.	μf
	{ 100 min.	μf
Faceplate, Flat	Clear Glass	
Phosphor	P24	
	Aluminized	←
Fluorescence	Green	←
Phosphorescence	Green	←
Persistence	Short	←
Focusing Method	Electrostatic	
Deflection Method	Magnetic	
Deflection Angle (Approx.)	40°	
Overall Length	12-1/2" ± 3/8"	
Greatest Diameter	5" ± 1/8"	
Minimum Useful Screen Diameter	4-1/4"	
Operating Position	Any	
Weight (Approx.)	1.4 lbs	
Cap.	Recessed Small Cavity (JETEC No. J1-21)	
Socket	See Operating Considerations	
Base	Small-Shell Duodecal 7-Pin (JETEC Group 4, No. B7-51)	←
Basing Designation for BOTTOM VIEW	12C	←

- Pin 1 - Heater
- Pin 2 - Grid No.1
- Pin 6 - Grid No.3
- Pin 7 - Internal Connection—
Do Not Use
- Pin 10 - Grid No.2



- Pin 11 - Cathode
- Pin 12 - Heater
- Cap - Ultor (Grid No.4, Collector)
- C - External Conductive Neck Coating

Maximum Ratings, Design-Center Values:

ULTOR VOLTAGE	27000 max. volts
GRID-NO.3 VOLTAGE	6000 max. volts
GRID-NO.2 VOLTAGE	350 max. volts
GRID-NO.1 VOLTAGE:	
Negative-bias value	150 max. volts
Positive-bias value	0 max. volts
Positive-peak value	2 max. volts

← Indicates a change.

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PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode:		
During equipment warm-up period		
not exceeding 15 seconds	410 max.	volts
After equipment warm-up period	150 max.	volts
Heater positive with respect to cathode. 150 max. volts		

Characteristics Range Values for Equipment Design:

For any ultor voltage (E_{c4}) between 20000* and 27000 volts

Grid-No.3 Voltage for focus with ultor current of 200 μ a	17% to 21.5% of E_{c4}	volts
Grid-No.2 Voltage when circuit design utilizes fixed grid-No.1 voltage (E_{c1}) for visual extinction of undeflected focused spot	2 to 5 times E_{c1}	volts
Grid-No.1 Voltage for visual extinction of undeflected focused spot when circuit design utilizes grid-No.2 voltage (E_{c2}) at fixed value	20% to 50% of E_{c2}	volts
Maximum Grid-No.3 Current for ultor current of 200 μ a	170	μ a
Grid-No.2 Current	-15 to +15	μ a

Examples of Use of Design Ranges:

For ultor voltage of 27000 volts

Grid-No.3 Voltage for focus with ultor current of 200 μ a	4600 to 5800	volts
Grid-No.2 Voltage when circuit design utilizes fixed grid-No.1 voltage of -70 volts for visual extinction of undeflected focused spot	140 to 350	volts
Grid-No.1 Voltage for visual extinction of undeflected focused spot when circuit design utilizes grid-No.2 voltage of 200 volts	-40 to -100	volts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance	1.5 max.	megohms
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* Brilliance and definition decrease with decreasing ultor voltage. In general, the ultor voltage should not be less than 20,000 volts.

OPERATING CONSIDERATIONS

X-Ray Warning. X-ray radiation is produced at the face of the 5AUP24 when it is operated at its normal ultor voltage. These rays can constitute a health hazard unless the tube is

→ Indicates a change.



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adequately shielded for X-ray radiation. Although relatively simple shielding should prove adequate, make sure that it provides the required protection against personal injury.

The base pins of the 5AUP24 fit the Duodecal 12-contact socket. The socket contacts corresponding to the vacant pin positions should be omitted in order to provide the maximum insulation for the high-voltage pins 6 and 7. The socket should be made of high-grade, arc-resistant, insulating material and should preferably be designed with baffles.

Heater Protection. Although maximum values of peak heater-cathode voltage are specified in the tabulated data, it is recommended that the mid-tap or one side of the heater transformer winding be connected directly to the cathode to minimize the possibility of heater burnout. This connection will also minimize the possibility of damage due to heater-cathode shorts produced by arcing between heater and cathode when a possible momentary arc causes the voltage between heater and cathode to exceed the maximum heater-cathode ratings.

When in some circuit designs, the heater is not connected directly to the cathode, precautions must be taken to hold the peak heater-cathode voltage to the maximum values shown in the tabulated data. It is also recommended that a series limiting resistance of 50,000 ohms be placed in both the ultor and grid-No.3 leads between the tube and any filter capacitors.

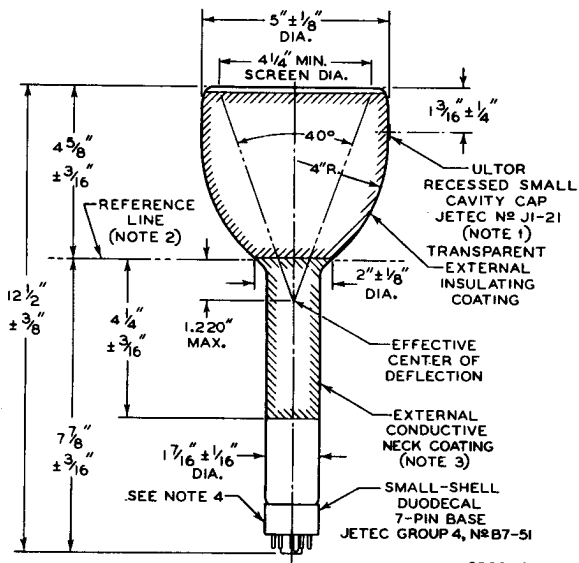
Resolution of better than 800 lines at the center of the reproduced picture can be produced by the 5AUP24 when it is operated with 27,000 volts on the ultor. At lower ultor voltages, the resolution capability decreases. To obtain high resolution in the horizontal direction, it is necessary to use a video amplifier having a bandwidth of about 20 megacycles.

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92CS-8294R2

NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND VACANT PIN POSITION 3 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ULTOR TERMINAL BY AN ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF $\pm 10^\circ$. ULTOR TERMINAL IS ON SAME SIDE AS VACANT PIN POSITION 3.

NOTE 2: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE-LINE GAUGE JETEC No. G-110 (SHOWN AT FRONT OF THIS SECTION) AND WITH TUBE SEATED IN GAUGE, THE REFERENCE LINE IS DETERMINED BY INTERSECTION OF PLANE CC' OF THE GAUGE WITH THE GLASS FUNNEL.

NOTE 3: EXTERNAL CONDUCTIVE NECK COATING MUST BE GROUNDED.

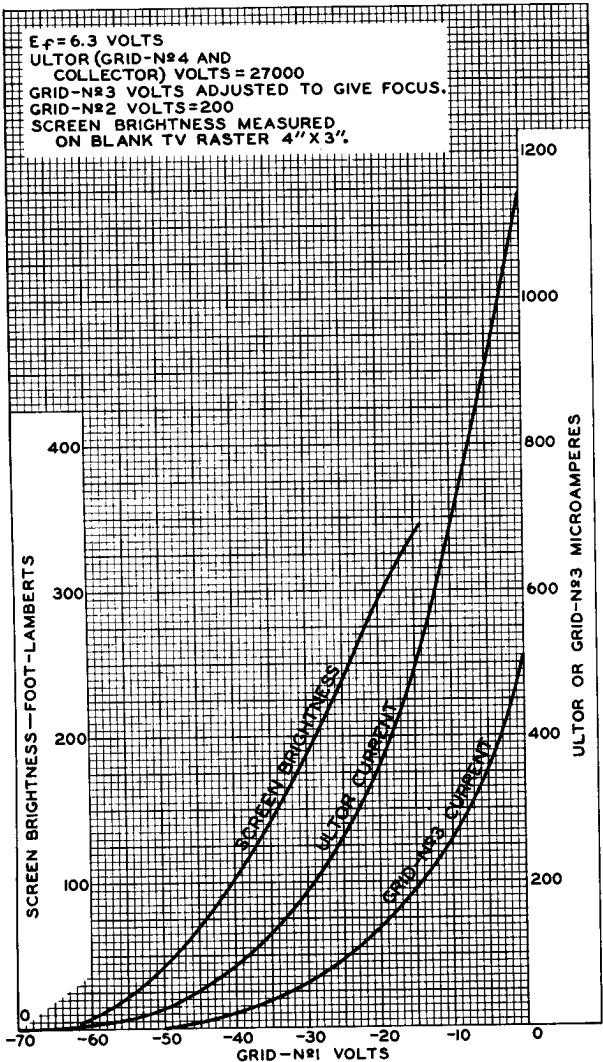
NOTE 4: \angle OF BULB WILL NOT DEVIATE MORE THAN 2° IN ANY DIRECTION FROM THE PERPENDICULAR ERECTED AT THE CENTER OF THE BOTTOM OF THE BASE.



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AVERAGE CHARACTERISTICS



ELECTRON TUBE DIVISION

92CM-8343RI

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY