



RADIO MANUFACTURERS ASSOCIATION
ENGINEERING DEPARTMENT

TYPES

5SP1
5SP2
5SP4
5SP7
5SP11

Release No. 431

August 25, 1945

sponsor:
A.B. DuMont Laboratories

Twin Cathode Ray Tube
Intensifier Type

GENERAL CHARACTERISTICS

HEATER

Voltage, a.c. or d.c.
Current (for each unit)

6.3 volts
0.6 ampere
Electrostatic
Electrostatic

DEFLECTION

FOCUS

SCREEN

Type Number	5SP1	5SP2	5SP4	5SP7	5SP11
Fluorescence	Green	Green	White	Blue	Blue
Phosphorescence	--	--	--	Yellow	--
Persistence	Medium	Long	Medium	Long	Short

MECHANICAL CHARACTERISTICS

Overall Length

Body Diameter

Base

Basing

(Diheptal)

18-1/2" $\pm$ 3/8"
5-1/4" $\pm$ 3/32"
Medium 12-Pin
14K

The basing for each unit is such that:

1. The direction of the trace produced on the screen by deflecting electrodes D₃ and D₄ will not deviate more than $\pm 10^\circ$ from a plane through pin No. 5 and the axis of the tube, while the angle between the direction of this trace and that of the trace produced on the screen by deflecting electrodes D₁ and D₂, will be $90^\circ \pm 3^\circ$.
2. With deflecting electrode D₄ positive with respect to D₃ the spot will be deflected approximately toward pin No. 5, while with deflecting electrode D₁ positive with respect to D₂ the spot will be deflected approximately toward pin No. 2.
3. The snap terminals are on the same side as pin No. 5 and are within 10° of the plane through the D₃D₄ trace.
4. The accelerating electrode terminals are within 10° of the plane through the D₃D₄ trace.
5. Connections. (See outline drawing)

RATINGS (Values are for each unit)

Heater Voltage

Heater Current

Anode No. 3 (Intensifier Electrode) Voltage (E_{b3})

Anode No. 2 (Accelerating Electrode) Voltage (E_{b2})

Anode No. 1 (Focusing Electrode) Voltage (E_{b1})

6.3 volts
0.6 $\pm$ 0.06 ampere
4400 volts max.
2200 volts max.
1100 volts max.

Grid (Control Electrode) Voltage (E_{c1})	Never Positive
Peak Potential between accelerating electrode and any deflection plate	550 volts max.
Peak Potential between Heater and Cathode	125 volts max.
Grid Circuit Resistance	1.5 meg. max.
Impedance of any deflecting electrode circuit at heater supply frequency	1.0 meg. max.
E_{b3}/E_{b2} Ratio	2.3

TYPICAL OPERATION (Values are for each unit)

Heater Voltage	6.3	6.3	6.3 volts
Anode No. 3 Voltage (E_{b3})	1500	3000	4000 volts
Anode No. 2 Voltage (E_{b2})	1500	1500	2000 volts
Anode No. 1 Voltage (E_{b1}) for focus when E_{c1} is 75% of cut-off value	431	431	575 volts $\pm$ 20%
Grid (Control Electrode) Voltage for beam cut-off (E_{c1}) i.e. visual extinction of undeflected focused spot	-45	-45	-60 volts $\pm$ 50%
Deflection Sensitivity:			
D_1D_2	.46	.37	.28 mm/dc volt (av)
D_3D_4	.53	.43	.32 mm/dc volt (av)
Deflection Factor:			
D_1D_2	55	69	92 dc volts/in $\pm$ 20%
D_3D_4	48	59	79 dc volts/in $\pm$ 20%

October 15, 1945

