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Precision Electronics and Television

DU MONT

**CATHODE-RAY
TUBES**

for

TELEVISION

Type 5BP4

A standard 5" cathode-ray tube, electrostatic deflection and focus, having a face radius of 8". The useful picture area is approximately 3 x 4 inches. Normal $E_{c2} = 2000$ volts. Suitable for very low cost receivers.

MECHANICAL CHARACTERISTICS

Overall Length	16-3/4" \pm 1/8"
Maximum Diameter	5-1/4" \pm 1/16", $-1/32$ "
Base	Medium Magnal
Basing	RMA Basing Designation 11A

TYPICAL OPERATION

Heater Voltage	6.3	6.3 volts
Anode No. 2 Voltage (E_{c2})	1500	2000 volts
Anode No. 1 Voltage (E_{c1}) for focus when I_{c1} is 5% of cut-off value	14	150 volts \pm 5%
Grid Voltage for beam cut-off (E_{c3})	-10	-10 volts \pm 5%
Deflection Factor		
D_1D_2	63	84 dia. volts/in. \pm 1%
D_3D_4	57	76 dia. volts/in. \pm 1%



Type 5CP4

A standard 5" cathode-ray tube, electrostatic deflection and focus, having a face radius of 8". The useful picture area is approximately 3 x 4 inches. Normal $E_{c2} = 2000$ volts. Intensifier $E_{c3} = 4000$ volts. The brilliance is much better on the 5CP than in the 5BP, under normal operating conditions, by reason of the intensifier.

MECHANICAL CHARACTERISTICS

Overall Length	16-1/2" \pm 1/16"
Maximum Diameter	5-1/4" \pm 1/32"
Base	Medium 12-Pin Diapetal
Basing	RMA Basing Designation 14B

TYPICAL OPERATION

Heater Voltage	6.3	6.3	6.3 volts
Anode No. 3 Voltage (E_{c3})	1500	4000	4000 volts
Anode No. 2 Voltage (E_{c2})	1500	1500	2000 volts
Anode No. 1 Voltage (E_{c1}) for focus when I_{c1} is 5% of cut-off value	14	14	150 volts \pm 5%
Grid Voltage for beam cut-off (E_{c3})	-15	-15	-10 volts \pm 5%
Deflection Factor			
D_1D_2	55	69	92 dia. volts/in. \pm 5%
D_3D_4	48	59	79 dia. volts/in. \pm 5%



Type 5AP4

A standard 5" cathode-ray tube, magnetic deflection and focus, having a relatively flat face, 2 1/2" radius. The useful picture area is approximately 3 x 4 inches. Normal $E_c = 4000$ to 7000 volts.

MECHANICAL CHARACTERISTICS

Overall Length	11-1/8" \pm 1/8"
Maximum Diameter	4-15/16" \pm 1/32"
Base	Medium Octal 8-Pin
Basing	RMA Basing Designation 5AN

TYPICAL OPERATION

Heater Voltage	6.3	6.3 volts
Anode Voltage (E_c)	4000	4000 volts
Second Grid Voltage (E_{c2})	250	250 volts
Negative Grid Voltage (E_{c1}) for beam cut-off	45	45 volts \pm 5%
Grid Drive (from cutoff) at $I_{c1} = 200 \mu a$.	38	38 volts cancel



Type 7BP4

A standard 7" cathode-ray tube, magnetic deflection and focus, having a face radius of 24". The useful picture area is approximately 4 x 5 5/8 inches. Normal $E_{a1} = 4000$ to 7000 volts. It is anticipated that a new 7" tube type incorporating certain mechanical changes will supersede the 7BP for television applications if television demands warrant full scale production.

MECHANICAL CHARACTERISTICS

Overall Length	13 1/4" \pm 1/8"
Maximum Diameter	7" \pm 1/8"
Base	Medium Octal 8-Pin
Basing	RMA Basing Designation 5AN

TYPICAL OPERATION

Heater Voltage	6.3	6.3 volts
Anode Voltage (E_{a1})	4000	3000 volts
Second Grid Voltage (E_{c2})	250	250 volts
Negative Grid Voltage (E_{c1}) for beam cut-off	45	volts \pm 25% 70 volts
Grid Drive (from cut-off) at $I_b = 200 \mu$	48	volts (max.)



Type K1018P4

A 7" cathode-ray tube, electrostatic deflection and focus, specifically for television receivers, having a face radius of 15". The useful picture area is approximately 4 x 5 5/8 inches. Normal $E_{a2} = 2500$ -5000 volts. This tube lends itself readily to quantity production methods hence low costs. It is of the electrostatic type and is designed to give good brilliance and spot size at low accelerating voltage, 3000 volts. It is intended primarily for use in low cost television receivers.

MECHANICAL CHARACTERISTICS

Overall Length	16 1/2" \pm 1/8"
Maximum Diameter	7" \pm 1/8"
Base	Medium Magnal
Basing	RMA Basing Designation 11A

TYPICAL OPERATION

Heater Voltage	6.3	6.3 volts
Anode No. 2 Voltage (E_{a2})	3000	3000 volts
Anode No. 1 Voltage (E_{a1}) for focus when E_{a2} is 75% of cut-off value	550	500 volts \pm 20%
Grid Voltage for beam cut-off (E_{c1})	35	35 volts \pm 50%
Deflection Factor		
$D_1 D_2$	94	140 (dc. volts/cm) \pm 50%
$D_2 D_1$	91	130 (dc. volts/cm) \pm 50%



Type K1007P4

A developmental model of the Television Industry's standard 10" cathode-ray tube, using the latest envelope, magnetic deflection and focus, having a face radius of 42". The useful picture area is approximately 6 x 8 inches. Normal $E_a = 8000$ volts. This tube likewise lends itself readily to quantity production methods, hence low costs and is destined to become a popular type for medium priced television receivers.

MECHANICAL CHARACTERISTICS

Overall Length	16 3/4" \pm 1/2"
Maximum Diameter	10 1/2" \pm 1/8"
Base	Medium Octal 8-Pin
Basing	RMA Basing Designation 5AN

TYPICAL OPERATION

Heater Voltage	6.3	6.3 volts
Anode Voltage (E_a)	8000	8000 volts
Second Grid Voltage (E_{c2})	250	250 volts
Negative Grid Voltage (E_{c1}) for beam cut-off	45	45 volts \pm 25% 70 volts

*These are developmental tube types, the design details of which are subject to change.



Type K1003P4*

A modified 12" cathode-ray tube, electrostatic deflection and focus, having a face radius of 20". The useful picture area is approximately 6.5/8 x 8.7/8 inches. Normal $E_{a2} = 4500$ volts. Intensifier $E_{a2} = 8000$ volts. Having a flatter screen and generally improved performance, it is primarily intended to replace the 14AP4 used in prewar television receivers.

MECHANICAL CHARACTERISTICS

Overall Length	23.5" \pm 1/4"
Maximum Diameter	12" \pm 1/8"
Base	12 contact peripheral
Basing	Du Mont Dwg. DD-2664-A

TYPICAL OPERATION

Heater Voltage	2.5	2.5	volts
Intensifier Electrode potential (E_{a2})	5000	8500	volts
Accelerating Electrode potential (E_{a1})	5000	5000	volts
Focusing Electrode potential (E_{f1}) for focus when E_{a1} is 75% of cut-off value	1375	1375	volts \pm 50%
Control Electrode potential (E_{c1}) for beam cut-off	-100	-100	volts \pm 50%
Deflection factor			
D_1D_2		17.1	in./volts/in. \pm 20%
D_1D_3		15.1	in./volts/in. \pm 20%



Type 12DP4

A standard 12" cathode-ray tube, magnetic deflection and focus, having a face radius of 20". The useful picture area is approximately 6.5/8 x 8.7/8 inches. Normal $E_a = 4000$ to 7000 volts. For direct viewing television receivers either the 12DP4 or the K1003P4 are decided improvements over previous direct viewing tubes of this size.

MECHANICAL CHARACTERISTICS

Overall Length	20.1/8" \pm 1"
Maximum Diameter	12" \pm 1/16"
Base	Medium Octal 8-Pin
Basing	RMA Basing Designation 5AN

TYPICAL OPERATION

Heater Voltage	6.3	6.3	volts
Anode Voltage (E_{a1})	4000	7000	volts
Second Grid Voltage (E_{c2})	250	250	volts
Negative Grid Voltage (E_{c1}) for beam cut-off	45	45	volts \pm 50% 25 volts
Grid Drive for $I_{a1} = 200 \mu a$	38		volts max.

Type K1013P4*

A 20" cathode-ray tube, using the latest envelope, with a face radius of 50 inches and magnetic deflection and focus. The useful picture area is approximately 12 x 16 inches. Normal $E_a = 10,000$ to 15,000 volts. This tube is designed for direct viewing, large screen television receivers of the deluxe class.

MECHANICAL CHARACTERISTICS

Overall Length	28.5/8" \pm 1/4"
Maximum Diameter	20" \pm 1/8"
Base	Medium Octal 8-Pin
Basing	RMA Basing Designation 5AN

TYPICAL OPERATION

Heater Voltage	6.3	6.3	volts
Anode Voltage (E_{a1})	10,000	15,000	volts
Second Grid Voltage (E_{c2})	250	250	volts
Negative Grid Voltage (E_{c1}) for beam cut-off	45	45	volts \pm 50% 25 volts
Grid Drive (at $I_{a1} = 200 \mu a$)	38		volts max.

* These are developmental tube types; the design details of which are subject to change.

A 15" cathode-ray tube with magnetic deflection and focus is now in developmental stages. The mechanical and electrical characteristics of this tube will be published at a later date and furnished as an addendum to this publication.

