

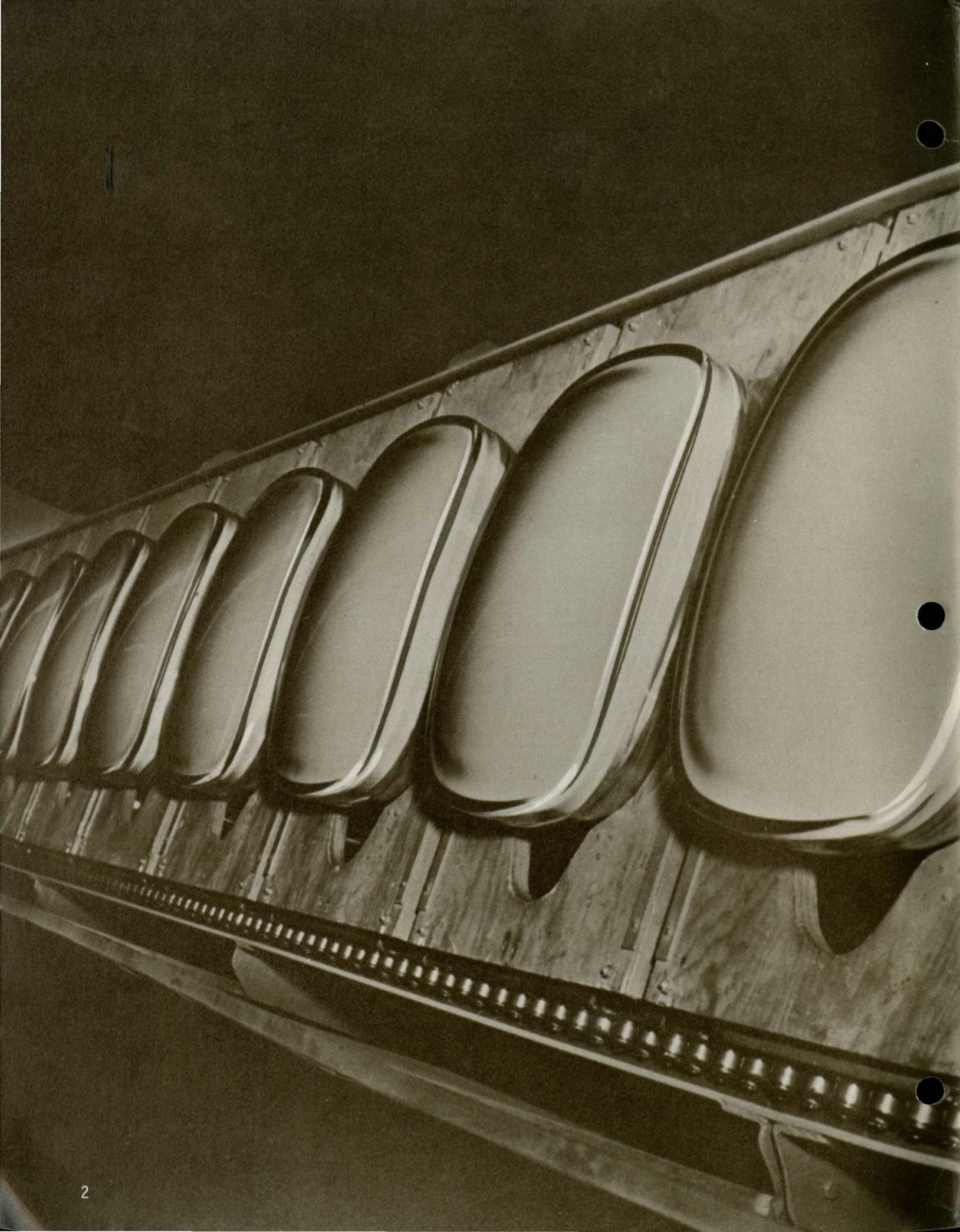
characteristics

television picture tubes

SYLVANIA
SUBSIDIARY OF
GENERAL TELEPHONE & ELECTRONICS **GTE**



SYLVANIA



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NOTE: Some types are included which may not be currently available from Sylvania. Consult Sylvania's current price list for available types.

The data published here has been compiled by Sylvania from various sources, and while believed to be accurate, no responsibility can be assumed in case of error.

Introduction

This book contains characteristics and ratings for over 750 television picture tubes. Both color and black and white types are included. All popular types are presented plus many older types for which there is still some replacement interest.

To make this book a complete and most useful reference guide, some types have been included which may not be currently available from Sylvania. This data can be useful in cross referencing types and finding Sylvania replacements for older, hard-to-find picture tubes. Consult Sylvania's current price list for available types.

Sylvania has been manufacturing cathode ray tubes since 1932. To date, 37 million tubes have rolled down the production line, an average of one tube every 20 seconds, every working day, 24 hours a day over 34 continuous years. The vast experience and know-how gained is reflected in today's Color Bright '85's', Color Screen '85's', and Silver Screen '85's'.

37,000,000 television picture tubes

Many improvements have been incorporated into Sylvania's line of picture tubes over the years, such as: larger screen sizes, shorter lengths, aluminized screens, implosion protection systems, rectangular faceplates, greater life and reliability, and last, but far from least, Sylvania's New Rare Earth Phosphor and unique screening method plus stabilizing features which gives color pictures the brightest, truest color ever achieved.

Sylvania is the only manufacturer of cathode ray tubes with complete facilities for fabricating all tube components (except glass) from raw materials. An integral Parts Division and Chemical and Metallurgical Division permits the highest quality control throughout all stages of manufacture. Sylvania's experience in glass handling and glass technology related to electronics extends back to the beginning of the industry.

Sylvania color bright "85" picture tubes—a complete color line

Sylvania began manufacture of color picture tubes in the early 1950's. During color television's infancy Sylvania supplied picture tubes to the industry and was among the leaders in development of improvements in tube design.

Now in the midst of a spectacular color boom, Sylvania stands ready with a full complement of color picture tubes. In addition to supplying the 21" round types for replacement purposes, Sylvania's line now includes rectangular types in sizes 15", 19", 22", and 25". These new rectangular tubes are shorter in length providing cabinetry with slim modern design. All use the ultrabright Rare Earth Phosphor Screen developed by Sylvania. Brightness has been increased significantly and colors are true and sharp. The new phosphor also provides a much brighter monochrome picture.

Sylvania also developed a superior screening process which optimizes brightness and eliminates problems inherent in other systems.

One method of screening generally used is to intimately mix the photoresist and phosphor in a wet slurry and apply it directly to the panel while rotating and tilting it for uniform distribution.

The Sylvania method is to deposit a photoresist solution on the panel and then deposit the phosphor by a dry process. The phosphor is ejected as a cloud of dust from a dry spray unit, and settles uniformly into the photoresist.

The basic color tube screening process consists of sequentially depositing the three primary color fields consisting of three individual sets of dots. Approximately 400,000 dots per color field are deposited. The dots measure about 0.015 to 0.018 inch in diameter.

The three primary color fields are properly oriented on the panel (inside surface of the faceplate). The panel is first coated with photoresist and green phosphor; and is then exposed (through the aperture mask) via an ultraviolet light source and optical system that provides an analogy between the electron optics of the tube

and the light optics of the exposure unit. In processing, the photoresist and phosphor is washed away from the unexposed panel areas, leaving the polymerized insoluble dot islands behind. The process is then repeated twice for the sets of blue and red dots. An aluminum reflecting surface is deposited on the back of the tri-dot screen to enhance brightness and contrast, and provide electrical conductivity.

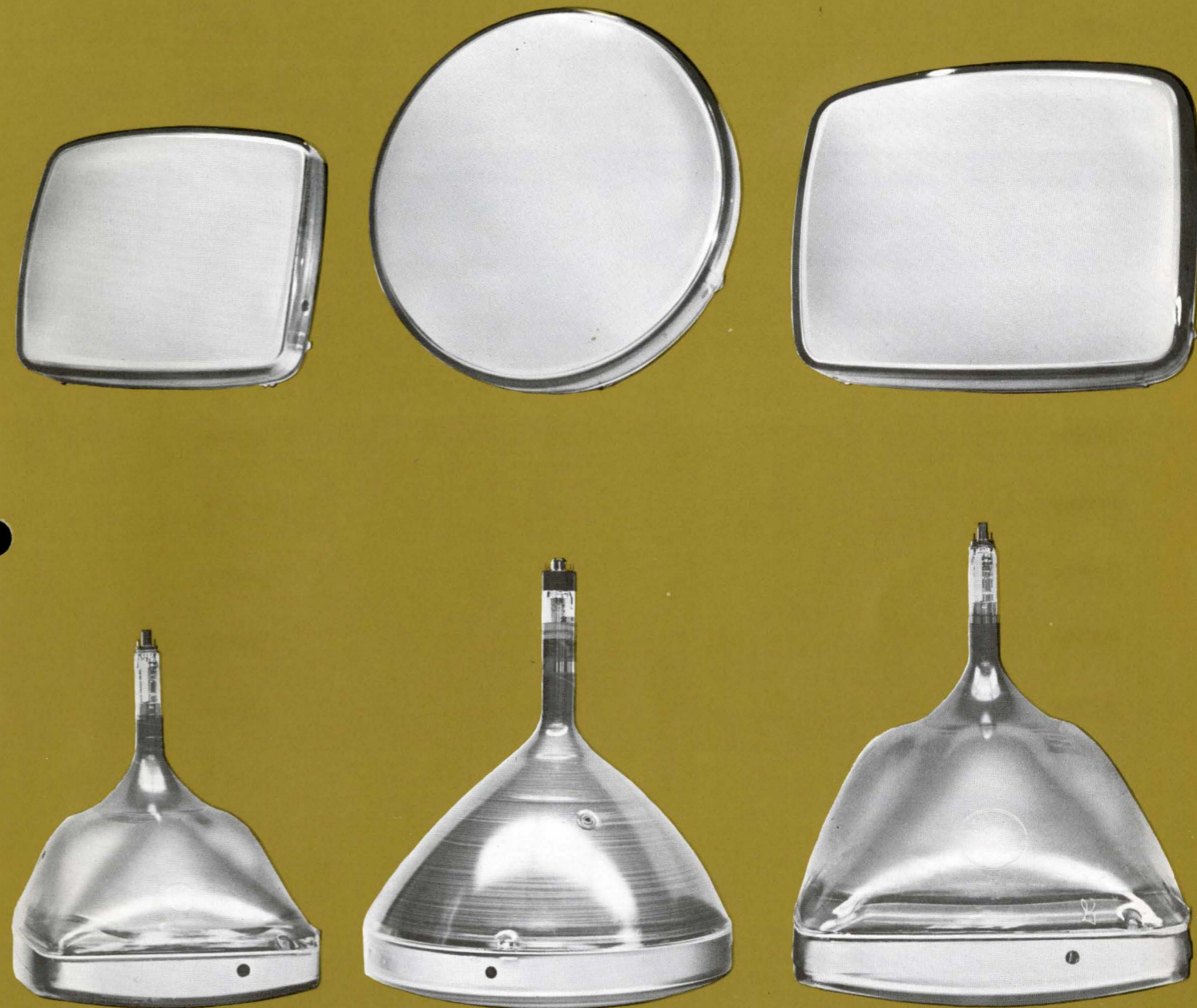
The advantages of the Sylvania system are as follows: (1) Problems of phosphor contamination and deterioration due to milling action and breaking of crystals are minimized. (2) Phosphor crystals are maintained as whole crystals, with considerable latitude in choice of particle size and crystal form. Brightness is optimized as a result. (3) The Sylvania system provides production flexibility in handling various sizes and shapes of tubes, and in using and evaluating production materials and processing.

To enhance the features gained by the Rare Earth Phosphor and new screening process, Sylvania has introduced other improvements in the Color Bright "85" line. These stabilizing features prevent changes in color registry during the initial warm-up period and over the life span of the tube.

This is accomplished by a three part program encompassing: (1) A true tempered screen (glass faceplate stabilized to predetermined dimensions). (2) Computer controlled precision alignment between faceplate and shadow mask. (3) Cross-hair indexing for positive positioning of electron gun and optimum beam alignment.

Other features of the Sylvania color line include Bonded Plate Safety Panels to eliminate need for a protective window in the cabinet, and treatment of faceplate to reduce reflection.

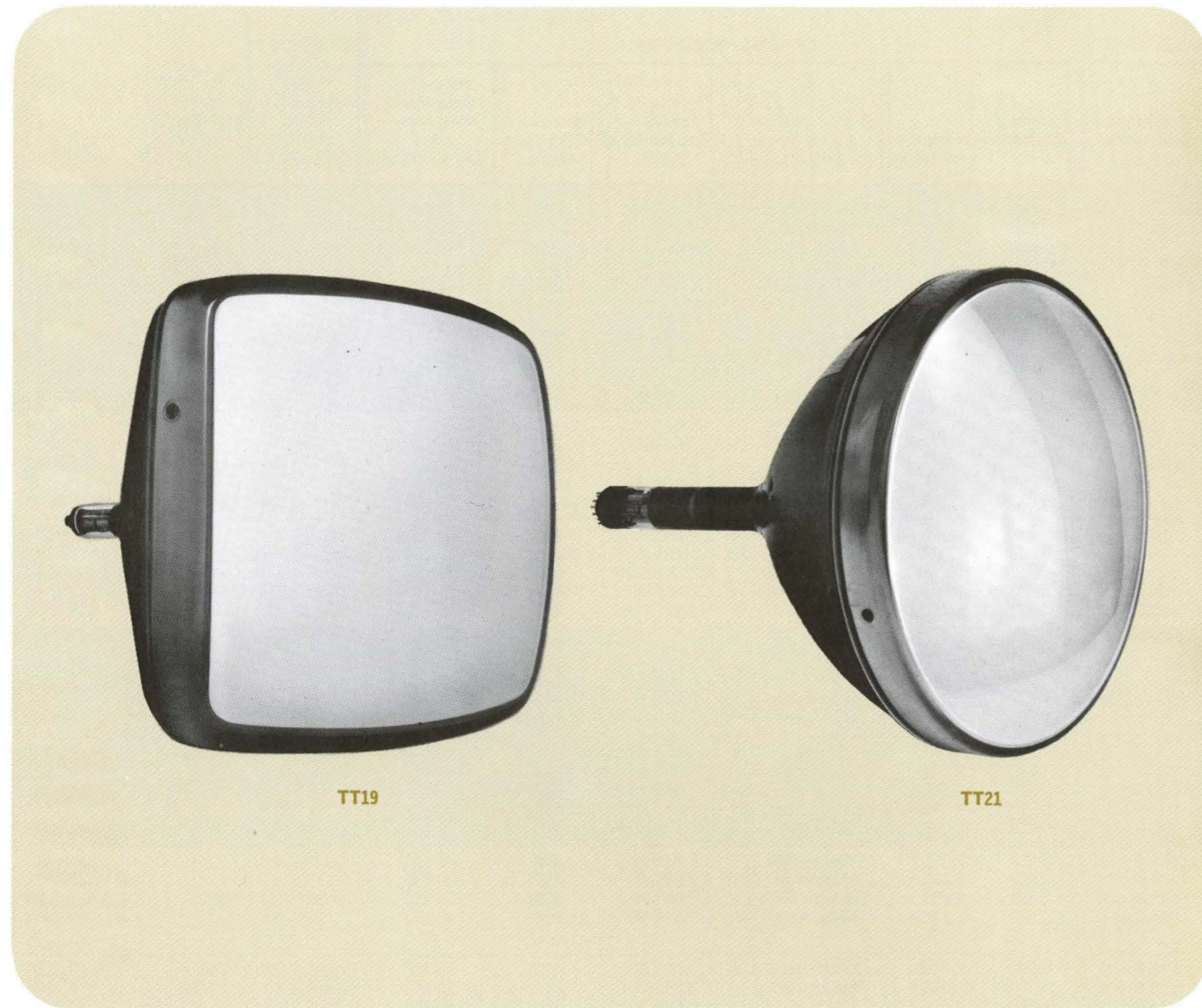
New expanded production facilities insure an adequate inventory of color tubes in all sizes for prompt shipment. For more information on Sylvania Color Bright "85" picture tubes contact your nearest sales representative.



color picture tubes/trigun (magnetic deflection-electrostatic focus) types

Type	Deflection Angle and Neck Dia. †	FACEPLATE Clear Tinted Alum. Shield* Anti-Refli.	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	Base	Basing	Heater ^Δ Volts/Amps	DESIGN MAXIMUM		RATINGS		TYPICAL OPERATION				REMARKS	
			Faceplate Diameter or Wid. x Ht.	Length					Anode (Kv)	Convergence Electrode (Kv) Δ	Focusing Electrode (Kv)	Screen Grid (G2) Volts	Anode (Kv)	Convergence Electrode (Kv) Δ	Focus Electrode (Kv)	Screen Grid (G2) Volts		Negative Grid No. 1 Voltage for Raster Cutoff
11SP22	72	TA	11 x 8 1/2	14 2/32	600-800	B12-249	14BJ	13.8/.58	18	Magnetic	-.50 to +1.0	1000	15	Magnetic	-.25 to +.50	200	30-50	
14BCP22	70	CA	13 1/8 x 10 1/8	19 3/32	500-1500	B12-131	14AU	6.3/1.8	22	Magnetic	5.3	650	16	Magnetic	2.4 to 3.4	200	45-100	
15GP22	45	CA	14 5/8	26 1/8	1500-3000	B14-130	20A	6.3/1.8	22	Magnetic	5.5	550	20	8.5 to 10.2	2.4 to 3.8	200	45-100	
15HP22	45	CA	14 5/8	26 1/8	1500-3000	B14-130	20A	6.3/1.8	22	12.1	5.5	550	20	9.3	3.1	140-315 200	70 45-100	
15KP22	90	TA	12 29/32 x 10 2 3/4	14 1/32	500-1050	B12-244	14BH	6.3/.80	22.5	Magnetic	-.55 to +1.1	1000	20	Magnetic	-.075 to +.400	200	50-110	
RE15KP22	90	TA	12 29/32 x 10 2 3/4	14 1/32	500-1050	B12-244	14BH	6.3/.80	22.5	Magnetic	-.55 to +1.1	1000	20	Magnetic	-.075 to +.400	200	50-110	Color Bright "85"
15LP22	90	TA-AR-BP	12 29/32 x 10 2 3/4	15 1/16	500-1050	B12-244	14BH	6.3/.80	22.5	Magnetic	-.55 to +1.1	1000	20	Magnetic	-.075 to +.400	200	50-110	
RE15LP22	90	TA-AR-BP	12 29/32 x 10 2 3/4	15 1/16	500-1050	B12-244	14BH	6.3/.80	22.5	Magnetic	-.55 to +1.1	1000	20	Magnetic	-.075 to +.400	200	50-110	Color Bright "85"
16CDP22	90	A	13 3/4 x 11 3/32	15 1/8	500-1000	B12-246	14BE	6.3/.90	20	Magnetic	4.8	650	18	Magnetic	3.0 to 3.6	200	45-100	
16CSP22	90	TA-BP	13 1/16 x 11 1/32	15 1/8	700-1300	B12-246	14BE	6.3/.80	23	Magnetic	4.8	650	16	Magnetic	2.5 to 3.2	200	45-100	
17EJP22	70	TA-BP	15 29/64 x 12 1/32	21 1/8	1000-2000	B12-131	14AU	6.3/1.8	22	Magnetic	5.3	650	18	Magnetic	2.7 to 3.8	200	45-100	
17ENP22	70	TA-AR-BP	15 29/64 x 12 1/32	21 1/8	1000-2000	B12-131	14AU	6.3/1.8	22	Magnetic	5.3	650	18	Magnetic	2.7 to 3.8	200	45-100	
19EXP22	90	TA	16 7/8 x 13 1/32	17 3/64	1500-2000	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
RE19EXP22	90	TA	16 7/8 x 13 1/32	17 3/64	1500-2000	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
19EYP22	90	TA-AR-BP	16 7/8 x 13 1/32	18 3/64	1500-2000	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
RE19EYP22	90	TA-AR-BP	16 7/8 x 13 1/32	18 3/64	1500-2000	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
RE19EYP22	90	TA-AR-BP	16 7/8 x 13 1/32	18 3/64	1500-2000	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85" High Trans. Glass
RE19FMP22	90	TA-BP	16 7/8 x 13 1/32	18 3/64	1500-2000	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
19FXP22	90	TA-AR-BP	16 3/32 x 13 1/32	18 3/64	1500-2000	B12-244	14BE	6.3/1.35	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
19TP22	60	TA	19 1/16	24 3/4	1500-3000	B14-130	20A	6.3/1.8	24.2	13.2	4.4	550	20	8.5 to 10.2	1.95 to 3.25	200	42-78	
19VP22	62	TA	19 1/16	26 7/16	1500-3000	B12-105	14W	6.3/1.8	29.7	Magnetic	9.9	550	25	Magnetic	6.5 to 8.0	200	45-100	
21AXP22	70	TA	20 1/16	25 1/16	.....	B12-131	14W	6.3/1.8	27.5	Magnetic	6.6	660	25	Magnetic	3.8 to 5.3	150-330 200	75 45-100	Metal Bulb
21AXP22A	70	TA	20 1/16	24 1/16	.....	B12-131	14AH	6.3/1.8	27.5	Magnetic	6.6	660	25	Magnetic	3.8 to 5.3	130-370	70	Metal Bulb
21CYP22	70	TA	20 1/16	25 1/32	2000-2500	B12-131	14AL	6.3/1.8	27.5	Magnetic	6.6	660	25	Magnetic	4.2 to 5.0	200	45-100	
21CYP22A	70	TA	20 1/16	25 1/32	2000-2500	B12-131	14AL	6.3/1.6	27.5	Magnetic	6.6	650	25	Magnetic	4.2 to 5.0	130-370	70	
21FBP22	70	TA	20 1/16	25 1/32	2000-2500	B12-131	14AU	6.3/1.8	27.5	Magnetic	6.0	650	25	Magnetic	1.2 to 5.0	200	45-100	
21FBP22A	70	TA	20 1/16	25 1/32	2000-2500	B12-131	14AU	6.3/1.8	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
RE21FBP22A	70	TA	20 1/16	25 1/32	2000-2500	B12-131	14AU	6.3/1.8	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
21FJP22	70	TA-AR-BP	21 m	25 3/32	2000-2500	B12-131	14AU	6.3/1.8	27.5	Magnetic	6.0	650	25	Magnetic	1.2 to 5.0	200	45-100	
21FJP22A	70	TA-BP	21	25 3/32	2000-2500	B12-131	14AU	6.3/1.8	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
RE21FJP22A	70	TA-BP	21	25 3/32	2000-2500	B12-131	14AU	6.3/1.8	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
21FKP22	70	TA-BP	21 m	25 3/32	2000-2500	B12-131	14AU	6.3/1.8	27.5	Magnetic	6.0	1000	25	Magnetic	1.2 to 5.0	200 130-370	45-100 70	
RE21FKP22	70	TA-BP	21	25 3/32	2000-2500	B12-131	14AU	6.3/1.8	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
21GLP22	90	TA-BP-AR	18 13/16 x 15 1/16	19 29/64	1500-2000	B12-244	14BE	6.3/1.35	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.4	400	60-125	
22EP22	70	TA	21 1/32 x 17 1/16	25 3/4	1500-2800	B12-131	14W	6.3/1.8	27.5	Magnetic	6.6	880	25	Magnetic	4.0 to 5.1	200	55-105	
22JP22	90	TA-AR-BP	18 3/64 x 15 1/64	19 1/64	1700-2200	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	50-225 400	60 90-190	
RE22JP22	90	TA-AR-BP	18 3/64 x 15 1/64	19 1/64	1700-2200	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
22KP22	90	TA	18 3/64 x 15 1/64	19 1/64	1700-2200	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
RE22KP22	90	TA	18 3/64 x 15 1/64	19 1/64	1700-2200	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
RE22LP22	90	TA-BP	18 3/64 x 15 1/64	19 1/64	1700-2200	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
23EGP22	92	TA-BP	20 1/2 x 16 1/2	19 1/32	2000-2500	B12-245	14BE	6.3/1.35	27.5	Magnetic	6.0	650	25	Magnetic	4.2 to 5.4	400	60-125	
23EGP22A	92	TA-BP	20 1/2 x 16 1/2	19 1/32	1800-2500	B12-245	14BE	6.3/1.35	27.5	Magnetic	6.0	650	25	Magnetic	4.2 to 5.4	400	60-125	
25AP22	90	TA-AR-BP	21 1/2 x 17 1/64	20 29/64	2000-2500	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
25AP22A	90	TA-AR-BP	21 1/2 x 17 1/64	20 29/64	2000-2500	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
RE25AP22A	90	TA-AR-BP	21 1/2 x 17 1/64	20 29/64	2000-2500	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
RE25AP22A	90	TA-AR-BP	21 1/2 x 17 1/64	20 29/64	2000-2500	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85" High Trans. Glass
25BP22	90	TA	21 1/2 x 17 1/64	20 29/64	2000-2500	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
25BP22A	90	TA	21 1/2 x 17 1/64	20 29/64	2000-2500	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
RE25BP22A	90	TA	21 1/2 x 17 1/64	20 29/64	2000-2500	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
25CP22	90	TA-BP	21 1/2 x 17 1/64	20 29/64	2000-2500	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	
RE25CP22	90	TA-BP	21 1/2 x 17 1/64	20 29/64	2000-2500	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85"
RE25CP22	90	TA-BP	21 1/2 x 17 1/64	20 29/64	2000-2500	B12-244	14BE	6.3/.80	27.5	Magnetic	6.0	1000	25	Magnetic	4.2 to 5.0	400	90-190	Color Bright "85" High Trans. Glass

Sylvania color check tubes



TT19

TT21

Type	▲ Heater	Face	Body		Basing	Defl. Angle and Neck Dia. ◆	Anode Volts ● KV Max.	Nominal Length (In.)
	Ef/If Volts Amps		Metal or Glass	External Coating Capacitance (pf)				
TT19	6.3/.80	□	G	1500/2000	14BE	90	27.5	21 ³ / ₈
TT21	6.3/1.8	○	G	2000/2500	14AU	70	27.5	25 ¹ / ₂

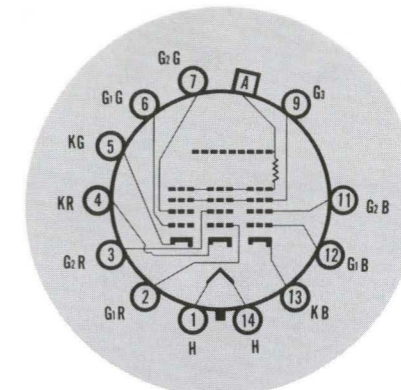
Notes—Pages 36 and 37

Basing Diagrams—Page 9

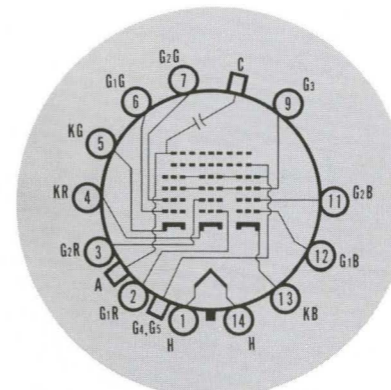
These tubes are electrically equivalent to 19", 90° rectangular and 21", 70° round color picture tubes used by all major manufacturers. They can be adapted to check all popular color picture tubes. Additional technical

information on these tubes and on their application in TV receiver servicing is available on request.

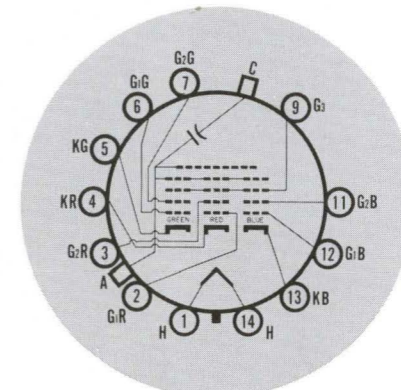
basing diagrams (color tubes)



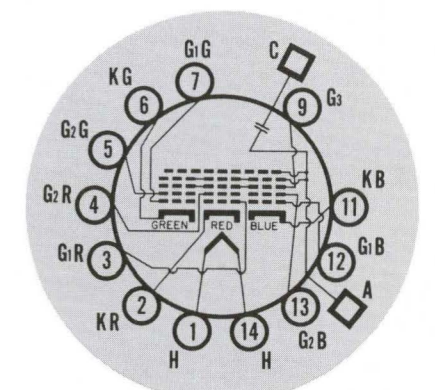
14AH



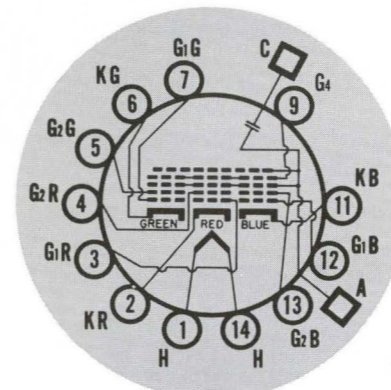
14AL



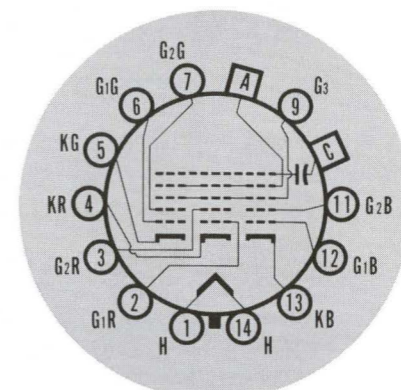
14AU



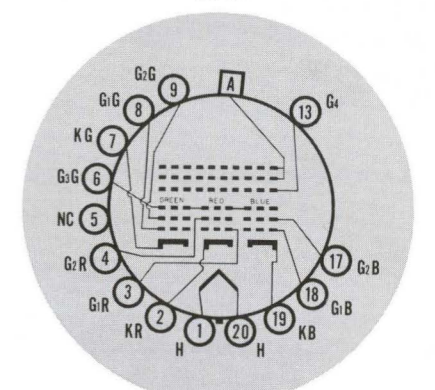
14BE



14BH



14W



20A

basing diagram symbols

- A—Anode
- C—Conductive Coating
- G1—Grid No. 1
- G2—Grid No. 2, etc.

- H—Heater
- K—Cathode
- Locating Lug
- Bulb Terminal

- B—Blue Gun
- G—Green Gun
- R—Red Gun

Sylvania silver screen "85" picture tubes—the finest in monochrome

Dealers everywhere have long recognized Sylvania's Silver Screen "85" as the quality picture tube of the industry.

Time and time again tests have proved that the Silver Screen "85" gives the sharpest, clearest, brightest reception, and the longest tube life performance. So it's a natural conclusion that dealers insist on installing the Silver Screen "85" when a customer wants his set to work like new again—or better than new!

To begin with, the phosphors that are so important to screen brightness are rigorously controlled during their manufacture in Sylvania's own modern phosphor plant. And to assure the highest quality, these phosphors undergo more extensive testing upon arrival at Sylvania's picture tube plant. Absolute testing controls over these critical phosphors are the first of many steps taken to insure the brightest screens possible for the Silver Screen "85".

Sylvania also takes extra precautions during the screening process in the preparation and storage of the screen solution. The solution is actually stored in a tile-lined room, and is filtered through large stainless steel filters before it is allowed to flow out of the solution room. This protects the phosphor from impurities that could cause spots, holes, or dirt specks on the screen.

Special safeguards are also taken to guarantee a consistent, uniform screen for each and every bulb. Transparent plastic reservoirs are filled automatically by electrically controlled devices and supply each Silver Screen "85" with exactly the right amount of phosphor.

To eliminate the possibility of a slight change in temperature destroying the edge-to-edge color of the screen, or producing dark centers, Sylvania rigidly maintains atmospheric conditions. This is accomplished through air filters and air conditioners that eliminate dust in the air during the screen-settling process. Also the warm air that is used to dry and set each screen has, itself, been carefully filtered and predried.

These steps are only the measures Sylvania

takes during the processing of every Sylvania screen. Add to these the many, many extra precautions that are taken during the complete production of the Silver Screen "85" tube.

New or improved manufacturing techniques now employed by Sylvania in the production of Silver Screen "85" picture tubes include:

Improved aluminizing distribution and thickness

To reduce center-to-edge gradations in aluminum thickness, an ideal combination of the aluminizing coil, coil shield, and support has been adopted. At the same time, this has permitted Sylvania to increase the aluminum thickness by approximately 25%, thus providing maximum resistance to electrical burning.

"Better intelligence" on focus spacing

Process control information and feedback of data to the Production Department has been increased to assure uniformity of G3-G5 focus spacing, tube to tube.

Better external conductive coating

An improved water-base external conductive coating, which exhibits greater resistance to peeling under high humidity, has been adopted. To obtain higher conductivity, improved spray techniques and equipment are now being used in production.

Advances in production of high vacuum

Extremely tight standards and procedures have been established to measure the effectiveness of each exhaust cart's vacuum system. In addition, a new method of determining minute leaks in the vacuum system is in effect, and any questionable exhaust carts are removed from production.

Exhaust emission testing to higher minimum limits

Each tube is checked to significantly higher minimum emission limits off the exhaust machine. These limits control the effectiveness of our processing, exhaust machine, mount parameters and operator techniques.

More severe life test conditions

Tubes are being run at higher average and higher peak current conditions to provide information on the ability of the tube to give satisfactory performance under these conditions, thus provide additional safety factor in the field. In addition, tubes are being run on life beyond normal life hours to add to our information and provide extended life expectancy statistics.

In stepping up the Silver Screen "85" reliability program, Sylvania has not left a stone unturned. The following innovations concern Sylvania's precision electron gun mounts:

Control of cathode emission

To provide improved coating density control and to assure greater uniformity of cathodes, Sylvania's quality sampling program was intensified. Each lot of coated cathodes is carefully checked on a sample basis. Sylvania manufactures its own emitter coating material at its Tungsten and Chemical Division, this allows close

control of the precise chemical and particle size measurements which are necessary to obtain the desired coating characteristics.

New plastic and metal containers for mount parts

Plastic and metal containers are in use for parts transfers in the Mounting Department.

"Fresher" mounts

Tighter scheduling of mount production/inventory results in using "fresher" mounts in each tube. Also, heated mount transfer carts and plio-film bags are employed to reduce exposure to plant atmosphere.

It is doing "something more than is required" that distinguishes the manufacture of the Silver Screen "85" throughout. That's why you can install Sylvania picture tubes with utmost confidence. And that's why your customers are satisfied with the brightest, clearest, sharpest reception from any picture tube available.

Sylvania "balanced optics" electron gun

Constant refinement and improvement by Sylvania engineers has resulted in the advanced "Balanced Optics" electron gun, heart of every Sylvania picture tube. "Balanced Optics" describes the cumulative result of a variety of refined techniques, including:

- Micro-sheen metal surfaces
- Hair splitting spacing and tolerance controls
- Micrometric design techniques
- New electrode contours
- Corona suppression
- Beam guard and halo control
- Optimized performance for each neck length
- Planar focus

All of these improvements add up to important benefits—full picture power; pinpoint focus; improved drive characteristics; and brilliant, high-resolution high lights!



monochrome picture tubes (continued)

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE Clear Tinted Alum. Shield* Anti-Ref.	OVERALL DIMENSIONS INCHES		External Coating Capacitance (pf)	** Ion Trap	Base	Basing	Heater▲ Volts/Amps	DESIGN Anode (Kv)	MAXIMUM RATINGS			TYPICAL OPERATION			REMARKS
			Faceplate Diameter or Width x Height	Length							Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts Magnet Coil Current in Ma.	Accel. Grid (G2) Volts	Negative Grid No. 1 Voltage for Spot Cutoff	
2EP4	30	A	2	8¼	300-500	N	B7-208	8JK	6.0/.145	11	-55 to +1.1	550	9	-50 to +350	300	20-30	Neck Diameter 1½ Inches Projection Tube
5TP4	50	CA	5	11¾	100-500	N	B7-51	12C	6.3/.60	29.7	+6.6m	385	27	4900	200	40-100	
7DP4	50	C	7¾	14¼	400-1500	D	B7-51	12C	6.3/.60	8.8	+2.6m	450	6	1430	250	25-65	
7RP4	50	CA	7¾	14¼	.....	N	B5-57	12D	6.3/.60	13.2	Magnetic	450	9	120 Ma.	250	27-63
8DP4	90	T	7⅞ x 6⅞	10⅞	250-350	S	B6-185	12AB	6.3/.60	8.8	-55 to +.55	330	8	60 to 360	200	22-51	
8KP4	90	TA	7⅞ x 6⅞	11⅞	N	B6-63	12M	6.3/.60	18	+8	700	16	0-400	300	35-72	4.7 Volt Heater
9QP4	70	C	8⅞ x 6⅞	12¾	.....	S	B7-51	12AD	4.7/.30	7.5	-11 to +.55	330	5.5	0 to 400	200	33-77
9QP4A	70	T	8⅞ x 6⅞	12¾	.....	S	B7-51	12AD	4.7/.30	7.5	-11 to +.55	330	5.5	0 to 400	200	35-57
9SP4	90	A-BP	7¾ x 6⅞	10½	300-500	N	B7-183	8HR	6.3/.60	18	-55 to +1.1	450	14	0-400	300	33-77	
9TP4	110	A-BF	8⅞ x 7¾	8⅞	350-600	N	B7-208	8HR	6.3/.45	15	-55 to +1.1	60	12	140	50	37-53	
10ABP4	90	C	9¾ x 7½	11⅞	400-850	S	B6-63	12L	6.3/.60	13.2	-55 to +1.1	550	7.5	0 to 500	300	43-67	8.4 Volt Heater
10ABP4A	90	CA	9¾ x 7½	11⅞	400-850	S	B6-63	12L	6.3/.60	13.2	-55 to +1.1	550	7.5	0 to 500	300	43-67	
10ABP4B	90	T	9¾ x 7½	11⅞	400-850	S	B6-63	12L	6.3/.60	13.2	-55 to +1.1	550	7.5	0 to 500	300	43-67	
10ABP4C	90	TA	9¾ x 7½	11⅞	400-850	S	B6-63	12L	6.3/.60	13.2	-55 to +1.1	550	7.5	0 to 500	300	43-67	
10ADP4	90	T	9¾ x 7½	11⅞	400-850	S	B6-63	12L	8.4/.45	13.2	-55 to +1.1	550	7.5	0 to 500	300	43-77	
10AEP4	90	T	9¾ x 7½	11⅞	400-850	S	B6-63	12L	6.3/.45	13.2	-55 to +1.1	550	7.5	0 to 500	300	43-67	Magnetic
10BP4	50	C	10½	17⅞	500-2500	D	B5-57	12N	6.3/.60	11	Magnetic	450	9	100 Ma.	250	27-63	
10BP4A	50	T	10½	17⅞	500-2500	D	B5-57	12N	6.3/.60	11	Magnetic	450	9	110 Ma.	250	27-63	
10BP4C	50	CA	10½	17⅞	500-2500	S	B5-57	12N	6.3/.60	11	Magnetic	450	9	110 Ma.	250	27-63	
10BP4D	50	TA	10½	17⅞	500-2500	S	B5-57	12N	6.3/.60	11	Magnetic	450	9	110 Ma.	250	27-63	
10FP4	50	CA	10½	17⅞	500-2500	N	B5-57	12N	6.3/.60	13.2	Magnetic	450	9	110 Ma.	250	27-63	Magnetic
10FP4A	50	TA	10½	17⅞	500-2500	N	B5-57	12N	6.3/.60	13.2	Magnetic	450	11	110 Ma.	250	27-63	
10MP4	52	C	10½	17	500-2500	D	B5-57	12G	6.3/.60	11	Magnetic	...	9	.....	...	27-63
10MP4A	52	T	10½	17	500-2500	D	B5-57	12G	6.3/.60	11	Magnetic	...	9	.....	...	27-63
10RP4	50	CA	10½	16½	750-1500	N	B6-63	12L	6.3/.60	17.6	-55 to +1.1	550	14	-55 to +300	300	33-77	
11AP4	110	TA-BL	9⅞ x 8⅞	8⅞	500-750	N	B7-208	8HR	6.3/.45	15	-50 to +1.0	250	11	250	150	31-49	Magnetic
11BP4	110	TA	9¾ x 8	8⅞	400-700	N	B7-208	8HR	6.3/.45	15	-50 to +1.0	250	11	200	150	31-49	
11CP4	110	TA	9¾ x 8	8⅞	500-750	N	B7-208	8HR	6.3/.45	15	-50 to +1.1	550	12	0-400	400	39-94	
11DP4	110	TA	9¾ x 8	8⅞	500-750	N	B7-208	8HR	6.3/.45	15	-50 to +1.0	60	11	-100 to +300	50	31-49	
11EP4	114	TA	8¾ x 7⅞	8⅞	300-500	N	B7-208	8HR	6.3/.60	14	-55 to +1.1	550	10	0 to 400	400	36-94	
11FP4	114	TA	8¾ x 7⅞	8⅞	300-500	N	B7-208	8HR	6.3/.45	14	-55 to +1.1	550	10	0 to 400	400	36-94	Magnetic
11GP4	110	TA-BF	10⅞ x 8⅞	8⅞	400-600	N	B7-208	8HR	6.3/.45	15	-50 to +1.0	200	11	-200 to +200	135	27-43	
11HP4	110	TA-BR	9⅞ x 7¾	8⅞	500-750	N	B7-208	8HR	6.3/.45	15	-50 to +1.0	250	11	0	150	31-49	
11JP4	110	TA-BF	10⅞ x 8⅞	8⅞	400-600	N	B7-208	8HR	6.3/.30	15	-50 to +1.1	70	11	-200 to +200	50	27-43	
11MP4	110	TA-BF	10⅞ x 8⅞	8⅞	400-600	N	B7-208	8HR	6.3/.30	15	-50 to +1.1	200	11	-200 to +200	135	27-43	
11QP4	90	TA	9⅞ x 7⅞	9⅞	400-800	N	E7-91	7GR	12.6/.075	14	-50 to +1.1	250	10	0 to 300	100	32-50	Magnetic
11RP4	90	TA-TB	9⅞ x 7⅞	9.0	400-750	N	E7-91	7GR	6.3/.45	15	-50 to +1.0	250	11	0	140	31-49	
12AYP4	110	A	10⅞ x 8¾	9⅞	400-900	N	B7-208	8HR	6.3/.45	14	-55 to +1.1	550	10	0 to 400	400	36-94	
12AZP4	110	A	10⅞ x 8¾	9⅞	400-900	N	B7-208	8HR	6.3/.60	14	-55 to +1.1	550	10	0 to 400	400	36-78	
12BAP4	110	A	10⅞ x 8¾	9⅞	400-900	N	B7-208	8HR	6.3/.30	14	-55 to +1.1	550	10	0 to 400	400	36-78	
12BEP4	110	TA-BF	11⅞ x 8⅞	9⅞	500-900	N	B6-214	7FA	6.3/.45	16	-50 to +1.1	50	12	0 to 500	30	25-40	Magnetic
12BFP4	110	TA	10⅞ x 8¾	9⅞	400-1200	N	E7-91	7GR	4.2/.45	14	-55 to +1.1	400	10	0 to 400	200	27-55	
12BGP4	110	TA-BF	11⅞ x 9⅞	9⅞	550-850	N	B7-208	8HR	6.3/.45	15	-50 to +1.1	60	12	0	50	35-55	
12BJP4	110	TA	10⅞ x 8¾	9⅞	400-900	N	B7-208	8HR	4.2/.45	13	-55 to +1.1	600	10	0 to 400	350	30-60	
12BKP4	110	TA-TB	10⅞ x 8⅞	9⅞	800-1000	N	B7-208	8HR	6.3/.45	15	-55 to +1.1	70	12	0 to 400	50	35-55	
12BLP4	110	TA-TB	10⅞ x 8⅞	9⅞	800-1000	N	B7-208	8HR	6.3/.45	16	-55 to +1.1	60	12	0 to 400	30	30-45	Magnetic
12BMP4	104	TA-TB	11 x 8⅞	9⅞	500-750	N	E7-91	7GR	6.3/.45	15	-50 to +1.0	250	11	0	140	31-49	
12BNP4	110	TA-BR	10⅞ x 8⅞	9⅞	500-750	N	B7-208	8HR	6.3/.45	16	-55 to +1.1	400	12	0 to 400	250	35-65	
12BNP4A	110	TA-BR	10⅞ x 8⅞	9⅞	500-750	N	B7-208	8HR	6.3/.45	16	-55 to +1.1	400	12	0 to 400	250	35-65	
12BRP4	90	TA-BR	11⅞ x 8⅞	10⅞	600-1000	N	E9-94	9RS	12.6/.08	15	-35 to +.45	50	10	0 to 500	30	25-35	
12BTP4	110	TA-BF	11⅞ x 9⅞	9⅞	550-850	N	B7-208	8HR	12.6/.15	15	-55 to +1.1	60	12	0	50	35-55	Magnetic
12BUP4	110	TA-BR	10⅞ x 8⅞	9⅞	450-900	N	B7-208	8HR	6.3/.45	14	-55 to +1.1	70	12	0 to 400	50	37-49	
12BVP4	110	TA-BR	10⅞ x 8⅞	9⅞	450-900	N	E7-91	7GR	12.6/.075	14	-55 to +1.1	70	12	0 to 400	50	37-49	
12KP4	54	CA	12⅞	17⅞	500-2500	N	B5-57	12N	6.3/.60	13.2	Magnetic	450	10	135 Ma.	250	27-63	
12KP4A	54	TA	12⅞	17⅞	500-2500	N	B5-57	12N	6.3/.60	13.2	Magnetic	450	11	135 Ma.	250	27-63	
12LP4	54	C	12⅞	18¾	750-3000	D	B5-57	12N	6.3/.60	13.2	Magnetic	450	11	110 Ma.	250	27-63	Magnetic
12LP4A	54	T	12⅞	18¾	750-3000	D	B5-57	12N	6.3/.60	13.2	Magnetic	450	11	110 Ma.	250	27-63	
12LP4C	54	TA	12⅞	18¾	750-3000	D	B5-57	12N	6.3/.60	13.2	Magnetic	450	11	110 Ma.	250	27-63	
12UP4	54	C	12⅞	18¾	.....	S	B5-57	12D	6.3/.60	13.2	Magnetic	450	11	110 Ma.	250	27-63
12UP4A	54	T	12⅞	18¾	.....	S	B5-57	12D	6.3/.60	13.2	Magnetic	450	11	110 Ma.	250	27-63
12UP4B	54	T, AR	12⅞	18¾	S	B5-57	12D	6.3/.60	13.2	Magnetic	450	11	130 Ma.	250	27-63	Metal Bulb
12VP4	54	C	12⅞	18	750-3000	D	B5-57	12G	6.3/.60	13.2	Magnetic	...	13.2	.....	...	33-77
12VP4A	54	T	12⅞	18	750-3000	D	B5-57	12G	6.3/.60	13.2	Magnetic	...	13.2	.....	...	33-77
12WP4	55	T	12⅞	17¾	750-2000	S	E9-1	9CH	6.3/.60	13.2	Magnetic	...	10	240 Gauss	...	27-63	
12YP4	54	C	12⅞	18¾	750-3000	S	B5-57	12N	6.3/.60	13.2	Auto Es.	450	11	Auto. Es.	250	33-73	

Notes—Pages 36 and 37

Basing Diagrams—Pages 34 and 35

monochrome picture tubes (continued)

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE Clear Tinted Alum. Shield* Anti-Refll.	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	** Ion Trap	Base	Basing	Heater▲ Volts/Amps	DESIGN Anode (Kv)	MAXIMUM RATINGS		TYPICAL OPERATION			REMARKS	
			Faceplate Diameter or Width x Height	Length							Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts Magnet Coil Current in Ma.	Accel. Grid (G2) Volts		Negative Grid No. 1 Voltage for Spot Cutoff
12ZP4	54	CA	12 ⁷ / ₁₆	17 ⁵ / ₈	500-2500	S	B5-57	12N	6.3/.60	13.2	Magnetic	450	11	135 Ma.	250	27-63	
12ZP4A	54	TA	12 ⁷ / ₁₆	17 ⁵ / ₈	500-2500	S	B5-57	12N	6.3/.60	13.2	Magnetic	450	11	135 Ma.	250	27-63	
13AP4	110	TA-BF	11 ¹ / ₁₆ x 9 ⁷ / ₁₆	9 ¹ / ₄	550-850	N	B7-208	8HR	6.3/.45	15	-50 to +1.1	60	12	0 to 400	50	35-55	
14ACP4	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	14 ³ / ₁₆	800-1200	S	B6-63	12L	6.3/.60	15.4	-55 to +.55	220	10	-50 to +350	125	45-85	
14AEP4	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	13 ¹ / ₁₆	800-1200	N	B6-63	12L	6.3/.60	15.4	-55 to +1.1	220	10	-50 to +350	125	37-55	
14AJP4	110	TA	13 ¹ / ₁₆ x 10 ⁷ / ₈	11 ¹ / ₁₆	500-850	S	B7-208	8HR	6.3/.60	12.1	-55 to +1.1	550	9	-100 to +400	250	29-69	
14ARP4	90	TA	13 x 10 ¹ / ₁₆	13 ¹ / ₁₆	800-1200	N	B6-63	12L	6.3/.60	15.4	+1.1	77	10	-50 to +350	50	50	
14ASP4	110	TA	13 ¹ / ₁₆ x 10 ⁷ / ₈	11 ³ / ₈	500-850	N	B7-208	8HR	6.3/.60	15.4	-55 to +1.1	550	12	-50 to +350	300	33-77	
14ATP4	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	13 ¹ / ₁₆	500-1000	N	B6-63	12L	8.4/.45	15.4	-55 to +1.1	550	14	0 to 400	400	36-95	8.4 Volt Heater
14AUP4	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	13 ¹ / ₁₆	1000-1500	N	B6-63	12L	6.3/.45	16.5	-55 to +1.1	70	12	0 to 350	50	35-55	
14AVP4	110	TA	13 ¹ / ₁₆ x 10 ⁷ / ₈	11 ³ / ₈	450-750	N	B7-183/B7-208	8HR	6.3/.60	15.4	-55 to +1.1	550	12	-50 to +350	300	33-77	
14AWP4	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	13 ¹ / ₁₆	800-1200	N	B6-63	12L	6.3/.45	15.4	-55 to +1.1	75	14	0 to 400	50	37-52	
14BP4	70	T	12 ¹ / ₂ x 9 ¹ / ₁₆	16 ¹ / ₁₆	500-2500	S	B5-57	12N	6.3/.60	13.2	Magnetic	450	12	110 Ma.	250	33-77	
14BP4A	70	T, AR	12 ¹ / ₂ x 9 ¹ / ₁₆	16 ¹ / ₁₆	500-2500	S	B5-57	12N	6.3/.60	13.2	Magnetic	450	12	110 Ma.	250	33-77	
14BAP4	70	TA	12 ¹ / ₂ x 9 ³ / ₃₂	16 ³ / ₃₂	750-2000	N	B6-63	12L	6.3/.60	22	+8	700	18	0 to 400	300	33-77	
14BDP4	70	TA-BP	12 ¹ / ₂ x 9 ³ / ₃₂	17	600-1000	N	B6-63	12L	6.3/.60	22	-50 to +.80	700	18	0 to 400	300	33-77	
14CP4	70	T	12 ¹ / ₂ x 9 ¹ / ₁₆	16 ³ / ₄	750-2000	S	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	115 Ma.	300	33-77	
14CP4A	70	TA	12 ¹ / ₂ x 9 ¹ / ₁₆	16 ³ / ₄	750-2000	S	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	115 Ma.	300	33-77	
14CP4B	70	TA	12 ¹ / ₂ x 9 ¹ / ₁₆	16 ¹ / ₂	750-2000	N	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	115 Ma.	300	33-77	
14DP4	70	T	12 ¹ / ₂ x 9 ¹ / ₁₆	16 ³ / ₄	.....	D	B5-57	12D	6.3/.60	15.4	Magnetic	450	11	100 Ma.	250	27-63	
14EP4	70	T	12 ¹ / ₂ x 9 ³ / ₃₂	16 ¹ / ₃₂	750-2000	S	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	110 Ma.	300	33-77	
14GP4	70	T	12 ¹ / ₂ x 9 ³ / ₃₂	16 ¹ / ₃₂	750-2000	S	B6-63	12L	6.3/.60	15.4	+5.5	450	12	2170 to 2940	300	33-77	
14HP4	70	T	12 ¹ / ₂ x 9 ¹ / ₁₆	16 ¹ / ₁₆	750-2000	S	B6-63	12L	6.3/.60	15.4	-55 to +.55	450	12	-48 to +264	300	33-77	
14NP4	90	T	13 ¹ / ₁₆ x 10 ¹ / ₁₆	14 ³ / ₁₆	800-1200	S	B6-63	12L	6.3/.60	15.4	-55 to +1.1	550	12	-50 to +350	300	33-77	
14NP4A	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	14 ³ / ₁₆	800-1200	S	B6-63	12L	6.3/.60	15.4	-55 to +1.1	550	12	-50 to +350	300	33-77	
14QP4	70	T	12 ¹ / ₁₆ x 9 ³ / ₄	16 ³ / ₃₂	600-1000	S	B6-63	12L	6.3/.60	12.1	-55 to +1.1	550	9	-50 to +250	250	29-69	
14QP4A	70	TA	12 ¹ / ₁₆ x 9 ³ / ₄	16 ³ / ₃₂	600-1000	S	B6-63	12L	6.3/.60	12.1	-55 to +1.1	550	9	-50 to +250	250	29-69	
14QP4B	70	TA	12 ¹ / ₁₆ x 9 ³ / ₄	16 ³ / ₃₂	600-1000	N	B6-63	12L	6.3/.60	12	-55 to +1.1	550	9	-50 to +250	250	29-69	
14RP4	90	T	13 ¹ / ₁₆ x 10 ¹ / ₁₆	14 ³ / ₁₆	800-1200	S	B6-63	12L	6.3/.60	15.4	-55 to +.55	440	14	70 to 470	300	31-75	
14RP4A	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	14 ³ / ₁₆	800-1200	S	B6-63	12L	6.3/.60	15.4	-55 to +.55	440	14	70 to 470	300	31-75	
14SP4	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	14 ³ / ₁₆	900-1200	S	B6-63	12L	6.3/.60	15.4	-55 to +1.1	550	12	-48 to +264	300	33-77	
14UP4	70	TA	12 ¹ / ₁₆ x 9 ³ / ₄	16 ³ / ₃₂	.....	N	B5-57	12D	6.3/.60	15.4	Magnetic	550	12	105 Ma.	300	33-77	
14WP4	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	13 ¹ / ₁₆	800-1200	N	B6-63	12L	6.3/.60	15.4	-55 to +1.1	550	12	-50 to +350	300	33-77	
14XP4	90	T	13 ¹ / ₁₆ x 10 ¹ / ₁₆	14 ³ / ₁₆	1100-1500	S	B6-63	12L	6.3/.45	16.5	-55 to +1.1	440	12	-50 to +350	300	33-77	
14XP4A	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	14 ³ / ₁₆	1100-1500	S	B6-63	12L	6.3/.45	16.5	-55 to +1.1	440	12	-50 to +350	300	33-77	
14ZP4	90	TA	13 ¹ / ₁₆ x 10 ¹ / ₁₆	13 ¹ / ₁₆	800-1200	N	B6-63	12L	6.3/.60	15.4	-55 to +1.1	500	12	0 to 450	300	33-77	
15JP4	110	TA-BF	13 ¹ / ₁₆ x 10 ¹ / ₁₆	11 ¹ / ₄	600-1000	N	B7-208	8HR	6.3/.45	15	-50 to +1.1	60	12	0 to 400	50	35-55	
16AP4	53	C	15 ⁷ / ₈	22 ¹ / ₄	.....	D	B5-57	12D	6.3/.60	15.4	Magnetic	450	12	80 Ma.	300	33-77	Metal Bulb
16AP4A	53	T	15 ⁷ / ₈	22 ¹ / ₄ mm	.....	D	B5-57	12D	6.3/.60	15.4	Magnetic	450	12	80 Ma.	300	33-77	Metal Bulb
16ABP4	70	T	14 ³ / ₄ x 11 ¹ / ₈	18 ³ / ₄	750-1500	S	B5-57	12D	6.3/.60	17.6	Auto. Es.	550	12	Auto Es.	300	33-77	
16ACP4	60	C	15 ⁷ / ₈	20 ⁷ / ₈	2000m	S	B5-57	12D	6.3/.60	15.4	Auto. Es.	450	12	Auto. Es.	250	33-68	
16AEP4	70	T	14 ³ / ₄ x 11 ¹ / ₈	18 ³ / ₄	750-1500	S	B6-63	12L	6.3/.60	17.6	-55 to +1.1	450	12	-64 to +350	300	33-77	
16ANP4	114	TA-BP	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ⁷ / ₁₆	800-1200	N	B7-208	8HR	6.3/.60	18	-55 to +1.1	550	14	0 to 400	300	33-70	
16AQP4	114	TA-AR-BP	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ⁷ / ₁₆	800-1200	N	B7-208	8HR	6.3/.60	18	-55 to +1.1	550	14	0 to 400	300	33-70	
16ASP4	114	TA-BP	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ¹ / ₃₂	1000-1500	N	B7-208	8HR	6.3/.60	20	-55 to +1.1	550	15	-100 to +300	300	43-70	
16ATP4	114	TA-BL	13 ³ / ₄ x 11 ³ / ₃₂	10 ⁷ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	18	-50 to +1.0	100	15	0 to 500	50	31-49	
16AUP4	114	TA	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ¹ / ₁₆	800-1500	N	B7-237	8HR	6.3/.60	15.4	-55 to +1.1	550	12	0 to 400	400	36-94	
16AVP4	114	TA-BP	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ¹ / ₁₆	900-1400	N	B6-214	7FA	6.3/.45	17.6	-50 to +1.1	60	15	0 to 500	35	25-50	
16AWP4	114	TA-BL	13 ³ / ₄ x 11 ³ / ₃₂	10 ⁷ / ₈	1000-1500	N	B7-208/B7-237	8HR	6.3/.30	18	-50 to +1.0	300	15	0 to 500	150	31-49	
16AXP4	114	TA-BP	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ¹ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	18	-50 to +1.0	550	15	0 to 500	300	40-72	
16AYP4	114	TA	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ¹ / ₁₆	800-1300	N	B7-208	8HR	6.3/.45	20	-55 to +1.1	550	16	-100 to +300	300	28-60	
16AZP4	114	TA-BL	13 ³ / ₄ x 11 ³ / ₃₂	10 ⁷ / ₈	1000-1500	N	B7-208/B7-237	8HR	6.3/.45	18	-50 to +1.0	250	15	0 to 400	150	31-49	
16BAP4	114	TA-BP	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ¹ / ₁₆	1000-1500	N	B7-208	8HR	6.3/.60	18	-50 to +1.1	60	15	0 to 400	50	35-53	
16BDP4	114	TA	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ¹ / ₁₆	800-1300	N	B7-208	8HR	6.3/.60	20	-55 to +1.1	550	16	-100 to +300	300	28-60	
16BEP4	114	TA-BP	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ¹ / ₁₆	800-1200	N	B7-208	8HR	6.3/.60	18	-40 to +1.25	70	14	0 to 400	50	30-48	
16BFP4	114	TA	13 ³ / ₁₆ x 11 ³ / ₃₂	10 ¹ / ₁₆	8												

monochrome picture tubes (continued)

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE Clear Tinted Alum. Shield* Anti-Refll.	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	** Ion Trap	Base	Basing	Heater▲ Volts/Amps	Anode (Kv)	MAXIMUM RATINGS			TYPICAL OPERATION			REMARKS
			Faceplate Diameter or Width x Height	Length							Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts	Magnet Coil Current in Ma.	Accel. Grid (G2) Volts		Negative Grid No. 1 Voltage for Spot Cutoff
16BVP4	114	TA-TB	13 ³ / ₁₆ x 11 ¹ / ₁₆	10 ¹ / ₂	1050-1450	N	B7-208	8HR	6.3/.45	20	-.55 to +1.1	550	15	-200 to +200	300	43-70	
16BWP4	114	TA-BR	13 ³ / ₁₆ x 11 ¹ / ₁₆	10 ¹ / ₁₆	800-1300	N	B7-208	8HR	6.3/.45	20	-.55 to +1.1	550	16	-200 to +200	300	35-72	
16BXP4	114	TA-BF	14 ³ / ₈ x 11 ³ / ₄	10 ¹ / ₁₆	900-1400	N	B6-214	7FA	6.3/.45	17.6	-.50 to +1.1	60	15	0 to 500	35	25-50	
16BYP4	114	TA-BR	13 ³ / ₁₆ x 11 ¹ / ₁₆	10 ¹ / ₁₆	1000-1500	N	B7-208	8HR	6.3/.45	16	-.50 to +1.0	200	13	0	100	31-49	
16CP4	52	C	15 ⁷ / ₈	21 ¹ / ₂	.....	D	B5-57	12D	6.3/.60	16.5	Magnetic	450	12	110 Ma.	250	27-63	
16CAP4	114	TA-BR	13 ¹ / ₁₆ x 11 ¹ / ₁₆	10 ¹ / ₂	1000-1500	N	B7-208	8HR	6.3/.45	18	-.50 to +1.1	550	15	0 to 400	400	46-94	
16CEP4	114	TA-BR	13 ¹ / ₁₆ x 11 ¹ / ₁₆	10 ¹ / ₂	1000-1500	N	B7-208	8HR	6.3/.45	18	-.50 to +1.1	550	15	0 to 400	400	46-94	
16CFP4	104	TA-BR	13 ¹ / ₁₆ x 11 ¹ / ₁₆	11 ¹ / ₄	1000-1500	N	E7-91	7GR	6.3/.45	15	-.50 to +1.0	250	11	0	140	31-49	
16CHP4	114	TA-BR	13 ³ / ₁₆ x 11 ¹ / ₁₆	10 ¹ / ₁₆	1000-1500	N	B7-208	8HR	6.3/.45	20	-.55 to +1.1	60	16	0 to 400	30	30-45	
16CKP4	114	TA-BR	13 ¹ / ₁₆ x 11 ¹ / ₁₆	10 ¹ / ₂	1000-1500	N	B7-208	8HR	6.3/.30	18	-.50 to +1.1	550	15	0 to 400	400	46-94	
16CMP4	114	TA-BR	13 ¹ / ₁₆ x 11 ¹ / ₁₆	10 ¹ / ₂	1000-1500	N	B7-208	8HR	6.3/.45	18	-.50 to +1.1	550	15	0 to 400	400	46-94	
16DP4	60	C	15 ⁷ / ₈	20 ³ / ₄	.....	D	B5-57	12D	6.3/.60	16.5	Magnetic	450	12	115 Ma.	250	27-63	
16DP4A	60	T	15 ⁷ / ₈	20 ³ / ₄	.....	D	B5-57	12D	6.3/.60	16.5	Magnetic	450	12	115 Ma.	250	27-63	
16EP4	60	C	15 ⁷ / ₈	19 ¹ / ₁₆	.....	D	B5-57	12D	6.3/.60	15.4	Magnetic	450	12	105 Ma.	300	33-77	Metal Bulb
16EP4A	60	T	15 ⁷ / ₈	19 ¹ / ₁₆	.....	D	B5-57	12D	6.3/.60	15.4	Magnetic	450	12	105 Ma.	300	33-77	Metal Bulb
16EP4B	60	T, AR	15 ⁷ / ₈	19 ¹ / ₁₆	.....	D	B5-57	12D	6.3/.60	15.4	Magnetic	450	12	105 Ma.	300	33-77	Metal Bulb
16FP4	62	C	16 ¹ / ₈	20 ¹ / ₄	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	13	146 Ma.	250	27-63	
16GP4	70	T	15 ⁷ / ₈	17 ¹ / ₁₆ rm	.....	S	B5-57	12D	6.3/.60	15.4	Magnetic	450	12	100 Ma.	300	33-77	Metal Bulb
16GP4A	70	C	15 ⁷ / ₈	17 ¹ / ₁₆ rm	.....	S	B5-57	12D	6.3/.60	15.4	Magnetic	450	12	100 Ma.	300	33-77	Metal Bulb
16GP4B	70	T, AR	15 ⁷ / ₈	17 ¹ / ₁₆ rm	.....	S	B5-57	12D	6.3/.60	15.4	Magnetic	450	12	100 Ma.	300	33-77	Metal Bulb
16GP4C	70	C, AR	15 ⁷ / ₈	17 ¹ / ₁₆ rm	.....	S	B5-57	12D	6.3/.60	15.4	Magnetic	450	12	100 Ma.	300	33-77	Metal Bulb
16HP4	60	C	15 ⁷ / ₈	21 ¹ / ₄	.....	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	110 Ma.	300	33-77	
16HP4A	60	T	15 ⁷ / ₈	21 ¹ / ₄	.....	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	110 Ma.	300	33-77	
16JP4	60	C	16 ¹ / ₈	20 ³ / ₄	750-2000	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	11	115 Ma.	250	27-63	
16JP4A	60	T	16 ¹ / ₈	20 ³ / ₄	750-2000	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	11	115 Ma.	250	27-63	
16KP4	70	T	14 ³ / ₄ x 11 ¹ / ₂	18 ³ / ₄	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	14	90 Ma.	300	33-77	
16KP4A	70	TA	14 ³ / ₄ x 11 ¹ / ₂	18 ³ / ₄	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	14	90 Ma.	300	33-77	
16LP4	52	C	15 ⁷ / ₈	22 ¹ / ₄	750-2000	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	110 Ma.	300	33-77	
16LP4A	52	T	15 ⁷ / ₈	22 ¹ / ₄	750-2000	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	110 Ma.	300	33-77	
16MP4	60	C	16 ¹ / ₈	21 ¹ / ₄	1500-3500	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	110 Ma.	300	33-77	
16MP4A	60	T	16 ¹ / ₈	21 ¹ / ₄	1500-3500	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	110 Ma.	300	33-77	
16QP4	70	T	14 ³ / ₄ x 11 ¹ / ₂	19 ¹ / ₈	.....	D	B5-57	12D	6.3/.60	17.6	Magnetic	450	14	150 Ma.	250	27-63	
16RP4	70	T	14 ³ / ₄ x 11 ¹ / ₂	18 ³ / ₄	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	100 Ma.	300	33-77	
16RP4A	70	TA	14 ³ / ₄ x 11 ¹ / ₂	18 ³ / ₄	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	100 Ma.	300	33-77	
16RP4B	70	TA	14 ³ / ₄ x 11 ¹ / ₂	18 ³ / ₄	750-1500	N	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	100 Ma.	300	33-77	
16SP4	70	C	15 ⁷ / ₈	17 ¹ / ₁₆	1500-3500	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	110 Ma.	300	33-77	
16SP4A	70	T	15 ⁷ / ₈	17 ¹ / ₁₆	1500-3500	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	110 Ma.	300	33-77	
16TP4	70	T	14 ³ / ₄ x 11 ¹ / ₂	18 ¹ / ₈	750-2000	S	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	115 Ma.	300	33-77	
16UP4	70	T	14 ³ / ₄ x 11 ¹ / ₂	18 ¹ / ₈	.....	S	B5-57	12D	6.3/.60	16.5	Magnetic	450	12	100 Ma.	300	27-63	
16VP4	70	T	15 ⁷ / ₈	17 ¹ / ₁₆	.....	S	B5-57	12D	6.3/.60	16.5	Magnetic	450	12	110 Ma.	250	27-63	
16WP4	70	T	15 ⁷ / ₈	17 ¹ / ₁₆	.....	D	B5-57	12D	6.3/.60	16.5	Magnetic	450	12	110 Ma.	250	27-63	
16WP4A	70	T	15 ⁷ / ₈	17 ¹ / ₁₆	750-1500	D	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	110 Ma.	250	27-63	
16WP4B	70	TA	15 ⁷ / ₈	17 ¹ / ₁₆	750-1500	D	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	110 Ma.	250	27-63	
16XP4	70	T	14 ³ / ₄ x 11 ¹ / ₁₆	18 ³ / ₄	.....	D	B5-57	12D	6.3/.60	16.5	Magnetic	450	12	100 Ma.	250	27-63	
16YP4	70	T	15 ⁷ / ₈	17 ¹ / ₁₆	750-2000	S	B5-57	12N	6.3/.60	15.4	Magnetic	450	12	100 Ma.	300	33-77	
16ZP4	52	T	15 ⁷ / ₈	22 ¹ / ₄	750-1500	D	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	110 Ma.	300	33-77	
17AP4	70	T	15 ³ / ₈ x 12 ¹ / ₄	18 ³ / ₈	750-2000	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	100 Ma.	300	33-77	
17ATP4	90	T	15 ³ / ₈ x 12 ¹ / ₄	15 ³ / ₈	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14	-55 to +300	300	33-77	
17ATP4A	90	TA	15 ³ / ₈ x 12 ¹ / ₄	15 ³ / ₈	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14	-55 to +300	300	33-77	
17AVP4	90	T	15 ³ / ₈ x 12 ¹ / ₄	15 ³ / ₈	1200-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14	-56 to +310	300	33-77	
17AVP4A	90	TA	15 ³ / ₈ x 12 ¹ / ₄	15 ³ / ₈	1200-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14	-56 to +310	300	33-77	
17BP4	70	T	15 ² / ₁₆ x 12 ¹ / ₁₆	19 ¹ / ₁₆	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12	100 Ma.	300	33-77	
17BP4A	70	T	15 ² / ₁₆ x 12 ¹ / ₁₆	19 ¹ / ₁₆	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	100 Ma.	300	33-77	
17BP4B	70	TA	15 ² / ₁₆ x 12 ¹ / ₁₆	19 ¹ / ₁₆	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	100 Ma.	300	33-77	
17BP4C	70	T, AR	15 ² / ₁₆ x 12 ¹ / ₁₆	19 ¹ / ₁₆	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	100 Ma.	300	33-77	
17BP4D	70	TA	15 ² / ₁₆ x 12 ¹ / ₁₆	19 ¹ / ₁₆	750-1500	N	B5-57	12N	6.3/.60	17.6	Magnetic	450	12	100 Ma.	300	33-77	
17BJP4	90	TA	15 ³ / ₈ x 12 ¹ / ₁₆	15 ³ / ₈	1000-1500	N	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14	-55 to +300	300	33-77	
17BKP4	90	T	15 ³ / ₈ x 12 ¹ / ₁₆	15 ³ / ₈	1200-1500	S	B6-63	12L	6.3/.45	17.6	-.55 to +1.1	550	14	-56 to +310	300	33-77	
17BKP4A	90	TA	15 ³ / ₈ x 12 ¹ / ₁₆	15 ³ / ₈	1200-1500	S	B6-63	12L	6.3/.45								

monochrome picture tubes *(continued)*

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	** Ion Trap	Base	Basing	Heater ▲ Volts/Amps	Anode (Kv)	MAXIMUM RATINGS			TYPICAL OPERATION			REMARKS
		Clear Tinted Alum. Shield* Anti-Refll.	Faceplate Diameter or Width x Height	Length							Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts	Accel. Grid (G2) Volts	Negative Grid No. 1 Voltage for Spot Cutoff	
17BVP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	13 ¹ / ₄	1000-1500	S	B6-185	7FA	6.3/.60	17.6	-55 to +1.1	550	14	-50 to +350	300	40-77	
17BWP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	12 ¹ / ₂	1000-1500	N	B6-185	7FA	6.3/.60	17.6	-55 to +1.1	550	14	-50 to +350	300	40-77	
17BYP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	12 ¹ / ₂	1000-1500	N	B6-185	7FA	6.3/.45	17.6	-55 to +1.1	550	14	0 to 400	300	40-77	
17BZP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	12 ¹ / ₂	1000-1500	N	B7-183	8HR	6.3/.60	17.6	-55 to +1.1	550	14	0 to 400	300	33-77	
17CP4	70	T, AR	15 ¹ / ₂ x 12 ¹ / ₄	18 ⁵ / ₈	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	14	104 Ma.	300	33-77	Metal Bulb
17CP4A	70	T	15 ¹ / ₂ x 12 ¹ / ₄	18 ⁵ / ₈	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	14	104 Ma.	300	33-77	Metal Bulb
17CAP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	12 ¹ / ₂	1000-1500	N	B7-183/B7-208	8HR	6.3/.60	17.6	-55 to +1.1	550	14	-50 to +350	300	40-77	
17CBP4	90	T	15 ⁵ / ₈ x 12 ³ / ₄	15 ¹ / ₄	1000-1500	S	B6-63	12L	6.3/.60	19.8	-55 to +1.1	550	12	-50 to +350	300	33-77	
17CDP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	12 ¹ / ₂	800-1500	N	B7-183/B7-208	8HR	8.4/.45	17.6	-55 to +1.1	550	14	0 to 400	300	33-77	8.4 Volt Heater
17CEP4	90	TA	15 ⁵ / ₈ x 12 ³ / ₄	15	1200-1500	N	B6-63	12L	6.3/.45	17.6	-55 to +1.1	550	14	-50 to +350	300	33-77	Light Weight Glass
17CFP4	90	TA	15 ⁵ / ₈ x 12 ³ / ₄	15	1200-1500	N	B6-63	12L	6.3/.60	17.6	-55 to +1.1	550	14	-50 to +350	300	33-77	Light Weight Glass
17CGP4	70	TA	15 ⁵ / ₈ x 12 ¹ / ₄	17 ³ / ₈	500-750	N	B6-63	12L	6.3/.60	15.4	-55 to +1.1	550	11	-56 to +310	300	33-77	
17CKP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	12 ¹ / ₂	1000-1500	N	B7-183	8HR	6.3/.60	16.5	-55 to +1.1	550	14	0 to 500	300	33-77	
17CLP4	90	TA	15 ⁵ / ₈ x 12 ³ / ₄	15 ⁵ / ₈	1800-2300	S	B6-63	12L	6.3/.60	17.6	-55 to +1.1	550	14	-48 to +264	300	40-77	
17CMP4	90	TA	15 ⁵ / ₈ x 12 ¹ / ₄	14 ⁵ / ₈	1000-1500	N	B6-63	12L	6.3/.60	17.6	-55 to +1.1	70	14	0 to 400	50	+40 to +55	Cathode Drive Values
17CNP4	90	TA	15 ⁵ / ₈ x 12 ³ / ₄	15	1000-1500	N	B6-63	12L	6.3/.60	17.6	-55 to +1.1	70	14	0 to 400	50	+40 to +55	Cathode Drive Values; Light Weight Glass
17CRP4	90	TA	15 ⁵ / ₈ x 12 ³ / ₄	14 ⁵ / ₈	1700-2200	N	B6-63	12L	6.3/.45	17.6	-55 to +1.1	70	14	0 to 350	50	+35 to +55	Cathode Drive Values
17CSP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	12 ¹ / ₂	900-1400	N	B6-185	7FA	6.3/.60	17.6	-55 to +1.1	550	14	-50 to +350	300	40-77	
17CTP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	12 ¹ / ₂	1000-1500	N	B7-208	8HR	6.3/.45	17.6	-55 to +1.1	550	14	0 to 400	300	40-77	
17CUP4	90	TA	15 ⁵ / ₈ x 12 ³ / ₄	15	1200-1500	N	B6-63	12L	6.3/.30	17.6	-55 to +1.1	550	14	-50 to +350	300	40-77	Light Weight Glass
17CVP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	12 ¹ / ₂	1000-1500	N	B7-183/B7-208	8HR	6.3/.30	17.6	-55 to +1.1	550	14	0 to 400	300	40-77	
17CWP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-183	8HR	6.3/.60	17.6	-55 to +1.1	550	14	-50 to +350	400	41-97	
17CXP4	90	TA	15 ⁵ / ₈ x 12 ¹ / ₄	14 ⁵ / ₈	1000-1500	N	B6-63	12L	6.3/.45	17.6	-55 to +1.1	75	14	-50 to +350	50	+37 to +52	Cathode Drive Values
17CYP4	90	TA	15 ⁵ / ₈ x 12 ³ / ₄	14	1000-1500	N	B6-63	12L	6.3/.60	17.6	-55 to +1.1	550	14	-50 to +350	450	44-110	Light Weight Glass
17CZP4	90	TA	15 ⁵ / ₈ x 12 ¹ / ₄	13 ⁵ / ₈	1000-1500	N	B6-63	12L	6.3/.60	17.6	-55 to +1.1	550	14	-50 to +350	450	44-110	
17DAP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	10 ¹ / ₁₆	900-1400	N	B7-208	8JK	2.68/.45	17.6	-.7 to +.95	550	14	+100 to +500	300	40-77	2.68 Volt Heater
17DBP4	70	TA	15 ⁵ / ₈ x 12 ³ / ₄	19 ³ / ₈	750-1500	S	B6-63	12L	6.3/.30	17.6	-55 to +1.1	550	14	-50 to +300	300	40-77	
17DCP4	90	TA	15 ⁵ / ₈ x 12 ³ / ₄	14 ⁵ / ₈	1000-1500	N	B6-63	12L	6.3/.30	17.6	-55 to +1.1	550	14	-50 to +300	300	40-77	
17DEP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	10 ¹ / ₁₆	900-1400	N	B7-208	8JN	2.35/.60	17.6	+70	700	14	0 to 400	500	48-77	2.35 Volt Heater; Tri-Potential Focus
17DHP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	11 ¹ / ₄	1000-1500	N	B7-208	8HR	6.3/.45	17.6	-55 to +1.1	770	14	0 to 400	500	48-77	Spherical Face Plate
17DJP4	90	TA	15 ⁵ / ₈ x 12 ³ / ₄	15 ⁵ / ₈	1000-1500	S	B6-63	12L	6.3/.30	17.6	-55 to +1.1	550	14	-50 to +300	300	40-77	Spherical Face Plate
17DKP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	10 ¹ / ₁₆	1000-1500	N	B7-208	8JR	6.3/.60	23	+70	600	14	0 to 400	500	48-83	Tri-Potential Es. Focus; Spherical Face Plate
17DLP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	11 ³ / ₈	1000-1500	N	B6-226/B7-237	8JS	6.3/.60	19.8	-55 to +1.1	770	17	0 to 400	450	33-77	Spherical Face Plate
17DQP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	12 ¹ / ₈	1200-1700	N	B6-214	7FA	6.3/.45	17.6	-55 to +1.1	70	14.5	-200 to +350	50	+40 to +55	Cathode Drive Values
17DRP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	10 ³ / ₁₆	900-1400	N	B7-208	8JK	2.68/.45	17.6	-.7 to +.95	550	14	+100 to +500	300	40-77	2.68 Volt Heater
17DSP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	11 ¹ / ₄	1000-1500	N	B7-183	8HR	6.3/.60	19.8	-55 to +1.1	550	14	0 to 400	400	50-95	
17DTP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	10 ³ / ₄	1000-1500	N	B7-208	8HR	6.3/.60	22	-55 to +1.1	550	14	0 to 400	300	33-77	
17DWP4	70	TA	15 ⁵ / ₈ x 12 ³ / ₄	19 ³ / ₈	750-1500	N	B6-63	12L	6.3/.60	22	800	700	18	0 to 400	300	33-77	
17DXP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	10 ¹ / ₁₆	1000-1500	N	B7-208	8JR	6.3/.45	17.6	+70	600	14	0 to 400	500	48-83	Non-Potential Electrostatic Focus
17DZP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	10 ¹ / ₁₆	1000-1500	N	B7-208	8HR	6.3/.45	17.6	-.5 to +1.0	550	14	0 to 400	300	33-77	
17EAP4	70	TA	15 ⁵ / ₈ x 12 ¹ / ₄	19 ³ / ₈	1000-1500	S	B5-57	12AT	6.3/.60	17.6	Auto. Es.	550	12	Auto. Es.	300	33-77	
17EBP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	11 ¹ / ₄	1100-1700	N	B7-208	8HR	6.3/.45	20	-55 to +1.1	700	14	0 to 400	500	48-77	
17EFP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	11 ¹ / ₄	1000-1500	N	B7-183	8HR	6.3/.45	19.8	-55 to +1.1	550	14	0 to 400	400	50-95	
17EHP4	110	TA	15 ⁵ / ₈ x 12 ³ / ₄	11 ¹ / ₂	1000-1500	N	B7-208	8HR	6.3/.60	20	-50 to +1.1	60	16	0 to 400	50	35-55	
17ELP4	114	TA-BF	15 ¹ / ₂ x 12 ³ / ₄	11 ³ / ₈	1150-1650	N	B7-208	8HR	6.3/.45	15	-50 to +1.1	60	12	0 to 400	50	35-55	
17EMP4	114	TA-BR	14 ⁵ / ₈ x 12 ¹ / ₄	11 ³ / ₈	1300-1700	N	B7-208	8HR	6.3/.45	22	-.40 to +1.25	80	16	0 to 400	50	33-45	
17FP4	70	T	15 ⁵ / ₈ x 12 ¹ / ₄	19 ³ / ₈	500-1500	S	B6-63	12L	6.3/.60	19.8	+5.5	450	16	+3100 to +4100	300	33-77	
17FP4A	70	T	15 ⁵ / ₈ x 12 ¹ / ₄	19 ³ / ₈	750-2000	S	B6-63	12L	6.3/.60	19.8	+5.5	450	16	+3100 to +4100	300	33-77	
17GP4	70	T, AR	15 ¹ / ₂ x 12 ¹ / ₄	19 ³ / ₈ em	.....	S	B6-63	12M	6.3/.60	17.6	+5.5	550	14	+2200 to +3620	300	33-77	Metal Bulb
17HP4	70	T	15 ⁵ / ₈ x 12 ³ / ₄	19 ³ / ₈	750-1500	S	B6-63	12L	6.3/.60	17.6	-55 to +1.1	550	14	-56 to +310	300	33-77	
17HP4A	70	T, AR	15 ⁵ / ₈ x 12 ³ / ₄	19 ³ / ₈	750-1500	S	B6-63	12L	6.3/.60	17.6	-55 to +1.1	550	14	-56 to +310	300	33-77	
17HP4B	70	TA	15 ⁵ / ₈ x 12 ³ / ₄	19 ³ / ₈	750-1500	N	B6-63	12L	6.3/.60	17.6	-55 to +1.1	550	14	-56 to +310	300	33-77	
17HP4C	70	TA	15 ⁵ / ₈ x 12 ³ / ₄	19 ³ / ₈	750-1500	N	B6-63	12L	6.3/.60	17.6	-55 to +1.1	550	14	-56 to +310	300	33-77	
17JP4	70	T	15 ⁵ / ₈ x 12 ³ / ₄	19 ³ / ₈	500-1500	S	B5-57	12N	6.3/.60	19.8	Magnetic	450	14	100 Ma.	300	33-77	
17KP4	70	T	15 ⁵ / ₈ x 12 ¹ / ₄	19 ³ /													

monochrome picture tubes *(continued)*

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE Clear Tinted Alum. Shield* Anti-Refll.	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	** Ion Trap	Base	Basing	Heater▲ Volts/Amps	DESIGN Anode (Kv)	MAXIMUM RATINGS			TYPICAL OPERATION			REMARKS
			Faceplate Diameter or Width x Height	Length							Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts Magnet Coil Current in Ma.	Accel. Grid (G2) Volts	Negative Grid No. 1 Voltage for Spot Cutoff	
17TP4	70	T, AR	15 ¹ / ₈ x 12 ¹ / ₄	19 ¹ / ₈	.....	S	B6-63	12M	6.3/.60	17.6	-.55 to +1.1	550	16	-65 to +350	300	33-77	Metal Bulb
17UP4	70	T	15 ³ / ₈ x 12 ¹ / ₄	19 ¹ / ₈	750-1500	S	B5-57	12N	6.3/.60	15.4	Magnetic	450	13	110 Ma.	250	33-66	Cylindrical Faceplate
17VP4	70	T	15 ³ / ₈ x 12 ³ / ₄	19 ¹ / ₈	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14	-48 to +260	300	33-77	Cylindrical Faceplate
17VP4B	70	TA	15 ³ / ₈ x 12 ³ / ₄	19 ¹ / ₈	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14	-48 to +260	300	33-77	Cylindrical Faceplate
17YP4	70	T	15 ² / ₈ x 12 ³ / ₄	19 ¹ / ₈	500-1500	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	100 Ma.	300	33-77	Cylindrical Faceplate
19AP4	66	C	18 ⁵ / ₈	21 ¹ / ₂	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12	140 Ma.	300	33-77	Metal Bulb
19AP4A	66	T	18 ⁵ / ₈	21 ¹ / ₂	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12	140 Ma.	300	33-77	Metal Bulb
19AP4B	66	T, AR	18 ⁵ / ₈	21 ¹ / ₂	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12	140 Ma.	300	33-77	Metal Bulb
19AP4C	66	TA	18 ⁵ / ₈	21 ¹ / ₂	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12	140 Ma.	300	33-77	Metal Bulb
19AP4D	66	C, AR	18 ⁵ / ₈	21 ¹ / ₂	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12	140 Ma.	300	33-77	Metal Bulb
19ABP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	10 ¹ / ₈	850-1400	N	B7-208	8JK	2.68/.45	20	-.7 to +.95	550	16	100 to 500	300	40-77	2.68 Volt Heater
19ACP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	12 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	70	14	0 to 400	50	+40 to +55	Cathode Drive Values
19AEP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	12.6/.15	17.6	-.20 to +.50	250	14	-100 to +100	100	32-47	
19AFP4	114	BC, TA	17 ¹ / ₄ x 14 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16	0 to 400	300	40-77	
19AHP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	17.6	-.55 to +1.1	650	14	0 to 400	500	+45 to +68	Cathode Drive Values
19AJP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1400-1900	N	B6-214	7FA	6.3/.45	19.8	-.50 to +1.1	70	14.5	250	50	+36 to +54	Cathode Drive Values
19ALP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	22	-.55 to +1.1	700	14	0 to 400	500	+50 to +100	Cathode Drive Values; 18 Sec. Heater Warm-up Time
19ANP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	10 ¹ / ₈	1000-1500	N	B7-208	8JR	6.3/.45	20	-.35 to +.7	600	16	0 to 400	500	48-83	Tri-Potential Electrostatic Focus
19AQP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	20	-.50 to +1.0	550	16	0 to 400	300	38-72	
19ARP4	114	BC, TA	17 ¹ / ₄ x 14 ³ / ₄	12 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16	0 to 400	300	40-77	
19ASP4	114	BC, TA	17 ¹ / ₄ x 14 ³ / ₄	12 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	20	-.55 to +1.1	550	16	0 to 400	300	40-77	
19ATP4	114	BC, TA	17 ¹ / ₄ x 14 ³ / ₄	11 ¹ / ₈	1000-1500	N	B7-208	8JR	6.3/.60	20	+.70	600	16	0 to 400	500	48-83	Tri-Potential Electrostatic Focus
19AUP4	114	BC, TA, AR	17 ¹ / ₄ x 14 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16	0 to 400	300	40-77	
19AVP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	23	-.55 to +1.1	550	20	0 to 400	400	41-99	
19AXP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	20	-.55 to +1.1	550	16	0 to 400	400	41-99	
19AYP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	23	-.55 to +1.1	550	20	0 to 400	400	41-99	
19BAP4	114	BC, TA	17 ¹ / ₄ x 14 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	20	-.55 to +1.1	550	16	0 to 400	300	40-77	
19BCP4	114	BC, TA, AR	17 ¹ / ₄ x 14 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	20	-.55 to +1.1	550	16	0 to 400	300	40-77	
19BDP4	92	TA	16 ¹ / ₂ x 13 ¹ / ₂	15 ¹ / ₄	1500-2000	N	B6-63/B6-203	12L	6.3/.60	20	-.40 to +1.25	225	14.5	250	50	+36 to +54	Cathode Drive Values
19BEP4	110	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ¹ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	20	-.55 to +1.1	550	16	0 to 400	400	42-78	
19BFP4	92	TA	16 ¹ / ₂ x 13 ¹ / ₂	15 ¹ / ₄	1500-2000	N	B6-203	12L	6.3/.60	20	-.55 to +1.1	550	16	0 to 400	400	41-99	
19BHP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ¹ / ₈	1000-1500	N	B7-237/B7-208	8HR	6.3/.60	22	-.55 to +1.1	700	18.5	0 to 500	450	33-66	
19BLP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1300-1700	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16	0 to 400	400	41-99	
19BMP4	114	BC, TA	17 ¹ / ₄ x 14 ³ / ₄	11 ¹ / ₈	1300-1700	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16	0 to 400	400	41-99	
19BNP4	114	BC, TA	17 ¹ / ₄ x 14 ³ / ₄	12 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	70	16	0 to 400	50	+37 to +55	Cathode Drive Values
19BQP4	114	BC, TA, AR	17 ¹ / ₄ x 14 ³ / ₄	12 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	70	16	0 to 400	50	+37 to +55	Cathode Drive Values
19BRP4	114	TA-BP	16 ¹ / ₂ x 13 ¹ / ₂	11 ¹ / ₈	1500-2000	N	B7-208	8HR	6.3/.60	23	-.55 to +1.1	550	16	0 to 400	300	35-72	
19BSP4	110	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ¹ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16	0 to 400	400	42-78	
19BTP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	10 ¹ / ₈	1000-1500	N	B7-208	8JR	6.3/.60	23	-.35 to +.70	600	16	0 to 400	500	48-83	Tri-Potential Electrostatic Focus
19BUP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1300-1700	N	B7-208	8HR	2.2/.102	18.75	-.20 to +.50	250	14	0 to 400	100	45-60	
19BVP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	23.5	-.55 to +1.1	700	20	250	500	+50 to +100	Cathode Drive Values
19BWP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	23.5	-.55 to +1.1	700	20	250	500	+50 to +100	Cathode Drive Values
19CAP4	110	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8JR	6.3/.60	20	-.35 to +.70	600	16	0 to 400	500	48-83	Tri-Potential Electrostatic Focus
19CDP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1400-1900	N	B6-214	7FA	6.3/.60	19.8	-.50 to +1.1	70	16	0 to 500	50	35-50	
19CEP4	114	BC, TA, AR	17 ¹ / ₄ x 14 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	20	-.55 to +1.1	550	16	0 to 400	300	40-77	18 Second Heater Warm-up Time
19CFP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ¹ / ₂	1000-1500	N	B7-237/B7-208	8HR	6.3/.60	17.5	-.50 to +1.0	100	13	0	50	31-49	
19CGP4	92	BC, TA, AR	17 ³ / ₈ x 15 ¹ / ₄	15 ¹ / ₂	1400-1700	N	B6-203	12L	6.3/.60	20	-.55 to +1.1	550	16	0 to 400	300	40-77	
19CHP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.40 to +1.25	70	16	0 to 400	50	32-50	
19CJP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1300-1700	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16	0 to 400	400	65-105	
19CKP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-237/B7-208	8HR	6.3/.60	22	-.50 to +1.0	100	18	0 to 500	50	31-49	
19CLP4	92	TA	16 ¹ / ₂ x 13 ¹ / ₂	15 ¹ / ₄	1500-2000	N	B6-203	12L	6.3/.60	19.8	-.50 to +1.1	40	14.5	0 to 500	35	25-40	
19CMP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	20	-.55 to +1.1	60	16	0 to 400	30	30-45	
19CMP4A	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	23.5	-.55 to +1.1	60	16	0 to 400	30	30-45	
19CQP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1400-1900	N	B6-214	7FA	6.3/.60	19.8	-.50 to +1.1	60	16	0 to 500	50	25-50	
19CRP4	92	TA	16 ¹ / ₂ x 13 ¹ / ₂	15 ¹ / ₄	1500-2												

monochrome picture tubes *(continued)*

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE Clear Tinted Alum. Shield* Anti-Refll.	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	** Ion Trap	Base	Basing	Heater▲ Volts/Amps	DESIGN Anode (Kv)	MAXIMUM RATINGS		TYPICAL OPERATION			REMARKS		
			Faceplate Diameter or Width x Height	Length							Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts Magnet Coil Current in Ma.	Accel. Grid (G2) Volts		Negative Grid No. 1 Voltage for Spot Cutoff	
19DBP4	114	TA-BP	16 ¹ / ₂ x 13 ¹ / ₂	11 ¹ / ₈	1400-1900	N	B6-214	7FA	6.3/.45	19.8		-.50 to +1.1	60	16	0 to 500	40	35-50	
19DCP4	114	TA-BR	16 ¹ / ₁₆ x 13 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20		-.50 to +1.0	550	16	0 to 400	400	39-94	
19DEP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-237/ B7-208	8HR	6.3/.60	22		-.50 to +1.0	500	18	0 to 500	300	36-54	
19DFP4	114	TA	16 ³ / ₄ x 13 ¹ / ₂	11 ¹ / ₁₆	1300-1700	N	B7-208	8HR	6.3/.60	22		-.55 to +1.1	80	16	-100 to +300	65	41-56	
19DHP4	114	TA-BR	16 ¹ / ₁₆ x 13 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20		-.50 to +1.1	60	16	250	50	35-55	
19DKP4	114	TA-BP	16 ¹ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	23		-.55 to +1.1	550	20	0 to 400	400	46-94	
19DLP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20		-.50 to +1.1	60	16	250	50	35-55	
19DNP4	114	TA-BP	16 ¹ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	18		-.55 to +1.1	550	16	0 to 400	300	35-72	
19DQP4	114	TA-BR	16 ³ / ₄ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	23		-.55 to +1.1	550	16	-100 to +300	300	28-62	
19DRP4	114	TA-BR	16 ³ / ₄ x 13 ¹ / ₂	11 ⁵ / ₈	1250-1750	N	B7-208	8HR	6.3/.60	23		-.55 to +1.1	550	16	-100 to +300	300	28-62	
19DSP4	114	TA-BR	16 ³ / ₄ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20		-.40 to +1.25	70	16	-100 to +300	50	32-50	
19DUP4	114	TA-BR	16 ¹ / ₄ x 13 ³ / ₄	11 ³ / ₄	1150-1550	N	B7-208	8HR	6.3/.45	22		-.55 to +1.1	80	16	-200 to +200	50	33-45	
19DVP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₄	1000-1500	N	B7-237/ B7-208	8HR	6.3/.45	20		-.50 to +1.0	250	16	-250 to +150	150	36-54	
19DWP4	114	TA-BR	16 ¹ / ₁₆ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	23		-.55 to +1.1	550	20	-200 to +200	400	50-98	
19DYP4	114	TA-BC	17 ¹ / ₈ x 14 ³ / ₂	11 ³ / ₈	1700-2100	N	B7-208	8HR	6.3/.45	23		-.40 to +1.25	70	16	0 to 400	50	32-50	
19DZP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₄	1000-1500	N	B7-237/ B7-208	8HR	6.3/.45	18		-.50 to +1.0	250	13	-250 to +150	150	36-54	
19EP4	70	T	17 x 13 ³ / ₂	21 ¹ / ₈	.....	N	B5-57	12D	6.3/.60	20.9		Magnetic	450	13	146 Ma.	250	26-63	
19EAP4	114	TA-BR	16 ³ / ₄ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	20		-.40 to +1.25	70	16	-100 to +300	50	32-50	
19EBP4	114	TA-BF	17 ¹ / ₈ x 14 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	23		-.50 to +1.0	550	16	0 to 400	400	39-94	
19ECP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₄	1000-1500	N	B7-237/ B7-208	8HR	6.3/.45	20		-.50 to +1.0	250	16	-250 to +150	150	36-54	
19EDP4	114	TA-BR	16 ³ / ₄ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	23		-.55 to +1.1	550	20	0 to 400	400	46-94	
19EFP4	114	TA-BR	16 ¹ / ₁₆ x 13 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20		-.50 to +1.1	60	16	250	50	35-55	
19EGP4	114	TA-BF	17 ¹ / ₈ x 14 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	21		-.50 to +1.0	60	16	250	50	35-55	
19EHP4	114	TA-BR	16 ¹ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	18		-.55 to +1.1	550	16	0 to 400	300	35-72	
19EHP4A	114	TA-BR	16 ¹ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	18		-.55 to +1.1	550	16	0 to 400	300	35-72	
19EJP4	114	TA-BR	16 ³ / ₄ x 13 ¹ / ₁₆	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	20		-.55 to +1.1	60	16	0 to 400	30	30-45	
19EKP4	114	TA-BF	17 ¹ / ₂ x 14 ³ / ₂	11 ⁵ / ₈	1000-1500	N	B6-214	7FA	6.3/.45	19.8		-.50 to +1.1	55	16	0 to 500	45	35-50	
19ELP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	18		-.55 to +1.1	550	14	0 to 400	400	36-94	
19ENP4	114	TA-BR	16 ¹ / ₁₆ x 13 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	21		-.50 to +1.0	60	16	0 to 400	50	32-50	
19ENP4A	114	TA-BR	16 ¹ / ₁₆ x 13 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	21		-.50 to +1.0	60	16	0 to 400	50	32-50	Welded Tension Band
19ESP4	114	TA-BR	16 ³ / ₄ x 13 ¹ / ₁₆	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20		-.55 to +1.1	70	16	0 to 400	50	32-50	
19ETP4	114	TA-BR	16 ¹ / ₁₆ x 13 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	21		-.50 to +1.0	60	16	0 to 400	50	32-50	
19EUP4	114	TA-BR	16 ¹ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	23		-.50 to +1.0	550	16	0 to 400	400	39-94	
19EZP4	114	TA-BF	16 ⁷ / ₈ x 13 ¹ / ₁₆	11 ⁵ / ₈	1000-1500	N	B6-214	7FA	6.3/.45	19.8		-.50 to +1.1	55	16	0 to 500	45	35-50	
19FP4	66	T	18 ⁷ / ₈	22	.....	D	B5-57	12D	6.3/.60	20.9		Magnetic	450	13	120 Ma.	250	27-63	
19FBP4	114	TA-BF	17 ¹ / ₈ x 14 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	15		-.50 to +1.0	60	12	0 to 400	50	35-55	
19FEP4	114	TA-BR	16 ³ / ₄ x 13 ¹ / ₁₆	11 ⁵ / ₈	1250-1750	N	B7-208	8HR	6.3/.45	23.5		-.55 to +1.1	60	16	0 to 400	30	30-45	
19FEP4A	114	TA-BR	16 ³ / ₄ x 13 ¹ / ₁₆	11 ⁵ / ₈	1250-1750	N	B7-208	8HR	6.3/.45	20		-.55 to +1.1	60	16	0 to 400	30	30-45	
19FGP4	114	TA-BR	16 ¹ / ₁₆ x 13 ¹ / ₂	10 ¹ / ₁₆	1000-1500	N	B7-208	8HR	6.3/.60	20		-.35 to +.70	600	16	0 to 400	500	43-78	
19FHP4	114	TA-BR	16 ¹ / ₁₆ x 13 ³ / ₄	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	21		-.50 to +1.0	550	16	0 to 400	400	39-94	
19FJP4	114	TA-BR	16 ³ / ₂ x 13 ¹ / ₂	11 ⁵ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	18		-.55 to +1.1	550	16	0 to 400	300	35-72	
19FNP4	114	TA-BR	16 ³ / ₄ x 13 ¹ / ₂	11 ⁵ / ₈	1250-1750	N	B7-208	8HR	6.3/.60	23		-.55 to +1.1	550	16	0 to 400	300	28-62	
19FTP4	114	TA-BR	16 ¹ / ₁₆ x 13 ³ / ₄	11 ¹ / ₂	1000-1500	N	B7-208	8HR	6.3/.45	21		-.50 to +1.0	550	16	0 to 400	400	39-94	
19GMP4	114	TA-BC	17 ¹ / ₈ x 14 ³ / ₂	11 ⁵ / ₈	700-900	N	B7-208	8HR	6.3/.45	23		-.40 to +1.25	70	16	0 to 400	50	32-50	
19XP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20		-.55 to +1.1	550	16	0 to 400	400	41-99	
19YP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	10 ¹ / ₁₆	1000-1500	N	B7-208	8JR	6.3/.60	20		-.35 to +.70	600	16	0 to 400	500	48-83	Tri-Potential Electrostatic Focus
19ZP4	114	TA	16 ¹ / ₂ x 13 ¹ / ₂	11 ¹ / ₂	1000-1500	N	B6-226/B7-237	8JS	6.3/.60	20		-.50 to +1.0	700	16.5	0 to 500	450	33-77	
20CP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ¹ / ₁₆	.....	S	B5-57	12D	6.3/.60	19.8		Magnetic	450	16	110 Ma.	300	33-77	
20CP4A	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ¹ / ₁₆	500-1500	S	B5-57	12N	6.3/.60	19.8		Magnetic	450	16	110 Ma.	300	33-77	
20CP4B	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ¹ / ₁₆	.....	S	B5-57	12D	6.3/.60	19.8		Magnetic	450	16	110 Ma.	300	33-77	
20CP4C	70	T, AR	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ¹ / ₁₆	.....	S	B5-57	12D	6.3/.60	19.8		Magnetic	450	16	110 Ma.	300	33-77	
20CP4D	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ¹ / ₁₆	500-1500	S	B5-57	12N	6.3/.60	19.8		Magnetic	450	16	110 Ma.	300	33-77	
20DP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	.....	S	B5-57	12D	6.3/.60	19.8		Magnetic	450	16	110 Ma.	300	33-77	
20DP4A	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	500-1500	S	B5-57	12N										

monochrome picture tubes *(continued)*

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE Clear Tinted Alum. Shield* Anti-Refll.	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	** Ion Trap	Base	Basing	Heater▲ Volts/Amps	Anode (Kv)	MAXIMUM RATINGS			TYPICAL OPERATION			REMARKS
			Faceplate Diameter or Width x Height	Length							Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts	Accel. Grid (G2) Volts	Negative Grid No. 1 Voltage for Spot Cutoff	
20HP4B	70	T, AR	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	.....	S	B6-63	12M	6.3/.60	17.6	-.55 to +1.1	550	14	-56 to +310	300	33-77	
20HP4C	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	.....	S	B6-63	12M	6.3/.60	17.6	-.55 to +1.1	550	14	-56 to +310	300	33-77	
20HP4D	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	500-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14	-56 to +310	300	33-77	
20HP4E	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	500-1500	N	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14	-56 to +310	300	33-77	
20JP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	500-750	S	B5-57	12P	6.3/.60	19.8	Auto. Es.	550	12	Auto. Es.	300	33-77	
20LP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	750-1500	S	B6-63	12L	6.3/.60	17.6	-1.1 to +2.2	550	14	0	300	33-77	
20MP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	500-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14	-55 to +300	300	33-77	
21AP4	70	T, AR	19 ³ / ₃₂ x 15 ¹ / ₁₆	22 ⁵ / ₁₆	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	550	16	110 Ma.	300	33-77	Metal Bulb
21ACP4	90	T	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	16	117 Ma.	300	33-77	
21ACP4A	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	16	117 Ma.	300	33-77	
21AFP4	70	T	20 ¹ / ₄ x 15 ¹ / ₁₆	23	.....	S	B6-63	12M	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	
21ALP4	90	T	20 ¹ / ₄ x 16 ³ / ₈	20	500-750	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	
21ALP4A	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	500-750	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	
21ALP4B	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	500-750	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	-64 to +350	300	33-77	
21AMP4	90	T	20 ¹ / ₄ x 16 ³ / ₈	20	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	102 Ma.	300	33-77	
21AMP4A	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	102 Ma.	300	33-77	
21AMP4B	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	500-750	N	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	102 Ma.	300	33-77	
21ANP4	90	T	20 ¹ / ₄ x 16 ³ / ₈	20	.....	S	B6-63	12M	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	
21ANP4A	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	.....	S	B6-63	12M	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	
21AQP4	90	T	20 ¹ / ₄ x 16 ³ / ₈	20	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	550	16	102 Ma.	300	33-77	
21AQP4A	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	550	16	102 Ma.	300	33-77	
21ARP4	70	T	20 ¹ / ₄ x 15 ¹ / ₁₆	23 ³ / ₃₂	500-750	I	B5-57	12N	6.3/.60	22	Int. Mag.	550	16	Int. Mag.	300	33-77	Internal Magnet for Focus
21ARP4A	70	TA	20 ¹ / ₄ x 15 ¹ / ₁₆	23 ³ / ₃₂	500-750	I	B5-57	12N	6.3/.60	22	Int. Mag.	550	16	Int. Mag.	300	33-77	
21ASP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	22 ¹ / ₁₆	.....	S	B6-63	12M	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	Bulb Varies in Dimensions from Normal
21ATP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	1200-1500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	
21ATP4A	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	1200-1500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	-64 to +350	300	33-77	
21ATP4B	90	T	20 ¹ / ₄ x 16 ³ / ₈	20	1200-1500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	
21AUP4	72	T	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	2000-2500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21AUP4A	72	TA	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	2000-2500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21AUP4B	72	TA	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	2000-2500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21AUP4C	72	TA	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21AVP4	72	T	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	2000-2500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21AVP4A	72	TA	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	2000-2500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21AVP4B	72	TA	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	2000-2500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21AVP4C	72	TA	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21AWP4	72	TA	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	2000-2500	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	108 Ma.	300	33-77	
21AWP4A	72	TA	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	2000-2500	N	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	108 Ma.	300	33-77	
21AYP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	22 ¹ / ₁₆	750-2500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	Bulb Varies in Dimensions from Normal
21BAP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	0 to 500	300	33-77	
21BCP4	70	TA	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	500-750	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	+50 to +550	300	33-77	
21BDP4	72	TA	20 ¹ / ₄ x 16 ³ / ₈	23 ³ / ₃₂	500-750	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	+50 to +550	300	33-77	
21BNP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	0 to 500	300	33-77	
21BSP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	16	116 Ma.	300	33-77	
21BTP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	-64 to +350	300	33-77	
21CBP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	18	2000-2500	N	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	18	-70 to +396	300	33-77	
21CBP4A	90	TA	20 ¹ / ₄ x 16 ³ / ₈	18	2000-2500	N	B6-63	12L	6.3/.60	20	-.5 to +1.0	550	16	0 to 450	300	33-77	
21CBP4B	90	TA	20 ¹ / ₄ x 16 ³ / ₈	18	2000-2500	N	B6-63	12L	6.3/.60	20	-.50 to +1.0	550	16	-50 to +350	300	28-72	
21CDP4	90	T	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	S	B6-63	12L	6.3/.45	22	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21CDP4A	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	S	B6-63	12L	6.3/.45	22	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21CEP4	110	TA	20 ¹ / ₄ x 16 ³ / ₈	14 ⁷ / ₁₆	2000-2500	N	B7-208	8HR	6.3/.60	19.8	-.55 to +1.1	550	16	0 to 400	400	41-99	
21CEP4A	110	TA	20 ¹ / ₄ x 16 ³ / ₈	14 ⁷ / ₁₆	2000-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	16	0 to 400	400	41-99	
21CGP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	220	18	-72 to +396	110	+37 to +55	Cathode Drive Values
21CHP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	18	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	220	18	-50 to +350	110	+37 to +55	Cathode Drive Values
21CKP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	18	2000-2500	N	B6-63	12L	6.3/.45	22	-.55 to +1.1	550	16	-50 to +350	300	33-77	
21CLP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	19	1250-1750	S	B7-51	12AJ	6.3/.30	19.8	-.55 to +.55	550	16	-75 to +235	300	40-80	
21CMP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	19	2000-2500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21CQP4	110	TA	20 ¹ / ₄ x 16 ³ / ₈	14 ⁷ / ₁₆	2000-2500	N	B6-185	7FA	6.3/.60	19.8							

monochrome picture tubes (continued)

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE Clear Tinted Alum. Shield* Anti-Ref.	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	** Ion Trap	Base	Basing	Heater▲ Volts/Amps	DESIGN Anode (Kv)	MAXIMUM RATINGS			TYPICAL OPERATION			REMARKS
			Faceplate Diameter or Width x Height	Length							Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts Magnet Coil Current in Ma.	Accel. Grid (G2) Volts	Negative Grid No. 1 Voltage for Spot Cutoff	
21DEP4	110	TA	20¼ x 16⅜	14½	2000-2500	N	B7-183/B7-208	8HR	6.3/.60	19.8	-.55 to +1.1	550	17	0 to 500	300	33-77	Light Weight Bulb
21DEP4A	110	TA	20¼ x 16⅜	14½	2000-2500	N	B7-183/B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	17	0 to 500	300	33-77	Light Weight Bulb
21DFP4	110	TA	20¼ x 16⅜	14⅞	1500-2200	N	B7-183/B7-208	8HR	6.3/.60	19.8	-.55 to +1.1	550	16	0 to 400	400	41-99	
21DHP4	110	TA	20¼ x 16⅜	14½	1700-2500	N	B7-183/B7-208	8HR	6.3/.45	19.8	-.55 to +1.1	550	16	0 to 400	300	40-77	Light Weight Glass
21DJP4	90	TA	20¼ x 16⅜	18	2000-2500	N	B6-63	12L	6.3/.30	22	-.55 to +1.1	550	16	-50 to +350	300	40-77	
21DKP4	110	TA	20¼ x 16⅜	14½	1700-2500	N	B7-183/B7-208	8HR	6.3/.30	19.8	-.55 to +1.1	550	16	0 to 400	300	40-77	Light Weight Glass
21DKP4A	110	TA	20¼ x 16⅜	14½	1700-2500	N	B7-183/B7-208	8HR	6.3/.30	19.8	-.55 to +1.1	550	16	0 to 400	300	40-77	Light Weight Glass; 18 Sec. Heater Warm-up Time
21DLP4	90	TA	20¼ x 16⅜	17	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	0 to 400	300	33-77	
21DMP4	110	TA	20¼ x 16⅜	13¾	2000-2500	N	B7-183/B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	16	-50 to +350	400	41-97	Light Weight Glass
21DNP4	90	TA	20¼ x 16⅜	19	1200-1500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	-64 to +352	300	40-77	
21DQP4	90	TA	20¼ x 16⅜	17½	2000-2500	N	B6-63	12L	6.3/.60	20	-.55 to +1.1	550	16	-50 to +350	300	40-77	Light Weight Glass; Bulb Dimen. Varies from Normal
21DRP4	90	TA	20¼ x 16⅜	18¼	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16	0 to 450	300	33-77	
21DSP4	90	TA	20¼ x 16⅜	18	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	70	16	0 to 400	50	+37 to +55	Cathode Drive Values
21DVP4	90	TA	20¼ x 16⅜	20	500-750	S	B6-63	12L	6.3/.30	22	-.55 to +1.1	550	18	0 to 400	300	33-77	
21DWP4	110	TA	20¼ x 16⅜	14⅞	2000-2500	N	B7-183/B7-208	8HR	6.3/.60	19.8	-.55 to +1.1	550	14	-50 to +350	450	50-110	
21EP4	70	T	20¼ x 15⅞	23	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	550	16	95 Ma.	300	33-77	Cylindrical Faceplate
21EP4A	70	T	20¼ x 15⅞	23	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	95 Ma.	300	33-77	Cylindrical Faceplate
21EP4B	70	TA	20¼ x 15⅞	23	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	95 Ma.	300	33-77	Cylindrical Faceplate
21EP4C	70	TA	20¼ x 15⅞	23	500-750	N	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	95 Ma.	300	33-77	Cylindrical Faceplate
21EAP4	110	TA	20¼ x 16⅜	12⅞	1500-2000	N	B7-208	8JK	2.35/.60	20	-.70 to +.95	550	16	100 to 500	300	40-77	Light Weight Glass; 2.35 Volt Heater
21ELP4	90	TA	20¼ x 16⅜	19	2000-2500	N	B6-63	12L	6.3/.30	22	-.55 to +1.1	550	16	0 to 400	450	50-110	
21EMP4	110	TA	20¼ x 16⅜	13⅜	2000-2500	N	B7-183	8HR	6.3/.60	19.8	-.55 to +1.1	550	16	0 to 400	450	50-110	
21ENP4	90	TA	20¼ x 16⅜	19	2000-2500	S	B6-63	12L	6.3/.30	22	-.55 to +1.1	550	16	-64 to +352	300	40-77	
21EQP4	110	TA	20¼ x 16⅜	12⅞	2000-2500	N	B7-208	8JR	6.3/.60	20	+.70m	600	16	0 to 400	500	48-77	Tri-Potential Electrostatic Focus
21ERP4	110	TA, AR, BP	20¼ x 16⅜	12⅞	1500-2000	N	B7-208	8JR	6.3/.60	20	+.70m	600	16	0 to 400	500	48-77	Tri-Potential Focus; Formed Cover Plate
21ESP4	110	TA	20¼ x 16⅜	13⅞	2000-2500	N	B6-226/B7-208	8JS	6.3/.60	19.8	-.55 to +1.1	825	17	0 to 500	450	33-77	Light Weight Glass
21EVP4	110	TA	20¼ x 16⅜	12⅞	1500-2000	N	B7-208	8JK	2.68/.45	20	-.7 to +.95	550	16	100 to 500	300	40-77	Light Weight Glass; 2.68 Volt Heater
21EWP4	72	TA	20¼ x 16⅜	23½	.....	N	B5-57	12D	6.3/.60	22	Magnetic	1100	18	115 Ma.	300	33-75	
21EXP4	110	TA	20¼ x 16⅜	12⅞	2000-2500	N	B7-208	8JR	6.3/.30	20	+.70m	600	16	0 to 400	500	48-83	Tri-Potential Electrostatic Focus
21EYP4	72	TA	20¼ x 16⅜	23½	1200-1500	N	B6-63	12L	6.3/.60	22	800	700	18	0 to 400	300	33-77	
21EZP4	110	TA	20¼ x 16⅜	12⅞	2000-2500	N	B7-208	8JR	6.3/.30	19.8	+.715m	600	18	0 to 400	500	+46 to +74	Cathode Drive Values; Tri-Potential Focus
21FP4	70	T	20¼ x 15⅞	23	.....	S	B6-63	12M	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	Cylindrical Faceplate
21FP4A	70	T	20¼ x 15⅞	23	500-750	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	Cylindrical Faceplate
21FP4C	70	TA	20¼ x 15⅞	23	500-750	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	Cylindrical Faceplate
21FP4D	70	TA	20¼ x 15⅞	23	500-750	N	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +350	300	33-77	Cylindrical Faceplate
21FAP4	110	TA	19⅞ x 16⅜	12⅞	2000-2500	N	B7-208	8JR	6.3/.60	22	+.70m	600	16	0 to 400	500	48-83	Light Weight Glass; Tri-Potential Focus
21FCP4	110	TA	20¼ x 16⅜	13½	2000-2500	N	B7-208	8HR	6.3/.30	18	-.55 to +1.1	550	16	0 to 400	300	+39 to +68	Cathode Drive Values
21FDP4	110	TA	20¼ x 16⅜	13⅞	1500-2000	N	B7-208	8KW	6.3/.60	20	-.55 to +1.1	550	16	+100 to +500	300	40-77	
21FLP4	90	TA	20¼ x 16⅜	18	500-2500	N	B6-63	12L	6.3/.60	22	-.50 to +1.0	550	16	0 to 450	300	33-77	
21FMP4	110	TA	20¼ x 16⅜	14⅞	2000-2500	N	B7-237/B7-208	8HR	6.3/.60	22	-.50 to +1.0	100	18	0 to 500	50	31-49	
21FUP4	114	TA-BF	18⅞ x 15¾	12⅞	1700-2500	N	B7-208	8HR	6.3/.45	23	-.50 to +1.0	60	16	0 to 400	50	35-55	
21FVP4	114	TA-BR	18⅞ x 14⅞	12⅞	1500-2300	N	B7-208	8HR	6.3/.45	23	-.55 to +1.1	550	20	-100 to +300	400	36-78	
21FXP4	114	TA-BF	18⅞ x 15¾	12⅞	1500-2000	N	B7-208	8HR	6.3/.45	23	-.55 to +1.1	550	16	0 to 500	400	35-72	
21FZP4	114	TA-BR	18⅞ x 14⅞	12⅞	1700-2500	N	B7-208	8HR	6.3/.45	23	-.50 to +1.0	550	16	0 to 400	400	39-93	
21GBP4	114	TA-BR	18⅞ x 14⅞	12⅞	1500-2300	N	B7-208	8HR	6.3/.45	20	-.50 to +1.0	70	16	0	50	36-54	
21JP4	70	T	20¼ x 15⅞	23½	500-750	I	B5-57	12N	6.3/.60	22	Int. Mag.	550	16	Int. Mag.	300	33-77	Cylindrical Faceplate
21JP4A	70	TA	20¼ x 15⅞	23½	500-750	I	B5-57	12N	6.3/.60	22	Int. Mag.	550	16	Int. Mag.	300	33-77	Cylindrical Faceplate
21KP4	70	T	20¼ x 15⅞	22⅞	.....	S	B5-57	12D	6.3/.60	19.8	Auto. Es.	550	14	Auto. Es.	300	33-77	Cylindrical Faceplate
21KP4A	70	T	20¼ x 15⅞	22⅞	500-750	S	B5-57	12P	6.3/.60	19.8	Auto. Es.	550	14	Auto. Es.	300	33-77	Cylindrical Faceplate
21MP4	70	T, AR	19⅞ x 15⅞	22⅞	.....	S	B6-63	12M	6.3/.60	17.6	-.55 to +1.1	550	16	-65 to +350	300	33-77	Metal Bulb
21WP4	70	T	18⅞ x 14⅞	22⅞	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	100 Ma.	300	33-77	Bulb Dimensions Varies from Normal
21WP4A	70	TA	18⅞ x 14⅞	22⅞	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	100 Ma.	300	33-77	Bulb Dimensions Varies from Normal
21WP4B	70	TA	18⅞ x 14⅞	22⅞	500-750	N	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	100 Ma.	300	33-77	Bulb Dimensions Varies from Normal
21XP4	70	T	18⅞ x 14⅞	22⅞	2000-2500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	Bulb Dimensions Varies from Normal
21XP4A	70	TA	18⅞ x 14⅞	22⅞	2000-2500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	Bulb Dimensions Varies from Normal
21XP4B	70	TA	18⅞ x 14⅞	22⅞	2000-2500	N	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	Bulb Dimensions Varies from Normal
21YP4	70	T	20¼ x 15⅞	23	500-750	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21YP4A	70	TA	20¼ x 15⅞	23	500-750	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21YP4B	70	TA	20¼ x 15⅞	23	500-750	N	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16	-64 to +352	300	33-77	
21ZP4	70	T	20¼ x 15⅞	23½	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	550	12	95 Ma.	300	33-77	
21ZP4A	70	T	20¼ x 15⅞	23½	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	100 Ma.	300	33-77	
21ZP4B	70	TA	20¼ x 15⅞	23½	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	118 Ma.	300	33-77	
21ZP4C	70	TA	20¼ x 15⅞	23½	500-750	N	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	118 Ma.	300	33-77	
23ACP4	90	TA, BC	21⅞ x 17⅞	19½	2000-2500	N	B6-63	12L	6.3								

monochrome picture tubes (continued)

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE Clear Tinted Alum. Shield* Anti-Refl.	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	** Ion Trap	Base	Basing	Heater▲ Volts/Amps	DESIGN Anode (Kv)	MAXIMUM RATINGS			TYPICAL OPERATION			REMARKS
			Faceplate Diameter or Width x Height	Length							Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts	Accel. Grid (G2) Volts	Negative Grid No. 1 Voltage for Spot Cutoff	
23AFP4	92	TA, BC	2 1/16 x 1 7/32	1 8 1/16	2000-2500	N	B6-203	12L	6.3/.60	25	- .55 to +1.1	550	20	0 to 400	300	40-77	Tri-Potential Electrostatic Focus
23AHP4	92	TA	2 0 1/2 x 1 6 1/2	18	1700-2500	N	B6-203	12L	6.3/.60	22	- .55 to +1.1	550	18	0 to 400	400	41-99	
23AKP4	114	TA	2 0 1/2 x 1 6 1/2	12 7/8	2000-2500	N	B7-208	8JR	6.3/.60	22	+ .70m	600	16	0 to 400	500	48-83	
23ALP4	114	TA	2 0 1/2 x 1 6 1/2	1 4 1/32	1700-2500	N	B7-208	8HR	6.3/.45	22	- .55 to +1.1	550	18	0 to 400	400	41-99	
23AMP4	114	TA	2 0 1/2 x 1 6 1/2	1 4 1/32	1700-2500	N	B7-208	8HR	6.3/.30	22	- .55 to +1.1	550	18	0 to 400	400	41-99	
23ANP4	92	TA, BC	2 1 1/16 x 1 7 1/32	1 8 3/16	2000-2500	N	B6-63/B6-203	12L	6.3/.60	25	- .50 to +1.1	70	20	0 to 500	50	+40 to +55	Cathode Drive Values 18 Second Heater Warm-up Time
23AQP4	114	TA	2 0 1/2 x 1 6 1/2	1 4 3/8	1700-2500	N	B7-208	8HR	6.3/.60	19.8	- .50 to +1.0	550	18	0 to 400	400	49-99	
23ARP4	110	TA	2 0 1/2 x 1 6 1/2	1 4 7/8	1700-2500	N	B7-208	8HR	6.3/.60	22	- .55 to +1.1	550	16	0 to 400	300	40-77	Cathode Drive Values
23ASP4	92	TA	2 0 1/2 x 1 6 1/2	17	1700-2500	N	B6-203	12L	6.3/.60	22	- .55 to +1.1	550	18	0 to 400	400	41-99	
23ATP4	92	TA, AR, BC	2 1 1/16 x 1 7 1/32	1 8 3/16	2000-2500	N	B6-203/B6-63	12L	6.3/.60	25	- .50 to +1.1	70	20	0 to 500	50	+40 to +55	
23AUP4	92	TA	2 0 1/2 x 1 6 1/2	18	1700-2500	N	B6-203	12L	6.3/.60	25	- .55 to +1.1	550	18	0 to 400	400	41-99	
23AVP4	110	TA, AR, BC	2 1 1/16 x 1 7 1/32	1 5 3/16	2000-2500	N	B7-208	8HR	6.3/.60	22	- .55 to +1.1	550	16	0 to 400	300	40-77	Cathode Drive Values
23AWP4	92	TA	2 0 1/2 x 1 6 1/2	18	1700-2500	N	B6-203	12L	6.3/.60	22	- .45 to +1.25	225	20	0 to 400	50	+41 to +59	
23AXP4	110	TA	2 0 1/2 x 1 6 1/2	1 4 3/16	2000-2500	N	B7-208	8HR	6.3/.30	20	- .55 to +1.1	550	16	0 to 400	400	42-72	
23AYP4	110	TA, AR, BC	2 1 1/16 x 1 7 1/32	1 5 3/16	2000-2500	N	B7-208	8HR	6.3/.30	22	- .55 to +1.1	550	16	0 to 400	300	40-77	
23AZP4	92	TA	2 0 1/2 x 1 6 1/2	18	1700-2500	N	B6-203	12L	6.3/.30	22	- .55 to +1.1	550	18	0 to 400	400	41-99	
23BP4	110	TA, BC	2 1 1/16 x 1 7 1/16	1 4 7/16	2000-2500	N	B7-208	8HR	6.3/.60	22	- .55 to +1.1	550	14	0 to 400	450	50-110	Cathode Drive Values
23BAP4	110	TA, AR, BC	2 1 1/16 x 1 7 1/16	1 4 7/16	2000-2500	N	B7-208	8HR	6.3/.60	22	- .55 to +1.1	550	14	0 to 400	450	50-110	
23BCP4	110	TA	2 0 1/2 x 1 6 1/2	1 4 7/8	1700-2500	N	B7-208	8HR	6.3/.30	22	- .55 to +1.1	550	16	0 to 400	300	40-77	
23BDP4	92	TA, AR, BC	2 1 1/16 x 1 7 1/16	1 8 3/16	2000-2500	N	B6-203	12L	6.3/.60	22	- .55 to +1.1	700	16	0 to 400	500	+50 to +100	
23BEP4	110	TA, BC	2 1 1/16 x 1 7 1/32	1 5 3/16	2000-2500	N	B7-208	8HR	6.3/.30	22	- .55 to +1.1	550	16	0 to 400	300	40-77	
23BEP4A	110	TA-BC	2 1 1/16 x 1 7 1/32	1 5 3/16	2000-2500	N	B7-208	8HR	6.3/.30	22	- .55 to +1.1	550	16	0 to 400	300	40-77	18 Second Heater Warm-up Time
23BGP4	110	TA, BC	2 1 1/16 x 1 7 1/32	1 5 3/16	1700-2500	N	B7-208	8HR	6.3/.60	22	- .55 to +1.1	70	16	0 to 400	50	+37 to +52	
23BHP4	110	TA, AR, BC	2 1 1/16 x 1 7 1/32	1 5 3/16	1700-2500	N	B7-208	8HR	6.3/.60	22	- .55 to +1.1	70	16	0 to 400	50	+37 to +52	Cathode Drive Values
23BJP4	92	TA	2 0 1/2 x 1 6 1/2	1 8 1/8	1700-2500	N	B6-203	12L	6.3/.60	25	- .45 to +1.25	70	20	0 to 400	50	+41 to +59	
23BKP4	92	TA, BC	2 1 1/16 x 1 7 1/32	1 8 3/16	1700-2500	N	B6-203	12L	6.3/.60	25	- .40 to +1.25	225	20	0 to 400	50	+41 to +59	Cathode Drive Values
23BLP4	92	TA, AR, BC	2 1 1/16 x 1 7 1/32	1 8 3/16	1700-2500	N	B6-203	12L	6.3/.60	25	- .40 to +1.25	225	20	0 to 400	50	+41 to +59	
23BMP4	92	TA, BC	2 1 1/16 x 1 7 1/32	1 8 3/16	1700-2500	N	B6-203	12L	6.3/.60	22	- .55 to +1.1	550	16	0 to 400	300	40-77	Cathode Drive Values
23BNP4	110	TA-BC	2 1 1/16 x 1 7 1/32	1 5 3/16	2000-2500	N	B7-208	8HR	6.3/.60	22	- .55 to +1.1	550	18	-100 to +300	400	60-110	
23BQP4	110	TA, BC	2 1 1/16 x 1 7 1/32	1 5 3/16	2000-2500	N	B7-208	8HR	6.3/.45	23	- .55 to +1.1	550	16	0 to 400	300	40-77	
23BRP4	110	TA, AR, BC	2 1 1/16 x 1 7 1/16	1 3 3/8	2000-2500	N	B7-208	8JR	6.3/.30	22	+ .70m	600	16	500	500	48-83	
23BSP4	110	TA, AR, BC	2 1 1/16 x 1 7 1/32	1 5 3/16	2000-2500	N	B7-208	8HR	6.3/.30	22	- .55 to +1.1	550	16	0 to 400	300	40-77	
23BTP4	92	TA, BC	2 1 1/16 x 1 7 1/32	1 8 3/16	2000-2500	N	B6-203	12L	6.3/.60	25	- .55 to +1.1	550	16	0 to 400	300	40-77	Internal Magnetic Shielding
23BVP4	92	TA, BC	2 1 1/16 x 1 7 1/32	1 8 1/16	2000-2500	N	B6-203	12L	6.3/.60	25	- .55 to +1.1	550	20	0 to 400	300	40-77	
23BXP4	92	TA-BP	2 0 1/2 x 1 6 1/2	1 8 1/4	2000-2500	N	B6-203	12L	6.3/.60	22	- .55 to +1.1	550	16	0 to 400	300	35-72	
23BYP4	110	TA-BC	2 1 1/16 x 1 7 1/16	1 3 3/8	2000-2500	N	B7-208	8JR	6.3/.30	22	+ .70m	600	16	0 to 400	500	48-83	18 Sec. Heater Warm-up Time; Tri-Potential Es. Focus
23BZP4	92	TA	2 0 1/2 x 1 6 1/2	18	1700-2500	N	B6-203	12L	8.4/.45	22	- .55 to +1.1	550	18	0 to 400	400	41-99	
23CP4	110	TA, BC	2 1 1/16 x 1 7 1/32	1 5 3/16	2000-2500	N	B7-208	8HR	6.3/.60	22	- .55 to +1.1	550	16	0 to 400	300	40-77	Cathode Drive Values
23CP4A	110	TA, BC	2 1 1/16 x 1 7 1/32	1 5 3/16	2000-2500	N	B7-208	8HR	6.3/.60	23.5	- .55 to +1.1	550	16	0 to 400	300	40-77	
23CAP4	92	TA, BC	2 1 1/16 x 1 7 1/32	1 8 3/16	2000-2500	N	B6-203	12L	8.4/.45	22	- .55 to +1.1	550	16	0 to 400	300	40-77	
23CBP4	110	TA, AR, BC	2 1 1/16 x 1 7 1/32	1 5 3/16	2000-2500	N	B7-208	8HR	6.3/.45	23	- .55 to +1.1	550	16	0 to 400	300	40-77	
23CDP4	92	TA, BC	2 1 1/16 x 1 7 1/32	1 8 3/16	2000-2500	N	B6-203	12L	6.3/.30	22	- .55 to +1.1	550	16	0 to 400	300	40-77	
23CEP4	110	TA	2 0 1/2 x 1 6 1/2	1 4 7/8	1700-2500	N	B7-208	8HR	6.3/.45	22	- .55 to +1.1	550	16	0 to 400	300	40-77	18 Second Heater Warm-up Time
23CGP4	92	TA	2 0 1/2 x 1 6 1/2	18	1700-2500	N	B6-203	12L	6.3/.45	22	- .40 to +1.2	700	16	0 to 400	500	45-95	
23CMP4	110	TA	2 0 1/2 x 1 6 1/2	1 4 7/8	1700-2500	N	B7-208	8HR	6.3/.60	22	- .55 to +1.1	550	16	0 to 400	300	40-77	
23CQP4	114	TA, BC	2 0 1/2 x 1 6 1/2	1 3 3/32	1700-2500	N	B7-208	8HR	6.3/.45	23.5	- .55 to +1.1	550	14	0 to 400	450	50-110	
23CSP4	110	TA, AR, BC	2 1 1/16 x 1 7 1/16	1 3 3/8	2000-2500	N	B7-208	8JR	6.3/.30	22	+ .70m	600	16	500	500	48-83	
23CTP4	92	TA, BC	2 1 1/16 x 1 7 1/32	1 8 3/16	2000-2500	N	B6-203	12L	6.3/.45	22	- .55 to +1.1	550	16	0 to 400	300	40-77	18 Sec. Heater Warm-up Time; Tri-Potential Es. Focus
23CUP4	110	TA, AR, BC	2 1 1/16 x 1 7 1/16	1 3 3/8	2000-2500	N	B7-208	8JR	6.3/.60	22	+ .70m	600	16	500	500	48-83	
23CVP4	114	TA	2 0 1/2 x 1 6 1/2	1 2 1/16	2000-2500	N	B7-208	8JR	6.3/.30	22	+ .70m	600	16	0 to 400	500	48-83	
23CWP4	110	TA	2 0 1/2 x 1 6 1/2	1 3 3/16	2000-2500	N	B7-208	8JR	6.3/.60	22	+ .70	600	16	0 to 400	500	43-78	Tri-Potential Focus
23CXP4	110	TA	2 0 1/2 x 1 6 1/2	1 3 3/16	2000-2500	N	B7-208	8JR	6.3/.60	22	+ .70	600	16	0 to 400	500	43-78	
23CZP4	92	TA	2 0 1/2 x 1 6 1/2	1 8 1/2	2000-2500	N	B6-203	12L	6.3/.60	25	- .55 to +1.1	550	20	0 to 400	300	-40 to -77	18 Sec. Heater Warm-up Time; Tri-Potential Es. Focus
23DP4	110	TA, BC	2 1 1/16 x 1 7 1/16	1 3 3/8	2000-2500	N	B7-208	8JR	6.3/.60	22	+ .70m	600	16	0 to 400	500	48-83	
23DAP4	94	TA	2 0 1/2 x 1 6 1/2	1 7 3/4	1700-2500	N	B7-208	8HR	6.3/.60	23	- .55 to +1.1	70	18	-100 to +300	50	35-55	
23DBP4	110	TA	2 0 1/2 x 1 6 1/2	1 4 7/8	2000-2500	N	B7-237/ B7-208	8HR	6.3/.60	22	- .50 to +1.0	100	18	0 to 500	50	31-49	
23DCP4	94	TA	2 0 1/2 x 1 6 1/2	1 7 3/4	1700-2500	N	B7-208	8HR	6.3/.45	23.5	- .40 to +1.1	70	18	0 to 400	50	35-55	
23DEP4	110	TA-BF	2 1 3/8 x 1 7 1/16	14	1500-2000	N	B7-208	8HR	6.3/.30	20	- .55 to +1.1	550	16	0 to 400	400	42-78	Cathode Drive Values
23DFP4	110	TA-BF	2 0 1/2 x 1 6 1/2	14	1500-2000	N	B7-208	8HR	6.3/.30	20	- .55 to +1.1	550	16	0 to 400	400	42-78	
23DHP4	110	TA-BC	2 1 1/16 x 1 7 1/16	1 4 3/16	2000-2500	N	B7-208	8HR	6.3/.30	22	- .55 to +1.1	700	16	0 to 400	400	36-78	.023" x .625"

monochrome picture tubes (continued)

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE Clear Tinted Alum. Shield* Anti-Refl.	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	** Ion Trap	Base	Basing	Heater▲ Volts/Amps	DESIGN Anode (Kv)	MAXIMUM RATINGS			TYPICAL OPERATION			REMARKS
			Faceplate Diameter or Width x Height	Length							Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts Magnet Coil Current in Ma.	Accel. Grid (G2) Volts	Negative Grid No. 1 Voltage for Spot Cutoff	
23DNP4	92	TA-BC	21 $\frac{1}{4}$ x 17 $\frac{1}{2}$	18 $\frac{1}{2}$	2000-2500	N	B6-203	12L	6.3/.60	25	-50 to +1.1	60	20	0 to 500	35	25-50	Coated Funnel No Funnel Coating
23DQP4	92	TA-BC	21 $\frac{1}{4}$ x 17 $\frac{1}{2}$	18 $\frac{1}{2}$	2000-2500	N	B7-208	8HR	6.3/.60	25	-55 to +1.1	80	20	-100 to +300	65	41-56	
23DSP4	92	TA-BR	21 $\frac{1}{4}$ x 16 $\frac{3}{4}$	18 $\frac{3}{8}$	2000-2500	N	B7-208	8HR	6.3/.60	25	-55 to +1.1	80	18	-100 to +300	65	41-56	
23DSP4A	92	TA-BR	21 $\frac{1}{4}$ x 16 $\frac{3}{4}$	18 $\frac{3}{8}$	2000-2500	N	B7-208	8HR	6.3/.60	25	-55 to +1.1	80	18	-100 to +300	65	41-56	
23DTP4	92	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	18 $\frac{1}{2}$	1700-2500	N	B6-203	12L	6.3/.60	25	-55 to +1.1	550	20	0 to 400	300	40-76	
23DVP4	114	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{4}$	1700-2500	N	B7-208	8HR	6.3/.60	22	-55 to +1.1	550	18	0 to 400	400	46-94	No Funnel Coating. $\frac{5}{8}$ " Tension Band
23DVP4A	114	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{4}$	1700-2500	N	B7-208	8HR	6.3/.60	22	-55 to +1.1	550	18	0 to 400	400	46-94	
23DWP4	94	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	17 $\frac{1}{8}$	2000-2500	N	B7-208	8HR	6.3/.60	22	-50 to +1.0	400	18	0 to 500	200	31-49	
23DYP4	110	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{8}$	2000-2500	N	B7-208	8HR	6.3/.60	22	-50 to +1.0	550	18	0 to 500	300	36-54	
23DZP4	114	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{4}$	1700-2500	N	B7-208	8HR	6.3/.45	22	-55 to +1.1	550	18	0 to 400	400	46-94	
23EP4	110	TA, BC	21 $\frac{1}{4}$ x 17 $\frac{1}{2}$	15 $\frac{3}{8}$	1700-2500	N	B7-219	8KP	6.3/.60	22	-55 to +1.1	70	18	0 to 400	50	+39 to +57	Cathode Drive Values
23EAP4	92	TA-BC	21 $\frac{1}{4}$ x 17 $\frac{1}{2}$	18 $\frac{1}{8}$	2000-2500	N	B6-203	12L	6.3/.45	22	-55 to +1.1	550	16	0 to 400	300	35-72	
23ECP4	92	TA-BP	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	18 $\frac{1}{8}$	2000-2500	N	B6-203	12L	6.3/.60	25	-50 to +1.0	60	22	0 to 500	35	25-50	
23EDP4	92	TA-BP	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	18 $\frac{1}{8}$	2000-2500	N	B6-203	12L	6.3/.60	25	-55 to +1.1	550	20	0 to 500	300	35-72	
23EFP4	110	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.60	22	-40 to +1.25	70	18	0 to 400	50	34-49	
23EKP4	92	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	18	1700-2500	N	B6-203	12L	6.3/.45	25	-55 to +1.1	550	20	0 to 400	400	36-78	
23ENP4	92	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	18 $\frac{1}{8}$	1700-2500	N	B6-203	12L	6.3/.60	25	-40 to +1.25	70	20	0 to 400	50	36-54	
23EQP4	114	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	14 $\frac{1}{2}$	1700-2500	N	B7-208	8HR	6.3/.45	23	-55 to +1.1	550	18	0 to 400	300	28-62	
23ESP4	110	TA-AR-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{8}$	2000-2500	N	B7-208	8HR	6.3/.45	22	-50 to +1.0	550	18	0 to 500	300	36-54	
23ESP4A	110	TA-AR-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{8}$	2000-2500	N	B7-208	8HR	6.3/.45	22	-50 to +1.0	550	18	0 to 500	300	36-54	
23ETP4	110	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.60	23	-55 to +1.1	550	18	0 to 400	300	28-62	
23EWP4	114	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.45	22	-55 to +1.1	550	18	0 to 400	400	46-94	
23EWP4A	114	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{2}$	1700-2500	N	B7-208	8HR	6.3/.45	22	-55 to +1.1	550	18	-200 to +200	400	48-96	
23EYP4	92	TA-BF	21 $\frac{1}{8}$ x 18 $\frac{1}{8}$	18 $\frac{1}{8}$	2000-2500	N	B6-203	12L	6.3/.60	25	-55 to +1.1	60	20	0 to 500	35	25-50	
23EZP4	94	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{3}{4}$	17 $\frac{3}{4}$	1700-2500	N	B7-208	8HR	6.3/.45	23.5	-55 to +1.1	70	18	0 to 400	50	35-55	
23FP4	114	TA	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	13 $\frac{1}{4}$	1700-2500	N	B7-208	8HR	6.3/.60	22	-55 to +1.1	550	14	0 to 400	450	50-110	Mounting Lugs
23FP4A	114	TA	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	13 $\frac{3}{8}$	1700-2500	N	B7-208	8HR	6.3/.60	23.5	-55 to +1.1	550	14	0 to 400	450	50-110	
23FAP4	114	TA-BF	21 $\frac{1}{4}$ x 17 $\frac{1}{4}$	14 $\frac{1}{2}$	1700-2500	N	B7-208	8HR	6.3/.60	22	-55 to +1.1	550	18	-200 to +200	400	48-96	
23FBP4	92	TA-AR-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	18 $\frac{1}{8}$	1700-2500	N	B6-203	12L	6.3/.60	25	-40 to +1.25	70	20	0 to 400	50	36-54	
23FCP4	110	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.45	22	-40 to +1.25	70	18	0 to 400	50	34-49	
23FDP4	110	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.45	23	-40 to +1.25	70	18	0 to 400	50	34-52	
23FHP4	110	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{3}{4}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.45	23.5	-40 to +1.25	70	16	-200 to +200	50	32-50	
23FKP4	94	TA-BC	21 $\frac{1}{4}$ x 17 $\frac{1}{2}$	17 $\frac{1}{2}$	1700-2500	N	B7-208	8HR	6.3/.60	23.5	-55 to +1.1	650	16	0 to 500	500	45-95	
23FLP4	92	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{3}{4}$	18	1700-2500	N	B6-203	12L	6.3/.45	25	-55 to +1.1	550	18	-200 to +200	300	37-74	
23FMP4	110	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.45	23	-55 to +1.1	550	18	0 to 400	300	28-62	
23FNP4	92	TA-BF	21 $\frac{1}{8}$ x 18 $\frac{1}{4}$	18	2000-2500	N	B6-206	12L	6.3/.45	25	-55 to +1.1	550	20	0 to 500	300	35-72	
23FRP4	110	TA-BF	21 $\frac{1}{4}$ x 17 $\frac{1}{4}$	14 $\frac{1}{4}$	1700-2500	N	B7-208	8HR	6.3/.45	23	-50 to +1.0	60	16	0 to 400	50	35-55	
23FSP4	110	TA-BF	21 $\frac{1}{4}$ x 17 $\frac{1}{4}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.60	23	-50 to +1.0	500	16	0 to 400	400	39-94	
23FVP4	110	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{8}$	2000-2500	N	B7-208	8HR	6.3/.45	22	-50 to +1.0	550	18	0 to 500	300	36-54	
23FWP4	92	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	18	1700-2500	N	B6-63	12L	6.3/.45	22	-45 to +1.25	225	20	0 to 500	50	36-54	
23FWP4A	92	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	18	1700-2500	N	B6-203	12L	6.3/.45	22	-45 to +1.25	225	20	0 to 500	50	36-54	$\frac{5}{8}$ " Tension Band
23GP4	110	TA, BC	21 $\frac{1}{4}$ x 17 $\frac{1}{2}$	15 $\frac{3}{8}$	2000-2500	N	B7-208	8HR	6.3/.60	22	-55 to +1.1	550	16	0 to 400	300	33-77	
23GBP4	110	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.45	23	-50 to +1.0	500	16	0 to 400	400	39-94	
23GDP4	114	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{2}$	2000-2500	N	B7-208	8HR	6.3/.60	22	-55 to +1.1	550	18	0 to 400	400	36-94	
23GJP4	110	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{4}$	1700-2500	N	B7-208	8HR	6.3/.45	22	-40 to +1.25	70	18	0 to 400	50	32-50	
23GKP4	92	TA-BF	21 $\frac{1}{4}$ x 17	18 $\frac{3}{8}$	2000-2500	N	B6-203	12L	6.3/.60	22	-55 to +1.1	550	16	0 to 400	300	35-72	Mounting Lugs
23GRP4	92	TA-BF	21 $\frac{1}{4}$ x 17	18 $\frac{3}{8}$	2000-2500	N	B6-63	12L	6.3/.45	22	-55 to +1.1	550	16	0 to 400	300	35-72	
23GSP4	110	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.60	23	-55 to +1.1	550	18	0 to 400	300	28-62	
23GTP4	110	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.60	23	-55 to +1.1	550	18	0 to 400	300	28-62	
23GVP4	114	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{2}$	2000-2500	N	B7-208	8HR	6.3/.45	22	-50 to +1.1	55	18	0 to 500	45	35-50	
23GWP4	110	TA-BR	21 $\frac{1}{4}$ x 16 $\frac{3}{4}$	14 $\frac{3}{8}$	2000-2500	N	B7-208	8HR	6.3/.45	22	-40 to +1.25	80	18	-50 to +350	50	33-45	Mounting Lugs
23GXP4	110	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{8}$	2000-2500	N	B7-208	8HR	6.3/.60	23	-55 to +1.1	550	16	0 to 400	300	35-72	
23HP4	110	TA, BC	21 $\frac{1}{4}$ x 17 $\frac{1}{2}$	15 $\frac{1}{2}$	2000-2500	N	B7-208/B7-183	8HR	6.3/.60	20	-50 to +2.0	550	16	0 to 400	300	40-77	
23HFP4	110	TA-BR	20 $\frac{3}{8}$ x 16 $\frac{5}{8}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.45	23	-50 to +1.0	500	16	0 to 400	400	39-94	
23HFP4A	110	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.45	23	-55 to +1.1	550	18	0 to 400	300	28-62	
23HGP4	110	TA-BR	20 $\frac{1}{2}$ x 16 $\frac{1}{2}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.45	23	-55 to +1.1	550	18	0 to 400	300	28-62	Mounting Lugs
23HKP4	110	TA-BF	21 $\frac{1}{4}$ x 17 $\frac{1}{4}$	14 $\frac{1}{8}$	1700-2500	N	B7-208	8HR	6.3/.60								

monochrome picture tubes *(continued)*

(magnetic deflection)

Type	Defl. Angle and Neck Dia. ♦	FACEPLATE Clear Tinted Alum. Shield* Anti-Ref.	OVERALL DIMENSIONS INCHES		External Conductive Coating Capacitance (pf)	** Ion Trap	Base	Basing	DESIGN		MAXIMUM RATINGS			TYPICAL OPERATION			REMARKS
			Faceplate Diameter or Width x Height	Length					Heater▲ Volts/Amps	Anode (Kv)	Focusing Electrode (Kv)	Accel. Grid (G2) Volts	Anode (Kv)	Focus Electrode Volts	Accel. Grid (G2) Volts	Negative Grid No. 1 Voltage for Spot Cutoff	
23SP4	110	TA, BC	21 ¹ / ₁₆ x 17 ¹ / ₃₂	15 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/30	22	-55 to +1.1	550	16	0 to 400	300	40-77	Low Anode Voltage 18 Second Heater Warm-up Time
23TP4	90	TA, BC	21 ¹ / ₁₆ x 17 ¹ / ₁₆	19 ¹ / ₃₂	1700-2500	N	B6-63/B6-203	12L	6.3/60	22	-50 to +1.0	550	16	0 to 450	300	33-77	
23UP4	110	TA, BC	21 ¹ / ₁₆ x 17 ¹ / ₃₂	15 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/45	18	-55 to +1.1	550	16	0 to 400	300	40-77	
23VP4	114	TA, BC	20 ¹ / ₂ x 16 ¹ / ₂	13 ³ / ₈	2000-2500	N	B7-208	8HR	6.3/30	22	-55 to +1.1	550	14	0 to 400	450	50-110	
23WP4	114	TA, BC	20 ¹ / ₂ x 16 ¹ / ₂	14 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/60	20	-50 to +2.0	550	16	0 to 400	300	40-77	
23XP4	92	TA, BC	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	2000-2500	N	B6-203	12L	6.3/60	18	-55 to +1.1	550	16	0 to 400	300	40-77	Cathode Drive Values Metal Bulb
23YP4	92	TA, BC	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	2000-2500	N	B6-203	12L	6.3/60	22	-55 to +1.1	550	16	0 to 400	300	40-77	
23ZP4	90	TA, BC	21 ¹ / ₁₆ x 17 ¹ / ₃₂	19 ¹ / ₃₂	2000-2500	N	B6-63	12L	6.3/60	22	-50 to +1.1	70	18	0 to 500	50	+40 to +55	
24AP4	70	T	24	23 ¹ / ₁₆	.....	S	B5-57	12D	6.3/60	17.6	Magnetic	450	15	114 Ma.	300	33-77
24AP4A	70	TA	24	23 ¹ / ₁₆	.....	S	B5-57	12D	6.3/60	17.6	Magnetic	450	15	114 Ma.	300	33-77
24AP4B	70	C, AR	24	23 ¹ / ₁₆	S	B5-57	12D	6.3/60	17.6	Magnetic	450	15	114 Ma.	300	33-77	Metal Bulb
24ADP4	90	TA	22 ¹ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	2000-2500	S	B5-57	12N	6.3/60	24.2	Magnetic	660	18	125 Ma.	300	33-77	Metal Bulb
24AEP4	90	TA	22 ¹ / ₁₆ x 18 ¹ / ₁₆	19 ¹ / ₈	2000-2500	N	B6-63	12L	6.3/60	22	-55 to +1.1	550	18	-50 to +350	300	33-77	
24AHP4	110	TA	22 ¹ / ₁₆ x 18 ¹ / ₂	15 ⁷ / ₈	2000-2500	N	B7-208	8HR	6.3/60	22	-55 to +1.1	550	16	-50 to +350	300	33-77	
24AJP4	90	TA	22 ¹ / ₁₆ x 18 ¹ / ₁₆	19 ¹ / ₈	2000-2500	N	B6-63	12L	6.3/60	22	-55 to +1.1	70	18	0 to 350	50	35-50	
24ALP4	110	TA	22 ¹ / ₁₆ x 18 ¹ / ₂	15 ⁷ / ₈	2000-2500	N	B7-183	8HR	6.3/60	22	-55 to +1.1	550	17	0 to 500	300	33-77	
24AMP4	110	TA	22 ¹ / ₁₆ x 18 ¹ / ₂	15 ⁷ / ₈	2000-2500	N	B6-185	7FA	6.3/60	22	-55 to +1.1	550	16	0 to 400	300	40-77	Cathode Drive Values Metal Bulb
24ANP4	90	TA	22 ³ / ₁₆ x 18 ¹ / ₁₆	20 ¹ / ₈	1700-2500	S	B6-63	12L	6.3/60	22	-55 to +1.1	550	18	-72 to +396	300	40-77	
24AQP4	110	TA	22 ¹ / ₁₆ x 18 ¹ / ₂	15 ⁷ / ₈	1700-2500	N	B7-183	8HR	6.3/45	22	-55 to +1.1	550	16	0 to 400	300	40-77	
24ASP4	90	TA	22 ³ / ₁₆ x 18 ¹ / ₁₆	19 ¹ / ₈	1700-2500	N	B6-63	12L	6.3/30	22	-55 to +1.1	550	18	0 to 400	300	40-77	
24ATP4	90	TA	22 ¹ / ₁₆ x 18 ¹ / ₁₆	19 ¹ / ₈	2000-2500	N	B6-63	12L	6.3/60	22	-55 to +1.1	75	18	0 to 400	50	+39 to +57	
24AUP4	90	TA	22 ³ / ₁₆ x 18 ¹ / ₁₆	18 ¹ / ₂	1700-2500	N	B6-63	12L	6.3/60	22	-55 to +1.1	550	18	-75 to +400	300	40-77	Cathode Drive Values 2.35 Volt Heater
24AVP4	110	TA	22 ¹ / ₁₆ x 18 ¹ / ₂	14 ¹ / ₁₆	1700-2500	N	B7-208	8JK	2.35/60	20	-55 to +1.1	550	16	-100 to +300	300	40-77	
24AWP4	110	TA	22 ¹ / ₁₆ x 18 ¹ / ₂	14 ⁷ / ₈	2000-2500	N	B7-183	8HR	6.3/60	22	-55 to +1.1	550	16	0 to 400	300	33-77	
24AXP4	110	TA	22 ¹ / ₁₆ x 18 ¹ / ₂	15 ⁷ / ₈	1700-2500	N	B7-183/B7-208	8HR	6.3/30	22	-55 to +1.1	550	16	0 to 400	300	40-77	
24BP4	70	T	22 ¹ / ₄	24 ¹ / ₂	.....	S	B6-63	12M	6.3/60	17.6	-55 to +1.1	550	14	-56 to +310	300	33-77
24BAP4	110	TA	22 ¹ / ₁₆ x 18 ¹ / ₂	15 ⁷ / ₈	1700-2500	N	B7-183/B7-208	8HR	6.3/60	22	-55 to +1.1	70	20	0 to 400	64	+47 to +63	Metal Bulb Cathode Drive Values
24BCP4	90	TA-BP	22 ¹ / ₁₆ x 18 ¹ / ₁₆	19 ¹ / ₈	2000-2500	N	B6-203	12L	6.3/60	22	-50 to +1.1	550	18	0 to 400	400	36-94	
24BEP4	110	TA	22 ¹ / ₁₆ x 18 ¹ / ₂	14 ¹ / ₁₆	1700-2500	N	B7-208	8KW	6.3/60	20	-55 to +1.1	550	16	-100 to +300	300	40-77	
24CP4	90	T	22 ¹ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	2000-2500	S	B5-57	12N	6.3/60	22	Magnetic	550	18	100 Ma.	300	33-77	
24CP4A	90	TA	22 ¹ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	2000-2500	S	B5-57	12N	6.3/60	22	Magnetic	550	18	100 Ma.	300	33-77	
24CP4B	90	TA	22 ¹ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	2000-2500	N	B5-57	12N	6.3/60	22	Magnetic	550	18	100 Ma.	300	33-77	Metal Bulb
24DP4	90	T	22 ¹ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	2000-2500	S	B6-63	12L	6.3/60	22	-55 to +1.1	550	18	-72 to +396	300	33-77	
24DP4A	90	TA	22 ¹ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	2000-2500	S	B6-63	12L	6.3/60	22	-55 to +1.1	550	18	-72 to +396	300	33-77	
24QP4	90	T	22 ¹ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	500-750	S	B5-57	12N	6.3/60	19.8	Magnetic	550	16	100 Ma.	300	33-77	
24TP4	90	TA	22 ¹ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	250-2500	S	B5-57	12N	6.3/60	22	Magnetic	550	18	100 Ma.	300	33-77	
24VP4	90	T	22 ³ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	2000-2500	S	B5-57	12N	6.3/60	24.2	Magnetic	660	20	125 Ma.	300	33-77	Short Neck
24VP4A	90	TA	22 ³ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	2000-2500	S	B5-57	12N	6.3/60	24.2	Magnetic	660	20	125 Ma.	300	33-77	
24XP4	90	T	22 ¹ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	.....	S	B5-57	12D	6.3/60	22	Magnetic	550	18	125 Ma.	300	33-77
24YP4	90	TA	22 ³ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	2000-2500	S	B6-63	12L	6.3/60	22	-55 to +1.1	550	18	-72 to +396	300	33-77	
24ZP4	90	TA	22 ³ / ₁₆ x 18 ¹ / ₁₆	21 ¹ / ₈	2000-2500	N	B6-63	12L	6.3/60	22	-55 to +1.1	550	16	0 to 500	300	33-77	
25DP4	110	TA-BF	23 ¹ / ₄ x 18 ¹ / ₃₂	15 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/30	22	-55 to +1.1	700	16	-200 to +200	300	35-72	Metal Bulb
25EP4	110	TA-BF	23 ¹ / ₄ x 18 ¹ / ₃₂	15 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/30	22	-55 to +1.1	700	16	-200 to +200	300	35-72	
25HP4	110	TA-BF	23 ¹ / ₄ x 18 ¹ / ₁₆	15 ⁷ / ₈	2000-2500	N	B7-208	8HR	6.3/45	23	-50 to +1.0	60	16	0 to 400	50	35-55	
25JP4	110	TA	22 ³ / ₈ x 18 ¹ / ₁₆	15 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/30	22	-55 to +1.1	700	16	-200 to +200	300	35-72	
25KP4	110	TA-AR-BP	22 ³ / ₈ x 18 ¹ / ₁₆	16	2000-2500	N	B7-208	8HR	6.3/30	22	-55 to +1.1	700	16	-200 to +200	300	35-72	
25LP4	110	TA-BP	22 ³ / ₁₆ x 18 ¹ / ₄	16 ¹ / ₁₆	2000-2500	N	B7-183	8HR	6.3/60	22	-55 to +1.1	550	18	0 to 400	400	36-94	Metal Bulb
27AP4	90	T, AR	25 ¹ / ₄ x 19 ¹ / ₁₆	21 ¹ / ₈	.....	S	B6-63	12M	6.3/60	19.8	-55 to +1.1	550	15	-60 to +300	300	33-77
27ABP4	110	TA-BP	25 ¹ / ₃₂ x 20 ¹ / ₃₂	17 ¹ / ₈	2000-2500	N	B7-208	8HR	6.3/60	22	-55 to +1.1	550	18	0 to 400	300	35-72	
27ACP4	90	TA-BP	25 ¹ / ₃₂ x 20 ¹ / ₃₂	21 ¹ / ₁₆	2000-2500	N	B6-203	12L	6.3/60	25	-55 to +1.1	550	18	0 to 400	400	48-96	
27ADP4	110	TA-BP	25 ¹ / ₃₂ x 20 ¹ / ₃₂	17 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/60	22	-55 to +1.1	550	18	0 to 400	300	37-74	
27AEP4	110	TA	25 ¹ / ₃₂ x 20 ¹ / ₃₂	17 ¹ / ₈	2000-2500	N	B7-208	8HR	6.3/30	22	-55 to +1.1	550	18	0 to 400	300	40-77	Bulb Dimension Varies from Normal
27AFP4	110	TA-BP	25 ¹ / ₃₂ x 20 ¹ / ₃₂	17 ¹ / ₈	2000-2500	N	B7-208	8HR	6.3/30	22	-55 to +1.1	550	18	0 to 400	300	37-74	
27AGP4	110	TA-BP	25 ¹ / ₃₂ x 20 ¹ / ₃₂	17 ¹ / ₈	2000-2500	N	B7-208	8HR	6.3/60	22	-55 to +1.1	550	18	0 to 400	300	35-74	
27EP4	90	TA	25 ¹ / ₃₂ x 20 ¹ / ₃₂	23 ¹ / ₁₆	.....	S	B5-57	12D	6.3/60	22	Magnetic	550	16	118 Ma.	300	33-77
27GP4	90	T	25 ¹ / ₃₂ x 20 ¹ / ₃₂	23 ¹ / ₁₆	.....	S	B5-57	12D	6.3/60	24.8	Magnetic	550	20	125 Ma.	300	33-77
27LP4																	

Sylvania monochrome check tubes



Type	▲ Heater	Face		Body		Focus	Defl. Angle and Neck Diam. ◆	Anode Volts ● (KV) Max.	Basing	Ion Trap Mag.	Nominal Length (In.)
	Ef/If Volts Amps	Clear Anti-Ref. Alum. Tinted	Round or Rect.	Metal or Glass	External Coating Capacitance (pf)						
5AXP4	6.3/.60	C	○	G	No	Auto	53	19.8	12S	N	10 3/8
8XP4	6.3/.60	T	□	G	No	Auto	90	22	12S	N	11 7/8
8YP4	6.3/.60	T	□	G	No	Auto	110	22	7FG	N	8 1/8

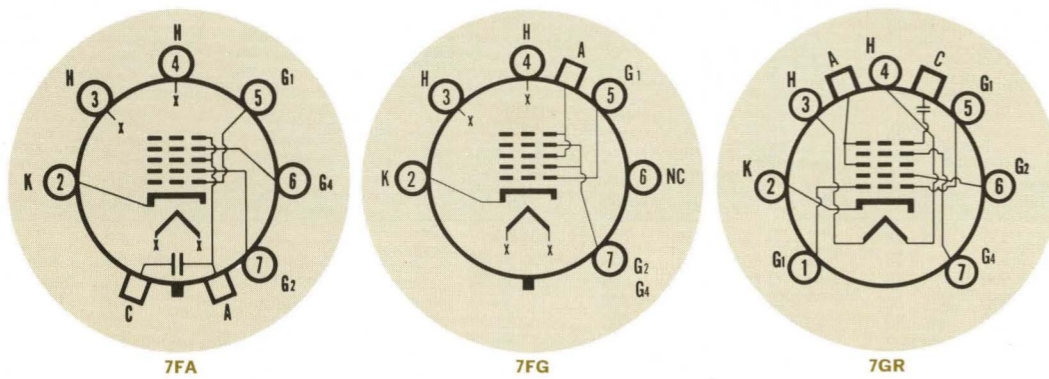
Notes—Pages 36 and 37

Basing Diagrams—Pages 34 and 35

These three types have self-focusing guns, do not require ion trap magnets, and have no external coating. One of them can be used as a TV receiver check tube for almost any of the listed picture tube types. Additional

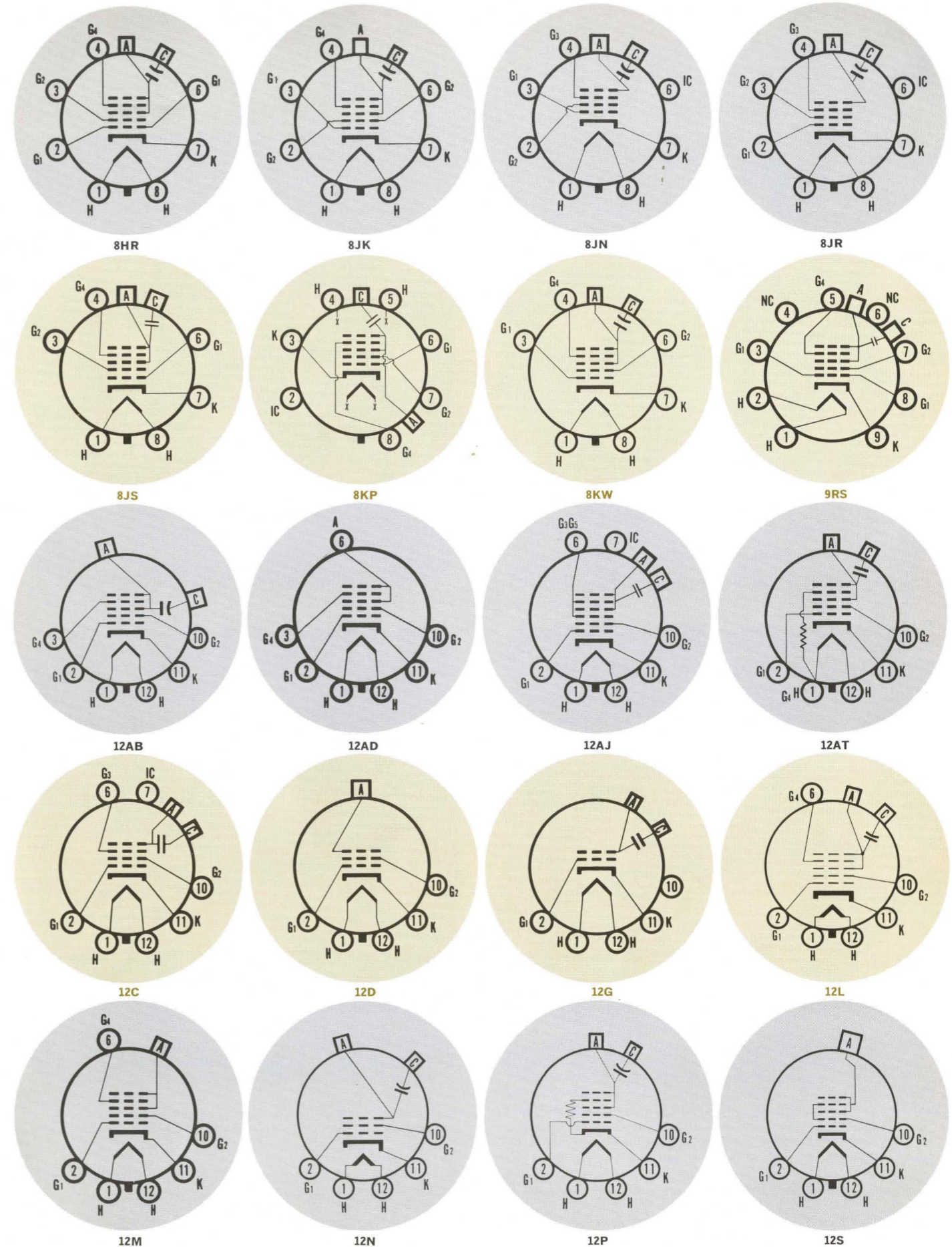
technical information on these tubes and on their application in TV receiver servicing is available upon request.

basing diagrams (monochrome tubes)

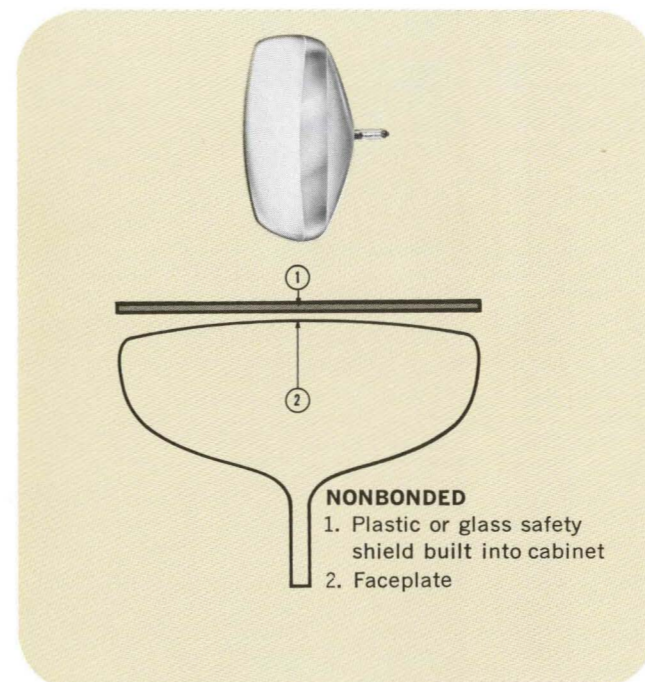
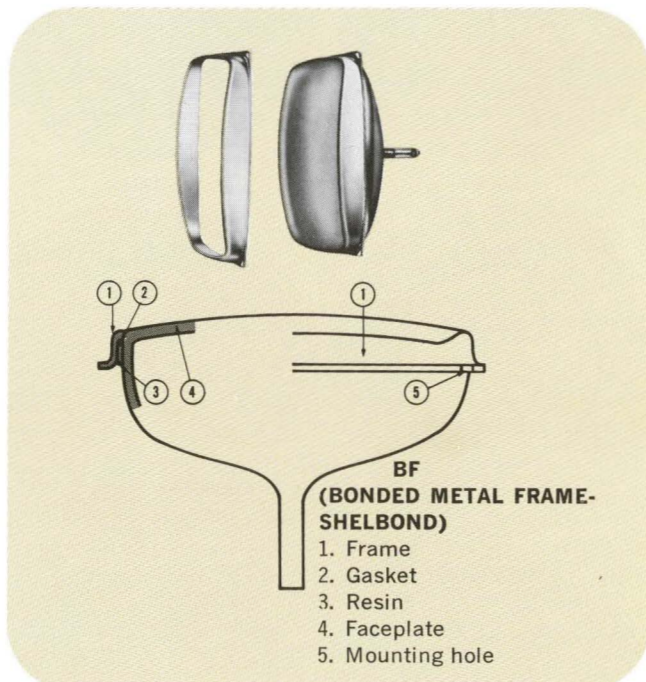
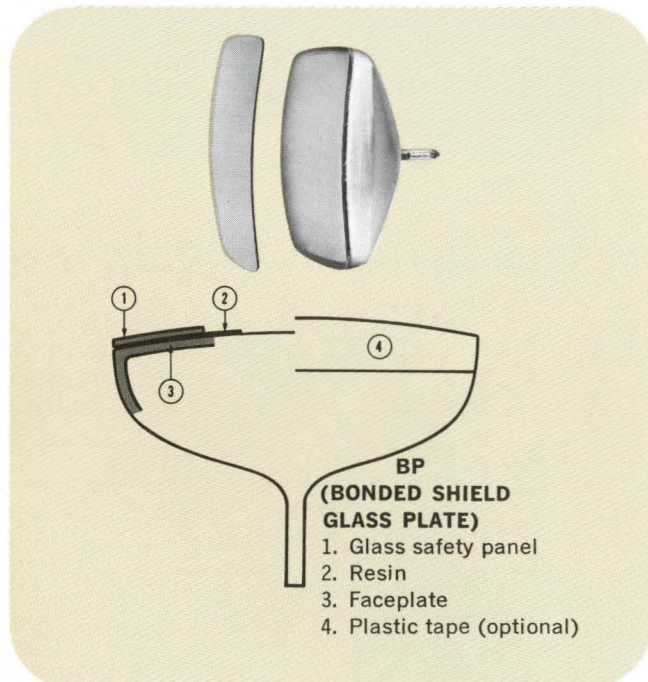
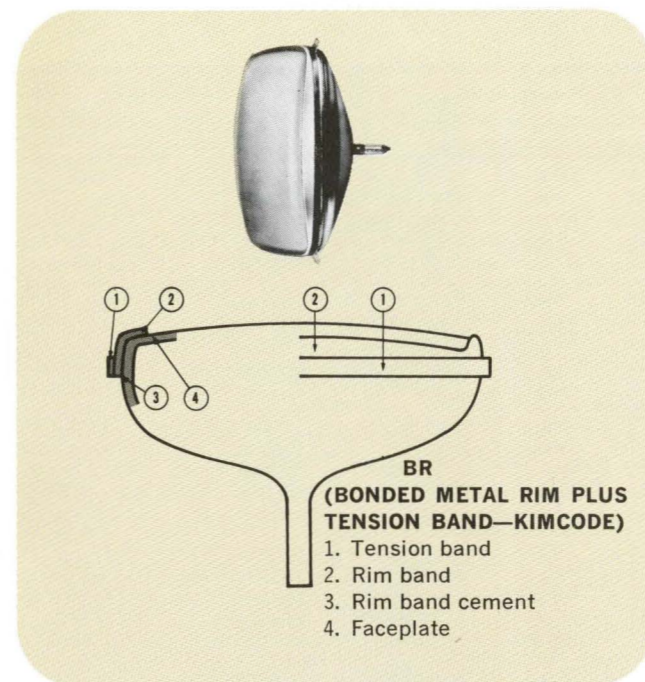
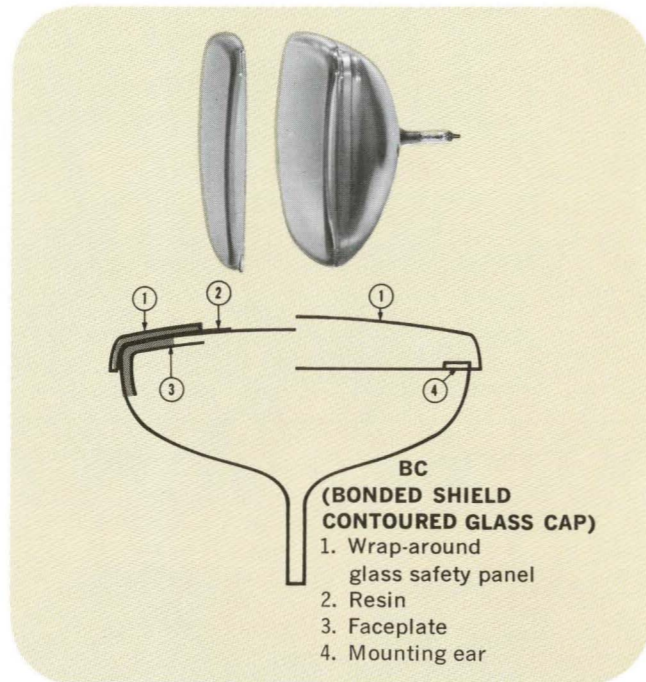
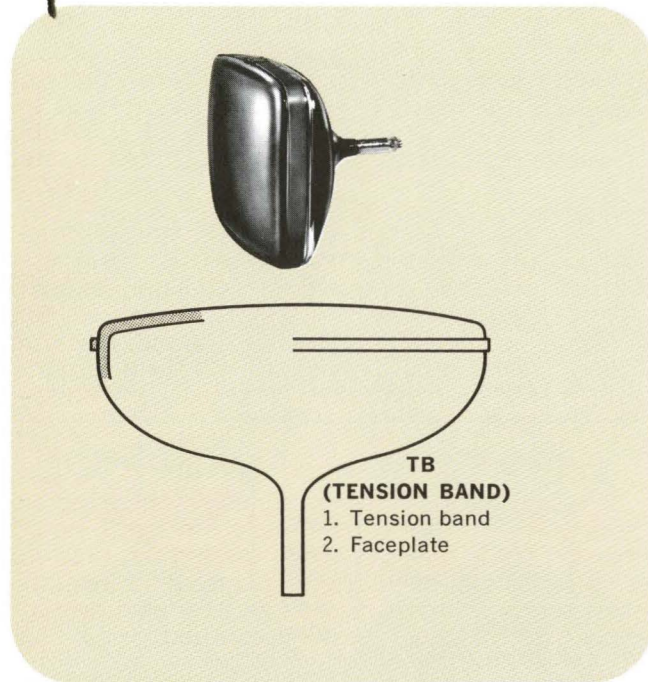


basing diagram symbols

- A Anode
- A1 First Anode
- A2 Second Anode, etc.
- C Conductive
- j Coating
- G1 Grid No. 1
- G2 Grid No. 2, etc.
- H Heater
- IC Internal Connection (Do Not Use)
- K Cathode
- Locating Lug
- Bulb Terminal



notes:



◆ 94°, 110° and 114° types have a nominal neck diameter of 1 1/4". All other magnetic deflection tube types have nominal neck diameter of 1 3/8". Color tubes listed have nominal neck diameter of 2" for the round types and 1 3/4" for the rectangular types.

▲ All Sylvania television picture tubes (except as noted in the Remarks Column) feature controlled heater warm-up time of 11 seconds for operation in receivers employing series heater strings.

● Design Maximum Ratings are limiting values that should not be exceeded under the worst probable operating conditions.

- ** Ion Trap
N - No Magnet
S - Single Magnet
D - Double Magnet
I - Internal Magnet

△ Does not include the dynamic convergence component.
m Maximum

BC-Bonded shield (contoured glass cap)

Features a permanently bonded-on wrap-around panel that provides added viewing safety. Mounting ears are located on the four corners of the bonded shield to allow mounting of the tube, thereby eliminating the use of complicated mounting devices. This design is currently available in the 19" and 23" sizes only.

BP-Bonded shield (glass plate)

This design is adaptable to any size and shape of bulb. The panel, which fits only over the frontal surface, is molded, cut to size, shaped, and then bonded to the tube by Sylvania. Currently popular tube sizes incorporating this type of Bonded Shield are 16, 19, 21, 23 and 27".

BF-Bonded metal frame (shelbond)

Features a resin-filled steel shell encasing the critical area of the picture tube. Integral mounting ears on the shell eliminate the need for additional brackets. Bonded Frame is available in 11, 12, 19, 23 and 25" designs. Other tube sizes utilizing this design may be adopted.

BR-Bonded metal rim plus tension band (Kimcode)

The new design employs a special heavy weight bulb with a rim band secured around the edge of the tube. A tension band, joined by a clamp, fits directly over the rim band, placing the faceplate in proper compression. This design is available in 16, 19, and 23" tube sizes, and other tube sizes utilizing this design may be adopted. There are versions in which the tension band is welded, and these are generally interchangeable with the clamped types.

Certain types employ mounting ears on the four corners of the rim to allow mounting of the tube, thereby eliminating the use of complicated mounting devices. Several versions of mounting ears exist, and specific type numbers should be specified to assure correct interchangeability.

BL-Bonded laminated plastic shield

Incorporates a laminated plastic sheet which is coated with a plasticizer and vacuum-formed directly on the face and partly down the sides of the tube. Used only on a few small tubes for portables. (Not illustrated)

Nonbonded

Has a standard glass protective plate mounted in cabinet in front of the tube. This may allow moisture and dust particles to collect on the tube faceplate and inner surface of the safety panel. The protective plate gives the regular tube a total of four reflective surfaces compared to the bonded types which have only two reflective surfaces—a total of 50% more reflection in the regular tube and separate safety plate combination.

*Implosion protection

TB-Tension band

Employs a metal band which places the faceplate in proper compression. Currently used on small screen types for portable television sets.

Sylvania picture tube

Type	SYLVANIA Replacement	Replacement Classification*	Type	SYLVANIA Replacement	Replacement Classification*	Type	SYLVANIA Replacement	Replacement Classification*
11CP4	11CP4	Direct	16QP4	16RP4B	A	17LP4	17LP4B	Direct
11GP4	11GP4	Direct	16RP4	16RP4B	A	17LP4A	17LP4B	Direct
11JP4	11JP4	Direct	16RP4A	16RP4B	A	SG17LP4A	17LP4B	Direct
12BEP4	12BEP4	Direct	16RP4B	16RP4B	Direct	17LP4B	17LP4B	Direct
12BGP4	12BGP4	Direct	16UP4A	16RP4B	A	17QP4	17QP4B	Direct
12BKP4	12BKP4	Direct	16XP4	16RP4B	A	17QP4A	17QP4B	Direct
12BTP4	12BTP4	Direct	17AP4	17BP4D	Direct	SG17QP4A	17QP4B	Direct
13AP4	13AP4	Direct	17ATP4	17BJP4	A	17QP4B	17QP4B	Direct
14AUP4	14AUP4	Direct	17ATP4A	17BJP4	A	17RP4	17HP4C	Direct
14AWP4	14AUP4	Direct	17AVP4	17BJP4	A	17RP4C	17HP4C	Direct
14BP4	14CP4B	A	17AVP4A	17BJP4	A	17SP4	17LP4B	A, F
14BP4A	14CP4B	A	17BJP4	17BJP4	Direct	17UP4	17QP4B	Direct
14CP4	14CP4B	A	SG17BJP4	17BJP4	Direct	17VP4	17LP4B	Direct
14CP4A	14CP4B	A	17BP4	17BP4D	A	17VP4B	17LP4B	Direct
14CP4B	14CP4B	Direct	17BP4A	17BP4D	A	17YP4	17QP4B	Direct
SG14CP4B	14CP4B	Direct	17BP4B	17BP4D	A	19ABP4	19ABP4	Direct
14DP4	14CP4B	D	17BP4C	17BP4D	A	19ACP4	19CHP4	Direct
14EP4	14CP4B	Direct	17BP4D	17BP4D	Direct	19AFP4	19AFP4	Direct
14HP4	14QP4B	Direct	17BRP4	17DSP4	A	AR19AFP4	19AFP4	Direct
14NP4	14WP4	A	17BWP4	17BWP4	Direct	19AHP4	19AHP4	Direct
14NP4A	14WP4	A	17BUP4	17BJP4	A	19AJP4	19AJP4	Direct
14QP4	14QP4B	A	17BVP4	17BWP4	A	19ARP4	19AFP4	Direct
14QP4A	14QP4B	A	17BZP4	17DSP4	Direct	19AUP4	19AFP4	Direct
SG14QP4A	14QP4B	Direct	17CAP4	17DSP4	Direct	19AVP4	19AVP4	Direct
14QP4B	14QP4B	Direct	17CBP4	17BJP4	A	19AXP4	19AYP4	Direct
14RP4	14WP4	A	17CDP4	17CDP4	Direct	19AYP4	19AYP4	Direct
14RP4A	14WP4	A	17CFP4	17BJP4	Direct	19BDP4	19BDP4	Direct
14SP4	14WP4	A	17CKP4	17DSP4	Direct	19BFP4	19BFP4	Direct
14WP4	14WP4	Direct	17CLP4	17BJP4	A	19BHP4	19BTP4	Direct
SG14WP4	14WP4	Direct	17CNP4	17CNP4	Direct	19BLP4	19AVP4	Direct
14XP4	14XP4A	Direct	17CRP4	17CRP4	Direct	19BMP4	19AFP4	Direct
14XP4A	14XP4A	Direct	17CSP4	17BWP4	D	19BRP4	19DKP4	Direct
14ZP4	14WP4	Direct	17CTP4	17CTP4	Direct	19BQP4	19BQP4	Direct
15JP4	15JP4	Direct	17CWP4	17DSP4	Direct	19BTP4	19BTP4	Direct
16ANP4	16ANP4	Direct	17CXP4	17CRP4	Direct	19BVP4	19AVP4	Direct
16AP4	16AP4A	Direct	17DAP4	17DRP4	Direct	19BWP4	19AYP4	Direct
16AQP4	16ANP4	Direct	17DHP4	17DXP4	Direct	19CDP4	19CDP4	Direct
16ASP4	16ASP4	Direct	17DKP4	17DKP4	Direct	19CFP4	19CHP4	Direct
16ATP4	16BSP4	Direct	17DLP4	17DKP4	Direct	19CHP4	19CHP4	Direct
16AUP4	16AUP4	Direct	17DQP4	17DQP4	Direct	19CJP4	19AVP4	Direct
16AVP4	16BCP4	Direct	17DRP4	17DRP4	Direct	19CKP4	19CHP4	Direct
16AXP4	16ASP4	Direct	17DSP4	17DSP4	Direct	19CLP4	19CRP4	Direct
16AYP4	16AYP4	Direct	17DTP4	17DKP4	Direct	19CMP4	19CMP4	Direct
16BAP4	16BAP4	Direct	17DXP4	17DXP4	Direct	19CQP4	19CDP4	Direct
16BCP4	16BCP4	Direct	17DZP4	17DXP4	Direct	19CRP4	19CRP4	Direct
16BRP4	16BRP4	Direct	17EAP4	17HP4C	F	19CUP4	19CUP4	Direct
16BSP4	16BSP4	Direct	17EBP4	17DXP4	D	19CVP4	19CVP4	Direct
16BVP4	16BVP4	Direct	17EHP4	17EHP4	Direct	19CXP4	19CXP4	Direct
16BXP4	16BXP4	Direct	17ELP4	17ELP4	Direct	19CZP4	19CZP4	Direct
16CAP4	16CEP4	Direct	17EMP4	17EMP4	Direct	19DAP4	19DAP4	Direct
16CEP4	16CEP4	Direct	17FP4	17HP4C	A	19DBP4	19DBP4	Direct
16CJP4	16CJP4	Direct	17FP4A	17HP4C	A	19DCP4	19EDP4	Direct
16CMP4	16CMP4	Direct	17HP4	17HP4C	Direct	19DFP4	19DFP4	Direct
16GP4	16GP4B	Direct	17HP4A	17HP4C	Direct	19DHP4	19EFP4	Direct
16GP4A	16GP4B	Direct	17HP4B	17HP4C	Direct	19DKP4	19DKP4	Direct
16GP4B	16GP4B	Direct	SG17HP4B	17HP4C	Direct	19DLP4	19CHP4	Direct
16GP4C	16GP4B	Direct	17HP4C	17HP4C	Direct	19DNP4	19DNP4	Direct
16KP4	16RP4B	A	17JP4	17BP4D	A	19DQP4	19DWP4	Direct
16KP4A	16RP4B	A	17KP4	17HP4C	A, F	19DRP4	19EDP4	Direct
SG16KP4A	16RP4B	Direct	17KP4A	17HP4C	A, F	19DSP4	19EFP4	Direct

interchangeability guide

Type	SYLVANIA Replacement	Replacement Classification*	Type	SYLVANIA Replacement	Replacement Classification*	Type	SYLVANIA Replacement	Replacement Classification*
19DUP4	19ENP4	Direct	21AMP4B	21AMP4B	Direct	21FLP4	21CBP4A	Direct
19DWP4	19DWP4	Direct	21ANP4	21CBP4A	A, D	21FP4	21FP4D	A, D
19DYP4	19DYP4	Direct	21ANP4A	21CBP4A	A, D	21FP4A	21FP4D	A
19EAP4	19ENP4	Direct	21AQP4	21AMP4B	D, A	21FP4C	21FP4D	A
19EBP4	19EBP4	Direct	21AQP4A	21AMP4B	D, A	SG21FP4C	21FP4D	Direct
19EDP4	19EDP4	Direct	21ASP4	21XP4B	Direct	21FP4D	21FP4D	Direct
19EFP4	19EFP4	Direct	21ATP4	21CBP4A	A	21FUP4	21FUP4	Direct
19EGP4	19EGP4	Direct	21ATP4A	21CBP4A	A	21FXP4	21FXP4	Direct
19EHP4	19EDP4	Direct	21ATP4B	21CBP4A	A	21FZP4	21FZP4	Direct
19EHP4A	19EDP4	Direct	21AUP4	21AUP4C	A	21WP4	21WP4B	A
19EJP4	19FEP4A	Direct	21AUP4A	21AUP4C	A	21WP4A	21WP4B	A
19EKP4	19EKP4	Direct	21AUP4B	21AUP4C	A	SG21WP4A	21WP4B	Direct
19ELP4	19AVP4	Direct	SG21AUP4B	21AUP4C	Direct	21WP4B	21WP4B	Direct
19ENP4	19ENP4	Direct	21AUP4C	21AUP4C	Direct	21XP4	21XP4B	A
19ENP4A	19ENP4	Direct	21AVP4	21AUP4C	A	21XP4A	21XP4B	A
19EZP4	19EZP4	Direct	21AVP4A	21AUP4C	A	SG21XP4A	21XP4B	Direct
19FBP4	19EGP4	Direct	21AVP4B	21AUP4C	A	21XP4B	21XP4B	Direct
19FCP4	19DWP4	Direct	21AVP4C	21AUP4C	Direct	21YP4	21YP4B	A
19FDP4	19FDP4	Direct	21AWP4	21AWP4A	A	21YP4A	21AWP4A	A
19FEP4A	19FEP4A	Direct	21AWP4A	21AWP4A	Direct	SG21YP4A	21YP4B	Direct
19FEP4B	19FEP4A	Direct	SG21AWP4A	21AWP4A	Direct	21YP4B	21YP4B	Direct
19FGP4	19FGP4	Direct	21AYP4	21XP4B	A	21ZP4	21ZP4C	A, D
19FJP4	19FJP4	Direct	21BAP4	21CBP4A	Direct	21ZP4A	21ZP4C	A
19FLP4	19FTP4	Direct	21BNP4	21CBP4A	Direct	21ZP4B	21ZP4C	A
19FTP4	19FTP4	Direct	21BSP4	21AMP4B	A	SG21ZP4B	21ZP4C	Direct
19FSP4	19ENP4	Direct	21BTP4	21CBP4A	A	21ZP4C	21ZP4C	Direct
19GAP4	19GAP4	Direct	21CBP4	21CBP4A	Direct	23AFP4	23BTP4	Direct
19GMP4	19GMP4	Direct	21CBP4A	21CBP4A	Direct	23ANP4	23BKP4	Direct
19XP4	19AVP4	Direct	21CBP4B	21CBP4A	Direct	AR23ANP4	23BKP4	Direct
19YP4	19BTP4	Direct	21CEP4	21EMP4	Direct	23AHP4	23AHP4	Direct
19ZP4	19AVP4	Direct	21CEP4A	21EMP4	Direct	23ALP4	23ALP4	Direct
20CP4	20DP4D	A, D	21CMP4	21CBP4A	A	23ARP4	23ARP4	Direct
20CP4A	20DP4D	A	21CQP4	21CQP4	Direct	23ASP4	23ASP4	Direct
20CP4B	20DP4D	A, D	21CUP4	21AMP4B	A	23ATP4	23BKP4	Direct
20CP4C	20DP4D	A, D	21CVP4	21CBP4A	Direct	23AUP4	23AHP4	Direct
20CP4D	20DP4D	A	21CWP4	21CBP4A	A	23AVP4	23CP4A	Direct
20DP4	20DP4D	A, D	21CXp4	21DSP4	Direct	23AWP4	23BJP4	Direct
20DP4A	20DP4D	A	21CZP4	21DMP4	A	23BP4	23BP4	Direct
20DP4B	20DP4D	A, D	21DAP4	21DMP4	A	23BDP4	23BTP4	Direct
20DP4C	20DP4D	A	21DEP4	21DMP4	A	23BGP4	23BGP4	Direct
20DP4D	20DP4D	Direct	21DEP4A	21DMP4	A	23BHP4	23BGP4	Direct
SG20DP4D	20DP4D	Direct	21DFP4	21EMP4	Direct	23BJP4	23BJP4	Direct
20HP4	20HP4E	A	21DHP4	21DHP4	Direct	23BKP4	23BKP4	Direct
20HP4A	20HP4E	A	21DLP4	21DLP4	Direct	23BLP4	23BKP4	Direct
20HP4B	20HP4E	A	21DMP4	21DMP4	Direct	23BNP4	23CP4A	Direct
20HP4C	20HP4E	A	21DNP4	21CBP4A	A	23BQP4	23BQP4	Direct
20HP4D	20HP4E	A	21DQP4	21DLP4	Direct	23BTP4	23BTP4	Direct
SG20HP4D	20HP4E	Direct	21DSP4	21DSP4	Direct	23BVP4	23BTP4	Direct
20HP4E	20HP4E	Direct	21EAP4	21FDP4	C	23BWP4	23BTP4	Direct
20LP4	20HP4E	A	21EP4	21EP4C	A, D	23CP4	23CP4A	Direct
20MP4	20HP4E	Direct	21EP4A	21EP4C	A	23CP4A	23CP4A	Direct
21ACP4	21AMP4B	A	21EP4B	21EP4C	A	AR23CP4	23CP4A	Direct
21ACP4A	21AMP4B	A	SG21EP4B	21EP4C	Direct	23CBP4	23BQP4	Direct
SG21ACP4A	21AMP4B	Direct	21EP4C	21EP4C	Direct	23CGP4	23CGP4	Direct

interchangeability guide *(continued)*

Type	SYLVANIA Replacement	Replacement Classification*	Type	SYLVANIA Replacement	Replacement Classification*	Type	SYLVANIA Replacement	Replacement Classification*
23DSP4A	23DSP4A	Direct	23KP4	23FP4A	Direct	27VP4	27VP4	Direct
23DTP4	23DTP4	Direct	23KP4A	23FP4A	Direct	27XP4	27XP4	Direct
23DZP4	23EWP4A	Direct	23MP4	23FP4A	Direct	27YP4	27YP4	Direct
23EP4	23EP4	Direct	23MP4A	23FP4A	Direct	27ZP4	27ZP4	Direct
23ECP4	23ECP4	Direct	23NP4	23NP4	Direct			
23EDP4	23EDP4	Direct	23UP4	23BQP4	Direct	color tubes RE19EXP22 RE19EXP22 Direct HR/19EYP22 RE19EYP22 Direct RE19EYP22 RE19EYP22 Direct REA19EYP22 REA19EYP22 Direct 19FMP22 RE19FMP22 Direct RE19FM22 RE19FMP22 Direct 21AXP22A 21AXP22A Direct or RE21FBP22A Direct CS/21AXP22A 21AXP22A Direct or RE21FBP22A Direct CS/21CYP22 21CYP22A Direct or RE21FBP22A Direct 21CYP22A 21CYP22A Direct or RE21FBP22A Direct 21FBP22 RE21FBP22A Direct HR21FBP22A RE21FBP22A Direct RE21FBP22A RE21FBP22A Direct 21JP22 RE21FJP22A Direct CS/21FJP22 RE21FJP22A Direct HR21FJP22A RE21FJP22A Direct RE21FJP22A RE21FJP22A Direct 21FKP22 RE21FJP22A Direct CS/21FKP22 RE21FJP22A Direct RE21FKP22A RE21FJP22A Direct 25AP22 RE25AP22A Direct HR25AP22A RE25AP22A Direct RE25AP22A RE25AP22A Direct 25BP22A RE25BP22A Direct RE25BP22A RE25BP22A Direct RE25CP22 RE25CP22 Direct REA25CP22 REA25CP22A Direct 25FP22 RE25BP22A Direct 25FP22A RE25BP22A Direct 25GP22 RE25AP22A Direct 25SP22 RE25AP22A Direct		
23ENP4	23FEP4	Direct	23WP4	23FP4A	Direct			
23EQP4	23EWP4A	Direct	23XP4	23BTP4	Direct			
23EWP4	23EWP4A	Direct	23YP4	23BTP4	Direct			
23EWP4A	23EWP4A	Direct	23ZP4	23ZP4	Direct			
23EYP4	23EYP4	Direct	24ADP4	24CP4B	A			
23EZP4	23EZP4	Direct	24AEP4	24AEP4	Direct			
23FP4	23FP4A	Direct	24AHP4	24AHP4	Direct			
23FP4A	23FP4A	Direct	24AJP4	24AJP4	Direct			
			24ALP4	24AHP4	Direct			
23FAP4	23FAP4	Direct	24ANP4	24AEP4	A			
23FBP4	23FEP4	Direct	24AUP4	24AUP4	Direct			
23FCP4	23FHP4	Direct	24AVP4	24BEP4	E			
23FDP4	23FHP4	Direct	24BEP4	24BEP4	Direct			
23FEP4	23FEP4	Direct	24CP4	24CP4B	A			
23FHP4	23FHP4	Direct	24CP4A	24CP4B	A			
23FKP4	23FKP4	Direct	SG24CP4A	24CP4B	Direct			
23FLP4	23FLP4	Direct	24CP4B	24CP4B	Direct			
23FMP4	23GBP4	Direct	24DP4	24AEP4	A			
23FNP4	23FNP4	Direct	24DP4A	24AEP4	A			
23FRP4	23FRP4	Direct	24QP4	24CP4B	A, D			
23FSP4	23FSP4	Direct	24TP4	24CP4B	A			
23FXP4	23FXP4	Direct	24VP4	24CP4B	A			
23GP4	23CP4A	Direct	24VP4A	24CP4B	A			
23GBP4	23GBP4	Direct	24XP4	24CP4B	A, D			
23GFP4	23GFP4	Direct	24YP4	24AEP4	A			
23GJP4	23GJP4	Direct	24ZP4	24AEP4	Direct			
23GJP4A	23GJP4	Direct	27ABP4	27ADP4	Direct			
23GWP4	23GWP4	Direct	27ACP4	27YP4	Direct			
23HP4	23CP4A	Direct	27ADP4	27ADP4	Direct			
23HCP4	23HCP4	Direct	27AGP4	27ADP4	Direct			
23HFP4	23HFP4	Direct	27EP4	27RP4A	A			
23HFP4A	23HFP4	Direct	27GP4	27RP4A	A			
23HLP4	23HLP4	Direct	27LP4	27LP4	Direct			
23HQP4	23HQP4	Direct	27NP4	27RP4A	A			
23HUP4	23HUP4	Direct	27RP4	27RP4A	A			
23HUP4A	23HUP4	Direct	SG27RP4	27RP4A	Direct			
23HWP4	23HWP4	Direct	27RP4A	27RP4A	Direct			
23JPA	23JPA	Direct	27SP4	27VP4	Direct			

* Replacement information is based primarily on electrical and mechanical similarity of the picture tube types covered. The technician should make certain that replacement is in accord with all safety precautions required by the TV receiver for picture tube insulation or mechanical mounting. For all applications, the external conductive coating must be grounded and care must be taken that the coating does not contact any support straps or brackets which might result in voltage appearing on trim or external hardware of the receiver.

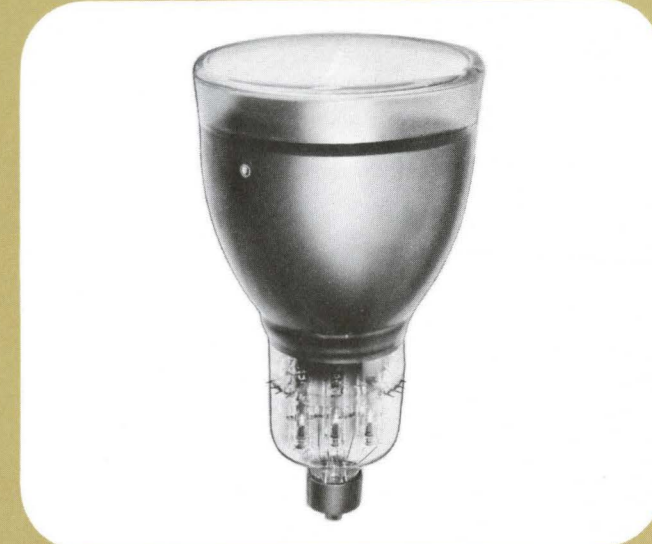
A Replacement type does not require an external ion trap magnet.
 B Requires slight modification in tube mounting. See article "Color Fidelity for Older Color Receivers" published in Summer-Fall 1965 issue of SYLVANIA NEWS.

C The 21EAP4 has a 2.35 volt/600 milliampere heater, and type 21EVP4 employs a 2.68V/450 ma heater. The 21FDP4 has a 6.3 volt/600 milliampere heater. Instructions for necessary minor set modification are packaged with each replacement type 21FDP4.

D The high voltage filter condenser if any, must be removed from receiver since it is replaced by the capacitance of the tube.

E Type 24AVP4 has a 2.35 volt/600 ma heater. Type 24BEP4 has a 6.3 volt/600 ma heater. Instructions for minor set modifications are packaged with each 24BEP4.

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how to *handle and install TV picture tubes and large cathode ray tubes*

"An ounce of prevention is worth a pound of cure" . . . best rule to follow when handling and installing Television Picture Tubes and other large Cathode Ray Tubes. Since Picture Tubes are large elements constructed of glass and enclosing an evacuated space they must be protected from severe shock . . . handled with extreme care. The normal precautions taken when working with any high voltage circuits, should be observed. Specific procedures and proper precautions are outlined here.

Mechanical handling:

1. Protective face shield or goggles and gloves should be worn, for personal safety, whenever handling large picture tubes.

2. Picture tubes should be removed from the shipping carton face up and supported by the sides of the large portion of the tube. Handling of large picture tubes by the neck is unsafe and should be avoided at all times. It is obviously the weakest part of the tube and most easily injured. Therefore, the neck should always be kept free of strain and protected from striking other objects.

3. Picture tubes should be inserted into sockets by supporting the tube at the large end and holding the neck only for guiding the base pins into the socket.

4. The tubes should be removed from their sockets in the same manner as they are inserted, supported at the large end.

5. When not installed in a television receiver or other equipment, picture tubes should be stored in shipping cartons with the covers closed.

6. Avoid placing picture tubes on a table or bench where there is any possibility of the tube rolling off. This is very important.

7. Scratching the surface of a picture tube weakens the glass and may be the cause of the tube imploding. If it is necessary to place a tube elsewhere than in its shipping carton, a piece of felt or other soft material should be placed under it.

8. Picture tubes should be used for display purposes only after the vacuum seal has been broken. Economy dictates that only wornout, or otherwise worthless, tubes be used for this purpose. The vacuum seal may be broken in the following manner.

a. Place the tube in a shipping carton, face down, with enough soft packing material underneath so that the base will extend above the closed cover.

b. Drill a 1/4-inch hole in the end of the locating lug or break off the lug entirely with a sharp blow or with pliers.

c. Using a small file or cutting pliers, make a small hole at the tip of the exhaust tube. Care should be used to make a small hole in the tip so that air will enter the tube slowly and not disturb the screen coating. In tubes using a metal exhaust tube a small three-cornered file may be used to make a small hole. The bright getter deposit on the neck should change color almost immediately. As a precaution, some time after the small hole has been made, it is well to break off the tip completely. The tube cannot implode after the vacuum seal has been broken, but it should still be handled as carefully as any other glassware of equal weight.

9. Discretion should be exercised in the disposal of tubes which are no longer useful to avoid possible legal liability. A safe method of breaking up a tube for disposal is to place it in a carton, seal the carton, and drive a metal rod through the carton into the face of the side of the tube. The broken parts may then be

disposed of in the usual manner.

10. If a tube does break causing small cuts in the skin, such cuts should be washed carefully to be certain that all dirt and other small particles are removed. While the materials used for coating Sylvania picture tubes are not considered to be toxic, there is the possibility of an unusual personal sensitivity or allergy in some persons.

Handling high voltage circuits:

1. Stand on dry wood, a rubber mat, linoleum or other dry insulating material when working on any electrical circuit.

2. One hand should be kept in a pocket to reduce the effects of accidental shock.

3. Respect all safety interlock switches and be certain that they are in good working condition.

4. Be certain that high voltage condensers are discharged before working on the circuit. Bleeder resistors may be open.

5. Some picture tubes have a conductive coating on both the inside and outside surfaces to form a condenser. This condenser should be discharged before the tube is handled. Even a slight unexpected shock might cause a tube to be dropped.

6. In some circuits where the picture tubes operate with a voltage on its second anode higher than its specified maximum rating, or higher than 16,000 volts whichever is less, it is possible that low intensity X-rays may be emitted. Therefore, X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if the tube is operated at such high voltages.

7. Take the time to be safe.