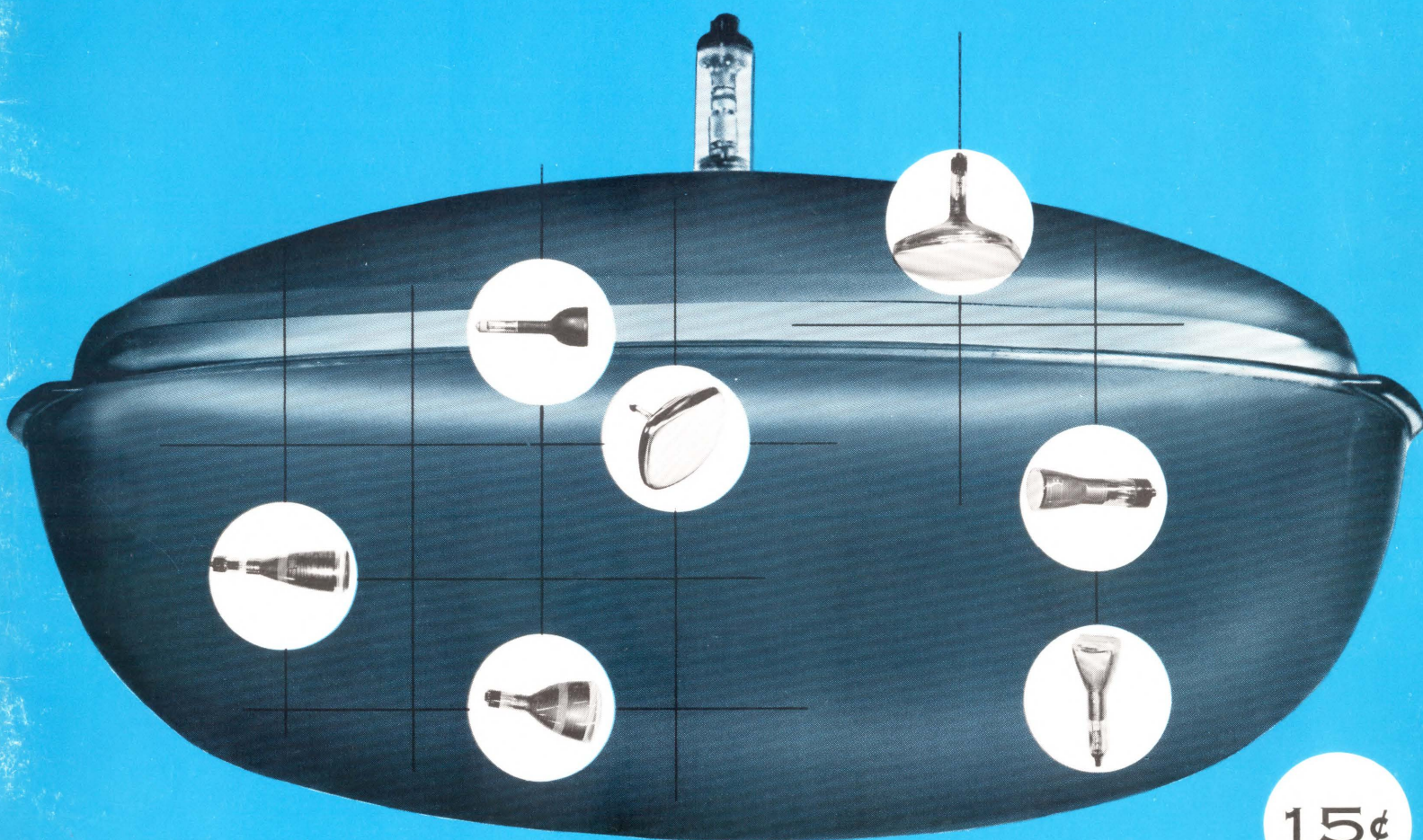
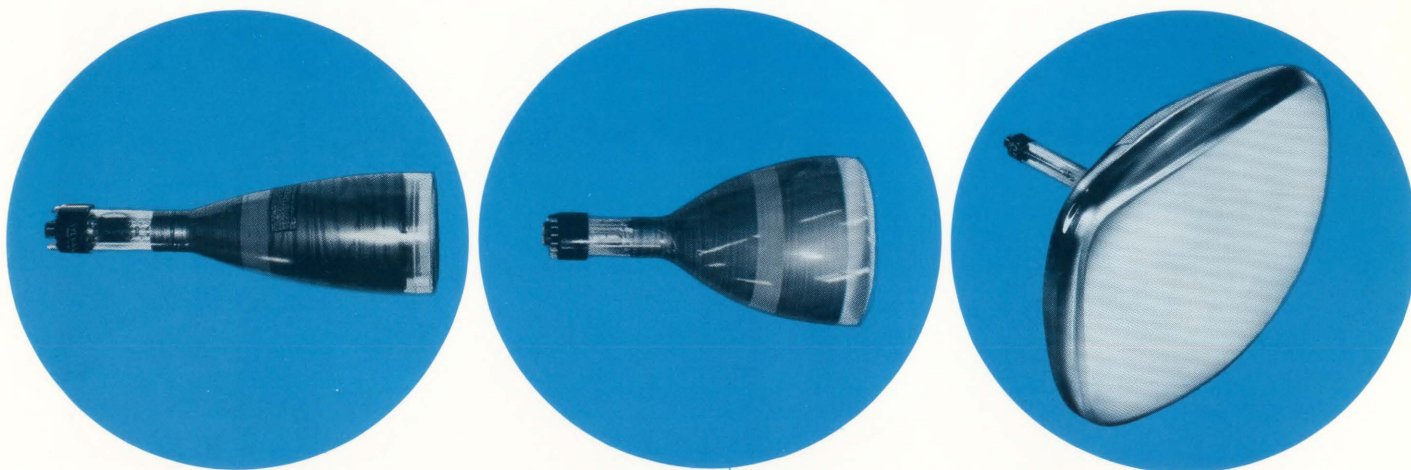




CHARACTERISTICS OF
SYLVANIA CATHODE RAY TUBES
INDUSTRIAL AND MILITARY • TV PICTURE TUBES

15¢



SYLVANIA CATHODE RAY TUBES

...FOR INDUSTRY...FOR THE MILITARY...FOR HOME ENTERTAINMENT

High, precise standards of engineering, design and manufacture are followed in the production of all Sylvania cathode ray tubes, whether the tube is a complex CRT for a demanding industrial application or a familiar television picture tube. It is this adherence to exacting standards throughout the Sylvania line that has made Sylvania a leader in the manufacture of CRT's. Furthermore, it assures that every purchaser of a Sylvania-made CRT receives a tube of utmost reliability and superior performance.

PHOSPHOR CHARACTERISTICS

Standard Registered Phosphors

CHARACTERISTICS OF INDUSTRY PHOSPHORS

The following chart is presented as a data service to help you in determining the proper phosphor for your application.

In addition to the basic data shown, specific information such as Spectral Energy Distribution Curves and/or Persistence Curves will be supplied upon request, as published data becomes available.

E. I. A. PHOSPHOR	EMISSION COLOR FLUORESCENCE	EMISSION COLOR PHOSPHORESCENCE	PERSISTENCE	APPLICATION
P-1	Yellowish green	Yellowish green	Medium	Used in cathode ray oscillograph and radar.
P-2	Yellowish green	Yellowish green	Medium	Used in cathode ray oscillographs.
P-3	Yellowish orange	Yellowish orange	Medium	Used in monochrome television picture tubes. Photograph recording.
P-4	White	White	Medium to medium short	
P-5	Blue	Blue	Medium short	
P-6	White	White	Short	Obsolete—Originally used in television receivers.
P-7	White	Yellowish green	Blue—medium short Yellowish green—long	Used for radar.
P-8	Obsolete	replaced by P-7	—	—
P-9	Obsolete	—	—	—
P-10	—	—	Dark trace— very long	Outside source of light is used for observation. Persistence from seconds to several months.
P-11	Blue	Blue	Medium short	Photographic recording.
P-12	Orange	Orange	Long	Used for radar.
P-13	Reddish orange	Reddish orange	Medium	Used for military displays where repetition rate is once every 2 to 4 seconds.
P-14	Purplish blue	Yellowish orange	Blue—medium short Orange—medium	
P-15	Green	Green	Visible—short Ultra-violet— very short	Television pick-up of photographs by Flying Spot Scanning.
P-16	Bluish purple	Bluish purple	Very short	Television pick-up of photographs by Flying Spot Scanning.
P-17	Yellow white to blue white	Yellow	Blue—short Yellow—long	Used for military displays.
P-18	White	White	Medium to medium short	Low frame rate television.
P-19	Orange	Orange	Long	Radar indicators.
P-20	Yellow green	Yellow green	Medium to medium short	High visibility displays.
P-21	Reddish orange	Reddish orange	Medium	Used for color television.
P-22	Tricolor phosphor screen	—	Medium short	
P-23	White	White	Medium short	Low temperature white—(Sepia) Interchangeable with P-4.
P-24	Green	Green	Short	Used in Flying Spot Scanner tubes.
P-25	Orange	Orange	Medium	Used for military displays where repetition rate is once every 10 seconds to 2 minutes.
P-26	Orange	Orange	Very long	Used for radar display.
P-27	Reddish orange	Reddish orange	Medium	Color Television Monitor Service.
P-28	Yellow green	Yellow green	Long	Used for radar display.
P-29	Two color phosphor screen	—	Medium	Used as indicator in aircraft instruments.
P-30*	—	—	—	—
P-31	Green	Green	Medium—short	Used in cathode ray oscillographs.
P-32	Purple-blue	Yellow green	Long	Used for radar display.
P-33	Orange	Orange	Very long	Used for radar display.
P-34	Bluish green	Yellow-green	Very long	Radar

*Registration withdrawn

INDUSTRIAL AND MILITARY CRT



Characteristics of Industrial and Military Cathode Ray Tubes

Magnetic
Deflection Types
Electrostatic
Deflection Types



TYPE	FACEPLATE			OVERALL DIMENSIONS INCHES		BASE	BASING	DEFL. ANGLE
	SHAPE	CLEAR ALUM. TINTED ANTI-REFL. SAFETY GLASS	CURVA- TURE RADIUS (IN.)	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH			
3HP7	○	C	8	3	9 ¹ / ₁₆	B8-11	5AN	55
3NP4	○	C	4.2	2 ⁷ / ₁₆	10	Sp. 5 Pin	5BV	42
4BP15	○	C	20	4	13 ¹ / ₈	B8-65	8ET	50
4CP7	○	C	Flat	4	11 ¹ / ₄	B5-57	12G	50
5ACP2	○	CA	24	4 ¹ / ₁₆	11 ¹ / ₈	B8-11	8EQ	53
5ACP4								
5ACP19								
5AEP7	○	C	24	4 ¹ / ₁₆	11 ¹ / ₈	B8-11	5AEP7	53
5AHP2	○	C	24	4 ¹ / ₁₆	11 ¹ / ₈	B8-11	8EF	53
5AHP4								
5AHP7								
5AHP14								
5AHP19								
5AHP25								
5AHP2A	○	CA	24	4 ¹ / ₁₆	11 ¹ / ₈	B8-11	8EF	53
5AHP4A								
5AHP7A								
5AHP14A								
5AHP19A								
5AHP25A								
5AKP15	○	CA	Flat	5	12 ² / ₁₆	B5-57	12G	50
5AKP24								
5AUP24	○	CA	Flat	5	12 ¹ / ₂	B7-51	12C	40
5A XP4	○	C	24	4 ¹ / ₁₆	10 ¹ / ₈	B5-57	12S	53
5AYP4	○	CA	24	4 ¹ / ₁₆	11 ¹ / ₁₆	B8-65	5AYP4	53
5AZP4	○	A	7.25	5	12 ¹ / ₁₆	B7-51	5AZP4	50
5BNP16	○	CA	24	4 ¹ / ₁₆	10 ¹ / ₈	B6-63	12M	53
5BCP1	○	CA	24	4 ¹ / ₁₆	7	E9-37	9HD	70
5BRP1	○	CA	24	4.950	7	E9-37	9HT	70
5BRP4								
5BRP7								
5BRP16								
5BRP19								
5BRP25								
5CEP11	○	TA	Flat	5 ¹ / ₄	13	B6-63	12Q	42
5CEP16								
5CUP18	○	TA	Flat	5	11 ¹ / ₁₆	B7-51	12C	50
5DKP4	○	CA	24	4 ¹ / ₁₆	11 ¹ / ₈	B8-11/B8-65/ B5-80	5AN	53
5DKP11								
5DKP16								
5DKP25								
5FP7	○	C	24	4 ¹ / ₁₆	10 ¹ / ₈	B8-11 or B5-15	5AN	53
5FP14								
5FP25								
5FP4A	○	C	24	4 ¹ / ₁₆	10 ¹ / ₈	B8-11 or B5-15	5AN	53
5FP7A								
5FP11A								
5FP14A								
5FP15A								
5FP7B	○	C	24	4 ¹ / ₁₆	10 ¹ / ₈	B8-11 or B5-15	5AN	53
5FP15B								
5QP4	○	CA	24	4 ¹ / ₁₆	11 ¹ / ₈	B8-65	5AN	53
5QP4A	○	CA	24	4 ¹ / ₁₆	11 ¹ / ₈	B8-65	5AN	53
5WP11	○	CA	Flat	5	11 ¹ / ₁₆	B7-51	12C	50
5WP15								
5ZP15	○	CA	Flat	5	14 ¹ / ₈	B6-63	12C	40
5ZP16								
5ZP24								
7ABP4	○	C	24	7 ¹ / ₁₆	13 ¹ / ₄	B6-63	12M	50
7ABP7								
7ABP14								
7ABP19								
7ABP7A	○	CA	24	7 ¹ / ₁₆	13 ¹ / ₄	B6-63	12M	50
7ABP14A								
7ABP19A								

MAGNETIC DEFLECTION TYPES

HEATER VOLTS/AMPS	ABSOLUTE MAXIMUM RATINGS			TYPICAL OPERATION				REMARKS
	ANODE (Kv)	FOCUS ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)	FOCUS ELECTRODE VOLTS	ACCEL. GRID (G2) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	
					MAGNET COIL CURRENT IN MA.			
6.3/.60	5.5	Magnetic	220	5		150	15-45	Cap's: 275-375 $\mu\mu\text{f}$; Neck Dia. $\frac{7}{8}$ " Cap's: 100-500 $\mu\mu\text{f}$ Cap's: 100-500 $\mu\mu\text{f}$
6.3/.60	27.5	Magnetic	....	24	120 Ma.	...	60	
6.3/.60	27.5	Magnetic	....	25	140 Ma.	...	75-175	
6.3/.60	22	Magnetic	....	20	195 Ma.	...	70-140	
6.3/.60	19.8	-.5 to +.5	450	12	0	250	27-63	
6.3/.60	8.8	-.55 to +.77	770	7	-28 to +154	250	25-70	Line width "A" inches: $\downarrow$.016" @ $I_b = 100 \mu a$
6.3/.60	11	-.55 to +1.1	770	7	0 to 250	300	33-77	
6.3/.60	11	-.55 to +1.1	770	7	0 to 250	300	33-77	Line width "A" inches: $\downarrow$.016" @ $I_b = 100 \mu a$
6.3/.60	44	Magnetic		30	250 Ma.	...	80-140	Cap's: 100-500 $\mu\mu\text{f}$ (5AKP24) Color Scanner
6.3/.60	29.7	+6.6	385	27	4600 to 5800	200	40-100	Cap's: 100-500 $\mu\mu\text{f}$; Color Scanner
6.3/.60	19.8	Auto. Es.	550	14	Auto. Es.	300	33-77	Cap's: 500-750 $\mu\mu\text{f}$ Line width "A" inches: $\downarrow$.011" @ $I_b = 200 \mu a$ Line width "A" inches: $\downarrow$.012" @ $I_b = 100 \mu a$
6.3/.60	11	+1.65	450	10	980 to 1410	300	30-76	
6.3/.60	40	+9.0	400	36	6650 to 8100	200	42-98	
6.3/.60	19.8	-.55 to +1.1	550	14	-50 to +350	300	33-77	
6.3/.30	11	Magnetic		8	70 Ma.	...	25-75	Neck Dia. $\frac{7}{8}$ "
6.3/.30	10	-.55 to +1.1	770	8	-50 to +350	300	15-45	Line width "A" inches: $\downarrow$.014" @ $I_b = 100 \mu a$ Neck Dia. $\frac{7}{8}$ "
6.3/.60	24.2	+5.5	660	20	4140 to 4740	300	45-70	Line width "A" inches: $\downarrow$.0015" @ $I_b = 10 \mu a$
6.3/.60	30	+6.0	350	27	4500	200	70-110	High Definition
6.3/.60	8.8	Magnetic	770	8.0	116 to 156 Ma.	250	30-75	Line width "A" inches: $\downarrow$.006" @ $I_b = 200 \mu a$; Neck Dia. $1\frac{3}{8}$ "; P4—Monitor Tube; P11—Photo Recorder; P15, P16, P24—Flying Spot Scanner
6.3/.60	8.8	Magnetic	450	6	120 Ma.	250	25-70	Line width "A" inches: $\downarrow$.01" @ $I_b = 200 \mu a$
	8.8		770					
	8.8		770					
	8.8		770	6	120 Ma.	250	25-70	
	8.8		770					
6.3/.60	13.2	Magnetic	770	6	120 Ma.	250	25-70	Line width "A" inches: $\downarrow$.009" @ $I_b = 200 \mu a$
	8.8	Magnetic	770	5	91-123 Ma.	250	25-70	
6.3/.60	13.2	Magnetic	450	10	137 Ma.	300	28-72	Line width "A" inches: $\downarrow$.006" @ $I_b = 200 \mu a$ Cap's: 100-500 $\mu\mu\text{f}$; Optical Face Quality; Line width "A" inches: $\downarrow$.01" @ $I_b = 15 \mu a$ Cap's: 100-500 $\mu\mu\text{f}$; Optical Face Quality; Line width "A" inches: $\downarrow$.005" @ $I_b = 15 \mu a$
6.3/.60	13.2	Magnetic	770	10	137 Ma.	300	33-77	
6.3/.60	30	+6.6	385	27	4200-5400	200	42-98	
6.3/.60	30	+7.7	385	27	5500-7050	200	42-98	
6.3/.60	11	-.55 to +1.1	770	7	0-250	300	28-72	Line width "A" inches: $\downarrow$.012" @ $I_b = 100 \mu a$
6.3/.60	11	-.55 to +1.1	770	7	0-250	300	28-72	Line width "A" inches: $\downarrow$.012" @ $I_b = 100 \mu a$

INDUSTRIAL AND MILITARY CRT —

■ TYPE	FACEPLATE			OVERALL DIMENSIONS INCHES		BASE	BASING	DEFL. ANGLE	HEATER VOLTS/AMPS	ABSOLUTE MAXIMUM RATINGS			
	SHAPE	CLEAR ALUM. TINTED ANTI-REFL. SAFETY GLASS	CURVA- TURE RADIUS (IN.)	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH					ANODE (Kv)	FOCUS ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)
7AJP1 7AJP2 7AJP7 7AJP11 7AJP14 7AJP19 7AJP25	□	CA	40	5½ x 5½	19	B6-63	12D	40	6.3/.60	17.6	Magnetic	770	14
7AQP4 7AQP7 7AQP16 7AQP19 7AQP25 7ARP4	○	CA	24	7	8½	E9-37	9HT	70	6.3/.30	12	-.55 to +1.1	770	10
7AUP4 7AUP7 7BP1 7BP7 7BP2A 7BP7A 7BP7B	○	CA	24	7½	13¼	B6-63	12M	50	6.3/.60	12	-.55 to +1.1	770	10
7AUP4 7AUP7	○	CA	24	7	8½	E9-37	9HT	70	6.3/.30	11	+1.1	770	8
7BP1 7BP7	○	C	24	7	13¼	B8-65 B8-65	5AN	55	6.3/.60	7.7	Magnetic	740 330	7
7BP2A 7BP7A 7BP7B	○	C	24	7	13¼	B8-65/B5-80 B8-65/B5-80 B8-65	5AN	53	6.3/.60	8.8	Magnetic	770	7
7CP1 7CP4 7CP7 7CP18 7MP7 7MP14	○	C	20	7	13¾	B8-11	8BQ	57	6.3/.60	8	+2.4	330	7 7 6 6 7
7CP1 7CP4 7CP7 7CP18 7MP7 7MP14	○	C	24	7½	12¾	B5-57	12D	50	6.3/.60	8.8	Magnetic	770	7
7NP4 7QP4 7TP4 7UP7 7UP25 7UP7A	○	CA	15.3	7	19½	B14-45	14N	35	6.3/.62	80	+20	600	75
7NP4 7QP4 7TP4 7UP7 7UP25 7UP7A	○	C	24	7½	12¾	B5-57	12D	52	6.3/.60	11	Magnetic	450	8
7NP4 7QP4 7TP4 7UP7 7UP25 7UP7A	○	CA	24	7½	13¾	B6-63	12Q	50	6.3/.60	13.2	+2.2	450	10
7NP4 7QP4 7TP4 7UP7 7UP25 7UP7A	○	CA	24	7	13¼	B8-11/B5-80	5AN	53	6.3/.60	13.2	Magnetic	770	7
7NP4 7QP4 7TP4 7UP7 7UP25 7UP7A	○	CA	24	7	13¼	B8-11/B5-80	5AN	53	6.3/.60	11	Magnetic	770	7
7WP4 8FP4 8HP4 8KP4 8XP4 8YP4	○	A	20.3	4½ x 2	19½	B14-45	7WP4	35	6.3/.62	80	+20	600	75
7WP4 8FP4 8HP4 8KP4 8XP4 8YP4	□	TA	27	7½ x 6½	11½	B5-57	12D	90	6.3/.60	19.8	Magnetic	550	16
7WP4 8FP4 8HP4 8KP4 8XP4 8YP4	□	TA	27	7½ x 6½	9½	B6-63	12L	90	6.3/.60	14	-.55 to +1.1	550	11
7WP4 8FP4 8HP4 8KP4 8XP4 8YP4	□	TA	27	7½ x 6½	11½	B6-63	12M	90	6.3/.60	18	+ .80	700	16
7WP4 8FP4 8HP4 8KP4 8XP4 8YP4	□	T	27	7½ x 6½	11½	B5-57	12S	90	6.3/.60	22	Auto. Es.	550	16
7WP4 8FP4 8HP4 8KP4 8XP4 8YP4	□	T	11	8½ x 6½	8½	B6-185	7FG	110	6.3/.60	22	Auto. Es.	550	16
10AKP7 10ANP4 10ANP7 10ANP16 10ANP19 10ANP25	○	TA	42	10½	17¾	B5-57/B7-51	12D	50	6.3/.60	11	Magnetic	1100	8
10AKP7 10ANP4 10ANP7 10ANP16 10ANP19 10ANP25	○	TA	42	10½	16m	E9-37	9NB	50	6.3/.30	12	Magnetic	75	9
10KP7 10KP17 10KP25 10KP7A 10KP7B 10NP11	○	T	42	10½	17¾	B5-57	12D	50	6.3/.60	11	Magnetic	770	9
10KP7 10KP17 10KP25 10KP7A 10KP7B 10NP11	○	CA	42	10½	17¾	B5-57	12D	50	6.3/.60	13.2	Magnetic	770	9
10KP7 10KP17 10KP25 10KP7A 10KP7B 10NP11	○	TA	42	10½	17¾	B5-57	12D	50	6.3/.60	13.2	Magnetic	770	9
10KP7 10KP17 10KP25 10KP7A 10KP7B 10NP11	○	TA	42	10½	17¾	B5-57	12G	52	6.3/.60	27.5	Magnetic	....	18
10SP4 10UP14 10UP21 10UP14A 10UP14B 10VP7 10VP15	○	TA	42	10½	16¾	B6-63	12Q	50	6.3/.60	22	+3.3	450	14
10SP4 10UP14 10UP21 10UP14A 10UP14B 10VP7 10VP15	○	C	42	10½	17¾	B6-63	12M	50	6.3/.60	13.2	-.55 to +1.1	770	10
10SP4 10UP14 10UP21 10UP14A 10UP14B 10VP7 10VP15	○	TA	42	10½	17¾	B6-63	12M	50	6.3/.60	13.2	-.55 to +1.1	770	10
10SP4 10UP14 10UP21 10UP14A 10UP14B 10VP7 10VP15	○	CA	42	10½	17¾	B6-63	12M	50	6.3/.60	13.2	-.55 to +1.1	770	10
10SP4 10UP14 10UP21 10UP14A 10UP14B 10VP7 10VP15	○	TA	42	10½	17¾	B6-63	12M	50	6.3/.60	13.2	-.55 to +1.1	770	10
10SP4 10UP14 10UP21 10UP14A 10UP14B 10VP7 10VP15	○	TA	42	10½	17¾	B5-57	12N	50	6.3/.60	13.2	Magnetic	450	11
10WP7 10WP14 10WP19 10WP7A 10WP14A 10WP19A	○	T	42	10½	16½	B6-63	12M	50	6.3/.60	13.2	-.55 to +1.1	770	10
10WP7 10WP14 10WP19 10WP7A 10WP14A 10WP19A	○	TA	42	10½	16½	B6-63	12M	50	6.3/.60	13.2	-.55 to +1.1	770	10

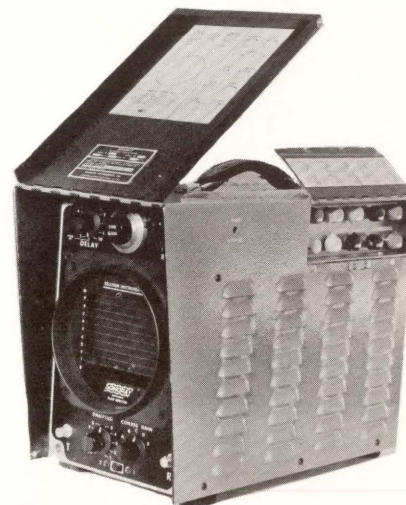
MAGNETIC DEFLECTION TYPES

TYPICAL OPERATION			REMARKS
FOCUS ELECTRODE VOLTS	ACCEL. GRID (G2) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	
MAGNET COIL CURRENT IN MA.			
77 Ma.	550	75-150	Line width "A" inches: .008" @ Ib = 100 μa
-50 to +350	300	15-45	Line width "A" inches: .015" @ Ib = 100 μa
-50 to +250	330	30-67	Line width "A" inches: .007" @ Ib = 100 μa
0 to 300	300	25-60	Line width "A" inches: .012" @ Ib = 50 μa
	250	50	Neck Dia. 7/8"
99-135 Ma.	250	25-75	Line width "A" inches: .012" @ Ib = 100 μa
	250	25-75	
1365	250	45	
		45	
		25-68	
85 Ma.	250	25-68	
		27-63	Line width "A" inches: .012" @ Ib = 200 μa
15K-17K	500	155	Theatre Projection Tube
80 Ma.	300	33-77	Single Ion Trap
1170-1590	200	23-53	
117 Ma.	250	25-70	Line width "A" inches: .008" @ Ib = 35 μa
111 Ma.	250	25-70	
15K-17K	500	155	Theatre Projection Tube
125 Ma.	300	40-77	Line width "A" inches: .006" @ Ib = 300 μa
0-300	300	33-77	Cap's: 250-350 μμf
0-400	300	40-77	Line width "A" inches: .006" @ Ib = 300 μa
Auto. Es.	300	33-77	
Auto. Es.	300	40-77	
105 Ma.	700	20-80	Line width "A" inches: .01" @ Ib = 200 μa
40-60 Ma.	30-70	14	Neck Dia. 7/8"; Line width "A" inches: .013" @ Ib = 100 μa
112 Ma.	250	27-63	Line width "A" inches: .02" @ Ib = 200 μa
		27-63	
		25-70	
112 Ma.	250	27-63	Line width "A" inches: .015" @ Ib = 200 μa
112 Ma.	250	27-63	Line width "A" inches: .015" @ Ib = 200 μa
110 Ma.	...	65-125	Cap's: 500-1500 μμf; Line wid. "A" in.: .008" @ Ib = 65 μa
1640-2225	200	23-53	Line width "A" inches: .012" @ Ib = 100 μa
-150 to +150	300	33-77	Line width "A" inches: .015" @ Ib = 100 μa
0 to 200			
-150 to +150	300	33-77	Line width "A" inches: .015" @ Ib = 100 μa
-180 to +180	300	40-77	Line width "A" inches: .017" @ Ib = 60 μa
110 Ma.	250	33-77	Cap's: 500-2500 μμf;
			Line width "A" inches: .02" @ Ib = 200 μa
0 to 300	300	33-77	Line width "A" inches: .017" @ Ib = 100 μa
0 to 300	300	33-77	Line width "A" inches: .017" @ Ib = 100 μa



If there are any flaws in these metal bars, the instrument this workman is using will search them out. It's called the Sonoray—manufacturer: Branson Instruments of Stamford, Connecticut. An ultrasonic device, the Sonoray beams short pulses of acoustical energy into the material under test, tracing the echoes on a Sylvania SC-3029 CRT. The resulting pattern locates and defines any imperfections contained in the bar. Naturally, the cathode ray tube used must be of extreme accuracy and reliability to definitively pinpoint a flaw in a lengthy bar of metal.

The Sonoray lends itself to a variety of specific testing applications, including the examination of livestock for thickness of fat and lean. The patterns displayed on the Sylvania CRT specified for the Sonoray will tell a trained observer the overall condition of the animal.



Branson Instruments Sonoray

INDUSTRIAL AND MILITARY CRT

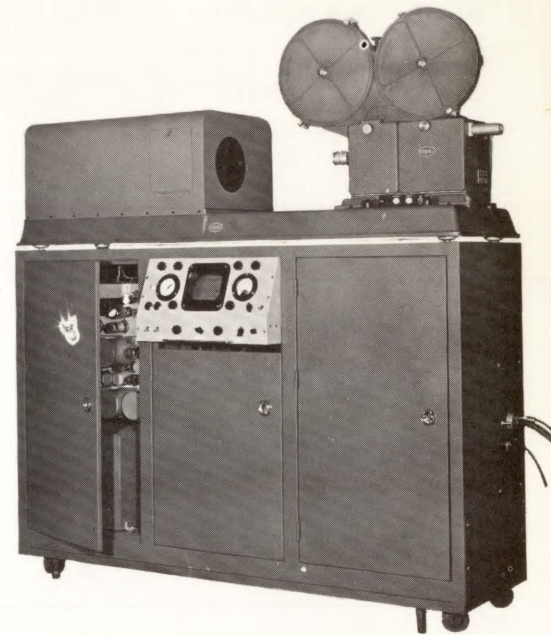
■ TYPE	FACEPLATE			OVERALL DIMENSIONS INCHES			BASE	BASING	DEFL. ANGLE	HEATER VOLTS/AMPS	ABSOLUTE MAXIMUM RATINGS			
	SHAPE	SAFETY GLASS	CLEAR ALUM. TINTED ANTI-REFL.	CURVA- TURE RADIUS (IN.)	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH					ANODE (Kv)	FOCUS ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)
12ABP7 12ABP14 12ABP19 12ABP7A 12ABP14A 12ABP19A	○	T		40	12 $\frac{1}{16}$	18	B6-63	12M	55	6.3/.60	13.2	-.55 to +1.1	770	10
12AFP7 12AFP14 12AFP19 12AFP7A 12AFP14A 12AFP19A	○	TA		40	12 $\frac{1}{16}$	18	B6-63	12M	55	6.3/.60	13.2	-.55 to +1.1	770	10
12AGP7 12AGP14 12AGP19 12AGP7A 12AGP14A 12AGP19A	○	T		125	12 $\frac{1}{16}$	18 $\frac{5}{16}$ m	B5-57	12D	54	6.3/.60	15.4	Magnetic	1100	12
12DP7 12DP7A 12DP7B 12DP7C 12SP7 12SP7B 12SP7D	○	TA		125	12 $\frac{1}{16}$	18 $\frac{5}{16}$ m	B5-57	12D	54	6.3/.60	15.4	Magnetic	1100	12
12DP7	○	T		20	12	19 $\frac{3}{8}$	B8-65/B5-80	5AN	55	6.3/.60	7.7	Magnetic	330	7
12DP7A	○	T		20	12	19 $\frac{3}{8}$	B8-65/B5-80	5AN	50	6.3/.60	11	Magnetic	770	7
12DP7B	○	T		20	12	19 $\frac{3}{8}$	B8-65/B5-80	5AN	50	6.3/.60	11	Magnetic	770	7
12DP7C	○	TA		20	12	19 $\frac{3}{8}$	B8-65/B5-80	5AN	50	6.3/.60	13.2	Magnetic	770	4
12SP7	○	T		40	12 $\frac{1}{16}$	18 $\frac{3}{4}$	B5-57	12D	55	6.3/.60	11	Magnetic	450	9
12SP7B	○	TA		40	12 $\frac{1}{16}$	18 $\frac{3}{4}$	B5-57	12D	54	6.3/.60	11	Magnetic	550	9
12SP7D	○	TA		40	12 $\frac{1}{16}$	18 $\frac{3}{4}$	B5-57	12D	54	6.3/.60	15	Magnetic	770	9
14AZP4 14BAP4 16ADP7 16AFP19 16AKP7 17DWP4	□	TA		27	12 $\frac{1}{32}$ x 9 $\frac{23}{32}$	16 $\frac{13}{16}$	B5-57	12D	70	6.3/.60	22	Magnetic	550	18
14BAP4	□	TA		27	12 $\frac{1}{2}$ x 9 $\frac{11}{16}$	16 $\frac{25}{32}$	B6-63	12L	70	6.3/.60	22	+ .80	700	18
16ADP7	○	T		40	15 $\frac{1}{8}$	22m	B7-51	16ADP7	53	6.3/.60	15.4	Magnetic	450	12
16AFP19	□	CA		27	14 $\frac{3}{4}$ x 11 $\frac{1}{2}$	19 $\frac{1}{2}$	B7-51	12L	70	6.3/.60	17.6	-.55 to +.55	450	12
16AKP7	○	TA		60	15 $\frac{1}{8}$	22 $\frac{1}{16}$	B7-51	12M	53	6.3/.60	15.4	+1.0	500	12
17DWP4	□	TA		27	15 $\frac{3}{8}$ x 12 $\frac{1}{32}$	19 $\frac{1}{16}$	B6-63	12L	70	6.3/.60	22	-.55 to +1.1	700	18
17QCP1 17QCP2 17QCP4 17QCP7 17QCP11 17QCP12 17QCP19 17QCP25	⊗	TA		..	15 $\frac{3}{8}$ x 12 $\frac{1}{4}$	19 $\frac{1}{16}$	B5-57	12N	70	6.3/.60	9	Magnetic	500	5
19WP2 19WP7 19WP12 19WP14 19WP19 19WP25 21ECP7	○	TA		28	18 $\frac{3}{8}$	24 $\frac{11}{16}$	B7-51	12AV	66	6.3/.60	13.2	+6.0	770	10 D1-D2: D3-D4:
21EYP4	□	TA		35	20 $\frac{1}{4}$ x 15 $\frac{1}{16}$	23	B5-57	12N	70	6.3/.60	9	Magnetic	500	5
22CP7 22CP14 22CP19 22CP25	○	C		33	20 $\frac{1}{4}$ x 16 $\frac{3}{8}$	23 $\frac{1}{2}$	B6-63	12L	72	6.3/.60	22	-.55 to +1.1	700	18
22DP7 22DP14 22DP19 22DP25 SC-2782	○	C		165	21 $\frac{3}{4}$	22 $\frac{1}{16}$	B5-57	12D	70	6.3/.60	17.6	Magnetic	1100	12
SC-2795	○	CA		165	21 $\frac{3}{4}$	22 $\frac{1}{16}$	B6-63	12M	70	6.3/.60	17.6	-.55 to +1.1	1100	12
SC-2854	□	Wire Array		Flat	3 $\frac{1}{4}$ x 1 $\frac{3}{4}$	19	B5-57	12D	24	6.3/.60	25	Magnetic	700	20
SC-3144	○	C		24	4 $\frac{1}{16}$	11 $\frac{1}{8}$	B8-11/B8-65	8EF	53	6.3/.60	11	-.55 to +1.1	770	7.0
SC-3154	□	Wire Array		Flat	10 $\frac{5}{8}$ x 3 $\frac{7}{8}$	26	B5-57	12D	52	6.3/.60	25	Magnetic	700	10
SC-3304	□	Wire Array		Flat	10 $\frac{5}{8}$ x 3 $\frac{7}{8}$	26	B5-57	12D	52	6.3/.60	25	Magnetic	700	10
SC-3304	□	Fibre Optics		60	3 $\frac{1}{4}$ x 1 $\frac{1}{2}$	16	B8-181	3304	30	6.3/.60	25	Magnetic	2500	20

NOTES: * Line width measured at the center of tube face by the shrinking raster method at the current or brightness specified. Reference: MIL-E-1, Par. 4.12.6.1. The brightness shown for 3" and 5" round tubes is for 2" x 2" raster size, for other types, full screen illumination.

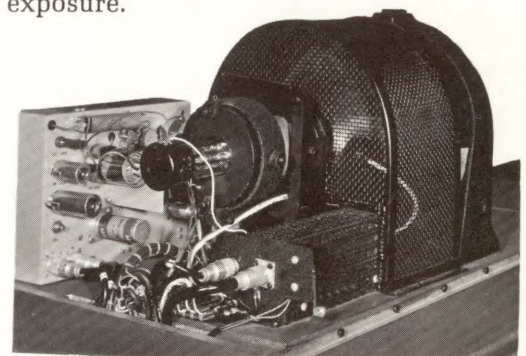
MAGNETIC DEFLECTION TYPES

TYPICAL OPERATION			REMARKS
FOCUS ELECTRODE VOLTS MAGNET COIL CURRENT IN MA.	ACCEL. GRID (G2) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	
0 to 300	300	33-77	Line width "A" inches: Δ .019" @ Ib = 100 μ a
0 to 300	300	33-77	Line width "A" inches: Δ .019" @ Ib = 100 μ a
110 Ma.	500	33-77	Metal Bulb
110 Ma.	500	33-77	Metal Bulb
-48 to +264	500	33-77	Metal Bulb
-48 to +264	500	33-77	Metal Bulb
99 to 135 Ma.	250	25-70	Line width "A" inches: Δ .04" @ Ib = 200 μ a
99 to 135 Ma.	250	25-70	
99 to 135 Ma.	250	25-70	Line width "A" inches: Δ .019" @ Ib = 200 μ a
88 Ma.	250	25-70	
110 Ma.	250	27-63	Line width "A" inches: Δ .03" @ Ib = 200 μ a
104 Ma.	250	27-63	Line width "A" inches: Δ .015" @ Ib = 200 μ a
104 Ma.	250	27-63	Line width "A" inches: Δ .015" @ Ib = 200 μ a
110 Ma.	300	35-75	Radar Dis. Tube; Line wid. "A" in.: Δ .013" @ Ib = 100 μ a
0 to 400	300	40-77	Cap's: 600-1000 μ mf; Line wid. "A" in.: Δ .011" @ Ib = 300 μ a
95 Ma.	250	27-63	Metal Bulb
0	250	27-63	
0 to 400	300	35-75	
0 to 400	300	40-77	Cap's: 750-1500 μ mf; Line wid. "A" in.: Δ .013" @ Ib = 300 μ a
60 Ma.	300	33-77	Cap's: 750-1500 μ mf
3400-4600 170 to 210 Volts 160 to 200 Volts	300	35-72	Electrostatic and Magnetic Deflection Metal Bulb
95 Ma.	300	33-77	Cap's: 500-750 μ mf
0 to 400	300	40-77	Cap's: 1200-1500 μ mf; Line width "A" inches: Δ .017" @ Ib = 300 μ a
95 Ma.	300	33-77	Metal Bulb
-48 to +264	300	33-77	Metal Bulb
100 Ma.	2000	33-77	Cap's: 100-500 μ mf; P11 Phosphor; Optical Face Quality; Line width "A" inches: Δ .001" @ Ib = 5 μ a
60 to 80 Ma.	300	40-77	Electrostatic Charge Printing Tube; Printing Dimensions: .16" x 2.75" Min.
0 to 250	300	33-77	Line width "A" inches: Δ .016" @ Ib = 100 μ a; High Visibility and Resolution Radar Tube
40 to 60 Ma.	300	40-77	Electrostatic Charge Printing Tube; Printing Dimensions = .05" x 8.6" Min.
40 to 60 Ma.	300	40-77	Electrostatic Charge Printing Tube; Printing Dimensions = .16" x 8.6" Min.
100 Ma.	2000	33-77	Line width "A" inches: Δ .001" @ Ib = 5 μ a; Fibre Optics Faceplate Insert: $\frac{1}{4}$ " x 2 $\frac{3}{4}$ " Min. For Direct Contact Photo Recording

■ Commonly used screens listed, others may be available for many types.
m—Maximum



This video recorder, by GPL Division—General Precision, Inc., is used in 90% of all TV studios equipped for video recording. It is the most effective method of producing high quality film of taped programs, offering standard 24-frame-per-second motion picture film with excellent picture resolution and correct grey scale. A Sylvania 10NP11 CRT operates in this equipment, providing the sharp picture detail and clarity necessary for high quality filming. An exclusive electronic shutter, developed by GPL, regulates film exposure by control of CRT brightness and blanks out the tube at the end of each exposure.



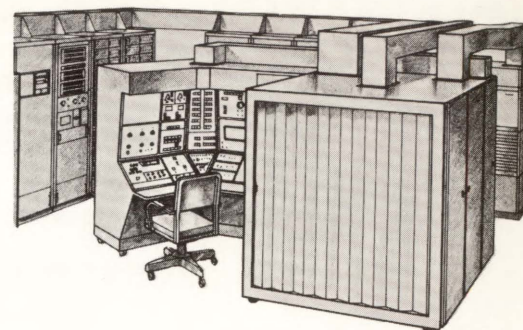
Sylvania 10NP11 as installed in the GPL video recorder. Shown uncovered here, the CRT is placed on top of the equipment, facing the camera.

INDUSTRIAL AND MILITARY CRT — ELECTROSTATIC

TYPE	FACEPLATE			OVERALL DIMENSIONS INCHES		BASE	BASING	HEATER VOLTS / AMPS	ABSOLUTE MAXIMUM RATINGS				POST ACCEL. (A3) Kv
	SHAPE	CLEAR ALUM. TINTED ANTI- REFL.	CURVA- TURE RADIUS (IN.)	FACEPLATE DIAMETER OR WIDTH x HEIGHT	LENGTH				POST ACCEL. (A3) Kv	ANODE (A2) Kv	FOCUS ELECTRODE (A1) Kv	ANODE NO. 2 TO DEFLECTION PLATE PEAK VOLTS	
1DP1 1DP4 1DP7 1DP11	○	C	Flat	7/8	3 m	E9-1	9CU	6.3/.215	...	1.1	.33	...	...
1EP1 1EP2 1EP11	○	C	Flat	1 1/4	4 1/8 m	E11-22	11V	6.3/.60	...	1.65	1.32	550	...
2AP1 2AP1A	○ ○	C C	8 8	2 2	7 7/8 7 7/8	B11-33 B11-23	11B 11L	6.3/.60 6.3/.60	... ...	1.1 1.1	.55 .55	660 660	... ...
2BP1 2BP11	○	C	8	2	7 7/8	B12-43	12E	6.3/.60	...	2.75	1.1	550	...
3AP1 3AP4	○	C	8	3	11 1/2	A7-3	7AN	2.5/2.1	...	1.65	1.1	660	...
3AP1A 3ABP1 3ABP2 3ABP7 3ABP11	○ ○ 	C C 	8 Flat 	3 3 	11 1/2 10 3/4 	A7-3 B14-38	7CE 14T	2.5/2.1 6.3/1.2	... 6.6	1.65 2.2	1.1 1.1	660 600	... 4.0
3ACP1 3ACP2 3ACP7 3ACP11	○	C	Flat	3	10	B12-37	14J	6.3/.60	6.6	2.2	1.65	600	4.0
3ACP1A 3ACP2A 3ACP7A 3ACP11A 3ACP12A	○	C	Flat	3	10	B12-37	14J	6.3/.60	6.6	2.2	1.65	600	4.0
3ADP1 3ADP2 3ADP7 3ADP11	○	C	Flat	3	10	B12-43	12Z	6.3/.60	6.6	3.3	1.1	600	4.0
3AHP1 3AHP2 3AHP7 3AHP11	□	C	15	3 x 1 1/2	9 7/8	B12-43	12E	6.3/.60	...	3.0	1.2	600	...
3AQP1 3AQP2 3AQP7 3AQP11	○	C	8	3	9 7/8	B12-43	12E	6.3/.60	...	3.0	1.2	600	...
3ASP1 3ASP2 3ASP7 3ASP11	□	C	60	3 3/4 x 1 1/2	8 15/16	B8-218	8KF	6.3/.60	...	3.0	1.2	600	...
3AYP1 3AYP2 3AYP7 3AYP11	□	C	60	3 3/4 x 1 1/2	8 7/8	D8-1	3AYP1	6.3/.60	...	3.0	1.2	600	...
3BP1 3BP1A	○ ○	C C	8 8	3 3	10 10	B12-37 B12-37	14A 14G	6.3/.60 6.3/.60	... ...	2.2 2.2	1.1 1.1	550 550	... ...
3BDP1 3BDP2 3BDP7 3BDP11	□	C	60	3 x 1 1/2	9 7/8	B12-43	12E	6.3/.60	...	3.0	1.2	600	...
3BEP1	□	C	60	3 3/4 x 1 1/2	9 7/8	.....	3BEP1	6.3/.60	...	3.0	1.2	...	...
3BFP1 3BFP2 3BFP7 3BFP11	○	C	Flat	3	13 3/4	B12-43	12BE	6.3/.60	3.5	1.25	.45	200	1.5
3BGP1 3BGP2	□	C	60	3 3/4 x 1 1/2	9 1/4	B8-181	8KF	1.5/.14	...	2.75	1.1	550	...
3BGP7 3BGP11 3BMP1 3BMP2 3BMP7 3BMP11 3BMP12	○	C	Flat	3	10	B12-37	14J	1.5/.14	6.6	2.2	1.5	550	4.0
3CP1 3DP1	○ ○	C C	8 8	3 3	10 3/8 10 7/8	B11-66 B12-37	11C 14C	6.3/.60 6.3/.60	... ...	2.2 2.2	1.1 1.1	550 550	... ...

DEFLECTION TYPES

TYPICAL OPERATING CONDITIONS			DEFLECTION FACTOR VOLTS DC/INCH		REMARKS
ANODE (A2) Kv	FOCUS ELECTRODE (A1) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	D1 - D2	D3 - D4	
1.0	150	-100	350	300	Bulb—T-6½ Line width "A" inches: .975"
1.0	100-300	14-42	210-310	240-350	Bulb—T-10
1.0	250	30-90	230	196	Line width "A" inches: .018" @ 2 Ft. L. Line width "A" inches: .018" @ 4 Ft. L.
1.0	137-300	30-90	230	196	
2.0	300-560	135	230-310	148-200	
1.5	430	25-75	114	109	
1.5	240-560	25-75	90-137	88-130	
2.0	480	45-75	164-198	148-181	
2.0	545	45-75	180-220	133-163	
2.0	390-550	45-75	175-205	138-158	Line width "A" inches: .016" @ 1b³ = 50 µa
2.0	320-470	52-87	140-160	61-70	Line width "A" inches: .016" @ 1b³ = 25 µa; Deflection Plate Leads on Neck
2.0	330-620	58-135	146-198	52-70	
2.0	330-620	58-135	146-198	52-70	
2.0	400-700	40-70	68-92	28-38	Line width "A" inches: .025" @ 10 Ft. L.; Altitude 35 K Ft.
2.0	400-700	28.5-67.5	68-92	28-38	
2.0	575	30-90	200	148	Line width "A" inches: .020" @ 5 Ft. L.
2.0	400-690	30-90	200	148	
2.0	330-620	58-135	146-198	104-140	
1.5	247-465	43.5-101	109-149	78-105	Encapsulated Leads; Line width "A" inches: .016" @ 25 Ft. L.
0.5	25-125	30-60	12-15	9-12	Line width "A" inches: .030" @ 1b = 15 µa; Encapsulated Leads; Altitude 70 K Ft.
2.0	400-700	38-67½	68-92	28-38	Line width "A" inches: .025" @ 20 Ft. L.—1 ½ x 1 ¼; Altitude 35 K Ft.
2.0	375-575	45-75	180-220	133-163	Line width "A" inches: .016" @ 1b³ = 25 µa
2.0	575	30-90	124	165	Radial Deflection
1.5	430	22.5-67.5	166	123	Radial Deflection



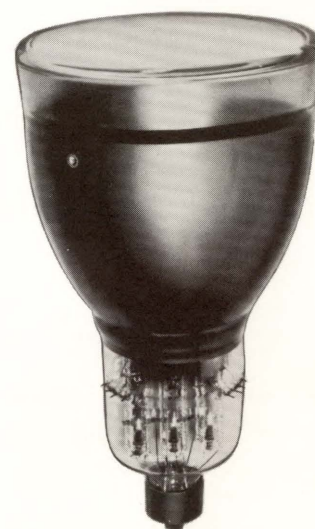
SAC CREWS TRAINED HERE

Three Sylvania Multi-Trace CRT's

Monitor Performance in Air Force Trainer

One of the largest and most sophisticated training devices ever produced for the Air Force trains SAC crews in electronic countermeasures techniques. The device provides fantastically realistic simulation of all types of signals throughout the RF spectrum. To give trainer instructors and operating personnel comprehensive, instantaneous monitoring facility, three Sylvania 3-gun SC-3061 CRT's continuously present a 9-band display of all signal activity occurring at all times during the running of training programs. These Sylvania multi-trace CRT's feature three highly reliable, independently controlled electron guns, capable of tracing three displays simultaneously on the 10" diameter face.

The giant, highly-complex training device was designed and manufactured by Reflectone Electronics, Inc., a Universal Match Corporation subsidiary specializing in training and simulator systems and equipment.



Sylvania Multi-Trace CRT: SC-3061

INDUSTRIAL AND MILITARY CRT — ELECTROSTATIC

TYPE	FACEPLATE			OVERALL DIMENSIONS INCHES		BASE	BASING	HEATER VOLTS / AMPS	ABSOLUTE MAXIMUM RATINGS				
	SHAPE	CLEAR ALUM. TINTED ANTI- REFL.	CURVA- TURE RADIUS (IN.)	FACEPLATE DIAMETER OR WIDTH x HEIGHT	LENGTH				POST ACCEL. (A3) Kv	ANODE (A2) Kv	FOCUS ELECTRODE (A1) Kv	ANODE NO. 2 TO DEFLECTION PLATE PEAK VOLTS	POST ACCEL. (A3) Kv
3DP7	○	C	8	3	10 ⁷ / ₁₆	B12-37	14H	6.3/.60	...	2.2	1.1	550	...
3DP1A	○	C	8	3	10 ⁷ / ₁₆	B12-37	14H	6.3/.60	...	2.2	1.1	550	...
3DP1S2A	○	C	8	3	10 ⁷ / ₁₆	B12-37	14H	6.3/.60	...	2.2	1.1	550	...
3EP1	○	C	8	3	9 ¹ / ₁₆	.....	11N	6.3/.60	...	2.2	1.1	550	...
3FP7	○	C	8	3	10	B12-37	14B	6.3/.60	4.4	2.2	1.1	550	2.0
3FP7A	○	C	8	3	10	B12-37	14J	6.3/.60	4.4	2.2	1.1	550	4.0
3GP1	○	C	8	3	11 1/2	B11-66	11A	6.3/.60	...	1.65	1.1	550	...
3GP4													
3GP5													
3GP1A	○	C	8	3	11 1/2	B11-66	11N	6.3/.60	...	1.65	1.1	600	...
3GP4A													
3GP11A													
3JP1	○	C	8	3	10	B12-37	14J	6.3/.60	4.4	2.2	1.1	550	3.0
3JP2													
3JP7													
3JP12													
3JP1A	○	C	8	3	10	B12-37	14J	6.3/.60	6.6	2.2	1.65	600	4.0
3JP2A													
3JP7A													
3JP11A													
3KP1	○	C	8	3	11 1/2	B11-66	11M	6.3/.60	...	2.75	1.1	550	...
3KP4													
3KP7													
3KP11													
3KP16	○	C	8	3	8	B12-43	12F	6.3/.60	...	2.75	1.1	550	...
3MP1													
3MP2													
3MP7													
3MP11													
3RP1	○	C	8	3	9 1/8	B12-43	12E	6.3/.60	...	2.75	1.1	550	...
3RP4													
3RP1A	○	C	Flat	3	9 1/8	B12-43	12E	6.3/.60	...	2.75	1.1	550	...
3RP2A													
3RP7A													
3RP11A													
3SP1	□	C	15	3 x 1 1/2	9 1/8	B12-43	12E	6.3/.60	...	3.0	1.2	550	...
3SP2													
3SP7													
3SP11													
3UP1	□	C	Flat	2 1/8 x 1 1/16	7 1/2	B12-43	12F	6.3/.60	...	2.75	1.1	550	...
3WP1	○	C	Flat	3	11 1/2	B12-43	12T	6.3/.60	...	2.75	1.1	550	...
3WP2													
3WP11													
3XP1	□	C	15	3 x 1 15/32	8 7/8	D8-1	3XP1	6.3/.60	...	3.0	1.2	600	...
3XP2													
3XP7													
3XP11													
3YP1	□	C	15	3 x 1 15/32	7	D8-1	3YP1	6.3/.60	...	3.0	1.2	600	...
3YP2													
3YP7													
3YP11													
4DP1	□	C	Flat	3 1/2 x 3 1/2	12 1/4	B12-37	4DP1	6.3/.60	6.6	3.3	1.65	825	4.0
4DP2													
4DP7													
4DP11													
4FP1	□	C	30	3 1/2 x 3 1/2	12	B12-37	14Q	6.3/.60	6.6	3.3	1.65	750	4.0
4FP2													
4FP7													
4FP11													
4KP1	□	C	..	3 1/2 x 3 1/2	11 1/16	B12-43	4KP1	6.3/.60	...	2.75	1.1	550	...
4KP11													
4MP1	□	C	30	3 1/2 x 3 1/2	13 3/4	B12-43	12Z	6.3/.60	6.6	3.3	1.1	600	4.0
4MP2													
4MP7													
4MP11													
4QP1	□	C	Flat	3 1/4 x 2 3/4	13 1/2	Sp. 12 Pin	4QP1	6.3/.30	3.74	.72	.11	220	3
4QP2													
4QP7													
4QP11													
4RP1	□	C	Flat	3 1/4 x 2 3/4	13 1/2	Sp. 12 Pin	4RP1	6.3/.30	3.74	.72	.11	220	3
4RP2													
4RP7													

DEFLECTION TYPES

TYPICAL OPERATING CONDITIONS			DEFLECTION FACTOR VOLTS DC/INCH		REMARKS
ANODE (A2) Kv	FOCUS ELECTRODE (A1) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	D1 - D2	D3 - D4	
1.5	280-516	22.5-67.5	150	111	Radial Deflection Radial Deflection
2.0	575	30-90	220	148	
2.0	575	30-90	220	148	
2.0	575	30-90	221	165	
2.0	575	30-90	221	164	
2.0	575	30-90	250	180	
1.5	350	25-75	120	105	
1.5	245-437	25-75	96-144	84-126	
1.5	300-515	22.5-67.5	127-173	94-128	Line width "A" inches: .03" @ 25 Ft. L.
2.0	400-690	45-75	180-220	133-163	Line width "A" inches: .03" @ 1b ³ = 100 μa
2.0	320-600	38-90	100-136	76-104	Line width "A" inches: .010" @ 5 Ft. L.
2.0	400-700	126	230-290	220-280	
2.0	330-620	135	146-198	104-140	Line width "A" inches: .016" @ 20 Ft. L.
2.0	330-620	45-135	146-198	104-140	Line width "A" inches: .016" @ 20 Ft. L.
2.0	330-620	58-135	146-198	104-140	Line width "A" inches: .016" @ 25 Ft. L.
2.0	320-620	126m	240-310	232-296	
1.5	247-465	45-75	62-76	43-52	Line width "A" inches: .026" @ 7 Ft. L.
2.0	400-700	67.5m	68-92	28-38	
2.0	370-680	56-134	136-184	88-120	
2.0	335-615	52-87	115-140	90-115	Line width "A" inches: .024" @ 1b ³ = 25 μa; Close Tolerances; Deflection Plate Leads on Neck.
2.0	335-615	52-87	105-145	85-115	Two Independent Guns Line width "A" inches: .017" @ 1b ³ = 25 μa
1.5	255-545	36-60	62-76	36-46	Line width "A" inches: .014" @ 4 Ft. L.
2.0	340-510	52-87	68-82	42-52	Line width "A" inches: .018" @ 1b ³ = 25 μa; Deflection Plate Leads on Neck
.6	40-160	30-50	25-30	12.5-15.5	
.6	40-160	30-50	25-30	12.5-15.5	



6,000 CHARACTERS A SECOND

That's the fantastic printing capabilities of the A. B. Dick Videograph Address-Label Printer. It adds up to over 130,000 addressed labels per hour for large subscription magazines, the initial users of this type of equipment. Heart of the printer portion of this machine is a Sylvania electrostatic printing tube, the SC-2795, developed expressly for A. B. Dick Company.

The tube is activated by signals converted from digital codes, fed from magnetic tape. As the readable character is formed on the tube face, it leaves electrostatic charge patterns on a continuous web of paper, moving at 36 inches per second in front of the tube. The paper then passes through a developing unit which creates the visible characters of a subscriber's name and address.

The Videograph process represents a revolutionary new electronic data presentation concept, in which the cathode-ray tube for high-speed electrostatic printing perfected by Sylvania is an integral part. Sylvania welcomes further inquiries and specifications for specialized cathode-ray tube applications requiring an electrostatic printing tube.



Sylvania Electrostatic
Printing Tube: SC-2795

INDUSTRIAL AND MILITARY CRT — ELECTROSTATIC

■ TYPE	FACEPLATE			OVERALL DIMENSIONS INCHES		BASE	BASING	HEATER VOLTS / AMPS	ABSOLUTE MAXIMUM RATINGS				POST ACCEL. (A3) Kv
	SHAPE	CLEAR ALUM. TINTED ANTI- REFL.	CURVA- TURE RADIUS (IN.)	FACEPLATE DIAMETER OR WIDTH x HEIGHT	LENGTH				POST ACCEL. (A3) Kv	ANODE (A2) Kv	FOCUS ELECTRODE (A1) Kv	ANODE NO. 2 TO DEFLECTION PLATE PEAK VOLTS	
4RP11 5AP1 5AP4 5ABP1 5ABP4 5ABP7 5ABP11 5ABP1A 5ABP4A	□ ○	C C	Flat ..	3¼ x 2¾ 5¼	13½ 13	Sp. 12 Pin B11-34	4RP1 11A	6.3/.30 6.3/.60	3.74 ...	.72 2.2	.11 1.3	220 550	3 ...
5ADP1 5ADP2 5ADP7 5ADP11 5ADP1A 5ADP2A	○	C CA	Flat Flat	5¼ 5¼	16¾ 16¾	B12-37 B12-37	14J 14J	6.3/.60 6.3/.60	6.6 6.6	2.86 2.86	1.1 1.1	550 550	3.0 3.0
5ADP7A 5ADP11A 5ADP31A 5ADP1B 5ADP2B 5ADP7B 5ADP11B	○	C CA	Flat Flat	5¼ 5¼	16¾ 16¾	B12-37 B12-37	14J 14J	6.3/.60 6.3/.60	6.6 6.6	2.86 2.86	1.1 1.1	550 550	3.0 3.0
5AFP1 5AFP2 5AFP7 5AFP11 5AGP1 5AGP2 5AGP7 5AGP11	○	C C	Flat Flat	5¼ 5¼	18¼ 16¾	B12-37 B12-37	5AFP1 14Q	6.3/.60 6.3/.60	11.5 7.7	3.85 3.85	1.9 2.0	825 800	4.0 4.0
5AMP1 5AMP2 5AMP7 5AMP11 5AMP1A 5AMP2A 5AMP7A 5AMP11A	○	C C	Flat Flat	5¼ 5¼	17¾ 17¾	B12-37 B12-37	14U 14U	6.3/.60 6.3/.60	... ...	6.6 6.6	1.65 1.65	1300 1300	... ...
5AQP1 5AQP2 5AQP7 5AQP11 5AQP1A 5AQP2A 5AQP7A 5AQP11A	○	C C	Flat Flat	5¼ 5¼	16¾ 16¾	B12-37 B12-37	14G 14G	6.3/.60 6.3/.60	... ...	4.4 4.4	1.65 1.65	1300 1300	... ...
5AQP1B 5AQP2B 5AQP7B 5AQP11B	○	CA	Flat	5¼	16¾	B12-37	14G	6.3/.60	...	4.4	1.65	1300	...
5ARP1 5ARP2 5ARP7 5ARP11	○	C	Flat	5¼	18½	B12-37/ A12-92	5ARP1	6.3/.60	...	6.6 Astigmatism Voltage = 6.6 KV Max. and 2.5 KV	1.65	1200	...
5ATP1 5ATP2 5ATP7 5ATP11 5AWP1 5AWP2 5AWP7 5AWP11	○	CA CA	Flat Flat	5¼ 5¼	17¾ 16¾	B12-37 B12-37	14V 14P	6.3/.60 6.3/.60	... 16.5	11 3.85	1.1 1.65	2200 1300	... 10.3
5BP1 5BP4 5BP1A 5BP7A 5BDP1 5BDP2 5BDP7 5BDP11	○ ○ ○ ○	C C CA	8 8 Flat	5¼ 5¼ 5¼	16¾ 16¾ 18¼	B11-34 B11-34 B12-37	11A 11A 5BDP1	6.3/.60 6.3/.60 6.3/.60	 28	2.2 2.2 3.85	1.1 1.1 1.7	550 550 1300	 14

DEFLECTION TYPES

TYPICAL OPERATING CONDITIONS			DEFLECTION FACTOR VOLTS DC/INCH		REMARKS
ANODE (A2) Kv	FOCUS ELECTRODE (A1) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	D1 - D2	D3 - D4	
.6	40-160	30-50	25-30	12.5-15.5	
1.5	430	31-57	93	90	
1.5	300-515	17.6-57 39-65	40-54	27-36	Line width "A" inches: .03" @ Ib ³ = 25 μa
1.5	300-515	39-65	40-54	27-36	Low Pattern Distortion; Line width "A" inches: .030" Max. @ 22 Ft. L.
1.5	300-515	34-56	40-50	30.5-37.5	Line width "A" inches: .030" @ Ib ³ = 25 μa
1.5	300-515	34-56	40-50	30.5-37.5	Line width "A" inches: .030" @ Ib ³ = 25 μa; Close Tolerances
1.5	300-515	34-56	40-50	30.5-37.5	Line width "A" inches: .030" @ Ib ³ = 25 μa; Close Tolerances
2.0	400-684	45-75	54-66	49-60	Line width "A" inches: .030" @ Ib ³ = 25 μa; Close Tolerances Two Independent Guns
2.0	400-685	52-88	68-92	59-81	Line width "A" inches: .022" @ Ib ³ = 25 μa; Deflection Plate Leads on Neck
2.5	0-300	34-56	40-50	20-25	Line width "A" inches: .032" @ 15 Ft. L.; Deflection Plate Leads on Neck
2.5	0-300	34-56	40-50	20-25	Close Tolerances; Line width "A" inches: .032" @ 15 Ft. L.; Deflection Plate Leads on Neck
2.5	0-300	34-56	40-50	31.5-38.5	Line width "A" inches: .030" @ 15 Ft. L.
2.5	0-300	34-56	40-50	31.5-38.5	Line width "A" inches: .03" @ 15 Ft. L.; Low Pattern Distortion
2.5	0-300	34-56	40-50	31.5-38.5	Line width "A" inches: .03" @ 15 Ft. L.; Low Pattern Distortion
2.5 Typical Operation	0-300	34-56	45-55	31.5-38.5	Line width "A" inches: .030" @ 15 Ft. L.; Two Independent Guns; Special 12 Pin Ring Base
6.0	0-700	34-56	94-116	34-42	Line width "A" inches: .035" Deflection Plate Leads on Neck
2.3	500-730	33-55	113-128	113-128	Line width "A" inches: .016" @ Ib ³ = 25 μa; Deflection Plate Leads on Neck
2.0	425	20-60	84	76	
2.0	315-562	20-60	70-98	63-89	
2.0	400-630	45-75	130-160	111-133	Line width "A" inches: .020" @ Ib ³ = 50 μa; Deflection Plate Leads on Neck ; Two Independent Guns



THE DEMONSTRATED ADVANTAGES OF THE SYLVANIA "BONDED SHIELD"

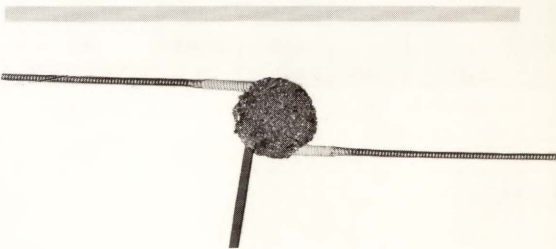
Sylvania "Bonded Shield," a scratch resistant, annealed-glass safety cap, is available for industrial-military cathode ray tubes. Sylvania "Bonded Shield" vastly strengthens the tube face to reduce significantly the danger of implosion and allow the elimination of conventional safety glass. The number of reflecting surfaces are cut by 50%, to reduce specular images, increase apparent light transmission and contrast for improved image readability. With Sylvania "Bonded Shield," the image is out front, for wide angle viewing. Tube face cleaning, a possible problem is environmentalized sealed equipment, is simplified. And "Bonded Shield" is usable writing surface, and may be permanently etched with a calibrated reference scale to minimize parallax viewing errors. Only Sylvania offers "Bonded Shield" advantages for industrial-military cathode ray tubes.

INDUSTRIAL AND MILITARY CRT — ELECTROSTATIC

■ TYPE	FACEPLATE			OVERALL DIMENSIONS INCHES		BASE	BASING	HEATER VOLTS / AMPS	ABSOLUTE MAXIMUM RATINGS				
	SHAPE	CLEAR ALUM. TINTED ANTI- REFL.	CURVA- TURE RADIUS (IN.)	FACEPLATE DIAMETER OR WIDTH x HEIGHT	LENGTH				POST ACCEL. (A3) Kv	ANODE (A2) Kv	FOCUS ELECTRODE (A1) Kv	ANODE NO. 2 TO DEFLECTION PLATE PEAK VOLTS	POST ACCEL. (A3) Kv
5BGP1 5BGP2 5BGP5 5BGP7 5BGP11 5BGP15 5BHP1 5BHP2 5BHP4	○	CA	Flat	5¼	17½	B12-37	14AF	6.3/.60	13.2	2.2	.88	550	10
Isolation Shield Voltage = 2.3 KV Max. and 1575-1700													
5BHP5 5BHP7 5BHP11 5BHP15 5BHP26 5BHP28 5BHP1A 5BHP2A 5BHP5A	○	CA	Flat	5¼	18¼	B12-37	14AG	6.3/.60	13.2	2.2	.88	550	10
5BHP7A 5BHP11A 5BHP15A 5BTP1 5BTP2 5BTP7 5BTP11 5CP1	○	C	Flat	5¼	12	B12-43	5BTP1	6.3/.60	4.8	2.4	1.2	600	2.7
5CP4 5CP7 5CP12 5CP1A 5CP7A 5CP11A 5CP1B 5CP2B	○	C	8	5¼	16¾	B12-37	14B	6.3/.60	4.4	2.2	1.1	550	4.0
5CP7B 5CP11B 5CAP1 5CAP2 5CAP7 5CAP11 5CBP1 5CBP2 5CBP7	○	C	Flat	5¼	17½	B12-37	14AF	6.3/.60	6.6	2.2	.88	440	6.0
Isolation Shield Voltage = 2.3 KV Max. and 1750-2000													
5CBP11 5CTP1 5CTP2 5CTP7 5CTP11 5CXP2	○	C	Flat	5¼	18¾	B12-37	14AG	6.3/.60	6.6	2.2	.88	550	4.0
Isolation Shield Voltage = 2.3 KV Max. and 1775-1975													
5DEP1 5DEP2 5DEP7 5DEP11 5DNP1 5DNP2 5DNP7 5DNP11 5DNP19	○	C	Flat	5¼	16¾	B12-37	14Q	6.3/.60	7.3	2.4	1.65	...	6.0
5GP1 5HP1 5HP4 5HP1A 5JP1 5JP4 5JP1A	○	C	8	5¼	16¾	B11-34	11A	6.3/.60	...	2.2	1.1	550	...
5JP2A 5JP4A 5JP5A 5JP7A 5JP11A 5LP1 5LP2	○	C	8	5¼	16¾	B11-34	11A	6.3/.60	...	2.2	1.1	550	...
5HP1A 5JP1 5JP4 5JP1A	○	C	8	5¼	16¾	B11-34	11N	6.3/.60	...	2.2	1.1	550	...
5JP1A 5JP2A 5JP4A 5JP5A 5JP7A 5JP11A 5LP1 5LP2	○	C	10	5½	16¾	B11-66	11S	6.3/.60	4.4	2.2	1.1	550	4.0
5LP1 5LP2	○	C	10	5½	16¾	B11-66	11F	6.3/.60	4.4	2.2	1.1	550	4.0

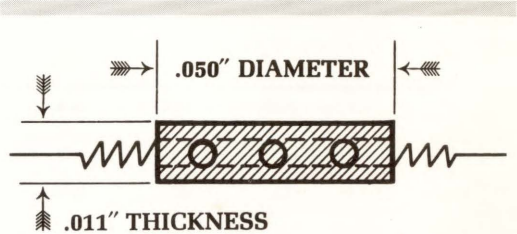
DEFLECTION TYPES

TYPICAL OPERATING CONDITIONS			DEFLECTION FACTOR VOLTS DC/INCH		REMARKS
ANODE (A2) Kv	FOCUS ELECTRODE (A1) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	D1 - D2	D3 - D4	
1.67 Volts Typical Operation	180-590	50-80	70-86	28.4-34.8	Line width "A" inches: .016" @ Ib = 10 μ a; Spiral Accelerator; De- flection Plate Leads on Neck
1.67	180-590	50-80	70-85	15-18.3	Line width "A" inches: .016" @ Ib = 10 μ a; Spiral Accelerator; De- flection Plate Leads on Neck
1.67	180-590	50-80	70-85	15-18.3	Line width "A" inches: .027"; Spiral Accelerator; Deflection Plate Leads on Neck
1.5	570-772	40-94	77-104	42-56	
2.0	575	30-90	92	78	
2.0	375-690	30-90	92	78	Line width "A" inches: .030" @ 20 Ft. L.
2.0	400-690	45-75	83-101	70-86	Line width "A" inches: .030" @ 20 Ft. L.
1.85 Volts Typical Operation	225-670	60-85	48-60	22-27	Spiral Accelerator; Deflection Plate Leads in Neck; Pattern Distortion 1% Max.; Two Independent Guns
1.9 Volts Typical Operation	190-565	62-85	48-58.5	15-19	Spiral Accelerator; Deflection Plate Leads in Neck; Pattern Distortion 1½% Max.; Two Independent Guns
2.0	300-550	30-70	65-75	25-35	Line width "A" inches: .028" @ Ib³ = 25 μ a; Deflection Plate Leads in Neck and Bulb Two Independent Guns Close Tolerances; Deflection Plate Leads in Neck
1.5	250-475	70	49	39	
2.0	340-640	90	48-64	27-37	
5	1250-1550	53-87	135-165	100-125	Line width "A" inches: .012" @ Ib³ = 2 μ a for P19 Screen
2.0	425	24-56	36	72	
2.0	425	20-60	84.8	77	Low Loss Base
2.0	450	20-60	84	76	
2.0	333-630	45-105	77-115	77-115	Deflection Plate Leads on Neck
2.0	500	45-105	96	96	Deflection Plate Leads on Neck
2.0	500	30-90	103	90	



A REMARKABLE LOW POWER HEATER —1.5V/140 MA.— FROM SYLVANIA...

Continuing Sylvania research into modern materials and techniques has produced a remarkable low-power heater-cathode assembly that opens new design areas for battery-powered, portable 'scopes. It requires only 1.5V/140 MA.—less than 6% of the power normally needed—thus offering lower tube operating temperatures and low drain from battery or flyback heater supplies. Advanced powder metallurgy processes make possible a flat, pancakelike heater-cathode assembly, only .050" in diameter and .011" thick. Extremely low mass minimizes the possibility of damage from vibration and shock. It is adaptable to practically all present CRT designs.



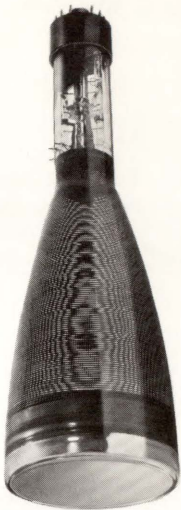
Low Power Heater—Cathode Assembly

INDUSTRIAL AND MILITARY CRT — ELECTROSTATIC

■ TYPE	FACEPLATE			OVERALL DIMENSIONS INCHES		BASE	BASING	HEATER VOLTS / AMPS	ABSOLUTE MAXIMUM RATINGS				POST ACCEL. (A3) Kv
	SHAPE	CLEAR ALUM. TINTED ANTI- REFL.	CURVA- TURE RADIUS (IN.)	FACEPLATE DIAMETER OR WIDTH x HEIGHT	LENGTH				POST ACCEL. (A3) Kv	ANODE (A2) Kv	FOCUS ELECTRODE (A1) Kv	ANODE NO. 2 TO DEFLECTION PLATE PEAK VOLTS	
5LP4 5LP5 5LP1A 5LP2A 5LP4A 5LP5A 5LP7A 5LP11A	○	C	10	5 ⁵ / ₁₆	16 ³ / ₄	B11-66	11F	6.3/.60	4.4	2.2	1.1	550	4.0
5MP1 5MP4 5MP5 5RP1 5RP2 5RP4 5RP5 5RP7 5RP11	○	C	10	5 ⁵ / ₁₆	15 ⁷ / ₈	.....	7AN	2.5/2.1	...	1.65	1.1	660	...
5RP1A 5RP2A 5RP4A 5RP5A 5RP7A 5RP11A	○	C	Flat	5 ¹ / ₄	16 ³ / ₄	B12-37	14F	6.3/.60	27.5	3.85	1.7	1300	20
5RP1B 5RP2B 5RP7B 5RP11B	○	CA	Flat	5 ¹ / ₄	16 ³ / ₄	B12-37	14P	6.3/.60	27.5	3.85	1.7	1300	20
5SP1 5SP2 5SP4 5SP5 5SP7 5SP11	○	C	Flat	5 ¹ / ₄	18 ¹ / ₄	B12-37	14K	6.3/.60	6.6	2.2	1.1	600	4.0
5SP1A 5SP2A 5SP7A 5SP11A	○	C	Flat	5 ¹ / ₄	18 ¹ / ₄	B12-37	14K	6.3/.60	8.25	2.75	1.1	600	4.0
5UP1 5UP7 5UP11	○	C	20	5 ¹ / ₄	14 ³ / ₄	B12-43	12E	6.3/.60	...	2.75	1.1	550	...
5XP1 5XP2 5XP11 5XP1A 5XP2A 5XP11A	○	C	Flat	5 ¹ / ₄	17 ⁷ / ₈	B12-37	14P	6.3/.60	28	4.0	1.7	1300	20
5XP1B 5XP2B 5XP11B	○	C	Flat	5 ¹ / ₄	17 ⁷ / ₈	B12-37	14P	6.3/.60	28	4.0	1.7	1300	20
5YP1 5YP2 5YP7 5YP11	○	CA	Flat	5 ¹ / ₄	17 ⁷ / ₈	B12-37	14P	6.3/.60	28	4.0	1.7	1300	12
5YP1 5YP2 5YP7 5YP11	○	C	8	5 ¹ / ₄	17 ⁷ / ₈	.....	14Q	6.3/.60	8.8	3.85	1.7	1300	6.6
6DP1 6DP2 6DP7 6DP11 6DP14 6DP19 6DP25	○	CA	Flat	5 ²⁷ / ₃₂	20 ¹ / ₁₆	B25-139	6DP1	6.3/1.75	15	4.5	1.55	600	12
7ACP2 7ACP7 7ACP19	□	CA	30	6 ¹ / ₃₂ x 4 ¹ / ₃₂	17 ³ / ₄	B25-139	7ACP2	6.3/1.8	11.5	3.85	3.0	1100	9.0
7AEP1 7AEP2 7AEP7 7AEP11	○	C	Flat	7	15 ¹ / ₂	B12-37	14J	6.3/.60	8.8	4.4	1.38	825	4.0

DEFLECTION TYPES

TYPICAL OPERATING CONDITIONS			DEFLECTION FACTOR VOLTS DC/INCH		REMARKS
ANODE (A2) Kv	FOCUS ELECTRODE (A1) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	D1 - D2	D3 - D4	
2.0	500	30-90	103	90	
2.0	376-633	30-90	83-124	72-108	
1.5	375	15-45	66	60	Large 7 Pin Base
2.0	362-695	30-90	140-210	131-197	Deflection Plate Leads on Neck
2.0	362-695	30-90	140-210	131-197	Line width "A" inches: .03" @ Ib ³ = 50 μ a; Deflection Plate Leads on Neck
2.0	362-695	30-90	140-210	131-197	Line width "A" inches: .03" @ Ib ³ = 50 μ a; Deflection Plate Leads on Neck
2.0	362-695	30-90	74-110	62-94	A ³ and A ² Leads on Bulb; Deflection Plate Leads on Neck; Two In- dependent Guns
2.0	362-695	45-75	83-101	70-86	Line width "A" inches: .027"; Close Tolerances; A ³ and A ² Leads on Bulb; Deflection Plate Leads on Neck; Two Independent Guns
2.0	360-640	90	56-77	46-62	Line width "A" inches: .016" @ 6 Ft. L.
2.0	362-695	30-90	140-210	46-68	Deflection Plate Leads on Neck and Bulb; Two Independent Guns
2.0	362-695	30-90	140-210	46-68	Line width "A" inches: .020" @ Ib ³ = 25 μ a; Close Tolerances; Plate Leads in Neck and Bulb; Two Independent Guns
2.0	362-695	45-75	130-159	45-52	Line width "A" inches: .020" @ Ib ³ = 25 μ a; Close Tolerances; Plate Leads on Neck and Bulb; Two Independent Guns
3.0	541-1040	45-135	108-162	36-54	
4.0	950-1225	75-124	112-138	105-130	Line width "A" inches: .015" @ Ib ³ = 25 μ a; Three Independent Guns
3.0	595-1020	87-112	86-130	84-126	Line width "A" in.: .036" @ Ib ³ 50 μ a; Three Independent Guns; Sp. 25 Pin Base; Line width "A" in.: .024" @ Ib ³ = 5 μ a (7ACP19)
2.0	380-620	45-75	81-101	67-83	Line width "A" inches: .022" @ Ib ³ = 25 μ a



SYLVANIA SPIRAL ACCELERATOR TUBES FOR PRECISION 'SCOPE APPLICATIONS...

Sylvania technology, quality control and testing procedures insure superior performance for Sylvania spiral accelerator tubes. The helical resistance coating is rigidly controlled for thickness, distribution, and purity of the ink for the even, uniform increase of the accelerating voltage. With high quality aluminized screens and electrostatic deflection and focus, Sylvania spiral accelerator tubes offer increased deflection sensitivity, greater brightness, and improved resolution, with minimum pattern distortion. Each tube is fully inspected for emission, spot size, filament current, spot cutoff, focus voltage, pattern distortion, brightness alignment of traces, internal reflections, and deflection sensitivity. Samples are life tested under maximum operating conditions and are tested periodically for optimum electrical performance. All guns are checked for accuracy of aperture alignment and spacing between deflection plates. Spacings are held to very fine tolerances. Perpendicularity of horizontal and vertical scan lines is physically measured to meet 1.0 degrees acceptance standards. A microscope is used to measure spot size to insure satisfactory resolution at all points of the useful scan area. Such tests assure superior performance for precision 'scope application.

INDUSTRIAL AND MILITARY CRT — ELECTROSTATIC

TYPE	FACEPLATE			OVERALL DIMENSIONS INCHES		BASE	BASING	ABSOLUTE MAXIMUM RATINGS					
	SHAPE	CLEAR ALUM. TINTED ANTI- REFL.	CURVA- TURE RADIUS (IN.)	FACEPLATE DIAMETER OR WIDTH x HEIGHT	LENGTH			HEATER VOLTS / AMPS	POST ACCEL. (A3) Kv	ANODE (A2) Kv	FOCUS ELECTRODE (A1) Kv	ANODE NO. 2 TO DEFLECTION PLATE PEAK VOLTS	POST ACCEL. (A3) Kv
7AKP19 7AKP25 7ATP7	□	CA	30	6½ x 4½	17¾	B25-139	7AKP19	6.3/.60	11	5.5	2.8	1100	7.3
7BKP1 7BKP2 7BKP7 7BKP19 7BKP25	□	CA	Flat	5½ x 5½	21½	B12-37	14J	6.3/.60	6.6	2.2	1.2	1650	4.0
7BLP7	○	CA	Flat	7	21	B25-139	7BLP7	6.3/.60	11	5.5	2.75	770	6
7BMP1 7BMP2 7BMP7 7BMP11 7BMP19	□	C	30	6½ x 4½	17	B12-37	7BMP1	6.3/.60	17.6	8.8	1.9	825	10
7JP1 7JP4 7JP7	○	C	20	7	14½	B12-37	14R	6.3/.60	...	6.6	3.1	825	...
7VP1 7VP7	○	C	20	7	14½	B12-37	14R	6.3/.60	...	4.4	2.2	825	...
7YP1 7YP2 7YP7 7YP11 8BP4	□	C	40	5½ x 5½	18½	A22-105/ B25-139	7YP1	6.3/.60	7.7	3.85	1.65	1375	4.0
8CP1 8CP2 8CP4 8CP5 8CP7 8CP11	○	C	20	8¾	16½	B12-37	14G	6.3/.60	...	6.6	3.1	825	...
10ALP2 10ALP7 10ALP14 10ALP19 10ALP25	○	CA	42	10½	20	A22-105	22A	6.3/.60	...	10	3.5	1800	...
12AKP7	○	CA	40	12¾	23½	B25-139	12AKP7	6.3/.60	17.6	8.8	3.3	1650	8.5
12ANP7 12ANP14 12ANP19 12ANP25	○	CA	40	12¾	22½	B12-37	14AW	6.3/.60	17.6	8.8	3.3	1650	9.7
12ASP7 12ASP14 12ASP19 12ASP25 16AMP7	○	CA	40	12¾	22¾	B12-37	12ASP7	6.3/.60	17.6	8.8	3.3	770	9.7
SC-3029	○	C	Flat	5¼	16¾	B12-37	14J	6.3/.60	6.6	2.86	1.1	550	3.0
SC-3042	○	C	Flat	5¼	16¾	B12-37	14G	6.3/.60	...	5.0	3.0	550	...
SC-3061P	○	T	42	10½	20½	B12-37	3061	6.3/1.74	...	5.5	3.0	750	...
SC-3090	□	CA	40	5½ x 5½	21½	B25-139	3090	6.3/1.74	10.5	3.5	1.75	750	7.5
SC-3093	○	...	Flat	3¼	13½	B14-45	3093	6.3/.60	...	2.5	1.0	550	...

Target Voltage: 1350 Volts Typical Operation
Collector to Target Voltage = +50 Volts Typical Operation

NOTES: † Line width measured at the center of tube face by the shrinking raster method at the current or brightness specified. Reference: MIL-E-1, Par. 4.12.6.1. The brightness shown for 3" and 5" round tubes is for 2" x 2" raster size, for other types, full screen illumination.

DEFLECTION TYPES

TYPICAL OPERATING CONDITIONS			DEFLECTION FACTOR VOLTS DC/INCH		REMARKS
ANODE (A2) Kv	FOCUS ELECTRODE (A1) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	D1 - D2	D3 - D4	
4.0	1150-1500	50-120	180-225	140-170	Line width "A" inches: .012" @ Ib ³ = 2 μ a; Two Independent Guns
2.0	392-672	40-80	72-108	64-96	Line width "A" inches: .018" @ Ib ³ = 25 μ a
3.4	700-1050	70-120	75-95	70-90	Line width "A" inches: .014" @ Ib ³ = 2 μ a
3	800-1150	50-90	70-92	64-82	Line width "A" inches: .017" @ Ib ³ = 2.5 μ a
5	1000-1400	53-87	125-150	100-125	Line width "A" inches: .016" @ Ib ³ = 25 μ a; P19 — .012" @ Ib ³ = 2 μ a
6.0	1620-2400	72-168	216	177	
3.0	800-1200	84	93-123	75-102	
2.0	450-700	50-90	60-90	28-45	Line width "A" inches: .030" @ Ib ³ = 25 μ a
6.0	1620-2400	72-168	186-246	150-204	
2.0	540-800	24-56	58-81	49-68	
8.0	2250-3100	155-205	155-189	151-185	Line width "A" inches: .012" @ Ib ³ = 2 μ a; Close Tolerances; Special 22 Pin; Collar Base
7.5	1800-2650	160-240	130-230	135-195	Line width "A" inches: .017" @ Ib ³ = 25 μ a
6.1	1510-2225	135-202	100-150	100-150	Line width "A" inches: .020" @ Ib ³ = 25 μ a
6.1	1750-2200	40-77	115-135	115-135	Line width "A" inches: .019" @ Ib ³ = 25 μ a
7.5	1760-2670	160-240	96-150	96-150	Line width "A" inches: .019" @ Ib ³ = 25 μ a
1.5	300-515	34-56	40-50	30.5-37.5	Line width "A" inches: .03" @ Ib ³ = 25 μ a; Sylvania PSB Screen: High Brightness, Yellow - Green Fluorescence; Med. Long Persistence
3.0	1000-1600	64-96	80-100	40-50	Line width "A" inches: .01" @ EC1 30 Volts above Spot Cutoff. Phosphors: P1, P2, P4, P7, P11, P12, P15, P16, P19, P20 and P25.
5.0	1500-2500	100-175	120-140	62-76	Three Gun Type: Line width "A" inches: .016" @ EC1 25 Volts above Spot Cutoff. Phosphors: P1, P2, P7 and P11
2.3	460-775	45-80	55-88	53-75	Three Gun Type: Line width "A" inches: .020" @ Ib ³ = 2 μ a; P-19 Phosphor; Spiral Post Deflection Accelerator; Close Beam Tracking
1.5	315-570	75m	112-147	93-122	Monoscope Tube: Custom Target with up to 64 Characters.

■ Commonly used screens listed, others may be available for many types.
m—Maximum

3" Monoscope CRT



THE SYLVANIA SC-3093

3" Monoscope CRT
for High Speed Printing

The custom built SC-3093 provides signal generation of characters to associated high-speed printing equipment. It features electrostatic focus and deflection and provides a built-in 2" sq. target plate with a capability of 64 alpha-numeric characters. Similar monoscope tubes can be supplied to specifications with a variety of black and white and halftone patterns.

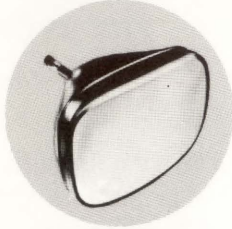
The target of the SC-3093 is a flat sheet of aluminum with the artwork printed on it. As the scanning beam travels over the surface of the target, greater secondary emission is obtained from the aluminum surface than from the artwork. The resulting secondary electrons are collected on a conductive band inside the tube which is connected to the output circuit through a load resistor. These differences in current produce a voltage variation across the load resistor which appears as a signal corresponding to the information printed on the target. In this manner, the SC-3093 can generate test patterns, alpha-numeric symbols, charts, diagrams, or maps.

TELEVISION PICTURE TUBES —

TYPE	DEFL. ANGLE AND NECK DIA. ⬇	FACEPLATE	OVERALL DIMENSIONS INCHES		EXTERNAL CONDUCTIVE COATING CAPACITANCE (μf)	ION TRAP	BASE
		CLEAR TINTED ALUM. BONDED SHIELD ANTI-REFL.	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH			
2EP4	30	A	2	8 ¼	300-500	N	B7-208
5TP4	50	CA	5	11 ¾	100-500	N	B7-51
7DP4	50	C	7 ⅜	14 ⅛	400-1500	D	B7-51
7RP4	50	CA	7 ⅜	14 ⅛	.....	N	B5-57
8DP4	90	T	7 ⅞ x 6 ⅛	10 ⅞	250-350	S	B6-185
9QP4	70	C	8 ⅞ x 6 ⅛	12 ¾	.....	S	B7-51
9QP4A	70	T	8 ⅞ x 6 ⅛	12 ¾	.....	S	B7-51
10ABP4	90	C	9 ¾ x 7 ½	11 ⅞	400-850	S	B6-63
10ABP4A	90	CA	9 ¾ x 7 ½	11 ⅞	400-850	S	B6-63
10ABP4B	90	T	9 ¾ x 7 ½	11 ⅞	400-850	S	B6-63
10ABP4C	90	TA	9 ¾ x 7 ½	11 ⅞	400-850	S	B6-63
10ADP4	90	T	9 ¾ x 7 ½	11 ⅞	400-850	S	B6-63
10AEP4	90	T	9 ¾ x 7 ½	11 ⅞	400-850	S	B6-63
10BP4	50	C	10 ½	17 ⅞	500-2500	D	B5-57
10BP4A	50	T	10 ½	17 ⅞	500-2500	D	B5-57
10BP4C	50	CA	10 ½	17 ⅞	500-2500	S	B5-57
10BP4D	50	TA	10 ½	17 ⅞	500-2500	S	B5-57
10FP4	50	CA	10 ½	17 ⅞	500-2500	N	B5-57
10FP4A	50	TA	10 ½	17 ⅞	500-2500	N	B5-57
10MP4	52	C	10 ½	17	500-2500	D	B5-57
10MP4A	52	T	10 ½	17	500-2500	D	B5-57
10RP4	50	CA	10 ½	16 ½	750-1500	N	B6-63
12KP4	54	CA	12 ⅞	17 ⅞	500-2500	N	B5-57
12KP4A	54	TA	12 ⅞	17 ⅞	500-2500	N	B5-57
12LP4	54	C	12 ⅞	18 ¾	750-3000	D	B5-57
12LP4A	54	T	12 ⅞	18 ¾	750-3000	D	B5-57
12LP4C	54	TA	12 ⅞	18 ¾	750-3000	D	B5-57
12UP4	54	C	12 ⅞	18 ¾	.....	S	B5-57
12UP4A	54	T	12 ⅞	18 ¾	.....	S	B5-57
12UP4B	54	T, AR	12 ⅞	18 ¾	.....	S	B5-57
12VP4	54	C	12 ⅜	18	750-3000	D	B5-57
12VP4A	54	T	12 ⅜	18	750-3000	D	B5-57
12WP4	55	T	12 ⅞	17 ¾	750-2000	S	E9-1
12YP4	54	C	12 ⅞	18 ¾	750-3000	S	B5-57
12ZP4	54	CA	12 ⅞	17 ⅞	500-2500	S	B5-57
12ZP4A	54	TA	12 ⅞	17 ⅞	500-2500	S	B5-57
14ACP4	90	TA	13 ⅛ x 10 ⅞	14 ⅜	800-1200	S	B6-63
14AEP4	90	TA	13 ⅛ x 10 ⅞	13 ⅜	800-1200	N	B6-63
14AJP4	110	TA	13 ⅜ x 10 ⅞	11 ⅞	500-850	S	B7-208
14ARP4	90	TA	13 x 10 ⅞	13 ⅜	800-1200	N	B6-63
14ASP4	110	TA	13 ⅜ x 10 ⅞	11 ⅜	500-850	N	B7-208
14ATP4	90	TA	13 ⅜ x 10 ⅞	13 ⅜	500-1000	N	B6-63
14AUP4	90	TA	13 ⅜ x 10 ⅞	13 ⅜	1000-1500	N	B6-63
14AVP4	110	TA	13 ⅜ x 10 ⅞	11 ⅜	450-750	N	B7-183/B7-208
14AWP4	90	TA	13 ⅜ x 10 ⅞	13 ⅜	800-1200	N	B6-63
14BP4	70	T	12 ½ x 9 ⅞	16 ⅜	500-2500	S	B5-57
14BP4A	70	T, AR	12 ½ x 9 ⅞	16 ⅜	500-2500	S	B5-57
14CP4	70	T	12 ½ x 9 ⅞	16 ¾	750-2000	S	B5-57
14CP4A	70	TA	12 ½ x 9 ⅞	16 ¾	750-2000	S	B5-57
14DP4	70	T	12 ½ x 9 ⅞	16 ¾	.....	D	B5-57
14EP4	70	T	12 ⅞x 9 ⅞	16 ½	750-2000	S	B5-57
14GP4	70	T	12 ⅞x 9 ⅞	16 ⅜	750-2000	S	B6-63
14HP4	70	T	12 ½ x 9 ⅞	16 ⅜	750-2000	S	B6-63
14NP4	90	T	13 ⅛ x 10 ⅞	14 ⅜	800-1200	S	B6-63
14NP4A	90	TA	13 ⅛ x 10 ⅞	14 ⅜	800-1200	S	B6-63
14QP4	70	T	12 ⅞ x 9 ¾	16 ⅞	600-1000	S	B6-63
14QP4A	70	TA	12 ⅞ x 9 ¾	16 ⅞	600-1000	S	B6-63
14RP4	90	T	13 ⅛ x 10 ⅞	14 ⅜	800-1200	S	B6-63
14RP4A	90	TA	13 ⅛ x 10 ⅞	14 ⅜	800-1200	S	B6-63
14SP4	90	TA	13 ⅛ x 10 ⅞	14 ⅜	900-1200	S	B6-63
14UP4	70	TA	12 ⅞ x 9 ¾	16 ⅞	.....	N	B5-57
14WP4	90	TA	13 ⅛ x 10 ⅞	13 ⅜	800-1200	N	B6-63
14XP4	90	T	13 ⅛ x 10 ⅞	14 ⅜	1100-1500	S	B6-63
14XP4A	90	TA	13 ⅛ x 10 ⅞	14 ⅜	1100-1500	S	B6-63
14ZP4	90	TA	13 ⅛ x 10 ⅞	13 ⅜	800-1200	N	B6-63
16AP4	53	C	15 ⅞	22 ¼	.....	D	B5-57

Characteristics of Television Picture Tubes

Black and White
Tri-Gun
Color Picture Tubes



MAGNETIC DEFLECTION TYPES

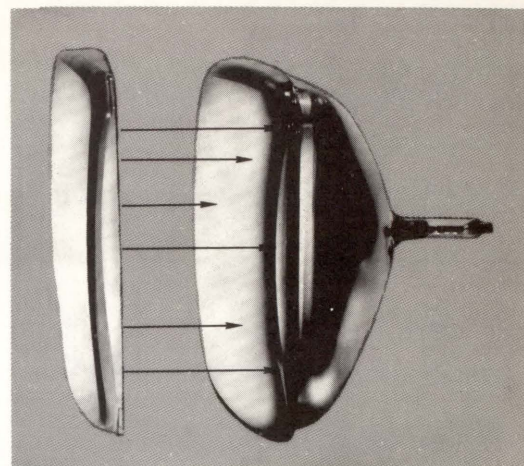
BASING	DESIGN MAXIMUM RATINGS					TYPICAL OPERATION			REMARKS
	HEATER ▲ VOLTS / AMPS	ANODE (Kv)	FOCUSING ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)	FOCUS ELECTRODE VOLTS	ACCEL. Grid (G2) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	
						MAGNET COIL CURRENT IN MA.			
8JK	6.0/.145	11	−.55 to +1.1	550	9	−50 to +350	300	20-30	Neck Diameter 1½ Inches Projection Tube
12C	6.3/.60	29.7	+6.6m	385	27	4900	200	40-100	
12C	6.3/.60	8.8	+2.6m	450	6	1430	250	25-65	
12D	6.3/.60	13.2	Magnetic	450	9	120 Ma.	250	27-63	
12AB	6.3/.60	8.8	−.55 to +.55	330	8	60 to 360	200	22-51	
12AD	4.7/.30	7.5	−.11 to +.55	330	5.5	0 to 400	200	33-77	4.7 Volt Heater
12AD	4.7/.30	7.5	−.11 to +.55	330	5.5	0 to 400	200	35-57	
12L	6.3/.60	13.2	−.55 to +1.1	550	7.5	0 to 500	300	43-67	4.7 Volt Heater
12L	6.3/.60	13.2	−.55 to +1.1	550	7.5	0 to 500	300	43-67	
12L	6.3/.60	13.2	−.55 to +1.1	550	7.5	0 to 500	300	43-67	
12L	6.3/.60	13.2	−.55 to +1.1	550	7.5	0 to 500	300	43-67	
12L	6.3/.60	13.2	−.55 to +1.1	550	7.5	0 to 500	300	43-67	8.4 Volt Heater
12L	8.4/.45	13.2	−.55 to +1.1	550	7.5	0 to 500	300	43-77	
12L	6.3/.45	13.2	−.55 to +1.1	550	7.5	0 to 500	300	43-67	
12N	6.3/.60	11	Magnetic	450	9	100 Ma.	250	27-63	
12N	6.3/.60	11	Magnetic	450	9	110 Ma.	250	27-63	
12N	6.3/.60	11	Magnetic	450	9	110 Ma.	250	27-63	Metal Bulb Metal Bulb Metal Bulb
12D	6.3/.60	13.2	Magnetic	450	11	110 Ma.	250	27-63	
12D	6.3/.60	13.2	Magnetic	450	11	130 Ma.	250	27-63	
12G	6.3/.60	11	Magnetic	...	9	.....	...	27-63	
12L	6.3/.60	17.6	−.55 to +1.1	550	14	−55 to +300	300	33-77	
12N	6.3/.60	13.2	Magnetic	450	10	135 Ma.	250	27-63	8.4 Volt Heater
12N	6.3/.60	13.2	Magnetic	450	11	135 Ma.	250	27-63	
12N	6.3/.60	13.2	Magnetic	450	11	110 Ma.	250	27-63	
12D	6.3/.60	13.2	Magnetic	450	11	110 Ma.	250	27-63	
12D	6.3/.60	13.2	Magnetic	450	11	130 Ma.	250	27-63	
12G	6.3/.60	13.2	Magnetic	...	13.2		...	33-77	8.4 Volt Heater
12G	6.3/.60	13.2	Magnetic	...	13.2	.....	...	33-77	
9CH	6.3/.60	13.2	Magnetic	...	10	240 Gauss	...	27-63	
12N	6.3/.60	13.2	Auto. Es.	450	11	Auto. Es.	250	33-73	
12N	6.3/.60	13.2	Magnetic	450	11	135 Ma.	250	27-63	
12N	6.3/.60	13.2	Magnetic	450	11	135 Ma.	250	27-63	8.4 Volt Heater
12L	6.3/.60	15.4	−.55 to +.55	220	10	−50 to +350	125	45-85	
12L	6.3/.60	15.4	−.55 to +1.1	220	10	−50 to +350	125	37-55	
8HR	6.3/.60	12.1	−.55 to +1.1	550	9	−100 to +400	250	29-69	
12L	6.3/.60	15.4	+1.1	77	10	−50 to +350	50	50	
8HR	6.3/.60	15.4	−.55 to +1.1	550	12	−50 to +350	300	33-77	8.4 Volt Heater
12L	8.4/.45	15.4	−.55 to +1.1	550	14	0 to 400	400	36-95	
12L	6.3/.45	16.5	−.55 to +1.1	70	12	0 to 350	50	35-55	
8HR	6.3/.60	15.4	−.55 to +1.1	550	12	−50 to +350	300	33-77	
12L	6.3/.45	15.4	−.55 to +1.1	75	14	0 to 400	50	37-52	
12N	6.3/.60	13.2	Magnetic	450	12	110 Ma.	250	33-77	Metal Bulb
12N	6.3/.60	13.2	Magnetic	450	12	110 Ma.	250	33-77	
12N	6.3/.60	15.4	Magnetic	450	12	115 Ma.	300	33-77	
12N	6.3/.60	15.4	Magnetic	450	12	115 Ma.	300	33-77	
12D	6.3/.60	15.4	Magnetic	450	11	100 Ma.	250	27-63	
12N	6.3/.60	15.4	Magnetic	450	12	110 Ma.	300	33-77	Metal Bulb
12L	6.3/.60	15.4	+5.5	450	12	2170 to 2940	300	33-77	
12L	6.3/.60	15.4	−.55 to +.55	450	12	−48 to +264	300	33-77	
12L	6.3/.60	15.4	−.55 to +1.1	550	12	−50 to +350	300	33-77	
12L	6.3/.60	15.4	−.55 to +1.1	550	12	−50 to +350	300	33-77	
12L	6.3/.60	12.1	−.55 to +1.1	550	9	−50 to +250	250	29-69	Metal Bulb
12L	6.3/.60	12.1	−.55 to +1.1	550	9	−50 to +250	250	29-69	
12L	6.3/.60	15.4	−.55 to +.55	440	14	70 to 470	300	31-75	
12L	6.3/.60	15.4	−.55 to +.55	440	14	70 to 470	300	31-75	
12L	6.3/.60	15.4	−.55 to +1.1	550	12	−48 to +264	300	33-77	
12D	6.3/.60	15.4	Magnetic	550	12	105 Ma.	300	33-77	Metal Bulb
12L	6.3/.60	15.4	−.55 to +1.1	550	12	−50 to +350	300	33-77	
12L	6.3/.45	16.5	−.55 to +1.1	440	12	−50 to +350	300	33-77	
12L	6.3/.45	16.5	−.55 to +1.1	440	12	−50 to +350	300	33-77	
12L	6.3/.60	15.4	−.55 to +1.1	500	12	0 to 450	300	33-77	
12D	6.3/.60	15.4	Magnetic	450	12	80 Ma.	300	33-77	

TELEVISION PICTURE TUBES —

TYPE	DEFL. ANGLE AND NECK DIA. ♦	FACEPLATE	OVERALL DIMENSIONS INCHES		EXTERNAL CONDUCTIVE COATING CAPACITANCE (μmf)	ION TRAP	BASE	BASING	HEATER ▲ VOLTS / AMPS	DESIGN MAXIMUM RATINGS			
		CLEAR TINTED ALUM. BONDED SHIELD ANTI-REFL.	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH						ANODE (Kv)	FOCUSING ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)
16AP4A	53	T	15 7/8	22 5/16m	.....	D	B5-57	12D	6.3/.60	15.4	Magnetic	450	12
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
16ACP4	60	C	15 7/8	20 7/8	2000m	S	B5-57	12D	6.3/.60	15.4	Auto. Es.	450	12
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
16CP4	52	C	15 7/8	21 1/2	.....	D	B5-57	12D	6.3/.60	16.5	Magnetic	450	12
16DP4	60	C	15 7/8	20 3/4	.....	D	B5-57	12D	6.3/.60	16.5	Magnetic	450	12
16DP4A	60	T	15 7/8	20 3/4	.....	D	B5-57	12D	6.3/.60	16.5	Magnetic	450	12
16EP4	60	C	15 7/8	19 5/16	.....	D	B5-57	12D	6.3/.60	15.4	Magnetic	450	12
16EP4A	60	T	15 7/8	19 5/16	.....	D	B5-57	12D	6.3/.60	15.4	Magnetic	450	12
16EP4B	60	T, AR	15 7/8	19 5/16	.....	D	B5-57	12D	6.3/.60	15.4	Magnetic	450	12
16FP4	62	C	16 1/8	20 1/4	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	13
16GP4	70	T	15 7/8	17 11/16m	.....	S	B5-57	12D	6.3/.60	15.4	Magnetic	450	12
16GP4A	70	C	15 7/8	17 11/16m	.....	S	B5-57	12D	6.3/.60	15.4	Magnetic	450	12
16GP4B	70	T, AR	15 7/8	17 11/16m	.....	S	B5-57	12D	6.3/.60	15.4	Magnetic	450	12
16GP4C	70	C, AR	15 7/8	17 11/16m	.....	S	B5-57	12D	6.3/.60	15.4	Magnetic	450	12
16HP4	60	C	15 7/8	21 1/4	.....	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12
16HP4A	60	T	15 7/8	21 1/4	.....	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12
16JP4	60	C	16 1/8	20 3/4	750-2000	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	11
16JP4A	60	T	16 1/8	20 3/4	750-2000	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	11
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
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
16LP4	52	C	15 7/8	22 1/4	750-2000	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12
16LP4A	52	T	15 7/8	22 1/4	750-2000	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12
16MP4	60	C	16 1/8	21 3/4	1500-3500	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12
16MP4A	60	T	16 1/8	21 3/4	1500-3500	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12
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
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
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
16SP4	70	C	15 7/8	17 7/16	1500-3500	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12
16SP4A	70	T	15 7/8	17 7/16	1500-3500	D	B5-57	12N	6.3/.60	15.4	Magnetic	450	12
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
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
16VP4	70	T	15 7/8	17 7/16	.....	S	B5-57	12D	6.3/.60	16.5	Magnetic	450	12
16WP4	70	T	15 7/8	17 3/4	.....	D	B5-57	12D	6.3/.60	16.5	Magnetic	450	12
16WP4A	70	T	15 7/8	17 3/4	750-1500	D	B5-57	12N	6.3/.60	17.6	Magnetic	450	12
16WP4B	70	TA	15 7/8	17 3/4	750-1500	D	B5-57	12N	6.3/.60	17.6	Magnetic	450	12
16XP4	70	T	14 3/4 x 11 1/2	18 3/4	.....	D	B5-57	12D	6.3/.60	16.5	Magnetic	450	12
16YP4	70	T	15 7/8	17 7/16	750-2000	S	B5-57	12N	6.3/.60	15.4	Magnetic	450	12
16ZP4	52	T	15 7/8	22 1/4	750-1500	D	B5-57	12N	6.3/.60	17.6	Magnetic	450	12
17AP4	70	T	15 3/8 x 12 1/4	18 5/8	750-2000	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12
17ATP4	90	T	15 3/8 x 12 1/4	15 5/8	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17ATP4A	90	TA	15 3/8 x 12 1/4	15 5/8	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17AVP4	90	T	15 3/8 x 12 1/4	15 5/8	1200-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17AVP4A	90	TA	15 3/8 x 12 1/4	15 5/8	1200-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17BP4	70	T	15 2 3/4x 12 7/32	19 3/16	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12
17BP4A	70	T	15 2 3/4x 12 7/32	19 3/16	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12
17BP4B	70	TA	15 2 3/4x 12 7/32	19 3/16	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12
17BP4C	70	T, AR	15 2 3/4x 12 7/32	19 3/16	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12
17BJP4	90	TA	15 3/8 x 12 7/32	15 5/8	1000-1500	N	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17BKP4	90	T	15 3/8 x 12 7/32	15 5/8	1200-1500	S	B6-63	12L	6.3/.45	17.6	-.55 to +1.1	550	14
17BKP4A	90	TA	15 3/8 x 12 7/32	15 5/8	1200-1500	S	B6-63	12L	6.3/.45	17.6	-.55 to +1.1	550	14
17BMP4	90	TA	15 3/8 x 12 7/32	15 5/8	750-1500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	220	14
17BNP4	90	TA	15 3/8 x 12 7/32	14 5/8	750-1500	N	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	220	14
17BRP4	110	TA	15 3/8 x 12 3/4	12 7/16	1000-1500	S	B7-208	8HR	6.3/.60	16.5	-.55 to +1.1	550	14
17BSP4	90	TA	15 3/8 x 12 7/32	14 5/8	1200-1500	N	B6-63	12L	6.3/.45	17.6	-.55 to +1.1	550	14
17BTP4	90	TA	15 3/8 x 12 1/4	15 5/8	900-1400	S	B7-51	12AJ	6.3/.30	19.8	-.55 to +.55	550	16
17BUP4	90	TA	15 3/8 x 12 7/32	15 1/4	1200-1500	S	B6-63	12L	6.3/.60	19.8	-.55 to +.55	550	12
17BVP4	110	TA	15 3/8 x 12 3/4	13 1/4	1000-1500	S	B6-185	7FA	6.3/.60	17.6	-.55 to +1.1	550	14
17BWP4	110	TA	15 3/8 x 12 3/4	12 7/16	1000-1500	N	B6-185	7FA	6.3/.60	17.6	-.55 to +1.1	550	14
17BYP4	110	TA	15 3/8 x 12 3/4	12 7/16	1000-1500	N	B6-185	7FA	6.3/.45	17.6	-.55 to +1.1	550	14
17BZP4	110	TA	15 3/8 x 12 3/4	12 7/16	1000-1500	N	B7-183	8HR	6.3/.60	17.6	-.55 to +1.1	550	14
17CP4	70	T, AR	15 1 5/16x 12 1/4	18 3/8	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	14
17CP4A	70	T	15 1 5/16x 12 1/4	18 3/8	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	14
17CAP4	110	TA	15 3/8 x 12 3/4	12 7/16	1000-1500	N	B7-183/B7-208	8HR	6.3/.60	17.6	-.55 to +1.1	550	14
17CBP4	90	T	15 3/8 x 12 7/32	15 1/4	1000-1500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	12
17CDP4	110	TA	15 3/8 x 12 3/4	12 7/16	800-1500	N	B7-183/B7-208	8HR	8.4/.45	17.6	-.55 to +1.1	550	14

MAGNETIC DEFLECTION TYPES

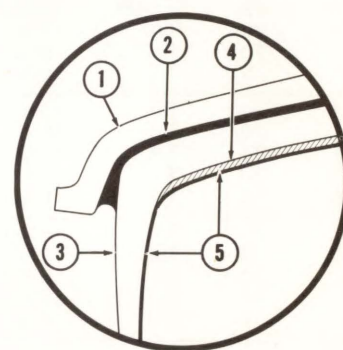
TYPICAL OPERATION			REMARKS
FOCUS ELECTRODE VOLTS	ACCEL. Grid (G2) VOLTS	Negative GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	
MAGNET COIL CURRENT IN MA.			
80 Ma.	300	33-77	Metal Bulb
Auto. Es.	300	33-77	
Auto. Es.	250	33-68	
-64 to +350	300	33-77	
110 Ma.	250	27-63	
115 Ma.	250	27-63	
115 Ma.	250	27-63	
105 Ma.	300	33-77	Metal Bulb
105 Ma.	300	33-77	Metal Bulb
105 Ma.	300	33-77	Metal Bulb
146 Ma.	250	27-63	
100 Ma.	300	33-77	Metal Bulb
100 Ma.	300	33-77	Metal Bulb
100 Ma.	300	33-77	Metal Bulb
100 Ma.	300	33-77	Metal Bulb
110 Ma.	300	33-77	
110 Ma.	300	33-77	
115 Ma.	250	27-63	
115 Ma.	250	27-63	
90 Ma.	300	33-77	
90 Ma.	300	33-77	
110 Ma.	300	33-77	
110 Ma.	300	33-77	
110 Ma.	300	33-77	
110 Ma.	300	33-77	
150 Ma.	250	27-63	
100 Ma.	300	33-77	
100 Ma.	300	33-77	
110 Ma.	300	33-77	
110 Ma.	300	33-77	
115 Ma.	300	33-77	
100 Ma.	300	27-63	
110 Ma.	250	27-63	
110 Ma.	250	27-63	
110 Ma.	250	27-63	
110 Ma.	250	27-63	
110 Ma.	250	27-63	
110 Ma.	250	27-63	
100 Ma.	250	27-63	
100 Ma.	250	27-63	
100 Ma.	300	33-77	
110 Ma.	300	33-77	
100 Ma.	300	33-77	
-55 to +300	300	33-77	
-55 to +300	300	33-77	
-56 to +310	300	33-77	
-56 to +310	300	33-77	
100 Ma.	300	33-77	
100 Ma.	300	33-77	
100 Ma.	300	33-77	
-55 to +300	300	33-77	
-56 to +310	300	33-77	
-56 to +310	300	33-77	
-55 to +300	110	+37 to +55	Cathode Drive Values
-50 to +350	110	+37 to +55	Cathode Drive Values
0 to 500	300	33-77	
-50 to +350	300	33-77	
-75 to +235	300	40-80	
-48 to +264	300	33-77	
-50 to +350	300	40-77	
-50 to +350	300	40-77	
0 to 400	300	40-77	
0 to 400	300	33-77	
104 Ma.	300	33-77	Metal Bulb
104 Ma.	300	33-77	Metal Bulb
-50 to +350	300	40-77	
-50 to +350	300	33-77	
0 to 400	300	33-77	8.4 Volt Heater



THE BONDED SHIELD PICTURE TUBE... by Sylvania

The Sylvania Bonded Shield type of picture tube represents one of the most significant improvements in picture tube design in many years. With this type of tube the safety panel is actually bonded, or laminated, to the basic picture tube face plate. The bond, accomplished by the use of a special epoxy laminate, is strong and permanent.

Bonded Shield picture tubes have distinctive advantages over conventional picture tube types. Initially, they created new possibilities for modern, cleanly styled television cabinets, giving the set owner a more familiar, rectangular viewing area.



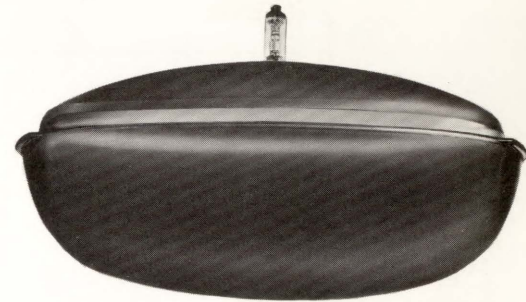
1. Wrap around safety panel ("Bonded Shield")
2. Epoxy laminate
3. Faceplate
4. Fluorescent screen
5. Aluminum film

TELEVISION PICTURE TUBES —

TYPE	FACEPLATE		OVERALL DIMENSIONS INCHES		EXTERNAL CONDUCTIVE COATING CAPACITANCE (μμf)	ION TRAP	BASE	BASING	HEATER ▲ VOLTS / AMPS	DESIGN MAXIMUM RATINGS			
	DEFL. ANGLE AND NECK DIA. ↓	CLEAR TINTED ALUM. BONDED SHIELD ANTI-REFL.	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH						ANODE (Kv)	FOCUSING ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)
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
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
17CGP4	70	TA	15 5/8 x 12 1/4	17 1/16	500-750	N	B6-63	12L	6.3/.60	15.4	-.55 to +1.1	550	11
17CKP4	110	TA	15 5/8 x 12 3/4	12 1/16	1000-1500	N	B7-183	8HR	6.3/.60	16.5	-.55 to +1.1	550	14
17CLP4	90	TA	15 5/8 x 12 3/32	15 5/8	1800-2300	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
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
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
17CRP4	90	TA	15 5/8 x 12 3/32	14 5/8	1700-2200	N	B6-63	12L	6.3/.45	17.6	-.55 to +1.1	70	14
17CSP4	110	TA	15 5/8 x 12 3/4	12 1/16	900-1400	N	B6-185	7FA	6.3/.60	17.6	-.55 to +1.1	550	14
17CTP4	110	TA	15 5/8 x 12 3/4	12 1/16	1000-1500	N	B7-208	8HR	6.3/.45	17.6	-.55 to +1.1	550	14
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
17CVP4	110	TA	15 5/8 x 12 3/4	12 1/16	1000-1500	N	B7-183/B7-208	8HR	6.3/.30	17.6	-.55 to +1.1	550	14
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
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
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
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
17DAP4	110	TA	15 5/8 x 12 3/4	10 1 1/16	900-1400	N	B7-208	8JK	2.68/.45	17.6	-.7 to +.95	550	14
17DBP4	70	TA	15 2 3/4 x 12 3/32	19 3/16	750-1500	S	B6-63	12L	6.3/.30	17.6	-.55 to +1.1	550	14
17DCP4	90	TA	15 5/8 x 12 3/32	14 5/8	1000-1500	N	B6-63	12L	6.3/.30	17.6	-.55 to +1.1	550	14
17DEP4	110	TA	15 5/8 x 12 3/4	10 7/16	900-1400	N	B7-208	8JN	2.35/.60	17.6	+.70	700	14
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
17DJP4	90	TA	15 5/8 x 12 3/32	15 5/8	1000-1500	S	B6-63	12L	6.3/.30	17.6	-.55 to +1.1	550	14
17DKP4	110	TA	15 5/8 x 12 3/4	10 1 1/16	1000-1500	N	B7-208	8JR	6.3/.60	20	+.70	600	14
17DLP4	110	TA	15 5/8 x 12 3/4	11 3/16	1000-1500	N	B6-226/B7-237	8JS	6.3/.60	19.8	-.55 to +1.1	770	17
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
17DRP4	110	TA	15 5/8 x 12 3/4	10 1 1/16	900-1400	N	B7-208	8JK	2.68/.45	17.6	-.7 to +.95	550	14
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
17DTP4	110	TA	15 5/8 x 12 3/4	10 3/4	1000-1500	N	B7-208	8HR	6.3/.60	17.6	-.55 to +1.1	550	14
17DXP4	110	TA	15 5/8 x 12 3/4	10 1 1/16	1000-1500	N	B7-208	8JR	6.3/.45	17.6	+.70	600	14
17DZP4	110	TA	15 5/8 x 12 3/4	10 1 1/16	1000-1500	N	B7-208	8HR	6.3/.45	17.6	-.5 to +1.0	550	14
17EAP4	70	TA	15 5/8 x 12 1/4	19 3/16	1000-1500	S	B5-57	12AT	6.3/.60	17.6	Auto. Es.	550	12
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
17FP4	70	T	15 5/8 x 12 1/4	19 3/16	500-1500	S	B6-63	12L	6.3/.60	19.8	+5.5	450	16
17FP4A	70	T	15 5/8 x 12 1/4	19 3/16	750-2000	S	B6-63	12L	6.3/.60	19.8	+5.5	450	16
17GP4	70	T, AR	15 1 1/16 x 12 1/4	19 5/16mm	.....	S	B6-63	12M	6.3/.60	17.6	+5.5	550	14
17HP4	70	T	15 2 3/4 x 12 3/32	19 3/16	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17HP4A	70	T, AR	15 2 3/4 x 12 3/32	19 3/16	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17HP4B	70	TA	15 2 3/4 x 12 3/32	19 3/16	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17JP4	70	T	15 2 3/4 x 12 3/32	19 3/16	500-1500	S	B5-57	12N	6.3/.60	19.8	Magnetic	450	14
17KP4	70	T	15 5/8 x 12 1/4	19 3/16	1000-1500	S	B6-63	12P	6.3/.60	17.6	Auto. Es.	550	12
17KP4A	70	TA	15 5/8 x 12 1/4	19 3/16	1000-1500	S	B6-63	12P	6.3/.60	17.6	Auto. Es.	550	12
17LP4	70	T	15 5/8 x 12 1/4	19 3/16	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17LP4A	70	TA	15 5/8 x 12 1/4	19 3/16	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17QP4	70	T	15 5/8 x 12 1/4	19 3/16	750-1500	S	B5-57	12N	6.3/.60	17.6	Magnetic	450	12
17QP4A	70	TA	15 5/8 x 12 1/4	19 3/16	750-1500	S	B5-57	12N	6.3/.60	19.8	Magnetic	450	14
17RP4	70	T	15 5/8 x 12 1/4	19 3/16	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17RP4C	70	TA	15 5/8 x 12 1/4	19 3/16	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17SP4	70	T	15 5/8 x 12 1/4	19 3/16	500-750	S	B5-57	12N	6.3/.60	15.4	Auto. Es.	450	12
17TP4	70	T, AR	15 1 1/16 x 12 1/4	19 3/16	.....	S	B6-63	12M	6.3/.60	17.6	-.55 to +1.1	550	16
17UP4	70	T	15 5/8 x 12 1/4	19 3/16	750-1500	S	B5-57	12N	6.3/.60	15.4	Magnetic	450	13
17VP4	70	T	15 5/8 x 12 3/32	19 3/16	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17VP4B	70	TA	15 5/8 x 12 3/32	19 3/16	750-1500	S	B6-63	12L	6.3/.60	17.6	-.55 to +1.1	550	14
17YP4	70	T	15 2 3/4 x 12 3/32	19 3/16	500-1500	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16
19AP4	66	C	18 5/8	21 1/2	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12
19AP4A	66	T	18 5/8	21 1/2	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12
19AP4B	66	T, AR	18 5/8	21 1/2	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12
19AP4C	66	TA	18 5/8	21 1/2	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12
19AP4D	66	C, AR	18 5/8	21 1/2	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	12
19ABP4	114	TA	16 1 3/32 x 13 1 1/32	10 1 1/16	850-1400	N	B7-208	8JK	2.68/.45	20	-.7 to +.95	550	16
19ACP4	114	TA	16 1 3/32 x 13 1 1/32	12 3/8	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	70	14
19AFP4	114	B, TA	17 1 1/64 x 14 3/32	11 5/8	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16
19AHP4	114	TA	16 1 3/32 x 13 1 1/32	11 5/8	1000-1500	N	B7-208	8HR	6.3/.45	17.6	-.55 to +1.1	650	14
19AJP4	114	TA	16 1 3/32 x 13 1 1/32	11 5/8	1400-1900	N	B6-214	7FA	6.3/.45	19.8	-.50 to +1.1	70	14.5
19ALP4	114	TA	16 1 3/32 x 13 1 1/32	11 5/8	1000-1500	N	B7-208	8HR	6.3/.30	22	-.55 to +1.1	700	14
19ANP4	114	TA	16 1 3/32 x 13 1 1/32	10 1 1/16	1000-1500	N	B7-208	8JR	6.3/.45	20	-.35 to +.7	600	16
19ARP4	114	B, TA	17 1 1/64 x 14 3/32	12 3/8	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16

MAGNETIC DEFLECTION TYPES

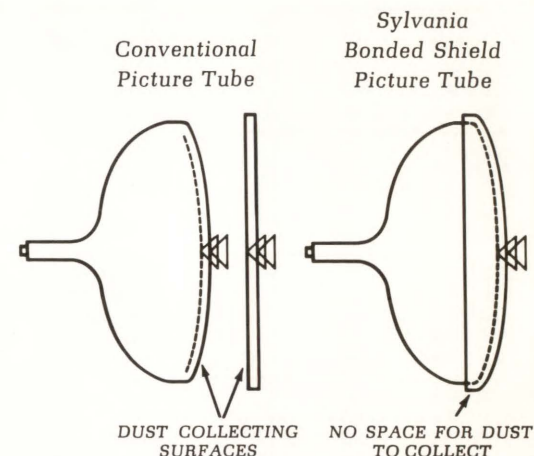
TYPICAL OPERATION			REMARKS
FOCUS ELECTRODE VOLTS	ACCEL. Grid (G2) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	
MAGNET COIL CURRENT IN MA.			
-50 to +350	300	33-77	Light Weight Glass
-50 to +350	300	33-77	Light Weight Glass
-56 to +310	300	33-77	
0 to 500	300	33-77	
-48 to +264	300	40-77	
0 to 400	50	+40 to +55	Cathode Drive Values
0 to 400	50	+40 to +55	Cathode Drive Values; Light Weight Glass
0 to 350	50	+35 to +55	Cathode Drive Values
-50 to +350	300	40-77	
0 to 400	300	40-77	
-50 to +350	300	40-77	Light Weight Glass
0 to 400	300	40-77	
-50 to +350	400	41-97	
-50 to +350	50	+37 to +52	Cathode Drive Values
-50 to +350	450	44-110	Light Weight Glass
-50 to +350	450	44-110	
+100 to +500	300	40-77	2.68 Volt Heater
-50 to +300	300	40-77	
-50 to +300	300	40-77	
0 to 400	500	48-77	2.35 Volt Heater; Tri-Potential Focus
0 to 400	500	48-77	
-50 to +300	300	40-77	
0 to 400	500	48-77	
-50 to +300	300	40-77	
0 to 400	500	48-77	
-200 to +350	50	+40 to +55	
0 to 400	500	48-77	Cylindrical Face Plate
-50 to +300	300	40-77	Cylindrical Face Plate
0 to 400	500	48-83	Tri-Potential Es. Focus; Cylindrical Face Plate
0 to 400	450	33-77	Cylindrical Face Plate
-200 to +350	50	+40 to +55	Cathode Drive Values
+100 to +500	300	40-77	2.68 Volt Heater
0 to 400	400	50-95	
0 to 400	300	33-77	
0 to 400	500	48-83	Non-Potential Electrostatic Focus
0 to 400	300	33-77	
Auto. Es.	300	33-77	
0 to 400	500	48-77	
+3100 to +4100	300	33-77	
+3100 to +4100	300	33-77	
+2200 to +3620	300	33-77	Metal Bulb
-56 to +310	300	33-77	
-56 to +310	300	33-77	
-56 to +310	300	33-77	
100 Ma.	300	33-77	
Auto. Es.	300	33-77	
Auto. Es.	300	33-77	
-56 to +310	300	33-77	Cylindrical Faceplate
-56 to +310	300	33-77	Cylindrical Faceplate
100 Ma.	300	33-77	Cylindrical Faceplate
95 Ma.	300	33-77	Cylindrical Faceplate
-50 to +350	300	33-77	
-50 to +350	300	33-77	
Auto. Es.	250	33-66	Cylindrical Faceplate
-65 to +350	300	33-77	Metal Bulb
110 Ma.	250	33-66	Cylindrical Faceplate
-48 to +260	300	33-77	Cylindrical Faceplate
-48 to +260	300	33-77	Cylindrical Faceplate
100 Ma.	300	33-77	Cylindrical Faceplate
140 Ma.	300	33-77	Metal Bulb
140 Ma.	300	33-77	Metal Bulb
140 Ma.	300	33-77	Metal Bulb
100 to 500	300	40-77	2.68 Volt Heater
0 to 400	50	+40 to +55	Cathode Drive Values
0 to 400	300	40-77	
0 to 400	500	+45 to +68	Cathode Drive Values
250	50	+36 to +54	Cathode Drive Values
0 to 400	500	+50 to +100	Cathode Drive Values; 18 Sec. Heater Warm-up Time
0 to 400	500	48-83	Tri-Potential Electrostatic Focus
0 to 400	300	40-77	



SYLVANIA BONDED SHIELD PICTURE TUBES REDUCE GLARE, IMPROVE CONTRAST

Bonding the safety panel directly to the face plate eliminates two of the four reflective glass surfaces found when a conventional tube is placed in a set behind a separate safety shield. Thus, reflection and glare are reduced when a bonded shield picture tube is used, improving the brightness, heightening the contrast.

Additionally, the permanent bond does away with the "dead space" that exists between normal tube face plates and separate safety panel. There's no room for dust particles or moisture to collect, and the only surface to be cleaned is the readily accessible face of the Bonded Shield safety panel.

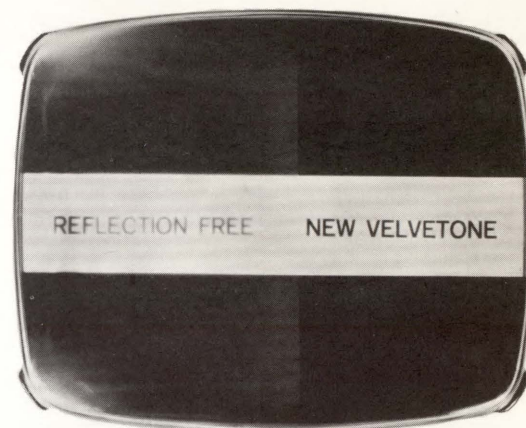


TELEVISION PICTURE TUBES —

TYPE	DEFL. ANGLE AND NECK DIA. ♦	FACEPLATE	OVERALL DIMENSIONS INCHES		EXTERNAL CONDUCTIVE COATING CAPACITANCE (μμf)	ION TRAP	BASE	BASING	HEATER ▲ VOLTS / AMPS	DESIGN MAXIMUM RATINGS			
		CLEAR TINTED ALUM. BONDED SHIELD ANTI-REFL.	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH						ANODE (Kv)	FOCUSING ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)
19ASP4	114	B, TA	17 ¹ / ₄ x 14 ³ / ₃₂	12 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	20	-.55 to +1.1	550	16
19ATP4	114	B, TA	17 ¹ / ₄ x 14 ³ / ₃₂	11 ¹ / ₁₆	1000-1500	N	B7-208	8JR	6.3/.60	20	+.70	600	16
19AUP4	114	B, TA, AR	17 ¹ / ₄ x 14 ³ / ₃₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16
19AVP4	114	TA	16 ¹ / ₁₆ x 13 ¹ / ₃₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	23	-.55 to +1.1	550	20
19AXP4	114	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	20	-.55 to +1.1	550	16
19AYP4	114	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.45	23	-.55 to +1.1	550	20
19BAP4	114	B, TA	17 ¹ / ₄ x 14 ³ / ₃₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	20	-.55 to +1.1	550	16
19BCP4	114	B, TA, AR	17 ¹ / ₄ x 14 ³ / ₃₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	20	-.55 to +1.1	550	16
19BDP4	92	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	15 ¹ / ₄	1500-2000	N	B6-63/B6-203	12L	6.3/.60	20	-.40 to +1.25	225	14.5
19BFP4	92	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	15 ¹ / ₄	1500-2000	N	B6-203	12L	6.3/.60	20	-.55 to +1.1	550	16
19BHP4	114	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	11 ³ / ₄	1000-1500	N	B7-237/B7-208	8HR	6.3/.60	22	-.55 to +1.1	700	18.5
19BLP4	114	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	11 ³ / ₁₆	1300-1700	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16
19BMP4	114	B, TA	17.264 x 14.090	11 ³ / ₁₆	1300-1700	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16
19BNP4	114	B, TA	17 ¹ / ₄ x 14 ³ / ₃₂	12 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	70	16
19BQP4	114	B, TA, AR	17 ¹ / ₄ x 14 ³ / ₃₂	12 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	70	16
19BTP4	114	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	10 ¹ / ₁₆	1000-1500	N	B7-208	8JR	6.3/.60	23	-.35 to +.70	600	16
19BVP4	114	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	11 ³ / ₄	1000-1500	N	B7-208	8HR	6.3/.60	23.5	-.55 to +1.1	700	20
19BWP4	114	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	11 ³ / ₄	1000-1500	N	B7-208	8HR	6.3/.45	23.5	-.55 to +1.1	700	20
19CAP4	110	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	11 ³ / ₈	1000-1500	N	B7-208	8JR	6.3/.60	20	-.35 to +.70	600	16
19CEP4	114	B, TA, AR	17 ¹ / ₄ x 14 ³ / ₃₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.30	20	-.55 to +1.1	550	16
19CGP4	92	B, 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
19DP4	66	C	18 ³ / ₈	21 ¹ / ₂	750-2500	S	B5-57	12N	6.3/.60	18.7	Magnetic	450	13
19DP4A	66	T	18 ³ / ₈	21 ¹ / ₂	750-2500	S	B5-57	12N	6.3/.60	18.7	Magnetic	450	13
19EP4	70	T	17 x 13 ¹ / ₃₂	21 ¹ / ₈	.....	N	B5-57	12D	6.3/.60	20.9	Magnetic	450	13
19FP4	66	T	18 ³ / ₈	22	.....	D	B5-57	12D	6.3/.60	20.9	Magnetic	450	13
19XP4	114	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	11 ³ / ₈	1000-1500	N	B7-208	8HR	6.3/.60	20	-.55 to +1.1	550	16
19YP4	114	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	10 ¹ / ₁₆	1000-1500	N	B7-208	8JR	6.3/.60	20	-.35 to +.70	600	16
19ZP4	114	TA	16 ¹ / ₃₂ x 13 ¹ / ₃₂	11 ¹ / ₂	1000-1500	N	B6-226/B7-237	8JS	6.3/.60	20	-.50 to +1.0	700	16.5
20CP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ¹ / ₈	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	450	16
20CP4A	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ¹ / ₈	500-1500	S	B5-57	12N	6.3/.60	19.8	Magnetic	450	16
20CP4B	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ¹ / ₈	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	450	16
20CP4C	70	T, AR	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ¹ / ₈	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	450	16
20CP4D	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ¹ / ₈	500-1500	S	B5-57	12N	6.3/.60	19.8	Magnetic	450	16
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
20DP4A	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	500-1500	S	B5-57	12N	6.3/.60	19.8	Magnetic	450	16
20DP4B	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	450	16
20DP4C	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	500-1500	S	B5-57	12N	6.3/.60	19.8	Magnetic	450	16
20FP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	.....	S	B6-63	12M	6.3/.60	19.8	+5.5m	450	12
20GP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	21 ³ / ₄	500-750	S	B6-63	12L	6.3/.60	19.8	+5.5m	450	16
20HP4	70	T	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
20HP4A	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
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
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
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
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
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
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
21AP4	70	T, AR	19 ³ / ₃₂ x 15 ¹ / ₁₆	22 ³ / ₈	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	550	16
21ACP4	90	T	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	16
21ACP4A	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	2000-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	16
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
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
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
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
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
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
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
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
21AQP4	90	T	20 ¹ / ₄ x 16 ³ / ₈	20	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	550	16
21AQP4A	90	TA	20 ¹ / ₄ x 16 ³ / ₈	20	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	550	16
21ARP4	70	T	20 ¹ / ₄ x 15 ¹ / ₁₆	23 ¹ / ₃₂	500-750	I	B5-57	12N	6.3/.60	22	Int. Mag.	550	16
21ARP4A	70	TA	20 ¹ / ₄ x 15 ¹ / ₁₆	23 ¹ / ₃₂	500-750	I	B5-57	12N	6.3/.60	22	Int. Mag.	550	16
21ASP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	22 ⁷ / ₁₆	.....	S	B6-63	12M	6.3/.60	19.8	-.55 to +1.1	550	16
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
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
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

MAGNETIC DEFLECTION TYPES

TYPICAL OPERATION			REMARKS
FOCUS ELECTRODE VOLTS	ACCEL. Grid (G2) VOLTS	Negative GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	
MAGNET COIL CURRENT IN MA.			
0 to 400	300	40-77	Tri-Potential Electrostatic Focus
0 to 400	500	48-83	
0 to 400	300	40-77	
0 to 400	400	41-99	
0 to 400	400	41-99	
0 to 400	400	41-99	Cathode Drive Values
0 to 400	300	40-77	
0 to 400	300	40-77	
250	50	+36 to +54	
0 to 400	400	41-99	
0 to 500	450	33-66	Cathode Drive Values
0 to 400	400	41-99	
0 to 400	400	41-99	
0 to 400	50	+37 to +55	
0 to 400	50	+37 to +55	
0 to 400	500	48-83	Tri-Potential Electrostatic Focus
250	500	+50 to +100	Cathode Drive Values
250	500	+50 to +100	Cathode Drive Values
0 to 400	500	48-83	Tri-Potential Electrostatic Focus
0 to 400	300	40-77	18 Second Heater Warm-up Time
0 to 400	300	40-77	Tri-Potential Electrostatic Focus
146 Ma.	250	26-63	
146 Ma.	250	26-63	
146 Ma.	250	26-63	
120 Ma.	250	27-63	
0 to 400	400	41-99	Tri-Potential Electrostatic Focus
0 to 400	500	48-83	
0 to 500	450	33-77	
110 Ma.	300	33-77	
110 Ma.	300	33-77	
110 Ma.	300	33-77	Metal Bulb
110 Ma.	300	33-77	
110 Ma.	300	33-77	
110 Ma.	300	33-77	
110 Ma.	300	33-77	
110 Ma.	300	33-77	Metal Bulb
110 Ma.	300	33-77	
2300 to 3200	300	33-77	
3150 to 4270	300	33-77	
-56 to +310	300	33-77	
-56 to +310	300	33-77	Metal Bulb
-56 to +310	300	33-77	
-56 to +310	300	33-77	
-56 to +310	300	33-77	
Auto. Es.	300	33-77	
0	300	33-77	Metal Bulb
-55 to +300	300	33-77	
110 Ma.	300	33-77	
117 Ma.	300	33-77	
117 Ma.	300	33-77	
-64 to +350	300	33-77	Metal Bulb
-64 to +350	300	33-77	
-64 to +350	300	33-77	
-64 to +350	300	33-77	
102 Ma.	300	33-77	
102 Ma.	300	33-77	Metal Bulb
-64 to +350	300	33-77	
-64 to +350	300	33-77	
102 Ma.	300	33-77	
102 Ma.	300	33-77	
Int. Mag.	300	33-77	Internal Magnet for Focus
Int. Mag.	300	33-77	Bulb varies in dimensions from normal
-64 to +352	300	33-77	
-64 to +350	300	33-77	
-64 to +350	300	33-77	
-64 to +350	300	33-77	



"VELVETONE" SAFETY PANEL IMPROVES PICTURE TUBE QUALITY

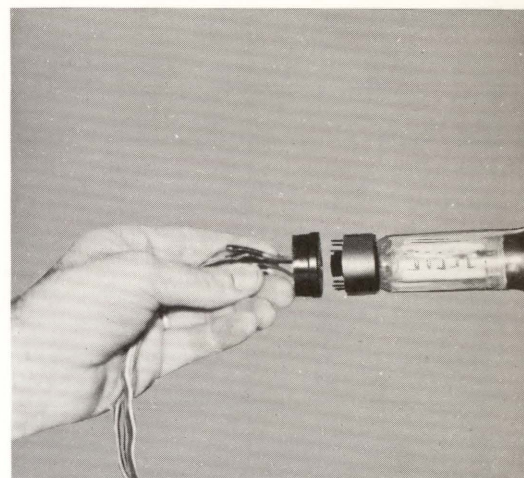
A new anti-reflection coating, called "Velvetone," is standard equipment on certain Sylvania Bonded Shield Silver Screen 85 Picture Tubes. Velvetone permits better viewing under high ambient light, or where reflections from windows and overhead fixtures are prevalent. The special Velvetone coating is a decided improvement over earlier anti-reflection coatings, providing 88% better detail contrast and 44% better transmitted resolution. With Velvetone, clear viewing is possible in brightly lit rooms—even out of doors.

TELEVISION PICTURE TUBES —

TYPE	DEFL. ANGLE AND NECK DIA. ⬆	FACEPLATE	OVERALL DIMENSIONS INCHES		EXTERNAL CONDUCTIVE COATING CAPACITANCE (μμf)	ION TRAP	BASE	BASING	DESIGN MAXIMUM RATINGS					
		CLEAR TINTED ALUM. BONDED SHIELD ANTI-REFL.	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH					HEATER ▲ VOLTS / AMPS	ANODE (Kv)	FOCUSING ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)	
21AUP4	72	T	20¼ x 16¾	23½	2000-2500	S	B6-63	12L	6.3/.60	19.8	— .55 to +1.1	550	16	
21AUP4A	72	TA	20¼ x 16¾	23½	2000-2500	S	B6-63	12L	6.3/.60	19.8	— .55 to +1.1	550	16	
21AUP4B	72	TA	20¼ x 16¾	23½	2000-2500	S	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21AVP4	72	T	20¼ x 16¾	23½	2000-2500	S	B6-63	12L	6.3/.60	19.8	— .55 to +1.1	550	16	
21AVP4A	72	TA	20¼ x 16¾	23½	2000-2500	S	B6-63	12L	6.3/.60	19.8	— .55 to +1.1	550	16	
21AVP4B	72	TA	20¼ x 16¾	23½	2000-2500	S	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21AWP4	72	TA	20¼ x 16¾	23½	2000-2500	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	
21AYP4	70	T	18½x 14½	22½	750-2500	S	B6-63	12L	6.3/.60	19.8	— .55 to +1.1	550	16	
21BAP4	90	TA	20¼ x 16¾	20	2000-2500	N	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21BCP4	70	TA	20¼ x 16¾	23½	500-750	N	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21BDP4	72	TA	20¼ x 16¾	23½	500-750	N	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21BNP4	90	TA	20¼ x 16¾	20	2000-2500	N	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21BSP4	90	TA	20¼ x 16¾	20	2000-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	16	
21BTP4	90	TA	20¼ x 16¾	20	2000-2500	S	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21CBP4	90	TA	20¼ x 16¾	18	2000-2500	N	B6-63	12L	6.3/.60	19.8	— .55 to +1.1	550	18	
21CBP4A	90	TA	20¼ x 16¾	18	2000-2500	N	B6-63	12L	6.3/.60	22	— .5 to +1.0	550	16	
21CDP4	90	T	20¼ x 16¾	20	2000-2500	S	B6-63	12L	6.3/.45	22	— .55 to +1.1	550	16	
21CDP4A	90	TA	20¼ x 16¾	20	2000-2500	S	B6-63	12L	6.3/.45	22	— .55 to +1.1	550	16	
21CEP4	110	TA	20¼ x 16¾	14½	2000-2500	N	B7-208	8HR	6.3/.60	19.8	— .55 to +1.1	550	16	
21CEP4A	110	TA	20¼ x 16¾	14½	2000-2500	N	B7-208	8HR	6.3/.60	22	— .55 to +1.1	550	16	
21CGP4	90	TA	20¼ x 16¾	20	2000-2500	S	B6-63	12L	6.3/.60	22	— .55 to +1.1	220	18	
21CHP4	90	TA	20¼ x 16¾	18	2000-2500	N	B6-63	12L	6.3/.60	22	— .55 to +1.1	220	18	
21CKP4	90	TA	20¼ x 16¾	18	2000-2500	N	B6-63	12L	6.3/.45	22	— .55 to +1.1	550	16	
21CLP4	90	TA	20¼ x 16¾	19	1250-1750	S	B7-51	12AJ	6.3/.30	19.8	— .55 to +.55	550	16	
21CMP4	90	TA	20¼ x 16¾	19	2000-2500	S	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21CQP4	110	TA	20¼ x 16¾	14½	2000-2500	N	B6-185	7FA	6.3/.60	19.8	— .55 to +1.1	550	16	
21CSP4	110	TA	20¼ x 16¾	14½	2000-2500	N	B6-185	7FA	6.3/.45	19.8	— .55 to +1.1	550	16	
21CUP4	90	TA	20¼ x 16¾	20	2000-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	16	
21CVP4	90	TA	20¼ x 16¾	20	2000-2500	N	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21CWP4	90	TA	20¼ x 16¾	20	2000-2500	S	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21CXP4	90	TA	20¼ x 16¾	18	2000-2500	N	B6-63	12L	6.3/.60	22	— .55 to +1.1	70	18	
21CZP4	110	TA	20¼ x 16¾	14½	2000-2500	S	B7-183	8HR	6.3/.60	19.8	— .55 to +1.1	550	17	
21DP4	70	T, AR	19½x 15½	22¾	.....	S	B6-63	12M	6.3/.60	19.8	+ .55m	550	16	
21DAP4	110	TA	20¼ x 16¾	14½	2000-2500	N	B7-208	8HR	6.3/.60	19.8	— .55 to +1.1	550	16	
21DEP4	110	TA	20¼ x 16¾	14½	2000-2500	N	B7-183/B7-208	8HR	6.3/.60	19.8	— .55 to +1.1	550	17	
21DEP4A	110	TA	20¼ x 16¾	14½	2000-2500	N	B7-183/B7-208	8HR	6.3/.60	22	— .55 to +1.1	550	17	
21DFP4	110	TA	20¼ x 16¾	14½	1500-2200	N	B7-183/B7-208	8HR	6.3/.60	19.8	— .55 to +1.1	550	16	
21DHP4	110	TA	20¼ x 16¾	14½	1700-2500	N	B7-183/B7-208	8HR	6.3/.45	19.8	— .55 to +1.1	550	16	
21DJP4	90	TA	20¼ x 16¾	18	2000-2500	N	B6-63	12L	6.3/.30	22	— .55 to +1.1	550	16	
21DKP4	110	TA	20¼ x 16¾	14½	1700-2500	N	B7-183/B7-208	8HR	6.3/.30	19.8	— .55 to +1.1	550	16	
21DKP4A	110	TA	20¼ x 16¾	14½	1700-2500	N	B7-183/B7-208	8HR	6.3/.30	19.8	— .55 to +1.1	550	16	
21DLP4	90	TA	20¼ x 16¾	17	2000-2500	N	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21DMP4	110	TA	20¼ x 16¾	13¾	2000-2500	N	B7-183/B7-208	8HR	6.3/.60	22	— .55 to +1.1	550	16	
21DNP4	90	TA	20¼ x 16¾	19	1200-1500	S	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21DQP4	90	TA	20¼ x 16¾	17½	2000-2500	N	B6-63	12L	6.3/.60	20	— .55 to +1.1	550	16	
21DRP4	90	TA	20¼ x 16¾	18¼	2000-2500	N	B6-63	12L	6.3/.60	22	— .55 to +1.1	550	16	
21DSP4	90	TA	20¼ x 16¾	18	2000-2500	N	B6-63	12L	6.3/.60	22	— .55 to +1.1	70	16	
21DVP4	90	TA	20¼ x 16¾	20	500-750	S	B6-63	12L	6.3/.30	22	— .55 to +1.1	550	18	
21DWP4	110	TA	20¼ x 16¾	14½	2000-2500	N	B7-183/B7-208	8HR	6.3/.60	19.8	— .55 to +1.1	550	14	
21EP4	70	T	20¼ x 15½	23	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	550	16	
21EP4A	70	T	20¼ x 15½	23	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	
21EP4B	70	TA	20¼ x 15½	23	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16	
21EAP4	110	TA	20¼ x 16¾	12½	1500-2000	N	B7-208	8JK	2.35/.60	20	— .70 to +.95	550	16	
21ELP4	90	TA	20¼ x 16¾	19	2000-2500	N	B6-63	12L	6.3/.30	22	— .55 to +1.1	550	16	
21EMP4	110	TA	20¼ x 16¾	13¾	2000-2500	N	B7-183	8HR	6.3/.60	19.8	— .55 to +1.1	550	16	
21ENP4	90	TA	20¼ x 16¾	19	2000-2500	S	B6-63	12L	6.3/.30	22	— .55 to +1.1	550	16	
21EQP4	110	TA	20¼ x 16¾	12½	2000-2500	N	B7-208	8JR	6.3/.60	20	+ .70m	600	16	
21ERP4	110	B, TA, AR	20¼ x 16¾	12½	1500-2000	N	B7-208	8JR	6.3/.60	20	+ .70m	600	16	
21ESP4	110	TA	20¼ x 16¾	13¾	2000-2500	N	B6-226/B7-208	8JS	6.3/.60	19.8	— .55 to +1.1	825	17	
21EVP4	110	TA	20¼ x 16¾	12½	1500-2000	N	B7-208	8JK	2.68/.45	20	— .7 to +.95	550	16	
21EWP4	72	TA	20¼ x 16¾	23½	.....	N	B5-57	12D	6.3/.60	22	Magnetic	1100	18	
21EXP4	110	TA	20¼ x 16¾	12½	2000-2500	N	B7-208	8JR	6.3/.30	20	+ .70m	600	16	
21EZP4	110	TA	20¼ x 16¾	12½	2000-2500	N	B7-208	8JR	6.3/.30	19.8	+ .715m	600	18	
21FP4	70	T	20¼ x 15½	23	.....	S	B6-63	12M	6.3/.60	19.8	— .55 to +1.1	550	16	
21FP4A	70	T	20¼ x 15½	23	500-750	S	B6-63	12L	6.3/.60	19.8	— .55 to +1.1	550	16	
21FP4C	70	TA	20¼ x 15½	23	500-750	S	B6-63	12L	6.3/.60	19.8	— .55 to +1.1	550	16	

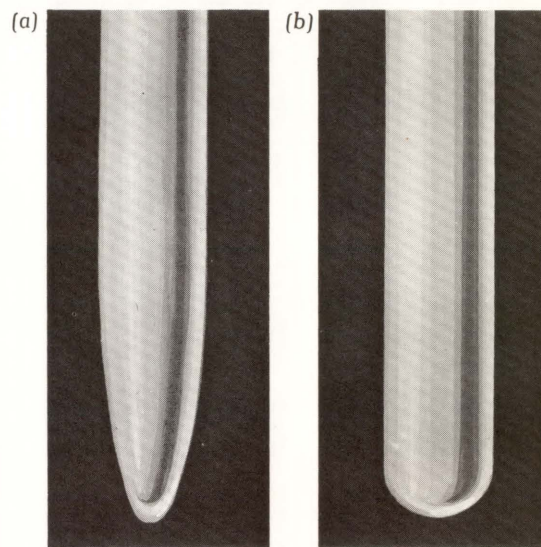
MAGNETIC DEFLECTION TYPES

TYPICAL OPERATION			REMARKS
FOCUS ELECTRODE VOLTS	ACCEL. Grid (G2) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	
MAGNET COIL CURRENT IN MA.			
-64 to +352	300	33-77	
-64 to +352	300	33-77	
-64 to +352	300	33-77	
-64 to +352	300	33-77	
-64 to +352	300	33-77	
-64 to +352	300	33-77	Bulb varies in dimensions from normal
-64 to +352	300	33-77	
108 Ma.	300	33-77	
-64 to +352	300	33-77	
0 to 500	300	33-77	
+50 to +550	300	33-77	
+50 to +550	300	33-77	
0 to 500	300	33-77	
116 Ma.	300	33-77	
-64 to +350	300	33-77	
-70 to +396	300	33-77	
0 to 450	300	33-77	
-64 to +352	300	33-77	
-64 to +352	300	33-77	
0 to 400	400	41-99	
0 to 400	400	41-99	
-72 to +396	110	+37 to +55	Cathode Drive Values
-50 to +350	110	+37 to +55	Cathode Drive Values
-50 to +350	300	33-77	
-75 to +235	300	40-80	
-64 to +352	300	33-77	
-50 to +350	300	40-77	Light Weight Bulb
0 to 400	300	40-77	
117 Ma.	300	33-77	
-64 to +352	300	33-77	
-64 to +352	300	33-77	
0 to 350	50	+39 to +57	Cathode Drive Values
0 to 500	300	33-77	Light Weight Bulb
3150 to 4270	300	33-77	Metal Bulb
0 to 400	400	41-99	Light Weight Bulb
0 to 500	300	33-77	Light Weight Bulb
0 to 500	300	33-77	Light Weight Bulb
0 to 400	400	41-99	
0 to 400	300	40-77	
-50 to +350	300	40-77	
0 to 400	300	40-77	
0 to 400	300	40-77	Light Weight Glass
0 to 400	300	40-77	
0 to 400	300	40-77	
-50 to +350	300	40-77	
0 to 400	300	40-77	
0 to 400	300	40-77	Light Weight Glass; 18 Sec. Heater Warm-up Time
0 to 400	300	33-77	
-50 to +350	400	41-97	
-64 to +352	300	40-77	
-50 to +350	300	40-77	
0 to 450	300	33-77	Light Weight Glass; Bulb dimen. varies from normal
0 to 400	50	+37 to +55	
0 to 400	300	33-77	
-50 to +350	450	50-110	
95 Ma.	300	33-77	
95 Ma.	300	33-77	Cylindrical Faceplate
95 Ma.	300	33-77	
100 to 500	300	40-77	
0 to 400	450	50-110	
0 to 400	450	50-110	
-64 to +352	300	40-77	Tri-Potential Electrostatic Focus
0 to 400	500	48-77	
0 to 400	500	48-77	
0 to 500	450	33-77	
100 to 500	300	40-77	
115 Ma.	300	33-75	Tri-Potential Electrostatic Focus
0 to 400	500	48-83	
0 to 400	500	+46 to +74	
-64 to +350	300	33-77	
-64 to +350	300	33-77	
-64 to +350	300	33-77	Cylindrical Faceplate



**TAPERED PINS FOR EASY,
SMOOTH SOCKET INSERTION**

The days of jamming, rocking and twisting to seat a socket on a picture tube base are over. On Sylvania picture tubes the base pins are found smoothly tapered, in contrast to the blunt-shaped pins on conventional picture tubes. Now, the service dealer can ease the socket on quickly and safely. This dealer-oriented manufacturing improvement is another in a long line of picture tube advancements developed by Sylvania.



(a) Sylvania tapered pins permit safe, smooth socket insertion.

(b) Blunt base tube pins often require rocking or jamming to seat the socket over them.

TELEVISION PICTURE TUBES —

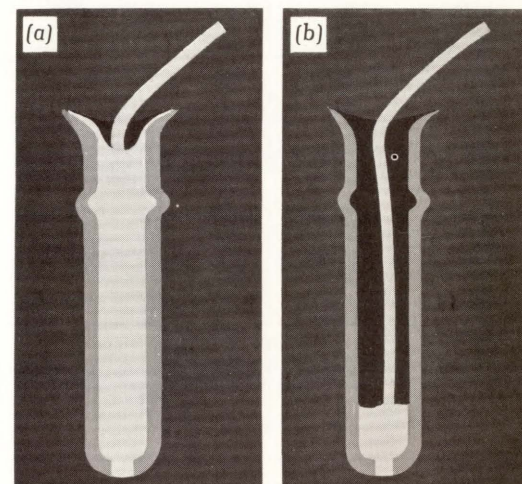
TYPE	DEFL. ANGLE AND NECK DIA. °	FACEPLATE	OVERALL DIMENSIONS INCHES		EXTERNAL CONDUCTIVE COATING CAPACITANCE (μmf)	ION TRAP	BASE	BASING	DESIGN MAXIMUM RATINGS				
		CLEAR TINTED ALUM. BONDED SHIELD ANTI-REFL.	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH					HEATER ▲ VOLTS / AMPS	ANODE (Kv)	FOCUSING ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)
21FAP4	110	TA	19 ¹ / ₁₆ x 16 ³ / ₈	12 ¹ / ₁₆	2000-2500	N	B7-208	8JR	6.3/.60	22	+ .70m	600	16
21FCP4	110	TA	20 ¹ / ₄ x 16 ³ / ₈	13 ¹ / ₂	2000-2500	N	B7-208	8HR	6.3/.30	18	-.55 to +1.1	550	16
21FDP4	110	TA	20 ¹ / ₄ x 16 ³ / ₈	13 ³ / ₈	1500-2000	N	B7-208	8KW	6.3/.60	20	-.55 to +1.1	550	16
21FLP4	90	TA	20 ¹ / ₄ x 16 ³ / ₈	18	500-2500	N	B6-63	12L	6.3/.60	22	-.50 to +1.0	550	16
21JP4	70	T	20 ¹ / ₄ x 15 ¹ / ₁₆	23 ¹ / ₃₂	500-750	I	B5-57	12N	6.3/.60	22	Int. Mag.	550	16
21JP4A	70	TA	20 ¹ / ₄ x 15 ¹ / ₁₆	23 ¹ / ₃₂	500-750	I	B5-57	12N	6.3/.60	22	Int. Mag.	550	16
21KP4	70	T	20 ¹ / ₄ x 15 ¹ / ₁₆	22 ⁷ / ₈	.....	S	B5-57	12D	6.3/.60	19.8	Auto. Es.	550	14
21KP4A	70	T	20 ¹ / ₄ x 15 ¹ / ₁₆	22 ⁷ / ₈	500-750	S	B5-57	12P	6.3/.60	19.8	Auto. Es.	550	14
21MP4	70	T, AR	19 ³ / ₃₂ x 15 ¹ / ₁₆	22 ³ / ₈	.....	S	B6-63	12M	6.3/.60	17.6	-.55 to +1.1	550	16
21WP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	22 ⁷ / ₈	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16
21WP4A	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	22 ⁷ / ₈	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16
21XP4	70	T	18 ¹ / ₁₆ x 14 ¹ / ₁₆	22 ⁷ / ₈	2000-2500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16
21XP4A	70	TA	18 ¹ / ₁₆ x 14 ¹ / ₁₆	22 ⁷ / ₈	2000-2500	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16
21YP4	70	T	20 ¹ / ₄ x 15 ¹ / ₁₆	23	500-750	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16
21YP4A	70	TA	20 ¹ / ₄ x 15 ¹ / ₁₆	23	500-750	S	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16
21ZP4	70	T	20 ¹ / ₄ x 15 ¹ / ₁₆	23 ¹ / ₃₂	.....	S	B5-57	12D	6.3/.60	19.8	Magnetic	550	12
21ZP4A	70	T	20 ¹ / ₄ x 15 ¹ / ₁₆	23 ¹ / ₃₂	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16
21ZP4B	70	TA	20 ¹ / ₄ x 15 ¹ / ₁₆	23 ¹ / ₃₂	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16
23ACP4	90	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	19 ¹ / ₃₂	2000-2500	N	B6-63	12L	6.3/.60	18	-.55 to +1.1	550	16
23AFP4	92	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	2000-2500	N	B6-203	12L	6.3/.60	25	-.55 to +1.1	550	20
23AHP4	92	TA	20 ¹ / ₂ x 16 ¹ / ₂	18	1700-2500	N	B6-203	12L	6.3/.60	22	-.55 to +1.1	550	18
23AKP4	114	TA	20 ¹ / ₂ x 16 ¹ / ₂	12 ¹ / ₁₆	2000-2500	N	B7-208	8JR	6.3/.60	22	+ .70m	600	16
23ALP4	114	TA	20 ¹ / ₂ x 16 ¹ / ₂	14 ³ / ₈	1700-2500	N	B7-208	8HR	6.3/.45	22	-.55 to +1.1	550	18
23AMP4	114	TA	20 ¹ / ₂ x 16 ¹ / ₂	14 ³ / ₈	1700-2500	N	B7-208	8HR	6.3/.30	22	-.55 to +1.1	550	18
23ANP4	92	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	2000-2500	N	B6-63/B6-203	12L	6.3/.60	25	-.50 to +1.1	70	20
23AQP4	114	TA	20 ¹ / ₂ x 16 ¹ / ₂	14 ³ / ₈	1700-2500	N	B7-208	8HR	6.3/.30	19.8	-.50 to +1.0	550	18
23ARP4	110	TA	20 ¹ / ₂ x 16 ¹ / ₂	14 ⁷ / ₈	1700-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	16
23ASP4	92	TA	20 ¹ / ₂ x 16 ¹ / ₂	17	1700-2500	N	B6-203	12L	6.3/.60	22	-.55 to +1.1	550	18
23ATP4	92	B, TA, AR	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ⁷ / ₁₆	2000-2500	N	B6-203/B6-63	12L	6.3/.60	25	-.50 to +1.1	70	20
23AVP4	110	B, TA, AR	21 ¹ / ₁₆ x 17 ¹ / ₃₂	15 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	16
23AWP4	92	TA	20 ¹ / ₂ x 16 ¹ / ₂	18	1700-2500	N	B6-203	12L	6.3/.60	22	-.45 to +1.25	225	20
23AYP4	110	B, TA, AR	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
23AZP4	92	TA	20 ¹ / ₂ x 16 ¹ / ₂	18	1700-2500	N	B6-203	12L	6.3/.30	22	-.55 to +1.1	550	18
23BP4	110	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	14 ⁷ / ₁₆	2000-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	14
23BAP4	110	B, TA, AR	21 ¹ / ₁₆ x 17 ¹ / ₃₂	14 ⁷ / ₁₆	2000-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	14
23BCP4	110	TA	20 ¹ / ₂ x 16 ¹ / ₂	14 ⁷ / ₈	1700-2500	N	B7-208	8HR	6.3/.30	22	-.55 to +1.1	550	16
23BDP4	92	B, TA, AR	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	2000-2500	N	B6-203	12L	6.3/.60	22	-.55 to +1.1	700	16
23BEP4	110	B, TA	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
23BGP4	110	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	15 ¹ / ₁₆	1700-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	70	16
23BHP4	110	B, TA, AR	21 ¹ / ₁₆ x 17 ¹ / ₃₂	15 ¹ / ₁₆	1700-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	70	16
23BJP4	92	TA	20 ¹ / ₂ x 16 ¹ / ₂	18 ¹ / ₈	1700-2500	N	B6-203	12L	6.3/.60	25	-.45 to +1.25	70	20
23BKP4	92	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ⁷ / ₁₆	1700-2500	N	B6-203	12L	6.3/.60	25	-.40 to +1.25	225	20
23BLP4	92	B, TA, AR	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ⁷ / ₁₆	1700-2500	N	B6-203	12L	6.3/.60	25	-.40 to +1.25	225	20
23BMP4	92	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	1700-2500	N	B6-203	12L	6.3/.60	22	-.55 to +1.1	550	16
23BQP4	110	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	15 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/.45	23	-.55 to +1.1	550	16
23BRP4	110	B, TA, AR	21 ¹ / ₁₆ x 17 ¹ / ₃₂	13 ³ / ₈	2000-2500	N	B7-208	8JR	6.3/.30	22	+ .70m	600	16
23BSP4	110	B, TA, AR	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
23BTP4	92	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	2000-2500	N	B6-203	12L	6.3/.60	25	-.55 to +1.1	550	16
23BVP4	92	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	2000-2500	N	B6-203	12L	6.3/.60	25	-.55 to +1.1	550	20
23BZP4	92	TA	20 ¹ / ₂ x 16 ¹ / ₂	18	1700-2500	N	B6-203	12L	8.4/.45	22	-.55 to +1.1	550	18
23CP4	110	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	15 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	16
23CP4A	110	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	15 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/.60	23.5	-.55 to +1.1	550	16
23CAP4	92	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	2000-2500	N	B6-203	12L	8.4/.45	22	-.55 to +1.1	550	16
23CBP4	110	B, TA, AR	21 ¹ / ₁₆ x 17 ¹ / ₃₂	15 ¹ / ₁₆	2000-2500	N	B7-208	8HR	6.3/.45	23	-.55 to +1.1	550	16
23CDP4	92	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	2000-2500	N	B6-203	12L	6.3/.30	22	-.55 to +1.1	550	16
23CEP4	110	TA	20 ¹ / ₂ x 16 ¹ / ₂	14 ⁷ / ₈	1700-2500	N	B7-208	8HR	6.3/.45	22	-.55 to +1.1	550	16
23CMP4	110	TA	20 ¹ / ₂ x 16 ¹ / ₂	14 ⁷ / ₈	1700-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	16
23CQP4	114	B, TA	20 ¹ / ₂ x 16 ¹ / ₂	13 ³ / ₈	1700-2500	N	B7-208	8HR	6.3/.45	23.5	-.55 to +1.1	550	14
23CSP4	110	B, TA, AR	21 ¹ / ₁₆ x 17 ¹ / ₃₂	13 ³ / ₈	2000-2500	N	B7-208	8JR	6.3/.30	22	+ .70m	600	16
23CTP4	92	B, TA	21 ¹ / ₁₆ x 17 ¹ / ₃₂	18 ¹ / ₁₆	2000-2500	N	B6-203	12L	6.3/.45	22	-.55 to +1.		

MAGNETIC DEFLECTION TYPES

TYPICAL OPERATION			REMARKS
FOCUS ELECTRODE VOLTS	ACCEL. Grid (G2) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	
MAGNET COIL CURRENT IN MA.			
0 to 400	500	48-83	Light Weight Glass; Tri-Potential Focus Cathode Drive Values
0 to 400	300	+39 to +68	
+100 to +500	300	40-77	Cylindrical Faceplate
0 to 450	300	33-77	
Int. Mag.	300	33-77	
Int. Mag.	300	33-77	Cylindrical Faceplate
Auto. Es.	300	33-77	Cylindrical Faceplate
Auto. Es.	300	33-77	Cylindrical Faceplate
-65 to +350	300	33-77	Metal Bulb
100 Ma.	300	33-77	Bulb dimensions varies from normal
100 Ma.	300	33-77	Bulb dimensions varies from normal
-64 to +352	300	33-77	Bulb dimensions varies from normal
-64 to +352	300	33-77	Bulb dimensions varies from normal
-64 to +352	300	33-77	Bulb dimensions varies from normal
-64 to +352	300	33-77	Bulb dimensions varies from normal
95 Ma.	300	33-77	Low Anode Voltage
100 Ma.	300	33-77	
118 Ma.	300	33-77	
0 to 400	300	40-77	
0 to 400	300	40-77	Tri-Potential Electrostatic Focus
0 to 400	400	41-99	
0 to 400	500	48-83	
0 to 400	400	41-99	
0 to 400	400	41-99	Cathode Drive Values
0 to 500	50	+40 to +55	
0 to 400	400	49-99	18 Second Heater Warm-up Time
0 to 400	300	40-77	
0 to 400	400	41-99	Cathode Drive Values
0 to 500	50	+40 to +55	
0 to 400	300	40-77	Cathode Drive Values
0 to 400	50	+41 to +59	
0 to 400	300	40-77	
0 to 400	400	41-99	
0 to 400	450	50-110	Cathode Drive Values
0 to 400	450	50-110	
0 to 400	300	40-77	Cathode Drive Values
0 to 400	500	+50 to +100	
0 to 400	300	40-77	18 Second Heater Warm-up Time
0 to 400	50	+37 to +52	Cathode Drive Values
0 to 400	50	+37 to +52	Cathode Drive Values
0 to 400	50	+41 to +59	Cathode Drive Values
0 to 400	50	+41 to +59	Cathode Drive Values
0 to 400	50	+41 to +59	Cathode Drive Values
0 to 400	300	40-77	Tri-Potential Electrostatic Focus
0 to 400	300	40-77	
0 to 400	300	40-77	18 Sec. Heater Warm-up Time
0 to 400	300	40-77	Internal Magnetic Shielding
0 to 400	400	41-99	
0 to 400	300	40-77	18 Second Heater Warm-up Time
0 to 400	300	40-77	
0 to 400	300	40-77	18 Sec. Heater Warm-up Time; Tri-Potential Es. Focus
0 to 400	450	50-110	
500	500	48-83	Tri-Potential Electrostatic Focus
0 to 400	500	48-83	
0 to 400	300	-40 to -77	18 Sec. Heater Warm-up Time; Tri-Potential Es. Focus
0 to 400	500	48-83	Tri-Potential Electrostatic Focus
0 to 400	50	+39 to +57	Cathode Drive Values
0 to 400	450	50-110	

PICTURE TUBE BASE PINS THAT STAY PUT

Sylvania's new and exclusive technique of soldering picture tube base pins fills each pin with solder. "Tip-to-Top" soldering produces a larger contact area, lower electrical resistance and a stronger mechanical grip than conventional soldering methods, which deposit solder at the tip only. A Sylvania picture tube's base pins need no "crimping" to assure a good contact—Sylvania assures that contact for you at the factory. The result is a dramatic reduction in picture tube callbacks due to open base pin connections.



- (a) Sylvania "Tip-to-Top" soldering fills the base pin with solder well up along the wire lead, resulting in a strong mechanical grip and low electrical resistance.
- (b) Base pins that are conventionally soldered have only a small deposit of solder, located at the very tip of the pin. The frequent result is an "open pin," that is, one in which the wire lead has broken away from the solder.

TELEVISION PICTURE TUBES —

TYPE	DEFL. ANGLE AND NECK DIA. ⬇	FACEPLATE	OVERALL DIMENSIONS INCHES		EXTERNAL CONDUCTIVE COATING CAPACITANCE (μμf)	ION TRAP	BASE	BASING	HEATER ▲ VOLTS / AMPS	DESIGN MAXIMUM RATINGS			
		CLEAR TINTED ALUM. BONDED SHIELD ANTI-REFL.	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH						ANODE (Kv)	FOCUSING ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)
23FP4A	114	TA	20½ x 16½	13⅝	1700-2500	N	B7-208	8HR	6.3/.60	23.5	-.55 to +1.1	550	14
23GP4	110	B, TA	21⅞ x 17⅜	15⅜	2000-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +2.2	550	16
23HP4	110	B, TA	21⅞ x 17⅞	15½	2000-2500	N	B7-208/B7-183	8HR	6.3/.60	20	-.50 to +2.0	550	16
23JP4	110	B, TA	21⅞ x 17⅞	15⅞	2000-2500	N	B6-214	7FA	6.3/.45	22	-.55 to +1.1	70	16
23KP4	114	B, TA	20½ x 16½	13½	2000-2500	N	B6-203/B7-208	8JS	6.3/.60	20	-.50 to +1.0	700	16.5
23KP4A	114	B, TA	20½ x 16½	13½	2000-2500	N	B6-204/B7-208	8JS	6.3/.60	22	-.50 to +1.0	700	18
23MP4	114	TA	20½ x 16½	14⅞	1700-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	18
23MP4A	114	TA	20½ x 16½	14⅞	1700-2500	N	B7-208	8HR	6.3/.60	23.5	-.55 to +1.1	550	18
23NP4	114	TA	20½ x 16½	14⅞	1700-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	70	18
23RP4	110	B, TA	21⅞ x 17⅞	13⅞	2000-2500	N	B7-208	8JR	6.3/.30	22	+ .70m	600	16
23SP4	110	B, TA	21⅞ x 17⅜	15⅞	2000-2500	N	B7-208	8HR	6.3/.30	22	-.55 to +1.1	550	16
23TP4	90	B, TA	21⅞ x 17⅞	19⅜	1700-2500	N	B6-63/B6-203	12L	6.3/.60	22	-.50 to +1.0	550	16
23UP4	110	B, TA	21⅞ x 17⅜	15⅞	2000-2500	N	B7-208	8HR	6.3/.45	18	-.55 to +1.1	550	16
23VP4	114	B, TA	20½ x 16½	13⅞	2000-2500	N	B7-208	8HR	6.3/.30	22	-.55 to +1.1	550	14
23WP4	114	B, TA	20½ x 16½	14⅞	2000-2500	N	B7-208	8HR	6.3/.60	20	-.50 to +2.0	550	16
23XP4	92	B, TA	21⅞ x 17⅜	18⅞	2000-2500	N	B6-203	12L	6.3/.60	18	-.55 to +1.1	550	16
23YP4	92	B, TA	21⅞ x 17⅜	18⅞	2000-2500	N	B6-203	12L	6.3/.60	22	-.55 to +1.1	550	16
23ZP4	90	B, TA	21⅞ x 17⅜	19⅜	2000-2500	N	B6-63	12L	6.3/.60	22	-.50 to +1.1	70	18
24AP4	70	T	24	23⅞	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	15
24AP4A	70	TA	24	23⅞	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	15
24AP4B	70	C, AR	24	23⅞	.....	S	B5-57	12D	6.3/.60	17.6	Magnetic	450	15
24ADP4	90	TA	22⅞ x 18⅞	21⅞	2000-2500	S	B5-57	12N	6.3/.60	24.2	Magnetic	660	18
24AEP4	90	TA	22⅞ x 18⅞	19⅞	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	18
24AHP4	110	TA	22⅞ x 18½	15⅞	2000-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	16
24AJP4	90	TA	22⅞ x 18⅞	19⅞	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	70	18
24ALP4	110	TA	22⅞ x 18½	15⅞	2000-2500	N	B7-183	8HR	6.3/.60	22	-.55 to +1.1	550	17
24AMP4	110	TA	22⅞ x 18½	15⅞	2000-2500	N	B6-185	7FA	6.3/.60	22	-.55 to +1.1	550	16
24ANP4	90	TA	22⅞ x 18⅞	20⅞	1700-2500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	18
24AQP4	110	TA	22⅞ x 18½	15⅞	1700-2500	N	B7-183	8HR	6.3/.45	22	-.55 to +1.1	550	16
24ASP4	90	TA	22⅞ x 18⅞	19⅞	1700-2500	N	B6-63	12L	6.3/.30	22	-.55 to +1.1	550	18
24ATP4	90	TA	22⅞ x 18⅞	19⅞	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	75	18
24AUP4	90	TA	22⅞ x 18⅞	18½	1700-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	18
24AVP4	110	TA	22⅞ x 18½	14⅞	1700-2500	N	B7-208	8JK	2.35/.60	20	-.55 to +1.1	550	16
24AWP4	110	TA	22⅞ x 18½	14⅞	2000-2500	N	B7-183	8HR	6.3/.60	22	-.55 to +1.1	550	16
24AXP4	110	TA	22⅞ x 18½	15⅞	1700-2500	N	B7-183/B7-208	8HR	6.3/.30	22	-.55 to +1.1	550	16
24BP4	70	T	22¼	24½	.....	S	B6-63	12M	6.3/.60	17.6	-.55 to +1.1	550	14
24BAP4	110	TA	22⅞ x 18½	15⅞	1700-2500	N	B7-183/B7-208	8HR	6.3/.60	22	-.55 to +1.1	70	20
24CP4	90	T	22⅞ x 18⅞	21⅞	2000-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	18
24CP4A	90	TA	22⅞ x 18⅞	21⅞	2000-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	18
24DP4	90	T	22⅞ x 18⅞	21⅞	2000-2500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	18
24DP4A	90	TA	22⅞ x 18⅞	21⅞	2000-2500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	18
24QP4	90	T	22⅞ x 18⅞	21⅞	500-750	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16
24TP4	90	TA	22⅞ x 18⅞	21⅞	250-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	18
24VP4	90	T	22⅞ x 18⅞	21⅞	2000-2500	S	B5-57	12N	6.3/.60	24.2	Magnetic	660	20
24VP4A	90	TA	22⅞ x 18⅞	21⅞	2000-2500	S	B5-57	12N	6.3/.60	24.2	Magnetic	660	20
24XP4	90	T	22⅞ x 18⅞	21⅞	.....	S	B5-57	12D	6.3/.60	22	Magnetic	550	18
24YP4	90	TA	22⅞ x 18⅞	21⅞	2000-2500	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	18
24ZP4	90	TA	22⅞ x 18⅞	21⅞	2000-2500	N	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16
27AP4	90	T, AR	25¼ x 19⅞	21⅞	.....	S	B6-63	12M	6.3/.60	19.8	-.55 to +1.1	550	15
27EP4	90	TA	25⅜ x 20⅜	23⅞	.....	S	B5-57	12D	6.3/.60	22	Magnetic	550	16
27GP4	90	T	25⅜ x 20⅜	23⅞	.....	S	B5-57	12D	6.3/.60	24.8	Magnetic	550	20
27LP4	90	TA	25⅜ x 20⅜	24⅞	200-400	S	B5-57	12N	6.3/.60	24.2	Magnetic	660	20
27MP4	90	TA, AR	25¼ x 19⅞	22⅞m	.....	N	B5-57	12D	6.3/.60	19.8	Magnetic	550	16
27NP4	90	T	25⅜ x 20⅜	23	500-2500	S	B5-57	12N	6.3/.60	19.8	Magnetic	550	16
27RP4	90	TA	25⅜ x 20⅜	23⅞	500-2500	S	B5-57	12N	6.3/.60	22	Magnetic	550	20
27SP4	90	TA	25⅜ x 20⅜	23⅞	500-750	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	18
27UP4	90	T	25⅜ x 20⅜	23⅞	500-750	S	B6-63	12L	6.3/.60	22	-.55 to +1.1	550	16
27VP4	90	TA	25⅜ x 20⅜	21⅞	2000-2500	N	B6-63	12L	6.3/.60	19.8	-.55 to +1.1	550	16
27XP4	90	TA	25⅜ x 20⅜	20⅞	1700-2500	N	B6-203	12L	6.3/.60	23	-.55 to +1.1	550	18
27ZP4	110	TA	25⅜ x 20⅜	17⅞	2000-2500	N	B7-208	8HR	6.3/.60	22	-.55 to +1.1	550	18
30BP4	90	T	30⅞	23⅞	.....	S	B5-57	12D	6.3/.60	33	Magnetic	450	22

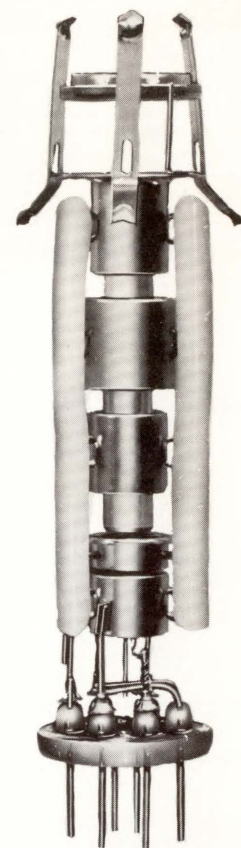
♦ 110° and 114° types have 1 1/8" diameter necks.

All others, except where noted, have 1 1/16" diameter necks.

m—Maximum

MAGNETIC DEFLECTION TYPES

TYPICAL OPERATION			REMARKS
FOCUS ELECTRODE VOLTS	ACCEL. Grid (G2) VOLTS	Negative GRID NO. 1 VOLTAGE FOR SPOT CUTOFF	
MAGNET COIL CURRENT IN MA.			
0 to 400	450	50-110	Cathode Drive Values
0 to 400	300	33-77	
0 to 400	300	40-77	
250	50	+40 to +55	
250	450	33-77	
250	450	33-77	Cathode Drive Values Tri-Potential Electrostatic Focus
0 to 400	400	41-99	
0 to 400	400	41-99	
0 to 400	50	+39 to +54	
0 to 400	500	48-83	
0 to 400	300	40-77	Low Anode Voltage 18 Second Heater Warm-up Time
0 to 450	300	33-77	
0 to 400	300	40-77	
0 to 400	450	50-110	
0 to 400	300	40-77	
0 to 400	300	40-77	Cathode Drive Values Metal Bulb Metal Bulb
0 to 400	300	40-77	
0 to 500	50	+40 to +55	
114 Ma.	300	33-77	
114 Ma.	300	33-77	
114 Ma.	300	33-77	Metal Bulb
125 Ma.	300	33-77	
-50 to +350	300	33-77	
-50 to +350	300	33-77	
0 to 350	50	35-50	
0 to 500	300	33-77	
0 to 400	300	40-77	
-72 to +396	300	40-77	
0 to 400	300	40-77	
0 to 400	300	40-77	
0 to 400	50	+39 to +57	Cathode Drive Values 2.35 Volt Heater
-75 to +400	300	40-77	
-100 to +300	300	40-77	
0 to 400	300	33-77	
0 to 400	300	40-77	
-56 to +310	300	33-77	Metal Bulb Cathode Drive Values
0 to 400	64	+47 to +63	
100 Ma	300	33-77	
100 Ma.	300	33-77	
-72 to +396	300	33-77	
-72 to +396	300	33-77	
100 Ma.	300	33-77	
100 Ma.	300	33-77	
125 Ma.	300	33-77	
125 Ma.	300	33-77	
125 Ma.	300	33-77	Metal Bulb
-72 to +396	300	33-77	
0 to 500	300	33-77	
-60 to +300	300	33-77	
118 Ma.	300	33-77	
125 Ma.	300	33-77	Bulb dimension varies from normal Metal Bulb
148 Ma.	300	33-77	
110 Ma.	300	42-78	
95 Ma.	300	33-77	
125 Ma.	300	33-77	
-72 to +396	300	33-77	
0 to 396	300	33-77	
-72 to +396	300	33-77	
0 to 400	400	41-99	
0 to 400	300	40-77	
95 Ma.	300	33-77	Metal Bulb



SYLVANIA'S "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; pin-point focus; improved drive characteristics; and brilliant, high-resolution high lights!

* All Sylvania Television Picture Tubes feature a controlled heater warm-up time of 11 seconds for operation in receivers employing series strings, except where noted otherwise in Remarks Column.

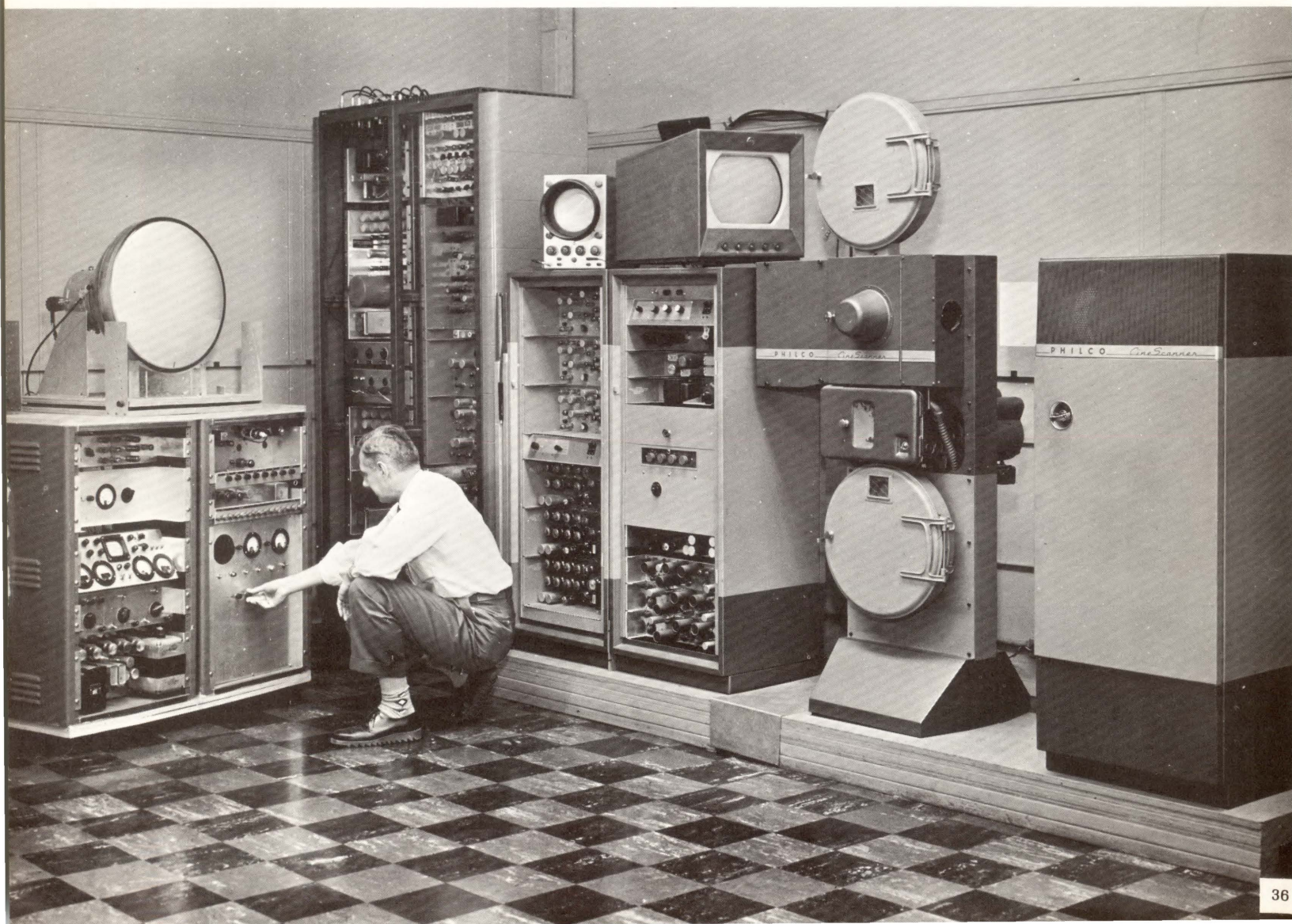
COLOR PICTURE TUBES — TRI GUN (Magnetic Deflection —

TYPE	DEFL. ANGLE AND NECK DIA. ●	FACEPLATE	OVERALL DIMENSIONS INCHES		EXTERNAL CONDUCTIVE COATING CAPACITANCE $\mu\mu\text{f}$	BASE	BASING	HEATER VOLTS/AMPS
		CLEAR TINTED ALUM. BONDED SHIELD ANTI-REFL.	FACEPLATE DIAMETER OR WIDTH X HEIGHT	LENGTH				
15GP22	45	CA	14 $\frac{1}{8}$	26 $\frac{1}{8}$	1500-3000	B14-130	20A	6.3/1.8
15HP22	45	CA	14 $\frac{1}{8}$	26 $\frac{1}{8}$	1500-3000	B14-130	20A	6.3/1.8
19TP22	60	TA	19 $\frac{5}{16}$	24 $\frac{3}{4}$	1500-3000	B14-130	20A	6.3/1.8
19VP22	62	TA	19 $\frac{5}{16}$	26 $\frac{1}{16}$	1500-3000	B12-105	14W	6.3/1.8
21A XP22	70	TA	20 $\frac{1}{16}$	25 $\frac{5}{16}$	.....	B12-131	14W	6.3/1.8
21A XP22A				24 $\frac{1}{2}$			14AH	
21CYP22	70	TA	20 $\frac{1}{16}$	25 $\frac{1}{32}$	2000-2500	B12-131	14AL	6.3/1.8
21CYP22A								6.3/1.6
21FBP22	70	TA	20 $\frac{1}{16}$	25 $\frac{1}{32}$	2000-2500	B12-131	14AU	6.3/1.8
21FJP22	70	B, TA, AR	21 m	25 $\frac{1}{32}$	2000-2500	B12-131	14AU	6.3/1.8
21FKP22	70	B, TA	21 m	25 $\frac{1}{32}$	2000-2500	B12-131	14AU	6.3/1.8
22EP22	70	TA	21 $\frac{1}{32}$ x 17 $\frac{1}{16}$	25 $\frac{3}{4}$	1500-2800	B12-131	14W	6.3/1.8

● Neck diameter is two inches.

▲ Does not include the dynamic convergence component.

m—Maximum



Electrostatic Focus) TYPES

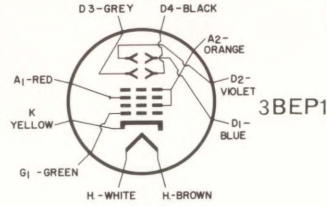
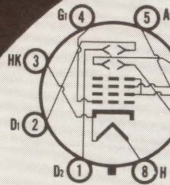
DESIGN MAXIMUM RATINGS			TYPICAL OPERATION						REMARKS
ANODE (Kv)	CONVERGENCE ELECTRODE ▲ (Kv)	FOCUSING ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	ANODE (Kv)	CONVERGENCE ELECTRODE ▲ (Kv)	FOCUS ELECTRODE (Kv)	ACCEL. GRID (G2) VOLTS	NEGATIVE GRID NO. 1 VOLTAGE FOR RASTER CUT-OFF	
22	12.1	5.5	550	20	8.5 to 10.2	2.4 to 3.8	200 140-315	45-100 70	Metal Bulb
22	12.1	5.5	550	20	9.3	3.1	200	45-100	
24.2	13.2	4.4	550	20	8.5 to 10.2	1.95 to 3.25	200	42-78	
29.7	Magnetic	9.9	550	25	Magnetic	6.5 to 8.0	200 150-330	45-100 75	
27.5	Magnetic	6.6	660	25	Magnetic	3.8 to 5.3	200 130-370	45-100 70	
27.5	Magnetic	6.6	660	25	Magnetic	4.2 to 5.0	200 130-370	45-100 70	
27.5	Magnetic	6.0	650	25	Magnetic	1.2 to 5.0	200	45-100	
27.5	Magnetic	6.0	650	25	Magnetic	1.2 to 5.0	200	45-100	
27.5	Magnetic	6.0	650	25	Magnetic	1.2 to 5.0	200	45-100	
27.5	Magnetic	6.6	880	25	Magnetic	4.0 to 5.1	130-370 200 50-225	70 55-105 60	

COLOR TUBE TESTING
FACILITIES AT SYLVANIA'S
SENECA FALLS, NEW YORK
PICTURE TUBE PLANT

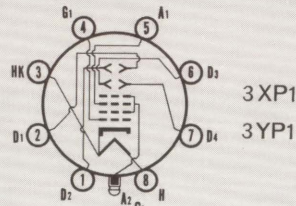
The equipment shown here tests the visual qualities of color picture tubes under typical viewing conditions. The equipment generates a color picture, displaying it on the face of the picture tube (far left) being tested. The picture displayed is "dynamic" and typical of those received over the air. Static displays, if desired, can also be shown.

BASING DIAGRAMS

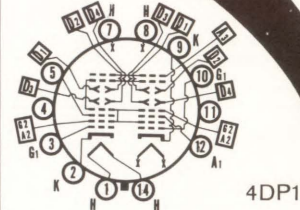
3AYP1



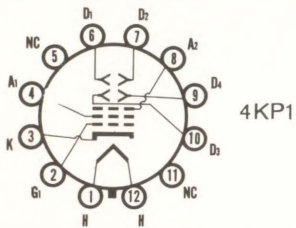
3BEP1



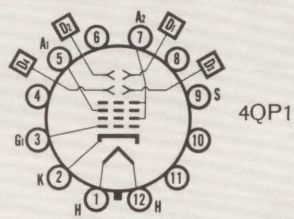
3XP1
3YP1



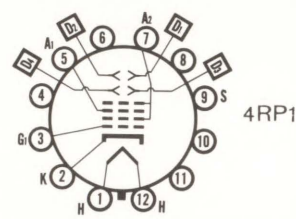
4DP1



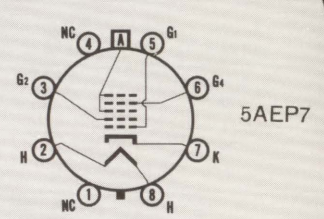
4KP1



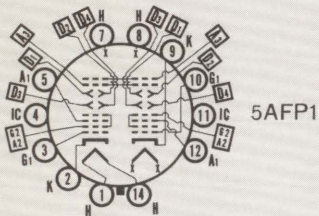
4QP1



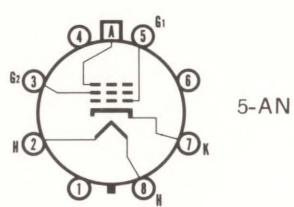
4RP1



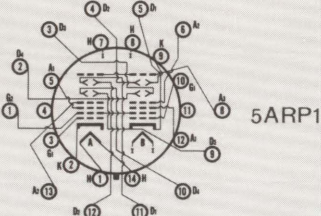
5AEP7



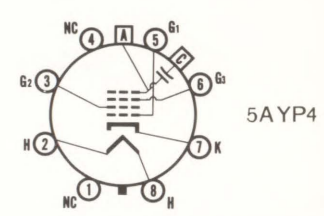
5AFP1



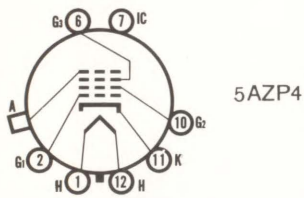
5-AN



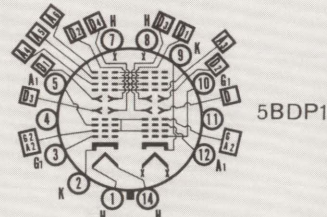
5ARP1



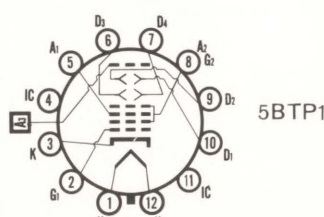
5AYP4



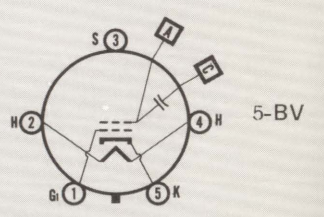
5AZP4



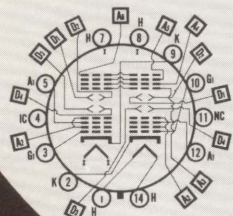
5BDP1



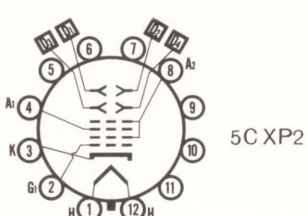
5BTP1



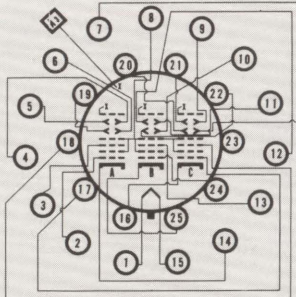
5-BV



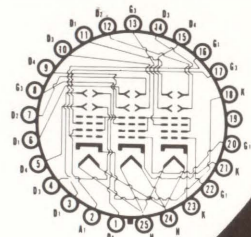
5CTP1



5CXP2



6DP1



7ACP2

BASE DIAGRAM SYMBOLS

A Anode
A1 First Anode
A2 Second Anode, etc.
G1 Grid No. 1
G2 Grid No. 2

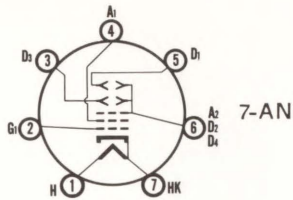
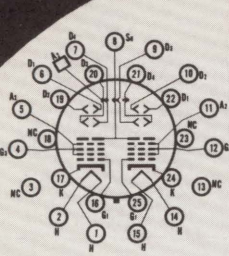
H Heater
C Conductive Coating
D1 Deflection Plate No. 1
D2 Deflection Plate No. 2
DS Deflection Plate Shield

■ or → Locating Lug
IC Internal Connection
(Do not use)
D3 Deflection Plate No. 3
D4 Deflection Plate No. 4

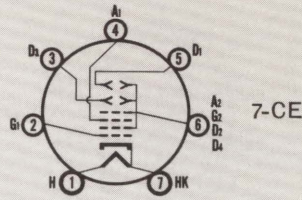
G Grid
K Cathode
IS Internal Shield
□ Bulb Terminal
ISS Isolation Shield

BASING DIAGRAMS

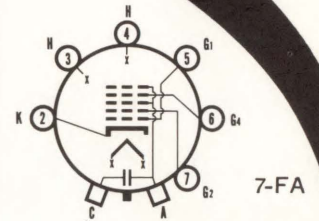
7AKP19



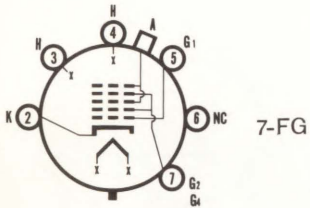
7-AN



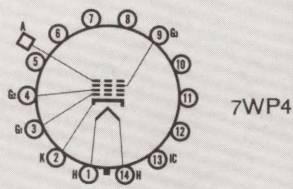
7-CE



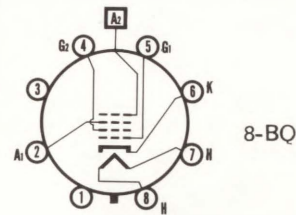
7-FA



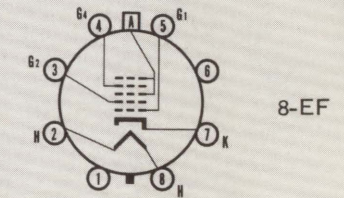
7-FG



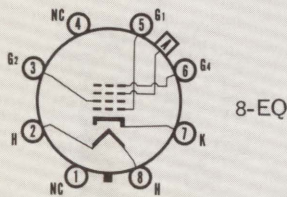
7WP4



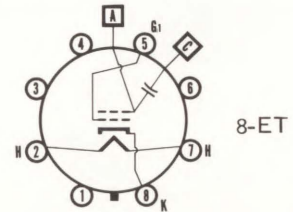
8-BQ



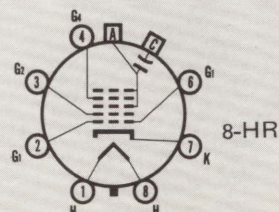
8-EF



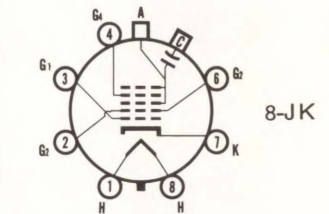
8-EQ



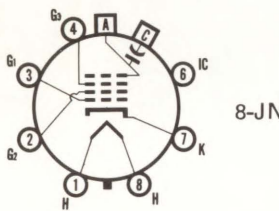
8-ET



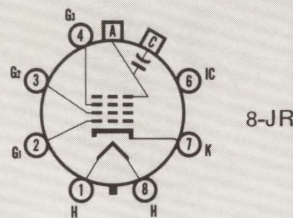
8-HR



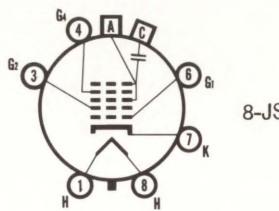
8-JK



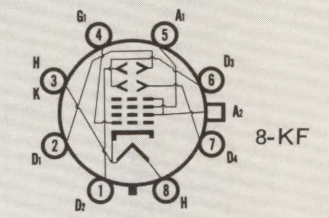
8-JN



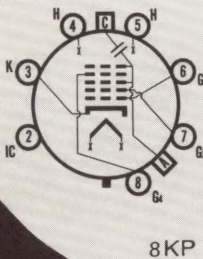
8-JR



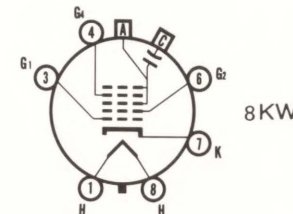
8-JS



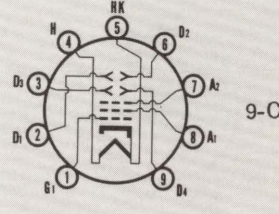
8-KF



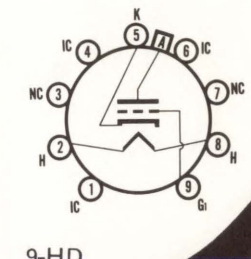
8KP



8KW



9-CU



9-HD

BASE DIAGRAM SYMBOLS

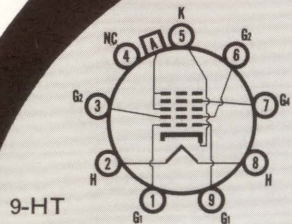
A Anode
A1 First Anode
A2 Second Anode, etc.
G1 Grid No. 1
G2 Grid No. 2

H Heater
C Conductive Coating
D1 Deflection Plate No. 1
D2 Deflection Plate No. 2
DS Deflection Plate Shield

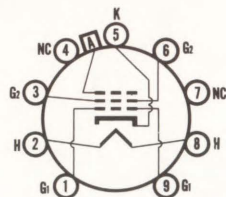
■ or → Locating Lug
IC Internal Connection
(Do not use)
D3 Deflection Plate No. 3
D4 Deflection Plate No. 4

G Grid
K Cathode
IS Internal Shield
□ Bulb Terminal
ISS Isolation Shield

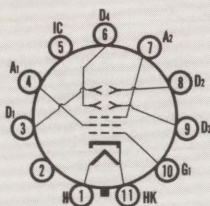
BASING DIAGRAMS



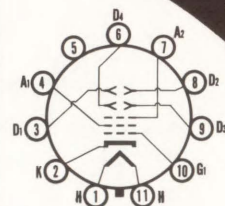
9-HT



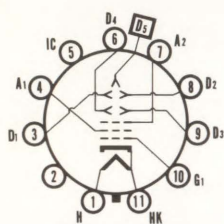
9NB



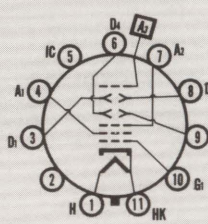
11-A



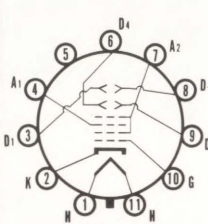
11-B



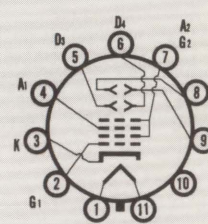
11C



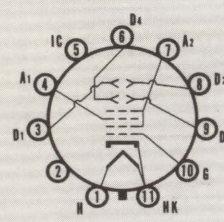
11-F



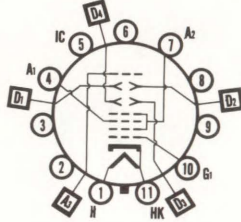
11-L



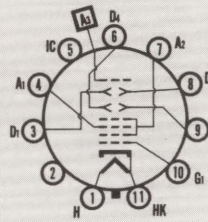
11-M



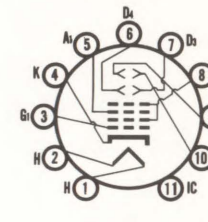
11-N



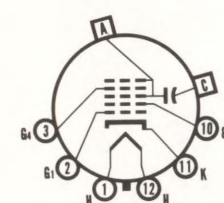
11-S



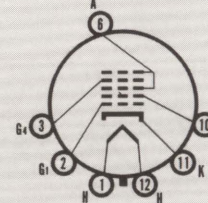
11-T



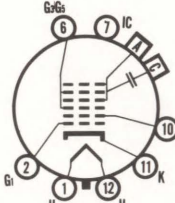
11V



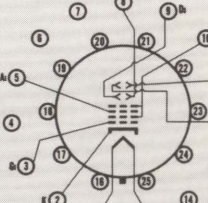
12-AB



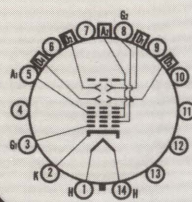
12-AD



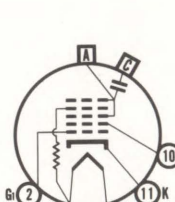
12-AJ



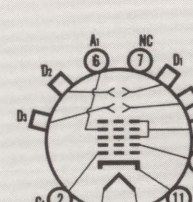
12AKP7



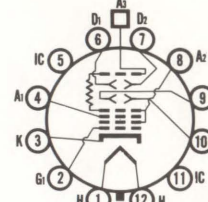
12ASP7



12AT



12AV



12BE

BASE DIAGRAM SYMBOLS

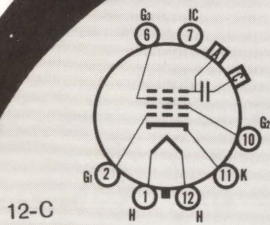
A Anode
A1 First Anode
A2 Second Anode, etc.
G1 Grid No. 1
G2 Grid No. 2

H Heater
C Conductive Coating
D1 Deflection Plate No. 1
D2 Deflection Plate No. 2
DS Deflection Plate Shield

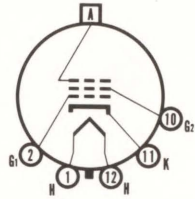
■ or → Locating Lug
IC Internal Connection
(Do not use)
D3 Deflection Plate No. 3
D4 Deflection Plate No. 4

G Grid
K Cathode
IS Internal Shield
□ Bulb Terminal
ISS Isolation Shield

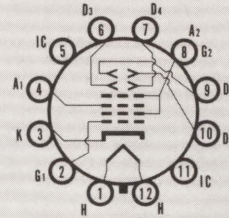
BASING DIAGRAMS



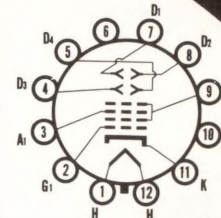
12-C



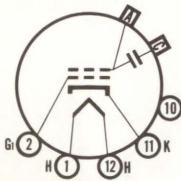
12-D



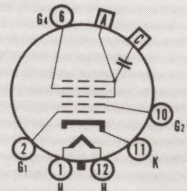
12-E



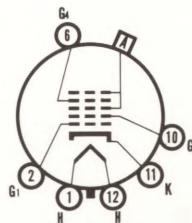
12-F



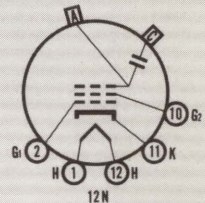
12-G



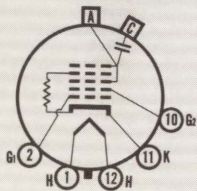
12-L



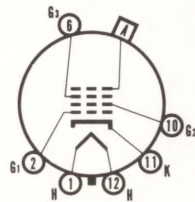
12-M



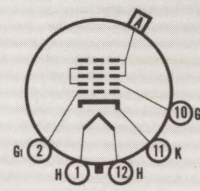
12-N



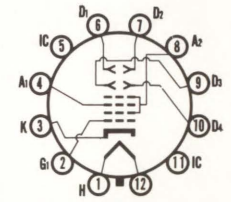
12-P



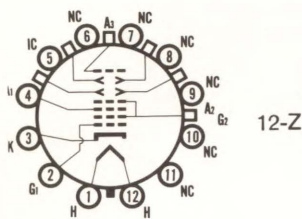
12-Q



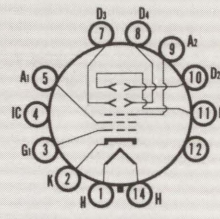
12-S



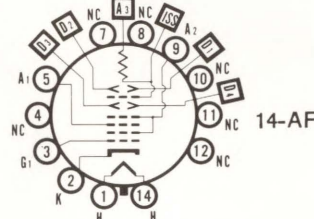
12-T



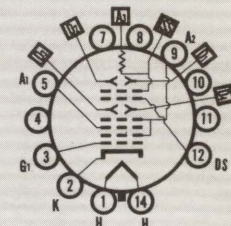
12-Z



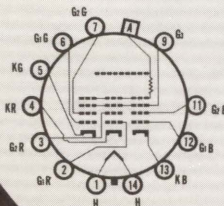
14-A



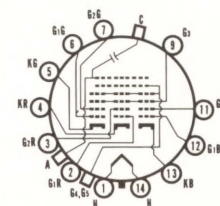
14-AF



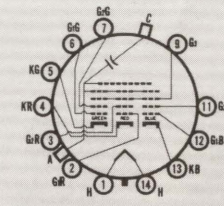
14-AG



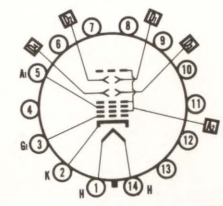
14-AH



14-AL



14-AU



14-AW

BASE DIAGRAM SYMBOLS

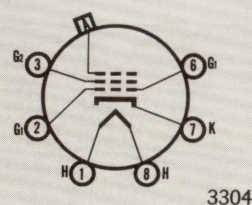
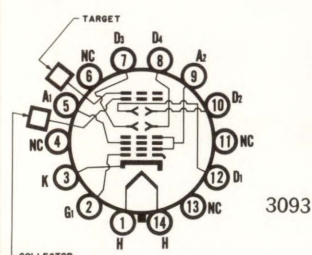
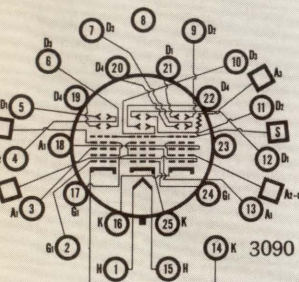
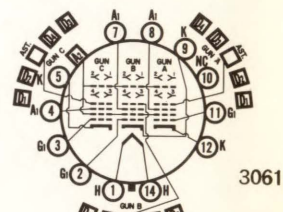
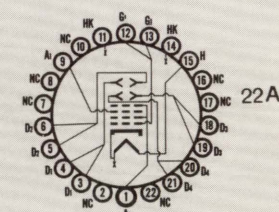
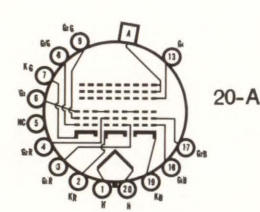
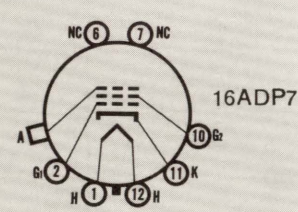
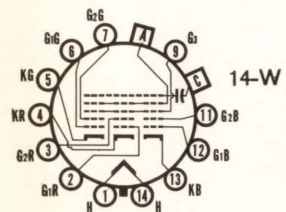
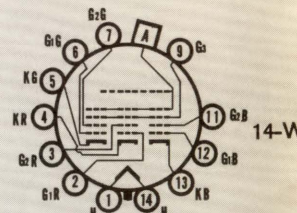
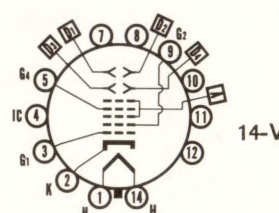
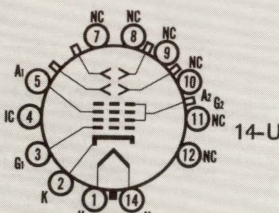
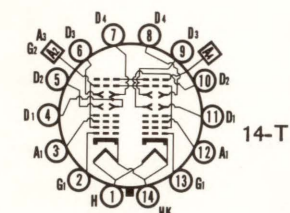
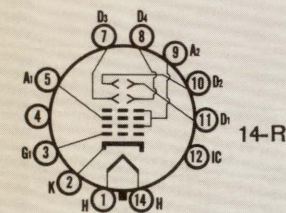
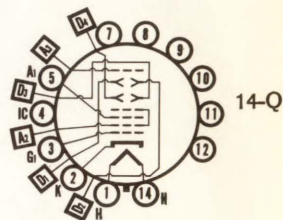
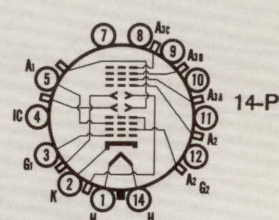
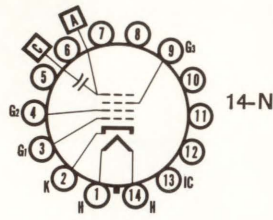
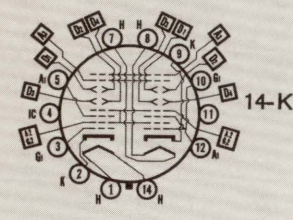
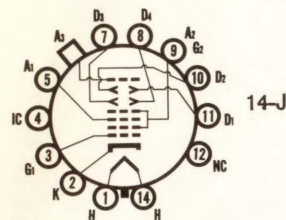
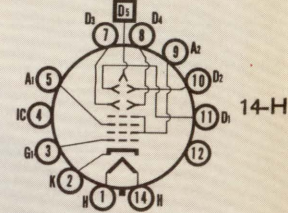
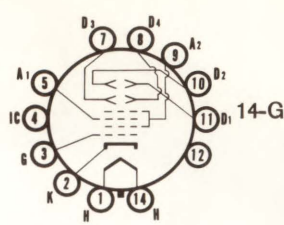
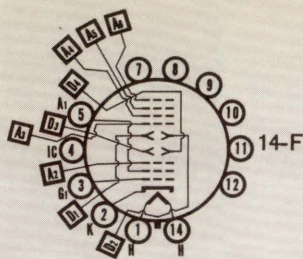
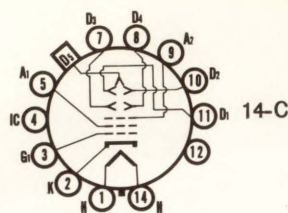
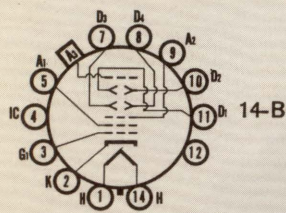
A Anode
A1 First Anode
A2 Second Anode, etc.
G1 Grid No. 1
G2 Grid No. 2

H Heater
C Conductive Coating
D1 Deflection Plate No. 1
D2 Deflection Plate No. 2
DS Deflection Plate Shield

■ or → Locating Lug
IC Internal Connection
(Do not use)
D3 Deflection Plate No. 3
D4 Deflection Plate No. 4

G Grid
K Cathode
IS Internal Shield
□ Bulb Terminal
ISS Isolation Shield

BASING DIAGRAMS



BASE DIAGRAM SYMBOLS

A Anode
A1 First Anode
A2 Second Anode, etc.
G1 Grid No. 1
G2 Grid No. 2

H Heater
C Conductive Coating
D1 Deflection Plate No. 1
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G Grid
K Cathode
IS Internal Shield
□ Bulb Terminal
ISS Isolation Shield

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 precau-

tion, 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.

COMPLETE TECHNICAL INFORMATION & LITERATURE

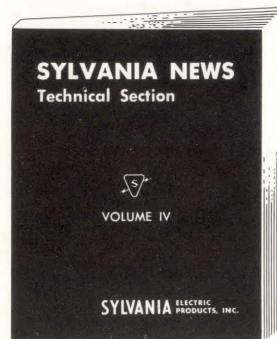
The literature below is only a partial listing of technical data and brochures available from Sylvania. Additional information may be procured from your Sylvania Distributor, or by writing Sylvania.

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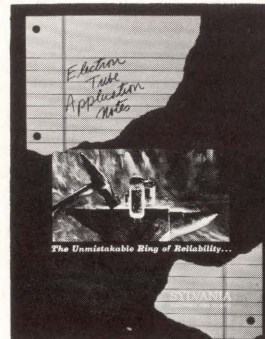
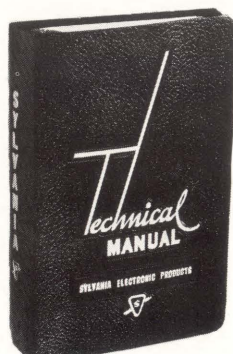
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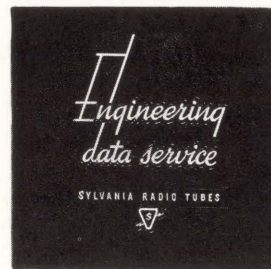
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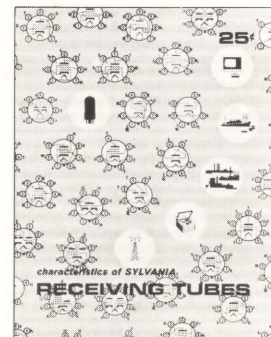
SYLVANIA TECHNICAL MANUAL (ET 1901) Abbreviated engineering data on over 1,800 types of receiving tubes, cathode ray tubes. A handy desk reference. Price \$3.00 including supplemental mailings.



ELECTRON TUBE APPLICATION NOTES (ET3959) A 56-page brochure detailing the important parameters and considerations on electronic receiving tubes. This is the most comprehensive text on the subject available.

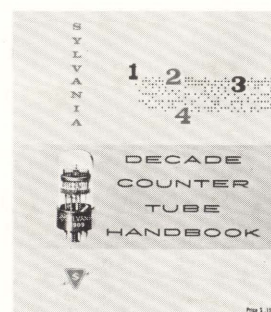


SYLVANIA ENGINEERING DATA SERVICE The most complete and comprehensive engineering data service available with full information on nearly 2,000 types of receiving tubes, cathode ray tubes, micro-wave devices, counter tubes, and electroluminescent display devices. Initial subscription \$28 including 5 binders. Subsequent yearly maintenance fee \$5 (approximately 7 supplemental inserts per year).



CHARACTERISTICS OF SYLVANIA RECEIVING TUBES (ET 1350) Provides detailed technical data for over 1500 tube types—their characteristics, ratings and basing diagrams. The information is intended to be of maximum use to servicemen as a quick reference chart. PRICE—25c

COUNTER TUBE HANDBOOK (ET3989) Complete technical data on Sylvania counter tubes and application information including typical circuits.



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 1100 MAIN STREET, BUFFALO 9, NEW YORK Or, contact your regular Sylvania Distributor.