RCA

PRICE 10 CENTS

PHOTOTUBES...

CATHODE-RAY...

and SPECIAL TUBES

GAS PHOTOTUBES
VACUUM PHOTOTUBES
MULTIPLIER PHOTOTUBES

OSCILLOGRAPH TUBES
CAMERA TUBES
MONOSCOPES

LOW-MICROPHONIC TYPES
ULTRA-HIGH-FREQUENCY TYPES
and other SPECIAL TYPES

TUBE DEPARTMENT
RADIO CORPORATION of AMERICA
HARRISON, N. J.

Form No. CRPS-102

PHOTOTUBES

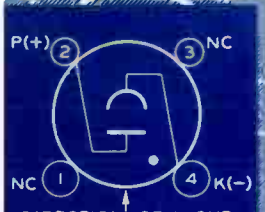
SINGLE- AND TWIN-UNIT TYPES

Type	Description	
GAS TYPES		
1P29	For use in colorimetric applications.	
1P37	For use in sound reproduction from a dye-image soundtrack. May also be used in measurement and color-control applications.	
1P40	Similar to Type 930 except for non-hygroscopic base. For applications critical as to leakage under high-humidity conditions.	
1P41	End-type (head-on operation). For light-operated relay applications.	
868	For use in sound reproduction.	
918	For use in sound reproduction.	
920	Twin-type. For use in push-pull sound reproduction from a double sound track.	
921	Cartridge type. For light-operated relay applications.	
923	For renewal use. For new equipment, the 1P40 or 930 is recommended.	
924	For renewal use only. For new equipment, Type 1P41 is recommended.	
927	For sound reproduction in 16-mm sound equipment.	
928	Non-directional type. For light-operated relay applications.	
930	For use in sound reproduction and light-operated relay applications.	
5581	Similar to Type 930 except for S-4 response.	Particularly suitable for use in sound reproduction involving a dye-image sound track in conjunction with an incandescent light source.
5582	Similar to Type 921 except for S-4 response.	
5583	Similar to Type 927 except for S-4 response.	
5584	Similar to Type 920 except for S-4 response.	
VACUUM TYPES		
1P39	Similar to Type 929 except for non-hygroscopic base. For applications critical as to leakage under high-humidity conditions.	
1P42	Small, head-on type. Only ¼ diameter. For applications where space limitation is a prime consideration.	
917	Two low-leakage types which are alike except that the anode is brought out to a top cap in the 917, and the cathode to a top cap in the 919. For light-measuring and light-operated relay applications.	
919		
922	Cartridge type. For use in light-operated relay applications.	
925	Short-bulb type. For light-operated relay applications.	
926	Cartridge type. For use in colorimetric applications.	
929	For light-measuring and light-operated relay applications.	
934	For use in sound and facsimile equipment.	
935	For use in ultraviolet measurement applications.	

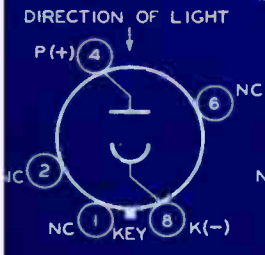
For key to base and envelope connection diagrams, see page 13.

Note 3: Direction of light is into end of bulb.

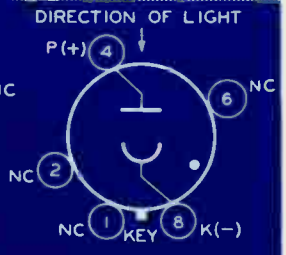
Note 8: Direction of light is into concave side of cathode.



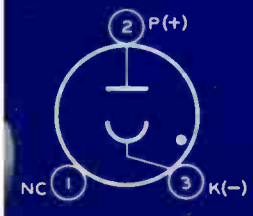
1P29 1P37 868 918 923



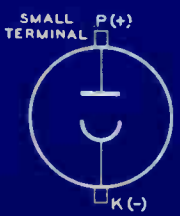
1P39 925 929



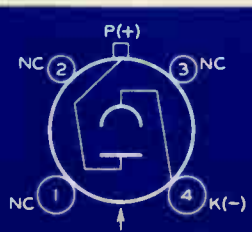
1P40 930 5581



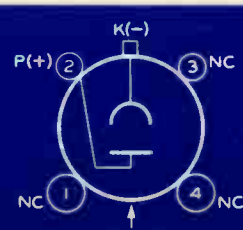
See Note 3
1P41



See Note 3
1P42

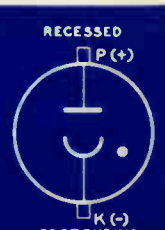


917



919

920 5584



See Note 8
921 5582

PHOTOTUBES

SINGLE- AND TWIN-UNIT TYPES

Out-line●	Spectral Characteristics				Maximum Ratings				Max. Gas Amplification Factor	Luminous Sensitivity μ Amp./Lumen			Type
	Color	Curve●	Max. Response Values		Anode-Supply Volts	Peak Cathode Current Density	Average Cathode Current	Ambient Temperature					
			Wavelength Angstroms	Sensitivity μAmp./μWatt	DC or Peak AC	μAmp./Sq. In.	μAmp.	°C		0 Cycles	5000 Cycles	10000 Cycles	
													GAS TYPES
2	Violet-Green	S-3	4200	0.010	100	100	5♦	100	9	40	35	31	**1P29**
2	Blue	S-4	4030	0.11	100	100	5♦	75	5.5	120	110	95	**1P37**
4	Red-Infrared	S-1	8000	0.0135	90	100	3♦	100	10	135	111	101	**1P40**
3	Red-Infrared	S-1	8000	0.0083	90	75	1.5♦	100	8.5	83	71	62	**1P41**
2	Red-Infrared	S-1	8000	0.009	90	100	5♦	100	8	90	77	67	**868**
2	Red-Infrared	S-1	8000	0.015	90	100	5♦	100	10.5	150	120	105	**918**
14	Red-Infrared	S-1	8000	0.010	90	50	2♦	100	9	100	85	74	**920**
6	Red-Infrared	S-1	8000	0.0135	90	100	3♦	100	10	135	119	108	**921**
10	Red-Infrared	S-1	For additional data, refer to Type 1P40.										**923**
13	Red-Infrared	S-1	8000	0.0083	90	75	1.5♦	100	8.5	83	71	62	**924**
7	Red-Infrared	S-1	8000	0.0125	90	100	2♦	100	10	125	110	100	**927**
1	Red-Infrared	S-1	8000	0.0065	90	100	3♦	100	10	65	56	50	**928**
4	Red-Infrared	S-1	For additional data, refer to Type 1P40.										**930**
4	Blue	S-4	4000	0.125	100	100	3♦	75	5.5	135	124	108	**5581**
6	Blue	S-4	4000	0.11	100	100	2♦	75	5.5	120	110	96	**5582**
7	Blue	S-4	4000	0.125	100	100	2♦	75	5.5	135	124	108	**5583**
14	Blue	S-4	4000	0.11	100	50	2♦	75	5.5	120	110	96	**5584**
													VACUUM TYPES
4	Blue	S-4	4000	0.042	250	100	5	75	—	45	45	45	**1P39**
9	Blue	S-4	4000	0.02	150	100	0.4	75	—	25	25	25	**1P42**
5	Red-Infrared	S-1	8000	0.002	500	100	10	100	—	20	20	20	**917**
5	Red-Infrared	S-1	For additional data, refer to Type 917.										**919**
6 §	Red-Infrared	S-1	8000	0.002	500	100	5	100	—	20	20	20	**922**
11	Red-Infrared	S-1	8000	0.0015	250	100	5	100	—	15	15	15	**925**
6	Violet-Green	S-3	4200	0.0016	500	100	5	100	—	6.5	6.5	6.5	**926**
4	Blue	S-4	For additional data, refer to Type 1P39.										**929**
7	Blue	S-4	4000	0.028	250	100	4	75	—	30	30	30	**934**
12	Ultraviolet-Blue	S-5	3400	0.028	250	100	10	75	—	30	30	30	**935**

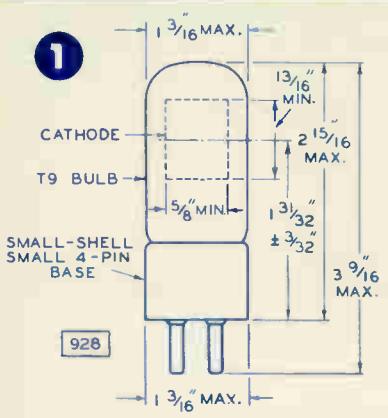
● For dimensional outlines and spectral sensitivity curves, see pages 4 and 5.

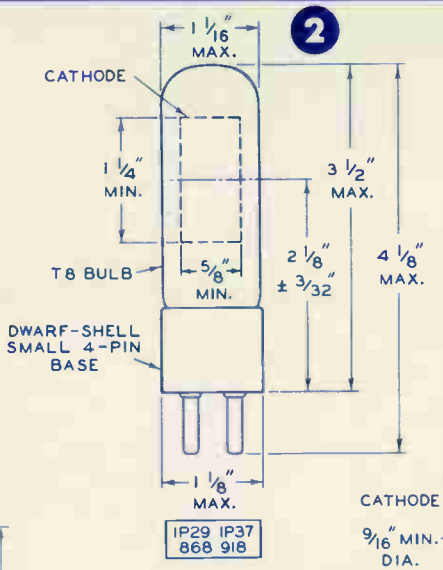
♦ At maximum anode-supply volts. For operation with anode-supply 20 volts less than the maximum rating, the average cathode current can be doubled.

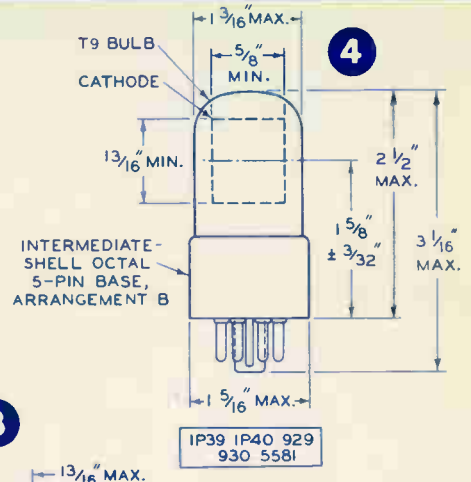
Note 3: Direction of light is into end of bulb.

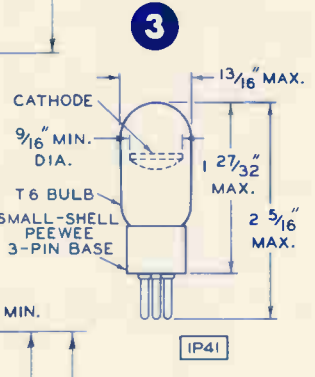
Note 8: Direction of light is into concave side of cathode.

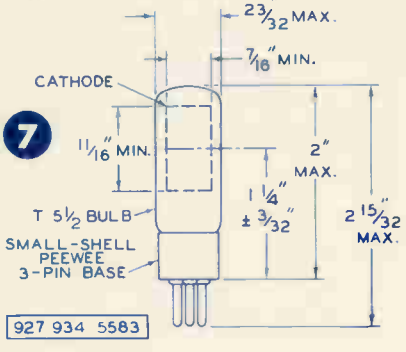
PHOTOTUBES

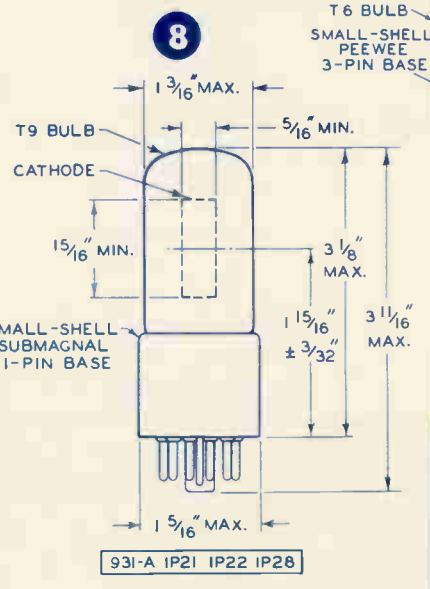


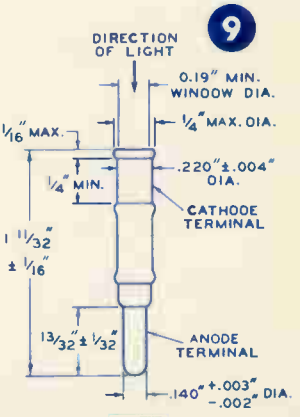


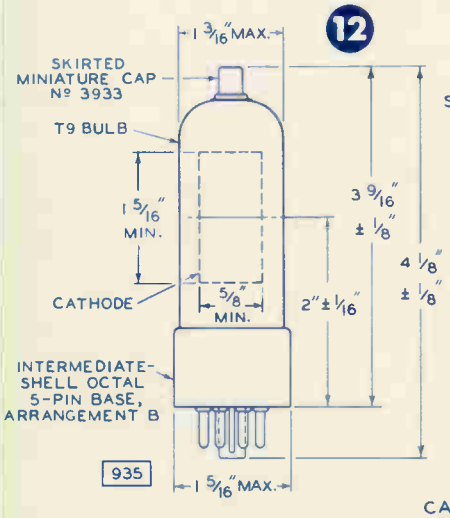


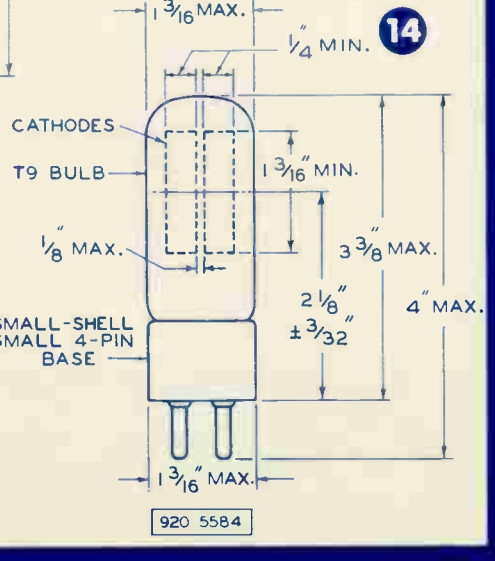


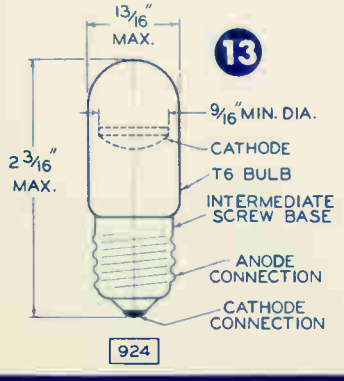




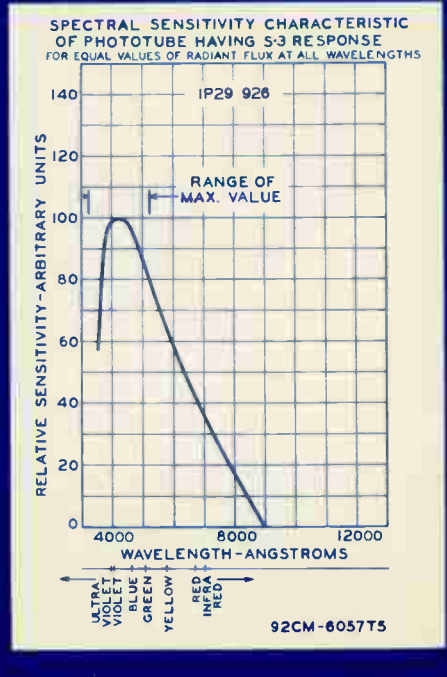




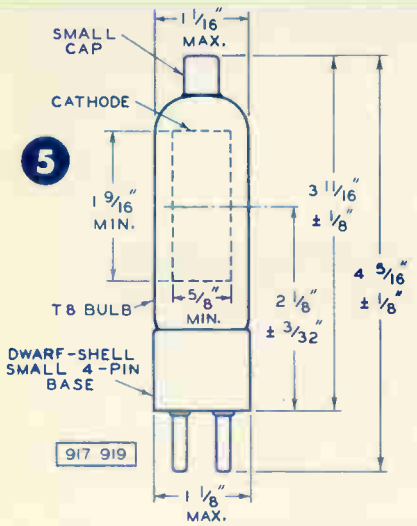


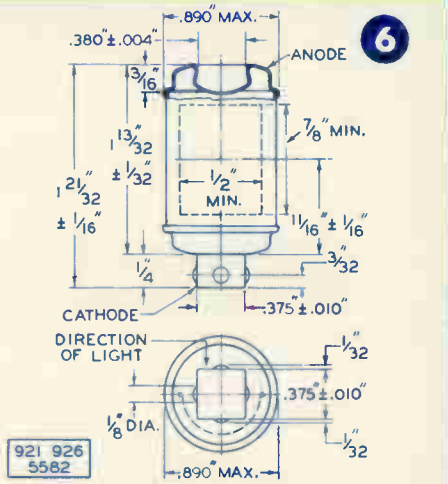


S-3 RESPONSE VIOLET-GREEN

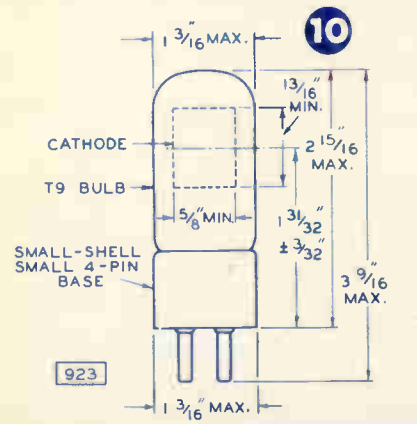


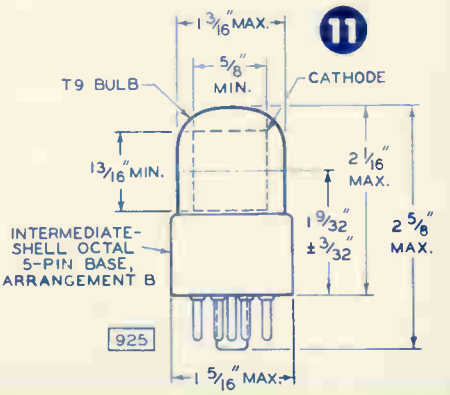
PHOTOTUBES





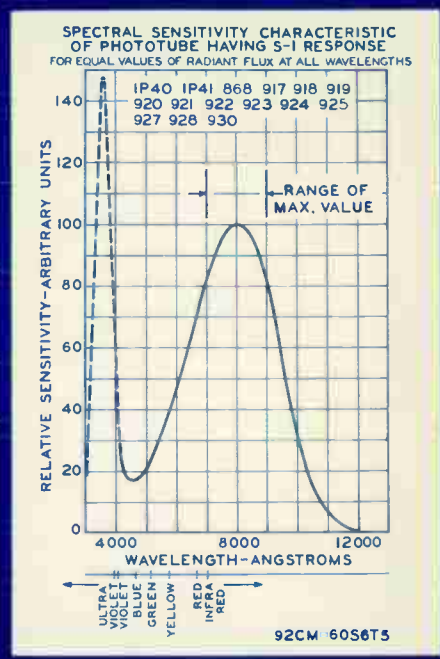
§: OUTLINE FOR 922 SAME AS ABOVE EXCEPT FOR MIN. CATHODE LENGTH (5/8")



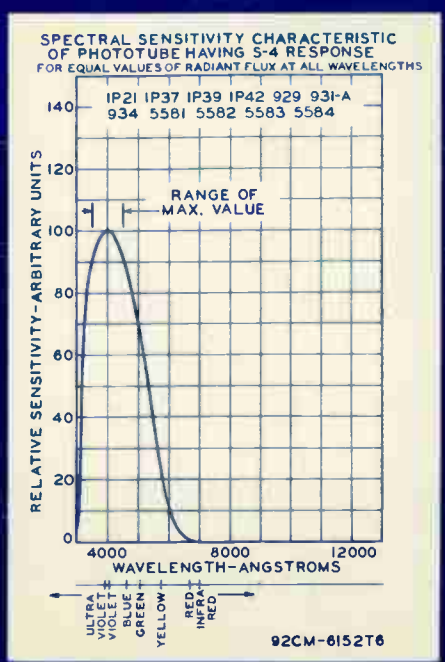


SPECTRAL SENSITIVITY CURVES

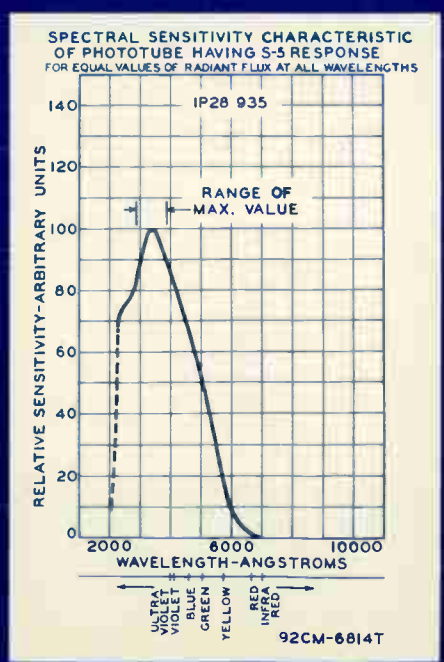
S-1 RESPONSE RED-INFRARED



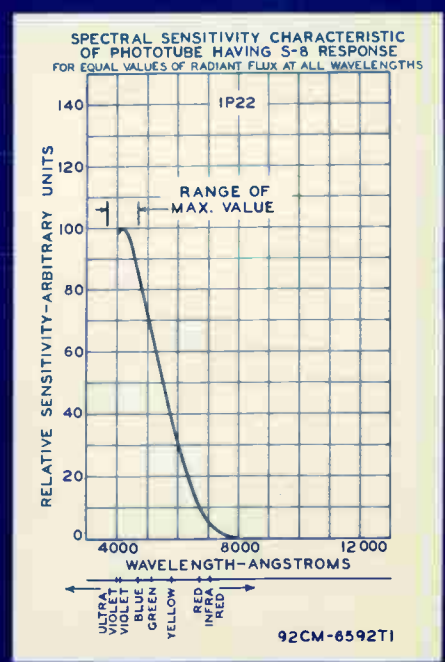
S-4 RESPONSE BLUE



S-5 RESPONSE ULTRAVIOLET-BLUE



S-8 RESPONSE BLUE-GREEN-RED



PHOTOTUBES

MULTIPLIER TYPES

RCA Type	Description
1P21	Similar to Type 931-A but intended for applications involving extremely high sensitivity.
1P22	High-sensitivity type having range of response similar to that of eye.
1P28	High-sensitivity type for ultraviolet measurement applications.
931-A	High-sensitivity type for facsimile transmission, sound reproduction, and scientific research.

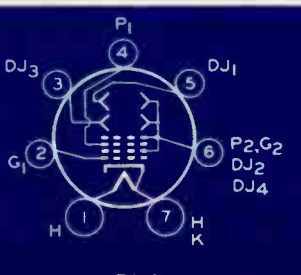
CATHODE-RAY TUBES

RCA Type	Description △
OSCILLOGRAPH TYPES	
2AP1-A	For renewal use only. For new equipment design, the 2BP1 is recommended.
2BP1 2BP11	Two-inch, compact, high-deflection-sensitivity types with a small, brilliant spot. Small-shell duodecal 12-pin base.
3AP1-A	For renewal use only. For new equipment design, the 3KP1 is recommended.
3BP1-A	Three-inch, high-brightness type of short overall length. Utilizes a diheptal 12-pin base for high-altitude operation.
3JP7	Three-inch type featuring a post-accelerator electrode to provide increased spot brightness with high deflection sensitivity. Recessed, small-ball cap. Diheptal 12-pin base.
3KP1	Three-inch, high-deflection-sensitivity type with a small, brilliant, spot and a high-contrast screen. Medium-shell magnal 11-pin base.
5BP1-A	Five-inch type with medium-shell magnal 11-pin base. For new equipment design, the 5UP1 is recommended.
5CP1-A 5CP7-A 5CP11-A	Five-inch types featuring a post-accelerator electrode to provide increased spot brightness with high deflection sensitivity. Diheptal 12-pin base.
5UP1 5UP7 5UP11	Five-inch, high-deflection-sensitivity types featuring a small, brilliant, spot and large useful screen surface. Small-shell duodecal 12-pin base.
902-A	For renewal use only. For new equipment design, the 2BP1 is recommended.

For key to base and envelope connection diagrams, see page 13.

△ Unless otherwise specified, all of these types have electrostatic focus and deflection.

NOTE: CHARACTERISTICS OF FLUORESCENT SCREENS. The fluorescent screens of the cathode-ray tubes listed above are identified according to phosphor number, e.g., ***P–1, P–4, P–5, P–7,*** and ***P–11.*** ***Phosphor P–1*** produces a brilliant spot having green fluorescence and medium persistence. Types having this phosphor are particularly useful for general oscillographic applications in which recurrent wave phenomena are to be observed visually. ***Phosphor P–4*** is a highly efficient screen having white fluorescence and medium persistence. Types having this



PHOTOTUBES

MULTIPLIER TYPES

Outline●	Spectral Characteristics: Color	Curve●	Max. Response Values: Wavelength Angstroms	Sensitivity‡ μAmp./μWatt	Maximum Ratings: Anode-Supply Volts DC or Peak AC	Supply Volts Between Dynode No. 9 and Anode	Anode Current Ma.	Anode Dissipation Watts	Ambient Temperature °C	Luminous‡ Sensitivity Amp./Lumen	Current‡ Amplification	RCA Type
8	Blue	S-4	4000	37000	1250	250	0.1	0.25	75	40	2000000	1P21
8	Blue-Green-Red	S-8	4000	370	1250	250	1.0	0.25	50	0.6	200000	1P22
8	Ultraviolet-Blue	S-5	3400	3400	1250	250	0.5	0.25	75	3	200000	1P28
8	Blue	S-4	4000	9300	1250	250	1.0	0.25	75	10	1000000	931-A

CATHODE-RAY TUBES

Heater Rating: Volts	Heater Rating: Amp.	Maximum Length Inches	Minimum Useful Screen Diameter Inches	Maximum Ratings¶: Anode-No. 2 and Grid-No. 2 Volts	Maximum Ratings¶: Anode-No. 1 Volts	Maximum Ratings¶: Grid-No. 1 Bias Volts: Neg.	Maximum Ratings¶: Grid-No. 1 Bias Volts: Pos.	Operating Conditions: Anode-No. 2 and Grid-No. 2 Volts	Operating Conditions: Anode-No. 1 Volts Approximate	Operating Conditions: Maximum Grid-No. 1 Volts for Visual Cutoff	Operating Conditions: Deflection Factor Volts DC/In. DJ_1 & DJ_2 ♂	Operating Conditions: Deflection Factor Volts DC/In. DJ_3 & DJ_4	RCA Type
OSCILLOGRAPH TYPES													
6.3	0.6	7⅝	1¾	1000	500	125	0	1000	140 to 300	−90	230	196	2AP1-A
6.3	0.6	7 13/16	1¾	2500	1000	200	0	1000 2000	150 to 280 300 to 560	−67.5 −135	135 270	87 174	2BP1 2BP11
2.5	2.1	11⅞	2¾	1500	1000	125	0	1500	300 to 515	−75	114	109	3AP1-A
6.3	0.6	10¼	2¾	2000	1000	200	0	1500 2000	300 to 515 400 to 690	−67.5 −90	150 200	111 148	3BP1-A
6.3	0.6	10¼	2¾	4000▲ 2000	1000	200	0	4000▲ 2000	400 to 690	−90	200	148	3JP7
								2000▲ 2000	400 to 690	−90	160	118	
6.3	0.6	11¾	2¾	2500	1000	200	0	1000 2000	160 to 300 320 to 600	−45 −90	59 118	45 90	3KP1
6.3	0.6	17⅛	4½	2000	1000	125	0	1500 2000	255 to 420 340 to 560	−45 −60	63 84	57 76	5BP1-A
6.3	0.6	17⅛	4½	4000▲ 2000	1000	200	0	4000▲ 2000	400 to 690	−90	92	78	5CP1-A 5CP7-A 5CP11-A
								2000▲ 2000	400 to 690	−90	73	64	
6.3	0.6	15⅛	4½	2500	1000	200	0	1000 2000	170 to 320 340 to 640	−45 −90	33 67	27 54	5UP1 5UP7 5UP11
6.3	0.6	7⅝	1¾	600	300	125	0	600	85 to 180	−90	139	117	902-A

● For dimensional outlines and spectral sensitivity curves, see pages 4 and 5.

¶ All maximum ratings shown are on a design-center basis.

‡ At 100 volts per stage.

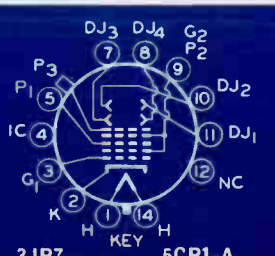
♂ DJ_1 and DJ_2 are deflecting electrodes nearer screen.

▲ Anode-No. 3 volts.

phosphor are of particular interest for television picture tubes. ***Phosphor P–5*** produces a highly actinic spot having bluish fluorescence and very short persistence. Types having this phosphor are especially useful in photographic applications involving film moving at very high speeds. ***Phosphor P–7*** is a long-persistence, cascade (two-layer) screen. During excitation by the electron beam, this phosphor produces a bluish fluorescence of short persistence. After excitation, the screen exhibits a greenish-yellow phosphorescence which persists for several minutes. Types having this phosphor are particularly useful where either extremely low-speed recurrent phenomena or medium-speed non-recurrent phenomena are to be observed. ***Phosphor P–11*** produces a brilliant actinic spot of bluish fluorescence and has sufficiently short persistence to permit its use in all photographic applications except those in which film moves at high speed. P-11 screens, because of their unusually high-brightness characteristic, may also be used for visual observation of phenomena.

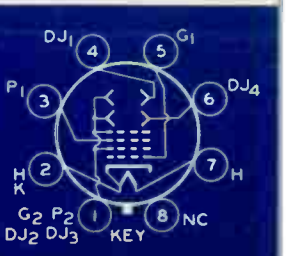
3KP1

5BP1-A



3JP7 5CP1-A
5CP7-A 5CP11-A

5UP1 5UP7 5UP11



902-A

CATHODE-RAY TUBES

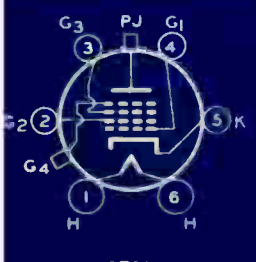
Type	Description △
OSCILLOGRAPH TYPES—Cont'd	
905-A	Five-inch type with a P-1 phosphor. Small cap for each of the four deflecting electrodes. Long-shell medium 5-pin, micanol, base.
908-A	Three-inch type with P-5 phosphor. Medium 7-pin base.
912	Five-inch, high-voltage type with P-1 phosphor. For observing high-speed transient and recurrent phenomena. Medium cap for anode-No. 2. Small cap for each deflecting electrode. Medium 5-pin, micanol base.
913	One-inch type with P-1 phosphor. For renewal use only. Octal 8-pin base.
914-A	Nine-inch, high-voltage type with P-1 phosphor. Medium cap for anode-No. 2. Small cap for each deflecting electrode. Medium 6-pin base.
VIEW-FINDER KINESCOPE ∞	
5FP4-A	Five-inch, magnetic-focus and deflection type. For use in television cameras. Recessed, small-ball cap. Long-shell octal 8-pin base.

CAMERA TUBES AND MONOSCOPES

Type	Description
CAMERA TUBES	
2P23	Image Orthicon: three-inch, magnetic-focus-and-deflection type with one-stage image multiplier, and five-stage signal multiplier. Features exceptional sensitivity, good resolution for outdoor pickup, and good stability over a wide range of light levels. For use in portable television cameras. Jumbo annular 7-pin shoulder base. Small-shell diheptal 14-pin end base.
1840	Television Orthicon. For renewal use only. Four skirted miniature caps. Small-shell octal 8-pin base.
1848	Iconoscope: magnetic-deflection type for use in portable television cameras. Two small metal caps. Dwarf-metal-shell octal 8-pin base.
1850-A	Iconoscope: magnetic-deflection type. Features high picture quality and good resolution. For film and studio pickup service. Two medium caps. Medium 6-pin base.
5527	Iconoscope: two-inch, electrostatic-focus and deflection type. For use in industrial and laboratory television applications. Features small size, moderate sensitivity, and moderate resolution. Recessed, small cavity cap. Medium-shell diheptal 12-pin base.
MONOSCOPE	
2F21	Five-inch, magnetic-deflection type with Indian Head Pattern. For supplying signal to test video performance of television transmitters and receivers. Calibration up to 500 lines. Two recessed, small ball caps. Long-shell medium 6-pin base.

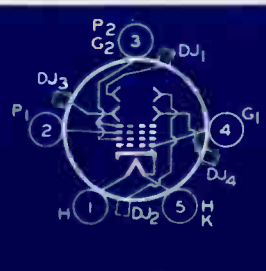
∞ For information on Kinescopes used in television broadcast receivers, see RCA booklet 1275-C (Receiving Tubes for Television, FM, and Standard Broadcast) listed on back cover.

△ Unless otherwise specified, all of these types have electrostatic focus and deflection.

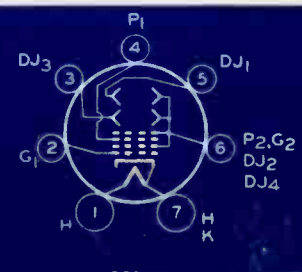


2F21

5FP4-A



905-A



908-A

912

CATHODE-RAY TUBES

Heater Rating Volts	Heater Rating Amp.	Maximum Length Inches	Minimum Useful Screen Diameter Inches	Maximum Ratings¶ Anode-No. 2 and Grid-No. 2 Volts	Maximum Ratings¶ Anode-No. 1 Volts	Maximum Ratings¶ Grid-No. 1 Bias Volts Neg.	Maximum Ratings¶ Grid-No. 1 Bias Volts Pos.	Operating Conditions Anode-No. 2 and Grid-No. 2 Volts	Operating Conditions Anode-No. 1 Volts Approximate	Operating Conditions Maximum Grid-No. 1 Volts for Visual Cutoff	Operating Conditions Deflection Factor Volts DC/In. DJ_1 & DJ_2 ♂	Operating Conditions Deflection Factor Volts DC/In. DJ_3 & DJ_4	Type
OSCILLOGRAPH TYPES—Cont'd													
2.5	2.1	16⅞	4½	2000	600	125	0	1500 2000	235 so 420 315 to 560	−39 −52	86 115	73 97	905-A
2.5	2.1	11⅞	2¾	1500	1000	125	0	1500	300 to 515	−75	114	109	908-A
2.5	2.1	16⅞	4½	15000† 250#	4500	125	0	15000† 250#	2370 to 4200	−90	918	747	912
6.3	0.6	4⅜	⅞	500	200	125	0	500	65 to 120	−60	300	220	913
2.5	2.1	20 7/16	8¼	7000† 300#	1900	125	0	7000† 250#	1045 to 1790	−75	323	254	914-A
VIEW-FINDER KINESCOPE♎													
6.3	0.6	11½	4¼	8000♅ 300#	—	125	0	6000♅ 250#	—	−25 to −70♎	Magnetic deflection		5FP4-A

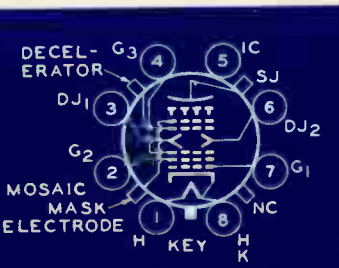
CAMERA TUBES AND MONOSCOPES

Heater Rating Volts	Heater Rating Amp.	Max. Image or Pattern Size Inches	Technical Data❤		Type
CAMERA TUBES					
6.3	0.6	Image Size 1.6 Diagonal	Photocathode Response, S-3 Max. Photocathode Volts, −450 Max. Photocathode Illumination, 50 Foot-Candles	Max. Anode-Supply Volts, 1650 Grid-No. 1 Volts for picture cutoff, −10 to −70 for Grid-No. 2 = 210 Volts Suitable Photocathode Illumination for Highlights, 0.01 to 10 Foot-Candles	2P23
6.3	0.6	Image Size 1¾ x 2 5/16	Max. Rotator-Electrode Volts, 330 Max. Anode Volts, 330 Max. Grid-No. 2 Volts, 330	Grid-No. 1 Volts for picture cutoff, −70 max. for Grid-No. 2 = 275 Volts Suitable Mosaic Illumination for Highlights, 1 to 5 Foot-Candles	1840
6.3	0.6	Image Size 2 3/16 x 2⅞	For additional data, refer to the 1850-A		1848
6.3	0.6	Image Size 3 9/16 x 4¾	Max. Signal-Electrode Volts, 1200 Max. Grid-No. 4 Volts, 1200 Max. Grid-No. 3 Volts, 450 Max. Grid-No. 2 Volts, 1200	Grid-No. 1 Volts for picture cutoff, −70 max. for Grid-No. 2 = 1000 Volts Suitable Mosaic Illumination for Highlights, 1 to 10 Foot-Candles	1850-A
6.3	0.6	Image Size 1.4 Diagonal	Max. Signal-Electrode Volts, 900 Max. Grid-No. 4 and Grid-No. 2 Volts, 900 Max. Grid-No. 3 Volts, 450	Grid-No. 1 Volts for picture cutoff, −75 max. for Grid-No. 2 = 800 Volts Suitable Mosaic Illumination for Highlights, 5 to 15 Foot-Candles	5527
MONOSCOPE					
6.3	0.6	Pattern 2 5/16 x 3 1/16	Max. Pattern-Electrode Volts, 1650 Max. Grid-No. 4 Volts, 1650 Max. Grid-No. 3 Volts, 660	Max. Grid-No. 2 Volts, 1760 Pattern-Electrode Signal Current (Peak-to-Peak), 0.5 μ amp. approx.	2F21

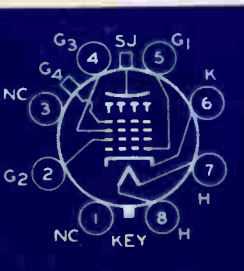
For key to base and envelope connection diagrams, see page 13. ¶ All maximum ratings shown are on a design-center basis. ♂ DJ_1 and DJ_2 are deflecting electrodes nearer screen. ❤ Maximum ratings for all these types are on an absolute basis except the 5527 which is on a design-center basis. ♅ Anode and grid-No. 3 volts. ♎ Operating cutoff range for grid-No. 2 volts = 250. † Anode-No. 2 volts. # Grid-No. 2 volts. Note 1: Direction of light is normal to mosaic. Note 2: Direction of light is perpendicular to face of tube. Note 3: Direction of light is into end of bulb.

913

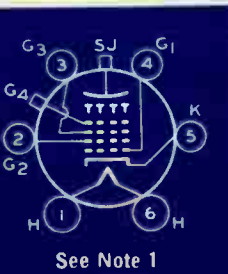
914-A



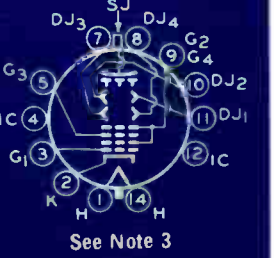
See Note 2 1840



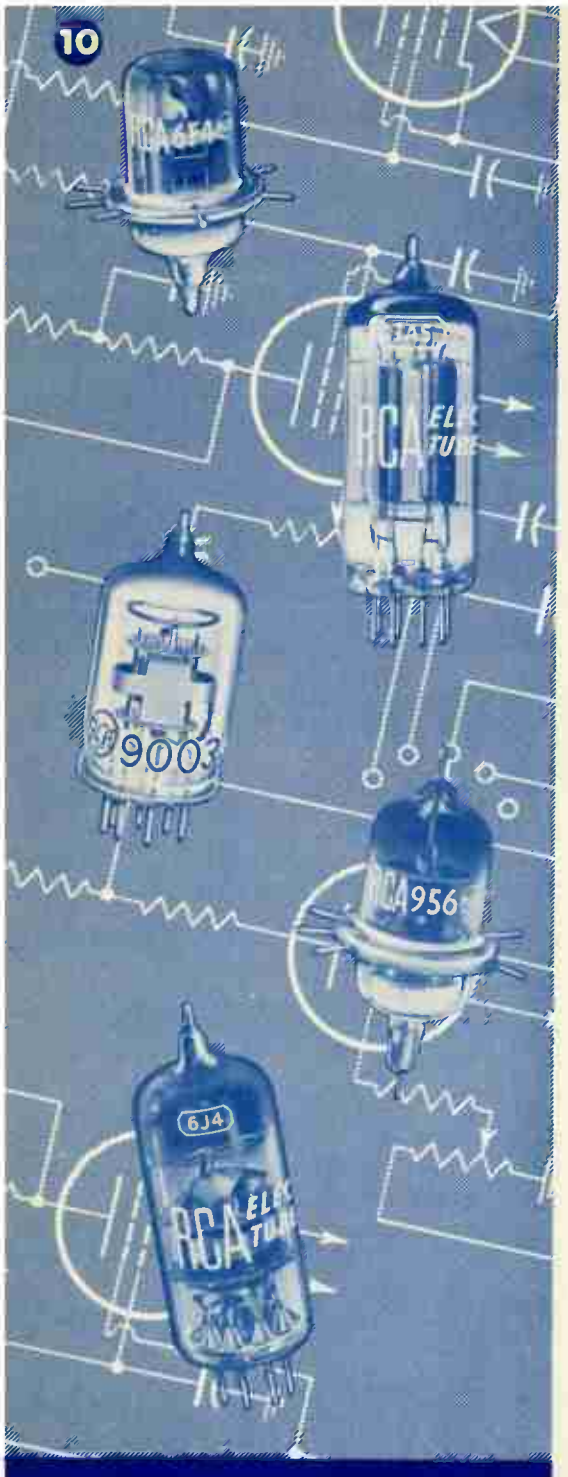
See Note 1 1848



See Note 1 1850-A



See Note 3 5527



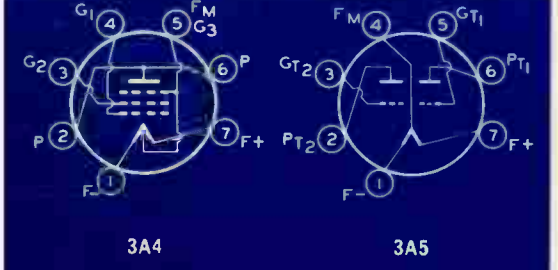
TYPES FOR SPECIAL APPLICATIONS

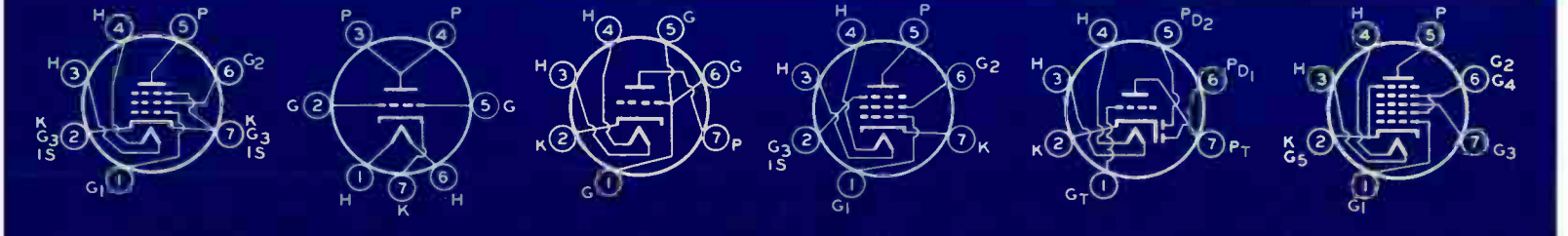
RCA Type	Description	
MINIATURES*		
3A4	Power Amplifier Pentode. Coated-filament, dry-cell type. Can deliver 1.2 watts power output at 10 Mc in rf amplifier service.	
3A5	HF Twin Triode. Coated-filament, dry-cell type. Can deliver 2 watts power output at 40 Mc in push-pull class C service.	
6AK5	RF Amplifier Pentode. Sharp-cutoff, heater-cathode type. Useful as an rf amplifier at frequencies up to 400 Mc.	
6J4	UHF Amplifier Triode. Heater-cathode type. For use primarily as a grounded-grid amplifier at frequencies up to 500 Mc.	
26A6	RF Amplifier Pentode. Remote-cutoff type with heater-cathode. Features high transconductance.	Of special use in aircraft receivers where operating voltages are obtained directly from 12-cell storage batteries.
26C6	Duplex-Diode Triode. Heater-cathode type. Useful as a detector, amplifier and avc tube.	
26D6	Pentagrid Converter. Heater-cathode type. Useful as a mixer and oscillator in superheterodyne receivers.	
1654	Half-Wave, High-Vacuum Rectifier. Coated-filament, dry-cell type. For high-voltage output from vibrator supply.	
9001	UHF Pentode. Sharp-cutoff, heater-cathode type. Electrically similar to 954, but in miniature envelope.	
9002	UHF Triode. Heater-cathode type. Electrically similar to 955, but in miniature envelope. For frequencies up to 500 Mc.	
9003	UHF RF Amplifier Pentode. Remote-cutoff, heater-cathode type. Electrically similar to 956, but in miniature envelope.	
9006	UHF Diode. Heater-cathode type. Resonant frequency about 700 Mc. For uhf service as a rectifier, detector, or measuring device.	
ACORNS▲▲		
6F4	Oscillator Triode. Heater-cathode type. For use at frequencies up to 1200 Mc.	
954	Detector Amplifier Pentode. Heater-cathode type. For use at frequencies up to 430 Mc.	
955	Detector Amplifier Oscillator Triode. Heater-cathode type. For use at frequencies up to 600 Mc.	
956	Supercontrol RF Amplifier Pentode. Remote-cutoff type with heater-cathode. For use at frequencies up to 430 Mc.	
957	Detector Amplifier Oscillator Triode. Coated-filament, dry-cell type.	
958-A	Amplifier Triode. Coated-filament, dry-cell type. Designed for transmitter service.	

For key to base and envelope connection diagrams, see page 13.

▲▲ All of these types have a small radial 5-pin base except the 6F4 which has a small radial 7-pin base.

* All of these types have a miniature button 7-pin base.



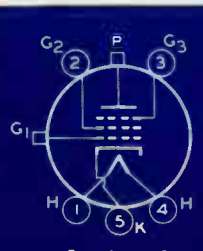


TYPES FOR SPECIAL APPLICATIONS

Cathode Volts	Cathode Amps.	Maximum Dimensions Inches Length	Maximum Dimensions Inches Diam.	Use — Values to right give operating conditions and characteristics for indicated use.	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current Ma.	Plate Current Ma.	AC Plate Resistance Ohms	Transconductance Micromhos	Amplification Factor	Load for Stated Power Ohms	Power Output Watts	RCA Type
MINIATURES*															
1.4	0.2	2 1/8	3/4	Class A Amplifier	135	− 7.5	90	2.6	14.9	90000	1900	—	8000	0.6	3A4
2.8	0.1				150	− 8.4	90	2.2	13.3	100000	1900	—	8000	0.7	
				RF Power Amplifier	150	—	135	6.5	18.3	—	—	—	—	1.2 at 10 Mc	
1.4	0.22	2 1/8	3/4	Class A Amplifier♦	90	− 2.5	—	—	3.7	8300	1800	15	—	—	3A5
2.8	0.11			Push-Pull Class C Amplifier	135	−20	from grid res., 4000 ohms		3.0	Grid Current, 5 ma. Driving Power, 0.2 watt			—	2.0 at 40 Mc	
6.3	0.175	1 3/4	3/4	Class A Amplifier	120	Cath. Bias	120	2.5	7.5	340000	5000	Cath. Res., 200 ohms			6AK5
					180		120	2.4	7.7	690000	5100				
6.3	0.4	2 1/8	3/4	Class A Amplifier	100	Cath.-Bias Resistor 100 ohms			10	5000	11000	55	—	—	6J4
					150				15	4500	12000	55	—	—	
26.5	0.07	2 1/8	3/4	Class A Amplifier	26.5	—	26.5	0.7	1.7	250000	2000	Grid Res., 2 megohms Cath. Res., 125 ohms			26A6
					250	—	100	4.0	10.5	1.0§	4000				
26.5	0.07	2 1/8	3/4	Triode Unit as Class A Amplifier	26.5	from grid res., 2 megohms			1.1	15500	1100	17	—	—	26C6
					250	− 9	—	—	9.5	8500	1900	16	—	—	
26.5	0.07	2 1/8	3/4	Converter	26.5	− 0.5	26.5	1.6	0.45	—	Conversion Transcond., 275 μmhos				26D6
					250	− 1.5	100	7.8	3	1.0§	Conversion Transcond., 475 μmhos				
1.4	0.05	2 7/16	3/4	With Capacitive-Input Filter	Max. Peak Inverse Plate Volts, 7000 AC Plate-Supply Volts (RMS), 2500						Max. Peak Plate Ma., 6 Max. Average Plate Ma., 1.0				1654
6.3	0.15	1 3/4	3/4	Class A Amplifier	250	− 3	100	0.7	2	1.0 + §	1400	—	—	—	9001
				Mixer in Superheterodyne	100	− 5	100	—	—	—	—	Osc. Peak Volts, 4			
					250	− 5	100	Conversion Transcond., 550 μmhos							
6.3	0.15	1 3/4	3/4	Class A Amplifier	90	− 2.5	—	—	2.5	14700	1700	25	—	—	9002
					250	− 7	—	—	6.3	11400	2200	25	—	—	
6.3	0.15	1 3/4	3/4	Class A Amplifier	250	− 3	100	2.7	6.7	700000	1800	—	—	—	9003
				Mixer in Superheterodyne	100	−10	100	—	—	—	—	Osc. Peak Volts, 9			
					250	−10	100	Conversion Transcond., 600 μmhos							
6.3	0.15	1 3/4	3/4	Detector Rectifier	Max. Peak Inverse Plate Volts, 750 AC Plate-Supply Volts (RMS), 270			Max. Peak Plate Ma., 15 Max. DC Output Ma., 5				Max. Total Effec. Plate-Supply Imp., 100 ohms			9006
ACORNS▲▲															
6.3	0.225	1 3/8	1 5/32	Class A Amplifier	80	Cath. Res., 150 ohms			13	2900	5800	17	—	—	6F4
				Class C Amplifier Oscillator	150	−15	—	—	20	Grid Current, 7.5 ma. Driving Power, 0.2 watt			—	1.8	
6.3	0.15	1 7/8	1 5/32	Class A Amplifier	250	− 3	100	0.7	2	1.0+§	1400	—	—	—	954
				Bias Detector	250✪	− 6	100	—	●	—	—	—	250000	—	
6.3	0.15	1 3/8	1 5/32	Class A Amplifier	90	− 2.5	—	—	2.5	14700	1700	25	—	—	955
					250	− 7	—	—	6.3	11400	2200	25	—	—	
				Class C Amplifier Oscillator	180	−35	—	—	7	Grid Current, 1.5 ma.			—	0.5 at 60 Mc	
6.3	0.15	1 7/8	1 5/32	Class A Amplifier	250	− 3	100	2.7	6.7	700000	1800	—	—	—	956
				Mixer in Superheterodyne	100	−10	100	—	—	—	—	Osc. Peak Volts, 9			
					250	−10	100	Conversion Transcond., 550 μmhos							
1.25	0.05	1 3/8	1 5/32	Class A Amplifier	135	− 5.0	—	—	2	20800	650	13.5	—	—	957
1.25	0.1	1 3/8	1 5/32	Class C Amplifier Oscillator	135	−20	from grid res., 20000 ohms		7	Grid Current, 1.0 ma. Driving Power, 0.035 watt			—	0.6	958-A

● Plate current adjusted to 0.1 ma with no input signal. ✪ Applied through plate resistor of 250000 ohms.

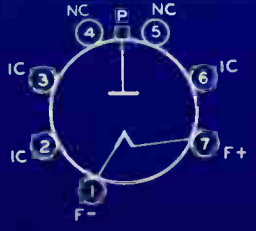
Note 6: P is on long part of bulb (top); G_1 is on short part of bulb. Note 7: Long part of bulb: Top. ♦ Each unit. § Megohms.



See Note 6
954 956

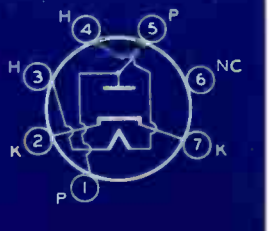
See Note 7 955

See Note 7
957 958-A



1654

9002



9006

TYPES FOR SPECIAL APPLICATIONS

RCA Type	Description
ACORNS▲▲—Cont'd	
959	Detector Amplifier Pentode. Sharp-cutoff, coated-filament, dry-cell type.
9004	UHF Diode. Heater-cathode type. For use as a rectifier, detector, or measuring device. Resonant frequency about 850 Mc.
9005	UHF Diode. Heater-cathode type. For use as a rectifier, detector, or measuring device. Resonant frequency about 1500 Mc.
METAL, GT, AND OTHER GLASS TYPES	
OA4-G	Glow-Discharge Triode. For use in carrier-current relay systems. May also be used as a voltage regulator. Octal 6-pin base.
1C21	Glow-Discharge Triode. Similar to Type OA4-G except for its smaller size and lower breakdown voltage. Octal 6-pin base.
2C21/ 1642	Twin-Triode Amplifier. Heater-cathode type. Small-shell 7-pin, micanol base.
2C22	Amplifier Triode. Heater-cathode type. For uhf applications. Two skirted miniature caps. Octal 8-pin base.
2C40	Lighthouse Triode. For use as an rf amplifier at frequencies up to 1200 Mc and cw oscillator at frequencies up to 3370 Mc. Octal 6-pin base.
2C43	Lighthouse Triode. Similar to Type 2C40 except for higher dissipation rating. For use as a cw oscillator at frequencies up to 1500 Mc.
6AG7-Y	Power Amplifier Pentode. Heater-cathode type. Features exceptionally high power sensitivity. Octal 8-pin, micanol base.
6AS7-G	Low-Mu Twin Power Triode. Heater-cathode type. Useful as a booster tube in television scanning circuits and as a dc amplifier in voltage-regulator circuits. Octal 8-pin base.
6SJ7-Y	Triple-Grid Detector Amplifier. Sharp-cutoff type with heater-cathode. Octal 8-pin, micanol base.
6SN7-GTY	Twin-Triode Amplifier. Heater-cathode type. Octal 8-pin, micanol base.
10-Y	Transmitting Triode. Coated-filament type. For transmitter service at frequencies up to 8 Mc. Medium 4-pin, micanol, bayonet base.
12A6	Beam Power Amplifier. Metal type with 12-volt heater. Octal 7-pin base.

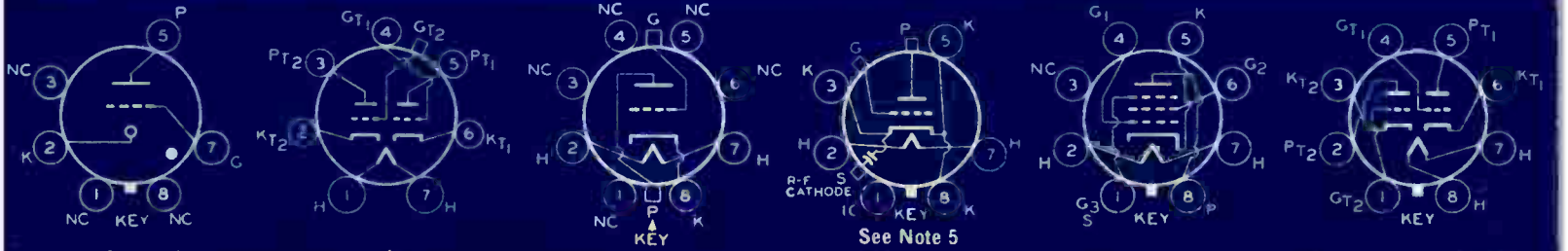
▲▲ All of these types have a small radial 5-pin base except the 6F4 which has a small radial 7-pin base.

◆ Each unit. § Megohms.

Note 5: Post and End Disc Terminal, plate; Center Disc Terminal, grid; Shell, cathode rf terminal.

Note 6: P is on long part of bulb (top); G_1 is on short part of bulb.

Note 7: Long part of bulb: Top.



Cathode Volts	Cathode Amps.	Maximum Dimensions Inches Length	Maximum Dimensions Inches Diam.	Use — Values to right give operating conditions and characteristics for indicated use.	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current Ma.	Plate Current Ma.	AC Plate Resistance Ohms	Transconductance Micromhos	Amplification Factor	Load for Stated Power Ohms	Power Output Watts	Type
ACORNS▲▲—Cont'd															
1.25	0.05	1 7/8	1 5/32	Class A Amplifier	135	− 3	67.5	0.4	1.7	800000	600	—	—	—	959
6.3	0.15	1 3/8	1 5/32	Detector Rectifier	Max. AC Plate Volts, 117 Max. DC Output Current, 5 ma.					Max. DC Heater-Cathode Volts, ±90 Resonant Frequency, 850 Mc approx.					9004
3.6	0.165	1 3/8	1 5/32	Detector Rectifier	Max. AC Plate Volts, 117 Max. DC Output Current, 1.0 ma.					Max. DC Heater-Cathode Volts, −50 Resonant Frequency, 1500 Mc approx.					9005
METAL, GT, AND OTHER GLASS TYPES															
COLD		4 1/8	1 9/16	Relay Service	Max. Peak Inverse Anode Volts, 225 Peak Starter-Anode Breakdown Volts, +75 to +90					Max. Peak Cathode Current, 100 ma. Max. Average Cathode Current, 25 ma.					OA4-G
COLD		2 5/8	1 5/16	Relay Service	Max. Peak Inverse Anode Volts, 180 Peak Starter-Anode Breakdown Volts, +66 to +80					Max. Peak Cathode Current, 100 ma. Max. Average Cathode Current, 25 ma.					1C21
6.3	0.6	4 17/32	1 9/16	Each Unit as Class A Amplifier	250	−16.5	—	—	8.3	7600	1375	10.4	—	—	2C21/1642
6.3	0.3	3 1/4	1 5/16	Class A Amplifier	300	−10.5	—	—	11	6600	3000	20	—	—	2C22
6.3	0.75	2 9/16	1 5/16	Class A Amplifier	250	Cath. Bias	—	—	16.5	7500	4800	36	Cath. Res., 200 ohms		2C40
				Class C Amplifier Oscillator	Max. DC Plate Volts, 450 Max. DC Plate Current, 22 ma.					Max. Peak Heater-Cathode Volts, ±90 Max. Plate Dissipation, 5 watts					
6.3	0.9	2 11/16	1 5/16	Class A Amplifier	250	Cath. Bias	—	—	20	6000	8000	48	Cath. Res., 100 ohms		2C43
				Class C Amplifier Oscillator	Max. DC Plate Volts, 450 Max. DC Plate Current, 36 ma.					Max. Peak Heater-Cathode Volts, ±90 Max. Plate Dissipation, 10 watts					
6.3	0.65	3 1/4	1 5/16	Class A Amplifier	300	− 3	150	7	30	130000	11000	—	10000	3	6AG7-Y
				4-Mc Bandwidth Amplifier	300	—	115	13	45	Load Resistor, 3500 ohms Voltage Output (Peak-to-Peak), 135 volts Grid Res., 0.25 to 0.50 megohms					
6.3	2.5	5 5/16	2 1/16	DC Amplifier♦	135	Cath. Res., 250 ohms			125	280	7000	2.0	—	—	6AS7-G
				Booster Tube for Television Scanning	Max. Inverse Plate Volts, 1700 Max. Heater-Cathode Volts, ±300					Max. Peak Plate Current (Per Plate), 125 ma. Max. Plate Dissipation (Per Plate), 13 watts					
6.3	0.3	2 5/8	1 5/16	Pentode as Class A Amplifier	250	− 3	100	0.8	3	1.0+§	1650	—	—	—	6SJ7-Y
					90 300	Cath. Bias, 1700 ohms; Gain 93 Cath. Bias, 860 ohms; Gain 167				Grid Res. (for following tube), 0.5§ Plate Resistor, 250000 ohms					
6.3	0.6	3 5/16	1 5/16	Each Unit as Class A Amplifier	90 250	0 − 8	— —	— —	10 9	6700 7700	3000 2600	20 20	— —	— —	6SN7-GTY
7.5	1.25	5 3/8	2 1/16	RF Power Amplifier Oscillator	Max. DC Plate Volts, 450 Max. DC Grid Volts, −200			Max. DC Plate Ma., 60 Max. Plate Input, 27 watts			Max. Plate Dissipation, 15 watts				10-Y
12.6	0.15	3 1/4	1 5/16	Class A Amplifier	250	−12.5	250	3.5	30	70000	3000	—	7500	3.4	12A6

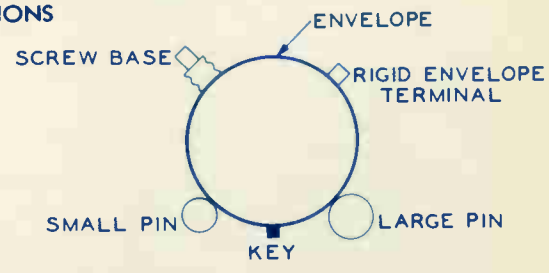
LEGEND FOR BASE AND ENVELOPE CONNECTION DIAGRAMS

Diagrams show terminals viewed from base or filament end of tube.

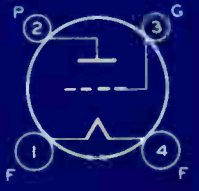
KEY TO TERMINAL DESIGNATIONS

Alphabetical subscripts B, D, HX, P, and T indicate, respectively, beam unit, diode unit, hexode unit, pentode unit, and triode unit in multi-unit types:

BC = Base Sleeve
BS = Base Shell
DJ = Deflecting Electrode
DY = Dynode
F = Filament
FM = Filament Mid-Tap
● = Gas-Type Tube
G = Grid
H = Heater
HM = Heater Mid-Tap
IC = Internal Connection—Do Not Use
IS = Internal Shield
K = Cathode
NC = No Connection
P = Plate (Anode)
PJ = Pattern Electrode
S = Shell
SJ = Signal Electrode
T = Target
U = Unit

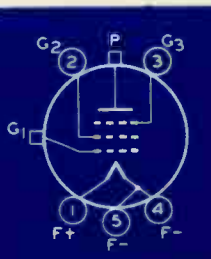


6SJ7-Y



10-Y

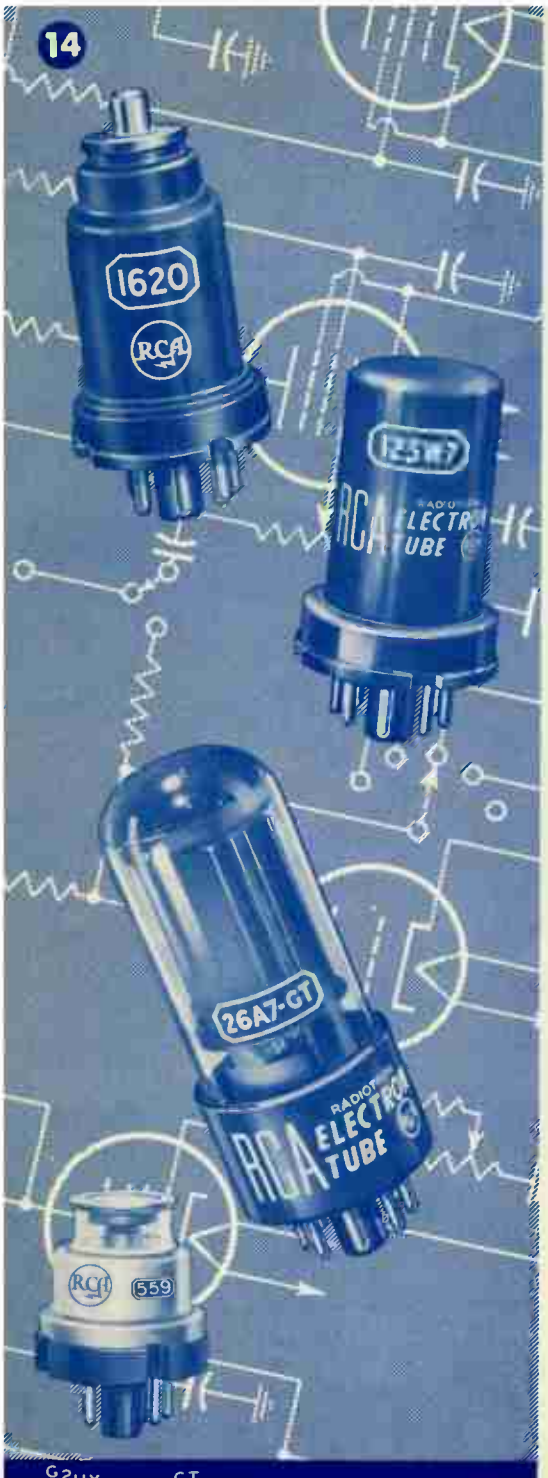
12A6



See Note 6 959

See Note 7 9004

See Note 7 9005

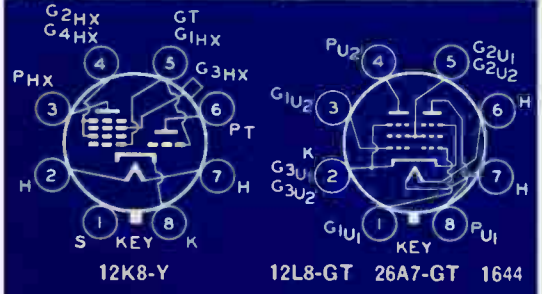


TYPES FOR SPECIAL APPLICATIONS

RCA Type	Description	
METAL, GT, AND OTHER GLASS TYPES—Cont'd		
12K8-Y	Triode-Hexode Converter. Heater-cathode type. Especially useful in aircraft communications receivers. Miniature cap. Octal 8-pin, micanol base.	
12L8-GT	Twin-Pentode Power Amplifier with 12-volt heater. Octal 8-pin base.	
12SW7	Duplex-Diode Triode. Single-ended metal type with heater-cathode. Octal 8-pin base.	Of special use in aircraft receivers where operating voltages are obtained from 12-cell storage batteries.
12SX7-GT	Twin-Triode Amplifier. Heater-cathode type. Octal 8-pin base.	
12SY7	Pentagrid Converter. Single-ended metal type with heater-cathode. Octal 8-pin base.	
26A7-GT	Twin AF Beam Power Amplifier. Heater-cathode type. Octal 8-pin base.	
89-Y	Triple-Grid Power Amplifier. Heater-cathode type. Small metal cap. Small 6-pin base.	
559	Lighthouse Diode. For use as a uhf detector and in rf switching devices. Octal 6-pin base.	
864	Amplifier Triode. Coated-filament type. Small 4-pin base. For new equipment design, Type 6J7 is recommended.	
1603	Triple-Grid Detector Amplifier. Heater-cathode type. Small metal cap. Small 6-pin base. For new equipment design, Type 1620 is recommended.	
1609	Amplifier Pentode. Coated-filament type. Small 5-pin base. For new equipment design, Type 6J7 is recommended.	
1612	Pentagrid Amplifier. Metal, low-microphonic type similar to 6L7. For volume-expander-compressor circuits. Miniature cap. Octal 7-pin base.	
1620	Triple-Grid Detector Amplifier. Metal, low-microphonic type similar to 6J7. For pre-amplifier stages of high-gain audio amplifiers. Miniature cap. Octal 7-pin base.	
1621	Power Amplifier Pentode. Metal type similar to 6F6. For applications requiring continuity of service. Octal 7-pin base.	
1622	Beam Power Amplifier. Metal type similar to 6L6. For applications requiring continuity of service. Octal 7-pin base.	
1629	Electron-Ray Tube. Indicator type. Similar to 6E5 except for 12-volt heater. Useful as a voltage indicator in aircraft equipment. Octal 7-pin base.	
1631	Beam Power Amplifier. Metal type. Similar to 6L6 except for 12-volt heater and dissipation rating. Octal 7-pin base.	
1632	Beam Power Amplifier. Metal type with heater-cathode. For applications critical as to uniformity of characteristics.	
1633	Twin-Triode Amplifier. Similar to type 6SN7-GT except for 25-volt heater.	
1635	Class B Twin Amplifier. Heater-cathode type. For audio amplifier applications.	
1644	Twin-Pentode Power Amplifier. Similar to Type 12L8-GT but is especially suited for applications requiring matched pentode units. Octal 8-pin base.	
1851	Television Amplifier Pentode. Metal, heater-cathode type. For new equipment design, 6AC7/1852 is recommended.	

For key to base and envelope connection diagrams, see page 13.

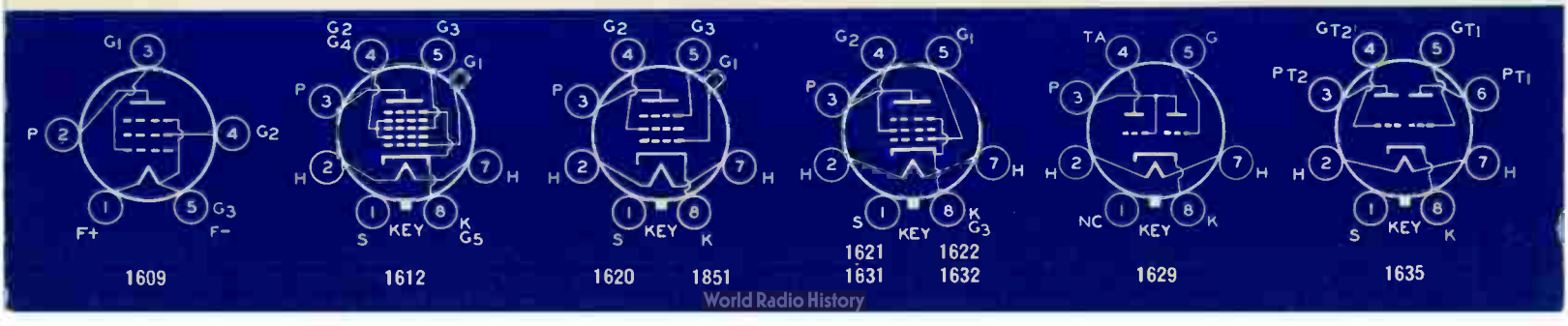
Note 4: Disc, plate terminal; Shell, cathode rf terminal.



Cathode Volts	Cathode Amps.	Maximum Dimensions Inches Length	Maximum Dimensions Inches Diam.	Use — Values to right give operating conditions and characteristics for indicated use.	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current Ma.	Plate Current Ma.	AC Plate Resistance Ohms	Transconductance Micromhos	Amplification Factor	Load for Stated Power Ohms	Power Output Watts	Type
METAL, GT, AND OTHER GLASS TYPES—Cont'd															
12.6	0.15	3 1/8	1 5/16	Triode Unit or Oscillator	100	Triode-Grid Resistor, 50000 ohms			3.8	Triode-Grid and Hexode-Grid Current, 0.15 ma.					12K8-Y
				Hexode Mixer	250	− 3	100	6	2.5	600000	Conversion Transcond., 350 μmhos				
12.6	0.15	3 5/16	1 5/16	Class A Amplifier♦	180	− 9	180	2.8	13	16000	2150	—	10000	1.0	12L8-GT
12.6	0.15	2 5/8	1 5/16	Class A Amplifier	26.5	from grid res., 2 meg.			1.1	15500	1100	17	—	—	12SW7
					250	− 9	—	—	9.5	8500	1900	16	—	—	
12.6	0.3	3 5/16	1 5/16	Each Unit as Class A Amplifier	26.5	from grid res., 0.05 meg.			1.8	11500	1800	21	—	—	12SX7-GT
					250	− 8	—	—	9	7700	2600	20	—	—	
12.6	0.15	2 5/8	1 5/16	Converter▲	26.5	− 1	26.5	1.7	0.45	—	Conversion Transcond., 350 μmhos				12SY7
					250	− 2	100	8.5	3.5	1.0§	Conversion Transcond., 450 μmhos				
26.5	0.6	3 13/16	1 5/16	Class A Amplifier♦	26.5	− 4.5	26.5	2	20	2500	5500	—	1500¶	0.2	26A7-GT
				Class AB Amplifier	26.5	− 7.0	26.5	2	19	—	—	—	2500¶	0.5	
6.3	0.4	4 17/32	1 9/16	As Pentode■■ Class A Amplifier	180	−18	180	3	20	80000	1550	—	8000	1.5	89-Y
					250	−25	250	5	32	70000	1800	—	6750	3.4	
6.3	0.75	1 15/16	1 5/16	Half-Wave Rectifier	Max. Peak Inverse Plate Volts, 200 Max. Peak Heater-Cathode Volts, ±90				Max. Peak Plate Current, 180 ma. Max. Average Plate Current, 27 ma.						559
1.1	0.25	3 3/4	1 3/16	Class A Amplifier	90	− 4.5	—	—	2.9	13500	610	8.2	—	—	864
					135	− 9	—	—	3.5	12700	645	8.2	—	—	
6.3	0.3	4 15/16	1 9/16	As Pentode■■ Class A Amplifier	100	− 3	100	0.5	2	1.0+§	1185	—	—	—	1603
					250	− 3	180	2.1	8.3	900000	2000	—	—	—	
1.1	0.25	4 3/16	1 9/16	Class A Amplifier	135	− 1.5	67.5	0.65	2.5	400000	725	—	—	—	1609
6.3	0.3	3 1/8	1 5/16	Class A Amplifier	250	− 3†	100	6.5	5.3	600000	1100	—	—	—	1612
				Mixer in Superheterodyne	250	− 3	100	7.1	2.4	Oscillator Grid (#3) Bias, −10 volts Conversion Transcond., 375 μmhos					
6.3	0.3	3 1/8	1 5/16	As Pentode■■ Class A Amplifier	100	− 3	100	0.5	2	1.0§	1185	—	—	—	1620
					250	− 3	100	0.5	2	—	1225	—	—	—	
6.3	0.7	3 1/4	1 5/16	Push-Pull Pentode Class A Amplifier	300	−30	300	6.5✢	38✢	—	—	—	4000¶	5	1621
6.3	0.9	4 5/16	1 5/8	Push-Pull Class A Amplifier	300	−20	250	4✢	86✢	—	—	—	4000¶	10	1622
12.6	0.15	4 1/8	1 3/16	Visual Indicator	Plate and Target Supply Volts, 250. Triode Plate Resistor, 1.0§. Target Ma., 2. Grid Bias Volts, −7.5, Shadow Angle, 0°; Bias, 0 Volts; Angle, 90°. Plate Ma., 0.2										1629
12.6	0.45	4 5/16	1 5/8	Push-Pull Class AB_1 Amplifier	360	−22.5	270	5✢	88✢	—	—	—	6600¶	26.5	1631
					360	−22.5	270	5✢	88✢	—	—	—	3800¶	18	
12.6	0.6	3 1/4	1 5/16	Single Tube Class A Amplifier	110	− 7.5	110	4	49	13000	9000	—	2000	2.1	1632
					200	− 8	110	2	50	30000	9500	—	3000	4.3	
2.5	0.15	3 5/16	1 5/16	Each Unit as Class A Amplifier	250	− 8	—	—	11.5	6900	2600	18	—	—	1633
6.3	0.6	3 5/16	1 5/16	Class B Amplifier	300	0	—	—	Power output is for one tube at stated plate-to-plate load				12000	10.4	1635
12.6	0.15	3 5/16	1 5/16	Class A Amplifier	For additional data, refer to Type 12L8-GT.										1644
6.3	0.45	3 3/8	1 5/16	Class A Amplifier	300	Cath. Bias	150	2.5	10.0	1.0§	9000	Cath. Res., 160 ohms			1851

▲ Grids-No. 2 and No. 4 are screen; grid-No. 3 is control grid. ■■ Grid-No. 1 is control grid; grid-No. 2 is screen; grid-No. 3 tied to cathode.

† For signal input control grid (#1); control grid (#3) bias, −3 volts. ¶ Plate-to-plate. ✢ For two tubes. ♦ Each unit. § Megohms.



Copies of the publications listed below may be obtained from your RCA Tube Distributor, or direct from Commercial Engineering, Tube Department, Radio Corporation of America, Harrison, New Jersey.

TECHNICAL PUBLICATIONS ON RCA ELECTRON TUBES

1. TUBE HANDBOOK—ALL TYPES HB-3 (7⅜" x 5"). The bible of the industry—loose-leaf data and curves on all RCA receiving tubes, power tubes, cathode-ray tubes, phototubes, and special tubes. Three deluxe, 4-prong binders imprinted in gold. Available on subscription basis. Write to Commercial Engineering for descriptive folder and order form.

2. RECEIVING TUBE MANUAL RC-14 (8½" x 5½")—256 pages. Tube theory written for the layman, application data, circuits, and charts. Contains data on 340 different RCA receiving types. Price 35 cents.

3. PHOTOTUBES BULLETIN (11" x 8½")—16 pages. Phototube theory, data on 15 types, curves, and circuits for light-operated relays, light measurements, and sound reproduction. Single copy free on request.

4. RADIOTRON DESIGNER'S HANDBOOK (9" x 6")—356 pages. Edited by F. Langsford Smith of Amalgamated Wireless Valve Company Pty. Ltd. in Australia. Of value to anyone interested in fundamental principles of practical circuit design. Copiously illustrated. Price $1.25.

6A. POWER AND GAS TUBES FOR RADIO AND INDUSTRY—Bulletin PG-101 (11" x 8½")—16 pages. Technical information on air- and water-cooled transmitting tubes, rectifiers, thyratrons, ignitrons, and voltage regulators. Price 10 cents.

6B. CATHODE-RAY, PHOTOTUBES, AND SPECIAL TYPES—Bulletin CRPS-102 (11" x 8½")—16 pages. Technical information on gas-and vacuum-type phototubes, multiplier phototubes, cathode-ray oscillograph tubes, camera tubes, low-microphonic types, acorn types, and other small tubes for special applications. Price 10 cents.

7. RECEIVING TUBES FOR TELEVISION, FM, AND STANDARD BROADCAST—Bulletin 1275-C (11" x 8½")—16 pages. Characteristics and socket connections of RCA receiving types, including kinescopes. Price 10 cents.

8. INSTRUCTION BOOKLETS—Complete, authorized information on RCA transmitting and special types. Be sure to mention tube type booklet desired. Single copy of any type free on request.

9. TUBE PICTURE BOOK—Especially for use in schools to provide visual instruction in the constructional details of representative receiving, transmitting, cathode-ray, and special tubes. Contains 8 charts. Price 10 cents.

10. AIR-COOLED TRANSMITTING TUBES MANUAL TT-3 (8½" x 5½")—192 pages. Published several years ago, this book still retains its popularity for instruction purposes. It contains basic information on generic tube types, tube parts and materials, tube ratings, tube installation and application, transmitter-design considerations, rectifiers and filters, as well as data on many of the older tube types. Price 35 cents.

11. TUBE SUBSTITUTION DIRECTORY (11" x 8½")—16 pages. Prepared especially for radio service men. Lists over 2000 tube substitutions having replacement possibilities for emergency servicing. Price 10 cents.

12. QUICK REFERENCE CHART, MINIATURE TUBES—Bulletin MNT-30 (11" x 8½")—4 pages. Characteristics and socket connections for RCA miniature tubes. Single copy free on request

Prices subject to change without notice.

RCA The Fountainhead of Modern Tube Development is RCA

RADIO EQUIPMENT DISTRIBUTORS
312 WEST PICO BOULEVARD
LOS ANGELES 15, CALIFORNIA
PRospect 9151

Litho. in U. S. A. 2-47