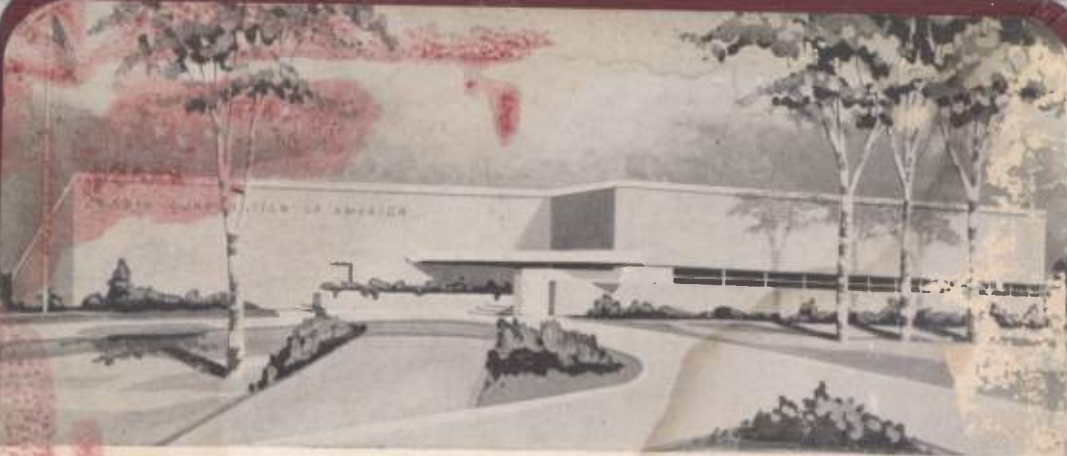




RCA'S newest production center for Glass and
Special Tubes, located at Woodbridge, New Jersey

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RCA SERVICE

in National Defense . . .



A 5-STAR PROGRAM

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- ★ TECHNICAL PUBLICATIONS
- ★ TRAINING DEVICES
- ★ TRAINING PROGRAMS
- ★ SPECIAL PROJECTS

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Air Ground Radio

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Radio Ranges
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This division of RCA is currently providing services on a world-wide basis in the above categories to branches of the United States Department of Defense. Headquarters are located in Camden, New Jersey, where a select staff of training, field engineering and technical publications experts direct and coordinate this global activity of RCA.

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GOVERNMENT SERVICE DIVISION RCA SERVICE COMPANY, INC.

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Dayton, Ohio
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Home Office:
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WO dlaw 3-8000
Ext. PG-228

Wash. Office:
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Ext. 2-1260



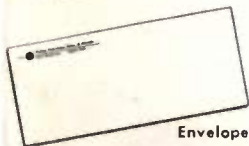
Business Aids

Good business management can mean the difference between success or failure in any business organization. You can make your Radio and TV servicing business more efficient and more profitable by taking advantage of the wide variety of business aids offered by RCA. Illustrated below are a representative group of the many RCA business aids that will help you operate at peak efficiency.



THIS BUSINESS OF RADIO AND TV SERVICING 2F770

One of the most valuable and practical books ever published on the business management of a TV-Radio service shop. Thirty-two pages of practical articles. It's a *must* for every profit-minded service shop manager. See your RCA tube distributor for complete details.



Envelopes



Letterheads



Business Cards



Repeat-Business
Stamp and Pad



Repair Tags

"Not-at-Home"
Cards



TABLE OF CONTENTS

RCA Products	2-3
Sales & Service Aids	4-5
House Organs	6
Technical Publications	7-13
RCA Receiving Tube Characteristics Charts	14-53
RCA Kinescope Characteristics Charts	54-59
RCA Semiconductor Devices	60-64
Quick Selection Guide to Power, Cathode- Ray, Photo, and Special Tubes	65-79
Interchangeability Directory of Tubes for Communications and Industry	80-85
RCA Battery Characteristics Chart and Interchangeability Guide	86-87
Battery Socket and Terminal Guide	88-89
Battery Replacement Guide for 1948, 1949, 1950, 1951, 1952, 1953, Portable Radios	90-96
RCA Miniature Lamps	97
Deflection Components Guide	98-100
RCA Speakers	101
RCA TV Components	102
RCA Lightning Arresters	103
RCA Test Equipment	104-113
Television Service Data	114-115
TV Receiver Alignment	116
Using The Test Pattern	117-118
U.S. Postal Rates and Information	119-120



Renewal



RCA RECEIVING TUBES

The RCA brand on any tube is your best assurance of superior quality and dependable performance. All along the line, from raw material to finished product, RCA Tubes must conform to rigid quality control standards. You can rely on RCA receiving tubes for top performance at all times.

RCA TUBES FOR INDUSTRY AND COMMUNICATIONS

For electron tubes to fill virtually every broadcast, communications, or industrial need, call your local RCA Tube Distributor. You can depend on him to offer you fast, efficient service on more than 360 RCA types, including: Power Tubes, Cathode-Ray Tubes, Camera Tubes and Special Tubes, Phototubes, Thyratrons, Ignitrons, and Rectifiers.



RCA TEST EQUIPMENT

Experts in servicing, production and research know they can depend on RCA Test Equipment for their critical electronic test or measuring requirements. Manufactured to exacting standards, each instrument is designed for accuracy and simplicity of operation. Dependable, versatile, economical, attractive . . . these are the qualities that make RCA Test Equipment the best your money can buy.



RCA TRANSISTORS

RCA point-contact transistors 2N32 and 2N33, and RCA junction-type transistors 2N34 and 2N35 are the results of RCA's vast research program in semiconductor devices. The development of RCA transistors for commercial use is further evidence of RCA's continuing efforts to provide you with the finest electronic products in the industry.



Products

RCA KINESCOPIES

For outstanding picture performance in TV receivers—look to RCA Picture Tubes. Mass produced by modern, automatic equipment, each tube is subjected to many rigid tests at the inspection stage to insure high quality standards. RCA Picture Tubes are designed to provide brighter, sharper pictures for a longer period of time. That's why, "Dollar for Dollar" RCA Picture Tubes are the finest money can buy.



RCA BATTERIES FOR RADIO AND INDUSTRY



All over the country — portable radio owners, industrial purchasing agents, and laboratory technicians specify RCA for their battery needs. RCA's comprehensive line of dry batteries include types to service virtually all portable radio requirements as well as types covering standard and special-purpose industrial needs. To insure dependable performance, insist on RCA — The Radio Battery for the Radio Trade.

RCA SERVICE PARTS AND ELECTRONIC COMPONENTS

More than 40,000 RCA Service Parts stand ready to safeguard the operation of RCA Victor home instruments and RCA commercial apparatus now in use. These genuine manufacturers' parts are your best assurance that you can restore the original high-quality performance to your customer's RCA equipment. RCA also manufactures a line of high-quality replacement components for use in many competitive TV receivers.



RCA CRYSTAL DIODES

Six germanium, point-contact type crystal diodes, the IN34-A, IN38-A, IN54-A, IN55-A, IN56-A and the IN58-A, have recently been added to RCA's comprehensive line of electron devices.

These tiny, sealed-in-glass crystal diodes are moisture-proof, and offer great resistance to shock and vibration. They are extremely efficient in applications requiring rectification of relatively small ac signals. (fraction of a volt to several volts)





Sales and



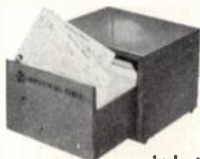
**RCA Battery
Counter
Merchandiser**



**Battery Tester
and Display**



Window Valance



**Industrial Tube
Index File Cabinet**



**Outdoor
Illuminated Sign**

Pictured here are only a few of the many Sales and Service aids that comprise RCA's complete line of promotional material. Unequaled by any in the field, these outstanding promotions are designed to help you sell and serve

Service Aids



**Illuminated
"Spinning Motion"
Sign**



**Dealer
Identification Plaque**



RCA Servi-Chest



**"Registered Dealer"
Display Set**

your customers. Take advantage of this wide selection. Ask your RCA distributor about the latest RCA sales and service aids: for better servicing, bigger profits and greater prestige.



RCA

RADIO-TELEVISION SERVICE NEWS

This publication is designed to keep the service man informed on the latest television and radio sales and servicing techniques. Read it regularly for interesting articles by noted authorities such as John R. Meagher, RCA Television Specialist, as well as for helpful hints on new merchandising procedures, new products, and new promotions. Published bi-monthly. See your RCA Tube Distributor.

RCA

TUBE TIPS

This popular newsletter keeps the broadcast engineer up to date on the latest developments in broadcast tubes. It is a timely publication containing valuable application information, technical tips, and new product data. Published monthly. Sent free of charge to broadcast station personnel by the RCA Tube Department.



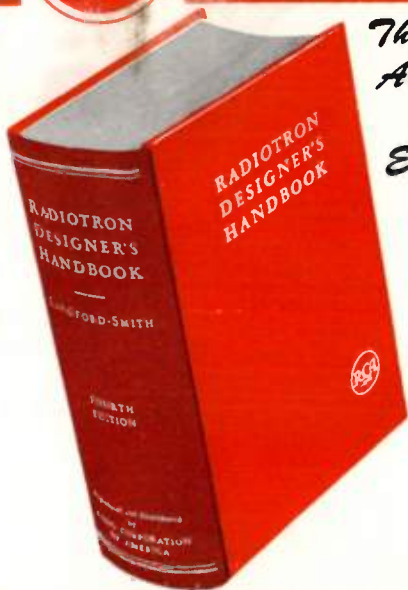
RCA

HAM TIPS

Contains a wealth of informative articles on all phases of "Ham" activity, including exclusive construction articles written by RCA personnel actively engaged in amateur radio work. Keep abreast of the latest, up-to-the-minute information on new circuits, TVI, Civil Defense equipment, Novice Gear, and Mobile operations. Published bi-monthly. Free from your RCA Tube Distributor.



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*The Long
Awaited
4th
Edition*

Price:
\$7⁰⁰

The Radiotron Designer's Handbook covers comprehensively and thoroughly the design of radio and audio circuits and equipment.

- More than 4 times larger than the third edition
- 1500 8 $\frac{3}{4}$ " x 5 $\frac{1}{2}$ " pages, 1000 illustrations
- More than 2500 references, many keyed in text
- Extensive, cross-referenced index — 7000 entries

TECHNICAL PUBLICATIONS

The technical publications listed below are packed with up-to-the-minute information logically arranged for ready reference and application to your needs.

Ask your RCA Distributor for these publications, or write directly to Commercial Engineering, Tube Department, Radio Corporation of America, Harrison, N. J.

ELECTRON TUBES

TUBE HANDBOOK (HB-3)

No other tube handbook provides as much up-to-the-minute technical data on tubes as the RCA HB-3 Handbook. Sold on a subscription basis, it's been "the bible of the industry" for over 15 years. There are four deluxe loose-leaf binders, containing over 3000 pages of operating data, characteristics curves, socket connections, and other useful information. Numerous supplementary sheets with new or revised data are issued during the year. Domestic price \$13.50, including service for one year.

RECEIVING TUBE MANUAL (RC-16)

Newly revised and brought up-to-date. Over 330 pages of detailed technical information on more than 480 RCA receiving tubes and kinescopes, including many discontinued types. Included in this new edition are 1) an expanded section on tube and circuit theory with formulas and examples for calculation of power output, load resistance, and distortion for several classes of amplifier service; 2) cathode-follower design information; 3) kinescope installation and handling information; 4) a classification chart which groups types having similar characteristics and the same filament or heater voltages, and shows miniature types and their GT equivalents; 5) an expanded circuit section including many new audio amplifier and receiver circuit designs; and 6) a complete section on resistance-coupled amplifiers. Features lie-flat binding. Price 50 cents.

RADIOTRON DESIGNER'S HANDBOOK

4th Edition ($8\frac{3}{4}" \times 5\frac{1}{2}"$) — 1500 pages. New, enlarged, up-to-date 4th Edition is comprehensive ref-

rence thoroughly covering the design of radio and audio circuits and equipment. Written for the design engineer, student, and experimenter. Contains 1000 illustrations, 2500 references, and cross-referenced index of 7000 entries. Edited by F. Langford Smith of the General Electric Company Pty. Ltd. in Australia. Price \$7.00.*

RECEIVING TUBES FOR AM, FM, & TV BROADCAST (1275-F)

Completely revised. This new 24-page booklet on RCA receiving tubes features classification chart, characteristics chart, and base and envelope connection diagrams. Includes more than 495 RCA miniature, metal, glass, and kinescope types, and specially keys discontinued RCA types for the benefit of radio servicemen. Price 15 cents.

RCA POWER AND GAS TUBES FOR RADIO AND INDUSTRY (PG-101-A)

20 colorful pages of tabulated technical data, base diagrams, photographs, and "thumb-nail" sketches of 60 RCA vacuum power tubes, glow-discharge (cold cathode) tubes, rectifier tubes, thyatron, and ignitrons. Price 15 cents.

RCA PHOTOTUBES, CATHODE-RAY TUBES, AND SPECIAL TUBES (CRPS-102-A)

Completely revised, 20-page booklet contains detailed technical information on more than 150 RCA Single-Unit, Twin-Unit, and Multiplier Phototubes; Cathode-Ray Tubes; Camera Tubes; Monoscopes; and Types for Special Applications. Ratings, operating conditions, applications, and base and envelope connection diagrams are included. Many types are illustrated and spectral response curves are given for all phototubes. Price 15 cents.

RCA PREFERRED TYPES LIST (PTL-501-B)

Lists RCA Preferred Tube Types for home radio and television receivers and for communications and industry, by function. An aid to equipment designers in the selection of tube types for new equipment design. Single copy free on request.

RCA INTERCHANGEABILITY DIRECTORY OF TUBES FOR COMMUNICATIONS AND INDUSTRY (ID-1020)

A 20-page booklet listing 1600 type designations of 24 different manufacturers, arranged in numerical-alphabetical sequence and showing the RCA Direct Replacement Type or the RCA Similar Type when available. Single copy free on request.

HEADLINERS FOR HAMS (HAM-103-A)

Four pages of technical information and terminal connections for 30 RCA "HAM" PREFERENCE TYPES: class B modulators, class C amplifiers and oscillators, frequency multipliers, rectifier tubes, thyratrons, and cold-cathode (glow-discharge) tubes. Single copy free on request.

RCA KINESCOPES (KB-1022)

A 20-page booklet containing characteristics and basing diagrams for RCA's complete line of kinescopes. Includes interchangeability directory and features a conversion chart helpful in modifying television receivers for larger kinescopes. Price 25 cents.

RCA POWER-TUBE FITTINGS (PTF-1012)

A 24-page booklet listing 39 power-tube fittings designed for supporting and cooling power tubes, and illustrating their use with power tubes made by RCA and other manufacturers. Includes exploded-view assembly drawings as well as detail drawings of all fittings. Price 25 cents.

TV SERVICING (TVS-1030)

This new 48-page booklet is a compilation of articles on TV trouble shooting, TV tuner alignment, and TV circuit analysis by two of RCA's experts in the field of TV servicing and test equipment — John R. Meagher and Art Liebscher. Price 35 cents.

New 12-page booklet contains an article by Jo R. Meagher on solving trouble shooting problems in those hard-to-service television receivers known to service technicians as "tough" sets or "dogs." Price 15 cents.

RCA TRIPLE PINDEX (Form 2F366-R2)

Completely revised. Receiving tube and kinescope base diagram guide to 660 types arranged in numerical-alphabetical sequence. The diagrams of any three tube types can be located and kept in front of you at the same time. Wire-spiral binding. Price 75 cents.

INSTRUCTION BOOKLETS

Complete, authorized information on individual RCA power tubes and other tubes for communications and industry. In requesting bulletin, be sure to specify tube type. Single copy on any type free on request.

RCA TRANSISTORS

Bulletin SCD-104 ($10\frac{7}{8}" \times 8\frac{3}{8}"$) — 8 pages. This new bulletin gives technical information on RCA Transistors — 2N32 and 2N33 point-contact types, and 2N34 and 2N35 junction types. Bulletin also includes general information on transistor considerations, characteristics, and operation. Single copy free on request.

TUBE PICTURE BOOK

Bulletin TPB-1 ($10\frac{7}{8}" \times 8\frac{3}{8}"$) — 16 pages. Collection of photographs and cutaway drawings of representative tube types. Prepared especially for use by students. A visual aid for the details of tube construction. Price 25 cents.*

BATTERIES**RCA RADIO BATTERIES FOR FLASHLIGHT, RADIO, AND INDUSTRIAL APPLICATIONS (BAT-134A)**

An 8-page booklet containing characteristics, terminal types, and socket patterns of 84 RCA dry batteries for radio, flashlight, and industrial applications.

des a battery interchangeability directory, and a
ry replacement guide for 1948, 1949, 1950 and
portable radios. Single copy free on request.

ELECTRONIC COMPONENTS AND SERVICE PARTS

RCA VICTOR SERVICE DATA

Complete, authoritative servicing information on all RCA Victor radio, phono, and TV receivers from 1923 through 1951. Includes schematics and wiring diagrams, alignment and adjustment procedures, troubleshooting suggestions, complete service parts lists, chassis layouts, and other useful servicing information.

BOUND VOLUMES — RADIO, PHONOGRAPH, TELEVISION

VOLUME NO.	YEARS	PAGES	PRICES
I	1923 through 1937	880	\$3.50
II	1938 through 1942	816	\$4.00
III	1943 through 1946	290	\$4.00
IV	1947 through 1948	566	\$6.00
V	1949	330	\$5.00
VI	1950	472	\$5.50
VII	1951	288	\$5.00

RCA TV REPLACEMENT GUIDE SP-1006B

(10 $\frac{7}{8}$ " x 8 $\frac{3}{8}$ ") — 20 pages. This directory, especially prepared for the service dealer and parts distributor, lists the major components of more than 70 brands of TV receivers for which RCA replacement components are available. The suitable RCA replacement components for more than 1500 sets can be quickly and easily found. Price, 25 cents per copy.

SERVICE PARTS DIRECTORY FOR RCA VICTOR TV RECEIVERS (SP-1007) 1946 to June 1950

80 pages of schematic diagrams and replacement parts lists for all RCA Victor television receivers manufactured from 1946 through June 1950 (56 models). Book opens so that each schematic diagram faces corresponding parts list for quick reference. 75 cents each.

SERVICE PARTS DIRECTORY FOR RCA 1950 & 1951 RECEIVERS (SP-1014)

Schematic diagrams, replacement parts, and top and bottom views for the 71 models of 1950 and 1951 RCA Victor television receivers. The comprehensive index, easy to read model and chassis numbers, and the grouping of information on each set, provide a ready source of reference for the service technician. Price, \$1.50 per copy.

SERVICE PARTS DIRECTORY FOR RCA VICTOR RADIOS (SP-1008)

Lists stock numbers of major replacement parts by receiver model numbers for over 600 RCA Victor radio receivers. Covers period of 1938 through 1950. 24 pages. Price, 15 cents per copy.

RCA CRYSTAL CARTRIDGE DATA (SP-1010)

Lists and illustrates replacement crystal cartridges and styli for RCA Victor record players. Single copy free on request.

RCA TV COMPONENTS (CTV-1015)

Tabulated, easy-to-read specifications on over 80 RCA TV Components. Gives electrical ratings and characteristics, outline drawings, associated components, and typical circuits. 20 pages. Price, 35 cents.

TEST AND MEASURING EQUIPMENT

INSTRUCTION BOOKLETS

Complete instruction booklets, containing specifications, maintenance and operating data, replacement parts list, and schematic diagrams, are available for all RCA test equipment. Booklets on the following current instruments are available: (50 cents each) WR-39C, WO-56A, WR-59C, WV-87A, WO-88A and WV-97A; (25 cents each) WR-40A, WR-41A and WV-77A. Prices and availability information on booklets for older instruments are available on request.

NOTE: All prices are net and apply in the U.S.A. They are subject to change and cancellation without notice. When ordering from Commercial Engineering, remittance should be made payable in U.S. dollars to Radio Corporation of America.

RCA RECEIVING TUBE CHART I

For Types Added Subsequent to Mid '52, See Chart II, Page 56

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias in Volts	Screen Supply Volts	Screen Current Ma.	Plate Current Ma.	AC Plate Resistance Ohms	Trans-conductance (Grid-plate) μ mhos	Amplification Factor	Lead in Stated Power Output Ohms	Power Output Watts			
		Dim.	S.C.	C.T.	Volts	Imp.														
00-A	Detector Triode	D12	40	D.C. F	5.0	0.25	Grid-Leak Detector	45	Grid Return to (-) Filament			1.5	30000	666	20	—	—			
01-A	Detector ★ Amplifier	D12	40	D.C. F	5.0	0.25	Class A Amplifier	90 135	- 4.5 - 9.0	—	—	2.5 3.0	11000 10000	725 800	8.0 8.0	—	—			
0Y4	Half-Wave Gas Rectifier	02	40U		Cold	—	Rectifier	Max. Peak Inverse Plate Volts, 300 Max. D-C Starting Volts, 95						Max. Peak Plate Current, 500 ma. Max. D-C Output Current, 75 ma.						
0Z4	Full-Wave Gas Rectifier	02	40	Cold	—	—	Rectifier	Starting-Supply Voltage per Plate, 300 min. peak volts. Peak Plate Current, 250 max. ma. D-C Output Current, 75 max., 30 min. ma. D-C Output Voltage, 300 max. volts.												
0Z4-G	Full-Wave Gas Rectifier	01a	0-40	Cold	—	—	Rectifier													
1A3	HF Diode	04	1AP ₁	H	1.4	0.15	Detector Rectifier	Max. Peak Inverse Volts, 330 Max. Peak Plate Ma., 5						Max. D-C Output Ma., 0.5 Max. Peak Heater-Cathode Volts, 140						
1A4-P	Remote-Cutoff Pentode	06	6M	D.C. F	2.0	0.06	Amplifier	For other characteristics, refer to Type 1D5-GP.												
1A5-GT	Power Amplifier Pentode	08	0-6X	D.C. F	1.4	0.05	Class A Amplifier													
1A6	Pentagrid Converter Ⓞ	08	6L	D.C. F	2.0	0.06	Converter	135 180	- 3.0 min.	67.5 67.5	2.5 2.4	1.2 1.3	400000 500000	Anode-Grid (#2): 180 max. volts, 2.3 ma. Oscillator-Grid (#1) Resistor Ⓞ Conversion Transcond., 300 micromhos.						
1A7-GT	Pentagrid Converter Ⓞ	C3	GT-JZK	D.C. F	1.4	0.05	Converter	90	0	45	0.7	0.6	600000	Anode-Grid (#2): 90 max. volts, 1.2 ma. Oscillator-Grid (#1) Resistor, 0.2 meg Conversion Transcond., 250 micromhos.						
1AC5	Power Pentode	A	BCP	F	1.25	0.04	Class A Amplifier	30 45 67.5	- 2 - 3 - 4.5	30 45 67.5	0.1 0.2 0.4	0.5 1.0 2.0	200000 170000 150000	450 600 750	— — —	50000 40000 25000	5 15 50			
1AD5	Sharp-Cutoff Pentode	A	BCP ₁	F	1.25	0.04	Class A Amplifier	30 45 67.5	0 0 0	30 45 67.5	0.16 0.35 0.75	0.45 0.9 1.85	700000 *00800 700000	430 580 735	— — —	— — —	— — —			
1B3-GT	Half-Wave Rectifier	D2	3C	F	1.25	0.2	Half-Wave Rectifier	Max. Peak Inverse Plate Volts, 30000 Max. Peak Plate Ma., 17						Max. Average Plate Ma., 2 Max. Frequency of Supply Voltage, 300 Kc						

1B4-P	RF Amplifier Pentode	D8	4M	D.C. F	2.0	0.06	Amplifier	For other characteristics, refer to Type 1E5-QP.									
1B5/2B5	Duplex-Diode Triode	D8	6M	D.C. F	2.0	0.06	Triode Unit as Amplifier	For other characteristics, refer to Type 1H6-G.									
1B7-GT	Pentagrid Converter	C3	GT-72H	D.C. F	1.4	0.10	Converter	90	0	45	1.3	1.5	350000	Anode-Grid (#2): 90 max. volts, 1.6 ma. Oscillator-Grid (#1) Resistor, 0.2 meg. Conversion Transcond., 320 micromhos.			
1C3-GT	Power Amplifier Pentode	C2b	Q-4X	D.C. F	1.4	0.10	Class A Amplifier	83 90	- 7.0 - 7.5	83 90	1.6 1.6	7.0 7.5	110000 115000	1500 1550	— —	9000 8000	0.20 0.24
1C6	Pentagrid Converter	D8	BL	D.C. F	2.0	0.12	Converter	For other characteristics, refer to Type 1C7-G.									
1C7-G	Pentagrid Converter	D8	Q-7Z	D.C. F	2.0	0.12	Converter	135 180	- 3.0 - 3.0	67.5 67.5	2.5 2.8	1.3 1.5	600000 700000	Anode-Grid (#2): 180 max. volts, 4.0 ma. Oscillator-Grid (#1) Resistor, Conversion Transcond., 325 micromhos.			
1D5-GP	Remote-Cutoff Pentode	D8	Q-5Y	D.C. F	2.0	0.06	Class A Amplifier	90 180	- 3.0 mm.	67.5 67.5	0.9 0.8	2.2 2.3	600000 1.0	720 750	— —	— —	— —
1D5-GT	Remote-Cutoff Tetrode	D8	Q-6R	D.C. F	2.0	0.06	Class A Amplifier	180	- 3.0	67.5	0.7	2.2	600000	650	—	—	—
1D7-G	Pentagrid Converter	D8	Q-7Z	D.C. F	2.0	0.06	Converter	For other characteristics, refer to Type 1A6.									
1D8-GT	Diode-Triode-Power Amplifier Pentode	C2b	Q-8AJ	D.C. F	1.4	0.10	Pentode Unit as Class A Amplifier Triode Unit as Class A Amplifier	45 90 45 90	- 4.5 - 9.0 0 0	45 90 — —	0.3 1.0 — —	1.6 5.0 0.3 1.1	360000 700000 77000 43500	650 925 325 575	— — 25 25	20000 12000 — —	0.035 0.200 — —
1E5-QP	RF Amplifier Pentode	D8	Q-4Y	D.C. F	2.0	0.06	Class A Amplifier	90 180	- 3.0 - 3.0	67.5 67.5	0.7 0.6	1.6 1.7	1.0 1.3	600 650	— —	— —	— —
1E7-GT	Twin-Pentode Power Amplifier	C2b	Q-8C	D.C. F	2.0	0.24	Class A Amplifier	135	- 7.5	135	—	Power Output is for one tube at rated plate-to-plate load.				24000	0.575
1E8	Pentagrid Converter	A	8CN	F	1.25	0.04	Converter	30 45 67.5	0 0 0	30 45 67.5	0.8 1.1 1.5	0.3 0.6 1.0	30000 40000 40000	Oscillator Grid (#1) Resistor, 0.1 meg. Conversion Transcond., 150 micromhos.			
1F4	Power Amplifier Pentode	D12	8K	D.C. F	2.0	0.12	Amplifier	For other characteristics, refer to Type 1F5-G.									
1F5-G	Power Amplifier Pentode	D18	Q-4X	D.C. F	2.0	0.12	Class A Amplifier	90 135	- 3.0 - 4.5	90 135	1.1 2.4	4.0 8.0	20000 20000	1400 1700	— —	20000 16000	0.11 0.21
1F6	Duplex-Diode Pentode	D8	8W	D.C. F	2.0	0.06	Pentode Unit as Amplifier	For other characteristics, refer to Type 1F7-G.									
1F7-G	Duplex-Diode Pentode	D8	Q-7AF	D.C. F	2.0	0.06	Pentode Unit as RF Amplifier Pentode Unit as AF Amplifier	180 135	- 1.5 - 2.0	67.5 —	0.7 —	2.2 —	1.0 —	650 —	— —	— —	— —
1G4-GT	Medium-Mu Triode	D4	Q-8B	D.C. F	1.4	0.05	Class A Amplifier	90	- 6.0	—	—	2.3	10700	825	8.8	—	—
1G5-G	Power Amplifier Pentode	D16	Q-4X	D.C. F	2.0	0.12	Class A Amplifier	90 135	- 6.0 - 13.5	90 135	2.5 2.5	8.5 8.7	133000 160000	1500 1550	— —	8500 9000	0.25 0.35

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to right plus operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current Ma	Plate Current Ma	AC Plate Resistance Ohms	Trans-conductance (Grid-plate) ma/mv	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts
		Diag.	S. C.	C. T.	Volts	Ampl.											
1G6-GT	Twin-Triode Amplifier	C4	G-7AB	D.C. F	1.4	0.10	Class B Amplifier	90	0	—	—	Power Output is for one tube at stated plate-to-plate load.				12000	0.350
1H4-G	Detector★ Amplifier	D3	G-8B ₇	D.C. F	2.0	0.06	Class A Amplifier	90 135 180	— 4.5 — 9.0 — 13.5	—	—	3.5 3.0 3.1	11000 10300 10300	850 900 900	9.3 9.3 9.3	—	—
							Class B Amplifier	157.5	— 15.0	—	—	1.0	—	—	8000	2.11	
							Triode Unit as Class A Amplifier	90	0	—	—	0.15	240000	275	65	—	—
1H5-GT	Diode High-Mu Triode	C3	GT-6ZK	D.C. F	1.4	0.05	Triode Unit as Class A Amplifier	90	0	—	—	0.15	240000	275	65	—	—
1H6-G	Duplex-Diode Triode	D3	G-7AA	D.C. F	2.0	0.06	Triode Unit as Class A Amplifier	135	— 3.0	—	—	0.8	35000	575	20	—	—
1J5-G	Power Pentode	D10	G-4X	D.C. F	2.0	0.12	Class A Amplifier	135	— 16.5	135	2.0	7.0	105000	950	—	13500	0.45
1J6-G	Twin-Triode Amplifiers	C10	G-7AB	D.C. F	2.0	0.24	Class B Amplifier	135 135	0 — 3.0	—	—	Power Output is for one tube at stated plate-to-plate load.				10000 10000	2.2 2.0
1L4	RF Amplifier Pentode	B6	6AR	D.C. F	1.4	0.05	Class A Amplifier	90 90	0 0	67.5 90	1.2 2.0	2.9 4.5	600000 260000	925 1025	—	—	—
1LA4	Power Amplifier Pentode	B6	5AD ₁	D.C. F	1.4	0.05	Amplifier	For other characteristics, refer to Type 1A5-GT.									
1LA6	Pentagrid Converter	B6	7AK	D.C. F	1.4	0.05	Converter	90	0	45	0.6	0.55	750000	Anode-Grid (#2): 90 max. volts, 1.2 ma. Oscillator Grid (#1) Resistor, 0.2 meg. Conversion Transcond., 250 micromhos.			
1LB4	Power Amplifier Pentode	B6	5AD ₂	D.C. F	1.4	0.05	Class A Amplifier	For other characteristics, refer to Pentode Unit of Type 1D8-GT.									
1LC5	RF Amplifier Pentode	B6	7AO	D.C. F	1.4	0.05	Class A Amplifier	45 90	0 0	45 45	0.35 0.30	1.10 1.15	700000 1.0	750 775	—	—	—
								45 90	0 0	35 35	0.75 0.70	0.70 0.75	300000 300000	Anode-Grid (#2): 45 max. volts, 1.4 ma. Oscillator-Grid (#1) Resistor, 1.0 meg. Conversion Transcond., 275 mic. "			
1LC6	Pentagrid Converter	B6	7AK	D.C. F	1.4	0.05	Converter	45 90	0 0	35 35	0.75 0.70	0.70 0.75	300000 300000	Anode-Grid (#2): 45 max. volts, 1.4 ma. Oscillator-Grid (#1) Resistor, 1.0 meg. Conversion Transcond., 275 mic. "			
1LD5	Diode-Pentode	B6	6AX	D.C. F	1.4	0.05	Pentode Unit as Class A Amplifier	Plate Supply, 90 volts applied through 1 meg. resistor. Screen Supply, 90 volts applied through 5.6 meg. resistor. Grid Bias, 0 volts. Grid Resistor, 10 megohms. Voltage Gain, 101 approx.									
1LE3	Medium-Mu Triode	B5	4AA	F	1.4	0.05	Class A Amplifier	90 90	0 — 3	—	—	4.5 1.4	11200 19000	1300 760	14.5 14.5	—	—
								90 90	0 — 1.5	45 90	0.4 0.9	1.7 3.7	1.0 500000	800 1150	—	—	—
1LG5	Remote-Cutoff Pentode	B5	7AO	F	1.4	0.05	Class A Amplifier	90 90	0 — 1.5	45 90	0.4 0.9	1.7 3.7	1.0 500000	800 1150	—	—	—
1LH4	Diode High-Mu Triode	B5	5AG	D.C. F	1.4	0.05	Triode Unit as Class A Amplifier	For other characteristics, refer to Type 1H5-GT.									

1LN5	RF Amplifier Pentode	B3	7AD	D.C. F	1.4	0.05	Class A Amplifier	90	0	90	0.35	1.6	1.1	800	—	—	—		
1N5-GT	RF Amplifier Pentode	C3	GT-6Y μ	D.C. F	1.4	0.05	Class A Amplifier	90	0	90	0.3	1.2	1.5	750	—	—	—		
1N6-G	Diode—Power Amplifier Pentode	D1	G-7AM	D.C. F	1.4	0.05	Pentode Unit as Class A Amplifier	90	— 4.5	90	0.7	3.4	300000	800	—	25000	0.1		
1P5-GT	Remote-Cutoff Pentode	C3	GT-6Y μ	D.C. F	1.4	0.05	Class A Amplifier	90	0	90	0.7	2.3	800000	750	—	—	—		
1Q5-GT	Beam Power Amplifier	C3	G-8AF	D.C. F	1.4	0.1	Class A Amplifier	90	— 4.5	90	1.3	9.5	90000	2200	—	8000	0.27		
1R5	Pentagrid Converter	B3	7AT	D.C. F	1.4	0.05	Converter	45 90	0 0	45 67.5	1.9 3.2	0.7 1.6	600000 600000	Grid #1 Resistor, 100000 ohms. Conversion Transcond., 300 microhenh.					
1S4	Power Amplifier Pentode	B3	7AV	D.C. F	1.4	0.1	Class A Amplifier	45 90	— 4.5 — 7.0	45 67.5	0.8 1.4	3.8 7.4	100000 100000	1250 1575	—	8000 8000	0.065 0.27		
1S5	Diode-Pentode	B3	6AU	D.C. F	1.4	0.05	Pentode Unit as AF Amplifier	Plate Supply, 90 volts applied through 1 meg. resistor. Screen Supply, 90 volts applied through 3 meg. resistor. Grid Bias, 0 volts. Grid Resistor, 10 megohms. Voltage Gain, 50 approx.											
1T4	Remote-Cutoff Pentode	B3	6AR	D.C. F	1.4	0.05	Class A Amplifier	45 90	0 0	45 67.5	0.7 1.4	1.7 3.5	350000 500000	700 900	—	—	—		
1T5-GT	Beam Power Amplifier	C4	Q-4K	D.C. F	1.4	0.05	Class A Amplifier	90	— 6.0	90	0.8	6.5	—	1150	—	14000	0.17		
1T6	Diode-Pentode	A	6DA	F	1.25	0.04	Pentode Unit as Class A Amplifier	30 45 67.5	0 0 0	30 45 67.5	0.10 0.21 0.4	0.33 0.75 1.6	500000 500000 400000	330 475 600	—	—	—		
1U4	RF Amplifier Pentode	B3	6AB	D.C. F	1.4	0.05	Class A Amplifier	90	0	90	0.50	1.6	1.0	900	—	—	—		
1U6	Diode-Pentode	B3	6BW	D.C. F	1.4	0.05	Pentode Unit as Class A Amplifier	Plate Supply, 90 volts applied through 1 meg. resistor. Screen Supply, 90 volts applied through 3.3 meg. resistor. Grid Bias, 0 volts. Grid Resistor, 10 megohms. Voltage Gain, 66 approx.											
1-V	Half-Wave Rectifier	D6	4G	H	6.3	0.3	With Capacitive-Input Filter	Max. A-C Plate Volts (RMS), 375 Min. Total Effective Plate-Supply Impedance: Up to 117 Max. D-C Output Ma., 45 volts, 0 ohms; at 150 volts, 30 ohms; at 325 volts, 75 ohms.											
1V2	Half-Wave Rectifier	B3	9U	F	0.625	0.3	Full-Wave Rectifier	Max. Peak Inverse Plate Volts, 7500 Max. Peak Plate Ma., 10 Max. Average Plate Ma., 0.5											
1X2-A	Half-Wave Rectifier	B4	7CB	F	1.25	0.2	Half-Wave Rectifier	Max. Peak Inverse Plate Volts, 18000 Max. Peak Plate Ma., 10 Max. Average Plate Ma., 1 Max. Frequency of Supply Voltage, 300Kc											
2A3	Power Amplifier Triode	C3	4D	F	2.5	2.5	Class A Amplifier	250	— 45.0	—	—	60.0	800	5250	4.2	2500	3.5		
2A4-G	Glow-Discharge Triode	D3	G-8B	D.C. F	2.5	2.5	Push-Pull Class AB Amplifier	300 300	Cath. Bias, 780 ohms — 62 volts, fixed bias		80.0 80.0	—	—	—	—	5000 3000	10.0 15.0		
2A5	Power Amplifier Pentode	D12	6B	H	2.5	1.75	Relay Service	Max. Peak Inverse Anode Volts, 200 Max. Peak Forward Anode Volts, 200 Max. Peak Anode Current, 1.25 ampere Max. Av. Anode Current, 0.1 ampere											
2A6	Duplex-Diode High-Mu Triode	D4	6G	H	2.5	0.8	Triode Unit as Amplifier	For other characteristics, refer to Type 6F6-G.											
2A7	Pentagrid Converter	D8	7C	H	2.5	0.8	Converter	For other characteristics, refer to Type 6SQ7.											
								For other characteristics, refer to Type 6AB.											

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values in right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias in Volts	Screen Supply Volts	Screen Current Ma.	Plate Current Ma.	AC Plate Resistance Ohms	Trans-conductance (Grid plate) μ mhos	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts
		Dim.	S.C.	C.T.	Volts	Am.											
2B7	Duplex-Diode Pentode	D9	7D	H	2.5	0.8	Pentode Unit as Amplifier			For other characteristics, refer to Type 6B8-G.							
2E5	Electron-Ray Tube	D6	BR	H	2.5	0.8	Visual Indicator			For other characteristics, refer to Type 6E5.							
3AS-GT	Diode-Triode RF Amplifier Pentode	C8	3AS	D.C.	1.4	0.1	Triode Unit as Class A Amplifier	90	0	—	—	0.2	200000	325	65	—	—
				F	2.8	0.05	Pentode Unit as Class A Amplifier	90	0	90	0.5	1.5	800000	750	—	—	—
3LF4	Beam Power Amplifier	D1	0BB	D.C.	1.4	0.1	Class A Amplifier			For other characteristics, refer to Type 3Q5-GT.							
				F	2.8	0.05											
3Q4	Power Amplifier Pentode	D9	7BA	D.C.	1.4	0.1	Class A Amplifier			For other characteristics, refer to Type 3V4							
				F	2.8	0.05											
3Q5-GT	Beam Power Amplifier	C3	G-7AP	D.C.	1.4	0.1	Class A Amplifier	110	— 6.6	110	1.4	10.0	100000	2200	—	8000	0.40
				F	2.8	0.05		110	— 6.6	110	1.4	8.5	110000	2000	—	8000	0.33
3SA	Power Amplifier Pentode	D9	7BA	D.C.	1.4	0.1	Class A Amplifier	90	— 7	67.5	1.4	2.4	100000	1575	—	8000	0.27
				F	2.8	0.05		90	— 7	67.5	1.1	6.1	100000	1425	—	8000	0.235
3V4	Power Amplifier Pentode	D9	6BX	D.C.	1.4	0.1	Class A Amplifier	90	— 4.5	90	2.1	9.5	100000	2150	—	10000	0.27
				F	2.8	0.05		90	— 4.5	90	1.7	7.7	120000	2000	—	10000	0.24
5A2A	Full-Wave Rectifier	C2a	ST	F	5.0	2.0	For ratings and characteristics, refer to Type 5Y3-GT.										
5T4	Full-Wave Rectifier	D7	ST	F	5.0	3.0	With Capacitive-Input Filter	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1550				Max. D-C Output Ma., 225 Max. Peak Plate Ma., 675				Min. Total Effect. Supply Imped. per Plate, 150 ohms	
							With Inductive-Input Filter	Max. A-C Volts per Plate (RMS), 550 Max. Peak Inverse Volts, 1550				Max. D-C Output Ma., 225 Max. Peak Plate Ma., 675				Min. Value of Input Choke, 3 henries	
5U4-G	Full-Wave Rectifier	E2	G-4T1	F	5.0	3.0	With Capacitive-Input Filter	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1550				Max. D-C Output Ma., 225 Max. Peak Plate Ma., 675				Min. Total Effect. Supply Imped. per Plate, 250 ohms	
							With Inductive-Input Filter	Max. A-C Volts per Plate (RMS), 550 Max. Peak Inverse Volts, 1550				Max. D-C Output Ma., 225 Max. Peak Plate Ma., 675				Min. Value of Input Choke, 10 henries	
5V4-G	Full-Wave Rectifier	D10	G-6L1	H	5.0	2.0	With Capacitive-Input Filter	Max. A-C Volts per Plate (RMS), 375 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 175 Max. Peak Plate Ma., 525				Min. Total Effect. Supply Imped. per Plate, 1 ohm	
							With Inductive-Input Filter	Max. A-C Volts per Plate (RMS), 500 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 175 Max. Peak Plate Ma., 525				Min. Value of Input Choke, 4 henries	
5W4	Full-Wave Rectifiers	C2	ST	F	5.0	1.5	With Capacitive-Input Filter	Max. A-C Volts per Plate (RMS), 350 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 100 Max. Peak Plate Ma., 300				Min. Total Effect. Supply Imped. per Plate, 50 ohms	
							With Inductive-Input Filter	Max. A-C Volts per Plate (RMS), 500 Max. Peak Inverse Volts, 1400				Max. D-C Output Ma., 100 Max. Peak Plate Ma., 300				Min. Value of Input Choke, 6 henries	

5X4-G	Full-Wave Rectifier	E2	G-4Q	F	5.0	3.0		For other ratings, refer to Type 5U4-G.									
5Y3-G 5Y3-GT	Full-Wave Rectifiers	C5	G-5T; G-5T1	F	5.0	2.0	With Capacitive Input Filter	Max. A C Volts per Plate (RMS), 330	Max. D C Output Ma., 125	Min. Total Effect. Supply Imped. per Plate, 50 ohms Min. Value of Input Choke, 10 henries							
				F	5.0	2.0	With Inductive Input Filter	Max. Peak Inverse Volts, 1400	Min. Peak Plate Ma., 400								
5Y4-G	Full-Wave Rectifier	D18	G-4Q	F	5.0	2.0		For other ratings, refer to Type 5Y3-GT.									
5Z3	Full-Wave Rectifier	E3	4C	F	5.0	3.0		For other ratings, refer to Type 5U4-G.									
5Z4	Full-Wave Rectifier	C2	BL	H	5.0	2.0	With Capacitive Input Filter	Max. A C Volts per Plate (RMS), 350	Max. D C Output Ma., 125	Min. Total Effect. Supply Imped. per Plate, 50 ohms Min. Value of Input Choke, 5 henries							
							With Inductive Input Filter	Max. Peak Inverse Volts, 1400	Max. Peak Plate Ma., 375								
6A3	Power Amplifier Triode	E3	4D	F	6.3	1.0	Amplifier	For other characteristics, refer to Type 6B4-G.									
6A6	Twin-Triode Amplifier	D12	7B	H	6.3	0.8	Amplifier	For other characteristics, refer to Type 6N7-GT.									
6A7 6A7S	Pentagrid Converter	D9	7C	H	6.3	0.3	Converter	For other characteristics, refer to Type 6AB.									
6AS 6AS-G 6AS-GT	Pentagrid Converter	C1 D8 C3	8A G-4A1 GT-4A2	H	6.3	0.3	Converter	100 250	— 1.5 — 3.0	50 100	1.3 2.7	1.1 3.5	60000 30000	Triode-Grid (#2): 250 ma. max. volts, 4.9 ma. Oscillator-Grid (#1) Resistor = Conversion Transcond., 550 microhmhos.			
6AB4	High-Mu Triode	B0	ICE	H	6.3	0.15	Class A Amplifier	340 250	Cath. Res., 270 ohms Cath. Res., 200 ohms	3.7 10.0	— —	— —	— —	— —	— —		
6AB5/ 6NS	Electron-Ray Tube Indicator Type	D4	8H	H	6.3	0.15	Visual Indicator	Plate & Target Supply = 175 volts, Triode Plate Resistor = 0.25 meg. Target Current = 2.0 ma. Grid Bias, — 10.0 volts, Shadow Angle, 0°. Bias, 0 volts; Angle, 90°. Plate Current, 0.5 ma. Plate & Target Supply = 135 volts, Triode Plate Resistor = 1 meg. Target Current = 1.0 ma. Grid Bias, — 15.5 volts, Shadow Angle, 0°. Bias, 0 volts; Angle, 90°. Plate Current, 0.13 ma.									
6AB7	Remote-Cutoff Pentode	B2	8H	H	6.3	0.45	Class A Amplifier	300	— 3.0	100	2.5	12.5	700000	5mm	—	—	
6AC5-GT	High-Mu Power Amplifier Triode	C3	G-4Q1	H	6.3	0.4	Class B Amplifier	250	0	—	—	5.0	—	—	—	10000	8.0
							Dynamic Coupled Amplifier With 5k Driver	250	Bias for both 6AC5 GT and 6A5 developed in coupling circuit. Average Plate Current of Driver = 3.5 milliamperes. Average Plate Current of 6AC5 GT = 32 milliamperes.										7000	3.7
6AC7	Sharp-Cutoff Pentode	B2	8H	H	6.3	0.45	Class A Amplifier	300	Cath. Bias	150	2.5	10.0	1.0	9000	Cathode-Bias Resistor, 160 ohms		
6AD7-G	Triode-Power Amplifier Pentode	D16	8AY	H	6.3	0.85	Triode Unit as Class A Amplifier	250	— 25.0	—	—	3.7	19000	325	6	—	—
							Pentode Unit as Class A Amplifier	250	— 16.5	250	6.5	34.0	80000	2500	—	7000	3.2
							Pentode Unit With 615-G as Push-Pull Class AB1 Amplifier	375	Cath. Bias	250	6.7	41.0	Cathode-Bias Resistor, 470 ohms			16000	9.0

Continued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias μ Volts	Screen Supply Volts	Screen Current Ma	Plate Current Ma	AC Plate Resistance Ohms	Trans-conductance (Grid-plate) μ mhos	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts
		Diag.	S. C.	C. T.	Volts	Amp.											
6AF4	UHF Oscillator Triode	80	21	H	6.3	0.225	Class A Amplifier	80	Cathode Bias Res., 150 ohms			16 20	2270 2130	6600 7500	15 16	—	—
							Oscillator at 950 Mc.	100	Grid Bias Volts, -4 Grid Res., 10000 ohms			22	Grid Current (Approx.), 400 μ amp Useful Power Output, 160 milliwatts				
6AF6-G	Electron-Ray Tube Twin Indicator Type	80c	7AQ	H	6.3	0.15	Visual Indicator	Target Voltage, 125 volts. Control-Electrode Voltage, 0 volts; Shadow Angle, 95°; Target Current 0.65 ma. Control-Electrode Voltage, 80 volts; Angle, 0°. Target Voltage, 250 volts. Control-Electrode Voltage, 0 volts; Shadow Angle, 95°; Target Current, 2.2 ma. Control-Electrode Voltage, 160 volts; Angle, 0°.									
6AG5	Sharp-Cutoff Pentode	80	7BD	H	6.3	0.3	As Pentode	100	Cath. Bias	100	1.5	4.5	700000	4250	Cath. Bias Res., 180 ohms		
							Class A Amplifier	250	150	2.0	7.0	800000	5000	Cath. Bias Res., 200 ohms			
							As Triode	180	Cath. Bias	—	—	7.0	8000	5700	Cath. Bias Res., 330 ohms		
6AG7	Power Pentode	C2	8Y	H	6.3	0.65	Class A Amplifier	250	Cath. Bias	—	—	5.5	10000	3800	Cath. Bias Res., 820 ohms		
							4-Mc. Bandwidth Video Circuit	300	Cath. Bias - 2.0	125	7.0	28.0	Cathode-Bias Resistor, 57 ohms. Load Resistance, 3500 ohms. Peak-to-Peak Volts Output, 140 approx.				
6AH6	Sharp-Cutoff Pentode	80	7BK	H	6.3	0.45	Class A Amplifier	300	Cath. Bias	150	2.5	10.0	500000	9000	Cath. Res., 160 ohms		
6AK5	Sharp-Cutoff Pentode	A1	7BD	H	6.3	0.175	Class A Amplifier	120 180	Cath. Bias	120 120	2.5 2.4	7.5 7.7	300000 500000	5000 5100	Cath. Res., 180 ohms		
6AK6	Power Amplifier Pentode	80	7BK	H	6.3	0.15	Class A Amplifier	180	- 9.0	180	2.5	15	200000	2300	—	10000	1.1
6AL5	Twin Diode	A1	6BT	H	6.3	0.3	Detector Rectifier	Max. Peak Inverse Volts, 330 Max. Peak Plate Ma. per Plate, 54									
6AL7-GT	Electron-Ray Tube Indicator Type	C10	8CM	H	6.3	0.15	Visual Indicator	Target Voltage, 315 volts Grid Voltage = 0 volts Cathode Bias Res., 3300 ohms approx.									
							Single Tube Class A Amplifier	180 250	- 8.5 - 12.5	180 250	3.0 4.5	29.0 45.0	58000 52000	3700 4100	— —	5500 5000	2.6 4.5
6AQ5	Beam Power Amplifier	B1	7BZ	H	6.3	0.45	Push-Pull Class AB ₁ Amplifier	250	- 15.0	250	5.0 $\blacklozenge$	70.0 $\blacklozenge$	60000	—	—	10000	10.0 $\}$
6AQ6	Twin-Diode High-Mu Triode	80	7BT	H	6.3	0.15	Triode Unit as Class A Amplifier	100 250	- 1.0 - 3.0	—	—	0.8 1.0	61000 58000	1150 1200	70 70	—	—
							Triode Unit as Class A Amplifier	250	- 2	—	—	2.3	44000	1600	70	—	—
6AQ7-GT	Twin-Diode High-Mu Triode	C2b	8CK	H	6.3	0.3	Triode Unit as Class A Amplifier	250	- 2	—	—	2.3	44000	1600	70	—	—
6AR5	Power Pentode	B1	8CC	H	6.3	0.4	Class A Amplifier	250	- 16.5	250	10	34.0	65000	2400	—	7000	3.2
							Class A Amplifier	250	- 18	250	10	32.0	68000	2300	—	7600	3.4

6A55	Beam Power Amplifier	B1	7CV	H	6.3	0.8	Class A Amplifier	150	— 8.5	110	2.0	35	—	5600	—	4500	2.2
6A57-G	Low-Mu Twin Power Triode	E2	8BD	H	6.3	2.5	DC Amplifier	135	Cath. Res., 250 ohms			125	280	7000	2.0	—	—
							Booster Tube for Television Scrambling	Max. Peak Inverse Plate Volts, 1700			Max. Peak Plate Current (Per Plate), 125 ma						
6AT6	Twin-Diode High-Mu Triode	8B	7BT	H	6.3	0.3	Triode Unit as Class A Amplifier	100	— 1.0	—	—	0.8	54000	1300	70	—	—
							Class A Amplifier	250	— 3.0	—	—	1.0	58000	1200	70	—	—
6AU5-GT	Beam Power Amplifier	C2b	8CK	H	6.3	1.25	Horizontal Deflection Amplifier in TV Equipment	Max. DC Plate Volts, 450.			Max. Peak Positive Pulse Plate Volts, 5000						
							Class A Amplifier	Max. DC Plate Ma., 100			Max. Plate Dissipation, 10 watts						
6AU6	Sharp-Cutoff Pentode	8B	7BK	H	6.3	0.3	Class A Amplifier	100	Cath. Bias	100	2.1	5.0	500000	3900	Cath. Bias Res., 150 ohms	—	—
							Class A Amplifier	250	—	150	4.3	10.6	1.05	5200	Cath. Bias Res., 68 ohms	—	—
6AV6	Twin-Diode High-Mu Triode	8B	7BT	H	6.3	0.3	Triode Unit as Class A Amplifier	100	— 1.0	—	—	0.5	80000	1250	100	—	—
							Class A Amplifier	250	— 2.0	—	—	1.2	62500	1600	100	—	—
6AX4-GT	Half-Wave Rectifier	C2b	2B	H	6.3	1.2	Television Damper Service	Max. Peak Inverse Plate Volts, 4000			Max. Peak Heater-Cathode Volts: — 4000**						
							Class A Amplifier	Max. Peak Plate Ma., 600			+100						
6AX5-GT	Full-Wave Rectifier	C2b	G-8B	H	6.3	1.2	With Capacitive Input Filter	Max. AC Volts per Plate (RMS), 450			Max. DC Output Ma., 150			Min. Total Effec. Supply Imped. per Plate, 105			
							With Inductive Input Filter	Max. AC Volts per Plate (RMS), 450			Max. DC Output Ma., 150			Min. Value of Input Choke, 10 henries			
6B4-G	Power Amplifier Triode	E2	G-8B	F	6.3	1.0	Class A Amplifier	250	— 45.0	—	—	60.0	800	5250	4.2	2500	3.20
							Push-Pull Class AB ₁ Amplifier	325	Cath. Bias, 850 ohms	—	—	80.0	—	—	—	5000	10.0†
6B5	Direct-Coupled Power Amplifier	D12	8AB	H	6.3	0.8	Class A Amplifier	For other characteristics, refer to Type 6N6-G.									
6B6-G	Twin-Diode High-Mu Triode	D8	G-7V1	H	6.3	0.3	Triode Unit as Amplifier	For other characteristics, refer to Type 6SQ7.									
6B7	Twin-Diode Remote-Cutoff Pentode	D9	7D	H	6.3	0.3	Pentode Unit as Amplifier	Input Triode: Plate Volts, 300 max.; Grid Volts, 0; Plate Ma., 8, AF Signal Volts (Peak), 21									
6B7S	Remote-Cutoff Pentode	D9	7D	H	6.3	0.3	Pentode Unit as Amplifier	Output Triode: Plate Volts, 300 max.; Plate Ma., 45; Plate Res., 24000 ohms; Load Resistance, 7000 ohms; Power Output, 4 watts									
6B8	Twin-Diode Pentode	G1	8E	H	6.3	0.3	Pentode Unit as Amplifier	For other characteristics, refer to Type 12CB.									
6B8-G	Twin Diode—Remote-Cutoff Pentode	D9	G-8E1	H	6.3	0.3	Pentode Unit as RF Amplifier	100	— 3.0	100	1.7	5.8	300000	950	—	—	—
							Pentode Unit as AF Amplifier	250	— 3.0	125	2.3	9.0	600000	1125	—	—	—
6BA6	Remote-Cutoff Pentode	8B	7BK	H	6.3	0.3	Class A Amplifier	90 ■ Cath. Bias, 1500 ohms. Screen Resistor = 1.1 meg.			Grid Resistor,** 0.5 megohm.			Gain per stage = 55			
							Class A Amplifier	300 ■ Cath. Bias, 1600 ohms. Screen Resistor = 1.2 meg.			Grid Resistor,** 0.5 megohm.			Gain per stage = 79			
6BA7	Pentagrid Converter	8B	8CT	H	6.3	0.3	Class A Amplifier	100	Cath. Bias	100	4.4	10.8	250000	4300	Cath. Bias Res., 68 ohms	—	—
							Converter	250	— 1.0	100	4.2	11.0	1.0	4400	Cath. Bias Res., 68 ohms	—	—
6BC5	Sharp-Cutoff Pentode	8B	7BD	H	6.3	0.3	Class A Amplifier	100	— 1.0	100	10.2	3.6	500000	Grid No. 1 Resistor, 20000 ohms	—	—	—
							Class A Amplifier	250	— 1.0	100	10.0	3.8	1.05	Conversion Transcond., 950 micromhos	—	—	—
6BD6	Remote-Cutoff Pentode	8B	7CC	H	6.3	0.3	Class A Amplifier	100	— 1	100	5.0	13.0	150000	2550	—	—	—
							Class A Amplifier	250	— 3	100	3.0	9.0	800000	2000	—	—	—

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current mA	Plate Current mA	AC Plate Resistance Ohms	Trans-conductance (Grid-plate) μ mhos	Amplification Factor	Load or Stated Power Output Ohms	Power Output Watts
		Dimen.	S.C.	C.T.	Volts	Amp.											
6BE6	Pentagrid Converter	90	7CM	H	6.3	0.3	Converter	100 250	- 1.5 - 1.5	100 100	7.5 7.5	2.6 2.6	400000 1.0 Ω	Grid #1 Resistor, 20330 ohms Conversion Transcond., 475 micromhos			
6BF6	Twin-Diode Triode	90	7BT	H	6.3	0.3	Triode Unit as Class A Amplifier	250	- 9.0	—	—	9.5	8500	1900	16	Power Output, 300 milliwatts	
6BG6-G	Beam Power Amplifier	F1	6BT	H	6.3	0.9	Horizontal Deflection Amplifier in TV Equipment	Max. DC Plate Volts, 700 Max. DC Plate Ma., 100					Max. Peak Positive-Pulse Plate Volts, 6000 Max. Plate Dissipation, 20 watts				
6BH6	Sharp-Cutoff Pentode	90	7CM	H	6.3	0.15	Class A Amplifier	100 250	- 1.0 - 1.0	100 150	1.4 2.9	3.6 7.4	700000 1.4 Ω	3400 4600	—	—	—
6BJ6	RF Amplifier Pentode	90	7CM	H	6.3	0.15	Class A Amplifier	100 250	- 1.0 - 1.0	100 100	3.5 3.3	9.0 9.2	250000 1.3 Ω	3650 3600	—	—	—
6BL7-GT	Medium-Mu Twin Triode	C2b	9BD	H	6.3	1.5	Vertical Deflection Amplifier in TV Equipment	Max. DC Plate Volts, 500 Max. DC Cathode Ma. (Each Unit), 60					Max. Peak Positive-Pulse Plate Volts, 1800 Max. Plate Dissipation (Each Unit), 10 watts				
6BQ6-GT	Beam Power Amplifier	C11	6AM	H	6.3	1.2	Horizontal Deflection Amplifier in TV Equipment	Max. DC Plate Volts, 500 Max. DC Plate Ma., 100					Max. Peak Positive-Pulse Plate Volts, 4000 Max. Plate Dissipation, 10 watts				
6BQ7	Medium-Mu Twin Triode	90a	23	H	6.3	0.4	Each Unit as Class A Amplifier	150	Cathode Bias Res., 220 ohms			9.0	5800	6000	35	Cutoff Volts, -10	
6C4	IIF Power Triode	90	9BQ	H	6.3	0.15	Class A Amplifier	100 250	0 - 8.5	—	—	11.8 10.5	6250 7700	3100 2200	19.5 17	—	—
							Class C Amplifier	300	- 27.0	—	—	25.0	Grid Current, 7 ma. Driving Power, 0.35 watt			—	5.5
							Class A Amplifier	250	- 8.0	—	—	8.0	10000	2000	20	—	—
6C5	Medium-Mu Triodes	92	9Q	H	6.3	0.3	Class A Amplifier	90♥ 300♥	Cath. Bias, 6400 ohms. Cath. Bias, 5300 ohms.			Grid Resistor, ** 0.25 megohm.			Gain per stage = 11 Gain per stage = 13		
6C5-GT		C3	GT-40					250	- 17.0 approx. Plate current to be adjusted to 0.2 milliamperes with no signal.								
6C6	Sharp-Cutoff Pentode	D13	9P	H	6.3	0.3	Amplifier Detector	For other characteristics, refer to Type 6J7.									
6C7	Twin-Diode Triode	D8	7Q	H	6.3	0.3	Triode Unit as Class A Amplifier	250	- 9.0	—	—	4.5	16000	1250	20	—	—
6C8-G	Twin-Triode Amplifier	D8	G-8Q	H	6.3	0.3	Each Unit as Amplifier	250	- 4.5	—	—	3.2	22500	1600	36	—	—
6CB6	Sharp-Cutoff Pentode	90	7CM	H	6.3	0.3	Class A Amplifier	200	Cath. Bias	150	2.8	9.5	600000	6200	Cath. Bias Res., 180 ohms		

6CL6	Power Pentode	B3	25	M	6.3	0.65	Class A Amplifier 4-Mc. Bandwidth Video Circuit	300	- 2	300	7.0	30.0	Load Resistor, 3900 ohms Peak-to-Peak Grid-No. 1 Signal Volts, 3 Peak-to-Peak Output Volts, 132 approx.				
6CD6-G	Beam Power Amplifier	F1	10T	M	6.3	2.5	Horizontal Deflection Amplifier in TV Equipment	Max. DC Plate Volts, 700 Max. DC Plate Ma., 170				Max. Peak Positive Pulse Plate Volts, 6000 Max. Plate Dissipation, 15 watts					
6D6	Remote-Cutoff Pentode	D13	6T	M	6.3	0.3	Amplifier Mixer	For other characteristics, refer to Type 6U7-G.									
6D7	Sharp-Cutoff Pentode	D13	7M	M	6.3	0.3	Amplifier Detector	For other characteristics, refer to Type 6J7.									
6DS-G	Pentagrid Converter	D6	G-4A1	M	6.3	0.15	Converter	135 250	- 3.0 - 3.0	67.5 100	1.7 2.6	1.5 3.5	600000 400000	Anode-Grid (#2): 250 μ max. volts, 4.3 ma. Oscillator-Grid (#1) Resistor •, Conversion Transcond., 550 micromhos.			
6E5	Electron-Ray Tube	D4	6R	M	6.3	0.3	Visual Indicator	Plate & Target Supply = 125 volts. Triode Plate Resistor = 1.0 meg. Target Current = 0.8 ma. Grid Bias, -4.0 volts; Shadow Angle, 0°. Bias, 0 volts; Angle, 90°; Plate Current, 0.1 ma. Plate & Target Supply = 250 volts. Triode Plate Resistor = 1.0 meg. Target Current = 2.0 ma. Grid Bias, -7.5 volts; Shadow Angle, 0°. Bias, 0 volts; Angle, 90°; Plate Current, 0.2 ma.									
6E6	Twin-Triode Power Amplifier	D12	7B	M	6.3	0.6	Push-Pull Class A Amplifier	180 250	-20.0 -27.5	—	—	Power Output is for one tube at stated plate-to-plate load.		15000 14000	0.75 1.60		
6E7	Remote-Cutoff Pentode	D13	7M	M	6.3	0.3	Amplifier	For other characteristics, refer to Type 6U7 G.									
6F5	High-Mu Triode	C1	9M	M	6.3	0.3	Amplifier	For other characteristics, refer to Type 6SF5.									
6F5-GT	High-Mu Triode	C2b	G-3M, 1	M	6.3	0.3	Amplifier	For other characteristics, refer to Type 6SF5.									
6F6	Power Pentodes	D10	G-7S1	M	6.3	0.7	Pentode Class A Amplifier	250 285	-16.5 -20.0	250 285	6.5 7.0	34.0 38.0	80000 78000	2500 2550	— —	7000 7000	3.2 4.8
6F6-G							Triode Class A Amplifier	250	-20.0	—	—	31.0	2600	2600	6.8	4000	0.85
6F6-GT							Pentode Push-Pull Class A Amplifier	315 315	Cath. Bias -24.0	285 285	12.0 12.0	62.0 62.0	Cath. Bias Resistor, 320 ohms		— —	10000 10000	10.51 11.01
							Pentode Push-Pull Class AB ₁ Amplifier	375 375	Cath. Bias -26.0	250 250	8.0 5.0	54.0 34.0	Cath. Bias Resistor, 340 ohms		— —	10000 10000	19.01 18.51
							Triode Push-Pull Class AB ₁ Amplifier	350 350	Cath. Bias -33.0	— —	— —	50.0 48.0	Cath. Bias Resistor, 730 ohms		— —	10000 6000	9.01 13.01
							Triode Unit as Class A Amplifier	100	- 3.0 min.	—	—	3.5	16000	500	8	—	—
6F7	Triode-Remote-Cutoff Pentode	D6	7E	M	6.3	0.3	Pentode Unit as Class A Amplifier	100 250	- 3.0 min.	100 100	1.6 1.5	6.3 6.3	290000 850000	1050 1100	— —	— —	
							Pentode Unit as Mixer	250	-10.0	100	0.6	2.8	Oscillator Peak Volts = 7.0. Conversion Transcond. = 300 micromhos.				
							Each Unit as Amplifier	For other characteristics, refer to Type 6J5.									
6FL-G	Twin-Triode Amplifier	D6	G-8G	M	6.3	0.6	Each Unit as Amplifier	For other characteristics, refer to Type 6J5.									

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values in right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current mA	Plate Current mA	AC Plate Resistance Ohms	Trans-conductance (Grid plate) μ mhos	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts
		Dimen.	S.C.	C.T.	Volts	Ampl.											
6G6-G	Power Amplifier Pentode	D3	G-7B1	H	6.3	0.15	Pentode Class A Amplifier	135	- 6.0	135	2.0	11.5	17000	2100	—	12000	0.6
							Triode Class A Amplifier	180	- 9.0	180	2.5	15.0	17000	2100	—	10000	1.1
							Triode Class A Amplifier	180	- 12.0	—	—	11.0	4700	2000	9.5	12000	0.25
6H6 6H6-GT	Twin Diodes	A1a C3	7Q G-7Q11	H	6.3	0.3	Voltage Doubler	Max. A.C. Supply Volts per Plate (RMS), 150 Total Effect. Plate Supply Imped. per Plate: half wave, 30 ohms; full wave, 15 ohms.							Max. D.C. Output Max. 8 mm		
							Half-Wave Rectifier	Max. A.C. Plate Volts (RMS), 150 Max. D.C. Output Max. 8 per Plate							Min. Total Effective Plate Supply Impedance up to 117 volts, 15 ohms; at 150 volts, 40 ohms.		
6J5 6J5-GT	Medium-Mu Triodes	B2 B3	5Q GT-4Q2	H	6.3	0.3	Class A Amplifier	90	0	—	—	10.0	6700	3000	20	—	—
								250	- 8.0	—	—	9.0	7700	2000	20	—	—
6J6	Medium-Mu Twin Triode	B0	7BF	H	6.3	0.45	Each Unit as Class A Amplifier	100	Cathode Resistor, for both units, 50 ohms			8.5	7100	5300	38	—	—
							Push-Pull Class C Amplifier	150	- 10.0	Cath. Res., 220 ohms, both units		30.0	Grid Current, 1h max. Driving Power, 0.35 watt.		—	—	3.5
6J7 6J7-G 6J7-GT	Sharp-Cutoff Pentodes	C1 D6 C3	7R G-7R11 GT-7R2	H	6.3	0.3	Pentode Class A RF Amplifier	100	- 3.0	100	0.5	2.0	1.4	1185	—	—	—
							Pentode Class A AF Amplifier	250	- 3.0	100	0.5	2.0	1.0 + 5	1225	—	—	—
							Pentode Bias Detector	250	- 4.3	100	Cathode Current 0.43 ma.		—	Plate Resistor, 10000 ohms.		—	—
							Triode Class A Amplifier	180	- 5.3	—	—	5.3	11000	1800	20	—	—
6J8-G	Triode-Heptode Converter	D0	G-8H	H	6.3	0.3	Triode Unit as Oscillator	100	Triode Grid Resistor, 5000 ohms			4.0	Triode Grid & Heptode-Grid Current, 0.3 ma.		—	—	—
							Heptode Unit as Mixer	100	- 3.0	100	3.0	1.4	Conversion Transcond., 260 micromhos		—	—	—
							Heptode Unit as Mixer	250	- 3.0	100	2.9	1.3	Conversion Transcond., 290 micromhos		—	—	—
6K5-GT	High-Mu Triode	C3	6T-6W	H	6.3	0.3	Class A Amplifier	100	- 1.5	—	—	0.3	7000	900	70	—	—
								250	- 3.0	—	—	1.1	5000	1400	70	—	—
6K6-GT	Power Pentode	C3	G-7B1	H	6.3	0.4	Single Tube Class A Amplifier	100	- 7.0	100	1.6	9.0	10000	1500	—	12000	0.35
							Class A Amplifier	250	- 18.0	250	5.5	32.0	9000	2300	—	7600	3.0
							Class A Amplifier	315	- 21.0	250	4.0	25.5	11000	2100	—	9000	4.50
							Push-Pull Class A Amplifier	285	- 25.5	285	9.0	35.0	—	—	—	12000	10.5
6K7 6K7-G 6K7-GT	Remote-Cutoff Pentodes	C1 D6 C3	7R G-7R1 GT-7R2	H	6.3	0.3	Class A Amplifier	100	- 1.0	100	2.7	9.5	15000	1650	—	—	—
							Class A Amplifier	250	- 3.0	125	2.6	10.5	60000	1650	—	—	—
							Mixer in Superheterodyne	250	- 10.0	100	—	—	Oscillator Peak Volts = 7.0				

6K8 6K8-G 6K8-GT	Triode-Hexode Converters	C1 D6 C10	6K 6-K1 GT-6K2	M	6.3	0.3	Triode Unit as Oscillator	100	Triode Grid Resistor, 50000 ohms				3.6	Triode-Grid & Hexode-Grid Current, 0.15 ma.						
							Hexode Unit as Mixer	100 250	- 3.0 - 3.0	100 100	6.2 6.0	2.3 2.5	400000 600000	Conversion Transcond., 325 micromhos. Conversion Transcond., 350 micromhos.						
6L5-G	Medium-Mu Triode	D3	6-L5	M	6.2	0.15	Class A Amplifier	135 250	- 5.0 - 9.0	— —	— —	3.5 8.0	11300 9000	1500 1900	17 17	— —				
6L6 6L6-G	Beam Power Amplifiers	D7	7AC	M	6.3	0.9	Single Tube Class A Amplifier	250 250	- 14.0 Cath. Bias	250 250	5.0 5.4	72.0 75.0	— —	— —	2500 2500	6.5 6.5				
							Push-Pull Class A Amplifier	270 270	- 17.5 Cath. Bias	270 270	11.0 11.0	134.0 134.0	— —	— —	5000 5000	17.5 18.5				
							Push-Pull Class AB Amplifier	360 360	- 22.5 Cath. Bias	270 270	5.0 5.0	88.0 88.0	— —	— —	6600 9000	26.5 24.5				
							Push-Pull Class AB Amplifier	360 360	- 18.0 - 22.5	225 270	3.5 5.0	78.0 88.0	— —	— —	6000 3800	31.0 47.0				
		E2	6-7AC1				Single Triode Class A Amplifier	250 250	- 29.0 Cath. Bias	— —	— —	40.0 40.0	1700 —	4700 —	8.0 —	5000 6000	1.4 1.3			
							Oscillator-Grid (1/3) Bias, -10 volts. Grid #3 Peak Swing, 12 volts minimum. Conversion Transcond., 375 micromhos.													
							Class A Amplifier	250	- 3.0	100	7.1	2.4	— —	— —	— —	— —				
							Class A Amplifier	250	- 5.0 - 6.0	— —	— —	6.0 7.0	11300 11000	3100 3200	35 35	20000 or more	exceeds # 4			
							Class B Amplifier	300	0	— —	— —	— —	— —	8000	10.0	—				
							Power Output is for one tube at stated plate-to-plate load.													
6L7 6L7-G	Pentagrid Mixer	C1 D6	7T 6-7T1	M	6.3	0.3	Mixer in Superheterodyne	250	- 3.0	100	7.1	2.4	Oscillator-Grid (1/3) Bias, -10 volts. Grid #3 Peak Swing, 12 volts minimum. Conversion Transcond., 375 micromhos.							
6N6-G	Direct-Coupled Power Triode	C10	6-N6	M	6.3	0.8	Class A Amplifier	Output Triode: Plate Volts, 300; Plate Ma., 45; Load, 7000 ohms. Triode: Plate Volts, 300; Grid Volts, 0, A-F Signal Volts (Peak), 21; Plate Ma., 8.										Input	4.0	
6N7 6N7-GT	High-Mu Twin Power Triodes	C2 C3	6N 6-N1	M	6.3	0.8	Class A Amplifier (no Driver) Class B Amplifier	250 294 300	- 5.0 - 6.0 0	— — —	— — —	6.0 7.0 —	11300 11000 —	3100 3200 —	35 35 —	20000 or more 8000	exceeds # 4 10.0			
6P5-GT	Medium-Mu Triode	C3	6-P5	M	6.3	0.3	Amplifier Detector	For other characteristics, refer to Type 76.												
6P7-G	Triode- Pentode	D6	6-P7	M	6.3	0.3	Amplifier and Converter	For other characteristics, refer to Type 6P7.												
6Q7 6Q7-G 6Q7-GT	Twin-Diode High-Mu Triodes	C1 D6 C3	7V 6-7V1 GT-7V2	M	6.3	0.3	Triode Unit as Class A Amplifier	100 250 90m 300m	- 1.0 - 3.0 — —	— — — —	— — — —	0.6 1.1 — —	58000 58000 — —	1200 1200 — —	70 70 — —	— — — —				
6R7 6R7-G 6R7-GT	Twin-Diode Medium-Mu Triodes	C1 D6 C2b	7V 6-7V1 6-7V1	M	6.3	0.3	Triode Unit as Class A Amplifier	250 90 300	- 9.0 — —	— — —	— — —	9.5 — —	8500 — —	1800 — —	16 — —	— — —				
6S4	Medium-Mu Triode	D3	6AC	M	6.3	0.6	Vertical Deflection Amplifier in TV Equipment	Max. DC Plate Volts, 500 Max. DC Cathode Ma., 30				Max. Peak Positive Pulse Plate Volts, 2000 Max. Plate Dissipation, 7.5 watts								
6S7 6S7-G	Remote-Cutoff Pentodes	C1 D6	7R 6-7R1	M	6.3	0.15	Class A Amplifier	135 250	- 3.0 - 3.0	67.5 100	0.9 2.0	3.7 8.5	1.0 1.0	1250 1750	— —	— —				

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current Ma	Plate Current Ma	AC Plate Resistance Ohms	Trans-conductance (Grid-plate) μ hos	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts
		Dimen.	S C	C.T.	Volts	Amp.											
658-GT	Triple-Diode Triode	C9b	9CB	H	6.3	0.3	Triode Unit as Class A Amplifier	100 250	- 1.0 - 2.0	—	—	0.4 0.9	110000 91000	— 1100	100 100	—	—
65A7	Pentagrid Converter	B2	8R	H	6.3	0.3	Mixer	100 250	Self-Excited	100 100	8.5 8.5	3.3 3.5	500000 1.0f	Grid $\times$ 1 Resistor, 20000 ohms. Conversion Transcond., 450 micromhos.			
65A7-GT	Pentagrid Converter	C3	G-8AD	H	6.3	0.3	Mixer	For other characteristics, refer to Type 65A7.									
65B7-Y	Pentagrid Converter	B2	8R	H	6.3	0.3	Mixer	100 250	- 1.0 - 1.0	100 100	10.2 10.0	3.6 3.8	500000 3.0f	Grid $\times$ 1 Resistor, 20000 ohms. Conversion Transcond., 950 micromhos.			
65C7	Twin-Triode Amplifier	B2	8S	H	6.3	0.3	Each Unit as Amplifier	250	- 2.0	—	—	2.0	53000	1325	70	—	—
65F5	High-Mu Triodes	B2	8AB	H	6.3	0.3	Class A Amplifier	100 250	- 1.0 - 2.0	—	—	0.4 0.9	85000 66000	1150 1500	100 100	—	—
65F5-GT	High-Mu Triodes	C3	G-4AB	H	6.3	0.3		90 $\square$ 300 $\square$	Cath. Bias, 8800 ohms. Cath. Bias, 3200 ohms.		Grid Resistor, ** 0.5 megohm.				Gain per stage = 43 Gain per stage = 63		
65F7	Diode-Remote-Cutoff Pentode	B2	7AZ	H	6.3	0.3	Pentode Unit as Class A Amplifier	100 250	- 1.0 - 1.0	100 100	4.3 4.1	13.5 13.9	200000 200000	1975 2050	—	—	—
65G7	Remote-Cutoff Pentode	B2	8BK	H	6.3	0.3	Class A Amplifier	100 250 250	- 1.0 - 1.0 - 7.5	100 125 150	3.2 4.4 3.4	8.2 11.8 9.2	250000 900000 1.0 + $\frac{1}{2}$	4100 4700 4600	—	—	—
65H7	Sharp-Cutoff Pentode	B2	8BK	H	6.3	0.3	Class A Amplifier	100 250	- 1.0 - 1.0	100 150	2.1 4.1	5.3 10.8	350000 900000	4000 4900	—	—	—
65J7	Sharp-Cutoff Pentodes	B2	8H	H	6.3	0.3	Class A Amplifier	100 250	- 3.0 - 3.0	100 100	0.9 0.8	2.9 3.0	700000 1.0 + $\frac{1}{2}$	1575 1650	—	—	—
65J7-GT	Sharp-Cutoff Pentodes	C3	GT-8H ₂	H	6.3	0.3		90 $\square$ 300 $\square$	Cath. Bias, 1700 ohms. Cath. Bias, 860 ohms.		Grid Resistor, ** 0.5 megohm.				Gain per stage = 93 Gain per stage = 167		
65K7	Remote-Cutoff Pentodes	B2	8H	H	6.3	0.3	Class A Amplifier	100 250	- 1.0 - 3.0	100 100	4.0 2.6	13.0 9.2	120000 800000	2350 2000	—	—	—
65L7-GT	High-Mu Twin Triode	C3	880	H	6.3	0.3	Each Unit as Amplifier	250	- 2.0	—	—	2.3	44000	1600	70	—	—
65N7-GT	Medium-Mu Twin Triode	C3	880	H	6.3	0.6	Each Unit as Amplifier	For other characteristics, refer to Type 6J5.									
65Q7	Twin-Diode High-Mu Triodes	B2	8Q	H	6.3	0.3	Triode Unit as Class A Amplifier	100 250	- 1.0 - 2.0	—	—	0.5 1.1	110000 85000	975 1175	100 100	—	—
65Q7-GT	Twin-Diode High-Mu Triodes	C3	GT-8Q ₂	H	6.3	0.3		90 $\square$ 300 $\square$	Cath. Bias, 11000 ohms. Cath. Bias, 3900 ohms.		Grid Resistor, ** 0.5 megohm.				Gain per stage = 40 Gain per stage = 53		

6SR7	Duplex-Diode Triode	B2	BQ	M	6.3	0.3	Triode Unit as Class A Amplifier	250	- 9.0	—	—	9.5	8300	1500	15	10000	C.3
6SE7	Remote-Cutoff Pentode	B2	BM	M	6.3	0.15	Class A Amplifier	100	- 1.0	100	3.1	12.2	120000	1820	—	—	—
								250	- 3.0	120	2.0	9.0	1.0	1850	—	—	—
6ST7	Duplex-Diode Triode	B2	BQ	M	6.3	0.15	Triode Unit as Amplifier	For other characteristics, refer to Type 6SR7.									
6SZ7	Twin-Diode High-Mu Triode	B2	BQ	M	6.3	0.15	Triode Unit as Class A Amplifier	100	- 1.0	—	—	0.8	61000	1150	70	—	—
								250	- 3.0	—	—	1.0	58000	1200	70	—	—
								135	- 1.5	—	—	0.9	65000	1000	65	—	—
								250	- 3.0	—	—	1.2	62000	1050	65	—	—
6T7-G	Twin-Diode High-Mu Triode	D8	G-7V1	M	6.3	0.15	Triode Unit as Class A Amplifier	50M	Cath. Bias, 6500 ohms.		Grid Resistor, ** 0.5 megohm.		Gain per stage = 30				
								350M	Cath. Bias, 4550 ohms.				Gain per stage = 40				
6T8	Triple-Diode High-Mu Triode	B8a	BE	M	6.3	0.45	Triode Unit as Class A Amplifier	100	- 1	—	—	0.8	54000	1300	70	—	—
								250	- 3	—	—	1.0	50000	1200	70	—	—
6U5	Electron-Ray Tube	D4	6R	M	6.3	0.3	Visual Indicator	Plate & Target Supply = 125 volts. Triode Plate Resistor = 0.5 meg. Target Current = 1.0 ma. Grid Bias = -8 volts; Shadow Angle, 0°. Bias, 0 volts; Angle, 90°; Plate Current, 0.19 ma.									
								Plate & Target Supply = 250 volts. Triode Plate Resistor = 1.0 meg. Target Current = 4.0 ma. Grid Bias = -22 volts; Shadow Angle, 0°. Bias, 0 volts; Angle, 90°. Plate Current, 0.24 ma.									
6U7-G	Remote-Cutoff Pentode	D12a	G-7R1	M	6.3	0.3	Class A Amplifier	100	- 3.0	100	2.2	8.0	250000	1500	—	—	—
								250	- 3.0	100	2.0	8.2	800000	1600	—	—	—
							Mirror in Superheterodyne	100	-10.0	100	—	—	Oscillator Peak Volts = 7.0				
								250	-10.0	100	—	—					
6U8	Triode-Remote-Cutoff Pentode	B8a	22	M	6.3	0.45	Triode Unit as Class A Amplifier	150	Cath. Bias	—	—	18	50000	8500	40	Cath. Res., 56 ohms	—
							Pentode Unit as Class A Amplifier	250	Cath. Bias	110	3.5	10	40000	5200	—	Cath. Res., 68 ohms	—
6V6	Beam Power Amplifiers	C2	7AC	M	6.3	0.45	Single Tube Class A Amplifier	180	- 8.5	180	3.0	29.0	50000	3700	—	5500	2.0
								250	-12.5	250	4.5	45.0	50000	4100	—	5000	4.5
								315	-13.0	225	2.2	34.0	80000	3750	—	8500	5.5
6V6-GT		C3	G-7AC1	M	6.3	0.45	Push-Pull Class AB Amplifier	250	-15.0	250	5.0	70.0	—	—	—	10000	15.0
								285	-19.0	285	4.0	70.0	—	—	—	8000	14.0
6V7-G	Duplex-Diode Triode	D8	G-7V1	M	6.3	0.3	Triode Unit as Amplifier	For other characteristics, refer to Type 85.									
6W4-GT	Half-Wave Rectifier	C2a	4CQ	M	6.3	1.2	With Capacitive-Input Filter	Max. A-C Plate Volts (RMS), 350		Max. D-C Output Ma., 125		Min. Total Effect. Supply Imped. per Plate, 145 ohms					
								Max. Peak Inverse Volts, 1250		Max. Peak Plate Ma., 650							
6W7-G	Sharp-Cutoff Pentode	D8	G-7R1	M	6.3	0.15	Class A Amplifier	250	- 3.0	100	0.5	2.0	1.5	1225	—	—	—
							With Capacitive-Input Filter	Max. A-C Volts per Plate (RMS), 325		Max. D-C Output Ma., 70		Min. Total Effect. Supply Imped. per Plate, 150 ohms					
								Max. Peak Inverse Volts, 1250		Max. Peak Plate Ma., 210							
							With Inductive-Input Filter	Max. A-C Volts per Plate (RMS), 450		Max. D-C Output Ma., 70		Min. Value of Input Choke, 8 henries					
								Max. Peak Inverse Volts, 1250		Max. Peak Plate Ma., 210							
6X4	Full-Wave Rectifier	B3	885	M	6.3	0.6	With Capacitive-Input Filter	Max. A-C Volts per Plate (RMS), 325		Max. D-C Output Ma., 70		Min. Total Effect. Supply Imped. per Plate, 150 ohms					
								Max. Peak Inverse Volts, 1250		Max. Peak Plate Ma., 210							
							With Inductive-Input Filter	Max. A-C Volts per Plate (RMS), 450		Max. D-C Output Ma., 70		Min. Value of Input Choke, 8 henries					
								Max. Peak Inverse Volts, 1250		Max. Peak Plate Ma., 210							
6X5	Full-Wave Rectifiers	C2	88	M	6.3	0.6	With Capacitive-Input Filter	Max. A-C Volts per Plate (RMS), 325		Max. D-C Output Ma., 70		Min. Total Effect. Supply Imped. per Plate, 150 ohms					
6X5-CT		C3	G-881	M	6.3	0.6	With Inductive-Input Filter	Max. A-C Volts per Plate (RMS), 450		Max. D-C Output Ma., 70		Min. Value of Input Choke, 8 henries					
								Max. Peak Inverse Volts, 1250		Max. Peak Plate Ma., 210							

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current Ma.	Plate Current Ma.	AC Plate Resistance (Grid-plate) Ohms	Trans-conductance (Grid-plate) μ mhos	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts
		Base	E.C.	E.T.	Volts	Ampl.											
6X8	Triode-Pentode Converter	D6	24	H	6.3	0.45	Triode Unit as 250-Mc. Oscillator Pentode Unit as Mixer	150									
6Y5	Full-Wave Rectifier	D6	6J	H	6.3	0.8	With Capacitive-Input Filter										
6Y6-G	Beam Power Amplifier	D10	Q-7AC	H	6.3	1.25	Single-Tube Class A Amplifier	135 200	-13.5 -14.0	135 135	3.5 2.2	58.0 61.0	9300 18300	7000 7100	— —	2000 2600	3.6 6.0
6Y7-G	Twin-Triode Amplifier	D3	Q-8B	H	6.3	0.6	Class B Amplifier	For other characteristics, refer to Type 79.									
6Z5	Full-Wave Rectifier	D6	8K	H	6.3 12.6	0.8 0.4	With Capacitive-Input Filter										
6Z7-G	Twin-Triode Amplifier	D3	Q-8B	H	6.3	0.3	Class B Amplifier	135 180	0 0	— —	— —						
6ZY5-G	Full-Wave Rectifier	D6	Q-8B	H	6.3	0.3	With Capacitive-Input Filter With Inductive-Input Filter	Max. A-C Volts per Plate (RMS), 325 Max. Peak Inverse Volts, 1250				Max. D-C Output Ma., 40 Max. Peak Plate Ma., 120					
7A4	Medium-Mu Triode	D6	1AC ₅	H	6.3	0.3	Amplifier										
7A5	Beam Power Amplifier	C2a	8AA	H	6.3	0.75	Class A Amplifier	110 125	-7.5 -9.0	110 125	3.0 3.3	40.0 44.0	16000 17000	5800 6000	— —	2500 2700	1.5 2.2
7A6	Twin Diode	D6	7AJ	H	6.3	0.15	Detector Rectifier										
7A7	Remote-Cutoff Pentode	D6	8V	H	6.3	0.3	Class A Amplifier										
7A8	Octode Converter	D6	8U	H	6.3	0.15	Converter	100 250	-3.0 -3.0	75 100	2.7 3.2	1.8 3.0	650000 700000				
7AD7	Power Pentode	C2a	8V	H	6.3	0.6	Class A Amplifier	300									
7AF7	Medium-Mu Twin Triode	D6	8AC	H	6.3	0.3	Each Unit as Class A Amplifier	250 100	-10 Cath. Bias	— —	— —	9.0 10.8	7600 6500	2100 2600	16 17		
7AG7	Sharp-Cutoff Pentode	D6	8V	H	6.3	0.15	Class A Amplifier	250									

7AH7	Sharp-Cutoff Pentode	9A	9V	H	6.3	0.15	Class A Amplifier	250	Cath. Bias	250	1.9	6.8	1 meg.	3300	Cath. Res., 250 ohms
7B4	High-Mu Triode	9A	6AC	H	6.3	0.3	Amplifier	For other characteristics, refer to Type 6SP5.							
7B5	Power Amplifier Pentode	C2a	6AE	H	6.3	0.4	Class A Amplifier	For other characteristics, refer to Type 6K6-GT.							
7B6	Twin-Diode High-Mu Triode	9A	9V	H	6.3	0.3	Triode Unit as Amplifier	For other characteristics, refer to Type 6SQ7.							
7B7	Remote-Cutoff Pentode	9A	9V	H	6.3	0.15	Class A Amplifier	250	- 3.0	100	1.7	8.5	750000	1750	— — —
7B8	Pentagrid Converter	9A	6X	H	6.3	0.3	Converter	For other characteristics, refer to Type 6AE.							
7C5	Beam Power Amplifier	C2a	6AA	H	6.3	0.45	Class A Amplifier	For other characteristics, refer to Type 6V6-GT.							
7C6	Twin-Diode High-Mu Triode	9A	9V	H	6.3	0.15	Triode Unit as Class A Amplifier	250	- 1.0	—	—	1.3	100000	1000	100 — —
7C7	Sharp-Cutoff Pentode	9A	9V	H	6.3	0.15	Class A Amplifier	100 250	- 3.0 - 3.0	100 100	0.4 0.5	1.8 2.0	1.2 2.0	1225 1300	— — —
7E6	Twin-Diode Triode	9A	9V	H	6.3	0.3	Triode Unit as Amplifier	For other characteristics, refer to Type 6R7.							
7E7	Twin-Diode Pentode	9A	6AE	H	6.3	0.3	Pentode Unit as Class A Amplifier	100 250	Cath. Bias	100 100	2.7 1.6	10.0 7.5	150000 700000	1600 1300	Cath. Res., 800 ohms Cath. Res., 330 ohms
7F7	Twin-Triode Amplifier	9A	6AC	H	6.3	0.3	Each Unit as Amplifier	For other characteristics, refer to Type 6SL7-GT.							
7F8	Twin-Triode Amplifier	9A	6BW	H	6.3	0.3	Each Unit as Class A Amplifier	250	Cathode Bias Res., 500 ohms			6.0	—	3300	48 — —
7G7	Sharp-Cutoff Pentode	9A	9V	H	6.3	0.45	Class A Amplifier	250	- 2.0	100	2.0	6.0	800000	4500	— — —
7H7	Sharp-Cutoff Pentode	9A	9V	H	6.3	0.3	Class A Amplifier	100 250	- 1.5 Δ	100 150	2.6 3.2	7.5 10.0	350000 800000	4000 4000	Cath. Res., 180 ohms
7J7	Triode-Heptode Converter	9A	6BL	H	6.3	0.3	Triode Unit as Oscillator	100 250	Triode-Grid Resistor, 50000 ohms			3.2 5.0	Triode-Grid & Heptode-Grid Current, 0.3 ma. Triode-Grid & Heptode-Grid Current, 0.4 ma.		
							Heptode Unit as Mixer	100 250	- 3.0 - 3.0	100 100	2.6 2.8	1.5 1.4	500000 1.5	Conversion Transcond., 280 micromhos. Conversion Transcond., 290 micromhos.	
7K7	Twin-Diode High-Mu Triode	9A	6BF	H	6.3	0.3	Triode Unit as Class A Amplifier	250	- 2	—	—	2.3	44000	1600	70 — —
7L7	RF Amplifier Pentode	9A	9V	H	6.3	0.3	Class A Amplifier	100 250	- 1.0 - 1.5	100 100	2.4 1.5	5.5 4.5	100000 1.0	3000 3100	— — —
7N7	Twin-Triode Amplifier	C2a	6AC	H	6.3	0.6	Each Unit as Class A Amplifier	For other characteristics, refer to Type 6SN7-GT.							
7Q7	Pentagrid Converter	9A	6AL	H	6.3	0.3	Converter	100 250	- 2.0 - 2.0	100 100	8.5 8.5	3.3 3.5	500000 1.0	Grid #1 Resistor, 20000 ohms. Conversion Transcond., 550 micromhos.	
7R7	Twin-Diode Pentode	9A	6AE	H	6.3	0.3	Pentode Unit as Class A Amplifier	100 250	- 1.0 - 1.0	100 100	2.2 2.1	5.5 5.7	350000 1.0	3000 3200	— — —

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to guide plate operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias in Volts	Screen Supply Volts	Screen Current Ma	Plate Current Ma	AC Plate Resistance (Ohms)	Trans-conductance (Grid-plate) μ mmhos	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts	
		Dimen.	S. C.	C. T.	Volts	Am.												
757	Triode-Heptode Converter	B5	BBL	M	6.3	0.3	Triode Unit as Oscillator	100 250	Triode-Grid Resistor, 50000 ohms			3.0 5.0	Triode Grid & Heptode-Grid Current, 0.3 ma. Triode-Grid & Heptode-Grid Current, 0.4 ma.					
							Heptode Unit as Mixer	100 250	- 2.0 - 2.0	100 100	3.0 3.0	1.9 1.8	500000 1.25	Conversion Transcond., 500 micromhos Conversion Transcond., 525 micromhos				
7V7	RF Amplifier Pentode	B5	8V	M	6.3	0.45	Class A Amplifier	300	—			150	3.9	10.0	300000	5800	Cath. Bias Res., 160 ohms	
7W7	RF Amplifier Pentode	B5	8B1	M	6.3	0.45	Class A Amplifier	For other characteristics, refer to Type 7V7.										
7X7	Twin Diode-High-Mu Triode	C2a	8B2	M	6.3	0.3	Triode Unit as Class A Amplifier	100 250	0 - 1.0	—		—	1.2 1.9	85000 67000	1000 1500	85 100	—	
7Y4	Full-Wave Rectifier	B6	5AB	M	6.3	0.5	With Capacitive-Input Filter	Max. A-C Volts per Plate (RMS), 325 Max. Peak Inverse Volts, 1250					Max. D-C Output Ma., 70 Max. Peak Plate Ma., 180		Min. Total Effect. Supply Imped. per Plate, 150 ohms			
							With Inductive-Input Filter	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1250					Max. D-C Output Ma., 70 Max. Peak Plate Ma., 180		Min. Value of Input Choke, 10 henries			
7Z4	Full-Wave Rectifier	C2a	5AB	M	6.3	0.9	With Capacitive-Input Filter	Max. A-C Volts per Plate (RMS), 325 Max. Peak Inverse Volts, 1250					Max. D-C Output Ma., 100 Max. Peak Plate Ma., 300		Min. Total Effect. Supply Imped. per Plate, 75 ohms			
							With Inductive-Input Filter	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1250					Max. D-C Output Ma., 100 Max. Peak Plate Ma., 300		Min. Value of Input Choke, 6 henries			
10B	Power Amplifier Triode	C3	4D	F	7.5	1.25	Class A Amplifier	350 425	- 32.0 - 40.0	—		—	16.0 18.0	5150 5000	1550 1600	8.0 8.0	11000 10200	0.9 1.6
11 12	Detector* Amplifier Triode	C2a D6a	4F 4D	B.C. F	1.1	0.25	Class A Amplifier	90 135	- 4.5 - 10.5	—		—	2.5 3.0	15500 15000	425 440	6.6 6.6	—	
12A5	Power Amplifier Pentode	D6	7F	M	6.3 12.6	0.6 0.3	Class A Amplifier	100 180	- 15.0 - 25.0	100 180	3.0 8.0	17.0 45.0	50000 35000	1700 2400	—		4500 3300	0.8 3.4
12A7	Rectifier-Pentode	D9	7K	M	12.6	0.3	Pentode Unit as Class A Amplifier	135	- 13.5	135	2.5	9.0	102000	975	—		13500	0.55
							Half-Wave Rectifier	Maximum A-C Plate Voltage Maximum D-C Output Current										125 Volts, RMS 30 Milliamperes
12A8-GT	Pentagrid Converter	C3	GT-8A2	M	12.6	0.15	Converter	For other characteristics, refer to Type 6A8.										
12AH7-GT	Twin Triode	C6a	8B4	M	12.6	0.15	Each Unit as Class A Amplifier	100 180	- 3.6 - 6.5	—		—	3.7 7.6	10300 8400	1550 1900	16 16	—	
							Detector Rectifier	For other characteristics, refer to Type 6AL5.										
12AL5	Twin-Diode	A1	6BT	M	12.6	0.15	Triode Unit as Class A Amplifier	For other characteristics, refer to Type 6AT6.										
12AT6	Twin-Diode High-Mu Triode	B6	7BT	M	12.6	0.15	Triode Unit as Class A Amplifier	For other characteristics, refer to Type 6AT6.										

12AT7	High-Mu Twin Triode	9Ba	9A	M	6.3 12.6	0.3 0.15	Each Unit as Class A Amplifier	100 250	Cath. Res., 270 ohms Cath. Res., 200 ohms	3.7 10.0	15000 10900	4000 3500	60 60	—	—
12AU6	Sharp-Cutoff Pentode	9B	7BK ₁	M	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6AU6.							
12AU7	Twin-Triode Amplifier	9Ba	9A	M	6.3 12.6	0.3 0.15	Each Unit As Class A Amplifier	100 250	0 - 8.5	— —	13.0 10.5	6300 7950	3500 2200	22 17.5	— —
12AV6	Twin-Diode High-Mu Triode	9B	7BT	M	12.6	0.15	Triode Unit as Class A Amplifier	For other characteristics, refer to Type 6AV6.							
12AW6	Sharp-Cutoff Pentode	9B	7CM	M	12.6	0.15	As Pentode Class A Amplifier As Triode Class A Amplifier	For other characteristics, refer to Type 6AG5.							
12AX4-GT	Half-Wave Rectifier	C25	20	M	12.6	0.6	Television Dumper Service	Max. Peak Inverse Plate Volts, 4000 Max. Peak Plate Ma., 600 Max. DC Plate Ma., 125		Max. Peak Heater Cathode Volts — 400** +100 **DC component must not exceed 900 volts					
12AX7	High-Mu Twin Triode	9Ba	9A	M	6.3 12.6	0.3 0.15	Each Unit as Class A Amplifier	100 250	- 1.0 - 2.0	— —	0.5 1.2	8500 62500	1250 1600	100 100	— —
12B8-GT	Triode- Pentode	C16a	8T	M	12.6	0.3	Triode Unit as Class A Amplifier Pentode Unit as Class A Amplifier	90 90	0 - 3.0	— 90	2.8 2.0	37000 20000	2400 1800	90 —	— —
12BA6	Remote-Cutoff Pentode	9B	7BK ₁	M	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6BA6.							
12BA7	Pentagrid Converter▲	9Ba	8CT	M	12.6	0.15	Converter	For other characteristics, refer to Type 6BA7.							
12BD6	Remote-Cutoff Pentode	9B	7CC	M	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6BD6.							
12BE6	Pentagrid Converter▲	9B	7CM	M	12.6	0.15	Converter	For other characteristics, refer to Type 6BE6.							
12BF6	Twin-Diode Triode	9B	7BT	M	12.6	0.15	Triode Unit as Class A Amplifier	250	- 9.0	—	9.5	8500	1900	16	Power Output, 300 milliwatts
12BH	Medium-Mu Twin Triode	83	9A	M	6.3 12.6	0.6 0.3	Vertical Deflection Amplifier in TV Equipment	Max. DC Plate Volts, 500 Max. DC Plate Ma., 20		Max. Peak Positive Pulse Plate Volts, 1350 Max. Plate Dissipation, 3.5 watts					
12C8	Twin-Diode Pentode	C1	8E	M	12.6	0.15	Pentode Unit as RF Amplifier Pentode Unit as AF Amplifier	250	- 3.0	125	2.3	10.0	600000	1325	— —
12F5-GT	High-Mu Triode	C25	0-40A, 1	M	12.6	0.15	Amplifier	For other characteristics, refer to Type 6SF5.							
12H6	Twin-Diode	A1a	7Q	M	12.6	0.15	Detector Rectifier	For other ratings, refer to Type 6H6.							
12J5-GT	Medium-Mu Triode	C3	GT-4Q1	M	12.6	0.15	Amplifier	For other characteristics, refer to Type 6J5.							

Discontinued types are shown in light face.

 Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values in right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current Ma.	Plate Current Ma.	AC Plate Resistance Ohms	Trans-conductance (Grid plate) μmhos	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts
		Diodes	S.C.	C.T.	Volts	Ang.											
12J7-GT	Sharp-Cutoff Pentode	C3	GT-7B ₂	H	12.6	0.15	Amplifier	For other characteristics, refer to Type 6J7.									
12K7-GT	Remote-Cutoff Pentode	C3	GT-7B ₂	H	12.6	0.15	Amplifier	For other characteristics, refer to Type 6K7.									
12K8	Triode-Hexode Converter	C1	8K	H	12.6	0.15	Oscillator Mixer	For other characteristics, refer to Type 6K8.									
12Q7-GT	Twin-Diode High-Mu Triode	C3	GT-7V ₂	H	12.6	0.15	Triode Unit as Amplifier	For other characteristics, refer to Type 6Q7.									
12S8-GT	Triode-Diode High-Mu Triode	C3	8CB	H	12.6	0.15	Triode Unit as Class A Amplifier	100 250	— 1 — 2	— —	— —	0.4 0.9	110 910	900 1100	100 100	— —	— —
12SA7	Pentagrid Converter	B2	14	H	12.6	0.15	Mixer	For other characteristics, refer to Type 6SA7.									
12SA7-GT	Pentagrid Converter	C3	G-8AD	H	12.6	0.15	Mixer	For other characteristics, refer to Type 6SA7.									
12SC7	Twin-Triode Amplifier	B2	8B	H	12.6	0.15	Each Unit as Class A Amplifier	For other characteristics, refer to Type 6SC7.									
12SF5	High-Mu Triode	B2	6AB	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6SF5.									
12SF5-GT	High-Mu Triode	C3	G-6AB1	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6SF5.									
12SF7	Diode-Remote-Cutoff Pentode	B2	7AZ	H	12.6	0.15	Pentode Unit as Amplifier	For other characteristics, refer to Type 6SF7.									
12SG7	Remote-Cutoff Pentode	B2	8BK	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6SG7.									
12SH7	Sharp-Cutoff Pentode	B2	8BK	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6SH7.									
12SJ7	Sharp-Cutoff Pentodes	B2	8H	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6SJ7.									
12SJ7-GT	Sharp-Cutoff Pentodes	C3	GT-8H ₂	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6SJ7.									
12SK7	Remote-Cutoff Pentodes	B2	8H	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6SK7.									
12SK7-GT	Remote-Cutoff Pentodes	C3	GT-8H ₂	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6SK7.									
12SL7-GT	Twin-Triode Amplifier	C3	8BD	H	12.6	0.15	Each Unit as Amplifier	For other characteristics, refer to Type 6SL7-GT.									
12SN7-GT	Twin-Triode Amplifier	C3	8BD	H	12.6	0.3	Each Unit as Amplifier	For other characteristics, refer to Type 6J5.									
12SQ7	Twin-Diode High-Mu Triode	B2	8Q	H	12.6	0.15	Triode Unit as Amplifier	For other characteristics, refer to Type 6SQ7.									

12SQ7-GT	Twin-Diode High-Mu Triode	C3	QT-40A	H	12.6	0.15	Triode Unit as Amplifier	For other characteristics, refer to Type 6SQ7.										
12SR7 12SR7-GT	Twin-Diode Triode	B2 C3	BQ QT-40A	H	12.6	0.15	Triode Unit as Amplifier	For other characteristics, refer to Type 6SR7.										
12V6-GT	Beam Power Amplifier	C3	Q-7AC1	H	12.6	0.225		For characteristics, refer to Type 6V6-GT.										
12Z3	Half-Wave Rectifier	D6	Q0	H	12.6	0.3	With Capacitive-Input Filter	Max. A-C Plate Volts (RMS), 235 Min. Total Effective Plate-Supply Impedance: Up to 117 Max. D-C Output Ma., 55 volts, 0 ohms; at 150 volts, 30 ohms; at 235 volts, 75 ohms.										
14A4	Medium-Mu Triode	B4	8AC	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6J5.										
14A5	Beam Power Amplifier	B6	8AA	H	12.6	0.15	Class A Amplifier	250	-12.5	250	3.5	30	70000	3000	—	7500	2.8	
14A7	Remote-Cutoff Pentode	B6	8V	H	12.6	0.15	Class A Amplifier	100 250	-1.0 -3.0	100 100	4.0 2.6	13.0 9.2	120000 800000	2350 2000	—	—	—	
14AF7	Medium-Mu Twin Triode	B6	8AC	H	12.6	0.15	Each Unit as Class A Amplifier	For other characteristics, refer to Type 7AF7.										
14B6	Twin-Diode High-Mu Triode	B6	8W	H	12.6	0.15	Triode Unit as Class A Amplifier	For other characteristics, refer to Type 6SQ7.										
14B8	Pentagrid Converter	B6	8X	H	12.6	0.15	Converter	For other characteristics, refer to Type 6A8.										
14C5	Beam Power Amplifier	C2a	8AA	H	12.6	0.225	Class A Amplifier	180 315	-8.5 -13	180 225	3.0 2.2	29.0 34.0	58000 77000	3700 3750	—	5500 8500	2 5.5	
14C7	Sharp-Cutoff Pentode	B6	8V	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 6SJ7.										
14E6	Twin-Diode Triode	B4	8W	H	12.6	0.15	Triode Unit as Class A Amplifier	For other characteristics, refer to Type 6SR7.										
14E7	Twin-Diode Remote-Cutoff Pentode	B6	8AC	H	12.6	0.15	Pentode Unit as Class A Amplifier	100 250	-1 -3	100 100	2.7 1.6	10.0 7.5	150000 700000	1600 1300	—	—	—	
14F7	Twin-Triode Amplifier	B6	8AC	H	12.6	0.15	Each Unit as Class A Amplifier	For other characteristics, refer to Type 6SL7-GT.										
14F8	Medium-Mu Twin Triode	B6b	8BW	H	12.6	0.15	Each Unit as Class A Amplifier	250	Cathode-Bias Res. 500 ohms		6.0	—	3300	48	—	—	—	
14H7	Remote-Cutoff Pentode	B6	8V	H	12.6	0.15	Class A Amplifier	For other characteristics, refer to Type 7J17.										
14J7	Triode-Heptode Converter	B6	8BL	H	12.6	0.15	Converter	For other characteristics, refer to Type 7J7.										
14N7	Twin-Triode Amplifier	C2a	8AC	H	12.6	0.3	Each Unit as Class A Amplifier	For other characteristics, refer to Type 6SN7-GT.										
14Q7	Pentagrid Converter	B6	8AL	H	12.6	0.15	Converter	For other characteristics, refer to Type 6SA7.										
14R7	Twin-Diode Pentode	B6	8AE	H	12.6	0.15	Pentode Unit as Class A Amplifier	For other characteristics, refer to Type 7K7.										
15	RF Amplifier Pentode	D6	8F	B.C. H	3.0	0.22	Class A Amplifier	67.5 135	-1.5 -1.5	67.5 67.5	0.3 0.3	1.85 1.85	630000 800000	710 750	—	—	—	

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current Ma	Plate Current Ma	AC Plate Resistance Ohms	Trans-conductance (Grid plate) mhos	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watt
		Dimens.	S. C.	E. T.	Volts	Ampl.											
19	Twin-Triode Amplifier	D6	6C	D.C. F	2.0	0.26	Amplifier	For other characteristics, refer to Type 1J6-G.									
19BC6-G	Beam Power Amplifier	F ₁	8BT	M	18.9	0.3	Horizontal Deflection Amplifier in TV Equipment	Max. DC Plate Volts, 700 Max. DC Plate Current, 100 ma		Max. Peak Positive Pulse Plate Volts, 6000 Max. Plate Dissipation, 20 watts							
19J6	Medium-Mu Twin Triode	D6	7BF	M	18.9	0.15	Each Unit as Class A Amplifier	100	Cathode Bias Res., 50k ohms		8.5	7100	5300	38	—	—	
19T8	Triode-Diode High-Mu Triode	D6a	8E	M	18.9	0.15	Triode Unit as Class A Amplifier	For other characteristics, refer to Type 6T8.									
19X8	Triode-Pentode Converter	D6a	21	M	18.9	0.15		For characteristics, refer to Type 6X8.									
20	Power Amplifier Triode	D1	4D	D.C. F	3.3	0.132	Class A Amplifier	90 135	-16.5 -22.5	—	—	3.0 6.5	8000 6300	415 525	3.3 3.3	9600 6500	0.045 0.110
22	RF Amplifier Tetrode	E1	4K	D.C. F	3.3	0.132	Screen-Grid RF Amplifier	135 135	-1.5 -1.5	45 67.5	0.6* 1.3*	1.7 3.7	72500 325000	375 500	—	—	—
24-A	RF Amplifier Tetrode	E1	8E	M	2.5	1.75	Screen-Grid RF Amplifier	180 250	-3.0 -3.0	90 90	1.7* 1.7*	4.0 4.0	40000 600000	1000 1050	—	—	—
							Bias Detector	250m	-5.0 approx.	20 to 45	Plate current to be adjusted to 0.1 milliamperes with no signal.						
25A6	Power Amplifier Pentode	C2	7B	M	25.0	0.3	Class A Amplifier	95 160	-15.0 -18.0	95 120	4.0 6.5	20.0 33.0	45000 42000	2000 2375	—	4500 5000	0.9 2.2
25A6-GT	Power Amplifier Pentode	C2	G-7B	M	25.0	0.3	Class A Amplifier	For other characteristics, refer to Type 25A6.									
25A7-GT	Rectifier Pentode	C2	8F	M	25.0	0.3	Pentode Unit as Class A Amplifier	100	-15.0	100	4.0	20.5	50000	1800	—	4500	0.77
							Half-Wave Rectifier	Max. A-C Plate Volts (RMS), 117 Max. Peak Inverse Volts, 350		Max. D-C Output Ma., 75 Max. Peak Plate Ma., 450		Min. Total Effect. Supply Impedance, 15 ohms					
25AC5-GT	High-Mu Power Amplifier Triode	C2	G-8Q	M	25.0	0.3	Class B Amplifier	180	0	—	—	4.0	—	—	—	4800	6.0
							Dynamic-Coupled Amp. With Type 6AE5-GT Driver	110	Bias for both 25AC5-GT and 6AE5-GT developed in circuit. Average Plate Current of Driver = 7 milliamperes. Average Plate Current of 25AC5-GT = 45 milliamperes.										2000	2.0
25B5	Direct-Coupled Power Amplifier	D6a	8D	M	25.0	0.3	Amplifier	For other characteristics, refer to Type 25N6-G.									
25B6-G	Power Amplifier Pentode	D10	G-7B	M	25.0	0.3	Class A Amplifier	105 200	-16.0 -23.0	105 135	2.0 1.8	48.0 62.0	13500 18000	4800 5000	—	1700 2500	2.4 7.1

25B8-GT	Triode-Pentode	C3	GT	H	25.0	0.15	Triode Unit as Class A Amplifier	100	- 1.0	—	—	0.6	75000	1500	112	—	—
							Pentode Unit as Class A Amplifier	100	- 3.0	100	2.0	7.6	185000	2000	—	—	—
25BQ6-GT	Beam Power Amplifier	C11	6AM	H	25.0	0.3	Horizontal Deflection Amplifier in TV Equipment	For characteristics, refer to Type 6BQ6-GT.									
25C6-G	Beam Power Amplifier	D10	G-7AC1	H	25.0	0.3	Class A Amplifier	For other characteristics, refer to Type 6Y6-G.									
25L6	Beam Power Amplifier	C2	7AC	H	25.0	0.3	Amplifier	110	- 7.5	110	4.0	49.0	13000	9000	—	2000	2.1
								200	- 8.0	110	2.0	50.0	30000	9500	—	3000	4.3
25L6-GT	Beam Power Amplifier	C3	G-7AC1	H	25.0	0.3	Amplifier	For other characteristics, refer to Type 50L6-GT.									
25N6-G	Direct-Coupled Power Amplifier	D9	G-7W	H	25.0	0.3	Class A Amplifier	Output Triode: Plate Volts, 180; Plate Ma., 46; Load, 4000 ohms. Triode: Plate Volts, 100; Grid Volts, 0; A-F Signal Volts (Peak), 29.7; Plate Ma., 5.8									
25W4-GT	Half-Wave Rectifier	C2b	4CQ	H	25.0	0.3	With Capacitive-Input Filter	Max. A-C Plate Volts (RMS), 350 Max. D-C Output Ma., 125 Min. Total Effect. Supply Imped. per Plate, 145 ohms; Max. Peak Inverse Volts, 2000 ϕ , 1250 Max. Peak Plate Ma., 600									
25Y5	Rectifier-Doubler	D6	6E	H	25.0	0.3	Half-Wave Rectifier	Max. A-C Volts per Plate (RMS), 235 Min. Total Effective Plate-Supply Impedance per Plate, 0 ohms; Max. D-C Output Ma. per Plate, 75									
25Z5	Rectifier-Doubler	D4	6E	H	25.0	0.3	Rectifier-Doubler	For other ratings, refer to Type 25Z6.									
25Z5	Vacuum Rectifier-Doublers	C2	7Q	H	25.0	0.3	Voltage Doubler	Max. A-C Volts per Plate (RMS), 117 Min. Total Effective Plate-Supply Impedance: Half-Wave, 30 ohms; Full-Wave, 15 ohms; Max. D-C Output Ma., 75									
		C3	G-7Q1				Max. A-C Volts per Plate (RMS), 235 Min. Total Effect. Supply Imped. per Plate: Up to 117 volts, 15 ohms; at 150 volts, 40 ohms; at 235 volts, 100 ohms; Max. D-C Output Ma. per Plate, 75										
26	Amplifier Triode	D12	4D	F	1.5	1.05	Class A Amplifier	90	- 7.0	—	—	2.9	8900	935	8.3	—	—
								180	- 14.5	—	—	6.2	7300	1150	8.3	—	—
27	Detector & Amplifier Triode	D8	6A4	H	2.5	1.75	Class A Amplifier	135	- 9.0	—	—	4.5	9000	1000	9.0	—	—
								250	- 21.0	—	—	5.2	9250	975	9.0	—	—
30	Medium-Mu Triode	D6	4D	D.C. F	2.0	0.06	Amplifier	Plate current to be adjusted to 0.2 milliamperes with no signal.									
31	Power Amplifier Triode	D4	4D	D.C. F	2.0	0.13	Class A Amplifier	135	- 22.5	—	—	8.0	4100	925	3.8	7000	0.185
								180	- 30.0	—	—	12.3	3600	1050	3.8	5700	0.375
32	RF Amplifier Tetrode	E1	4K	D.C. F	2.0	0.06	Screen-Grid RF Amplifier	135	- 3.0	67.5	0.4	1.7	950000	640	—	—	—
							180	- 3.0	67.5	0.4	1.7	1.0 ϕ	650	—	—	—	
32L7-GT	Rectifier-Beam Power Amplifier	C3	8Z	H	32.5	0.3	Bias Detector	180 ∇	- 6.0 approx.	67.5	—	Plate current to be adjusted to 0.2 milliamperes with no signal.					
							Amplifier Unit as Class A Amplifier	90	- 5.0	90	3.0	38.0	15000	6000	—	2600	0.8
33	Power Amplifier Pentode	D12	8K	D.C. F	2.0	0.26	Class A Amplifier	90	- 7.0	90	2.0	27.0	17000	4800	—	2600	1.0
								Half-Wave Rectifier	Maximum A-C Plate Voltage Maximum D-C Output Current 125 Volts, RMS 60 Milliamperes.								
33	Power Amplifier Pentode	D12	8K	D.C. F	2.0	0.26	Class A Amplifier	180	- 18.0	180	5.0	22.0	55000	1700	—	6000	1.5
								—	—	—	—	—	—	—	—	—	—

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values in right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current Ma	Plate Current Ma	AC Plate Resistance Ohms	Trans-conductance (Grid-plate) μ hos	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts
		Diode	S.C.	C.T.	Volts	Amperes											
34	Remote-Cutoff Pentode	E1	4B	O.C. F	2.0	0.06	Screen-Grid RF Amplifier	135 180	- 3.0 min.	67.5 67.5	1.0 1.0	2.8 2.8	600000 1.0j	600 620	—	—	—
35	Remote-Cutoff Tetrode	E1	8C	M	2.5	1.75	Screen-Grid RF Amplifier	180 250	- 3.0 min.	90 90	2.5* 2.5*	6.3 6.5	300000 400000	1020 1050	—	—	—
35A5	Beam Power Amplifier	C2a	8AA	M	35.0	0.15	Single-Tube Class A Amplifier	For other characteristics, refer to Type 35L6-GT.									
35B5	Beam Power Amplifier	B3	7B2	M	35.0	0.15	Class A Amplifier	For other characteristics, refer to Type 35C5.									
35C5	Beam Power Amplifier	B3	7CV	M	35.0	0.15	Class A Amplifier	110 200	- 7.5 Δ	110 125	3.0 2.0	40.0 43.0	13000 34000	5800 6100	—	2500 5000	1.5 3.0
35L6-GT	Beam Power Amplifier	C3	Q-7AC	M	35.0	0.15	Single-Tube Class A Amplifier	110 200	- 7.5 Δ	110 125	3.0 2.0	40.0 43.0	14000 34000	5800 6100	—	2500 5000	1.5 3.0
35W4	Half-Wave Rectifier Heater Tap for Pilot	B3	8BQ4	M	35.0	0.15	With Capacitive-Input Filter	Max. A-C Plate Volts (RMS), 117 Min. Total Effect. Plate-Supply Impedance, 15 ohms Max. D-C Output Ma: With Pilot and No Shunt Res., 60; With Pilot and Shunt Res., 90, Without Pilot, 100									
35Y4	Half-Wave Rectifier	C2a	8AL	M	35.0	0.15	With Capacitive-Input Filter	For other characteristics, refer to Type 35W4.									
35Z3	Half-Wave Rectifier	C2a	4Z	M	35.0	0.15	With Capacitive-Input Filter	For other ratings, refer to Type 35Z4-GT.									
35Z4-GT	Half-Wave Rectifier	C3	Q-4AA	M	35.0	0.15	With Capacitive-Input Filter	Max. A-C Plate Volts (RMS), 235 Min. Total Effective Plate-Supply Impedance: Up to 117 volts, 15 ohms; at 235 volts, 100 ohms. Max. D-C Output Ma., 100									
35Z5-GT	Half-Wave Rectifier Heater Tap for Pilot	C3	Q-5AD4	M	35.0	0.15	With Capacitive-Input Filter	Max. A-C Plate Volts (RMS), 235 Min. Total Effect. Plate-Supply Imped.: Up to 117 volts, 15 ohms; at 235 volts, 100 ohms. Max. D-C Output Ma.: With Pilot and No Shunt Res., 60; With Pilot and Shunt Res., 90; Without Pilot, 100.									
36	RF Amplifier Tetrode	D8	8E	M	6.3	0.3	Screen-Grid RF Amplifier	100 250	- 1.5 - 3.0	55 90	— 1.7*	1.8 3.2	550000 550000	850 1080	—	—	—
							Radio Detector	100 250	- 5.0 - 8.0	55 90	—	Grid-bias values are approximate. Plate current to be adjusted to 0.1 milliamperes with no signal.					
37	Detector & Amplifier Triode	D8	8A1	M	6.3	0.3	Class A Amplifier	90 250	- 6.0 - 18.0	—	—	2.5 7.5	11500 8400	800 1100	9.3 9.2	—	—
							Bias Detector	90 250	- 10.0 - 28.0	—	—	Grid-bias values are approximate. Plate current to be adjusted to 0.2 milliamperes with no signal.					
38	Power Amplifier Pentode	D8	8F	M	6.3	0.3	Class A Amplifier	100 250	- 9.0 - 25.0	100 250	1.2 3.8	7.0 22.0	140000 100000	875 1200	—	15000 10000	0.27 2.50
39/44	Remote-Cutoff Pentode	D8	8F	M	6.3	0.3	Class A Amplifier	90 250	- 3.0 min.	90 90	1.6 1.4	5.6 5.8	400000 1.0j	1000 1050	—	—	—
40	Medium-Mu Triode	D12	4D	O.C. F	5.0	0.25	Class A Amplifier	135* 180*	- 1.5 - 3.0	—	—	0.2 0.2	150000 150000	200 200	30 30	—	—

41	Power Amplifier Pentode	D6	6B	H	6.3	0.4	Amplifier	For other characteristics, refer to Type 6K6-GT.									
42	Power Amplifier Pentode	D12	6B	H	6.3	0.7	Amplifier	For other characteristics, refer to Type 6P6-G.									
43	Power Amplifier Pentode	D12	6B	H	25.0	0.3	Amplifier	For other characteristics, refer to Type 25A6.									
45	Power Amplifier Triode	D12	4D	F	2.5	1.5	Class A Amplifier	180	-31.5	—	—	31.0	1650	2125	3.5	2700	0.83
							275	-56.0	—	—	36.0	1700	2050	3.5	4600	2.00	
							275	Cath. Bias, 775 ohms -68.0 volts, fixed bias			36.0	—	—	—	5060	12.0	
45Z3	Half-Wave Rectifier	6B	5AM	H	45.0	0.075	Half-Wave Rectifier	Max. A-C Plate Volts (RMS), 117				Max. D-C Output Ma., 65		Min. Total Effect. Plate- Supply Imped., 15 ohms.			
45Z3-GT	Half-Wave Rectifier <i>Heater Tap for Pilot</i>	C3	0-6AD5	H	45.0	0.15	With Capacitive- Input Filter	For other ratings, refer to Type 35Z5-GT.									
46	Dual-Grid Power Amplifier	C3	8C	F	2.5	1.75	Class A Amplifier □	250	-33.0	—	—	22.0	2380	2350	5.6	6400	1.25
							Class B Amplifier ◊	300 400	0 0	— —	— —	8.0 12.0	— —	— —	— —	5200 5800	16.0 20.0
47	Power Amplifier Pentode	C3	8B	F	2.5	1.75	Class A Amplifier	250	-16.5	250	6.0	31.0	60000	2500	—	7000	2.7
48	Power Amplifier Tetrode	C3	6A	D.C. H	30.0	0.4	Tetrode	96	-19.0	96	9.0	52.0	—	3800	—	1500	2.0
							Class A Amplifier	125	-20.0	100	9.5	55.0	—	3900	—	1500	2.5
							Tetrode Push-Pull Class A Amplifier	125	-20.0	100	—	100.0	—	—	—	3000	5.0
49	Dual-Grid Power Amplifier	D12	8C	D.C. F	2.0	0.12	Class A Amplifier □	135	-20.0	—	—	6.0	4175	1125	4.7	11000	0.17
							Class B Amplifier ◊	180	0	—	—	4.0	—	—	—	12000	3.5
50	Power Amplifier Triode	P1A	4D	F	7.5	1.25	Class A Amplifier	300 400 450	-54.0 -70.0 -84.0	— — —	— — —	35.0 55.0 55.0	2000 1800 1800	1900 2100 2100	3.8 3.8 3.8	4600 3670 4350	1.6 3.4 4.6
							Class A Amplifier	110	-7.5	110	4.0	49.0	10000	7500	—	2500	1.9
							Class A Amplifier	135	-13.5	135	3.5	58.0	9300	7000	—	2000	3.6
50A5	Beam Power Amplifier	C2A	6AA	H	50.0	0.15	Class A Amplifier	For other characteristics, refer to Type 50L6-GT.									
50B5	Beam Power Amplifier	C3	7B2	H	50.0	0.15	Class A Amplifier	For other characteristics, refer to Type 50C5.									
50C5	Beam Power Amplifier	C3	7CV	H	50.0	0.15	Class A Amplifier	110	-7.5	110	4.0	49.0	10000	7500	—	2500	1.9
50C5-G	Beam Power Amplifier	D18	7AC	H	50.0	0.15	Single-Tube Class A Amplifier	135	-13.5	135	3.5	58.0	9300	7000	—	2000	3.6
50L6-GT	Beam Power Amplifier	C3	0-7AC1	H	50.0	0.15	Single-Tube Class A Amplifier	110	-7.5	110	4.0	49.0	13000	8000	—	2000	2.1
							Class A Amplifier	200	Δ	125	2.2	46.0	28000	8000	—	4030	3.8
50X6	Rectifier- Doubler	C2A	7A1	H	50.0	0.15	Rectifier- Doubler	Max. A-C Volts per Plate (RMS), 117				Min. Total Effective Plate Supply Impedance:					
							Half-Wave Rectifier	Max. D-C Output Ma., 75				Half Wave, 30 ohms; Full-Wave, 15 ohms.					
								Max. A-C Volts per Plate (RMS), 235				Min. Total Effect. Supply Imped. per Plate: Up to 117 volts,					
								Max. D-C Output Ma. per Plate, 75				15 ohms at 150 volts, 40 ohms, at 235 volts, 100 ohms.					

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias Volts	Screen Supply Volts	Screen Current Ma.	Plate Current Ma.	AC Plate Resistance (Ohms)	Trans-conductance (milli-mhos)	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts
		Diame.	1 C.	C. T.	Volts	Ampl.											
60Y6-GT	Rectifier-Doubler	C3	G-7Q1	H	50.0	0.15	Rectifier-Doubler	For other ratings, refer to Type 25Z6.									
60Y7-GT	Rectifier-Doubler Heater Tap for Pilot ⬥	C2b	6AN	H	50.0	0.15	Voltage Doubler	Max. A-C Volts per Plate (RMS), 117 Max. D-C Output ma., 65	Min. Total Effective Plate-Supply Impedance per Plate, 15 ohms								
							Half-Wave Rectifier	Max. A-C Volts per Plate (RMS), 235 Max. D-C Output ma. per Plate, 65	Min. Total Effect. Plate-Supply Imped. per Plate: Up to 117 volts, 15 ohms; at 150 volts, 40 ohms; at 235 volts, 100 ohms								
50Z7-G	Rectifier-Doubler Heater Tap for Pilot ⬥	D3	G-6AN	H	50.0	0.15	Voltage Doubler	Max. A-C Volts per Plate (RMS), 117 Max. D-C Output Ma., 65	Min. Total Effective Plate-Supply Impedance: 15 ohms.								
							Half-Wave Rectifier	Max. A-C Volts per Plate (RMS), 235 Max. D-C Output Ma. per Plate, 65	Min. Total Effective Plate-Supply Impedance per Plate: Up to 117 volts, 15 ohms; at 235 volts, 100 ohms.								
63	Twin-Triode Amplifier	D12	7B	H	2.5	2.0	Amplifier	For other characteristics, refer to Type 6N7-GT.									
66	Duplex-Diode Triode	D9	80	H	2.5	1.0	Triode Unit as Amplifier	For other characteristics, refer to Type 85.									
66	Medium-Mu Triode ★	D5	6A ₁	H	2.5	1.0	Amplifier Detector	For other characteristics, refer to Type 76.									
67	Sharp-Cutoff Pentode	D13	6F	H	2.5	1.0	Amplifier Detector	For other characteristics, refer to Type 6J7.									
68	Remote-Cutoff Pentode	D13	6F	H	2.5	1.0	Amplifier Mixer	For other characteristics, refer to Type 6U7-G.									
69	Triple-Grid Power Amplifier	E3	7A	H	2.5	2.0	Triode Class A Amplifier	250	-20.0	—	—	26.0	2300	2600	6.0	5000	1.33
							Pentode Class A Amplifier	250	-18.0	250	9.0	35.0	55000	2500	—	6000	3.0
							Triode Class B Amplifier	300	0	—	—	20.0 ⬥	—	—	—	4600	15.0 †
							Class B Amplifier	400	0	—	—	26.0 ⬥	—	—	—	6000	20.0 †
							Amplifier Unit as Class A Amplifier	110	-7.5	110	3.0	40.0	15000	7500	—	2000	1.8
70L7-GT	Rectifier-Beam Power Amplifier	C10	6AA	H	70.0	0.15	Half-Wave Rectifier	Max. A-C Plate Volts (RMS), 117 Max. Peak Inverse Volts, 350	Max. D-C Output Ma., 70 Max. Peak Plate Ma., 470		Min. Total Effect. Plate-Supply Imped., 15 ohms						
71-A	Power Amplifier Triode	D12	4D	F	5.0	0.25	Class A Amplifier	90 180	-16.5 -40.5	—	—	40.0 20.0	2170 1750	1400	3.0 3.0	3000 4800	0.125 0.790
75	Twin-Diode High-Mu Triode	D9	80	H	6.3	0.3	Amplifier	For other characteristics, refer to Type 6SQ7.									
76	Detector Amplifier Triode ★	D6	6A ₁	H	6.3	0.3	Class A Amplifier	250	-13.5	—	—	3.0	9500	1450	13.8	—	—
							Bias Detector	250	-20.0 approx.	—	—	Plate current to be adjusted to 0.2 milliampere with no signal.					

77	Triple-Grid Detector Amplifier	D8	6F	H	6.3	0.3	Class A Amplifier	100 250	- 1.5 - 3.0	60 100	0.4 0.5	1.7 2.3	88000 1.0 + 1	1100 1250	—	—	—	77
							Bias Detector	250	- 1.95	50	Cathode current 0.65 ma.		Plate Resistor, 250000 ohms. Grid Resistor, ** 250000 ohms.					
78	Remote-Cutoff Pentode	D8	6F	H	6.3	0.3	Amplifier Mixer	For other characteristics, refer to Type 6K7.										78
79	Twin-Triode Amplifier	D8	6H	H	6.3	0.6	Class B Amplifier	180 250	0 0	—	—	Power Output is for one tube at stated plate-to-plate load.				7000 14000	5.5 8.0	79
80	Full-Wave Rectifier	D12	4C	F	5.0	2.0	For other ratings, refer to Type 5Y3-GT.											80
81	Half-Wave Rectifier	F1a	4B	F	7.5	1.25	With Capacitive- Input Filter	Max. A-C Plate Volts (RMS), 700 Max. Peak Inverse Volts, 2000				Max. D-C Output Ma., 85 Max. Peak Plate Ma., 500						81
82	Full-Wave Rectifier	D12	4C	F	2.5	3.0	With Capacitive- Input Filter	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1550		Max. D-C Output Ma., 115 Max. Peak Plate Ma., 600		Min. Total Effect. Supply Imped. per Plate, 50 ohms.				82		
							With Inductive- Input Filter	Max. A-C Volts per Plate (RMS), 550 Max. Peak Inverse Volts, 1550		Max. D-C Output Ma., 115 Max. Peak Plate Ma., 680		Min. Value of Input Choke, 6 henries						
83	Full-Wave Rectifier	E3	4C	F	5.0	3.0	With Capacitive- Input Filter	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1550		Max. D-C Output Ma., 225 Max. Peak Plate Ma., 1000		Min. Total Effect. Supply Imped. per Plate, 50 ohms.				83		
							With Inductive- Input Filter	Max. A-C Volts per Plate (RMS), 550 Max. Peak Inverse Volts, 1550		Max. D-C Output Ma., 225 Max. Peak Plate Ma., 1000		Min. Value of Input Choke, 3 henries						
83-v	Full-Wave Rectifier	D12	4AD	H	5.0	2.0	For other ratings, refer to Type 5V4-G.											83-v
84/624	Full-Wave Rectifier	D6	8D	H	6.3	0.5	With Capacitive- Input Filter	Max. A-C Volts per Plate (RMS), 375 Max. Peak Inverse Volts, 1250		Max. D-C Output Ma., 60 Max. Peak Plate Ma., 180		Min. Total Effect. Supply Imped. per Plate, 150 ohms.				84/624		
							With Inductive- Input Filter	Max. A-C Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1250		Max. D-C Output Ma., 60 Max. Peak Plate Ma., 180		Min. Value of Input Choke, 10 henries						
85	Twin-Diode Triode	D2	6G	H	6.3	0.3	Triode Unit as Class A Amplifier	135 250	-10.5 -20.0	—	—	3.7 8.0	1800 7100	700 1100	8.3 8.3	1800 2000	0.075 0.350	85
89	Triple-Grid Power Amplifier	D8	6F	H	6.3	0.4	As Triode *	160	-20.0	—	—	17.0	3300	1415	4.7	7500	0.30	89
							Class A Amplifier	250	-31.0	—	—	32.0	2800	1800	4.7	5500	0.90	
							As Pentode **	100	-10.0	100	1.6	9.5	104000	1200	—	10700	0.33	
							Class A Amplifier	250	-25.0	250	5.0	32.0	70000	1800	—	6750	3.40	
V-99 X-99	Detector★ Amplifier Triodes	C4 D1	4E 4D	D.C. F	3.3	0.063	Class A Amplifier	90	- 4.5	—	—	2.5	15500	425	6.6	—	—	V-99 X-99
112-A	Detector★ Amplifier Triode	D12	4D	D.C. F	5.0	0.25	Class A Amplifier	90 180	- 4.5 -13.5	—	—	5.0 7.7	5400 4700	1575 1800	8.5 8.5	—	—	112-A
117L7/ M7-GT	Rectifier-Beam Power Amplifier	C8B	8AD	H	117	0.09	Amplifier Unit as Class A Amplifier	105	- 5.2	105	4.0	43.0	17000	5300	—	4000	0.85	117L7/ M7-GT
							Half-Wave Rectifier	Max. A-C Plate Volts (RMS), 117 Max. Peak Inverse Volts, 350		Max. D-C Output Ma., 75 Max. Peak Plate Ma., 450		Min. Total Effect. Plate- Supply Imped., 15 ohms.						

Discontinued types are shown in light face.

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias m Volts	Screen Supply Volts	Screen Current Ma.	Plate Current Ma.	AC Plate Resistance Ohms	Trans-conductance (Grid-plate) μ mmhos	Amplification Factor	Load for Stated Power Output Ohms	Power Output Watts		
		Diagram	S. C.	C. T.	Volts	Amps.													
117N7-GT	Rectifier-Beam Power Amplifier	C9b	8AV	H	117	0.09	Amplifier Unit as Class A Amplifier	100	- 6.0	100	5.0	51.0	16000	7000	—	3000	1.2		
							Half-Wave Rectifier	Max. A.C. Plate Volts (RMS), 117 Max. Peak Inverse Volts, 350				Max. D.C. Output Ma., 75 Max. Peak Plate Ma., 450		Min. Total Effect. Plate-Supply Impedance, 15 ohms.					
117P7-GT	Rectifier-Beam Power Amplifier	C9b	8AV	H	117	0.09	Amplifier Unit as Class A Amplifier	For other characteristics, refer to Type 117L7/M7-GT.											
							Half-Wave Rectifier	For other ratings, refer to Type 117L7/M7-GT.											
117Z3	Half-Wave Rectifier	B1a	4CB	H	117	0.04	With Capacitive-Input Filter	Max. A.C. Plate Volts (RMS), 117 Max. Peak Inverse Volts, 330		Max. D.C. Output Ma., 90 Max. Peak Plate Ma., 540		Min. Total Effect. Plate-Supply Imped., 15 ohms							
117Z4-GT	Half-Wave Rectifier	C9	G-54A	H	117.0	0.04	With Capacitive-Input Filter	Max. A.C. Plate Volts (RMS), 117 Max. Peak Inverse Volts, 310		Max. D.C. Output ma., 90 Max. Peak Plate ma., 540		Min. Total Effect. Plate-Supply Imped., 30 ohms							
117Z6-GT	Rectifiers-Doubler	C9	G-7Q1	H	117	0.075	Voltage Doubler	Max. A.C. Volts per Plate (RMS), 117 Max. D.C. Output Ma., 60		Min. Total Effective Plate-Supply Impedance per Plate: Half-Wave, 30 ohms; Full-Wave, 15 ohms.									
							Half-Wave Rectifier	Max. A.C. Volts per Plate (RMS), 235 Max. D.C. Output Ma. per Plate, 60		Min. Total Effect. Supply Imped. per Plate: Up to 117 volts, 15 ohms; at 150 volts, 40 ohms; at 235 volts, 100 ohms.									
18J/48J	Power Amplifier Triode	D12	4D	F	5.0	1.25	Class A Amplifier	250	- 60.0	—	—	30.0	1750	1700	3.0	5000	1.8		
485	Detector Amplifier Triode	D6	8A1	H	3.0	1.25	Class A Amplifier	180	- 9.0	—	—	5.8	8900	1400	12.5	—	—		
876	Current Regulator	G1	—	F	—	—	Voltage Range				40 to 60 Volts				Operating Current				1.7 Amperes
886	Current Regulator	G1	—	F	—	—	Voltage Range				40 to 60 Volts				Operating Current				3.05 Amperes

Discontinued types are shown in light face.

- ★ For Grid-leak Detection—plate volts, 45; grid return to + filament or to cathode.
- Either ac or dc may be used on filament or heater, except as specifically noted. For use of dc on ac filament types, decrease stated grid volts by $\frac{1}{2}$ (approx.) of filament voltage.
- Supply voltage applied through 20000-ohm voltage-dropping resistor.
- ▶ Mercury-Vapor Type.
- Grid #1 is control grid. Grid #2 is screen. Grid #3 tied to cathode.
- † Grid #1 is control grid. Grids #2 and #3 tied to plate.
- Grids #1 and #2 connected together. Grid #3 tied to plate.
- Grids #3 and #5 are screen. Grid #4 is signal input control grid.
- ▲ Grids #2 and #4 are screen. Grid #1 is signal input control grid.
- For grid of following tube.
- Both grids connected together, likewise, both plates.
- † Power output is for two tubes at stated plate-to-plate load.
- For two tubes.
- This diagram is like the one having the same designation without the prefix Q, except that Pin No. 1 has no connection.
- Obtained preferably by using 70000-ohm voltage-dropping resistor in series with a 90-volt supply.
- This diagram is like the one having the same designation with the prefix Q, except that base sleeve is connected to Pin No. 1. ■ Panel lamp section is between pins 2 and 6.
- With tube mounted horizontally and pins No. 4 and No. 8 in a vertical plane (pin No. 4 on top), deflecting electrode No. 1 controls left-hand section of pattern, deflecting electrode No. 2 controls top right-hand section of pattern, deflecting electrode No. 3 controls bottom section of pattern.
- † With separate excitation and triode unit grounded.

- Value is for both units operating at the specified conditions.
- †† This diagram is like the one having the same designation without the prefix Q, except that Pin No. 1 is connected to internal shield.
- † Panel lamp section is between pins 2 and 3.
- Grids #2 and #3 tied to plate.
- ▲▲ Both grids connected together, likewise both cathodes.
- This diagram is like the one having the same designation without the prefix QT, except that the base sleeve is connected to Pin No. 1.
- ♥ Applied through plate resistor of 100000 ohms. * Maximum.
- Applied through plate resistor of 250000 ohms. † Megohms.
- Grid #2 tied to plate. • 50000 ohms.
- Applied through plate resistor of 150000 ohms. ♦ Grids #1 and #2 tied together.
- ◄ For signal input control grid (#1), control grid #3 bias, -3 volts.
- ▲ Grids #2 and #4 are screen. Grid #3 is signal input control grid.
- Note 1: Types with octal bases have *Miniature Cap*; all others have *Small Cap*.
- Note 2: Subscript 1 on class of amplifier service (as AB₁) indicates that grid current does not flow during any part of input cycle.
- Subscript 2 on class of amplifier service (as AB₂) indicates that grid current flows during some part of the input cycle.
- For television damper service.
- △ Cathode-bias resistor, 180 ohms.
- Panel lamp section is between pins 6 and 7.
- Superseded by 10-Y. See Power and Gas Tubes Booklet PQ-101A.

KEY TO TUBE DIMENSIONS

Symbol	Maximum Length	Overall Diameter	Symbol	Maximum Length	Overall Diameter	Symbol	Maximum Length	Overall Diameter	Symbol	Maximum Length	Overall Diameter	Symbol	Maximum Length	Overall Diameter
A	1 $\frac{1}{2}$ "	x 2 $\frac{1}{2}$ "	B3	2 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C3	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D3	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D12	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "
A1	1 $\frac{1}{2}$ "	x 2 $\frac{1}{2}$ "	B4	2 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C5	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D4	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D12a	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "
A1a	1 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	B5	2 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C5a	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D5	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D13	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "
B0	2 $\frac{1}{2}$ "	x 2 $\frac{1}{2}$ "	B5a	2 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C9a	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D7	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	E1	5 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "
B0a	2 $\frac{1}{2}$ "	x 2 $\frac{1}{2}$ "	C0	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C10	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D8	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	E2	5 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "
B0b	2 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C0a	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C10a	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D8a	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	E3	5 $\frac{1}{2}$ "	x 2 $\frac{1}{2}$ "
B0c	2 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C1	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C11	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D9	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	F1	5 $\frac{1}{2}$ "	x 2 $\frac{1}{2}$ "
B1	2 $\frac{1}{2}$ "	x 2 $\frac{1}{2}$ "	C2	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D1	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D9a	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	F1a	6 $\frac{1}{2}$ "	x 2 $\frac{1}{2}$ "
B1a	2 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C2a	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D2	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D10	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	G1	8"	x 2 $\frac{1}{2}$ "
B2	2 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	C2b	3 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "	D2a	4 $\frac{1}{2}$ "	x 1 $\frac{1}{2}$ "						

LEGEND FOR BASE AND ENVELOPE CONNECTION DIAGRAMS

Bottom Views

KEY TO TERMINAL DESIGNATIONS

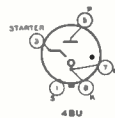
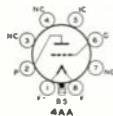
Subscripts B, D, HP, HX, P, T, and TR indicate, respectively, beam unit, diode unit, heptode unit, hexode unit, pentode unit, triode unit, and tetrode unit in multi-unit types.

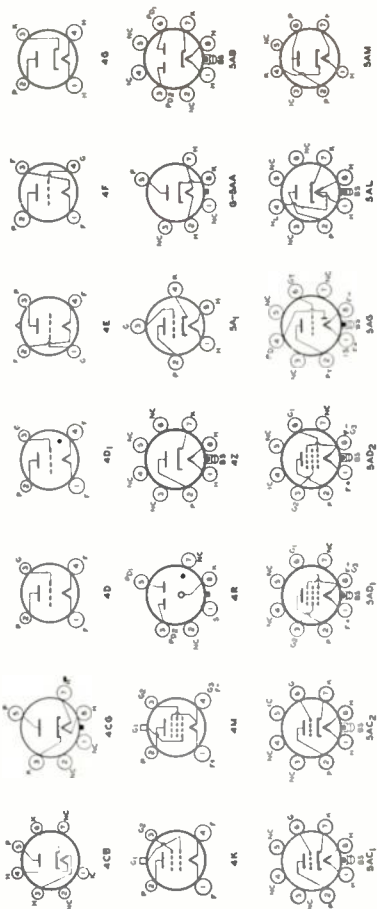
BC - Base Sleeve
BS - Base Shell
DJ - Deflecting Electrode
ES - External Shield
F - Filament
FM - Filament Mid-Tap

G - Grid
H - Heater
HL - Heater Tap for
Panel Lamp
HM - Heater Mid-Tap

IC - Internal Connection-
Do Not Use
IS - Internal Shield
K - Cathode
NC - No Connection

P - Plate (Anode)
RC - Ray-Control Electrode
S - Shell
TA - Target
U - Unit
● - Gas-Type Tube





SAP₂

SB



SBD



SBQ



SBS



SBT



SC



SCE



SD



SE



SF



SH



SL

SM₁

G-SQ



G-SR

G-SR₇G-SR₈

ST



GT-SU



G-SV



GT-SZ



6A



6AA



6AB



G-6AD



6AE



G-6AF



6AL



6AM



6AR



6AS



6AU



6AX



6B



6BB



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6CC



6CX



6D



6E



6F



6G



6H



6J



6K



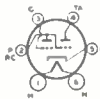
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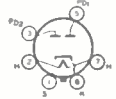
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6Q



6R



6S



G-6S



6W



G-6N



7A



G-7AA



G-7AB



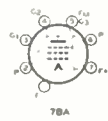
7AC



G-7AF



7AG





7CM



7CV



7D



7E



7F



7G



7H



7K



7Q



7R



7S



7T



G-7U



7V



G-7W



G-7Z



8A



8AA



8AC



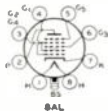
G-8AD



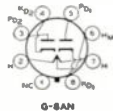
8AE



G-8A-J



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G-SAN



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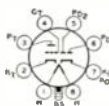
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60E



88F



884



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**SQL**

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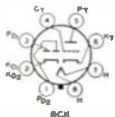
G-OC



BCD



DCH



BCM



BCN



8CP



8CP1



8CT



8DA



8E

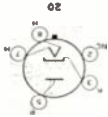


8F



8G





RCA RECEIVING TUBE CHART II

Covering Types Added Since Mid '52

Type	Name	Tube Dimensions and Socket Connections		Cathode Type and Rating			Use Values to right give operating conditions and characteristics for indicated typical use	Plate Supply Volts	Grid Bias in Volts	Screen Supply Volts	Screen Current Ma.	Plate Current Ma.	AC Plate Resistance Ohms	Trans-conductance (Grid plate) μ ohms	Amplification Factor	Load or Stated Power Output Ohms	Power Output Watts
		Min.	I.C.	C.T.	Volts	Am.											
1L6	Pentagrid Converter	9B	70C	D.C. F	1.4	0.05	Converter	90	0	45	8.4	0.5	650000	Osc. Grid #1 Resistor, 25000 ohms			
6AH4-GT	Medium-Mu Triode	C25	6EL	H	6.3	0.75	Vertical Deflection Amplifier in TV Equipment	Max. D.C. Plate Volts, 500 Max. D.C. Cathode Ma., 60						Max. Peak Positive-Pulse Plate Volts, 2000* Max. Plate Dissipation, 7.5 watts			
6AV5-GT	Beam Power Amplifier	C25	6CK	H	6.3	1.2	Horizontal Deflection Amplifier in TV Equipment	Max. D.C. Plate Volts, 550 Max. D.C. Cathode Ma., 110						Max. Peak Positive-Pulse Plate Volts, 5500* Max. Plate Dissipation, 11 watts			
6BF5	Beam Power Amplifier	B1	7B2	H	6.3	1.2	Class A Amplifier	110	- 7.5	110	4.0	49	10000	7500	—	2500	1.9
6BQ7-A	Medium-Mu Twin Triode	B6a	23	H	6.3	0.4	Each Unit as Class A Amplifier	150	Cathode Bias Res., 220 ohms			9.0	6100	6400	39	Cutoff Volts, - 10	
6CF6	Sharp-Cutoff Pentode	9B	7CM	H	6.3	0.3	Class A Amplifier	200	Cath. Bias	150	2.8	9.5	600000	6200		Cath. Bias Res., 180 ohms Cutoff Volts, - 6.5 for plate current of 35 μ amp	
6WE-GT	Beam Power Amplifier	C3	7AC	H	6.3	1.2	Vertical Deflection Amplifier in TV Equipment	Max. D.C. Plate Volts, 300 Max. Plate Dissipation, 10 watts						Max. Peak Positive-Pulse Plate Volts, 1000 Max. Peak Negative-Pulse Grid Volts, 200			
12AQ5	Beam Power Amplifier	B1	7B2	H	12.6	0.225	Single Tube Class A Amplifier	180	- 8.5	180	3.0	29.0	58000	3700	—	5500	2.0
							Push-Pull Class AB ₁ Amplifier	250	- 12.5	250	4.5	45.0	52000	4100	—	5000	4.5
							Push-Pull Class AB ₂ Amplifier	250	- 15.0	250	5.0	70.0	60000	—	—	10000	10.0†
12X4	Full-Wave Rectifier	B3	8B5	H	12.6	0.225	With Capacitive-Input Filter	Max. A.C. Volts per Plate (RMS), 325 Max. Peak Inverse Volts, 1250					Max. D.C. Output Ma., 70 Max. Peak Plate Ma., 210			Min. Total Effect. Supply Imped. per Plate, 150 ohms	
							With Inductive-Input Filter	Max. A.C. Volts per Plate (RMS), 450 Max. Peak Inverse Volts, 1250					Max. D.C. Output Ma., 70 Max. Peak Plate Ma., 210			Min. Value of Input Choke, 8 henries	

* Either ac or dc may be used on filament or heater, except as specifically noted. For use of dc on ac-filament types, decrease stated grid volts by $\frac{1}{4}$ (approx.) of filament voltage.

† Under no circumstances should this absolute value be exceeded.

‡ Power output is for two tubes at stated plate-to-plate load.

Note 1: Subscript 1 on class of amplifier service as (AB₁) indicates that grid current does not flow during any part of input cycle.

◆ For two tubes.

LEGEND FOR BASE AND ENVELOPE CONNECTION DIAGRAMS

Bottom Views

KEY TO TERMINAL DESIGNATIONS

Subscripts D and T indicate, respectively, diode unit and triode unit in multi-unit types.

F — Filament
G — Grid

H — Heater
IS — Internal Shield

K — Cathode
NC — No Connection

P — Plate (Anode)
U — Unit

KEY TO TUBE DIMENSIONS

Symbol
B0
Maximum Length = $2\frac{1}{4}"$
Overall Diameter = $1"$

Symbol
B0a
Maximum Length = $2\frac{1}{16}"$
Overall Diameter = $1"$

Symbol
B1
C3
Maximum Length = $2\frac{1}{4}"$
Overall Diameter = $1"$
Maximum Length = $3\frac{1}{16}"$
Overall Diameter = $1\frac{1}{16}"$

Symbol
B3
Maximum Length = $2\frac{1}{4}"$
Overall Diameter = $1"$

Symbol
C3b
Maximum Length = $3\frac{1}{16}"$
Overall Diameter = $1\frac{1}{16}"$



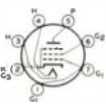
B0S



B0a



B1



B3



C3b



B0S



B0a



B1

RCA KINESCOPE CHARACTERISTICS CHART

 Type	Envelope	Faceplate ⁶	External Conductive Coating		Focusing Method	Deflection Method	Ion-Trap Rings	Appl. Deflection Angle Degrees	Maximum Dimensions Inches				Rack Length Inches
			Int. coat	Ext. coat					Overall Length	Envelope Diameter	Width	Height	
3KP4	Glass Round	Clear	None	None	E	EO	None	None	11 ³ / ₈	3 ¹ / ₁₆	—	—	—
5TP4*	Glass Round	Clear	500	100	E	M	1	50	12 ¹ / ₈	5 ¹ / ₈	—	—	7 ¹ / ₂
7DP4	Glass Round	Clear	1500	400	E	M	Double	50	14 ¹ / ₁₆	7 ¹ / ₁₆	—	—	8 ¹ / ₈
7JP4	Glass Round	Clear	None	None	E	EO	None	None	14 ⁷ / ₈	7 ³ / ₈	—	—	—
9AP4	Glass Round	Clear	None	None	E	M	None	40	21 ¹ / ₈	9 ¹ / ₈	—	—	10
10BP4	Same as 10BP4 A, except has clear glass faceplate.												
10BP4-A	Glass Round	Filterglass	2500	500	M	M	Double	52	18	10 ³ / ₈	—	—	8 ³ / ₁₆
10FP4-A	Glass Round	Filterglass	2500	500	M	M	1	50	18	10 ³ / ₈	—	—	8 ³ / ₁₆
12AP4	Glass Round	Clear	None	None	E	M	None	40	25 ¹ / ₈	12 ¹ / ₁₆	—	—	9 ⁹ / ₁₆
12KP4-A	Glass Round	Filterglass	2500	500	M	M	1	54	18	12 ³ / ₁₆	—	—	7 ¹ / ₁₆
12LP4	Same as 12LP4-A, except has clear glass faceplate.												
12LP4-A	Glass Round	Filterglass	2500	750	M	M	Double	57	19 ¹ / ₈	12 ³ / ₁₆	—	—	8 ¹ / ₈
14CP4	Glass Rectangular	Filterglass	2000	750	M	M	Single	65	17 ¹ / ₈	13 ¹³ / ₁₆	12 ²¹ / ₃₂	9 ²⁷ / ₃₂	7 ¹ / ₂
14EP4	Glass Rectangular	Filterglass	2000	750	M	M	Single	65	16 ⁷ / ₈	13 ¹³ / ₁₆	12 ²¹ / ₃₂	9 ²⁷ / ₃₂	7 ¹ / ₁₆
16AP4	Same as 16AP4 A, except has clear glass faceplate.												
16AP4-A	Metal Round	Filterglass	None	None	M	M	Double	53	22 ³ / ₁₆	16	—	—	7 ¹ / ₁₆
16CP4-A	Glass Round	Filterglass	None	None	M	M	Double	60	21	16	—	—	7 ¹ / ₈
16GP4	Same as 16GP4-B, except has Filterglass faceplate.												
16GP4-A	Same as 16GP4 B, except has clear glass faceplate.												
16GP4-B	Metal Round	Frosted Filterglass	None	None	M	M	Single	70	17 ¹¹ / ₁₆	16	—	—	6 ⁷ / ₈
16GP4-C	Same as 16GP4 B, except has frosted clear glass faceplate.												
16KP4	Glass Rectangular	Filterglass	1500	750	M	M	Single	65	19 ³ / ₈	16 ⁵ / ₈	14 ⁷ / ₈	11 ³ / ₈	7 ³ / ₈
16LP4-A	Glass Round	Filterglass	2000	750	M	M	Double	52	22 ³ / ₈	16	—	—	7 ³ / ₈
16RP4	Glass Rectangular	Filterglass	2000	750	M	M	Single	65	19 ¹ / ₈	16 ¹ / ₁₆	14 ¹³ / ₁₆	11 ¹³ / ₁₆	7 ¹ / ₂

Data for these types continued on next page.

Data for these types continued from preceding page.

Minimum Screen Size Inches	High- Voltage Terminal	Maximum Ratings				Typical Operating Conditions				 Type
		Peak High Voltage Exposure (R.TOR) ^a Volts	Focusing Exposure Volts	Grid No. 2 Volts	Grid No. 1 Volts	Peak High Voltage Exposure (R.TOR) ^a Volts	Focusing Exposure Volts	Grid No. 2 Volts	Grid No. 1 Volts	
2½ Diam.	Base Pin	2500	1000	—	200	2000	320 to 600	—	—35 to —90	3KP4
4¼ Diam.	Small Cavity Cap	27000	6000	350	150	27000	4320 to 5400	200	—42 to —98	5TP4*
6 Diam.	Small Cavity Cap	8000	2430	410	125	6000	1200 to 1650	250	—27 to —63	7DP4
6 Diam.	Base Pin	6000	2800	—	200	6000	1620 to 2400	—	—72 to —168	7JP4
7½ Diam.	Medium Cap	7000	2000	300	125	7000	1190 to 1790	250	—20 to —60	9AP4
Ratings and characteristics are same as for type 10BP4-A.										10BP4
9½ Diam.	Small Cavity Cap	13000	—	410	125	8000 to 12000	—	250	—27 to —63	10BP4-A
9½ Diam.	Small Cavity Cap	12000	—	410	125	8000 to 12000	—	250	—27 to —63	10FP4-A
10½ Diam.	Medium Cap	7000	2000	300	125	7000	1190 to 1790	250	—20 to —60	12AP4
11½ Diam.	Small Cavity Cap	12000	—	410	125	9000 to 12000	—	250	—27 to —63	12KP4-A
Ratings and characteristics are same as for type 12LP4-A.										12LP4
11 Diam.	Small Cavity Cap	12000	—	410	125	9000 to 12000	—	250	—27 to —63	12LP4-A
11½ x 8½	Small Cavity Cap	14000	—	410	125	10000 to 14000	—	300	—33 to —77	14CP4
11½ x 8½	Small Cavity Cap	14000	—	410	125	10000 to 14000	—	300	—33 to —77	14EP4
Ratings and characteristics are same as for type 16AP4-A.										16AP4
14½ Diam.	Metal-Shell Lip	14000	—	410	125	9000 to 14000	—	300	—33 to —77	16AP4-A
14½ Diam.	Small Cavity Cap	15000	—	410	125	12000 to 15000	—	250	—33 to —77	16DP4-A
Ratings and characteristics are same as for type 16GP4-B.										16GP4
Ratings and characteristics are same as for type 16GP4-B.										16GP4-A
14½ Diam.	Metal-Shell Lip	14000	—	410	125	12000 to 14000	—	300	—33 to —77	16GP4-B
Ratings and characteristics are same as for type 16GP4-B.										16GP4-C
13½ x 10½	Small Cavity Cap	16000	—	410	125	12000 to 16000	—	300	—33 to —77	16KP4
14½ Diam.	Small Cavity Cap	14000	—	410	125	12000 to 14000	—	300	—33 to —77	16LP4-A
13½ x 10½	Small Cavity Cap	16000	—	410	125	12000 to 16000	—	300	—33 to —77	16RP4

Type	Envelope	Faceplate*	External Conductive Coating		Forming Method	Detection Method	Ion-Trap Magnet	Approx. Detection Angle† Degree	Maximum Dimensions Inches				Neck Length Inches
			Max. rad	Min. rad					Overall Length	Envelope Diameter	Width	Height	
16TP4	Glass Rectangular	Filterglass	2000	750	M	M	Single	65	18½	16½	14½	11½	6½
16WP4-A	Glass Round	Filterglass	1500	750	M	M	Double	70	18½	16	—	—	7½
17BP4-A	Glass Rectangular	Filterglass	1500	750	M	M	Single	65	19½	16½	15½	13½	7½
17CP4	Metal Rectangular	Frosted Filterglass	None	None	M	M	Single	66	19	17	16½	12½	7½
17CP4-A	Same as 17CP4, except has Filterglass faceplate.												
17GP4	Metal Rectangular	Frosted Filterglass	None	None	E	M	Single	66	19½	17	16½	12½	7½
17HP4	Glass Rectangular	Filterglass	1500	750	E	M	Single	65	19½	16½	15½	12½	7½
17JP4	Glass Rectangular	Filterglass	750	500	M	M	Single	65	19½	16½	15½	12½	7½
17LP4	Glass Rectangular	Filterglass**	1500	750	E	M	Single	65	19½	16½	15½	12½	7½
17OP4	Glass Rectangular	Filterglass**	1500	750	M	M	Single	65	19½	16½	15½	12½	7½
17TP4	Metal Rectangular	Frosted Filterglass	None	None	E	M	Single	66	19½	17	16½	12½	7½
19AP4	Same as 19AP4-B, except has clear glass faceplate.												
19AP4-A	Same as 19AP4-B, except has Filterglass faceplate.												
19AP4-B	Metal Round	Frosted Filterglass	None	None	M	M	Single	66	22	18½	—	—	7½
19AP4-D	Same as 19AP4-B, except has frosted clear glass faceplate.												
20CP4	Glass Rectangular	Filterglass	None	None	M	M	Single	66	21½	20½	18½	15½	7½
20MP4	Glass Rectangular	Filterglass	750	500	E	M	Single	66	22½	20½	18½	15½	7½
21AP4	Metal Rectangular	Frosted Filterglass	None	None	M	M	Single	66	22½	21	19½	15½	7½
21EP4	Same as 21EP4-A, except has no external conductive coating.												
21EP4-A	Glass Rectangular	Filterglass**	750	500	M	M	Single	65	23½	21½	20½	15½	7½

Data for these types continued on next page.

Data for these types continued from preceding page.

Minimum Screen Size Inches	High- Voltage Terminal	Maximum Ratings				Typical Operating Conditions				 Type
		First High-Voltage Electrode (ULTOR [®]) Volts	Focusing Electrode Volts	Grid- No. 2 Volts	Grid- No. 1 Bias Volts	First High-Voltage Electrode (ULTOR [®]) Volts	Focusing Electrode Volts	Grid- No. 2 Volts	Grid-No. 1 Volts	
13 $\frac{1}{2}$ x 10 $\frac{1}{4}$	Small Cavity Cap	14000	—	410	125	12000 to 14000	—	300	-33 to -77	16TP4
14 $\frac{1}{2}$ Diam.	Small Cavity Cap	16000	—	410	125	12000 to 16000	—	250	-27 to -63	16WP4-A
14 $\frac{1}{8}$ x 10 $\frac{3}{4}$	Small Cavity Cap	16000	—	410	125	12000 to 16000	—	300	-33 to -77	17BP4-A
14 $\frac{3}{8}$ x 10 $\frac{11}{16}$	Metal-Shell Lip	16000	—	410	125	12000 to 16000	—	300	-33 to -77	17CP4
Ratings and characteristics are same as for type 17CP4.										17CP4-A
14 $\frac{3}{8}$ x 10 $\frac{11}{16}$	Metal-Shell Lip	16000	5000	500	125	12000	2040 to 2760	300	-33 to -77	17QP4
						14000	2380 to 3220	300	-33 to -77	
14 $\frac{1}{4}$ x 10 $\frac{3}{4}$	Small Cavity Cap	16000	+1000 -500*	500	125	14000 16000	-55 to +300 -65 to +350	300 300	-33 to -77 -33 to -77	17HP4
14 $\frac{1}{8}$ x 10 $\frac{3}{4}$	Small Cavity Cap	18000	—	410	125	14000 to 18000	—	300	-33 to -77	17JP4
14 $\frac{1}{4}$ x 10 $\frac{3}{4}$	Small Cavity Cap	16000	+1000 -500*	500	125	14000	-55 to +300	300	-33 to -77	17LP4
						16000	-65 to +350	300	-33 to -77	
14 $\frac{3}{8}$ x 10 $\frac{3}{4}$	Small Cavity Cap	16000	—	410	125	12000 to 16000	—	300	-33 to -77	17QP4
14 $\frac{3}{8}$ x 10 $\frac{11}{16}$	Metal-Shell Lip	16000	+1000 -500*	500	125	14000	-55 to +300	300	-33 to -77	17TP4
						16000	-65 to +350	300	-33 to -77	
Ratings and characteristics are same as for type 19AP4-B.										19AP4
Ratings and characteristics are same as for type 19AP4-B.										19AP4-A
17 $\frac{1}{8}$ Diam.	Metal-Shell Lip	19000	—	410	125	12000 to 19000	—	300	-33 to -77	19AP4-B
Ratings and characteristics are same as for type 19AP4-B.										19AP4-D
17 x 12 $\frac{3}{4}$	Small Cavity Cap	18000	—	410	125	14000 to 18000	—	300	-33 to -77	20CP4
17 x 12 $\frac{3}{4}$	Small Cavity Cap	16000	+1000 -500*	500	125	14000	-55 to +300	300	-33 to -77	20MP4
						16000	-65 to +350	300	-33 to -77	
18 $\frac{1}{8}$ x 13 $\frac{1}{16}$	Metal-Shell Lip	18000	—	410	125	14000 to 18000	—	300	-33 to -77	21AP4
Ratings and characteristics are same as for type 21EP4-A.										21EP4
19 $\frac{1}{8}$ x 13 $\frac{7}{8}$	Small Cavity Cap	18000	—	500	125	14000 to 18000	—	300	-33 to -77	21EP4-A

Type	Envelope	Finger*	External Conductive Coating		Focusing Method	Deflection Method	In-Top Magnet	Apert. Deflection Angle† Degrees	Maximum Dimensions Inches				Hull Length inches
			Min. mil	Max. mil					Overall Length	Envelope Diameter	Width	Height	
21FP4-A	Glass Rectangular	Filterglass**	750	500	E	M	Single	65	23 $\frac{1}{2}$	21 $\frac{1}{2}$	20 $\frac{1}{2}$	15 $\frac{1}{2}$	7 $\frac{1}{2}$
21MP4	Metal Rectangular	Frosted Filterglass	None	None	E	M	Single	66	22 $\frac{1}{2}$	21	19 $\frac{1}{2}$	15 $\frac{1}{2}$	7 $\frac{1}{2}$
27MP4	Metal Rectangular	Frosted Filterglass	None	None	M	M	Single	85•	22 $\frac{1}{2}$	27 $\frac{1}{2}$	25 $\frac{1}{2}$	20 $\frac{1}{2}$	7 $\frac{1}{2}$

continued

Minimum Screen Size Inches	High-Voltage Terminal	Maximum Ratings				Typical Operating Conditions				RCA Type
		First High Voltage Electrode (ULTOR*) Volts	Focusing Electrode Volts	Grid-No. 2 Volts	Grid-No. 1 (500 Vdc) Volts	First High Voltage Electrode (ULTOR*) Volts	Focusing Electrode Volts	Grid-No. 2 Volts	Grid-No. 1 (500 Vdc) Volts	
19 $\frac{1}{2}$ x 13 $\frac{1}{2}$	Small Cavity Cap	18000	+1000 -500+	500	125	14000 16000	-55 to +300 -65 to +350	300	-33 to -77 -33 to -77	21FP4-A
18 $\frac{1}{2}$ x 13 $\frac{1}{2}$	Metal-Shell Lip	16000	+1000 -500+	500	125	14000 16000	-55 to +300 -65 to +350	300	-33 to -77 -33 to -77	21MP4
23 $\frac{1}{2}$ x 18 $\frac{1}{2}$	Metal-Shell Lip	18000	—	500	125	16000 to 18000	—	300	-33 to -77	27MP4

E = Electrostatic. M = Magnetic.
 Note: All kineoscopes shown have 6.3-volt/8.6-ampere heaters except types 21FP4 and 21MP4 which have 2.5-volt/2.1-ampere heaters.
 Light face = Discontinued type.
 * Special, unless otherwise specified.
 † Positive bias value = 0 volts, positive peak value = 3 volts.
 ‡ For visual extinction of undeflected focused spot. The values for visual extinction of focused raster are about 5 volts less negative than the indicated values.

‡ Utilizes metal-backed screen to prevent ion-spot blench.
 ** Cylindrical filterglass.
 • Grid-No. 2 connected to final high-voltage electrode within tube. • Projection type.
 • Corresponding diagonal deflection angle is 96°.

○ Deflection Factors (volts dc/in.) for typical operating conditions shown:

Type	21, 21A, (max) mm	21A, 21B, (max) mm
21FP4	100 to 130	75 to 104
21MP4	100 to 240	100 to 304

• For rectangular tubes, horizontal deflection angle is shown, corresponding diagonal deflection angle is 70° unless otherwise specified.
 • This value has been specified to take care of the condition where an ac voltage is provided for dynamic focusing.
 • ULTOR is defined as the electrode, or the electrode in combination with one or more additional electrodes connected within the tube to it, to which is applied the highest dc voltage for accelerating the electrons in the beam prior to its deflection.

LEGEND FOR BASE AND ENVELOPE CONNECTION DIAGRAMS

Bottom View

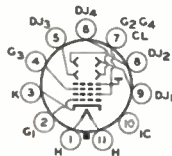
KEY TO TERMINAL DESIGNATIONS

C = External Conductive Bulb Coating

Cl = Collector
 DJ = Deflecting Electrode
 G = Grid

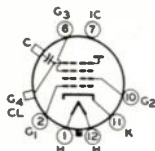
H = Heater
 IC = Internal Connection—Do Not Use

K = Cathode
 NC = No Connection



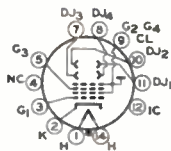
3KP4

ULTOR = $G_2 + G_4 + CL$
 FOCUSING ELECTRODE = G_3



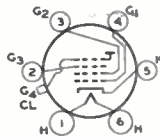
5TP4 7DP4

ULTOR = $G_4 + CL$
 FOCUSING ELECTRODE = G_3



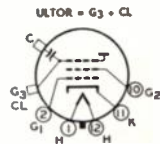
7JP4

ULTOR = $G_2 + G_4 + CL$
 FOCUSING ELECTRODE = G_3

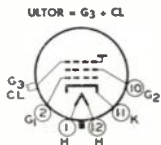


9AP4 12AP4

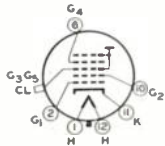
ULTOR = $G_4 + CL$
 FOCUSING ELECTRODE = G_3



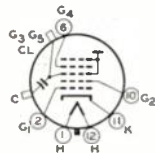
10BP4, 10BP4-A, 10FP4-A, 12KP4-A
 12LP4, 12LP4-A, 14CP4, 14EP4
 16KP4, 16LP4-A, 16RP4, 16TP4
 16WP4-A, 17BP4-A, 17JP4



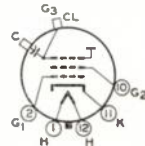
16AP4, 16AP4-A, 16DP4-A, 16GP4
 16GP4-A, 16GP4-B, 16GP4-C
 17CP4, 17CP4-A, 19AP4, 19AP4-A
 19AP4-B, 19AP4-D, 20CP4, 21AP4
 21EP4 27MP4



17GP4, 17TP4, 21MP4
 ULTOR = $G_3 + G_5 + CL$
 FOCUSING ELECTRODE = G_4



17HP4, 17LP4, 20MP4 21FP4-A
 ULTOR = $G_3 + G_5 + CL$
 FOCUSING ELECTRODE = G_4



17QP4 21EP4-A
 ULTOR = $G_3 + CL$

SEMICONDUCTOR DEVICES

Transistors

RCA now includes in its product line 4 types of transistors: the 2N32 — a point-contact type for pulse or switching applications; the 2N33 — a point-contact type for oscillator applications at frequencies up to 50 Mc; as well as the 2N34 and 2N35 — junction types for low-power, low-frequency amplifier applications. Considerations and technical details for these semiconductor devices follow.

TRANSISTOR CONSIDERATIONS

Transistors are a new form of electron device. They can perform many of the functions of an electron tube and, in addition, can do some things better and more efficiently than electron tubes. Unlike electron tubes which depend for their functioning on the flow of electrons through a vacuum, a gas, or a vapor, transistors make use of the flow of electrons in a solid — a semiconductor.

A semiconductor is a material having a conductivity lower than that of metals but higher than that of insulators. There are many varieties of semiconductors, but the one employed for the transistors described in this bulletin is germanium. Germanium in its very purest state behaves like an insulator, but its conductivity can be increased by the addition of exact but almost infinitesimal amounts of certain impurities. Peculiarly, the manner in which a germanium crystal conducts can be changed by the choice of the impurity. Thus, by the addition of the proper amount of certain impurities to pure germanium, its conductivity is increased because a surplus of electrons which can migrate freely through the crystal is provided. A conducting germanium crystal so made is identified as n-type because it depends on negative particles of electricity, electrons, for conduction.

On the other hand, the addition of other impurities provides a deficiency of electrons which effectively behave like positive particles of electricity. This deficiency of electrons leaves vacancies or holes in the crystal structure. These holes which are free to mi-

grate can carry current but in a direction opposite to that of the n-type crystal. Because these carriers of the conduction current are positive in nature, a germanium crystal of this type is identified as p-type.

It should be noted that whereas electron tubes depend ordinarily on electrons for conduction, transistors not only make use of electrons but also of holes for obtaining conduction.

The transistors described in this bulletin make use of both kinds of conduction and employ two different types of structures. These two types of structures are identified as "point-contact" and "junction."

Fig. 1 shows the structure of a point-contact transistor. It consists of a crystal of n-type germanium having three electrical contacts. Two of these are point

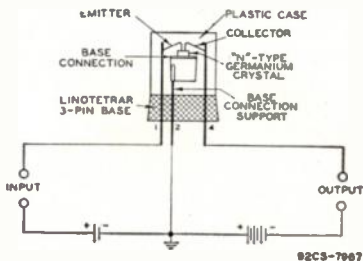


Fig. 1 — Diagrammatic Sketch Showing Structural Arrangement of Type 2N32 or Type 2N33 with Associated Simple Circuit.

contacts and are known as the emitter and collector. A third, the base, makes area contact with the germanium crystal. The complete assembly is encased in plastic to provide ruggedness and freedom from atmospheric contaminants.

Fig. 1 also shows the point-contact transistor connected in a simple circuit in which the base connection serves as the common return for the input circuit and the output circuit. The input circuit on the left is completed through the battery, the emitter, and the germanium crystal to the base connection. When a positive voltage is applied to the emitter, electrons will be drawn from the crystal into the emitter and

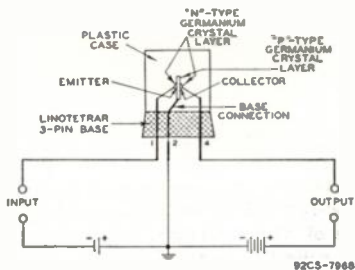


Fig. 2 — Diagrammatic Sketch Showing Structural Arrangement of Type 2N35 with Associated Simple Circuit. For Illustration Purposes, the Crystal Assembly is Rotated 90° Within the Plastic Case.

thus leave holes in the crystal structure. Under the influence of the negative field of the collector, these holes flow to the collector and thereby increase the collector current appreciably. Or as is sometimes stated, the emitter electrode injects holes into the germanium crystal. Holes near the collector allow electrons to pass into the crystal. Some of these electrons neutralize the holes; others flow to the base connection and thus complete the circuit.

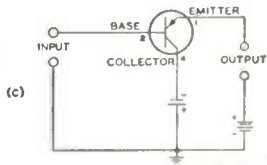
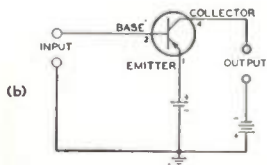
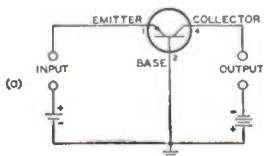
If the assumption is made that every unit of hole current which leaves the emitter reaches the collector, it follows that a small change in emitter current will result in an equivalent change in collector current, and consequently produce a current amplification factor of one. The current amplification factor or "alpha" of a transistor is defined as the ratio of change in collector current to a change in emitter current when collector voltage is maintained constant. In point-contact transistors "alpha" is greater than unity; in junction-type transistors, it is less than but approaches unity.

If the germanium crystal layer employed in Fig. 1 is of the p-type, a negative voltage is applied to the emitter and holes will be drawn from the crystal into the emitter and thus leave an excess of electrons in the crystal structure. Under the influence of the positive field of the collector, these electrons flow through

the crystal to the collector. In general, the p-type germanium crystal has characteristics similar to the n-type except that in operation all battery polarities are reversed.

Fig. 2 shows the structure of a junction transistor of the n-p-n type. It is composed of a wafer of p-type germanium between two smaller layers of n-type germanium. Low-resistance connections are made to the n-layers, one of which serves as the emitter and the other as the collector. A third low-resistance connection to the p-layer is the base connection. The complete assembly is encased in plastic to provide ruggedness and freedom from atmospheric contaminants.

The principle of operation of the junction transistor is somewhat different from that of the point-contact transistor. In the n-p-n junction transistor, electrons from the n-layer diffuse through the p-layer and are attracted to the collector. The p-layer has a surplus



92CM-7966

Fig. 3 — Typical Amplifier Circuits Showing Possible Ways of Connecting Point-Contact and Junction Transistors.

of holes. Because the p-layer is very thin, most of the electrons entering the base region from the emitter will reach the collector region without recombining (neutralizing) the holes. Practically all of the electrons leaving the emitter reach the collector, thus resulting in a current amplification factor approaching unity.

The action of the p-n-p type of junction transistor is similar to that of the n-p-n type except that the polarities of the battery voltages are reversed and conduction is caused by holes instead of electrons.

Fig. 3 shows some typical amplifier circuits. Circuit (a) is recommended for point-contact transistors; and circuits (a), (b), and (c) for junction transistors of the p-n-p type. These circuits may also be used for junction transistors of the n-p-n type provided the polarities are reversed.

TRANSISTOR CHARACTERISTICS

Transistors are essentially low-impedance devices, that is, they deal with current changes rather than voltage changes. They are small in size and the power requirements for their operation are extremely small. In addition, they operate instantaneously on application of voltages to the electrodes.

The point-contact transistor has a current amplification factor greater than unity. This feature contributes to its usefulness in oscillator and triggering applications. In addition, the point-contact transistor can be operated at relatively high frequencies. Because of this feature, it has considerable application in switching circuits and in radio circuits such as intermediate-frequency amplifiers, radio-frequency amplifiers, and radio-frequency oscillators.

The junction transistor has a current amplification factor approaching unity. This characteristic contributes to the stability of the junction transistor even under short-circuit conditions. It has a high operating power gain and can operate with extremely low values of input power — features which are of primary importance in oscillator and amplifier applications in the audio-frequency and low-frequency ranges. For additional technical data on RCA transistors, refer to technical bulletin SCD-104.

RCA QUICK SELECTION GUIDE

Power, Cathode-Ray, Photo—, and Special Tubes for Radio and Industry

VACUUM POWER TUBES

TYPE	MAX. DIMENSIONS INCHES			AMPLIFI- CATION FACTOR	MAX. PLATE RATINGS	
	Cathode Volts	Length	Diam.		DC VOLTS	DISSI- PATION WATTS
RIODES (AIR-COOLED)						
3C33	12.6	3 $\frac{1}{8}$	2 $\frac{3}{8}$	11b	±2000	15
10-Y	7.5	5 $\frac{3}{8}$	2 $\frac{1}{8}$	8	450	15
203-A	10	7 $\frac{7}{8}$	2 $\frac{1}{8}$	25	1250	100
204-A	11	14 $\frac{3}{8}$	4 $\frac{1}{8}$	23	2500	250
211	10	7 $\frac{7}{8}$	2 $\frac{1}{8}$	12	1250	100
800	7.5	6 $\frac{3}{8}$	2 $\frac{1}{8}$	15	1250	35
801-A	7.5	5 $\frac{3}{8}$	2 $\frac{1}{8}$	8	600	20
805	10	8 $\frac{1}{2}$	2 $\frac{1}{8}$	variable	1500	125
806	5	10	3 $\frac{1}{8}$	12.6	3300†	225†
808	7.5	6 $\frac{1}{8}$	2 $\frac{1}{8}$	47	2000†	75†
809	6.3	6 $\frac{1}{8}$	2 $\frac{1}{8}$	50	1000†	30†
810	10	8 $\frac{3}{4}$	2 $\frac{1}{4}$ *	36	2500†	175†
811-A	6.3	6 $\frac{3}{8}$	2 $\frac{1}{8}$	160	1500†	65†
812-A	6.3	6 $\frac{1}{8}$	2 $\frac{1}{8}$	29	1500†	65†
826	7.5	3 $\frac{1}{8}$	2 $\frac{3}{8}$	31	1000†	55†
830-B	10	6 $\frac{1}{8}$	2 $\frac{1}{8}$	25	1000	60
833-A	10	8 $\frac{1}{8}$	4 $\frac{1}{8}$	35	4000†	450†
834	7.5	6 $\frac{7}{8}$	2 $\frac{1}{8}$	10.5	1250	50
835	10	7 $\frac{7}{8}$	2 $\frac{1}{8}$	12	1250	100
838	10	7 $\frac{7}{8}$	2 $\frac{1}{8}$	variable	1250	100
841	7.5	5 $\frac{3}{8}$	2 $\frac{1}{8}$	30	450	15
842	7.5	5 $\frac{3}{8}$	2 $\frac{1}{8}$	3	425	12
843	2.5	5 $\frac{3}{8}$	2 $\frac{1}{8}$	7.7	450	15
845	10	7 $\frac{7}{8}$	2 $\frac{1}{8}$	5.3	1250	100
849	11	14 $\frac{3}{8}$	4 $\frac{1}{8}$	19	2500	400
851	11	17 $\frac{5}{8}$	6 $\frac{3}{8}$	20.5	2500	750
608	2.5	5 $\frac{3}{8}$	2 $\frac{1}{8}$	20	425	20
623	6.3	6 $\frac{1}{8}$	2 $\frac{1}{8}$	20	1000†	30†
626	12.6	4 $\frac{1}{8}$	1 $\frac{1}{8}$	5	250	5
556	4.5	4 $\frac{1}{8}$	1 $\frac{5}{8}$	8.5	350	10
1000	10	8 $\frac{3}{4}$	2 $\frac{1}{4}$ *	16.5	2500†	175†
1003	10	8 $\frac{1}{2}$	2 $\frac{1}{8}$	12	1350	100
1005	10	6 $\frac{1}{8}$	2 $\frac{1}{8}$	20	1500†	85†
1012-A	6.3	3 $\frac{1}{8}$	1 $\frac{1}{8}$ *	18	1000	40
1025-A	6.3	4 $\frac{1}{8}$	1 $\frac{5}{8}$ *	18	1000†	30†

For Intermittent Commercial and Amateur Service. *Maximum Radius.

Absolute values for Continuous Commercial Service, unless otherwise specified. b Per Unit.

RCA QUICK SELECTION GUIDE

VACUUM POWER TUBES (cont'd)

TYPE	MAX. DIMENSIONS INCHES			AMPLIFI- CATION FACTOR	MAX. PLATE RATINGS*	
	Cathode Volts	Length	Diam.		DC VOLTS	DISSI- PATION WATTS
TRIODES (WATER-COOLED)						
9C21	19.5	24 1/2	9 1/2	20	17000	40000
207	22	20 1/4	6 1/2 *	36	15000	10000
846	11	9 1/2	3 3/8 *	40	7500	2500
862-A	33	60 3/8	10 *	45	20000	100000
880	12.6	11 3/8	7	20	10500	20000
889-A	11	10 1/8	3 5/8	21	8500	5000
891	11 ‡	20 7/8	6 1/2 *	8.5	12000	6800
892	11 ‡	20 7/8	6 1/2 *	50	15000	10000
893-A	10 ‡	26 3/4	6 3/8 *	36	20000	20000
898-A	33 ‡	60 3/8	10 *	45	20000	100000
5770	11	24 1/2	9 1/2	39	17000	50000
5771	7.5	11 1/8	7	20	12500	22500
TRIODES (FORCED-AIR-COOLED)						
2C39-A	6.3	2 3/4	1 17/64	100	1000	100
4C33	5	4 7/8	2 1/8	25	13000 ‡	250 ‡
7C24	12.6	7 1/2	4 1/8	29	5000	2000
9C22	19.5	25	8 1/8 *	36	17000	20000
9C25	6	17 3/8	14 1/4	32	11500	17500
889R-A	11	11 7/8	5 7/8 *	21	8500	5000
891-R	11 ‡	22	6 1/2 *	8.5	10000	4000
892-R	11 ‡	22	6 1/2 *	50	12500	4000
893A-R	10 *	28	8 1/8 *	36	20000	20000
5588	6.3	3 1/2	1 3/4 ▶	18	1000	200
5592	11	17 3/8	14 1/4	32	11500	17500
5671	11	25	16 1/8	39	15000	25000
5713	3.3	4 7/8	2 1/8	25	1500	250
5762	12.6	7 1/8	4 1/8	29	5250	2500
5786	11	10	2 3/8	30	3000	600
5831	6	38 3/4	8 1/8	25	16000	150000
5946	6.3	3 3/8 ▶	1 3/4 ▶	27	7500★	250
6161	6.3	3 3/8	1 3/4	27	1600	250

*Maximum Radius. ‡Per Section.

•Absolute values for Continuous Commercial Service, unless otherwise specified.

§Grid-Screen Mu-Factor. b Per Unit. *Per Strand.

‡Pulsed Oscillator Operation—Class C Plate Modulated.

▶Approx. ★Peak Positive-Pulse Plate-Supply Volts.

RCA QUICK SELECTION GUIDE

VACUUM POWER TUBES (cont'd)

TYPE	Cathode Volts	MAX. DIMENSIONS INCHES		Transcon- ductance Micro- mhos	MAX. PLATE RATINGS*	
		Length	Diam.		DC VOLTS	DISSI- PATION WATTS
IEAM POWER TUBES AND PENTODES (AIR-COOLED)						
2E24	6.3	3 3/4	1 1/8	3200	600†	13.5†
2E26	6.3	4 1/8	2 3/8	3500	600†	13.5†
3E22	6.3/12.6	4 1/8	2 3/8	4000	600☆	35☆
3E29★	6.3/12.6	4 1/8	2 3/8	8500	5000	15
4E27/8001	5	6 1/8	2 1/8	2800	4000	75
4E27A/ 5-125B	5.0	6 3/8	2 3/4	2150	4000	125
802	6.3	5 3/4	2 1/8	2250	600†	13†
803	10	9 3/4	2 1/8	4000	2000	125
804	7.5	7 1/8	2 1/8	3250	1500†	50†
807	6.3	5 3/4	2 1/8	6000	750†	30†
813	10	7 1/2	2 1/8	3750	2250†	125†
814	10	7 1/8	2 1/8	3300	1500†	65†
815	6.3/12.6	4 1/8	2 3/8	4000	500†	25†
828	10	7 1/8	2 1/8	2700	1500†	80†
829-B	6.3/12.6	4 1/8	2 3/8	8500	750†	40†
832-A	6.3/12.6	3 3/8	2 3/8	3500	750†	20†
837	12.6	5 3/4	2 1/8	3400	500	12
1610	2.5	5 3/8	2 1/8	2500	400	6
1613	6.3	3 1/4	1 1/8	2500	350	10
1614	6.3	4 1/8	1 5/8	6050	450†	25†
1619	2.5	4 1/8	1 5/8	4500	400	15
1624	2.5	5 3/4	2 1/8	4000	600	25
1625	12.6	5 3/4	2 1/8	6000	750†	30†
5618	3.0/6.0	2 5/8	3/4	3600	300†	5†
5763	6	2 5/8	7/8	7000	300	12
5146	6.3	3 1/8	1 3/8	4.5§	750†	25†
5159	Same as 6146 but has 26.5 volt heater					
5293	See Technical Bulletin					

TETRODES (AIR-COOLED)

4-65A	6	4 3/8	2 3/8	5§	3000	65
4-125A/4D21	5	5 1/8	2 7/8	6.2§	3000	125
4-250A/5D22	5	6 3/8	3 1/2	5.15§	4000	250
360	10	8 3/4	4 1/4 *	1100	3000	100
361	11	17 3/2	6 5/8 *	2400	3500	400
365	7.5	5 3/4	2 1/8	750	750	15
5890	6.3	6 3/4	1 1/2	5§	30000	10

†Absolute values for Continuous Commercial Service, unless otherwise specified.

*For Intermittent Commercial and Amateur Service.

‡Pulsed Rectangular-Wave Modulator Service (with Inductive Load). ☆For Intermittent Mobile Service.

‡Grid-Screen Mu-Factor. *Maximum Radius.

§Similar to Type 829-B but for pulsed operation.

RCA QUICK SELECTION GUIDE

THYRATRONS

TYPE	Cathode Volts	MAX. DIMENSIONS INCHES		MAX. ANODE RATINGS	
		Length	Diam.	PEAK INV. VOLTS	AV. AMP.
TRIODES					
2A4-G	2.5	4 $\frac{1}{8}$	1 $\frac{3}{8}$	200	0.1
3C23	2.5	6 $\frac{1}{8}$	2 $\frac{1}{8}$	1250	1.5
627	2.5	7	2 $\frac{7}{8}$	2500	0.64
629	2.5	4 $\frac{1}{4}$	1 $\frac{1}{8}$	350	0.04
676	5	11 $\frac{3}{4}$	3 $\frac{1}{8}$	2500	6.4
677	5	11 $\frac{3}{4}$	3 $\frac{1}{8}$	10000	4.0
884	6.3	4 $\frac{1}{8}$	1 $\frac{1}{8}$	350	0.075
885	2.5	4 $\frac{3}{8}$	1 $\frac{1}{8}$	350	0.075
5557	2.5	6 $\frac{1}{8}$	2 $\frac{1}{8}$	5000	0.5
5559	5	7 $\frac{1}{4}$	3	1000	2.5
5563	5	11 $\frac{1}{8}$	3 $\frac{7}{8}$	15000	1.6
5728/FG-67	5	7	3	1000	2.5
6130/3C45*	6.3	5 $\frac{3}{8}$	1 $\frac{3}{8}$	3000	0.045

TETRODES

2D21	6.3	2 $\frac{1}{8}$	$\frac{3}{4}$	1300	0.1
3D22	6.3	4 $\frac{5}{8}$	2 $\frac{3}{8}$	1300	0.8
105	5	11 $\frac{1}{4}$	2 $\frac{1}{8}$ *	2500	6.4
172	5	10 $\frac{3}{4}$	2 $\frac{5}{8}$ *	2000	6.4
502-A	6.3	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1300	0.1
672-A	5	8 $\frac{3}{8}$	2 $\frac{1}{8}$	2500	3.2
2050	6.3	4 $\frac{1}{8}$	1 $\frac{3}{8}$	1300	0.1
5560	5	7 $\frac{1}{8}$	2 $\frac{1}{4}$ *	1000	2.5
5696	6.3	1 $\frac{3}{4}$	$\frac{3}{4}$	500	0.025
6012	6.3	4 $\frac{1}{4}$	1 $\frac{3}{8}$	1300	0.5

IGNITRONS

TYPE	Size	MAX. DIMENSIONS INCHES		MAX. ANODE RATINGS††		MAX. ANODE RATING*†	
		Approx Length	Radius	KVA Demand	Correspond- ing Av. Anode Amp.	Peak Inv. Volts	Av. Amp.
5550	(A)	10	1 $\frac{3}{8}$	300	12.1	.....	.....
5551	(B)	13 $\frac{1}{2}$	2 $\frac{7}{8}$	600	30.2	.....	.....
5552	(C)	14 $\frac{1}{2}$	3 $\frac{5}{8}$	1200	75.6	.....	.....
5553	(D)	20	4 $\frac{1}{8}$	2400	192.	.....	.....
5554		17 $\frac{1}{2}$	3 $\frac{1}{8}$	.....	.....	2100	75
5555		18 $\frac{1}{2}$	4 $\frac{9}{8}$	.....	.....	2100	150
5822		14 $\frac{1}{2}$	3 $\frac{5}{8}$	.....	.....	1500▲	56▲

*Maximum Radius. ††For Welding-control.

*†For power rectification.

▲For Frequency-Changer Resistance-Welding Service.

•For operation up to 50000 feet.

RCA QUICK SELECTION GUIDE

PHOTOTUBES

TYPE	MAX. DIMENSIONS INCHES		MAX. ANODE- SUPPLY VOLTS	LUMINOUS SENSITIVITY MICROAMP. PER LUMEN	SPEC- TRAL RE- SPONSE
	Length	Diam.			
GAS TYPES					
1P29	4 $\frac{1}{8}$	1 $\frac{1}{8}$	100	40	S-3
1P37	4 $\frac{1}{8}$	1 $\frac{1}{8}$	100	135	S-4
1P40	Same as type 930 except for non-hygroscopic base.				
1P41	2 $\frac{1}{8}$	1 $\frac{1}{8}$	90	90	S-1
868	4 $\frac{1}{8}$	1 $\frac{1}{8}$	100	90	S-1
918	4 $\frac{1}{8}$	1 $\frac{1}{8}$	90	150	S-1
920†	4	1 $\frac{1}{8}$	90	100	S-1
921	1 $\frac{1}{8}$	1 $\frac{1}{8}$	90	135	S-1
923	3 $\frac{1}{8}$	1 $\frac{1}{8}$	90	135	S-1
924	2 $\frac{1}{8}$	1 $\frac{1}{8}$	90	90	S-1
927	2 $\frac{1}{8}$	1 $\frac{1}{8}$	90	125	S-1
928	3 $\frac{1}{8}$	1 $\frac{1}{8}$	90	65	S-1
930	3 $\frac{1}{8}$	1 $\frac{1}{8}$	90	135	S-1
5581	3 $\frac{1}{8}$	1 $\frac{1}{8}$	100	135	S-4
5582	1 $\frac{1}{8}$	1 $\frac{1}{8}$	100	120	S-4
5583	2 $\frac{1}{8}$	1 $\frac{1}{8}$	100	135	S-4
5584	4	1 $\frac{1}{8}$	100	120	S-4

VACUUM TYPES

1P39	Same as type 929 except for non-hygroscopic base.				
1P42	1 $\frac{1}{8}$	1 $\frac{1}{8}$	180	30	S-9
917	4 $\frac{1}{8}$	1 $\frac{1}{8}$	500	20	S-1
919	4 $\frac{1}{8}$	1 $\frac{1}{8}$	500	20	S-1
922	1 $\frac{1}{8}$	1 $\frac{1}{8}$	500	20	S-1
925	2 $\frac{5}{8}$	1 $\frac{1}{8}$	250	20	S-1
926	1 $\frac{1}{8}$	1 $\frac{1}{8}$	500	6.5	S-3
929	3 $\frac{1}{8}$	1 $\frac{1}{8}$	250	45	S-4
934	2 $\frac{1}{8}$	1 $\frac{1}{8}$	250	30	S-4
935	4 $\frac{1}{4}$	1 $\frac{1}{8}$	250	35	S-5
5652**	2 $\frac{7}{8}$	1 $\frac{3}{8}$	250	45	S-4

MULTIPLIER PHOTOTUBES

TYPE	MAX. DIMENSIONS INCHES		MAX. ANODE- SUPPLY VOLTS	LUMINOUS SENSITIVITY AMP/LUMEN	SPECTRAL RESPONSE
	Length	Diam.			
1P21	3 $\frac{1}{8}$	1 $\frac{1}{8}$	1250	80	S-4
1P22	3 $\frac{1}{8}$	1 $\frac{1}{8}$	1250	0.6	S-8
1P28	3 $\frac{1}{8}$	1 $\frac{1}{8}$	1250	20	S-5
931-A	3 $\frac{1}{8}$	1 $\frac{1}{8}$	1250	20	S-4
5819	5 $\frac{1}{8}$	2 $\frac{1}{4}$	1250	24	S-4
6199	4 $\frac{1}{8}$	1 $\frac{1}{8}$	1250	24	S-4
6217	5 $\frac{1}{8}$	2 $\frac{1}{4}$	1250	24	S-10
6323	For headlight control.				

†Twin Type. **Composite anode—cathode type.

RCA QUICK SELECTION GUIDE

GLOW-DISCHARGE (COLD-CATHODE) TUBES VOLTAGE-REGULATOR TYPES

TYPE	MAX. DIMENSIONS INCHES		OPERATING VOLTS	OPERATING CURRENT DC MA.	
	Length	Diam.		MIN.	MAX.
OA2	2 $\frac{5}{8}$	$\frac{3}{4}$	151	5	30
OA3	4 $\frac{1}{8}$	1 $\frac{1}{8}$	75	5	40
OB2	2 $\frac{5}{8}$	$\frac{3}{4}$	108	5	30
OC3	4 $\frac{1}{8}$	1 $\frac{1}{8}$	108	5	40
OD3	4 $\frac{1}{8}$	1 $\frac{1}{8}$	153	5	40
874	5 $\frac{3}{8}$	2 $\frac{1}{8}$	90	10	50
991	1 $\frac{3}{8}$	$\frac{5}{8}$	59	0.4	2
5651*	2 $\frac{1}{8}$	$\frac{3}{4}$	87	1.5	3.5

TYPE	MAX. DIMENSIONS INCHES		MAX. RATINGS		
	Length	Diam.	PEAK ANODE VOLTS	PEAK CATHODE MA.	AV. CATHODE MA.
RELAY TYPES					
OA4-G	4 ¹ / ₈	1 ⁵ / ₈	225	100	25
1C21	2 ⁵ / ₈	1 ¹ / ₈	180	100	25
5823	2 ¹ / ₈	³ / ₄	200	100	25

RECTIFIERS

TYPE	MAX. DIMENSIONS INCHES			MAX. PLATE OR ANODE RATINGS	
	Cathode Volts	Length	Diam.	PEAK INV. VOLTS	AV. AMP.
VACUUM TYPES					
2X2-A	2.5	4 $\frac{1}{8}$	1 $\frac{3}{8}$	12500	0.0075
2V3-G	2.5	4 $\frac{1}{8}$	1 $\frac{3}{8}$	16500	0.002
5R4-GY	5	5 $\frac{1}{8}$	2 $\frac{1}{8}$	2800	0.175
217-C	10	8 $\frac{1}{8}$	2 $\frac{1}{8}$	7500	0.150
579-B	2.5	7 $\frac{1}{8}$	2 $\frac{1}{8}$	20000	0.025
8J6	2.5	6 $\frac{1}{8}$	2 $\frac{1}{8}$	5000	0.25
878	2.5	7 $\frac{3}{8}$	1 $\frac{1}{8}$	20000	0.605
1616	2.5	6 $\frac{1}{8}$	2 $\frac{1}{8}$	6000	0.13
5825	1.6	5 $\frac{7}{8}$	2 $\frac{1}{8}$	60000	0.002
8013-A	2.5	6 $\frac{1}{8}$	2 $\frac{1}{8}$	40000	0.020
8020	5	8	2 $\frac{1}{8}$	40000	0.100

MERCURY-VAPOR TYPES

575-A	5	11 $\frac{1}{8}$	3 $\frac{1}{8}$	15000	1.5
673	5	11 $\frac{3}{8}$	3 $\frac{1}{8}$	15000	1.5
816	2.5	4 $\frac{1}{8}$	1 $\frac{1}{8}$	7500	0.125
857-B	5	19 $\frac{7}{8}$	7 $\frac{1}{8}$	22000	10
866-A	2.5	6 $\frac{1}{8}$	2 $\frac{1}{8}$	10000	0.25
869-B	5	14 $\frac{1}{8}$	5 $\frac{1}{8}$	20000	2.5
872-A	5	8 $\frac{1}{2}$	2 $\frac{1}{8}$	10000	1.25
5558	5	7	3	5000	2.5
5561	5	11 $\frac{1}{4}$	3 $\frac{1}{8}$	3000	6.4
8008	5	8 $\frac{3}{4}$	2 $\frac{1}{8}$	10000	1.25

*Voltage-reference type.

RCA QUICK SELECTION GUIDE

RECTIFIERS (cont'd)

TYPE	Cathode Volts	MAX. DIMENSIONS INCHES		MAX. PLATE OR ANODE RATINGS	
		Length	Diam.	PEAK INV. VOLTS	AV. AMP.
GAS TYPES					
3B25	2.5	6 $\frac{1}{8}$	2 $\frac{1}{8}$	4500	0.5
3B28	2.5	6 $\frac{3}{8}$	2 $\frac{1}{8}$	10000	0.25

CATHODE-RAY TUBES

TYPE	CATHODE VOLTS	Max. Overall Length	Approx. Screen Diam.	FINAL ELEC- TRODE VOLTS	DEFLECTION FACTOR†† VOLTS DC/IN.
OSCILLOGRAPH TYPES:					
Medium Persistence:					
2AP1-A	6.3	7 $\frac{5}{8}$	2	1000	167-225
2BP1	6.3	7 $\frac{1}{8}$	2	2000	148-200
3AP1-A	2.5	11 $\frac{7}{8}$	3	1500	87-131
3BP1-A	6.3	10 $\frac{1}{4}$	3	2000	125-170
3JP1	6.3	10 $\frac{1}{4}$	3	4000	125-170
3KP1	6.3	11 $\frac{3}{4}$	3	2500	76-104
3MP1	6.3	8 $\frac{1}{4}$	3	2500	220-280
3RP1	6.3	9 $\frac{3}{8}$	3	2500	104-140
5ABP1	6.3	17 $\frac{1}{8}$	5	4000	36-48
5BP1-A	6.3	17 $\frac{1}{8}$	5	2000	64-88
5CP1-A	6.3	17 $\frac{1}{8}$	5	4000	66-90
5UP1	6.3	15 $\frac{1}{8}$	5	2500	46-62
7CP1	6.3	13 $\frac{1}{8}$	7	8000	**
7JP1	6.3	14 $\frac{7}{8}$	7	6000	100-136
7VP1	6.3	14 $\frac{7}{8}$	7	4000	75-102
902-A	6.3	7 $\frac{5}{8}$	2	600	96-141
905-A	2.5	16 $\frac{7}{8}$	5	2000	78-116
912	2.5	16 $\frac{7}{8}$	5	15000	600-900
914-A	2.5	20 $\frac{7}{8}$	9	7000	210-308

Short Persistence:

2BP11	Same as type 2BP1 except for phosphor.				
3KP11	Same as type 3KP1 except for phosphor.				
5ABP11	Same as type 5ABP1 except for phosphor.				
5CP11-A	Same as type 5CP1-A except for phosphor.				
5UP11	Same as type 5UP1 except for phosphor.				
908-A	Same as type 3AP1-A except for phosphor.				

Medium-Long Persistence:

5CP12	Same as type 5CP1-A except for phosphor.				
5FP14	Same as 5FP7-A except for phosphor.				
7MP14	Same as type 7MP7 except for phosphor.				

Long Persistence:

3FP7-A	6.3	10 $\frac{1}{4}$	3	4000	153-207
3JP7	Same as type 3JP1 except for phosphor.				
5ABP7	Same as type 5ABP1 except for phosphor.				
5CP7-A	Same as type 5CP1-A except for phosphor.				
5FP7-A	6.3	11 $\frac{1}{2}$	5	8000	**
5UP7	Same as type 5UP1 except for phosphor.				
7BP7-A	6.3	13 $\frac{3}{4}$	7	8000	●●

RCA QUICK SELECTION GUIDE

CATHODE-RAY TUBES (cont'd)

TYPE	CATHODE VOLTS	Max. Overall Length	Approx. Screen Diam.	FINAL ELEC-TRODE VOLTS	DEFLECTION FACTOR†‡ VOLTS DC/IN.
OSCILLOGRAPH TYPES:					
Long Persistence (cont'd):					
7MP7	6.3	12 $\frac{7}{8}$	7	8000	**
10KP7	6.3	18	10	10000	**
12DP7-B	6.3	20 $\frac{3}{8}$	12	10000	**
12SP7	6.3	19 $\frac{1}{8}$	12	10000	**
16ADP7	6.3	22	16	14000	**
FLUORESCENT-SPOT TYPES:					
Short Persistence:					
5WP15	6.3	11 $\frac{1}{8}$	5	27000	**
Extremely Short Persistence:					
5ZP16	6.3	15	5	27000	**
TRANSCRIBER KINESCOPE:					
5WP11	6.3	11 $\frac{1}{8}$	5	27000	**
VIEW-FINDER KINESCOPE:					
5FP4-A	6.3	11 $\frac{1}{2}$	5	8000	**
PROJECTION KINESCOPIES (For Theatre Television):					
7NP4	6.6	20 $\frac{3}{8}$	7	80000	**
7WP4	6.6	21 $\frac{1}{8}$	7	80000	**
MONITOR KINESCOPE:					
7CP4	6.3	13 $\frac{1}{8}$	7	8000	**
7QP4	6.3	13 $\frac{1}{4}$	7	10000	**
7TP4	6.3	13 $\frac{1}{2}$	7	12000	**
10SP4	6.3	17	10	14000	**
1816P4-A	6.3	18	9	14000	**

*Magnetic deflection.

‡For deflecting electrodes DJ₃ and DJ₄ (nearer base).

CAMERA TUBES

CONOSCOPIES:

- 1850-A For film and studio pick-up. Image Size, 3 $\frac{5}{8}$ " x 4 $\frac{3}{4}$ ". Heater volts, 6.3. Max. anode-No. 2 volts, 1200.
- 5527 For industrial and experimental applications. Image Size, 1.4" (diagonal). Max. anode-No. 2 volts, 900.

MAGE ORTHICONS:

- 1820 For outdoor pickup use and also suitable for studio use. Has exceptional sensitivity and response approaching that of the eye.
- 1826 For studio use and other applications where the lighting can be controlled. Has negligible infrared response, exceptionally high sensitivity, and a resolution capability better than 500 lines.

RCA QUICK SELECTION GUIDE

CAMERA TUBES (cont'd)

VIDICON:

- 6198 For use in industrial television service. Has a resolution capability of about 400 lines and a sensitivity which permits televising scenes with 100 to 200 foot-candles of incident illumination on the scene.

MONOSCOPE:

- 2F21 A 5" magnetic-deflection type for supplying signal to test video performance of television transmitters and receivers.
- 1699 Custom-built type like the 2F21 except that its pattern is individually styled to customer requirements.

VACUUM-GAUGE TUBES

- 1945 Hydrogen-Sensitive, Ionization Type. For locating minute leaks in vacuum enclosures.
- 1946 Thermocouple Type. For measuring gas pressures in the range from 1 mm to 0.0001 mm of mercury (1000 to 0.1 micron).
- 1947 Pirani Type. For measuring gas pressures in the range from 0.5 mm to 0.01 mm of mercury (500 to 10 microns).
- 1949 Ionization Type, hard-glass construction. For measuring gas pressures below 0.0001 mm of mercury (0.1 micron).
- 1950 Ionization Type. Similar to type 1949, but soft-glass construction.

"SPECIAL RED" TUBES

Designed and manufactured for critical industrial applications where 10000-hour life, rigid construction, extreme uniformity and exceptional stability are paramount.

- 5690 Full-Wave Vacuum Rectifier. Features two separate diode units of the indirectly heated cathode type. Max. peak inverse plate volts, 1120; max. peak plate current per plate, 375 ma.; max. dc output current per plate, 75 ma.
- 5691 High-Mu Twin Triode similar to type 6SL7-GT.
- 5692 Medium-Mu Twin Triode similar to type 6SN7-GT.
- 5693 Sharp-Cutoff Pentode similar to type 6SJ7.

"PREMIUM" TUBES

For special applications where dependable performance under shock and vibration is a prime consideration.

MINIATURE TYPES

- 5654 Sharp-Cutoff Pentode. "Premium" version of type 6AK5 for rf and if broad-band applications.
- 5726 Twin Diode. "Premium" version of type 6AL5-W for detector service in circuits utilizing wide-band amplifiers.

RCA QUICK SELECTION GUIDE

MINIATURE TYPES (cont'd)

- 751 High-Mu Twin Triode. "Premium" type similar to 12AX7 for applications such as phase inverters, and in numerous industrial control devices.
- 814 Medium-Mu Twin Triode. "Premium" type similar to 12AU7 for applications such as mixers, oscillators, phase inverters, and in numerous industrial control devices.
- 073 Voltage Regulator, Glow-Discharge Type having very stable characteristics. "Premium" version of type OA2.
- 074 Voltage Regulator, Glow-Discharge Type having very stable characteristics. "Premium" version of type OB2.
- 101 Medium-Mu Twin Triode. Especially designed as a class A amplifier in mobile and aircraft equipment where uniformity of characteristics and dependability are important.

SUBMINIATURE TYPES

- 718 Medium-Mu Triode. "Premium" type similar to 6C4 for use as a power amplifier and oscillator. Will give a useful power output of nearly one watt at a frequency of 500 megacycles per second.
- 719 High-Mu Triode. "Premium" type for use as an audio amplifier in mobile and aircraft receivers. In audio service as a resistance-coupled amplifier, it is capable of providing high voltage gain.
- 5840 Sharp-Cutoff Pentode. "Premium" type similar to 6AK5 for use as an rf or if amplifier in high-frequency broad-band circuits in mobile and aircraft receivers. As an rf amplifier, the 5840 can be used at frequencies up to about 400 Mc.

KLYSTRONS

- 1K26 Single-resonator, reflex type oscillator for operation in the frequency range from 6250 to 7060 megacycles. It has a useful power output in the order of 100 milliwatts.

MECHANO-ELECTRONIC TRANSDUCER

- 5734 Triode type for applications involving the measurement of mechanical vibration. Has a minimum free cantilever resonance of the internal section of the plate shaft of 12000 cycles per second.

ACORNS TYPES FOR SPECIAL APPLICATIONS

- 5F4 Oscillator Triode. Heater-cathode type. For frequencies up to 1200 Mc.
- 5L4 U-H-F Oscillator Triode. Heater-cathode type. For frequencies up to 430 Mc.

RCA QUICK SELECTION GUIDE

TYPES FOR SPECIAL APPLICATIONS (cont'd)

ACORNS (cont'd)

- 254 Detector Amplifier Pentode. Heater-cathode type. For frequencies up to 1200 Mc.
- 255 Detector Amplifier Oscillator Triode. Heater-cathode type. For frequencies up to 600 Mc.
- 256 Super-Control R-F Amplifier Pentode. Remote cut-off, heater-cathode type. For frequencies up to 430 Mc.
- 257 Detector Amplifier Oscillator Triode. Filament volts, 1.25. Amplification factor, 13.5.
- 258-A Amplifier Triode. Filament volts, 1.25. For oscillator and r-f amplifier service.
- 259 Detector Amplifier Pentode. Filament volts, 1.25. For r-f amplifier and detector service.
- 2004 U-H-F Diode. Heater-cathode type. For u-h-f service as a rectifier, detector or measuring device. Resonant frequency, about 850 Mc.
- 2005 U-H-F Diode. Heater-cathode type. For u-h-f service as a rectifier, detector or measuring device. Resonant frequency, about 1500 Mc.

MINIATURES

- 3A4 Power Amplifier Pentode. Filament volts, 1.4/2.8. A-F power output of 700 milliwatts.
- 3A5 H-F Twin Triode. Class C power output of 2 watts at 40 Mc.
- 5AS6 Sharp-cutoff Pentode. 7-pin miniature type. Grids No. 1 and No. 3 can each be used as independent control electrodes. For use in gated amplifier circuits, delay circuits, gain-controlled amplifiers, and mixer circuits.
- 5J4 U-H-F Amplifier Triode. Grounded-grid amplifier. For frequencies up to 500 Mc.
- 12AY7 Medium-Mu Twin Triode. 9-Pin Miniature Type. For use in the first stages of high-gain audio-frequency amplifiers where reduction of microphonics, leakage noise, and hum are primary considerations.
- 26A6 RF Amplifier Pentode. Remote-cutoff, heater-cathode type. Useful in aircraft receivers operating directly from 12-cell storage batteries.
- 26C6 Duplex-Diode Triode. Heater-cathode type. Useful in aircraft receivers operating directly from 12-cell storage batteries.
- 26D6 Pentagrid Converter. Heater-cathode type. Useful in aircraft receivers operating directly from 12-cell storage batteries.
- 1654 Half-Wave High-Vacuum Rectifier. Max. peak inverse plate volts, 4300. Max. average plate current, 1 ma.

RCA QUICK SELECTION GUIDE

TYPES FOR SPECIAL APPLICATIONS (cont'd)

MINIATURES (cont'd)

- 5879 Sharp-Cutoff Pentode. 9-pin miniature type. Intended for use as an audio amplifier in applications requiring reduced microphonics, leakage noise, and hum. Especially useful in the input stages of medium-gain public address systems, home sound recorders, and general-purpose audio systems.
- 9001 Detector Amplified Pentode. A sharp cut-off pentode for use as an r-f amplifier or detector in u-h-f service.
- 9002 U-H-F Triode. Useful as a u-h-f detector, amplifier and oscillator.
- 9003 Super-Control R-F Amplifier Pentode. Remote cut-off type useful as a mixer or as an r-f or i-f amplifier in u-h-f services.
- 9006 U-H-F Diode. Heater-cathode type. Resonant frequency, about 700 Mc. For u-h-f service as a rectifier, detector, or measuring device.

METAL, GT, AND OTHER GLASS TYPES

- 2C21/1642 Twin-Triode Amplifier. Medium Mu. Plate dissipation per plate, 2.1 watts. Heater volts, 6.3; currents 0.6 ampere.
- 2C22 High-Frequency Triode. Max. plate dissipation, 3.3 watts. Max. plate volts, 300.
- 2C40 Lighthouse Triode. A high frequency amplifier and oscillator for use up to 3000 Mc. Plate dissipation, 5 watts max., $\mu = 36$, $gm = 4800$ micromhos.
- 2C43 Lighthouse Triode. Has the same design features as the 2C40 except for a plate dissipation of 10 watts max., $\mu = 48$, and $gm = 8000$ micromhos.
- 5AG7-Y Power Amplifier Pentode. Similar to type 6AG7 except for micanol base.
- 5SJ7-Y Triple-Grid Detector Amplified. Same as type 6SJ7 except for micanol base.
- 5SN7-KTY Twin-Triode Amplifier. Same as type 6SN7-G7 except for micanol base.
- 12A6 Beam Power Amplifier. Metal type. Designed particularly for aircraft applications. Heater volts, 12.6. Max. plate volts, 250.
- 12K8-Y Triode-Hexode Converter. Same as type 12K8 except for micanol base.

RCA QUICK SELECTION GUIDE

TYPES FOR SPECIAL APPLICATIONS (cont'd)

METAL, GT, AND OTHER GLASS TYPES (cont'd)

- 2L8GT Twin-Pentode Power Amplifier. Heater volts, 12.6. Max. plate volts, 180. Plate dissipation per plate, 2.5 watts. Similar to type 1644.
- 2SW7 Duplex-Diode Triode. Heater-cathode type. Useful in aircraft receivers.
- 2SX7-GT Twin-Triode Amplifier. Heater-cathode type. Useful in aircraft receivers.
- 2SY7 Pentagrid Converter. Single-ended metal type. Useful in aircraft receivers.
- 6A7-GT Twin A-F Beam Power Amplifier. Heater volts, 26.5. Max. plate volts, 50. For 12-cell battery service.
- 9-Y Triple-Grid Power Amplifier. Same as type 89 except for micanol base.
- 59 Lighthouse Diode. For use as a detector and in r-f switching.
- 64 Amplifier Triode. For low-microphonic applications. Filament volts, 1.1. Max. plate volts, 135.
- 609 Amplifier Pentode. For low-microphonic applications. Filament volts, 1.1. Max. plate volts, 135.
- 612 Pentagrid Amplifier. For low-microphonic applications. Heater volts, 6.3. Max. plate volts, 250. Similar to type 6L7.
- 620 Triple-Grid Detector Amplifier. For low-microphonic applications. Heater volts, 6.3. Max. plate volts, 250. Similar to type 6J7.
- 621 Power Amplifier Pentode. Metal type. For applications requiring continuity of service. Heater volts, 6.3. In push-pull service: Max. plate volts, 300; a-f power output, 5 watts.
- 622 Beam Power Amplifier. Metal type. For applications requiring continuity of service. Heater volts, 6.3. In push-pull service: Max. plate volts, 300; power output, 10 watts.

UHF "PENCIL" TUBES

- 675 Medium-Mu Triode. For use in grounded-grid circuits at frequencies up to 3000 Mc/s. As a local oscillator, it is capable of giving a power output of 475 milliwatts at 1700 Mc/s.
- 794 Fixed-Tuned Oscillator Triode. Intended for transmitting service in radiosonde applications at 1680 Mc.
- 876 High-Mu Triode. General purpose type. For use in grounded-grid circuits as an r-f amplifier, i-f amplifier, or mixer tube up to 1000 Mc/s; as a frequency multiplier up to 1500 Mc/s; and as an oscillator up to 1700 Mc/s. Will deliver 5 watts at 500 Mc/s as an unmodulated Class C r-f amplifier or oscillator, and 750 milliwatts as an oscillator at 1700 Mc/s.

RCA QUICK SELECTION GUIDE

UHF "PENCIL" TUBES (cont'd)

METAL, GT, AND OTHER GLASS TYPES (cont'd)

- 5893 Medium-Mu Triode. Designed for use in grounded-grid circuits as a plate-pulsed oscillator at 3300 Mc/s and as a cw oscillator, rf power amplifier, and frequency doubler up to 1000 Mc/s.
- 6173 UHF Diode. For use in pulse detection and pulse-power-measuring service. May be operated at frequencies as high as 3300 Mc.

TYPES FOR ELECTRONIC-COMPUTER AND OTHER "ON-OFF" CONTROL APPLICATIONS

- 5915 Pentagrid Amplifier. 7-pin miniature type designed for use as a gated amplifier in electronic computers. Grids No. 1 and No. 3 can each be used as independent control electrodes.
- 5963 Medium-Mu Twin Triode. 9-pin miniature type intended for use in frequency-divider circuits in electronic computers. Has separate terminal for each cathode, and a mid-tapped heater for 6.3-volt or 12.6-volt operation.
- 5964 Medium-Mu Twin Triode. 7-pin miniature type intended for use in frequency-divider circuits in electronic computers.
- 6211 Same as 5963 except that balance of cutoff bias between the two units is closely controlled.

MAGNETRONS

- 2J50 Internal resonant-circuit type intended for pulsed-oscillator service, such as radar, at a fixed frequency of 8825 Mc. Will give a peak power output of 45 kilowatts when operated at 12000 peak anode volts.
- 4J52 Internal resonant-circuit type with magnet attached. Intended for pulsed-oscillator service at a fixed frequency of 9375 Mc. Will give a peak power output of 80 kilowatts when operated at 15000 peak anode volts.
- 725-A Same as 2J50, but for operation at a fixed frequency of 9375 Mc.

SEMICONDUCTOR DEVICES

TRANSISTORS

- 2N32 Point-contact type for pulse or switching applications.
- 2N33 Point-contact type for oscillator applications at frequencies up to 50 Mc.
- 2N34 Junction p-n-p type for low-power, audio-frequency applications.
- 2N35 Junction n-p-n type for low-power, audio-frequency applications.

RCA QUICK SELECTION GUIDE

SEMICONDUCTOR DEVICES (cont'd)

CRYSTAL DIODES

Germanium Point-Contact Types

- N34-A** General-purpose type for low-power rectification in applications such as isolating, clipping, and switching circuits, as well as in certain meter circuits.
- N38-A** } Large-signal types having high peak inverse voltage
N55-A } ratings. They are especially useful in electronic com-
N58-A } puters, clamping circuits, dc restorer circuits, and
in high voltage probes.
- N54-A** High-back-resistance type for use in clipping circuits, high-impedance, high-voltage probes, dc restorer circuits, and high-impedance detector circuits.
- N56-A** High-conduction type featuring exceptionally low dynamic impedance. It is especially useful for limiter service in frequency modulation receivers.
- 629** Electron-Ray Tube. Indicator type. Similar to type 6E5 except for a 12.6-volt heater and an octal base.
- 631** Beam Power Amplifier. Metal type. Similar to type 6L6 except for a 12.6-volt heater. Max. plate dissipation, 16 watts.
- 632** Beam Power Amplifier. Metal type. Similar to type 25L6 except for 12.6-volt heater, and plate voltage and dissipation ratings.
- 633** Twin-Triode Amplifier. Similar to type 6SN7-GT except for 25-volt heater.
- 634** Twin-Triode Amplifier. Single-ended metal type. Same as 12SC7 but especially suited for applications requiring matched triode units.
- 635** Class B Twin Amplifier. Heater-cathode type. For audio amplifier applications.
- 644** Twin-Pentode Power Amplifier. Same as type 12L8-GT, but is especially suited for applications requiring matched pentode units.
- 026** Oscillator Triode. Subminiature type intended for transmitting service in radiosonde applications at 400 Mc.
- 080** Low-mu, high-perveance twin power triode for use as regulator tube in dc power supply units and in projection television booster scanning applications. Similar to type 6AS7-G in characteristics, but is smaller in size.
- 082** Same as 6080 but has 26.5-volt heater. Intended for use in aircraft receivers.

RCA INTERCHANGEABILITY DIRECTORY OF TUBES FOR COMMUNICATIONS AND INDUSTRY

Direct Replacement Types

RCA types shown below a . . direct replacements under all
circumstances for corresponding types to be replaced.

<i>Type to be Replaced</i>	<i>Replace by RCA Type</i>	<i>Type to be Replaced</i>	<i>Replace by RCA Type</i>
OA3/VR75	OA3	CE-30V	925
OC3/VR105	OC3	RK-30	800
OD3/VR150	OD3	FG-32	5558
CE-1(A-D)	868, 918	RK-33	2C21/1642
1P32	927	CE-34	934
2AP1	2AP1-A	RK-39	807
2B1	885	CE-41	921
2C39-A	ML-381	CE-42	922
2C39-A	3X100A11	RK-44	837
2C39-A	ZP572	RK-47	814
2X2/879	2X2-A	UH-50	834
3-50G2	834	R51A	927
3AP1	3AP1-A	CE-55	924
3BP1	3BP1-A	FG-57	5559
4D21	4-125A/4D21	RK-57	805
4PR60	715-C	RK-58	838
4-250A	4-250A/5D22	CE-59	5581
4-400A	4-250A/5D22	R50A	808, 918
5BP1	5BP1-A	R60A	920
5CP1	5CP1-A	HY-61/807	807
5CP7	5CP7-A	R61A	930
5D22	4-250A/5D22	CE-64	5583
5FP7	5FP7-A	FG-67	5728/FG-67
5HP1-A	5BP1-A*	VR75-30	OA3
7BP7	7BP7-A	FG-95	5560
PJ-8	5556	CE-98	5582
G9	808	FG-104	5581
BW-11	834	VR105-30	OC3
CE-11V(A-D)	917	HF120	211
RK-11	1623	VR150-30	OD3
12DP7	12DP7-A	WT-210-0001	2D21
FG-17	5537	WT-210-0003	834
CE-20	927	WT-210-0004	2050
RK-20A	804	WT-210-0006	6116
CE-21(A-D)	920	WT-210-0008	866-A
CE-23(A-D)	923	WT-210-0009	84/6Z4
PJ-23	868	WT-210-0011	OC3
CE-25(A-D)	927	WT-210-0012	80
RK-25	802	WT-210-0013	5Z3
RK-25B	802	WT-210-0015	5557
CE-28(A-D)	928	WT-210-0018	OD3
RK-28	803	WT-210-0019	83
RK-28A	803	WT-210-0021	6X5
CE-29(A-D)	929, 1P39	WT-210-0025	117Z6-GT
CE-30(A-D)	930, 1P40	WT-210-0027	872-A

*Except in high-altitude service.

RCA INTERCHANGEABILITY DIRECTORY OF TUBES FOR COMMUNICATIONS AND INDUSTRY

Direct Replacement Types (cont'd)

RCA types shown below are direct replacements under all circumstances for corresponding types to be replaced.

<i>Type to be Replaced</i>	<i>Replace by RCA Type</i>	<i>Type to be Replaced</i>	<i>Replace by RCA Type</i>
WT-210-0028	3Q5-GT	FG-259B	5554
WT-210-0029	6C5	WT-261	6116
WT-210-0031	902-A	WE-261A	835
WT-210-0037	117L7/M7-GT	WT-262	866-A
WT-210-0038	172	WT-263	6Z4
WT-210-0040	6X4	WT-269	0C3
WT-210-0042	5Y3-GT	WT-270	80
WT-210-0044	575-A	WT-270X	5Z3
WT-210-0045	892	FG-271	5551
WT-210-0048	5U4-G	WT-272	5557
WT-210-0052	2AP1-A	WE-274B	5R4-GY
WT-210-0053	3AP1-A	WT-291	0D3
WT-210-0056	5559	WE-295A	203-A
WT-210-0057	5560	WT-301	83
WT-210-0058	676	UE-303A	203-A
WT-210-0060	OZ4	WE-304B	834
WT-210-0061	117N7-GT	F-307A	207
WT-210-0062	5557	WT-308	6X5-GT
WT-210-0069	5557	CE-309	5557
WT-210-0070	5550	CE-311	3C23
WT-210-0071	5551	UE-311	211
WT-210-0072	5552	UE-311C	835
WT-210-0073	5553	UE-317C	217-C
WT-210-0074	105	WE-322A	803
WT-210-0078	172	WE-350A	807
WT-210-0079	105	375-A	575-A
WT-210-0081	68J7	WT-377	117Z6-GT
WT-210-0082	6V6	WT-380	3Q5-GT
WT-210-0083	7K7	WT-390	6C5
WT-210-0084	6N7-GT	FJ-401	1F29
WT-210-0085	50B5	WE-403A	6AK5
WT-210-0086	833-A	GL-415	5550
WT-210-0087	6K8-GT	GL-451	8020
WT-210-0088	6J5-GT	WT-606	2D21
WT-210-0089	6G6-G	WL-630	2050
WT-210-0090	6C6	WL-631	5559
WT-210-0091	0A4-G	KU-634	677
211-D	211	WL-651/656	5552
FG-235A	5552	WL-652/657	5551
FG-238B	5555	WL-653B	5555
242A	211	WL-655/658	5553
242B	211	672	672-A
WT-245	884	WL-679	5554
WT-246	2050	WL-681/686	5550
FG-258A	5553	NL-715	5557

RCA INTERCHANGEABILITY DIRECTORY OF TUBES FOR COMMUNICATIONS AND INDUSTRY

Direct Replacement Types (cont'd)

RCA types shown below are direct replacements under all circumstances for corresponding types to be replaced.

<i>Type to be Replaced</i>	<i>Replace by RCA Type</i>	<i>Type to be Replaced</i>	<i>Replace by RCA Type</i>
WL-735	808	1850	1850-A
801	801-A	1904	5728/FG-07
811	811-A	2051	3050
812	812-A	2525A5	5BP1-A
829	829-B	8001	4E27/8001
829-A	829-B	8016	1B3-GT
832	832-A	WTT-100	6X4
833	833-A	WTT-102	5Y3-GT
C-833	833-A	WTT-103	6116
UH-50	834	WTT-104	575-A
857	857-B	WTT-105	893
862	862-A	WTT-111	5559
866	866-A	WTT-112	5560
866-A/866	866-A	WTT-113	676
869-A	869-B	WTT-114	0Z4
872	872-A	WTT-115	117N7-GT
872-A/872	872-A	WTT-117	5557
F-872B	872-A	WTT-118	105
879	2X2-A	WTT-119	173
889	889-A	WTT-122	68J7
893	893-A	WTT-123	6V6
902	902-A	WTT-124	7K7
UE-905	805	WTT-125	6N7-GT
905	905-A	WTT-126	50B5
906-P1	3AP1-A	WTT-127	833-A
908	908-A	WTT-128	6K8-GT
914	914-A	WTT-129	6J5-GT
931	931-A	WTT-130	6CG-G
UE-938	838	WTT-131	6CG
UE-949	849	WTT-132	0A4-G
UE-966A	866-A	WTT-135	5U4-G
UE-967	5557	WTT-136	2AP1-A
UE-972A	872-A	WTT-137	3AP1-A
UE-975A	575-A	WTT-149	173
1642	2C21/1642		
1802-P1	5BP1-A		
1803-P1	12AP4		
1804-P1	9AP4		
1811-P1	7CP1		
1849	1850-A		

NOTE: For additional replacement data on RCA Tubes for broadcasting and industry, see the 20-page RCA Interchangeability Directory (Form ID-1020) listing 1000 industrial tube type numbers used by 24 manufacturers.

RCA INTERCHANGEABILITY DIRECTORY OF TUBES FOR COMMUNICATIONS AND INDUSTRY

Similar Types

RCA types shown below are not directly interchangeable with the types to be replaced because of mechanical and/or electrical differences. For more information as to degree of interchangeability, refer to respective tube data or write to Commercial Engineering, Harrison, New Jersey.

<i>Type to be Replaced</i>	<i>Similar RCA Type</i>	<i>Type to be Replaced</i>	<i>Similar RCA Type</i>
CE-1V (A-D)	930, 1P40	35TG	808
CE-2 (A-D)	917, 919	CE-36 (A-D)	927
2B22	559	RK-36	806
2E25	2E24	RK-37	808
2E30	5618	RK-38	806
3B27	836	HY-40	812-A
3B28	866-A	T-40	812-A
3C21	838	TZ-40	811-A
3C24	1623	HY-40Z	811-A
3X2500A3	5762/7C24	RK-41	807
4C21	211	RK-46	804
4C22	8005	RK-87	814
4PR60	715-C	RK-48A	813
4X150G	4X150A	SR-50	917
CE5 (A-D)	927	HY-51A	830-B
5C24	8000	HY-51B	830-B
5D21	715-C	HY-51Z	838
WT-6	6L6	RK-51	830-B
7C20	5762	SR-51	926
7C25	5762/7C24	RK-52	811-A
7C27	5762	53AWB	927
HV-12	806	SR-53	917
RK-12	809	HK-54	808
CE-13	868	54-NH	3AP1-A
CE-13V	917	T-55	8005
G-15F	927	HY-57	812-A
HV-18	810	R-58A	927
FV-20	8000	58AWB	927
T-20	1623	59D	929
TV-20	810	CE-60	917
TZ-20	809	HF-60	8005
PJ-21	5556	HY-60	807
CE-22 (A-D)	1P41	SK-60	868
PJ-22	917	T-60	8005
X-22	1616	R61BV	929
RK-23	802	RK-63	806
RK-23A	802	SK-63	918
24-G	808	RK-64	807
HY-25	809	R64AV	925
RK-27	806	HY-69	1624
FG-27A	5559	V-70-D	8005
HY-30Z	809	R71A	930, 1P40
CE-31V	919	R71AV	925
FG-33	1904	71D	929
35T	808	FP-85	8020

RCA INTERCHANGEABILITY DIRECTORY OF TUBES FOR COMMUNICATIONS AND INDUSTRY

Similar Types (cont'd)

RCA types shown below are not directly interchangeable with the types to be replaced because of mechanical and/or electrical differences. For more information as to degree of interchangeability, refer to respective tube data or write to Commercial Engineering, Harrison, New Jersey.

<i>Type to be Replaced</i>	<i>Similar RCA Type</i>	<i>Type to be Replaced</i>	<i>Similar RCA Type</i>
FP-85A	8020	WE-217-A	80
R85A	928	WE-220C	892
CE-91R	1P37	Z-225	866-A
HF-100	8005	WE-231D	864
100R	8020	WE-241B	833-A
100TH	810	WE-242C	211
100TL	8000	T-240B	806-A
111-H	812-A	WE-240A	866-A
ZB-120	838	WE-249B	866-A
F123A	806	250TH	810
HF-125	8005	250TL	806
T-125	810	HF-250	8000
F-127A	810	WE-251A	851
F-128A	851	WE-252A	842
HF-130	835	HK-254	810
HF-140	211	WE-254B	865
143D	2X2-A	WE-255B	869-B
GL-146	805	HF-258B	866-A
AB-150	845	WE-259A	24-A
TW-150	810	260A	860
150P	808	HF-261A	835
150T	806	WE-264A	864
152TH	806	WE-264B, C	864
152TL	806	260B	857-B
GL-152	805	WE-266C	857-B
HK-154	808	WE-267B	872-A
T-165	806	WE-268A	801-A
C-200	810	WE-271A	843
HF-200	8000	WE-274A	5R4-GY
T-200	806	WE-281A	46
C-201	805	T-282A	8000
C-202	805	WE-284B	845
HD-203A	805	WE-284D	845
HD-208C	805	WE-287A	5557
HF-203H	8003	WE-294A	862-A
WE-205D	10-Y	300	806
WE-205E	10-Y	WE-301A	83
WT-210-0007	6L6	T-303C	8000
WT-210-0067	3C23	UE-303U	8000
211B	211	UE-304A	204-A
211C	835	WE-304B	6AK5
HD-211C	805	CE-306	676
211E	835	WE-307A	807
212E	849	UE-310	801-A
WE-214E	217-C	WE-310A	6C6

RCA INTERCHANGEABILITY DIRECTORY OF TUBES FOR COMMUNICATIONS AND INDUSTRY

Similar Types (cont'd)

CA types shown below are not directly interchangeable with the types to be replaced because of mechanical and/or electrical differences. For more information as to degree of interchangeability, refer to respective type data or write to Commercial Engineering, Harrison, New Jersey.

Type to be Replaced	Similar RCA Type	Type to be Replaced	Similar RCA Type
UE-311CH	8000	WL-734	917
UE-311T	8003	WL-739	927
UE-311CT	8003	WL-741	923
WE-312A	828	T-756	809
315A	673	UE-812H	8005
319A	872-A	T-814	806
321A	673	T-822	806
323B	3C23	825	1623
WE-339A	807	C-849A	833-A
WE-341AA	891-R	C-849H	833-A
F-342A	858	F-857A	857-B
343A	858	861-A	861
WE-348A	1620	863	892
C-350	807	866-B	806-A
WE-350B	807	C-872	872A
353A	872-A	UE-911CH	835
HK-354C	806	UE-942	842
HK-354D	806	NL-1005	5551
HK-354E	806	1603	1620, 5879
HK-354F	806	1847	5527
WE-356A	808	1851	6AC7
WE-357A	833-A	1899	2F21
F-357A	857-B	2501-A3	3AP1-A
WE-359A	1C21	2501-C3	908-A
WE-361A	835	5514	811-A
F-363A	892	5516	2E24
F-367A	673	5591	6AK5
F-376A	835	5604	889R-A
WE-393A	3C23	5606	892
WE-394A	627	5654	6AK5
WE-395A	5823	5658	880
WL-463	806	5663	5096
UE-468	8000	5666	889-A
WL-468	810	5667	889R-A
WL-471	8003	5668	892
WL-473	5762/7C24	5669	892-R
WL-481	8013-A	5685	676
GL-546	5696	5686	5763
578	8020	5695	816
NL-615	5558	5725	6AS6
WL-632A	5560	5891	5671
WL-632B	5560	5934	579-B
678	5563	7193	3C23
NL-710	676		
NL-714	5557		

RCA RADIO BATTERIES

Radio-Engineered for Extra Listening Hours

RCA Type	Volts	Interchangeable With			Socket or Terminals	Max. Overall Dimensions (Inches)		
		Eveready	Nada	Surgess		L	W. or D.	H.

FAM "B" BATTERIES

VB026	22½-45	487	—	2388PI	6-Hole Socket	6½	3½	7½
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SMALL "A" AND "B" BATTERIES FOR RADIO AND HEARING-AID APPLICATIONS

VB070*	1½	Zenith Z1-B	—	TR	2-Hole Socket	—	1½	4½
VB004	22½B	412	215	U15	Special Flashlight	1½	¾	1½
VB005	30B	412	210	U20	Special Flashlight	1½	¾	1½

FLASHLIGHT BATTERIES

VB024	1½ (Punkie)	915	15	X	Flashlight	—	2½	2
VB035‡	1½ (Baby)	935	14	I	Flashlight	—	1½	1½
VB036‡	1½	950	13	2R	Flashlight	—	1½	2½
VB073†	1½ (Tinytte)	—	910	—	Flashlight	—	½	1½

BATTERIES FOR INDUSTRIAL AND ELECTRONIC APPLICATIONS

VB006C†	1½A	—	914	—	2-Spring Clip	—	2½	6½
VB006B	1½A (Ignition)	63QN	905	63QN	2-Screw	—	2½	6½
VB028	4½C	781	714	5360	2-Screw	2½	1½	2½
VB029	1½-3-4½-6-7½	773	713	5540	3-Screw and 1 Pigtail Lead	3½	¾	2½
VB030†	3-4½C	771	718	2370PI	2-Hole Socket	4½	1½	3½
VB031†	3-4½-16½-22½C	768	721	5156PI	2-Hole Socket	4	2½	3
VB039	6A (Hotshot)	1461	907	4P4H	2-Insulated Screw	10½	2½	7½
VB040C	6A (Lantern)	409	908	P4H	2-Coil Spring	3½	2½	4½
VB040B	6A (Industrial)	—	915	B-461	2-Screw	3½	2½	4½
VB093†	300B	493	200	U200	2-Flush Pin Jack	2½	2½	3½
VB100	2A	—	701	P2BP	2-Insulated Screw	2½	1½	4½
VB101†	1½A	—	700	2FBP	2-Screw	2½	1½	4½
VB102	22½B	763	710	4156	2-Screw	3½	2½	3½
VB106	1½A	735	900	4PH	2-Screw	3½	2½	4½
VB112	22½-45B	762B	709	5300	2-Insulated Screw	4½	2½	5½
VB114	22½-45B	—	711	230NX	2-Insulated Screw	2½	1½	4½
VB120	22½-45B	—	717	230BC	2-Spring Clip	6½	2½	7½
VB127W*	22½-45B	—	716	1030BC	2-Spring Clip	8	4	7½
VB130	1½-3-4½	761T	713	2370BT	4-Screw	3½	1½	3
VB131	3-4½-6-9-10½-16½-22½	778	708	5156BC	6-Spring Clip	4½	2½	3½
VB132	4½A	703	706	522	2-Flat Spring	2½	1½	3½
VB138	2A	—	901	4P2H	2-Spring Clip	3½	2½	5½
VB139†	7½A	—	903	4P3H	2-Insulated Screw	7½	4	6½
VB140	9A	1663	904	4P6H	2-Insulated Screw	8½	4½	6½
VB157†	22½-45B	—	715	2130BC	2-Spring Clip	8½	4½	7½

‡Sealed-In-Steel

*Wax-Coated

†Non-warehouse types — shipping time 3-4 weeks

‡Special stock types — shipping time 1-2 weeks

RCA RADIO BATTERIES

Radio-Engineered for Extra Listening Hours

RCA Type	Volts	Interchangeable With			Socket or Terminals	Max. Overall Dimensions (Inches)		
		Eveready	Nada	Burgess		L	W or D	Ht.
PORTABLE "AB" PACKS								
VS019	7½-9A-90B	753	401	F6A60	8-Hole Socket	9½	2½	4¾
VS043	1½A-90B	—	409	5DA60	4-Hole Socket	5½	2½	7¾
VS046	6A-75B	Zenith Z675	422	G4B50	4-Prong Recessed	12½	2½	4¾
VS047	9A-90B	Zenith Z985	400	G6B60	4-Prong Recessed	13¾	2¾	4½
VS050	6-7½A-75B	755	403	T5Z50	8-Hole Socket	8½	2½	3½
VS052	1½A-61½B	Philco P41A4G	423	4GA41	4-Hole Socket	9½	2½	3½
VS053	1½A-63B	Philco P41A4FL	407	4GA42	4-Hole Socket	9¾	2	4¾
VS054	1½A-90B	—	410	6TA60	4-Hole Socket	10	2½	4½
VS057W	7½-9A-90B	756	405	T6Z60	8-Hole Socket	8½	2½	3¾
VS058	9A-90B	757	406	F6A60P	4-Prong Recessed	9½	2½	4¾
VS064	1½A-90B	Philco P364	425	4TZ60	4-Hole Socket	7¾	2½	3¾

PORTABLE "A" BATTERIES

VS004	1½	741	4	4F	2-Hole Socket	2¾	2¾	4½
VS005	1¾	—	12	4FL	2-Hole Socket	3½	1¾	5¾
VS009	6	744	6	F4P1	2-Hole Socket	2¾	2¾	4¾
VS010	6	718	1	2F4	2-Hole Socket	3¾	2½	5¾
VS011	6	747	16	2F4L	2-Hole Socket	3¾	1½	1¾
VS035½	1¾	935	14	1	Flashlight	—	1½	1½
VS036½	1¾	950	13	2R	Flashlight	—	1½	2¾
VS065	7¾	717	9	C5	2-Hole Socket	2¾	1¾	3½
VS067	4¾	736	3	F3	2-Hole Socket	4	1¾	4¾
VS068	6	724	2	Z4	Flat Type	1½	1½	2½
VS069	1¾	720	18	2D	2-Hole Socket	2½	1½	2½
VS072	4¾	726	19	D3	2-Hole Socket	3½	1½	2½
VS129	7¾	—	8	B5	2-Hole Socket	4½	½	3
VS236½	1¾	964	20	—	Flashlight	—	1¾	4¾

PORTABLE "B" BATTERIES

VS013	45	482	201	M30	5-Hole Socket	3½	1½	5¾
VS014	45	—	206	A30	6-Hole Socket	3½	2¾	4½
VS015	22½, 45	738	205	Z30	6-Hole Socket	3	2¾	4
VS016	67¾	467	200	XX45	2-Snap Fasteners	2¾	1¾	3½
VS035	45	455	201	XX30	2-Snap Fasteners	2½	½	3½
VS086	45	Emerson EM86	212	—	2-Snap Fasteners	1½	½	3½
VS090	90	490	204	N60	2-Snap Fasteners	3½	1¾	3¾
VS216	67¾	477	211	—	2-Snap Fasteners	1½	1	3½
VS217	75	—	213	—	2-Snap Fasteners	1¾	1¾	6¾

FARM "AB" BATTERY PACKS

VS022	1½A-90B	759	413	17GD60	4-Hole Socket	16½	4½	6¾
VS045	1½A-90B	Zenith Z28	426	18GD60	4-Hole Socket	17½	5¾	6½
VS119	7½-9A-90B	Philco P-376	415	—	8-Hole Socket	8¾	4¾	13¾

*Exact Equivalent of Ray-O-Vac PFI; slightly larger than Burgess TE and Eveready 1033P.

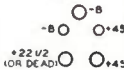
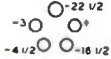
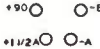
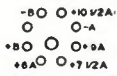
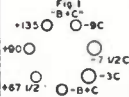
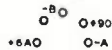
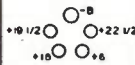
SOCKET AND TERMINAL GUIDE FOR RCA BATTERIES

Battery Type	Socket Pattern or Terminals	Battery Type	Socket Pattern or Terminals
VS004	101	VS053	115
VS005	101	VS054	115
VS006C	2-Spring Clip	VS055	2-Snap
VS006S	2-Screw	VS057W	116
VS009	101	VS058	Fig. 4
		VS064	115
VS010	104	VS065	105
VS011	104	VS067	103
VS013	110		
VS014	111	VS068	Flashlight
		VS069	101
VS015	111	VS070	101
VS016	2-Snap	VS072	103
VS019	116	VS073	Flashlight
		VS084	Flashlight
VS022	115	VS085	Flashlight
VS026	107	VS086	2-Snap
VS028	2-Screw	VS090	2-Snap
VS029	5-Screw,	VS093	2 Flush-Pin Jack
	1-Pigtail	VS100	2-Insulated Screw
VS030	112	VS101	2-Screw
		VS102	2-Screw
VS031 as "C"	113	VS106	2-Screw
VS031 as "B"	Fig. 8	VS112	3-Insulated Screw
VS034	Flashlight	VS114	3-Insulated Screw
VS035	Flashlight	VS119	116
VS036	Flashlight	VS126	3-Spring Clip
		VS127W	3-Spring Clip
VS038	110		
VS039	2-Insulated Screw	VS129	105
VS040C	2-Coil Spring	VS130	4-Screw
VS040S	2-Screw	VS131	8-Spring Clip
		VS133	2-Flat Spring
VS043	115		
VS045	115, Fig. 2	VS138	2-Spring Clip
VS046	Fig. 3	VS139	2-Insulated Screw
VS047	Fig. 4	VS140	2-Insulated Screw
		VS157	3-Spring Clip
VS050	116		
VS052	115	VS216	2-Snap
		VS217	2-Snap
		VS236	Flashlight

RCA BATTERY SOCKET PATTERNS

Nos. 101-116 are based on corresponding RMA
Standard Battery Socket Patterns

Top Views Are Shown

101 "A"  1 1/2 V	102 "A"  3 V	103 "A"  4 1/2 V
104 "A"  6 V	105 "A" PILOT  7 1/2 V	107 "B" (-)  +22 1/2  +45
110 "B"  +22 1/2 (OR DEAD)  +45	111 "B"  +22 1/2 (OR DEAD)  +45	112 "C"  +4 1/2  -3
113 "C"  -22 1/2  -3  -4 1/2  -16 1/2 	115 "A+B"  +90  -B  +1 1/2 A  -A 	116 "A+B"  -B  +10 1/2 A  -A  +B  +9 A  +6 A  +7 1/2 A 
Fig 1 "B+C"  +135  -9C  -7 1/2 C  -3C  +67 1/2  -B+C 	Fig 2 "A+B"  +11 1/2 A  -B  -A  +90 	Fig 3 "A+B"  -B  +75  -A  +8 A  RECESSED
Fig 4 "A+B"  +9 A  +90  -A  -B  RECESSED	Fig 5 "A+B"  -B  +90  +6 A  -A 	Fig 6 "A+B"  -A  +6 A  -B  +90 B 
Fig 7 "A+B+C"  -7 1/2 C  -A  +C  +11 1/2 A  -B  +67 1/2 	Fig 8 "D"  +19 1/2  -B  +22 1/2  +10  +6 	Fig 9 "A+B"  +900  -B  +11 1/2 A  -A 

Note: Any particular battery type may not provide all
voltages shown on patterns applicable to the type

RCA BATTERY REPLACEMENT GUIDE

For 1945 to 1953 Portable Radios

Make and Model	RCA Battery		
	A	AB	B

Admiral

4D11	2-VS036	1-VS016
4D12	2-VS036	1-VS016
4D13	2-VS036	1-VS016
4R1	1-VS065	1-VS016
4R11	1-VS065	1-VS016
4R12	1-VS065	1-VS016
4T1	1-VS065	1-VS016
4T11	1-VS065	1-VS016
4V11	1-VS065	1-VS016
4V12	1-VS065	1-VS016
4V16	1-VS065	1-VS016
4V18	1-VS065	1-VS016
4W1	1-VS065	1-VS016
4W18	1-VS065	1-VS016
4W19	1-VS065	1-VS016
4Y12	1-VS065	1-VS016
4Y18	1-VS065	1-VS016
4Y19	1-VS065	1-VS016
5F11	1-VS065	1-VS016
5F12	1-VS065	1-VS016
6C11	1-Pack VS019	
6F11	1-Pack VS019	
6F12	1-Pack VS019	
6P32	1-Pack VS019	
6Y1	1-Pack VS019	
6Y18	1-Pack VS019	
6Y19	1-Pack VS019	
7P32	1-Pack VS019	
7P33	1-Pack VS019	
7P34	1-Pack VS019	

Air-Castle (Spiegel)

76-74A	1-VS067	1-VS016
102B	1-VS060	1-VS016
213	1-VS067	1-VS016
41-521	2-VS067	2-VS013
606-400WB	1-Pack VS022	
DM700	4-VS036	1-VS016
EV760	4-VS036	1-VS016
5020	2-VS067	2-VS013
5022	2-VS036	1-VS016
5024	1-Pack VS019	
5025	2-VS067	1-VS016
5027	2-VS067	2-VS013
5028	2-VS036	1-VS016
5029	2-VS036	1-VS016
132564	1-Pack VS022	
147114	5-VS036	1-VS016
4C1	2-VS036	1-VS016

Make and Model	RCA Battery		
	A	AB	B

Airchief (Firestone)

4C3	2-VS067	2-VS013
4C5	2-VS036	1-VS016
4C6	2-VS067	2-VS013
4C13	5-VS036	1-VS016
4C16	1-VS067	1-VS090
4C17	1-VS067	1-VS090
4C18	1-Pack VS019	
4C19	1-VS067	1-VS090
4C20	1-VS067	1-VS090
4C21	2-VS067	2-VS013

Air King

A4B5	3-VS036	1-VS016
A410	2-VS036	1-VS016
A412	1-VS011	1-VS013
A425	1-VS036	1-VS016
A426	1-VS036	1-VS055
A427	1-VS036	1-VS055
A427A	1-VS036	1-VS055
A520	3-VS036	1-VS016
520A	1-VS129	1-VS016
3905	1-VS004	2-VS015

Airline (Mont-Ward)

B4GCB-		
1062A	1-VS036	1-VS016
14BD9-		
815	4-VS036	1-VS016
15BD11-		
917	1-Pack VS019	
15GHM-1070A	1-Pack VS057W	
60WG-1052A	1-Pack VS019	
60WG-1054A	1-Pack VS019	
62TL-1062	1-VS036	1-VS016
64WG-1054A	1-Pack VS019	
74KR-		
1210A	1-Pack VS019	
74WG-1054A	1-Pack VS019	
74WG-1054B	1-Pack VS019	
74WG-1056A	1-Pack VS019	
84GCB-		
1062A	1-VS036	1-VS016
84WG-		
1060A	4-VS036	1-VS016
94GCB-		
1064A	1-VS036	1-VS016
94WG-1059A	1-Pack VS019	
05GHM-1061A	1-Pack VS019	
1064A	1-VS036	1-VS016

RCA BATTERY REPLACEMENT GUIDE

For 1945 to 1953 Portable Radios

(Continued)

Make and Model	RCA Battery		
	A	AB	B

Airline (Mont-Ward) (cont'd)

1067	2-VS036	1-VS016	
1068	1-VS036	1-VS090	
1070	1-Pack	VS019	
1072	1-VS036	1-VS090	

Alamo

PR1	2-VS036	1-VS016	
PR2	3-VS036	1-VS016	

Andrea

SG65	2-VS067	2-VS013	
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Arvin

140P	1-Pack	VS019	
240P	3-VS036	1-VS016	
241P	4-VS036	1-VS016	
244P	4-VS036	1-VS016	
250P	1-Pack	VS019	
350P	6-VS035	1-VS090	
351P	6-VS035	1-VS090	
446P	6-VS035	1-VS090	
447P	2-VS036	1-VS016	
448P	6-VS035	1-VS016	
449P	6-VS035	1-VS016	
550P	6-VS035	2-VS055	
552P	6-VS035	2-VS055	
554P	6-VS035	2-VS055	
746P	1-VS286	1-VS216	
747P	1-VS286	1-VS216	
2410P	4-VS036	1-VS016	

Automatic

Tom Thumb (Buddy)	2-VS036	1-VS016	
Tom Thumb (Camera)	2-VS036	1-VS016	
(Bike) B44	2-VS036	1-VS016	
C-51	2-VS067	2-VS013	
C-54	2-VS067	2-VS013	
C-60	1-VS011	2-VS013	
C-65	1-VS011	2-VS013	

Bendix

PMR-3A	1-VS036	1-VS016	
PAR-80	1-Pack	VS019	

Make and Model	RCA Battery		
	A	AB	B

Bendix (cont'd)

55X4	4-VS035	1-VS016	
416A	1-Pack	VS022	
687A	1-Pack	VS019	

Capehart-Farnsworth

T10	1-VS036	1-VS016	
T15	1-Pack	VS057W	
BT58-1	1-VS004	2-VS013	
BT68	1-VS004	2-VS013	
GP350	5-VS036	1-VS016	
P860	5-VS036	1-VS016	

CBS-Columbia

525	1-VS129	1-VS016	
526	1-VS129	1-VS016	

Clarion

13201	1-Pack	VS022	
13203	1-Pack	VS022	

Concord

1-611	2-VS067	2-VS013	
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Crosley

9-101	1-Pack	VS022	
9-302	1-Pack	VS019	
9-304	2-VS036	1-VS016	
9-307M	1-Pack	VS057W	
10-304M	1-VS067	1-VS090	
10-307M	1-Pack	VS057W	
10-308	1-Pack	VS057W	
10-309	1-Pack	VS057W	
10-310	1-VS067	1-VS090	
10-311	1-VS067	1-VS090	
10-312	1-VS067	1-VS090	
11-301U	1-VS036	1-VS016	
11-302U	1-VS036	1-VS016	
11-303U	1-VS036	1-VS016	
11-304U	1-VS036	1-VS016	
11-305U	1-VS036	1-VS016	

Delco

R1408	1-Pack	VS019	
R1409	1-Pack	VS019	
R1410	1-Pack	VS019	
R1415	2-VS036	1-VS016	

RCA BATTERY REPLACEMENT GUIDE

For 1945 to 1953 Portable Radios
(Continued)

Make and Model	RCA Battery		
	A	AB	B

Detrola

591	1-Pack VS019		
610-A	1-Pack VS022		
3891	2-VS067		2-VS013
3893	2-VS067		2-VS013
3892	2-VS067		2-VS013

Dewald

A-507	2-VS067		2-VS013
B-400	2-VS036		1-VS016
B-402	1-VS067		1-VS016
B-504	1-VS067		1-VS016
B-515	1-VS067		1-VS016
C-504	1-VS067		1-VS016
C-515	1-VS067		1-VS016
D-508	2-VS067		2-VS013
D-517	1-VS067		1-VS016
DE-517A	1-VS067		1-VS016
E-521	1-VS067		1-VS016
F405	1-Pack VS022		
G-408	2-VS236		1-VS216

Dynavox

3P801	2-VS036		1-VS016
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Emerson

559A	1-VS067		1-VS016
560A	1-VS067		1-VS090
568A	1-Pack VS019		
570	3-VS036		1-VS016
574	3-VS036		1-VS016
575	1-Pack VS019		
580	3-VS036		1-VS016
613A	1-VS036		1-VS016
610	1-VS036		1-VS016
643A	2-VS067		2-VS013
645	1-VS069		1-VS016
646A	1-VS072		1-VS090
656B	1-Pack VS019		
657B	1-Pack VS019		
704	2-VS236		1-VS216
705	2-VS236		1-VS216

Fada

P38	2-VS036		1-VS016
P80	2-VS036		1-VS016
P82	2-VS067		2-VS013
P80	2-VS036		1-VS016
P100	2-VS067		2-VS013

Make and Model	RCA Battery		
	A	AB	B

Fada (cont'd)

P111	3-VS036		1-VS016
P130	2-VS067		2-VS013

Garod

4A1	1-VS036		1-VS016
4A2	1-VS036		1-VS016
4B1	3-VS036		1-VS016
5D1	5-VS036		1-VS016
5D2	5-VS036		1-VS016
5D3	5-VS036		1-VS016
5D3A	5-VS036		1-VS016
5D4	5-VS036		1-VS016
5D5	5-VS036		1-VS016
6E1	2-VS067		2-VS013

General Electric

140	2-VS016		1-VS016
141	1-Pack VS057W		
143	1-Pack VS057W		
145	2-VS036		1-VS016
150	1-Pack VS019		
165	1-Pack VS019		
254	2-VS067		2-VS013
601	1-Pack VS057W		
602	1-Pack VS057W		
603	1-Pack VS057W		
604	1-Pack VS057W		
605	1-VS065		1-VS016
606	1-VS065		1-VS016
607	1-VS065		1-VS016
608	1-VS065		1-VS016
610	1-Pack VS057W		
611	1-Pack VS057W		
614	1-Pack VS019		
615	1-Pack VS019		

Giffilan

5L-66	1-Pack VS019		
66B	1-Pack VS019		
68BD	1-Pack VS019		

Globe

58P1	1-Pack VS019		
454	2-VS036		1-VS016
456	2-VS036		1-VS016

Grantline

508-7	5-VS036		1-VS016
510A	1-VS009		2-VS016

RCA BATTERY REPLACEMENT GUIDE

For 1945 to 1953 Portable Radios

(Continued)

Make and Model	RCA Battery		
	A	AB	B

Hallicrafters

S-72	1-Pack	VS019	
S-72-1950	1-Pack	VS019	
5R24	1-VS065	1-VS090	
5R40	1-VS065	1-VS090	
5R1000	1-Pack	VS058	
TW25	1-VS065	1-VS090	
TW1000	1-Pack	VS047	

Jewel

304	1-VS036	1-VS016	
349	1-VS065	1-VS090	
801	1-VS036	1-VS016	
814	1-VS036	1-VS016	
901	1-VS036	1-VS016	
947	1-VS065	1-VS090	
949	1-VS065	1-VS090	
970	1-VS065	1-VS090	
5007	1-VS065	1-VS016	
5010	1-VS065	1-VS016	
5050	1-VS065	1-VS090	
5310	2-VS236	1-VS216	

Knight

4D450	3-VS036	1-VS016	
4C290	2-VS067	2-VS013	
5D455	5-VS036	1-VS016	
5F565	2-VS036	1-VS016	
6A127	2-VS067	2-VS013	
145-D	5-VS036	1-VS016	
156-D	3-VS036	1-VS016	
449	1-Pack	VS019	

Learadio

RM402C	1-Pack	VS019	
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Lewyt

711	2-VS067	2-VS013	
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Meck

CM500	5-VS036	2-VS055	
DM500	4-VS036	1-VS016	
EV760	4-VS036	1-VS016	

Motorola (Galvin)

5A9 Series	2-VS036	1-VS016	
5J1	3-VS036	1-VS016	
5L1	2-VS036	1-VS016	
5M1	2-VS036	1-VS016	

Make and Model	RCA Battery		
	A	AB	B

Motorola (Galvin) (cont'd)

6L1	1-Pack	VS019	
48L11	2-VS036	1-VS016	
49L11Q	2-VS036	1-VS016	
49L13Q	2-VS036	1-VS016	
51M1U	2-VS036	1-VS016	
51M2U	2-VS036	1-VS016	
52L1	2-VS236	1-VS216	
52L1A	2-VS236	1-VS216	
52L2	2-VS236	1-VS216	
52L2A	2-VS236	1-VS216	
52L3	2-VS236	1-VS216	
52L3A	2-VS236	1-VS216	
52M1	2-VS036	1-VS016	
52M2	2-VS036	1-VS016	
52M3	2-VS036	1-VS016	
52M1U	2-VS036	1-VS016	
52M2U	2-VS036	1-VS016	
52M3U	2-VS036	1-VS016	
53L1	2-VS236	1-VS216	
58L11	2-VS036	1-VS016	
59L11Q	2-VS036	1-VS016	
59L12Q	2-VS036	1-VS016	
59L14Q	2-VS036	1-VS016	
61L1	1-Pack	VS057W	
61L2	1-Pack	VS057W	
62L1	1-Pack	VS057W	
62L2	1-Pack	VS057W	
62L3	1-Pack	VS057W	
63L1	1-Pack	VS057W	
63L5	1-Pack	VS057W	
68L11	1-Pack	VS019	
69L11	1-Pack	VS019	

Magictone

510	1-VS036	1-VS016	
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Mitchell

1256	1-VS067	1-VS090	
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Olympic

6-606	2-VS067	2-VS013	
6-606A	2-VS067	2-VS013	
6-606U	2-VS067	2-VS013	
7-526	2-VS067	2-VS013	
8-451	1-VS036	1-VS016	
8-452	2-VS036	1-VS016	
9-452	2-VS067	2-VS013	
489	1-VS036	1-VS016	

RCA BATTERY REPLACEMENT GUIDE

For 1945 to 1953 Portable Radios

(Continued)

Make and Model	RCA Battery			Make and Model	RCA Battery		
	A	AB	B		A	AB	B
Philco				Regal (cont'd)			
43-150	1-Pack	VS023		P-175	2-VS067		2-VS013
43-300	1-Pack	VS019		747	5-VS036		1-VS016
43-360	1-Pack	VS019		777	5-VS036		1-VS016
49-101	1-Pack	VS019		1500	1-Pack	VS022	
49-601	1-Pack	VS057W		1877	1-VS067		1-VS016
49-602	1-Pack	VS057W		1878	1-VS067		1-VS016
49-603	1-Pack	VS019		Remler			
49-607	1-Pack	VS019		93	1-VS001		2-VS015
50-620	1-Pack	VS057W		94	1-VS001		2-VS015
50-621	1-Pack	VS057W		95	1-VS001		2-VS015
51-629	1-Pack	VS064		5400	5-VS036		1-VS016
51-631	1-Pack	VS064		5410	5-VS036		1-VS016
51-632	1-Pack	VS064		PP5461	5-VS036		2-VS055
52-643	1-Pack	VS057W		Radioette			
53-656	1-Pack	VS057W		PR-2	3-VS036		1-VS016
53-658	1-Pack	VS057W		Royal			
RCA				AN-150	2-VS067		2-VS013
BX6	1-Pack	VS019		AN-160	2-VS067		2-VS013
BX55	1-Pack	VS050		Sentinel			
BX57	1-Pack	VS050		1U885P	2-VS067		2-VS013
B411	1-VS036		1-VS016	1U316PM	1-VS067		1-VS016
PX600	1-Pack	VS057W		1U316PT	1-VS067		1-VS016
2B400	2-VS236		1-VS216	1U345P	1-VS067		1-VS090
2B401	2-VS236		1-VS216	285-P	2-VS067		2-VS013
2B402	2-VS236		1-VS216	286-P	2-VS036		1-VS016
2B403	2-VS286		1-VS216	286-PR	2-VS036		1-VS016
2B405	2-VS236		1-VS216	312-P	5-VS036		2-VS055
2BX63	1-Pack	VS057W		316-PT	1-VS067		1-VS016
3BX51	1-Pack	VS050		316-PM	1-VS067		1-VS016
3BX671	1-Pack	VS047		319-P	1-VS067		1-VS090
8BX5	1-Pack	VS050		326-P	2-VS036		1-VS016
8BX6	1-Pack	VS019		335-PG	1-VS067		1-VS090
8B41	1-VS036		1-VS016	335-PI	1-VS067		1-VS090
8B42	1-VS036		1-VS016	335-PM	1-VS067		1-VS090
8B43	1-VS036		1-VS016	335-PW	1-VS067		1-VS090
9BX5	1-Pack	VS050		345-PG	1-VS067		1-VS090
9BX6	1-Pack	VS019		345-PM	1-VS067		1-VS090
9BX55	1-Pack	VS050		345-PW	1-VS067		1-VS090
9BX56	1-VS065		1-VS016	345-P1	1-VS067		1-VS090
54B	1-VS036		1-VS016	Setchell-Carlson			
Raytheon				447	1-Pack	VS019	
PR51	1-VS065		1-VS090	449	1-Pack	VS019	
PR52	1-VS065		1-VS090	501	3-VS036		1-VS013
Regal							
BP47	1-VS036		1-VS016				
BP48	1-VS036		1-VS016				

RCA BATTERY REPLACEMENT GUIDE

For 1945 to 1953 Portable Radios

(Continued)

Make and Model	RCA Battery		
	A	AB	B

Signal

141	1-VS036	1-VS055	
341A	1-VS067	1-VS016	
341T	1-VS036	1-VS016	

Silvertone (Sears)

210	2-VS036	1-VS016	
215	2-VS036	1-VS016	
220	1-Pack	VS019	
225	1-Pack	VS019	
2200	1-Pack	VS019	
2202	1-Pack	VS019	
2203	1-Pack	VS019	
2210	1-VS036	1-VS016	
2215	2-VS236	1-VS216	
2217	2-VS236	1-VS216	
2218	2-VS236	1-VS216	
2225	1-Pack	VS019	
2210	2-VS236	1-VS216	
6200A	1-Pack	VS022	
7165	4-VS036	1-VS016	
7166	4-VS036	1-VS016	
8168	1-VS009	2-VS013	
8200	1-Pack	VS022	
8210	1-Pack	VS022	
8260	4-VS036	1-VS016	
8270	1-Pack	VS019	
8270A	1-Pack	VS019	
9270	1-Pack	VS019	
9280	1-Pack	VS019	

Sonora

101	1-VS067	1-VS016	
102	1-VS067	1-VS016	
103	1-Pack	VS019	
WDU-233	1-Pack	VS019	
WDU-219	1-Pack	VS019	

Sparton

4-17	1-Pack	VS019	
6-06	2-VS067	2-VS013	
6AM06	2-VS067	2-VS013	
150	1-VS065	2-VS055	
151	1-VS065	2-VS055	
152	1-VS065	2-VS055	
155	1-VS065	2-VS055	

Steelman

601	1-VS069	1-VS016	
602	1-VS065	1-VS090	
6000	1-Pack	VS019	

Make and Model	RCA Battery		
	A	AB	B

Stewart-Warner

A61P1	1-Pack	VS019	
A61P2	1-Pack	VS019	
A61P3	1-Pack	VS019	
9007A	1-Pack	VS019	
9007F	1-Pack	VS019	
9007G	1-Pack	VS019	
9052	1-Pack	VS019	
9053	5-VS036	1-VS016	
9153A	5-VS036	1-VS016	

Sylvania

403L	1-VS065	1-VS09	
433B	1-Pack	VS057W	
433W	1-Pack	VS057W	
433RE	1-Pack	VS057W	
433YE	1-Pack	VS057W	
433GR	1-Pack	VS057W	
433LU	1-Pack	VS057W	

Teleking

RKP-53	1-Pack	VS057W	
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Teletone

811832	1-VS067	1-VS01	
145	5-VS036	1-VS01	
152	5-VS036	1-VS01	
156	3-VS036	1-VS01	
172	3-VS036	1-VS01	
176	3-VS036	1-VS01	
185	1-VS067	1-VS01	
190	1-VS067	1-VS01	
200	1-VS067	1-VS01	
200B	1-VS067	1-VS01	
214	1-VS067	1-VS01	
214B	1-VS067	1-VS01	
228	1-VS067	1-VS01	

Temple or Templetone

F611	2-VS067	2-VS01	
G410	1-Pack	VS019	
G415	1-VS129	1-VS01	
G521	2-VS067	2-VS01	
G612	2-VS067	2-VS01	
H411	2-VS036	1-VS01	
H415	1-VS129	1-VS01	

RCA BATTERY REPLACEMENT GUIDE

For 1945 to 1953 Portable Radios

(Continued)

Make and Model	RCA Battery		
	A	AB	B
Trav-ler (Karenola)			
5019	2-V8036		1-V8016
5020	2-V8067		2-V8013
5021	1-Pack V8022		
5022	2-V8036		1-V8016
5025	2-V8067		2-V8013
5027	2-V8036		1-V8016
5028	2-V8036		1-V8016
5029	2-V8036		1-V8016
5049	2-V8036		1-V8016
5300	2-V8236		1-V8216
5301	2-V8236		1-V8216

Truetone (Western Auto)			
AT92-50	1-V8036		1-V8016
D1183	2-V8036		2-V8013
D1184	2-V8036		2-V8013
D2903	1-Pack V8022		
D3120A	1-V8065		1-V8090
D3210	1-V8065		1-V8090
D-3265	1-Pack V8019		
D-3351	2-V8236		1-V8216
D-3352	2-V8236		1-V8216
D-3353	2-V8236		1-V8216
D3615	1-Pack V8019		
D3619	1-Pack V8019		
D3630	1-Pack V8019		
D3630N	1-Pack V8019		
D3722	1-Pack V8019		
D3809	3-V8036		1-V8016
D3810	5-V8036		1-V8016
D3811	4-V8036		1-V8016
D3840	1-Pack V8019		
D3910	5-V8036		1-V8016
D3912	5-V8036		1-V8016

Westinghouse

I148	1-Pack V8019		
I165	1-Pack V8019		
I185	5-V8033		1-V8016
I195	5-V8033		1-V8016
I244	1-Pack V8057W		
I256	1-V8067		1-V8090
I302P5	1-Pack V8057W		
I303P4	1-V8067		1-V8090
I304P4	1-V8067		1-V8090
I304P5	1-Pack V8057W		
I312P4	1-V8067		1-V8090
I313P4	1-V8067		1-V8090

Make and Model	RCA Battery		
	A	AB	B
Westinghouse (cont'd)			
H313P4U	1-V8067		1-V8090
H314P4	1-V8067		1-V8090
H314P4U	1-V8067		1-V8090
H815P4	1-V8067		1-V8090
H315P4U	1-V8067		1-V8090
H830P4	1-V8067		1-V8090
H831P4	1-V8067		1-V8090
H333P4	1-V8067		1-V8090
H342P5U	1-Pack V8057W		
H343P5U	1-Pack V8057W		
H348P5U	1-Pack V8057W		
H349P5U	1-Pack V8057W		
H368	1-Pack V8057W		
H369	1-Pack V8057W		
H372P4	1-V8036		1-V8016
H373P4	1-V8036		1-V8016
H376P4	1-V8036		1-V8016
H377	1-V8036		1-V8016
H400P4	1-V8067		1-V8090
H401P4	1-V8067		1-V8090
H402P4	1-V8067		1-V8090
H403P4	1-V8067		1-V8090
H405P4	1-Pack V8057W		
H406P4	1-Pack V8057W		

Zenith

G500	1-Pack V8047		
G503	1-Pack V8058		
H401G	1-Pack V8058		
H412T	1-Pack V8045		
H500	1-Pack V8047		
H503	1-Pack V8058		
J402G	1-Pack V8058		
J402Y	1-Pack V8058		
J504	1-Pack V8058		
J504Y	1-Pack V8058		
K401G	3-V8036		1-V8216
K401R	3-V8036		1-V8216
K401W	3-V8036		1-V8216
K401Y	3-V8036		1-V8216
4G800	1-V8036		1-V8016
4G903	1-Pack V8058		
4G908	1-Pack V8058		
4G908Y	1-Pack V8058		
5G501	1-Pack V8047		
5G601	1-Pack V8047		
6G001	1-Pack V8047		
6G801	1-Pack V8058		
G613	2-V8067		2-V8013

RCA MINIATURE LAMPS

FLASHLIGHT TYPES

Type No.	Filament		Bulb Outline*	Bead Color	Use with RCA Dry Cell	
	Volts	Amps.				
PR-2	2.4	0.50	F	Blue	VS036	(Two)
PR-3	3.6	0.50	F	Green	VS036	(Three)
PR-6	2.5	0.30	F	Brown	VS036	(Two)
13	3.8	0.30	C	Green	VS036	(Three)
14	2.5	0.30	C	Blue	VS036	(Two)
112	1.1	0.22	B	Pink	VS034	(One)
122	2.2	0.25	B	White	VS034	(Two)
133	2.3	0.27	C	Purple	VS035	(Two)

RADIO PANEL AND MISCELLANEOUS TYPES

Type No.	Filament		Bulb Outline*	Bead Color	Service
	Volts	Amps.			
10	6 to 8	0.15	E	Brown	Radio Panel
11	2.5	0.50	E	White	Radio Panel
12	3.2	0.35	E	Green	Radio Panel
13	2.5	0.50	D	White	Radio Panel
14	6 to 8	0.25	D	Blue	Radio Panel
15	3.2	0.35	D	Green	Radio Panel
16	6 to 8	0.25	E	Blue	Radio Panel
17	6 to 8	0.15	D	Brown	Radio Panel
18	2.0	0.06	E	Pink	Radio Panel
19	2.0	0.06	D	Pink	Radio Panel
20	6 to 8	1-candle power	C	White	Radio Panel
21	6 to 8	1-candle power	G	White	Radio Panel
25	6 to 8	2-candle power	A	White	Test Instrument
291	2.9	0.17	E	White	Radio Panel
292	2.9	0.17	E	White	Pin-Game
490	3.2	0.16	D	White	Machine
					Radio Panel

*DIMENSIONAL OUTLINES



G-4 1/2 BULB
MINIATURE
BAYONET BASE

A



TL-3 BULB
MINIATURE
SCREW BASE

B



G-3 1/2 BULB
MINIATURE
SCREW BASE

C



T-3 1/2 BULB
MINIATURE
BAYONET BASE

D



T-3 1/2 BULB
MINIATURE
SCREW BASE

E



G-3 1/2 BULB
MINIATURE
FLANGE BASE

F



G-3 1/2 BULB
MINIATURE
BAYONET BASE

G

RCA TV COMPONENTS

DEFLECTING YOKES (For use with Kinescopes)

Horizontal Coils		Vertical Coils		For Kinescopes		
Inductance Mh	DC Resist- ance Ohms	Inductance Mh	DC Resist- ance Ohms	Typical Type	Horizontal Deflection Angle	Type
8.3	13.5	50	64.6	10BP4-A		
8.3	14	50	68	12KP4-A	50-57°	201 D12
				5TP4	52°	201 D2
8.4	11.5	55	70	10BP4-A		
				16AP4-A	50-57°	207 D1
				16GP4-B		
10.3	13.2	41.5	48.7	16RP4	66-70°	206 D1
10.8	15	56	48	27MP4	to 90°	219 D1
				10BP4-A		
12.5	17.4	50	68.8	12KP4-A	50-57°	205 D1
				16GP4-B		
13.3	18.2	41	48	16KP4	66-70°	209 D1
				16GP4-B		
13.3	23.5	41	48	21AP4	66-70°	211 D2
				16GP4-B		
18.5	26.5	42	48	21AP4	66-70°	222 D1
				16GP4-B		
28.5	56	3.3	3.3	21AP4	66-70°	214 D1

DEFLECTING YOKES (For use with Camera Tubes)

Horizontal Coils		Vertical Coils		For Camera Tubes		
Inductance Mh	DC Resist- ance Ohms	Inductance Mh	DC Resist- ance Ohms	Typical Type		Type
0.9	3.5	50	161	6198		216 D1
2.25	9	25	100	1850-A		201 D76
5.5	19	28.3	34	5820, 5826		210 D1
5.5	19	28	68	2F21, 1699		201 D77
8	12	50	62	5WP15, 5ZP16		212 D1

WIDTH/AGC CONTROL

Width (Primary Winding)			AGC (Secondary Winding)*			Type
Inductance Min. Mh	Range Max. Mh	DC Resist- ance Ohms	Inductance Min. Mh	Range Max. Mh	DC Resist- ance Ohms	
1.75	10.5	9	9.8	26.0	47	214R1

* Tapped off-center.

RCA TV COMPONENTS

HORIZONTAL-OUTPUT AND HIGH-VOLTAGE TRANSFORMERS

For Cathode-Ray or Camera Tubes

DC Output Voltage No Load Kv	Typical Tube Type	Horizontal Deflection Angle	Type
8.75	10BP4-A	50°-57°	211T3*
9	10BP4-A, 12LP4-A	50°-57°	211T1*
10 to 15	10 to 21-inch kinescopes	50°-70°	231T1*
10 to 16	10 to 21-inch kinescopes	50°-70°	232T1†
14	16GP4-B, 16RP4	66°-70°	223T1†
14	14CP4, 17BP4-A	66°-70°	224T1†
16	17CP4, 20CP4	66°-70°	225T1†
18	19AP4, 21AP4	66°-70°	230T1†
18	27MP4	to 90°	235T1†
33	5TP4, 5ZP16	40°-50°	211T2*

*Isolated-Secondary type

†Auto-transformer type

HORIZONTAL-OUTPUT TRANSFORMERS

For Cathode-Ray or Camera Tubes
Typical Type

Type

5TP4	For use in TV receivers, studio cameras, and video-signal generators. Multi-tapped secondary winding to facilitate the matching of circuit impedances.	
5WP11, 5WP15		
5ZP16		204T1
10BP4-A, 16AP4-A		
5820, 5826		
10BP4-A, 16AP4-A		204T3
6198		233T1

HORIZONTAL LINEARITY CONTROLS

Min. Mh	Inductance Range	Max. Mh	DC Resistance Ohms	Type
0.55		2.3	8.3	201R5
1.3		4.1	5.6	209R1
1.3		4.3	7.0	207R1
1.5		8.3	8.3	213R1
5.5		20	36	201R3

WIDTH CONTROLS

Min. Mh	Inductance Range	Max. Mh	DC Resistance Ohms	Type
0.054		0.245	0.53	201R1
0.085		0.240	0.34	201R2
0.17		0.61	1.0	201R4
0.47		1.7	2.6	206R1
1.65		9.2	8.8	211R1
2.9		18.0	12.0	212R1
3.9		32.0	17.6	215R1

RCA TV COMPONENTS

HORIZONTAL-BLOCKING-OSCILLATOR TRANSFORMERS

Turns Ratio Primary/Secondary	DC Resistance		Inductance Secondary Henries	Type
	Primary Ohms	Secondary Ohms		
1:2	3.5	8.5	0.016	203T1
1:2	3.5	8.5	0.016	203T3

VERTICAL-BLOCKING-OSCILLATOR TRANSFORMERS

Turns Ratio Primary/Secondary	DC Resistance		Inductance Primary Henries	Type
	Primary Ohms	Secondary Ohms		
1:1.2	165	1310	1.15	203T2
1:1.2	165	1310	1.15	203T9
1:1.2	208	1060	1.15	209T1

VERTICAL-DEFLECTION-OUTPUT TRANSFORMERS

Turns Ratio Primary/Secondary	DC Resistance		Impedance Primary Ohms	Type
	Primary Ohms	Secondary Ohms		
3:1	700	70	11000	234T1
10:1	521	6.9	18000	204T9
10:1	590	6.9	19000	204T2
11.4:1	1200	11	17000	222T1
18:1	1600	4.4	27000	226T1

FOCUSING AND ALIGNMENT COILS

DC Resistance	DC Current	For Cathode-Ray or Camera Tubes		Type
		Typical Tube Type	Anode Voltage Kv	
140	40	6198	—	218D1*
150	30	5820, 5826	—	204D75*
247	120	10BP4-A, 121P4-A	10	202D1
385	60	6198	—	217D1
	90	14EP4	12	
470	100	16CP4-B	12	202D2
	104	17CP4	14	
2000	75	5820, 5826	—	202D75

*Alignment coils



RCA SPEAKERS

Quality Engineered to Insure
Dependable Performance



- Full-size Alnico V magnets for top performance
- Rugged mechanical construction with welded housing assembly
- Mountings designed to RTMA standards
- Moisture-resistant cone and voice-coil assemblies assure high efficiency and dependability
- Speaker mounting bracket enclosed with all 4", 4" x 6", 5" PM types
- Dustproof, rust-resistant
- Universal transformer mounting bracket on all 4", 4" x 6", 5" PM
- Rim gaskets supplied 10" and 12" speakers

A COMPLETE LINE FOR YOUR REPLACEMENT NEEDS

PERMANENT-MAGNET TYPES

Size	Type	Magnet Weight oz.	Voice-Coil Impedance* ohms	Power Rating watts
2" x 3"	21481	1.0	11.8	0.125
3"	21681	1.0	3.2	2
4" (shallow-dot-type)	30482	1.0	3.2	3
4"	40482	1.47	3.2	3
4" x 6"	24682	0.68	3.2	3
4" x 6"	44682	1.47	3.2	3
5"	20582	0.68	3.2	3
5"	40582	1.47	3.2	3
5 3/4"	21781	1.0	3.2	4
5" x 7"	25781	1.47	3.2	6
6" x 9"	21881	2.9	3.2	8
6" x 9"	36981	2.4	3.2	8
6 1/2"	30681	1.47	3.2	4
8"	20882	2.15	3.2	8
8"	20884	2.15	6-8	8
10"	21581	6.8	6-8	10
12"	20281	0.97	6-8	12
12"	41286	6.8	3.2	12
12"	41287	6.8	6-8	12

*Measured at 400 cps, except Type 21481 which is measured at 1000 cps.

FIELD-COIL TYPES

Size	Type	FIELD-COIL		Voice-Coil Impedance* ohms	Power Rating watts
		DC Resistance ohms	Current ma		
4" x 6"	74681	450	65	3.2	3
5"	70581	450	65	3.2	3
6" x 9"	86981	6	1000	3.2	8
12"	71282	1000	70	3.2	12

*Measured at 400 cps.



TV REPLACEMENT COMPONENTS

When you call for a Genuine RCA TV Replacement Part, you can be sure—sure you're using a component of the very highest quality. Ask your RCA Distributor for these and other RCA Replacement Components on your next replacement job—regardless of make and model . . . For RCA TV Replacement Components may be used with assurance in over 70 different brands of TV sets representing over 1500 current models.

- TV Power Transformers

- Horizontal-Output and High-Voltage Transformers

- Deflecting Yokes

- Width and Linearity Coils

- Horizontal-Oscillator and Sync-Coils

- Horizontal-Blocking Oscillator Transformers

- Vertical-Blocking Oscillator-Transformers

- Vertical-Output Transformers

- Video-Peaking Coils

- Ion-Trap Magnets

- IF Transformers

- Focusing Coils



First and Foremost . . . IN THE FIELD OF
DEFLECTION COMPONENTS!



VHF and UHF LIGHTNING ARRESTERS

LISTED by UNDERWRITERS LABORATORIES

TYPE 214X1 VHF

- Easily mounted on any indoor water pipe
- Accommodate standard 300-ohm twin-lead
- No stripping of insulation—cutting or soldering of line required



TYPE 215X1 VHF

- Wood screw firmly secured in body of arrester
- No special tools needed for direct mounting on wood
- May be installed on brick, stone, or cement surfaces
- Accommodates standard 300-ohm twin-lead



TYPE 234A1 UHF

- No special tools needed for direct mounting on wood
- Accommodates all popular-type UHF transmission lines
- Ultra-low loss



TYPE 235A1 UHF

- Easily mounted on any indoor water pipe
- Accommodates all popular type UHF transmission lines
- No stripping of insulation—cutting or soldering of line required
- Ultra-low loss



RCA TV SET COUPLER TYPE 240A1

- Couples two TV sets to same antenna
- Accommodates 300-ohm ribbon-type line
- Reduces oscillator radiation between sets
- Simple to install—self-contained wood screw



JUNIOR VOLTOHMYST, RCA WV-77A



An all-new RCA Junior VoltOhmyst embodying all the features of its famous predecessor plus many new extras. Using the reliable VoltOhmyst bridge circuit, a sensitive 200-microampere meter movement, and 1% carbon-film multiplier resistors, the all-electron WV-77A incorporates features found only in more expensive instruments.

■ **DC Voltmeter**, it measures from 0.0 volt to 1200 volts in five ranges . . . even in presence of ac. Less than 2-uuf input capacitance with 1 megohm input makes the WV-77A invaluable for measurements in AVC, oscillator, and other high impedance circuits. As an **AC Voltmeter**, the WV-77A measures from 100 millivolts to 1200 volts (rms) in five ranges. High ac-input impedance of vacuum-tube diode signal rectifier permits use in many varied applications. Frequency range flat within 1 db from 3 cps to 3 Mc, depending on source impedance and voltage range setting; 50 kc to 250 Mc when used with WG-264 probe. As a **wide-range Ohmmeter**, the WV-77A measures resistance from 0.2 ohm to 1-billion ohms in five ranges. Danger of burnout of low-current devices such as battery-tube filaments is minimized by use of 1.5-volt battery. Meter is electronically protected against burnout on all functions.

PLUS THESE NEW EXTRAS

- Zero-centering facilities for discriminator alignment.
- DC polarity reversing switch eliminates need for test-lead switching.
- Ohms probe always positive for quick check of electrolytic capacitors.
- Degenerative bridge circuit provides freedom from line voltage changes.
- Completely shielded metal case for stability in magnetic fields and extra protection.

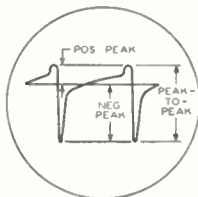
SENIOR VOLTOHMYST*, RCA WV-97A



Features a full-wave, high impedance rectifier with a frequency response flat to 3 Mc, for measuring peak-to-peak voltages of complex television wave-shapes found in video, sync, and deflection circuits, and peak-to-peak values of sine waves up to 4200 volts.

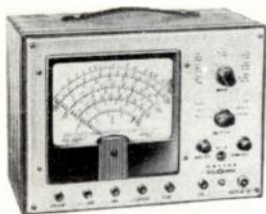
The WV-97A will also measure rms voltage values of sine waves up to 1500 volts, dc voltages up to 1500 volts, and resistances up to 1000 megohms. The basic circuit of the WV-97A is a push-pull dc-amplifier bridge which features excellent linearity, a high degree of stability, and high input impedance. Additional features include an attenuator network which is frequency compensated for all ac voltages up to 1400 peak-to-peak volts; an input resistance of 11 megohms, including a 1-megohm isolating resistor in the DC Probe; an electronically protected, 200-microampere meter movement with a 3% accuracy; seven continuous ranges for both resistance and voltage; and a circuit design which permits ac-voltage measurements in the presence of dc and vice versa.

The peak - to - peak - reading feature of the WV-97A assures efficient trouble - shooting and signal-tracing of critical sync, video, and deflection circuits. The correct peak-to-peak voltages of complex TV waveforms are essential to proper triggering, blanking, timing, sweeping, and modulation.



*Registered Trademark, U.S. Patent Office

MASTER VOLTOHMYST, RCA WV-87A



The "Deluxe" model of all VoltOhmysts, the WV-87A has a large, 7½-inch meter for easy readings of resistance, dc voltage, rms and peak-to-peak values of ac voltage, and direct current. Attractive styling, high ac-

curacy, and wide versatility make the Master VoltOhmyst a valuable instrument for shop, lab, or portable use. Reads dc voltage with 11-megohm input resistance up to 1500 volts and ac voltage up to 1500 rms volts or — for TV servicing — 4200 volts peak-to-peak — all in 7 overlapping ranges. Resistance values from 0.2 ohm to 1000 megohms are read in 7 ranges from top scale 7 inches long. Nine ranges for reading direct current from 10 microamperes to 15 amperes. Meter electronically protected against burn-out on all resistance and ac and dc voltage ranges. Full-scale accuracy within $\pm 3\%$ on all dc voltage and current ranges; $\pm 5\%$ or better on ac ranges, including 0-1.5 and 0-5 volt ranges. Response flat from 30 cps to 3 Mc on all ranges up to and including 500-volt range. Supplied with 5 cables and 3 probes which are electrically and mechanically matched to instrument. Reads up to 50,000 volts with accessory WG-289 High-Voltage Probe.* With accessory WG-264 Crystal-Diode Probe,* the WV-87A can be used in rf circuits up to 250 Mc.

The sensitive, 200-microampere meter movement used in the WV-87A has a basic full-scale accuracy of $\pm 2\%$ or better with a tracking error of only $\pm 1\%$ or less. The large, clearly lettered meter face permits installation of the Master VoltOhmyst on an out-of-the-way rack or shelf without impairing readability.

*Available on separate order.

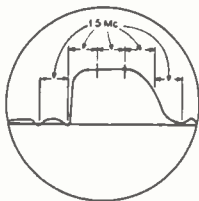
TV SWEEP GENERATOR, RCA WR-59C



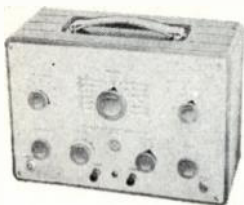
Covers all broadcast television channels, video and if bands, and FM intermediate-frequency bands. Features preset position for each television channel and continuous tuning from 300 kc to 50 Mc or the if/video band. Provides a flexible output

with a sweep width continuously variable up to 12 Mc, an essentially flat frequency response, even at maximum sweep width; and a maximum voltage of 0.1 volt or better, which can be attenuated down to 5 microvolts. Is frequency modulated by a sturdy precision-type vibrating capacitor which provides good linearity and a wide sweep range. The WR-59C operates on oscillator-fundamental frequencies on all television channels, providing an output uncommonly free from spurious responses and undesirable frequency components. Additional features include a phase-controlled sinusoidal sweep for oscilloscopes, a zero-reference line for checking response-curve characteristics, an rf output cable terminated in 300 ohms balanced to ground, and an if/vf output cable.

The WR-59C provides sufficient sweep width to allow a generous overlap beyond the frequency limits of the circuits under test. Exceptional horizontal linearity makes it possible to scale frequencies accurately on the trace. Essentially flat frequency response insures a true representation of the test-circuit-response curve.



CRYSTAL-CALIBRATED MARKER GENERATOR, RCA WR-89A



The WR-89A will furnish an rf carrier of crystal accuracy for use in alignment of television receivers, communications equipment, and other electronics equipment operating in the frequency range of 19-260 Mc. The generator is continuously tunable and may be calibrated at 2.5-Mc intervals throughout its tuning range by means of a built-in harmonic crystal oscillator of high accuracy. A separate crystal oscillator also provides a fixed output frequency of 4.5 Mc for use in aligning sound-if amplifiers and FM detectors.

The WR-89A is a highly versatile instrument useful also as a bar-pattern generator for checking both vertical and horizontal deflection linearity of a television receiver. When an external rf signal is fed into the WR-89A, the generator may also be used as a heterodyne frequency meter for measuring the frequency of the external signal. When video and sync information from a television receiver is fed into the WR-89A, the generator may be used as a rebroadcast transmitter to produce a tv picture on any channel of another tv receiver.

A wide choice of modulation is also available. A front-panel control permits selection of 4.5-Mc modulation for imposition on the output frequency when dual markers are needed on a sweep response curve; simultaneous modulation at 4.5 Mc and 600 cps for alignment of FM discriminators, 600 cps modulation for producing horizontal bars on a tv kinescope; and 100-150 kc variable modulation for producing vertical bars and checking bandwidth of FM discriminators.

RF SIGNAL GENERATOR, RCA WR-49A



The WR-49A is designed for general radio and tv servicing and other applications which require a cw or modulated rf signal from 85 Kc to 30 Mc. The generator may be modulated internally by a 400-cps audio oscillator or externally through a front-

panel connector.

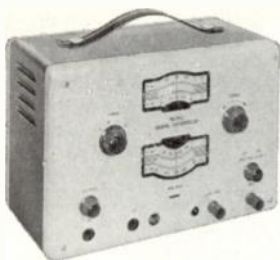
Six tuning ranges are employed to cover the frequencies from 85 Kc to 30 Mc. A separate range switch and fine tuning control are provided to permit exact setting of the output frequency. Construction of the dial and tuning assembly permits easy tuning and reading of the exact frequency setting. This construction, together with a copper-plated steel case, also provides optimum rf shielding and minimizes radiation.

An rf attenuator system having "high" and "low" output terminals and both coarse and fine adjustments is included to provide smooth, efficient attenuation of the rf output signal.

The WR-49A is supplied with a specially designed output cable, shielded throughout its length to minimize radiation and hum pick-up in the receiver or adjacent equipment. A ground clip is attached to the end of the cable.

The RCA WR-49A is a highly versatile and portable test instrument, designed to give long and reliable performance. Designed for use either in the radio and tv shop or in the field, the WR-49A may be used in such applications as alignment and signal tracing of am and fm radio receivers, alignment of low-frequency if amplifiers in tv receivers, and signal tracing and trouble shooting in nearly all sections of tv receivers.

AUDIO SIGNAL GENERATOR, RCA WA-44A



The RCA-44A Audio Generator is designed for general audio and radio work, and other applications which require a sinusoidal audio frequency voltage up to 15 volts rms. The WA-44A will furnish an output signal from 11 to 100,000 cycles

per second. It is adaptable to a wide variety of applications including the measurement of frequency-response characteristics of radio and audio amplifiers testing loudspeakers and enclosures, and checking modulation characteristics of transmitters. In addition, the WA-44A can be used in finding the impedance of LC combinations, and in determining the frequency or speed of vibrating and rotating bodies.

The extended range of frequencies covered by the WA-44A is made possible by a novel rc-type oscillator which provides good stability. The oscillator is controlled by a delayed agc circuit which samples the output of the 6AK6 and feeds back a bias voltage to the 6BH6 oscillator. The output varies less than 1 db throughout the tuning range of the instrument. Total harmonic distortion is only 2% or less below 15,000 cps. Careful design and construction assures a low hum level less than 0.1% of the rated output.

The WA-44A may be used in both low and high impedance circuits. A front-panel terminal provides a 6-volt ac signal at line frequency for use in intermodulation testing. The WA-44A is an extremely versatile instrument, designed to give long, trouble-free performance. Its use in the service shop will speed the testing and servicing of any equipment which utilizes an audio signal.

5-INCH OSCILLOSCOPE, RCA WO-88A



A two-stage, push-pull dc vertical amplifier and a 5-inch cathode-ray tube make the WO-88A a highly efficient oscilloscope for TV servicing, production-line use, audio tests, industrial and many other applications. Frequency response is flat from dc to 100 Kc, within -3 db at 500 Kc, and within -10 db at 1 Mc. The WO-88A has a vertical sensitivity of 25 rms

millivolts with excellent stability; matched probes and cables preserve gain and frequency-response characteristics. A front-panel ac voltage source permits calibration for peak-to-peak voltage measurements — making possible simultaneous voltage checks and wave-shape analysis. Other important features include built-in, voltage-calibrated, frequency-compensated attenuators, “+” and “—” sync, 30 Kc sweep range with phase-control for sweep alignment, and front-panel dc balance and astigmatism controls. Low-capacitance probe permits use in high-impedance circuits; with WG-291 accessory Demodulator Probe, the WO-88A may be used in rf circuits up to 250 Mc.

The WO-88A has excellent square-wave response — negligible tilt and overshoot — important in the reproduction of television sync pulses and in square wave testing. Efficient electrical design and sturdy construction permit use over extended operating periods with complete dependability.

TV ISOTAP, RCA WP-25A

The RCA TV Isotap combines in one compact steel case a 500-VA autotransformer and a 275-VA isolation transformer. Matches line voltage from 105 to 130 volts in 5-volt steps. Prevents damage to costly test equipment, speeds servicing of intermittents, and minimizes shock hazard on ac/dc equipment. Six-position primary switch for varying voltage available at “Low,” “Med,” and “High” outlets. Permits duplication of many abnormal line voltage conditions.



RCA RADIO BATTERY TESTER, TYPE WV-37A

The RCA WV-37A Radio Battery Tester is designed to test portable-radio batteries *under receiver load conditions without requiring that the batteries be installed in the receiver.* This feature assures a more accurate indication of the battery's condition for radio use than can be provided by conventional voltmeter measurements.

The WV-37A indicates directly, by means of two meter scales, the condition of the battery under test and the advisability of replacing it. The top scale, marked in per cent, indicates the existing percentage of the battery's original rated voltage. The lower scale, divided into three sections of different colors, indicates the battery's condition as "Good," "Usable," or "Replace."

The selector switch on the front panel has nine factory-wired test positions and eight additional blank positions. The factory-wired positions accommodate popular types of portable-radio batteries having rated voltages from 1.5 to 90 volts. The blank positions are provided to enable the user to set up load and voltage conditions of his own choosing to test nearly any other type of dry battery.

The meter movement is of rugged construction designed to withstand the rigors of shop and counter handling as well as temporary electrical overloads.

Two test prods, one colored red for the "+" terminal and the other black for the "-" terminal, are supplied with leads which are permanently attached to the tester.

The WV-37A is equally useful on the sales counter and service bench for checking the condition of used batteries and counter stock. In the stock room, the WV-37A is valuable in keeping a running check on the condition of battery shelf-stock.

HIGH-VOLTAGE PROBES, RCA WG-289, WG-290: Especially useful for measuring high voltages in TV receivers, these probes can safely be used to measure up to 50,000 dc volts when connected to VoltOhmysts, Chanalysts, or other electronic or non-electronic dc voltmeters. Will multiply a dc-voltage reading by a factor of 100 when fitted with proper multiplier resistor. The WG-289 and WG-290 are identical except that the WG-289 is fitted with a microphone type connector and the WG-290 is fitted with phone tips.

CRYSTAL-DIODE PROBE, RCA WG-264

The WG-264 Crystal-Diode Probe consists of a germanium rectifier and RC network in a plastic housing, which conveniently slips on the Direct Probe of VoltOhmysts® such as the WV-77A, WV-87A, and WV-97A. RF voltages up to 250 Mc may be measured accurately with the WG-264 probe. Ac-voltages from 20 rms millivolts to 20 rms volts can be measured, even in the presence of dc voltages up to 250 volts.

DEMODULATOR PROBE, RCA WG-291

A crystal diode type of probe designed for use with oscilloscopes, the WG-291 Demodulator Probe is useful in rf applications from 500 Kc to 250 Mc. The WG-291 separates the af waveform from the rf component and permits observation of picture- and sound- waveforms as well as the video amplifier curve and the over-all response curves of a TV receiver. Input capacitance is only 2.25 μmf . Designed to slip on the front of the WG-218 Direct Probe.

DC/DIRECT PROBE, RCA WG-222

The WG-222 is a slip-on type probe with a built-in switch. In one switch position, the probe feeds straight through; in the other position, a 1-megohm isolating resistor is inserted in series with the probe. Thus it is possible to measure dc or resistance without changing probes. The WG-222 slips on the front of either the WG-218 or WG-220 Direct Probes and may be used with VoltOhmysts or other vacuum-tube voltmeters requiring a 1-megohm isolating resistor.

TELEVISION SERVICE DATA

VHF TV CHANNELS AND CARRIER FREQUENCIES

Television Channel Number	Channel Freq. Mc	Picture Carrier Freq. Mc	Sound Carrier Freq. Mc
2	54- 60	55.25	59.75
3	60- 66	61.25	65.75
4	66- 72	67.25	71.75
5	76- 82	77.25	81.75
6	82- 88	83.25	87.75
7	174-180	175.25	179.75
8	180-186	181.25	185.75
9	186-192	187.25	191.75
10	192-198	193.25	197.75
11	198-204	199.25	203.75
12	204-210	205.25	209.75
13	210-216	211.25	215.75

TV SIGNAL DATA:

Number of lines = 525, interlaced.

Frame frequency (number of complete pictures) = 30/sec.

Field frequency (number of alternate-line pictures) = 60/sec.

Horizontal frequency = $525 \times 30 = 15,750$ cps.

Time for one complete line (including retrace time) = $1/15,750 = 63.5$ microseconds.

Horizontal blanking time = 16% of 63.5 = 10.2 microseconds.

Active time for one horizontal line = $63.5 - 10.2 = 53.3$ microseconds.

Vertical blanking duration = 6.5% of vertical scanning time.

Number of usable horizontal lines = $525 - (525 \times 0.065) = 490$ lines.

Limiting horizontal resolution = 340 lines, approx.

Black level = 75% of maximum carrier voltage.

White level = 0-15% of maximum carrier voltage.

Aspect ratio (ratio of width to height) = 4 to 3.

Sound FM, 100% modulation = ± 25 kc deviation.

TELEVISION SERVICE DATA

UHF TV CHANNELS

Television Channel Number	Channel Freq. Mc	Television Channel Number	Channel Freq. Mc
14	470-476	49	680-686
15	476-482	50	686-692
16	482-488	51	692-698
17	488-494	52	698-704
18	494-500	53	704-710
19	500-506	54	710-716
20	506-512	55	716-722
21	512-518	56	722-728
22	518-524	57	728-734
23	524-530	58	734-740
24	530-536	59	740-746
25	536-542	60	746-752
26	542-548	61	752-758
27	548-554	62	758-764
28	554-560	63	764-770
29	560-566	64	770-776
30	566-572	65	776-782
31	572-578	66	782-788
32	578-584	67	788-794
33	584-590	68	794-800
34	590-596	69	800-806
35	596-602	70	806-812
36	602-608	71	812-818
37	608-614	72	818-824
38	614-620	73	824-830
39	620-626	74	830-836
40	626-632	75	836-842
41	632-638	76	842-848
42	638-644	77	848-854
43	644-650	78	854-860
44	650-656	79	860-866
45	656-662	80	866-872
46	662-668	81	872-878
47	668-674	82	878-884
48	674-680	83	884-890

TELEVISION RECEIVER ALIGNMENT

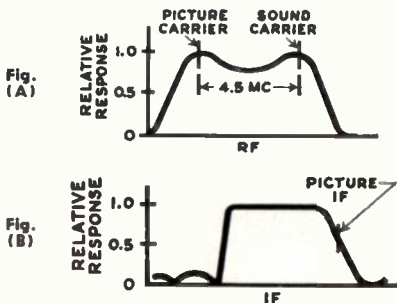


Figure (A) shows typical frequency response of rf and mixer circuits. Figure (B) shows typical frequency response of picture if amplifier. The position of the picture if carrier is important and is approximately 50% up the slope as shown.

The over-all rf and picture if response is similar to that shown in (B), providing the rf response is sufficiently wide and flat, as shown in (A).

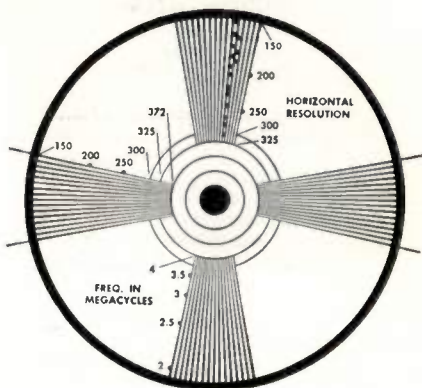
Traps are provided in the picture if amplifier to keep the sound if from getting through the picture if amplifier, and to attenuate the adjacent-channel sound and picture signals.

In most RCA Victor television receivers, the picture if is 25.75 Mc, the sound if is 21.25 Mc, and the adjacent channel traps are 27.25 and 19.75 Mc. In recent RCA Victor receivers, the picture if is 25.5 Mc, and the sound if is 21.00 Mc. The intercarrier-type receivers use a picture if of 41.75 Mc and a sound if of 41.25 and 4.5 Mc.

In some television receivers there is a sound trap in the video amplifier, tuned to 4.5 Mc, to suppress the difference-frequency beat between the picture and sound carriers.

In one type of television receiver, the sound and picture if signals are passed through a common if amplifier and the 4.5-Mc beat between the two carriers is trapped out in the video amplifier and passed through an FM discriminator and audio amplifier.

USING THE TEST PATTERN



The television test pattern is used to set all of the controls and adjustments on television receivers, and to check definition in terms of "line resolution" or bandwidth.

Linearity and size (both horizontal and vertical controls) should be adjusted so that the large circles are as round as possible, and so that the test pattern is slightly larger than the cabinet opening.

Brightness and contrast controls should be adjusted so that each step (usually five) from black to white in the shading blocks is separate and distinct.

Focus control should be adjusted so that the separate lines in the vertical resolution wedge are distinct as far as possible in to the narrow end of the vertical wedge.

Centering controls should be adjusted so that the active or unblanked portion of the pattern is centered with respect to the cabinet opening.

Using the Test Pattern (cont'd)

RESOLUTION WEDGES

Horizontal wedges indicate *vertical* resolution, which is expressed in terms of lines, and not in bandwidth.

Vertical wedges indicate *horizontal* resolution, which is expressed in terms of lines, or bandwidth, or both.

In some patterns, the wedges are marked at several points by numbers to indicate the equivalent number of lines: The last zero may be omitted (250 shown as "25"). If equivalent bandwidth is shown on the vertical wedge, it is given in megacycles, for example, 2.0 Mc is shown as "2".

In patterns where this information is not shown, it may be obtained from the TV station, or computed as follows:

The equivalent number of lines at any desired point along the horizontal or vertical wedge =
$$\frac{V \times L}{d}$$

Where V = height of test pattern in inches.

d = accurately measured distance in inches across the wedge at the desired point.

L = total number of black and white lines in the wedge.

To convert horizontal resolution in lines to bandwidth in Mc, divide by 80. Conversely, multiply the bandwidth by 80 to determine the equivalent number of lines.

BANDWIDTH		EQUIVALENT HORIZONTAL RESOLUTION IN LINES
1.0 Mc	=	80 lines
2.0 Mc	=	160 lines
3.0 Mc	=	240 lines
4.0 Mc	=	320 lines

POSTAL INFORMATION

(In effect as of October 1, 1953)

FIRST CLASS (limit 70 pounds): Letters written and sealed matter, 3c for each ounce, Postal cards, 2c each.

AIR MAIL: Letters, 6c per ounce or fraction thereof. Postal cards, 4c each.

SECOND CLASS (no limit of weight): Newspapers, magazines, and other periodicals containing notice of second-class entry, 2c. for first 2 ozs. and 1c for each add'l 2 ozs. or the fourth class rate, whichever is lower.

THIRD CLASS (limit 8 ounces): Miscellaneous printed matter, merchandise, 2c for the first 2 ozs. and 1½c for each add'l oz. Books (including catalogs) of 24 pages or more (at least 22 of which are printed), seeds, and plants, 1½c for each 2 ounces. **BULK RATE:** (under permit on payment of annual fee of \$10.00 per year) Circulars and merchandise (not less than 20 pounds or 200 pieces) 14c per pound, minimum of 2c each. Books and catalogs of 24 pages or more, seeds, plants, etc. (20 lbs. or 200 pieces) 10c per pound, minimum of 1½c each.

FOURTH CLASS (over 8 ounces): Limit of size, 72 inches length and girth combined. Limit of weight 40 pounds for delivery to local, first or second zone and 20 pounds for delivery to 3rd, 4th, 5th, 6th, 7th or 8th zones. Merchandise, books, printed matter, and all other mailable matter not in first or second class.

Zones	First lb. (Cents)	Add'l lbs. (Cents)
Local	.18	1.45
1 and 2	.23	3.95
3	.23	5.15
4	.24	6.9
5	.26	9.25
6	.28	11.95
7	.30	15.2
8	.32	18.05

Parcels weighing less than 10 lbs., but exceeding 84 inches in length and girth combined, are subject to 10-pound rate.

For special rates on catalogs and other similar printed advertising matter, consult postmaster.

SPECIAL RATES FOR BOOKS: Books (containing no advertising matter other than incidental announcements of books) all zones: 8c for first lb., 4c each additional pound.

LIBRARY BOOKS: Books sent by authorized libraries to readers, and when returned by such readers: 4c. for first pound, 1c. for additional pounds (up to 70 lbs.).

POSTAL INFORMATION (Cont'd)

PARCEL POST RATES

SPECIAL HANDLING — FOURTH CLASS MATTER ONLY: Parcels of fourth-class matter endorsed "Special Handling" will be given the most expeditious handling, transportation, and delivery practicable (but not special delivery) upon payment, in addition to the regular postage, of the following charge:

Up to 2 pounds	15c.
Over 2 lbs. up to 10 lbs.	20c.
Over 10 lbs.	25c.

SPECIAL DELIVERY FEES:

	First Class	2nd, 3rd or 4th class
Up to 2 lbs.	20c.	35c.
Over 2 lbs. up to 10 lbs.	35c.	45c.
Over 10 lbs.	50c.	60c.

REGISTERED MAIL —

Fee for Indemnity Limited to:

\$.01 to \$ 5.....	\$.40	\$100.01 to \$200.....	\$.95
\$ 5.01 to \$ 25.....	.55	\$200.01 to \$300.....	1.05
\$25.01 to \$ 50.....	.65	\$300.01 to \$400.....	1.15
\$50.01 to \$ 75.....	.75		
\$75.01 to \$100.....	.85		

Registration fee for mail without intrinsic value for which no indemnity is paid, 30c.

Insured Mail (third and fourth classes)

Fees for indemnity limited to:

Up to \$5	5c.	\$25.01 to \$50	20c.
\$5.01 to 10	10c.	50.01 to 100.....	30c.
10.01 to 25	15c.	100.01 to 200.....	35c.

C.O.D. Mail—Unregistered (third and fourth classes)—

Fees for collections and indemnity limited to:

\$0.01 to \$5	30c.	\$25.01 to \$50	70c.
5.01 to 10	40c.	50.01 to 100	80c.
10.01 to 25	60c.	100.01 to 150	90c.

Return receipts for registered or insured mail; Fee; if requested at time of mailing, 7c.; after mailing, 15c.; at time of mailing to show address of delivery, 31c.

Money-Order Fees: For Orders From —

\$0.01 to \$2.50	10c.	\$20.01 to \$40	25c.
2.51 to 5.00	10c.	40.01 to 50	25c.
5.01 to 10.00	15c.	50.01 to 80	35c.
10.01 to 20.00	25c.	80.01 to 100	35c.













UNITED STATES
Western Section

Scale of Miles
0 100 200 300

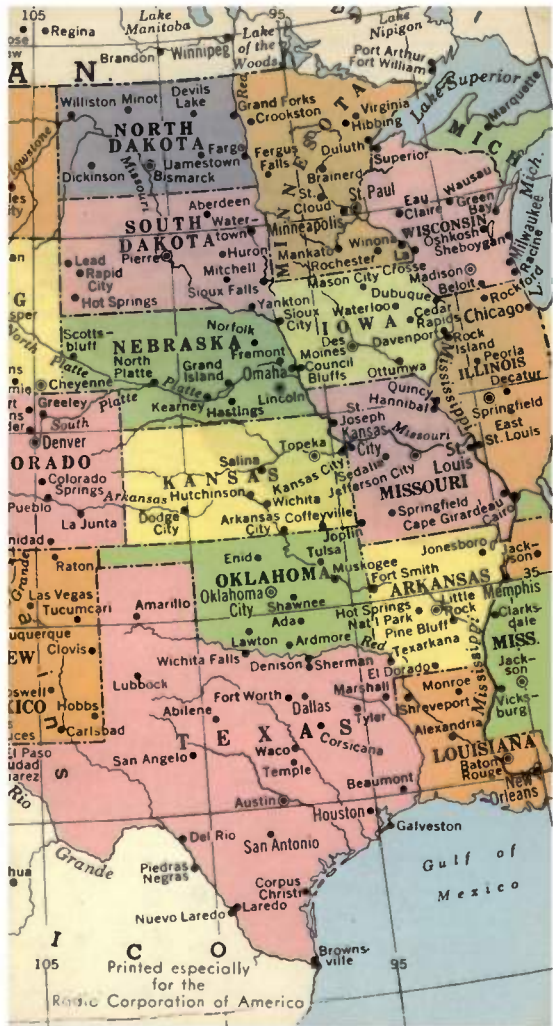
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UNITED STATES

Eastern Section

Scale of Miles

0 100 200 300 400

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1918

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