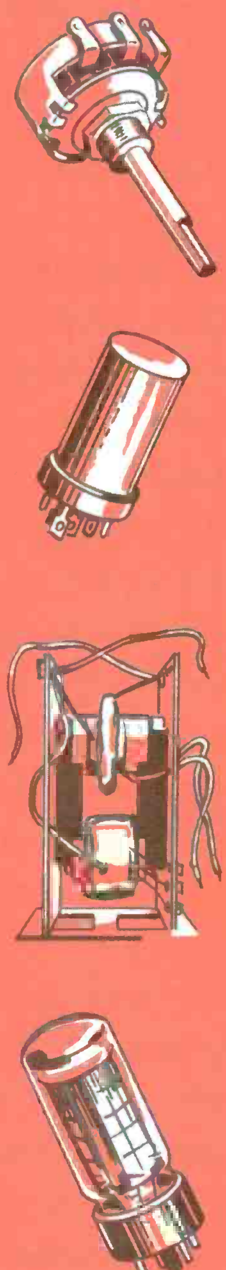
Howard W. Sams

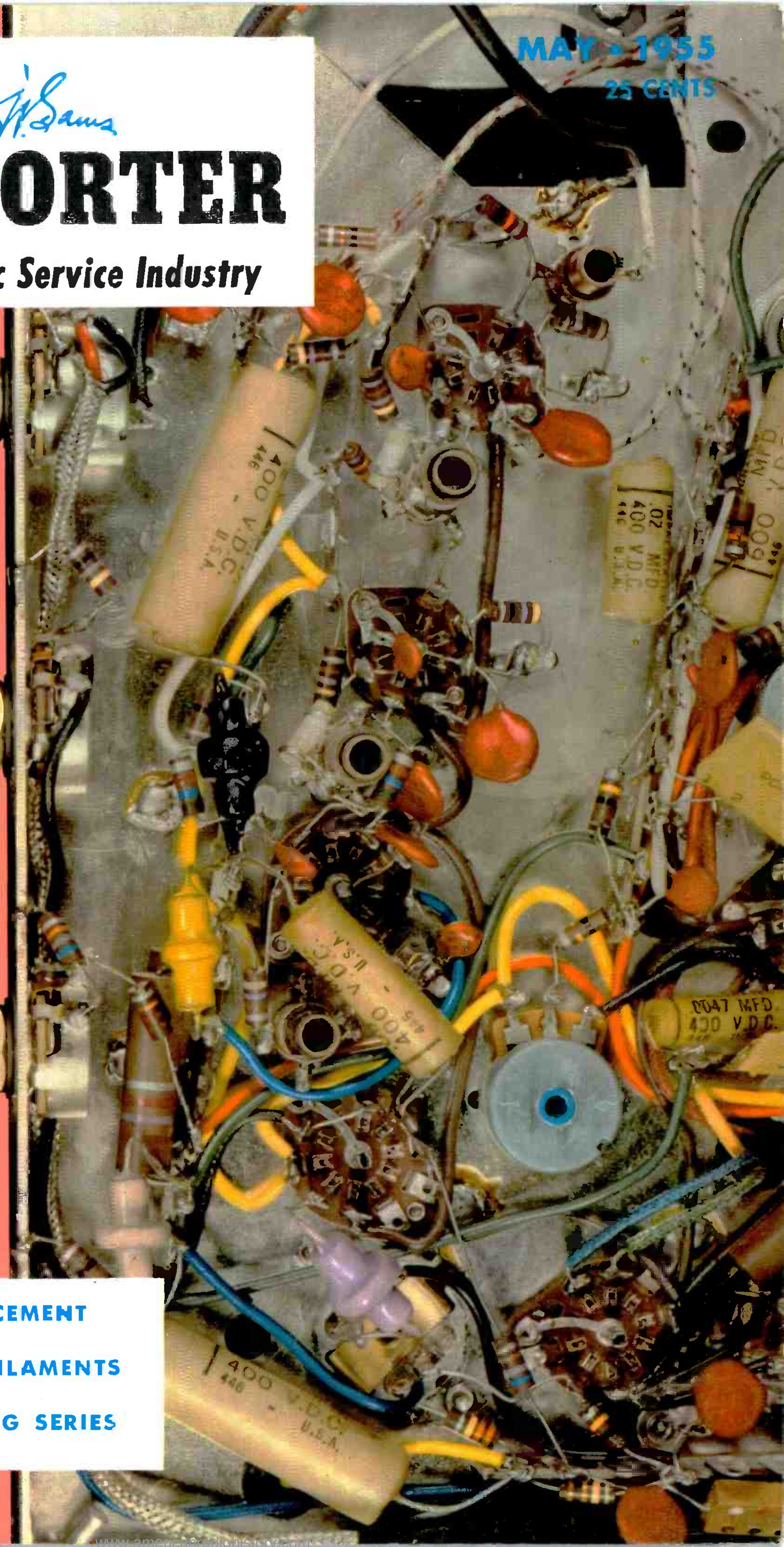
PF PHOTOFACT®

REPORTER

for the Electronic Service Industry

MAY • 1955
25 CENTS





CONTROL REPLACEMENT

• • •

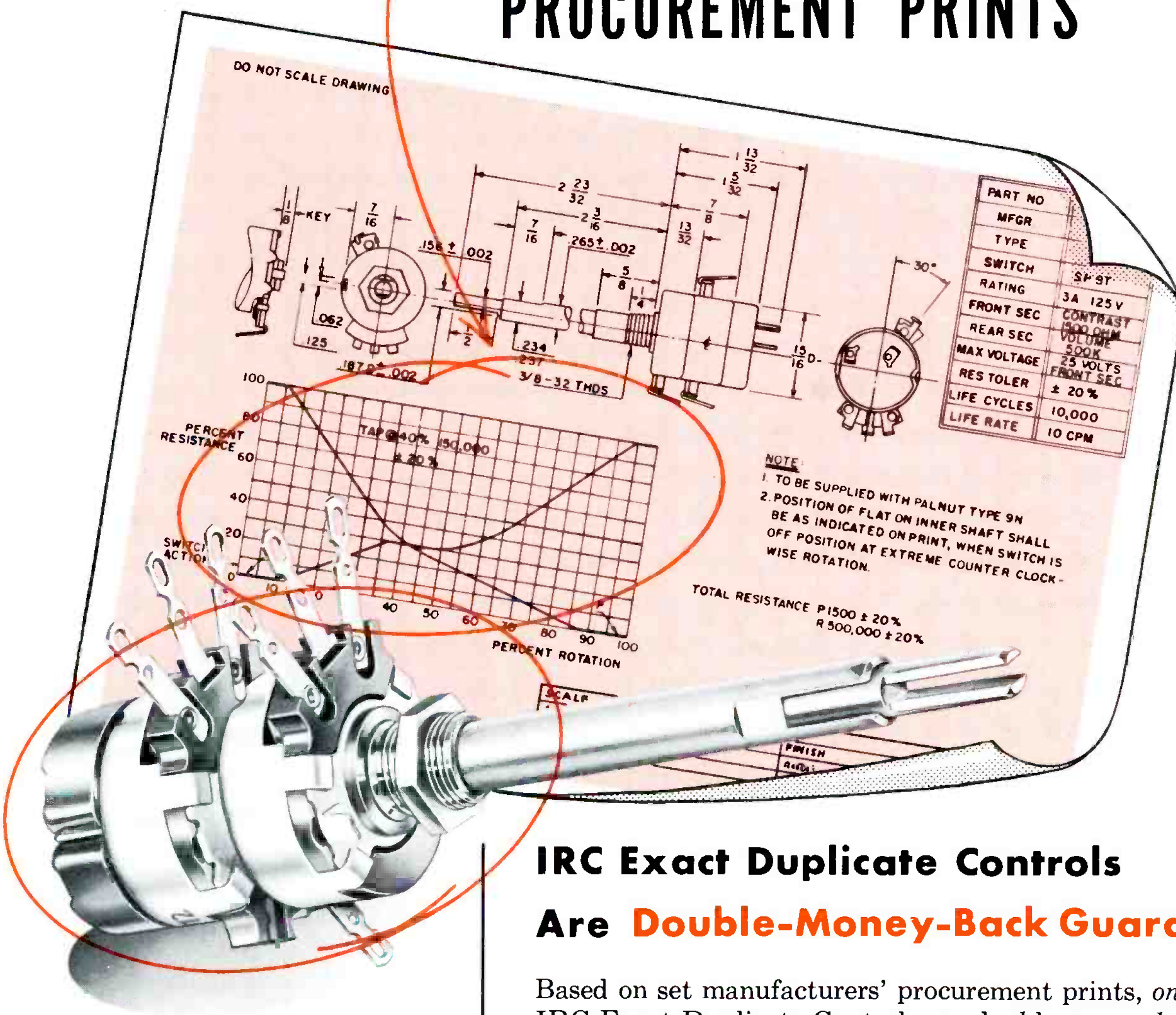
CHECKING SERIES FILAMENTS

• • •

COLOR TV TRAINING SERIES
(Part XII)

ASSURED ELECTRICAL ACCURACY

BASED ON MANUFACTURERS' PROCUREMENT PRINTS



ONLY IRC GUARANTEES ACCURATE ELECTRICAL OPERATION AND SATISFACTORY MECHANICAL FIT OR DOUBLE-YOUR-MONEY-BACK

Electrical specifications of this typical manufacturer's procurement print are exactly duplicated by IRC's QJ-412 control (shown). CONCENTRIKIT assembly includes P1-206 and R1-223 shafts with B17-109 and B13-133X Base Elements and 76-1 Switch.

IRC

Wherever the Circuit Says -ᴧᴧᴧ-

IRC Exact Duplicate Controls Are Double-Money-Back Guaranteed

Based on set manufacturers' procurement prints, *only* IRC Exact Duplicate Controls are double-money-back guaranteed for accurate electrical operation. This firm guarantee applies to both IRC factory-assembled Exact Duplicates *and* universal CONCENTRIKIT equivalents.

Set manufacturers' electrical specifications are closely followed.

Resistance values are carefully selected to match.

Tapers are watched carefully; IRC doesn't arbitrarily substitute tapers to obtain wide coverage.

For exact duplicate controls of guaranteed accuracy, specify IRC. Most Service Technicians do.

INTERNATIONAL RESISTANCE CO.

Dept. 362, 401 N. Broad Street, Philadelphia 8, Pa.

In Canada: International Resistance Co., Ltd., Toronto, Licensee

JAMES R. RONK
Editor

LESTER H. NELSON
Managing Editor

W. WILLIAM HENSLER
Technical Editor

GLEN E. SLUTZ
Asst. Technical Editor

Editorial Staff
GWEN BIGHAM
WILLIAM E. BURKE
HENRY A. CARTER
LESLIE D. DEANE
ROBERT B. DUNHAM
PHYLLIS J. HURLEY
GLENNA M. McROAN
EVELYN S. MOUSER
MARGARET NEFF
C. P. OLIPHANT
VERNE M. RAY
PAUL C. SMITH
CALVIN C. YOUNG, JR.

ANTHONY M. ANDREONE
GLENN R. SMITH
Art Directors

ROBERT W. REED
Photography

ARCHIE E. CUTSHALL
DOUGLAS G. BOLT
HARRY A. MARTIN
Production

★

HOWARD W. SAMS
Publisher

Business Department:
Donald B. Shaw, V. P.
Treasurer
F. T. Dobbs, Secretary
Joe H. Morin, Sales Mgr.
Ann W. Jones, Advertising

Eastern Representatives
Paul S. Weil and
Donald C. Weil
39-01 Main Street,
Flushing 54, New York
Independence 3-9098

Western Representatives
Maurice A. Kimball Co., Inc.
2550 Beverly Blvd.
Los Angeles 57, Cal.
DUnkirk 8-6178

681 Market St.
San Francisco 5, Cal.
EXbrook 2-3365

Howard W. Sams

PF REPORTER

for the Electronic Service Industry

VOL. 5 · NO. 5 MAY · 1955

CONTENTS

SUBJECT REFERENCE

The PF REPORTER is published monthly by Howard W. Sams & Co., Inc., 2201 East 46th Street, Indianapolis 5, Indiana. The PF REPORTER is on sale at 25¢ a copy at 1350 jobbers of Electronic Parts throughout the United States and Canada. (In Canada 30 cents.) When available, back numbers may be obtained by sending 35¢ for each copy desired. Entered as second class matter October 11, 1954, at the Post Office at Indianapolis, Indiana, under the Act of March 3, 1879.

SUBSCRIPTION DATA: For those desiring the convenience of delivery to their homes or shops, each issue of the REPORTER will be mailed direct, promptly upon publication. Rates: U. S. and its Possessions, one year $3.00. Canadian subscriptions, one year $3.60. All other countries $12.00 per year in American money.

ENGINEERED FOR SALES

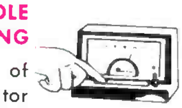
JFD Electronics

Roto King

A 25th Anniversary VALUE

As seen on **ALCOA'S "SEE IT NOW" featuring EDWARD R. MURROW.**

STYLED FOR SALES

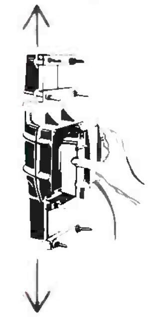


SMARTLY STYLED CONSOLE WITH PIANO TUNING

The striking control console is designed for beauty of design as well as ease of operation. Actuates the rotator with the slightest touch. Available in mahogany or ivory or ebony cabinet.

STOP WATCH TUNING ACCURACY

Pinpoint control system is unsurpassed in consistent accuracy of indication. Stops antenna instantly at desired position. No drift or ambiguity.



POWERFUL INLINE DESIGN

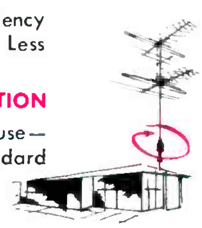
Supports direct deadweight load of largest stacked array. Resists downthrust and bending moment. Built-in thrust bearings. No extra parts to buy. No breakable offset bearings.

REPLACEABLE FACTORY SEALED CARTRIDGE UNIT

Sealed power drive unit eliminates the former need of dismantling the antenna when servicing. Simply loosen 3 screws to remove the sealed unit.

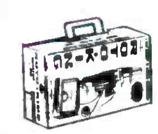
EFFICIENT POWER TRANSMISSION

The spur gear train means high efficiency. High efficiency means less friction. Less friction means less wear. Less wear means long life. No inefficient worm gears.



390 DEGREE ROTATION

390 degrees—the broadest traverse range now in use—speeds and simplifies station selection beyond standard 360 degree revolution.



COLORFUL "CARRY-ALL" CARTON

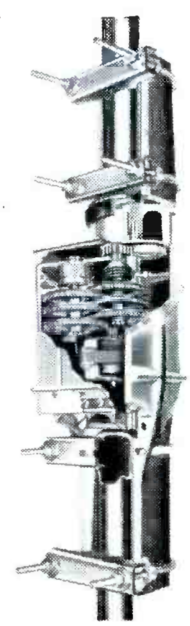
Safely protects Roto-King en-route . . . eases on-the-job carrying of units . . . comes in handy in the shop or around the home. A JFD merchandising extra at no extra cost.

AUTOMATIC VOLTAGE COMPENSATION

Advanced circuitry achieves automatic voltage compensation for stability of indication despite line voltage fluctuations.

ROTO-KING IS LIKE A DIRECT LINE TO EVERY TV STATION IN YOUR AREA

Write for 8-page *Roto-King* engineering brochure No. 288.



Now Available in 2 Models 3 Cabinet Styles

Model	Style
RT100-M*	Mahogany
RT100-IV*	Ivory
RT100-EB*	Ebony

* Featuring Constant Indicating Meter with Automatic Thermal Switch

Model	Style
RT400-M**	Mahogany
RT400-IV**	Ivory
RT400-EB**	Ebony

** Featuring Constant Indicating Meter with separate on-off switch for lower wattage TV receivers and amateur rigs.

LIST PRICE $44.95 ALL MODELS

JFD

Look to JFD for Engineering Leadership!

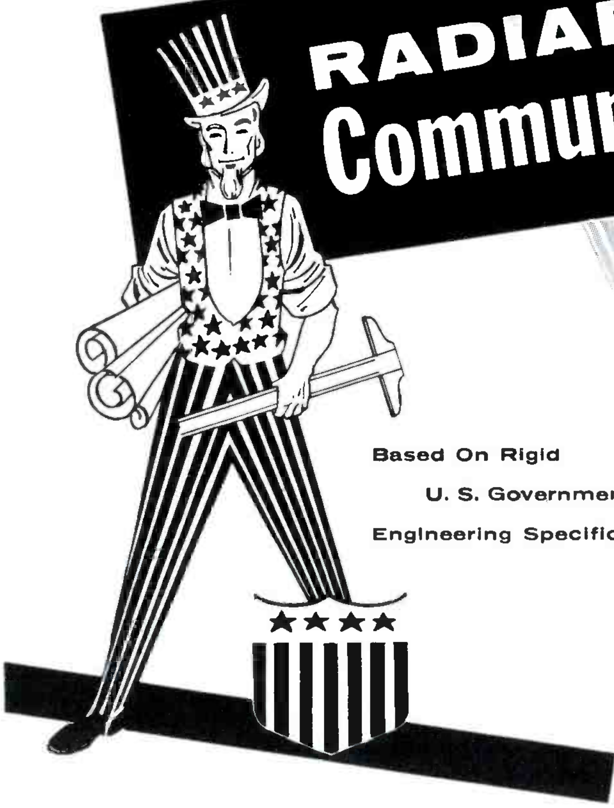
MANUFACTURING CO., INC.

6101 16th AVENUE, BROOKLYN 4, N. Y.

INTERNATIONAL DIVISION: 15 Moore Street, New York 4; U.S.A.

a complete NEW line!

RADIART SEAL·VENT Communication Vibrators



NOW . . . RADIART makes available to commercial users of communications equipment, a new line of vibrators based upon experience of producing over 2 million similar units to the exacting requirements of U. S. Signal Corps Specifications.

Based On Rigid U. S. Government Engineering Specifications

It's ready now! The new 1955 Radiart Vibrator Replacement Guide

These Eight Types Offer Complete Replacement for ORIGINAL Communication Equipment:

Old No.	New No.
5515	**5715**
5518	**5718**
★	**5721**
★	**5722**
5605	**5805**
5620	**5820**
5621	**5821**
5622	**5822**

SUBSIDIARY OF

THE **RADIART** CORPORATION
CLEVELAND 13, OHIO

TV ANTENNAS • AUTO AERIALS • VIBRATORS • ROTORS • POWER SUPPLIES

"It's easy to see

Here's The Replacement Capacitor..."

... BECAUSE SPRAGUE'S FAMOUS TWIST-LOK 'lytics now at your distributors' have a "new look." They're furnished with a bright orange, white, and blue label, with all rating information printed clearly and neatly in easy-to-read type. This new label, unlike any identification used on manufacturer's original equipment capacitors, makes it simple to point out replacements to your customers.

And you'll know the minute you see this bright new label on a capacitor that it was especially made by Sprague for tough service replacement jobs. Twist-Lok 'lytics fill the top performance bill in the toughest TV circuits . . . despite high temperatures, surge voltages, and ripple currents. That's why, like all Sprague capacitors, Twist-Loks are your best protection against costly call-backs.

Get your copy of Sprague's latest radio and TV service catalog C-610. Write Sprague Products Company, 105 Marshall Street, North Adams, Massachusetts.

There's no question about it

Accept no substitutes. There is a Sprague Distributor in every sales area in the United States. Write for the name of your nearest source of supply today.

don't be vague . . . insist on

SPRAGUE®

Sprague Products Company is the Distributors' Division of the Sprague Electric Company

TRANSPORT MECHANISM

in Concertone Model 1502 TAPE RECORDER

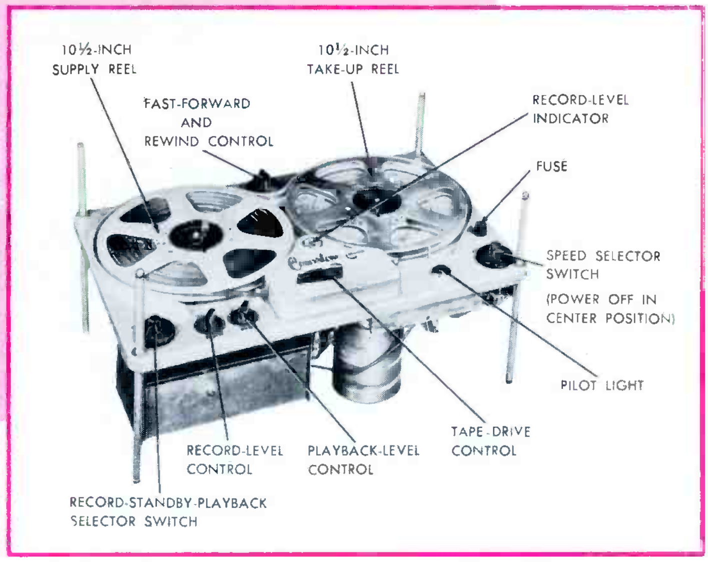


Fig. 1. Top View of Concertone Model 1502 With 10-Inch Reels in Place, Tape Threaded, and All Controls Off or Idle.

The Sixth in a Series of Articles Devoted to the Principles of Magnetic Recording

by Robert B. Dunham

The preceding article in this series about magnetic recording could be described as being a presentation of the operational theory of transport mechanisms. Only the basic function of a typical tape-transport mechanism was discussed without showing any actual examples of equipment and its operation. A description of the tape-handling section of the Concertone Model 1502 magnetic tape recorder and some explanation of how it operates will be given in the following discussion. The Model 1502 is particularly appropriate for this purpose, because the construction and operation of its tape-transport mechanism follow very closely the principles discussed in the previous article.

The general design of the complete recorder and most of its important features are visible in the illustrations. For convenience in handling and in obtaining unobstructed views from all angles, the chassis shown in Fig. 1 was mounted on improvised supports made out of threaded rods, pieces of small pipe, and cap nuts.

Controls

The Concertone Model 1502 is equipped with a full complement of operating controls which can be seen in Fig. 1. In describing the controls and their actions, we will concentrate on those that control the movement of the tape and will not go into detail about those that operate in the amplifier and signal circuits.

The controls in this magnetic tape recorder include:

Record-Standby-Playback Control.

* * Please turn to page 43 * *

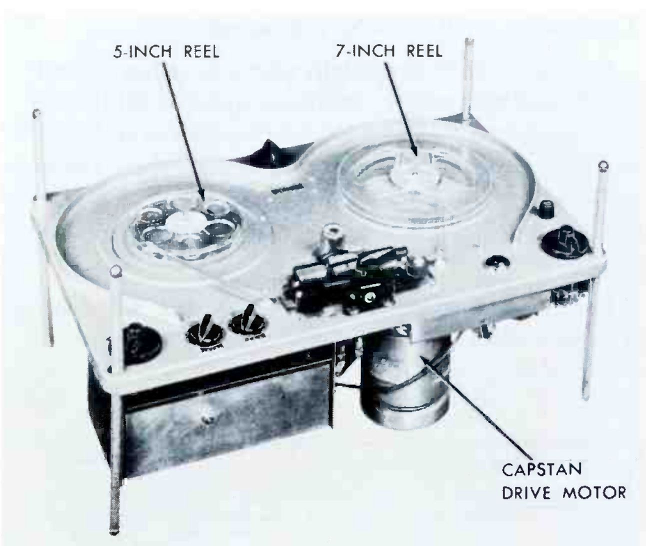


Fig. 2. Model 1502 With 5-Inch and 7-Inch Reels in Place, Tape Threaded, Covers Removed, and Tape Drive Control in Record of Playback Position.

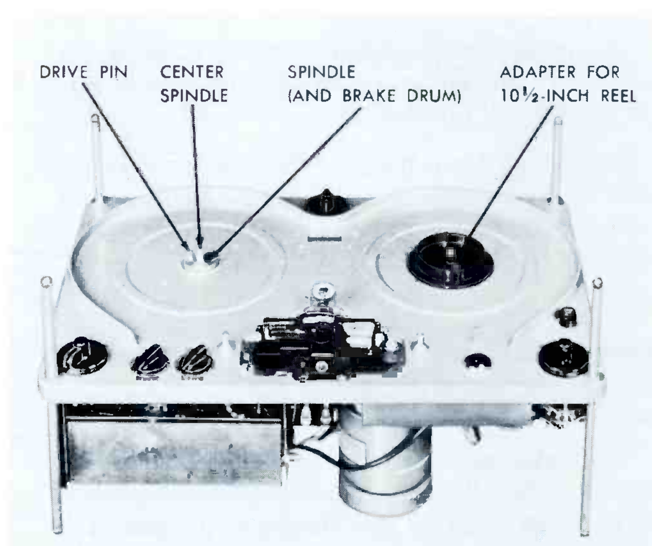


Fig. 3. Model 1502 With One Spindle Empty, Reel Adapter on Other Spindle, Covers Removed, and All Controls Off or Idle.

COLOR TV TRAINING SERIES

PART XII
SETUP PROCEDURE

by C. P. Oliphant and Verne M. Ray

The last section, Part XI of this Color TV Training Series, dealt with the particular receiver adjustments that are associated with a color picture tube which employs the principle of electrostatic convergence. The text in this issue will cover the adjustments associated with a color picture tube which uses the magnetic method for obtaining beam convergence. As in the last section, a Color Plate is included to show the actual picture-tube displays which were noted while the adjustments mentioned in the text were being performed.

TUBES USING MAGNETIC CONVERGENCE

A color picture tube which employs the principle of magnetic convergence may be mounted so that the blue gun is either directly above or below the central axis of the tube. In either case, the setup procedure is the same; however, the illustrations with this text and in the Color Plate pertain to a picture tube which has been mounted so that the blue gun is above the tube axis. To see the dot patterns which would appear on a tube having the blue gun below the tube axis, view the illustrations upside down. Of course, the directions of horizontal and vertical sweep are reversed when this is done; but the relationships between the dots within the patterns will be accurate in every other respect.

Preliminary Adjustments

Before proceeding with the adjustments which are particularly associated with the picture tube, it is advisable to check the operation of several other circuits. A test signal is very useful for this purpose. If a conventional black-and-white test pattern is not available, the signal from a crosshatch generator or the ordinary black-and-white signal from a local station can be used. After a signal is properly tuned in, the horizontal-hold control should be varied through its range to determine if the lock-in range is satisfactory. If an AGC adjustment is provided, its setting should also be checked.

Another circuit which must be checked in the preliminary procedure is the high-voltage supply. Since the three-beam picture tube must operate under extremely exacting conditions, the high-voltage supply must produce a constant voltage output. A voltage-regulator circuit is employed for this purpose. This circuit, in most receivers, includes a control which should be adjusted so that the high-voltage output when the brightness control is set at minimum is at the value recommended by the manufacturer. As the brightness control is advanced, the ultor voltage may decrease by 500 to 1000 volts, depending upon the circuit design of the particular receiver. If the decrease in the ultor voltage exceeds the amount specified in the service data, the high-voltage control should be adjusted until the decrease in voltage is within tolerance.

When the brightness control is advanced beyond its normal range, the regulator circuit may lose control; and as a result, the ultor voltage will decrease considerably. This abnormal setting of the brightness control might cause grid current to flow in the picture tube; therefore, the brightness control should never be allowed to remain at this abnormal setting.

The high-voltage circuit in some receivers is regulated by the use of a cold-cathode tube. As shown in Fig. 10-10, the Motorola Model 19CT1 employs such a regulator tube (a Victoreen Type 6505) which stabilizes the ultor voltage automatically. When this type of regulator tube is used, there is no provision for adjusting the high voltage manually.

Picture tubes which employ the magnetic method of obtaining beam convergence usually require a regulated ultor voltage of about 25 kilovolts. (This voltage is considerably higher than the ultor voltage used with the tube which employs electrostatic convergence. The difference in voltage is occasioned by the incidental fact that the one type of tube is larger than the other and has no connection with the convergence methods employed.)

After the high voltage has been adjusted properly, the conventional adjustments pertaining to picture size, linearity, vertical and horizontal centering, and focus should be made. These adjustments should precede those pertaining to purity and convergence, because changes in the sweep or high-voltage circuits may necessitate a repetition of the purity and convergence adjustments.

Adjustments in the preliminary setup procedure are made in the following order:

1. Tune in a black-and-white test signal.

2. Check the lock-in range of the horizontal-oscillator circuit, and make any necessary adjustments.

3. Adjust the AGC voltage for maximum picture contrast without distortion.

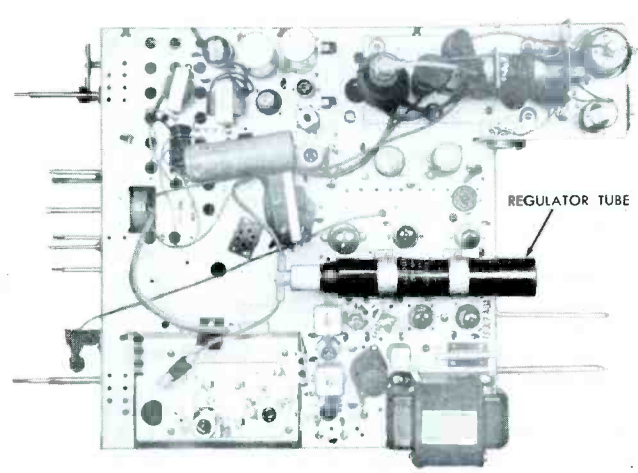


Fig. 10-10. High-Voltage Regulator Used in Motorola Model 19CT1 Color Receiver.

4. Turn the contrast and brightness controls to minimum.

5. Use a suitable high-voltage probe, and measure the ultor voltage to see if it compares to the value specified by the manufacturer.

6. Rotate the brightness control through the range that is normally used, and note the variation in ultor voltage.

7. If the variation is excessive, reset the high-voltage adjustment.

8. Adjust the horizontal size, linearity, and centering.

9. Adjust the vertical size, linearity, and centering.

10. Adjust the focus control.

Adjustments for Static Convergence

Prior to making any adjustments for color purity, rough adjustments for static convergence should be made. When this has been done, the three beams of the color picture tube will converge at the center of the shadow mask. This step was not necessary in the setup procedure for a receiver which uses the electrostatic method to obtain beam convergence. The beam movements resulting from adjustments of the positioning magnets in such a receiver are restricted by the metal surfaces of the gun cylinders.

In a receiver which uses the magnetic method of obtaining beam convergence, the beam movements are not restricted by the gun structure; therefore, a misadjustment of a beam-positioning magnet may cause its associated beam to be displaced too far from the proper position. Under such a condition, it would be impossible to obtain color purity. For this reason, adjustments for static convergence should precede the purity adjustments to make it possible for all three beams to produce pure rasters with the same setting of the purity adjustments.

The adjustments for static convergence are made while the signal from a white-dot generator is being observed on the picture tube. Three color-dot patterns should be produced by the three beams as a result of the video signal applied to the picture tube. The dots in the center of one pattern should be red, those in another should be green, and those in the remaining one should be blue. These colors in the dots may not be pure toward the edges of the screen, since the purity adjustments will not have been made at this point in the setup procedure. Impure colors in the dots toward the edges of the screen are therefore disregarded when making the preliminary adjustments for static convergence.

It is possible that the dot pattern produced by one of the beams will not be clearly visible. This condition is likely to occur when the voltages applied to the elements of one of the guns are considerably different from those applied to the other two guns. In order to compensate for this condition, the screen control for the gun producing the dim pattern may be advanced until the associated color phosphor is more brightly illuminated.

The controls for dynamic convergence should be set for minimum correction before making the adjustments for static convergence. This step is recommended by most manufacturers so that it will be easier to make the adjustments for dynamic convergence later in the setup procedure. The physical locations of the dynamic-convergence controls vary in different receivers. For instance, Fig. 10-11 shows that in the CBS-Columbia

Fig. 10-11. Location of the Dynamic-Convergence Controls in the CBS-Columbia Model 205C2 Color Receiver.

Model 205C2, the dynamic-convergence controls are located behind a removable front panel at the bottom of the cabinet. In the Motorola Model 19CT1, these controls are located on a subchassis that is vertically mounted at the rear of the receiver. (See Fig. 10-12.)

Minimum correction for dynamic convergence may be obtained with certain controls set at midrange positions and with others set at fully counterclockwise positions. Service data on individual receivers will usually provide information about the proper setting of the convergence controls. If this information is not furnished, an alternate method may be used to obtain minimum correction. This method is to disconnect the coils of the electromagnets from their voltage supplies, and this can be done easily because most receivers incorporate plug and socket connections to the electromagnets.

Four devices are used to obtain static convergence of the beams. These are the three beam-positioning magnets and the lateral-correction magnet. For best results, the lateral-correction magnet should be positioned in line with the pole pieces mounted on the focus element of the blue gun, and the magnetic-convergence assembly should be positioned so that the cores of the electromagnets are aligned with the pole pieces at the end of the gun assembly.

The directions in which the beams may be moved by these devices are shown by the arrows in Fig. 10-13. These directions also apply to any pattern produced by the beams; consequently, the patterns produced on the screen by the signal from the dot generator can be moved so that a reference dot in the center of one pattern will coincide with the corresponding center dot of each of the other two patterns. The combined light emissions from the three color phosphors will produce white light; therefore, the three coinciding dots of light at the center of the screen will appear as one white dot. When this has been accomplished, static convergence of the beams will have been achieved. Other dots near the center of the screen will appear white, but dots away from the center will not be

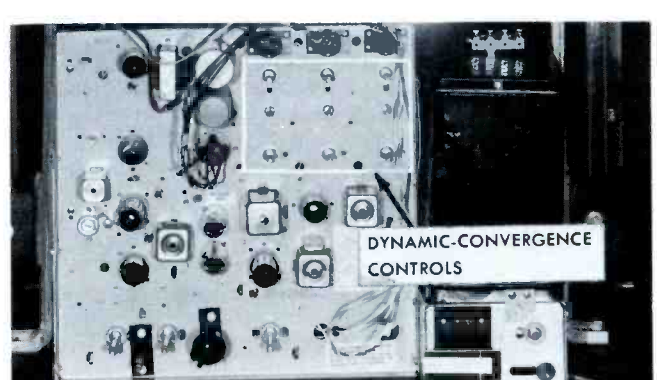


Fig. 10-12. Location of the Dynamic-Convergence Controls in the Motorola Model 19CT1 Color Receiver.

REFERENCE PATTERNS FOR SETUP PROCEDURE

COLOR TV TRAINING SERIES

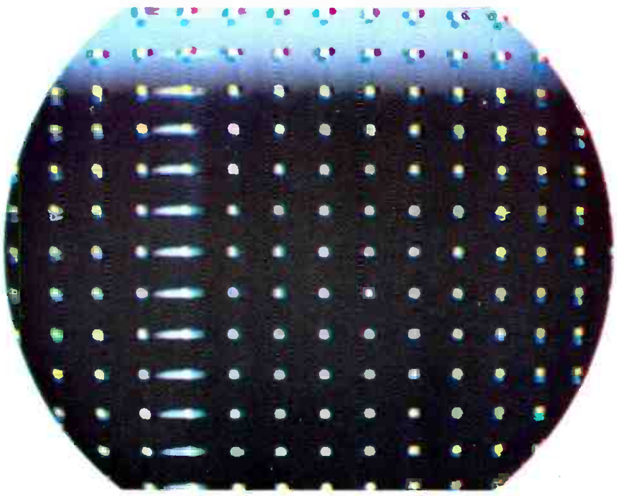


Fig. B1. White Dots at Center Indicate Beams Are Statically Converged.

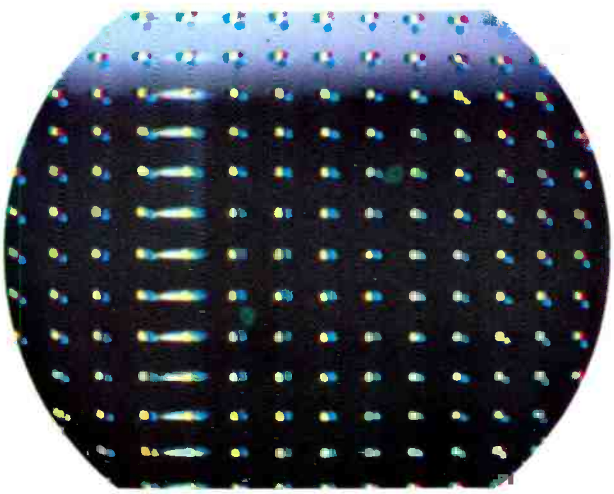


Fig. B2. Blue Dots at Center Are Displaced Horizontally by Misadjustment of Lateral-Correction Magnet.

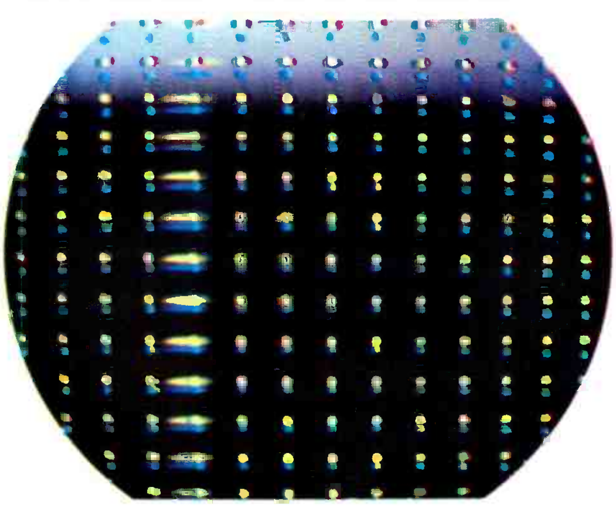


Fig. B3. Blue Dots at Center Are Displaced Vertically by Misadjustment of Positioning Magnet for Blue Beam.

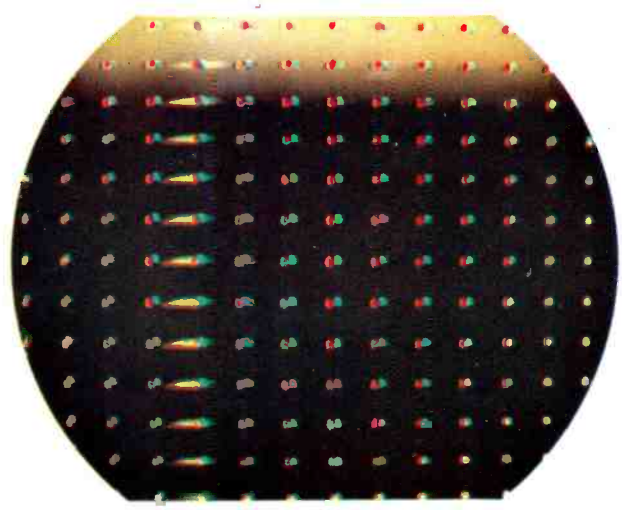


Fig. B4. Straight Vertical Center Rows of Red and Green Dots Indicate Proper Adjustment of Parabola and Tilt Controls.

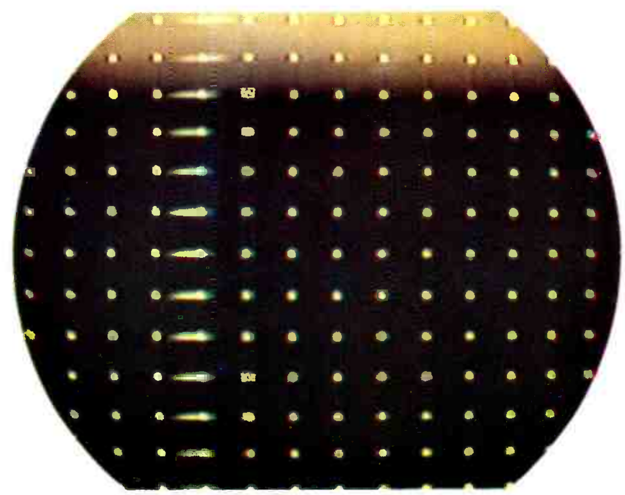


Fig. B5. Yellow Dots Along Vertical Center Row Indicate Correct Vertical Dynamic Convergence of Red and Green Beams.

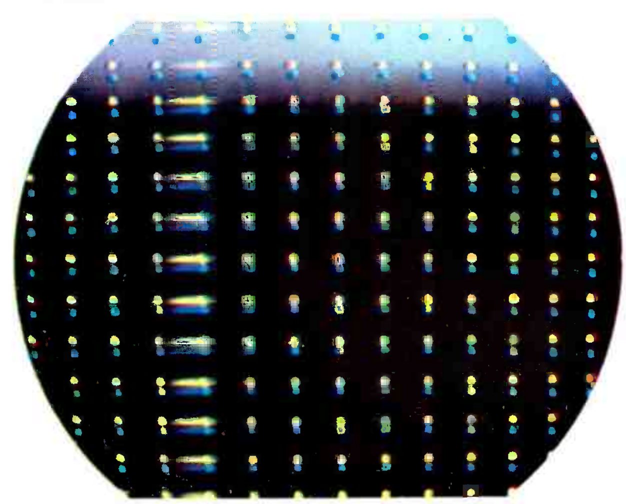


Fig. B6. Blue Dots Equally Spaced from Yellow Dots Along Vertical Center Row Indicate Proper Adjustment of Parabola and Tilt Controls for Blue Beam.

REFERENCE PATTERNS FOR SETUP PROCEDURE

COLOR TV TRAINING SERIES

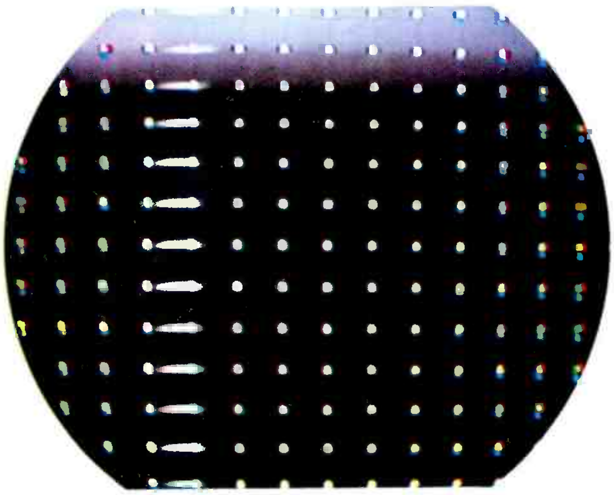


Fig. B7. White Dots Along Vertical Center Row Indicate Correct Vertical Dynamic Convergence of All Three Beams.

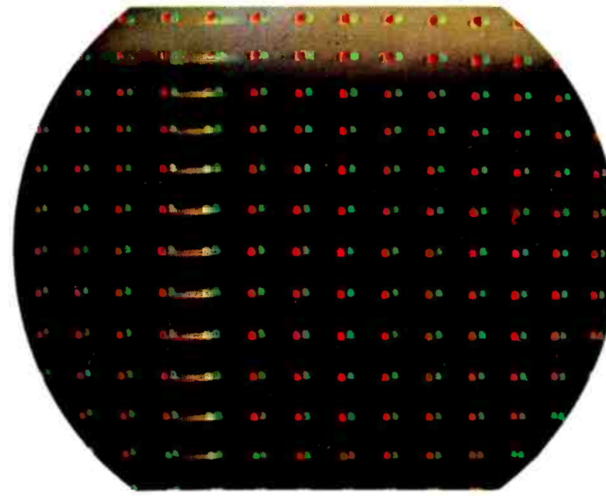


Fig. B10. Red Dots Equally Spaced from Green Dots Along Horizontal Center Row Indicate Proper Adjustment of Amplitude and Phase Controls for Red Beam.

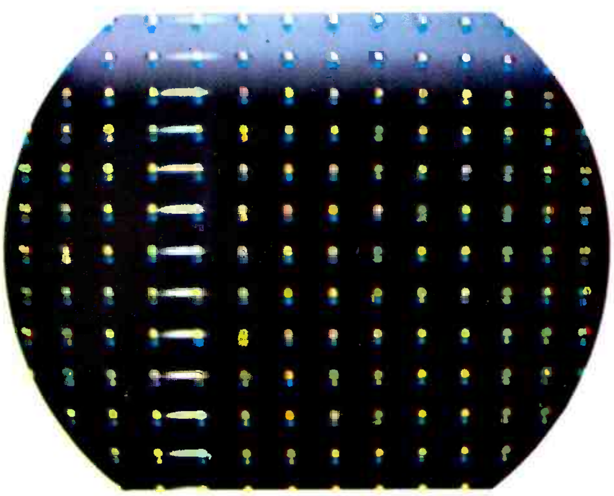


Fig. B8. Straight Line of Blue Dots Along Horizontal Center Row Indicates Correct Adjustment of Amplitude and Phase Controls for Blue Beam.

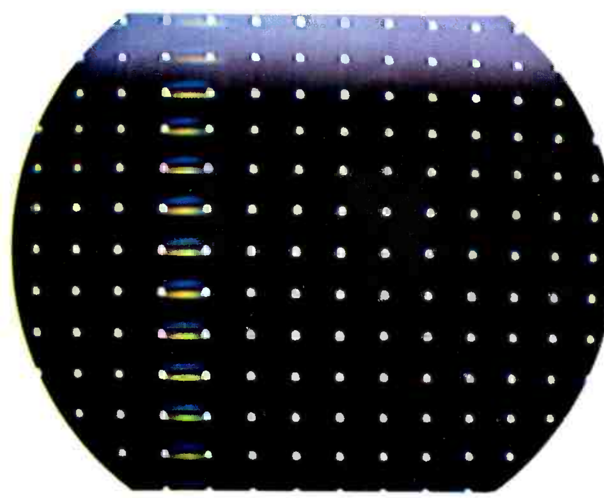


Fig. B11. White-Dot Pattern Produced When All Convergence Adjustments Are Correct.

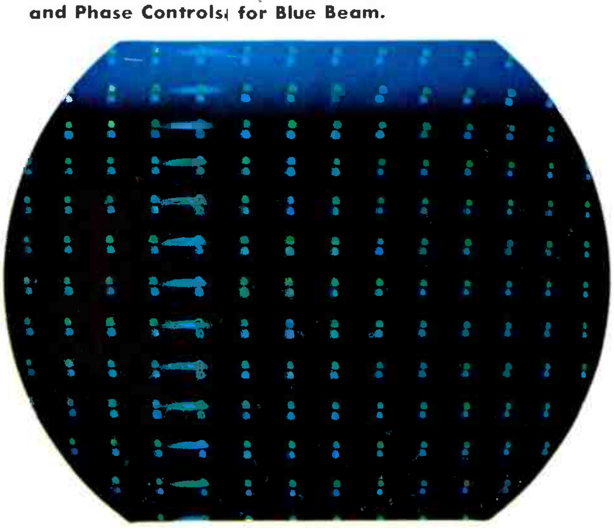


Fig. B9. Green Dots Equally Spaced from Blue Dots Along Horizontal Center Row Indicate Proper Adjustment of Amplitude and Phase Controls for Green Beam.

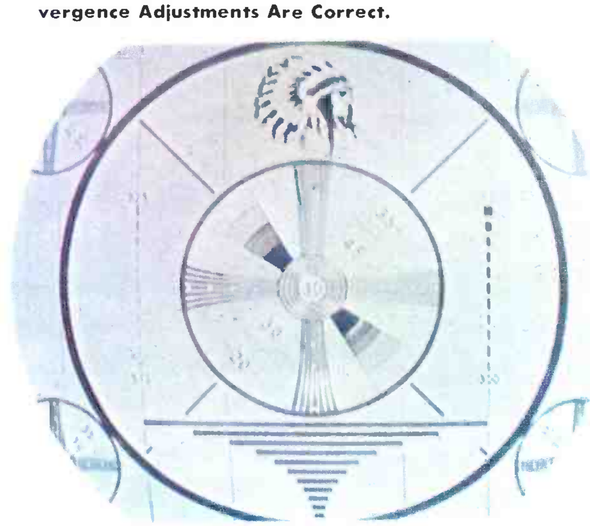


Fig. B12. Test Pattern Produced on a Three-Beam Tube After All Convergence Adjustments Have Been Completed.

converged and will have color fringing. Fig. B1 of the Color Plate shows this condition.

Fig. 10-13 shows that the directions in which the red and green beams may be moved by their associated convergence fields are such that the dots of light from these beams will coincide only when the associated beam-positioning magnets are at specific settings. The blue beam, on the other hand, can be moved both vertically and horizontally. For this reason, the red and green beams should be converged first. Then, through the use of the lateral-correction magnet and the beam-positioning magnet which is associated with the blue gun, the blue dots of light can be moved so that they will coincide with the red and green ones.

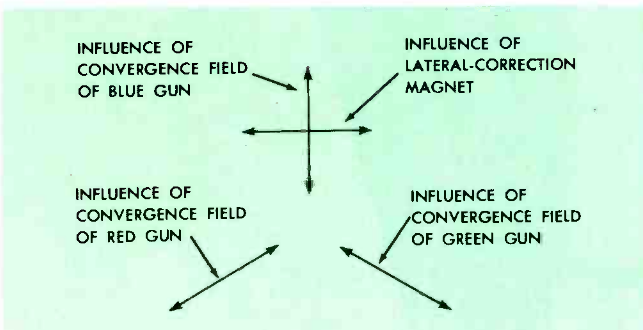


Fig. 10-13. Directions of Beam Movements Caused by Magnetic Convergence Fields.

Since the combined light emissions from the red and green phosphors will give the appearance of yellow, the dots of light at the center of the screen will appear to be yellow when the positioning magnets for the red and green beams have been adjusted properly. The yellow dots shown in Figs. B2 and B3 of the Color Plate indicate that those two magnets have been adjusted correctly. Fig. B2 shows, in addition, the blue dots displaced from a position of static convergence by a misadjustment of the lateral-correction magnet. Fig. B3 shows the blue dots displaced by a misadjustment of the beam-positioning magnet associated with the blue gun.

The order in which the adjustments for static convergence should be made is as follows:

1. Supply a white-dot signal to the receiver.

2. Adjust the contrast and brightness controls for good pattern reproduction on the screen.

3. Adjust the screen controls for the red, green, and blue guns until each of the three colored-dot patterns are clearly visible.

4. Set all controls pertaining to dynamic convergence so that there will be minimum correction.

5. Position the magnetic-convergence assembly and the lateral-correction magnet so that they will have the proper relationship to the pole pieces in the gun assembly.

6. Converge the red and green dots of light at the center of the screen by adjusting the beam-positioning magnets for the red and green guns.

7. Adjust the beam-positioning magnet for the blue gun and adjust the lateral-correction magnet to converge the blue and yellow dots of light at the center of the screen.

Purity Adjustments

Several preceding sections of this Color TV Training Series have pointed out that in order for the three-beam tube to reproduce the hues of an image properly, each beam must strike only its respective set of phosphor dots. When this condition is achieved, color purity will be at its best. If any one of the beams happens to strike some phosphor dots of the wrong color, it may be said that the color produced by this beam is impure.

Three components are adjusted or positioned to obtain optimum color purity. These are the color-purity coil or magnet, the deflection yoke, and the field-neutralizing coil or magnets. The procedure for making the purity adjustments is the same for all receivers which use a three-beam color tube, regardless of the method employed to obtain beam convergence; however, the components which aid in obtaining purity may vary. For instance, one receiver may utilize a purity coil; whereas, another may use a purity magnet. Some receivers employ a field-neutralizing coil; whereas, others may use permanent magnets. Since the discussion of the procedure for obtaining color purity in a receiver employing electrostatic convergence contained a description of the uses of a purity coil and a field-neutralizing coil, this section will deal with a description of the procedure to be followed when magnets are used.

The first step in making the adjustments for color purity is to set the field-neutralizing magnets (rim magnets) in a neutral position. In some receivers, this means setting the magnets so that their poles are aligned with the rim strap. In other receivers, the magnets must be positioned away from the tube as far as possible. Next, the yoke is moved back on the neck of the tube. It should be concentric with the neck of the tube, and it should not be moved far enough to disturb the position of the magnetic convergence assembly.

Since the red phosphor is less efficient than the green or blue, the purity adjustments should be made while observing only the raster produced by the red gun. This means that the emission from the green and blue guns must be cut off during the procedure. Two methods of obtaining beam cutoff are (1) to decrease the screen voltages by turning the screen controls to their counterclockwise positions and (2) to ground the control grids. The first method should be used whenever possible because, in many cases, it is the easiest way of cutting off the beams. The second method should be used when it is specified in the service data for a particular receiver.

The screen control for the red gun and the brightness control should be advanced to their maximum (clockwise) positions to obtain maximum emission from the red gun. The contrast control should be set at its counterclockwise position so that no signal is applied to the picture tube. The red beam alone is not sufficient to illuminate the screen very brightly; therefore, it is usually better to work in a dimly lighted area.

At this point in the procedure, the raster may be composed of several colors, indicating that the beam from the red gun is striking phosphor dots of the wrong color. The first step toward correcting this condition is to adjust the purity magnet. This device is similar to the centering magnet used in many monochrome receivers and should be positioned on the neck of the tube so that it encircles the space between grids No. 3 and No. 4 of the electron guns. As shown in Fig. 10-14, this position is approximately halfway between the locations of the lateral-correction magnet and the magnetic-convergence assembly.

* * Please turn to page 51 * *

Battery Business is REPEAT Business!

. . . if YOU keep repeating, *"Does your Portable need new Batteries?"*

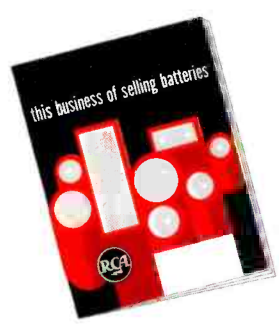
Every time you ring up a sale for anything, always ask that question. Every time you make a service call, always ask that question. You'll be surprised at the battery business that's yours for the "asking."

There are over 15 million portables in this country, and whether they're in use or on the shelf, the batteries run down. Here's a big market full of repeat business potential. Here's a growing market to which you can sell fresh, full-powered RCA Batteries time and time again during the course of a season.

You can depend on RCA Batteries to give your customers the kind of product performance that keeps them coming back for repeat business throughout the year. RCA Batteries are radio-engineered for extra listening hours . . . manufactured to the highest performance standards of the greatest name in radio.

Your RCA Distributor is ready now to supply you with fast-moving RCA Radio Batteries for every leading portable radio. Stock-up now. Then use RCA's potent selling aids . . . mention batteries during every sale and service call . . . and you'll be in this business of selling batteries—RCA Batteries—in a big way, profitably.

FREE! "This Business of Selling Batteries." It's loaded with hot selling tips and promotional ideas. Ask your distributor or write RCA Commercial Engineering, Section E33N, Harrison, N. J.



RCA

RADIO CORPORATION of AMERICA

RADIO BATTERIES ***HARRISON, N.J.***

Notes On TEST EQUIPMENT

Presenting Information on Application, Maintenance, and Adaptability of Service Instruments

by Paul C. Smith

VIDEO SWEEP APPLICATIONS IN COLOR RECEIVERS

Several manufacturers have recently modified their equipment or developed new equipment to provide the service technician with means for obtaining a video sweep signal. Although such a signal would be useful in checking video amplifiers of black-and-white television receivers, a video check of this type was not considered sufficient justification for adding a video sweep to earlier sweep generators. This viewpoint was taken because of the fact that adjustments and provisions for alignment of these video amplifiers are seldom provided; therefore, a video check would probably be made only to determine whether the video amplifiers are contributing to the poor quality of a picture.

A video sweep signal is much more necessary and useful when the service technician is working with a color receiver which contains a number of circuits designed to respond to video frequencies. Some of these circuits contain adjustable components; and in all of these circuits, proper response is an important consideration in evaluating the performance of the receiver. Alignment requirements are more critical than those in a black-and-white receiver.

Some of the symptoms which may result from improper alignment or poor frequency response in the color circuits are weak or desaturated color, poor color synchronization, loss of color detail, and color contamination between the I and Q channels.

An idealized over-all response curve for a color receiver is shown in Fig. 1. This is the response that is desirable in the RF and IF circuits. The location of the picture carrier is taken as the zero-reference point, and the relative locations of the color subcarrier and the sound carrier are shown. The modulating frequencies applied to the color subcarrier produce sidebands on each side of the subcarrier frequency of 3.58 megacycles. On one side of this point, the modulating frequencies for both the I and Q signals extend to 500 kilocycles higher than the subcarrier frequency; and the response curve is shown as being flat to 4.1 megacycles, which is the condition necessary for equal amplification of all these frequencies. If the response is allowed to fall off before it reaches this frequency, some color detail will be lost.

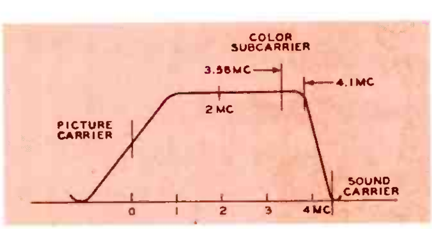


Fig. 1. Ideal Video IF Response of a Color Receiver.

Correct frequency response is equally important in the bandpass or chrominance channel and in the I and Q channels. Desirable bandpass characteristics for each of these channels are shown in Figs. 2A, 2B, and 2C. Note that in part A of the figure, the zero reference is still the frequency of the picture carrier; whereas, in parts B and C, the reference is the subcarrier frequency because the signal has been subjected to I and Q demodulator action.

Obtaining a Video Sweep Signal

In order to produce the response curves shown in Figs. 2A, 2B, and 2C, it is necessary to have a source of video sweep signal and a detector network. If the oscilloscope used for viewing has a vertical-amplifier response that is flat to 4.5 megacycles or beyond, a fair indication of the response might be obtained without a detector; but there is more chance of confusion in interpreting the results.

The range of sweep frequencies supplied by the sweep generator should

* * Please turn to page 60 * *

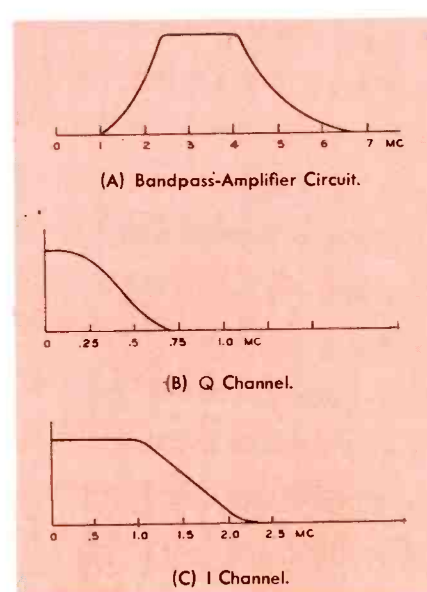
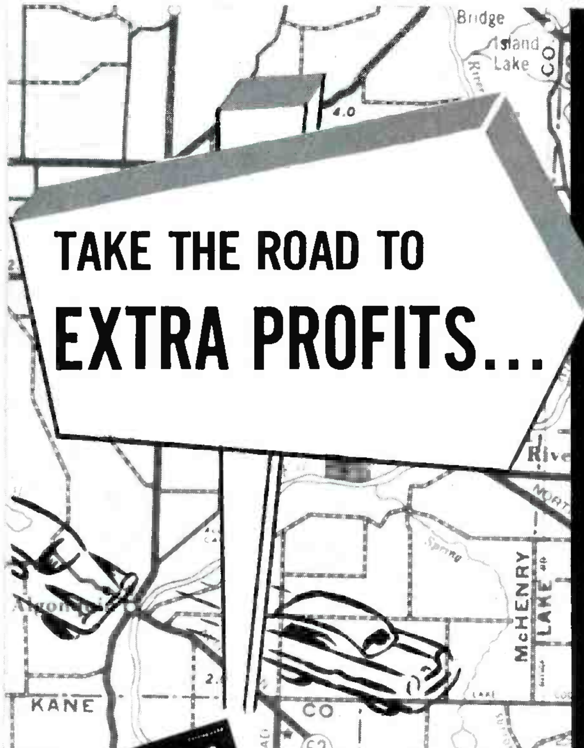


Fig. 2. Desirable Response Patterns in the Chrominance Channels of a Color Receiver.



TAKE THE ROAD TO

EXTRA PROFITS...

REPAIR AUTO RADIOS

quickly, easily with

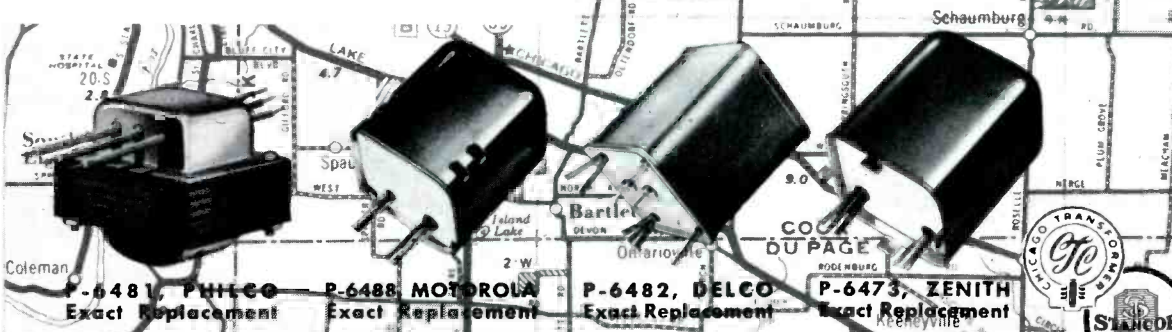
STANCOR

EXACT REPLACEMENT AUTO VIBRATOR TRANSFORMERS

free!

New STANCOR Auto Radio Transformer Replacement Guide, the most complete ever published. This valuable book lists accurate replacement data for over 540 car radios, built or used by over 40 manufacturers. Both vibrator powers and audio outputs are included. It's available FREE from your CHICAGO STANDARD distributor

You can increase your auto radio repair profits by reducing installation time with STANCOR exact replacement vibrator transformers. Like STANCOR flybacks, STANCOR auto vibrator transformers are faithful duplicates of the originals they are designed to replace.

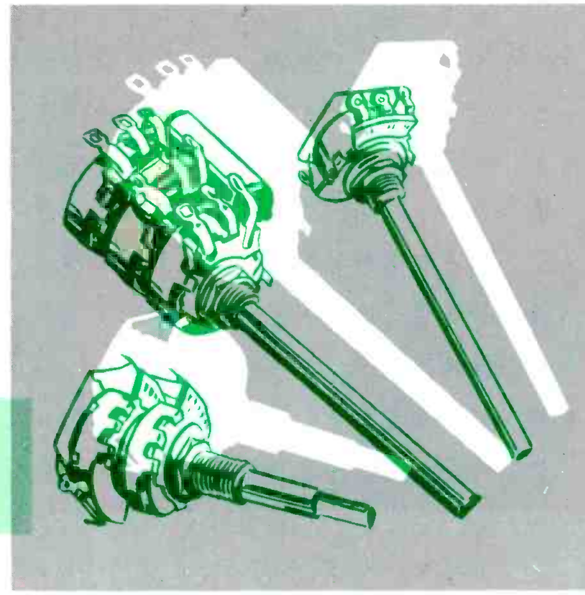


CHICAGO STANDARD TRANSFORMER CORPORATION

3594 ELSTON AVENUE • CHICAGO 18, ILLINOIS

Export Sales: Roburn Agencies, Inc., 431 Greenwich St., New York 13, N.Y.

Replacement Technique for Controls



Mechanical and Electrical Considerations

BY HENRY A. CARTER

A realization of the differences in various controls or potentiometers and of the significance of these differences should be a part of the knowledge of every service technician. In order to fit a particular application, a potentiometer should have the correct resistance value and the proper physical dimensions. These are not the only requirements, however. A potentiometer has other important specifications which should be considered when choosing a replacement. Chief among these are: (1) the wattage rating; (2) the number and location of taps, if any; (3) the type of construction, either wire-wound or composition; and (4) the type of taper.

This article contains an explanation of some of these features about controls, points out some of the types of controls encountered in service work, and presents practical suggestions on methods of mounting controls.

TAPER

Taper in a potentiometer indicates the manner in which the resistance of the control varies during rotation of the control. The curves shown in Fig. 1 are typical taper curves. Percentages of the total resistance are plotted against the percentages of control rotation. The percentage of resistance shown at each point of the curve is that portion of the resistance which would be read on an ohmmeter when the test leads are placed across the terminals that are specified in Fig. 2. Note that the photograph was taken from the shaft side of the control.

In order to obtain a clearer understanding of the term taper, the three types most often encountered will be discussed. There are many more kinds of tapers available, but space does not permit a detailed discussion of all of them.

Linear Taper

Controls having linear tapers are represented by the curve designated as TC-1 in Fig. 1. The principal uses for these controls are in television receivers for adjusting horizontal and vertical centering, horizontal and vertical hold, horizontal and vertical linearity, focus, brightness, height, and contrast. Linear tapers are used because a uniform increase in resistance is desired throughout the range of the control.

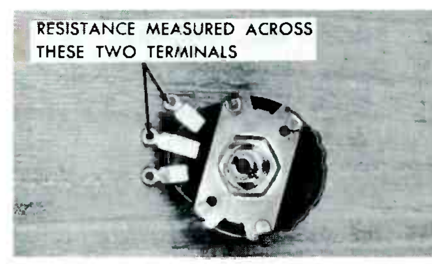


Fig. 2. Terminals Across Which Measurements Are Made for Curves in Fig. 1.

A linear taper is one in which the change in resistance is uniform with rotation. In other words, the resistance across the terminals is fifty per cent of the total resistance when the control is rotated fifty per cent.

Left-Hand Taper

Because of the fact that an audio input voltage must be multiplied by approximately ten in order to double the volume developed by a speaker, a nonlinear taper is needed in the volume control. Such a taper is represented by the curve designated as TC-2 in Fig. 1. This curve indicates a logarithmic left-hand taper. Note that the resistance at the half-rotation point is one tenth of the resistance at the full-rotation point.

If a control with a linear taper were mistakenly used as the volume control, all control of the volume would be crowded at the bottom of the control so that only a slight rotation of the control would cause a large increase in volume at low percentages of rotation. The half-volume point

* * Please turn to page 79 * *

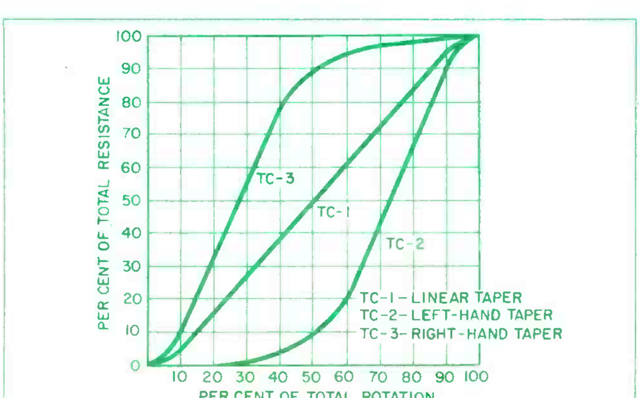


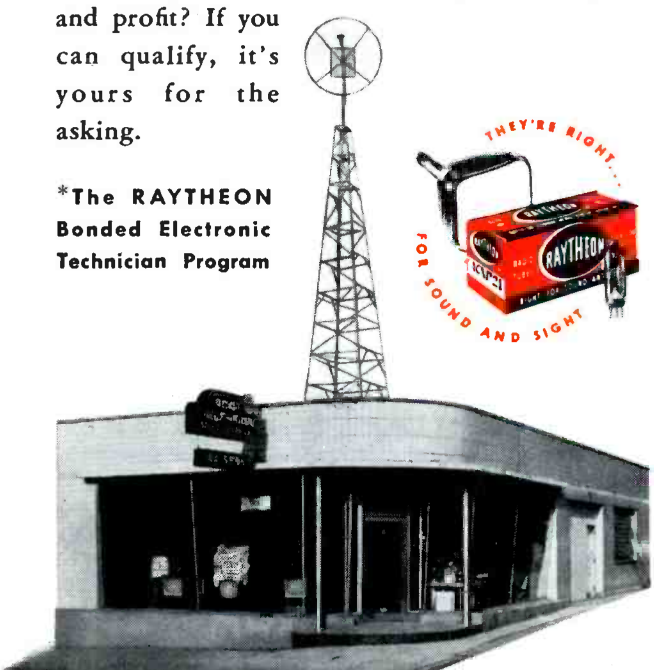
Fig. 1. Typical Taper Curves.

"Your Raytheon program* has gone far toward the needed understanding between customer and dealer..." says Bailey Root of ROOT TELEVISION

One need only glance at these pictures of ROOT TELEVISION'S modern, efficient looking operation and competent staff of technicians to realize that here is a well organized, dependable, profitable Radio-TV service business.

We're proud that they are Raytheon Bonded dealers, and happy that we could play a part in their success story. Why not ask your Raytheon Tube Distributor if you can qualify for the Raytheon Bond that helps thousands of Service Dealers throughout the country gain prestige and profit? If you can qualify, it's yours for the asking.

*The RAYTHEON Bonded Electronic Technician Program



Root Television

"Let ROOT get to the root of your trouble"

317 MONMOUTH STREET • NEWPORT, KENTUCKY
• CO lonial 5864
• AX tel 5555

Raytheon Manufacturing Co.,
55 Chapel Street
Newton 58, Massachusetts

Gentlemen:

We have just received our 1955 Raytheon Bond Certificate for which we extend a most gratified "Thank you".

As one T.V. - service dealer we appreciate the effort which your entire organization has put forth over the past years in behalf of we dealers. We for one, feel that your program has gone far toward the needed understanding between customer and dealer. You are setting a perfect example for other tube and part manufacturers to follow. Keep up the good work.

Yours very truly,

Bailey S. Root

BSR/bb

RAYTHEON

RAYTHEON MANUFACTURING COMPANY
Receiving and Cathode Ray Tube Operations
Newton, Mass., Chicago, Ill., Atlanta, Ga., Los Angeles, Calif.

Excellence in Electronics

RAYTHEON MAKES ALL THESE:
RECEIVING AND PICTURE TUBES • RELIABLE SUBMINIATURE AND MINIATURE TUBES • SEMICONDUCTOR DIODES AND TRANSISTORS • NUCLEONIC TUBES • MICROWAVE TUBES

Shop Talk

MILTON S. KIVER

President, Television Communications Institute

Last month, we started a discussion of case histories concerning color television receivers. That discussion is continued here.

Case History No. 3

The color receiver in this case was a CBS-Columbia Model 205, and the customer claimed that the color in an incoming color signal could not always be obtained on the screen; however, he had discovered that by turning the set off and then immediately on again, it was usually possible to develop the desired color image. On monochrome broadcasts, set operation was normal. The sound was all right at all times.

The problem was quite apparently confined to the color section of the receiver. Furthermore, the customer caused the color to appear by shock excitation. Something required this additional push or surge of current in order to drop into normal operation; without it, the proper conditions were not set up for the production of any color.

Technicians who have had experience with oscillators will usually consider the 3.58-mc oscillator as the most logical suspect. The operation of this circuit can become critical if the tuned circuit, L3 and C13 in Fig. 1, is not correctly adjusted. In this receiver, only a slight retouching of the slug was required in order to have the 3.58-mc oscillator operate all the time.

For those service technicians who would not have considered this specific possibility, checking throughout the color-sync section is best carried out with a wide-band oscilloscope. This instrument enables you to view the 3.58-mc oscillations directly and is therefore useful in every portion of the system.

A preamplifier such as the Simpson Model 406 chromatic amplifier is an aid when signal tracing in the chrominance section. This instrument provides a gain ratio of 30 to 1 over a band from 8 kilocycles to 4.0 megacycles. If your scope gain is down at 3.58-megacycles and the pattern you obtain is too small to be worked with easily, use of the preamplifier will do much to ease your job.

The 3.58-mc oscillator stage, incidentally, is a good place to check whenever the complaint is lack of color on a broadcast known to be in color. It is not the only place to check, of course; but it is surprising how often it turns out to be the culprit.

Case History No. 4

Somewhat related to the foregoing case history was the complaint received from another customer that the picture on his CBS-Columbia Model 205 would not hold its colors. Rather, the colors tended to drift across the screen.

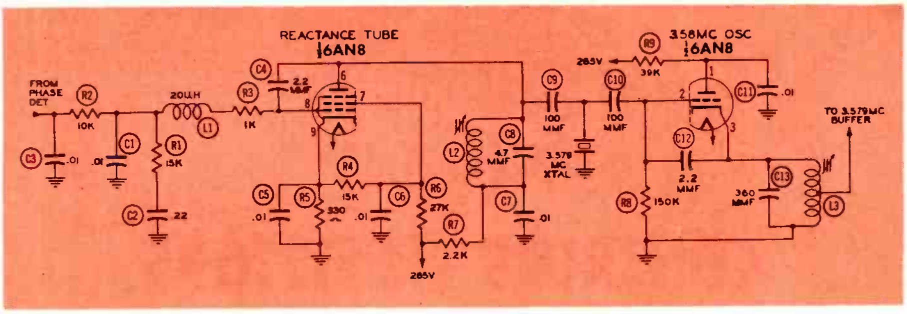


Fig. 1. The Reactance Tube and 3.58-Mc Oscillator Circuits of CBS-Columbia Model 205 Color TV Receiver.

The trouble lay in the inability of the 3.58-mc oscillator to synchronize with the incoming signal. This could stem from a phase detector that was not properly carrying out its function, a faulty reactance tube, or a defective circuit element. Tube changing was then tried first; and when the reactance tube was changed, the trouble cleared up.

Similar instability in maintaining true color in a Motorola Model 19CT1 color receiver was eventually cleared up by realigning the color-sync circuits. The procedure is rather simple and straightforward, but it was found that lack of the proper alignment could at times lead to color instability.

Case History No. 5

One peculiarity noted by an owner of a color receiver was that proper color reception could be obtained on only three of the four local channels. On the fourth channel, which happened to be channel 5, no color could be received although black-and-white reception on this channel was normal.

The trouble could only be in one of two places, the RF tuner or the antenna. As a first step, a color-bar generator was connected to the receiver input in place of the antenna; and a color-bar signal on channel 5 was fed into the set. No color pattern could be developed on the screen; however, when the color-bar generator and the receiver were tuned to another channel, a full color-bar pattern was produced.

The trouble was apparently peculiar to channel 5; and since a Standard Coil tuner was used in this

* * Please turn to page 35 * *

WHEN IT RINGS...

IS IT A CALL-BACK?

...OR IS IT NEW BUSINESS?

Thorough servicing is profitable servicing. That's why business-minded servicemen insist on the **best** in test equipment, **best** in technical "know-how", **best** in components. And those **dependable** Clarostat controls and resistors certainly round out those stay-put, profitable, good-will-building jobs.

• ***Ask your Clarostat distributor for latest catalog.***

CLAROSTAT®

CONTROLS—RESISTORS

CLAROSTAT MFG. CO., INC. • DOVER, N.H.

In Canada: Canadian Marconi Co., Ltd. Toronto 17, Ont.

HINTS for TV ALIGNMENT

PRACTICAL SUGGESTIONS WHICH WILL SPEED SERVICE

BY CALVIN C. YOUNG, JR.

A television receiver must be properly aligned if it is to produce the best possible picture and sound. This is true not only for fringe and suburban reception but also for metropolitan and local reception. A properly aligned receiver not only has maximum gain but also has proper bandpass so that maximum picture detail and faithful reproduction of audio will be obtained.

The adjustment of the IF and tuner circuits in a television receiver requires that the technician consider many things. Not only must high quality equipment be employed, but it must also be used correctly. Failure to understand thoroughly the equipment and its limitations can make the job of aligning a television receiver much harder than necessary.

The material in this article is intended to acquaint the service technician with some of the problems that may be encountered in alignment and to present a procedure that will help minimize these troubles and thus make alignment as simple as possible.

Preliminary Tests and Procedures

Before the actual alignment procedure is started, the technician should make a number of preliminary checks to ascertain whether the IF and tuner stages are functioning normally except for being out of alignment. The tubes of the tuner, IF, and video-detector stages should be checked; and all faulty ones should be replaced. If the receiver uses a crystal as the video detector, the forward and reverse resistances should be checked. To make this check, it is necessary to disconnect one end of the crystal from the circuit. The reverse resistance should be very large when compared with the forward resistance (with a ratio of 20 to 1 or more). Check the B+ supply voltages to the IF strip and the tuner. If these voltages are incorrect, repair the set as required to restore the voltages to normal. Check the tuner and the IF strip for shorts and other obvious component failures.

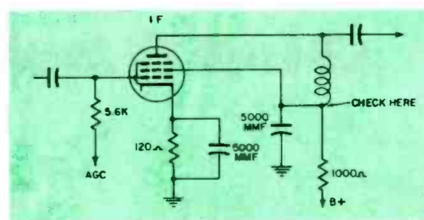


Fig. 1. Point to Check for Signal Rectification in the IF Strip.

Check the IF strip for rectification of the video signal. This rectification can be caused by excessive signal, excessive grid bias, low plate or screen voltages, or an open bypass capacitor. To check the IF strip, connect the ground lead of the oscilloscope to the chassis; advance the vertical gain of the scope to maximum; and check for the presence of a video signal at the screen grid or at the low side of the plate coil of each stage. See Fig. 1 for the location of this point. The presence of a video signal indicates rectification, and steps should be taken to remove the cause of this trouble before proceeding with the alignment.

Another preliminary step before alignment is to disable the high voltage in order to remove the shock hazard. This is especially important if a picture tube with a metal cone is employed. There are a number of ways in which the high voltage may be disabled. In sets which employ a series or series-parallel filament string, the most practical method is to remove the high-voltage rectifier tube. It is advisable to tape the plate connector to prevent arcing. In sets which have all the filaments in parallel, it is sometimes possible to disable the high-voltage supply by removing the horizontal-oscillator tube.

CAUTION: This latter method can be used only if a cathode resistor of 100 ohms or more is used in the horizontal output stage. If no cathode resistor is employed, then remove the high-voltage rectifier and tape the plate connector to prevent shorts to the chassis. It is best to disable the high-voltage supply in such a manner that the horizontal-output stage would still be operating and drawing current from the power supply. In this way, the current drain from the power supply is maintained at a normal level; and thus there will be normal operating voltages to the balance of the receiver.

Tools and Equipment

In addition to the usual test equipment such as a sweep generator with markers, an oscilloscope, and a VTVM, there are several other pieces of equipment which are usually required when aligning a television receiver. A source of bias voltage is usually required. Generally speaking, one and a half to three volts will be specified in alignment instructions. A bias pack that is satisfactory is shown in Fig. 2. This bias pack consists of a 7.5-volt radio C battery with 1.5-, 3-, 4.5-, and 6-volt taps and with a potentiometer connected as shown in Fig. 3. Flexible leads,

* * Please turn to page 74 * *

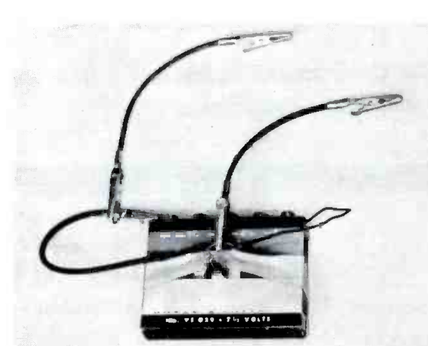


Fig. 2. Battery Bias Pack.

"I WANT THE TUBES WITH THE GOOD HOUSEKEEPING GUARANTY SEAL!

"TV and radio tubes are mysterious things to me, but that Good Housekeeping Seal is a tried and true friend. I trust any product that has earned it. So when you replace tubes in *my* sets, be sure they're CBS tubes . . . *the tubes with the Good Housekeeping Guaranty Seal.*"

Millions will see or hear about CBS tubes on TV and radio . . . and in national magazines throughout 1955.

Check and Remember

1 It's a *woman* you talk to on most service calls.

2 CBS is addressing its national advertising especially to women.

3 53% of *all women* are influenced in their purchases by the Good Housekeeping Guaranty Seal.

4 CBS tubes have that Seal.

Use CBS tubes . . . the tubes in which women have confidence.

GET YOUR NEW
CBS Tube SALES PROMOTION KIT

Ask your CBS tube distributor for special offer . . . or mail $2.00 direct for complete Kit.

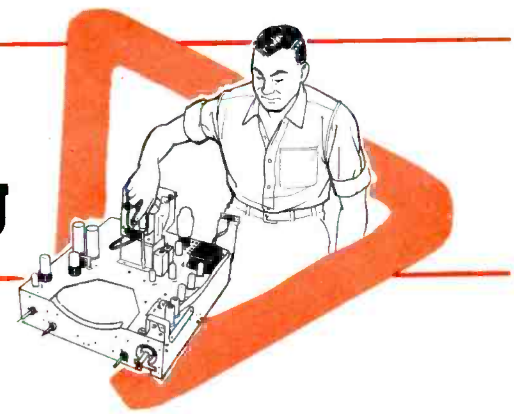
CBS TUBES

CBS-HYTRON, Main Office: Danvers, Massachusetts
A Division of **CBS** *. . . the Columbia Broadcasting System, Inc.*

A member of the CBS family: CBS Radio • CBS Television • Columbia Records • CBS Laboratories • CBS-Columbia • CBS International • and CBS-Hytron

In the Interest of . . .

Quicker Servicing



by **Henry A. Carter** *and* **Calvin C. Young, Jr.**

IN THE HOME

SYNC BUZZ

Sync buzz is a trouble that confronts service technicians practically every day. Many times this trouble is simply ignored rather than eliminated. Some customers have endured sync buzz for so long that they have come to believe that the buzz is normal and is a part of television reception. If a television receiver is set up and is operating properly, there needs to be no sync buzz present. If time is taken to diagnose properly and to remove the cause of the trouble, customer relations can be improved. Removal of a particularly annoying sound, especially when you are not asked to do so, will greatly influence the customer and convince him that you know television servicing and are really trying to repair his receiver.

There are a number of troubles that will cause sync buzz. Some can be remedied in the home, others make it necessary to take the receiver to the shop for repair. Only those troubles which can be dealt with in the home will be covered.

Causes of Sync Buzz

One of the primary causes of sync buzz is the aging of the detector tube or some other component associated with the detector stage. Often, this aging can be compensated for by making the proper adjustment.

Improper tuning of the local oscillator can sometimes be the cause of sync buzz. In most cases, the fine-tuning control has sufficient range to permit proper tuning. If not, adjustment of the local oscillator should be made.

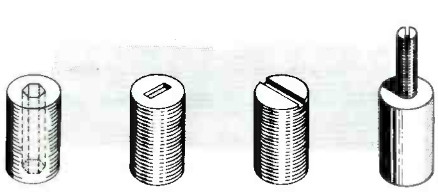


Fig. 1. Types of Cores Used in IF Transformers.

Another cause of sync buzz is overloading of one of the IF or tuner stages. Overloading may be caused by insufficient AGC voltage, by low B+ voltage to the IF stages and tuner, or by failure of one of the IF or tuner components. If the receiver has an AGC control of the variable type, the AGC action can be checked by turning this control to produce a slightly higher AGC voltage.

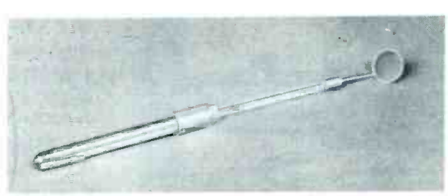


Fig. 2. Illuminated Inspection Mirror.

Before attempting to adjust the detector transformer or buzz control for minimum buzz, it is necessary first to determine the type of alignment tool to be used. Several different types of tuning slugs are used on the various transformers and coils. Four of the different tuning arrangements are shown in Fig. 1. Notice the devices provided for adjusting the cores. The core with the hexagonal hole (Fig. 1A) is used in the quadrature coil of gated-beam detectors and sometimes in the transformers used with ratio detectors and discriminators. When cores of this type are used, both can usually be adjusted from either the top or bottom of the coil or transformer.

The two cores in Figs. 1B and 1C employ slots; however, one uses a partial slot which will accept an alignment screwdriver of only a specific size. It is very important for the correct tool to be used because a tool of the wrong size or type can damage the core and thus make it difficult to tune the core; or even in some extreme cases, the use of the wrong tool may make it necessary to replace the entire transformer.

The brass screw on the core shown in Fig. 1D may have a slot, or it may have a 1/4-inch nut soldered onto the end. In the event that a slot is provided, only the proper alignment tool should be used, because a screwdriver will spread the slot and make adjustment difficult. There is also a risk of breaking the screw and thus of having to replace the unit.

An illuminated inspection mirror, such as that shown in Fig. 2, would make the job of determining the type of slug much easier. Then the proper tool could be used for alignment.

Adjusting Discriminators and Ratio Detectors

If an intercarrier receiver uses a discriminator or ratio detector, adjustment of the circuits for minimum buzz should be done as follows:

Tune to a local station, and adjust the fine-tuning control for the best picture and sound. Using the proper alignment tool, carefully adjust the secondary slug of the detector transformer for minimum buzz and maximum volume. After this has been done, carefully adjust the primary slug only a slight amount in either direction in order to determine whether the sound can be further improved; then, carefully readjust the secondary slug for the point of minimum buzz and maximum volume. If this procedure fails to eliminate the buzz, substitute a new detector tube; then carefully repeat the procedure.

NOTE: Care should be taken to see that the primary slug is turned only a little in either direction from

* * Please turn to page 86 * *

CHECKING FILAMENTS IN A *Series String*

BY CALVIN C. YOUNG, JR.

RAPID METHODS FOR LOCATING A TUBE WITH AN OPEN HEATER

Series filaments are familiar to most service technicians since they have widespread application in AC-DC radios of the 4-, 5-, and 6-tube varieties. Filament strings are used in these small radios so that the cost of a power transformer can be eliminated. Time has shown that some failures of filaments can be expected in these radios; but since there are usually only 4 to 6 tubes, locating an open filament poses no problem. By the use of an ohmmeter, the open filament can be located in 5 or 6 minutes even if all of the tubes have to be checked.

More and more television receivers which use filaments connected in series are being placed on the market. As in radios, series filaments are being used to eliminate the need for power transformers.

The first television receivers to incorporate filament strings actually used a series-parallel arrangement which generally consisted of two series strings in parallel with each other. This parallel combination was connected in series with the picture tube and one or two other tubes. This sounds like a complex arrangement, and actually it is from a servicing viewpoint. A typical series-parallel hookup of filaments is shown in Fig. 1. In this hookup, the tubes used require three different values of filament current for operation. The 12AX4, the 17HP4, and the two 6SN7 tubes require 600 milliamperes; the 6U8 and the 6AH6 require 450 milliamperes; and the balance of the tubes require 300 milliamperes.

All filaments having a given voltage and current rating are not necessarily identical. Consequently, when tubes containing these filaments are connected in series-parallel, the differences in the construction of the filaments give rise to variations in the voltages developed across the filaments. The amounts of heat will vary, and this causes some tubes to be more susceptible to failure than others.

One other common cause of filament failure in series-parallel circuits is the large surge of current which occurs at the instant the power switch is first turned on. To help overcome this objectionable surge, some manufacturers incorporate a series resistor of the negative-temperature-coefficient (NTC type). Such a resistor is used in the filament string shown in Fig. 1. This resistor R80 has a cold resistance of 230 ohms, and this resistance gradually decreases to 19 ohms during the first 90 seconds of operation. The initial high resistance reduces the surge currents and thus protects the tube filaments.

The resistor R81 shown in Fig. 1 is used to provide a 150-ma current path in order that the 6U8 and 6AH6 will be supplied with only the 450 milliamperes which they require. This shunt resistor is necessary since the total current is 600 milliamperes. The resistor R82 is used to reduce slightly the filament current through the 6SN7 tube V9. The current can be reduced because tube V9 is used where its maximum output is not required; therefore, the manufacturer designed the circuit so that the heater current through this tube would be less and its operational life would be lengthened.

In order to obtain even more efficient operation, the tube manufacturers have developed and placed on the market an entire new line of tubes. All of these tubes have 600-ma filaments, and they have voltage ratings which permit the filaments of all the tubes in a television receiver to be placed in one series string. The tubes feature a controlled warm-up time for the filaments. That is to say, all of the tubes in this new line take about the same time to warm up; and this fact tends to help minimize the effect of the initial surge current.

A filament string using some of these new tubes is shown in Fig. 2. This filament string is incorporated in the Zenith Chassis 16T20 which is a vertical chassis. The use of a vertical chassis places all of the tubes toward the rear of the cabinet so that they are accessible when the

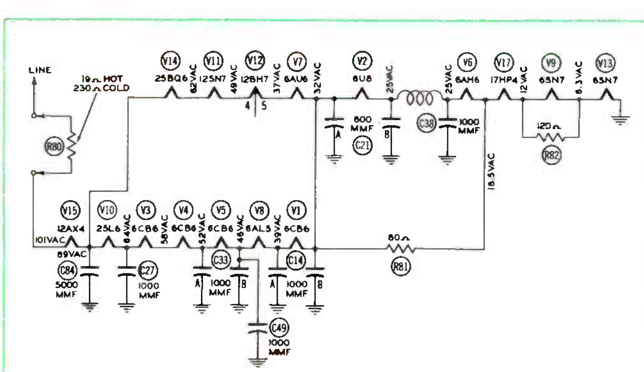


Fig. 1. Typical Series-Parallel Arrangement of Filaments. (Motorola Model 17T11E)

How Mallory Does A Selling Job For You...

Right in Your Customers' Homes

MORE than three million readers of TV GUIDE will see ads like these again this year—ads that sell your specialized abilities and experience to your customers and prospects.

You can count on Mallory for this extra sales support just as you can count on Mallory precision electronic components for the kind of dependable performance that keeps your customers satisfied.

You can count on Mallory . . . always!

NEW... For Your Shop

We have prepared a colorful counter display card based on the Mallory TV Guide advertising—your advertising. You may obtain this display card by writing Mallory, P. O. Box 1558, Indianapolis 9, Ind. Enclose 25c for postage and handling.

P. R. MALLORY & CO. Inc.
MALLORY
CAPACITORS • CONTROLS • VIBRATORS • SWITCHES • RESISTORS
RECTIFIERS • POWER SUPPLIES • FILTERS • MERCURY BATTERIES
APPROVED PRECISION PRODUCTS
P. R. MALLORY & CO. Inc., INDIANAPOLIS 6, INDIANA

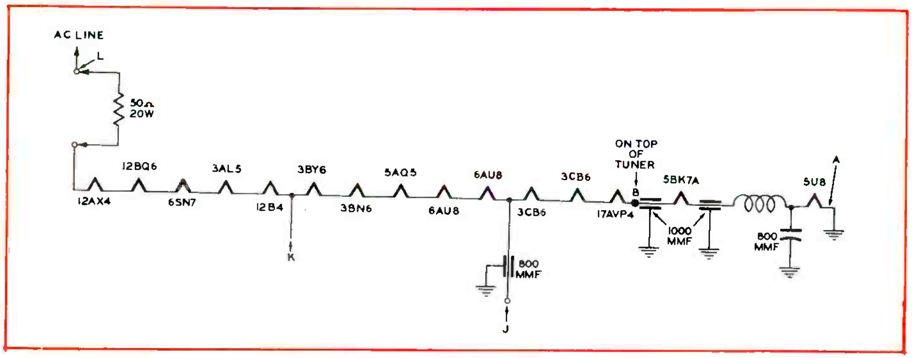


Fig. 2. Typical Arrangement of Filaments in a Single Series String. (Zenith Chassis 16T20)

rear cover is removed. This makes servicing in the home somewhat easier than with the older styles of chassis. Even though all of the tubes are readily accessible, we are still presented with the problem of locating open filaments. It could take several minutes to test the filaments by the substitution method because television receivers using this single string will have from 14 to 18 tubes.

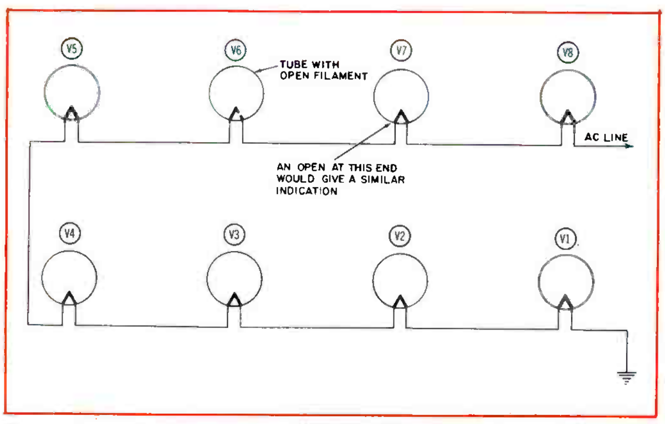


Fig. 3. Simplified Schematic Diagram of Filament String With One Open Filament.

If more than one filament in the string is open, the problem may become even more difficult.

If the technician prefers not to substitute each tube individually, he may remove the tubes one at a time and check the filaments with an ohmmeter or with a tube tester. This method is also time-consuming.

Receiver manufacturers are attempting to help the service technician with this problem. For example, on the Zenith Chassis 16T20, several test points are available on the tube side of the chassis. The points are labeled A, B, J, K, and L; and they are tied into the filament string at the places indicated in Fig. 2. The tube-layout chart on the inside of the cabinet furnishes the technician with information about these test points, and he can localize an open filament to a section of the series string by means of his ohmmeter without removing any tubes.

Fig. 4. Signal Tracer Being Used to Locate an Open Filament.

Since all manufacturers may not incorporate test points in the filament string, another method of locating open filaments will be presented here.

Signal-Tracer Method

In series or series-parallel filament circuits, it is possible to locate an open filament or filaments without tube substitution and without having to remove and test each individual tube in a filament tester. The proper use of a high-gain signal tracer in conjunction with a diagram of the filament layout will soon reveal any tubes with open filaments.

Consult the simplified filament layout shown in Fig. 3. As the first step in using the signal tracer, the ground lead of the signal-tracer probe should be connected to the chassis. Bring the probe tip near the base of V8, the tube nearest the hot side of the AC line. With the gain of the signal tracer advanced about halfway, a 60-cycle hum will be heard from the speaker in the signal tracer. Next, bring the probe tip near the base of tube V7. Again, a 60-cycle hum will be present. With the probe tip at tube V6, however, there will be little or no hum from the speaker; this indicates that the break is in V6 or V7. Whenever a tube with no hum is found, the open is in that tube or the one preceding it.

NOTE: Tube shields should be removed for this signal-tracer test.

In Fig. 4 a signal tracer is being used to locate an open filament in a series string in one of the receivers with a vertical chassis.

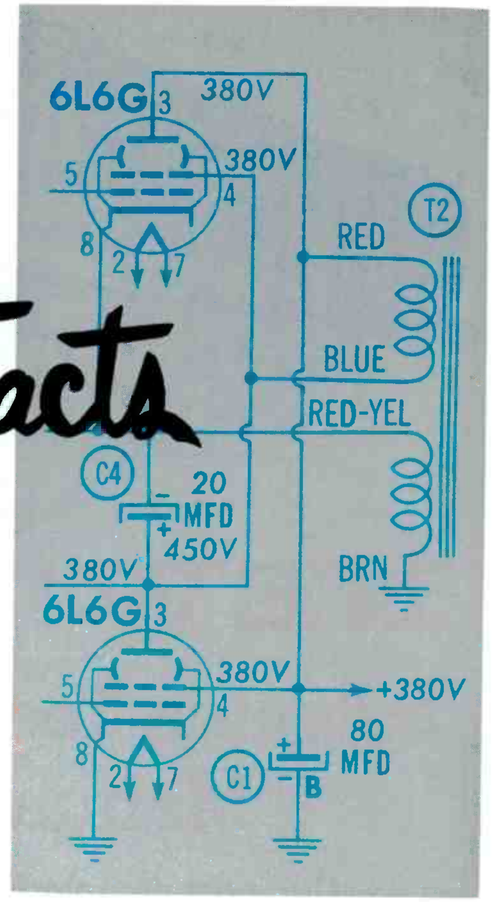
The technician should make a few tests using his own equipment in order to become familiar with the way in which the 60-cycle hum sounds on his signal tracer. At the same time, he will learn the proper level at which the gain of the signal tracer should be set. Usually, setting the gain at the halfway mark will provide a loud hum when the probe is near tubes which are located on the high side of the open filament. The distance between the probe tip and the tube envelope has a marked effect on the amount of hum pickup. These are things which the technician will learn after he tries the test a few times. In time, he should be able to locate an open filament rather quickly by this method.

In all of these methods of locating an open filament, a tube-layout chart and a diagram of the filament circuit are very helpful.

CALVIN C. YOUNG, JR.


G-C RADIO-TV SERVICE CEMENT
Famed high grade adhesive.
No. 30-2 NET $0.39
G-C CEMENT SAMPLER KIT
Includes 7 different cements.
No. 345 NET $4.95
G-C SILICONE COMPOUND
Permanent waterproof material.
No. 8100 NET $0.99
G-C ELECTRONIC CONTACT CLEANER
All-purpose contact cleaner.
No. 210-2 NET $0.33
G-C LONG-REACH LUBRICATOR
For hard-to-reach places.
No. 8690 NET $0.48
G-C RUF-KOAT WRINKLE VARNISH
Black, Gray, Brown (specify).
No. 60-2 NET $0.39
G-C DIAL LITE COLOR KIT
Kit of 5 colors and solvent.
No. 66-6 NET $0.72
G-C GENERAL SKRATCH STIK
Removes wood scratches.
No. 909 NET $0.30
G-C TV-RADIO DIAL CABLES
Best nylon cord in 25-ft. lengths.
No. 75-25 NET $0.84
G-C DIAL POINTER KIT
Box of 25 assorted pointers.
No. 6805 NET $3.30
G-C SHIELDED PICK-UP WIRE
Assorted wire lengths.
No. 1738-E NET $0.27
G-C ASSORTED SPAGHETTI KIT
Kit of 26 lengths of spaghetti.
No. 550 NET $0.30
G-C NEEDLE-POINT PRODS
Brass chucks, 6" test prods.
No. 7701 NET $0.30
GENERAL
CEMENT
Ask For These
RADIO-TV SERVICE AIDS
...at Your Jobber
G-C SPRAY DE-OX-ID
Cleaner for radio, TV controls.
No. 19-6 NET $2.97
G-C UNIVERSAL TYPE TEST LEADS
Heavy duty 6000 V. leads 50" long, 6" handles, solderless tips.
No. 8463 NET $1.80
G-C FIBRELOID SHIMS
Kit contains 20 fibreloid shims.
No. 702 NET $0.39
G-C HARDWARE ASSORTMENT
Approx. 1,000 screws, nuts, etc.
No. 6064 NET $1.08
G-C TELEVISION SAF-T-RACK
Sturdy, safe chassis repair.
No. 8045 NET $3.27
G-C SPEEDEX WIRE STRIPPER
Automatic, delayed action return.
No. 766 NET $4.95
G-C YOKE COIL EXTENSION
Service picture tube in set.
No. 8847 NET $2.70
G-C TYPE II PIN CUSHION
Reduces fuzzy pin cushion effect.
No. 8954 NET $0.60
G-C POLARIZED TV LINE PLUGS
For all UHF and VHF lines.
No. 8596 NET $0.36
G-C TV KNOB SPRING-WEDGE KIT
100 assorted TV knob springs.
No. 8858 NET $2.10
G-C ADJUST-A-LOOP ANTENNA
Eliminates bulky loop antennas.
No. 8866 NET $0.60
G-C SOLDERLESS TERMINALS
Handy lugs for 300 ohm TV lines.
No. 8633-C NET $2.19
G-C TV STAND-OFF TOOL
Open and close TV stand-offs.
No. 8450 NET $0.75
G-C SHAFT COUPLINGS, EXTENSIONS, REDUCERS
Accurately machined brass fittings. Use minimum space.
No. 6701 ¼" to ¼" coupling NET $0.12
G-C STD. TV ALIGNMENT KIT
Kit contains 9 essential TV tools.
No. 8455 NET $4.59
FREE! Postcard brings your big G-C Catalog.
Ask Your Jobber for the
SPECIALS OF THE MONTH
BUY ALL THREE AND . . .
SAVE 36c ON THESE HANDY G-C CHEMICALS!
G-C RADIO-TV SERVICE CEMENT
No. 30-2 2-oz. bottle NET $0.65
G-C RADIO-TV SERVICE SOLVENT
No. 31-2 2-oz. bottle NET $0.55
G-C ELECTRONIC CONTACT CLEANER
No. 210-2 2-oz. bottle NET $0.55
ALL THREE REGULARLY........$1.05
YOUR COST THIS MONTH ONLY..69c!
1930-1955
25th Anniversary
GENERAL CEMENT MANUFACTURING COMPANY
TELCO
GENERAL CEMENT MFG. CO.
903 Taylor Ave. • Rockford, Illinois

Audio-Facts



Single-Ended Push-Pull Output Stage and Other Features in National Audio Equipment

by Robert B. Dunham

An audio enthusiast, especially the one who constructs and assembles his equipment, usually develops a deep and continuing interest in amplifiers. This was particularly true with old-timers who worked with audio back in the days when the amplifier was nearly the whole audio system and when the amplifier was held responsible for the quality of the sound emerging from the speaker.

Audio systems, home music systems in particular, have become much more complex than they were a few years ago. The majority of high quality installations now make use of a number of specialized units including pickups, tape recorders, preamplifiers, control units, turntables, and elaborate loudspeakers. These pieces of equipment are given consideration and attention because the results to be obtained from an audio system depend upon every unit doing its part and doing it well. The spreading of interest to other parts of the audio system does not mean that amplifiers are neglected. It seems that the number of new amplifiers being produced in a variety of shapes and sizes and featuring advanced design keeps pace with the rest of the equipment.

We have discussed in previous articles how designs have changed and how modern amplifiers now produce higher power outputs with increased efficiency and decreased distortion.

National Horizon 20 Amplifier

The single-ended push-pull output stage employed in the National Horizon 20 amplifier is an example of advanced and improved design.

Fig. 1. Front View of National Horizon 20 Amplifier.

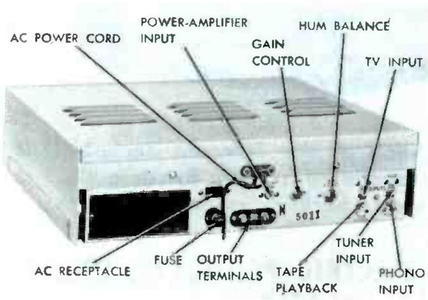


Fig. 2. Rear View of National Horizon 20 Amplifier.

The Horizon 20, shown in Figs. 1 and 2, possesses other important features; but much credit for the excellence of the following ratings must be given to the single-ended push-pull circuit.

Harmonic Distortion — 0.3 per cent at rated output of 20 watts; 0.6 per cent at 25 watts.

Intermodulation Distortion — 1 per cent at 20 watts (400 cps and 7 kc, at a ratio of 4 to 1).

Frequency Response — ±0.1 db, 20 cps to 20 kc; ±1 db, 10 cps to 100 kc.

Power Response at 20 Watts — ±0.15 db, 20 cps to 20 kc; ±1 db, 10 cps to 60 kc.

Hum and Noise — 80 db below 20-watt output.

Sensitivity — 1.6 volts for 20-watt output.

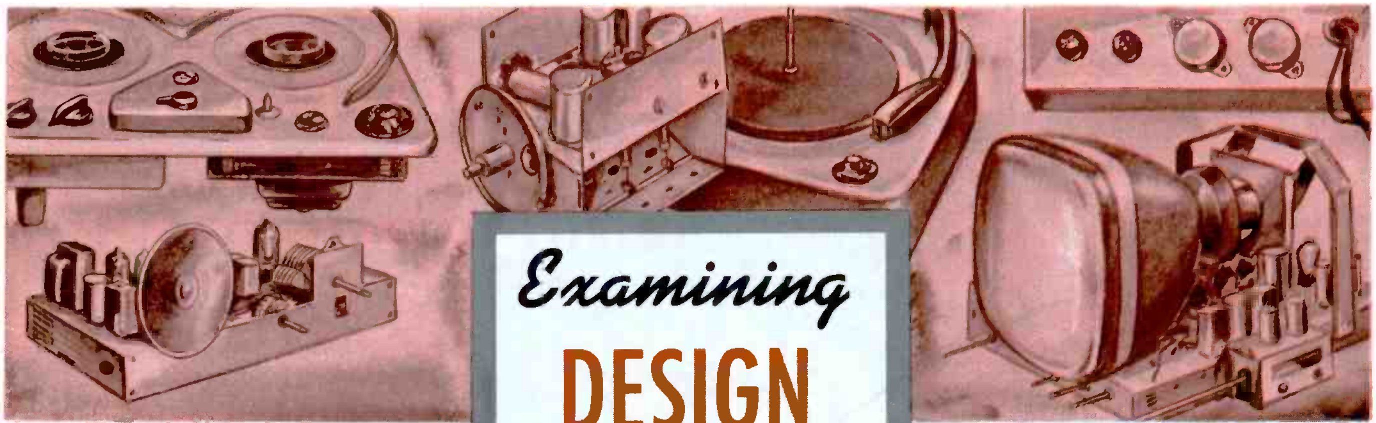
The portion of the circuit involved in the single-ended push-pull output stage is shown in the partial schematic diagram in Fig. 3.

The signal from the phase inverter V1 is fed out of phase to the grids of the output tubes V2 and V3. The plate supply for the phase inverter V1 is obtained from the midpoint (the junction of C4, pin No. 3 of V3, and the blue lead) of the output stage to aid in maintaining signal balance. In this way the signal is fed to the grid and cathode circuit of each output tube, and the push-pull cancellation of distortion is maintained. If the plate supply of the phase inverter were taken directly from the 380-volt supply, the output tube V2 would be driven as a cathode follower; and signal balance would be destroyed.

The proper negative voltage (fixed bias) is applied to the grids of V2 and V3 to bias the output stage for class AB_1 operation. Class AB_1, with its increased efficiency, can be utilized in this circuit without the usual amount of distortion associated with this class of operation because unity coupling is achieved between the output tubes independent of the output transformer. The signals from the output tubes are fed in parallel to the primary of the output transformer T2 and not in series, as would be the case in a conventional push-pull stage. Filter capacitor C1B is included in Fig. 3 because this capacitor and the screen capacitor C4 complete the parallel AC signal circuit.

Since the output tubes feed the primary of T2 in parallel, they are

* * Please turn to page 91 * *



Examining DESIGN *Features*

by WILLIAM E. BURKE *and* LESLIE D. DEANE

MOPAR MODELS 902 AND 903 SIGNAL-SEEKING AUTO RADIOS

The Mopar Model 902 and Model 903 auto radios contain a new type of automatic "signal-seeking" circuit which eliminates the necessity for manual tuning; however, the manual knob is still provided for optional use. The Mopar Model 902 shown in Fig. 1 is designed to operate on a 6-volt supply, and the Model 903 is designed to operate on a 12-volt supply. Otherwise, the two models are identical.

Except for the automatic-tuning feature, these receivers are conventional 8-tube superheterodyne radios. The automatic-tuning circuits utilize a 6CS6 tube as a phase detector and one half of a 12AU7 as a relay-control tube.

The tuning mechanism is driven across the broadcast band by a motor which is deactivated when a station is received. The tuning mechanism will not always stop on all stations but will pass over any station having a signal strength below a predetermined level. The operator sets this level by means of the sensitivity control which is located above the search-tuning bar on the front panel of the radio. See Fig. 1.

The four positions in which the control can be set provide different degrees of receiver sensitivity, but the selected degree of sensitivity is effective only during the time that the receiver is seeking a station. When the search mechanism is inactive, the receiver is operating at maximum sensitivity.

The sensitivity control is actually a switch. In the least sensitive position (labeled TOWN), the tuner mechanism will stop only on strong local stations. In the most sensitive position (labeled COUNTRY), the tuner will stop on weak distant stations as well as on the strong ones. The two intermediate switch positions provide intermediate degrees of sensitivity.

Since the signal-seeking tuner is an electromechanical device and since any rotating mechanical device has some inertia after the driving power is removed, some means must be provided for anticipating the appearance of a signal when the tuner is sweeping over the broadcast band. This provision is required because a signal must be detected early enough so that after the power to the motor is removed, the tuner mechanism can coast to a stop at the proper point. This point should be such that the center frequency in the bandwidth of the signal falls in the center of the IF passband of the receiver.

Fig. 2 shows top and bottom views of the auto radio with the covers removed. Note the motor and the worm drive which move the slugs in the tuning coils. The clutch solenoid operates during the signal-seeking period and transfers the clutch from manual tuning to motor drive.

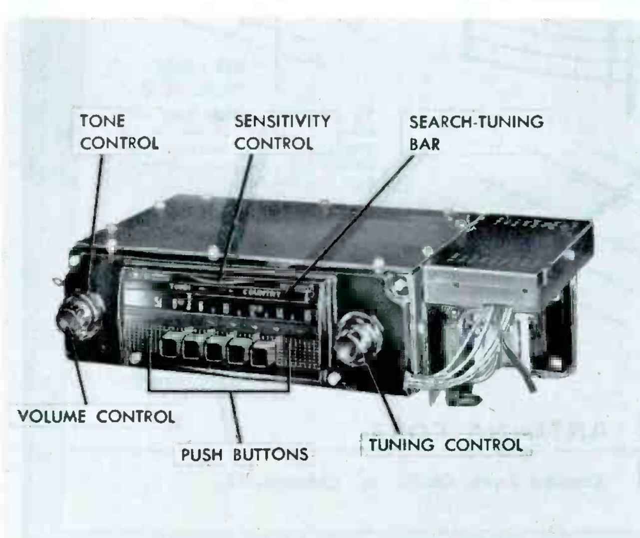


Fig. 1. Mopar Model 902 Signal-Seeking Auto Radio.

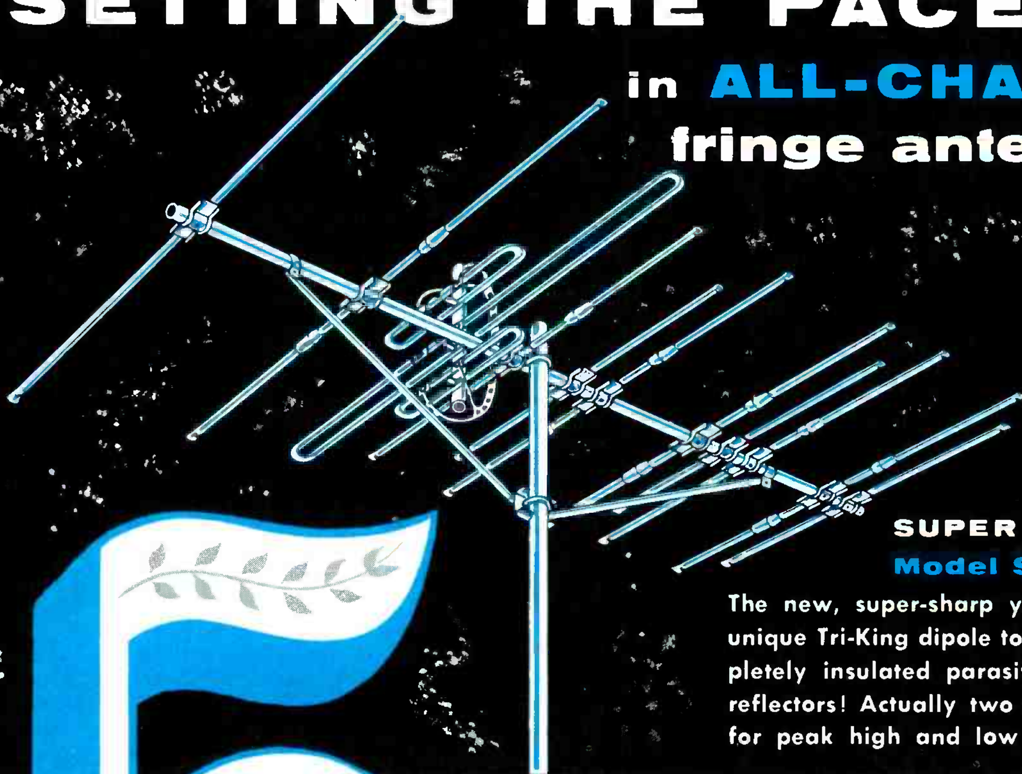
Circuit Description

Fig. 3 is a partial schematic diagram of that portion of the receiver associated with the signal-seeking function. The search relay M9 is shown in its inactive position. In this position, the cathode of the relay-control tube V6B is not returned to ground and the tube does not conduct. The drive motor and the clutch solenoid are not supplied with power, and a short is placed across the sensitivity switch. Under these conditions, stations can be selected by means of manual tuning.

When the search-tuning bar is depressed to start the signal-seeking operation, the search relay M9 is energized. The cathode of the relay-control tube V6B is connected to ground by one set of contacts on the relay switch. The current which flows through V6B maintains the search relay in an energized state even though the search-tuning bar is released.

SETTING THE PACE . . .

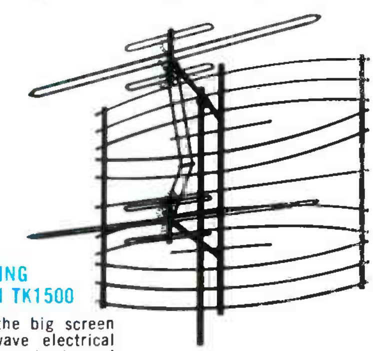
in ALL-CHANNEL fringe antennas!



SUPER SUN BEAM
Model SB662

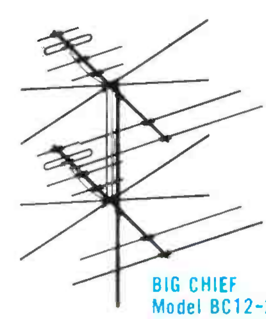
The new, super-sharp yagi utilizing the unique Tri-King dipole together with completely insulated parasitic directors and reflectors! Actually two antennas in one for peak high and low band reception.

Clear Beam's 5 peak performers solve all fringe problems. . .*



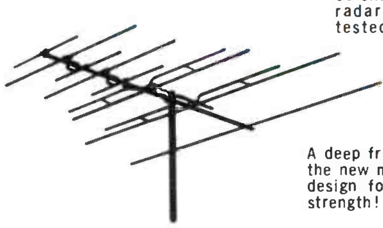
TRI-KING
Model TK1500

Highest gain of the big screen antennas! Half wave electrical spacing. Eliminates ghosts and co-channel interference. Full radar screen — wind tunnel tested!



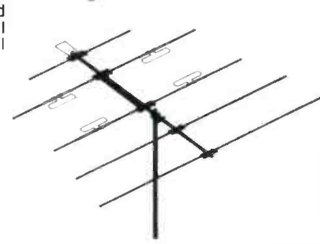
BIG CHIEF
Model BC12-2

An advanced conical-Yagi with element diameters varied for precision tuning, matched sensitivity and peak performance on high and low band!



SKY SWEEP
Model MYS80

A deep fringe yagi incorporating the new magnetic "Focal-Sharp" design for concentrating signal strength!



HUNTER Model MYH50

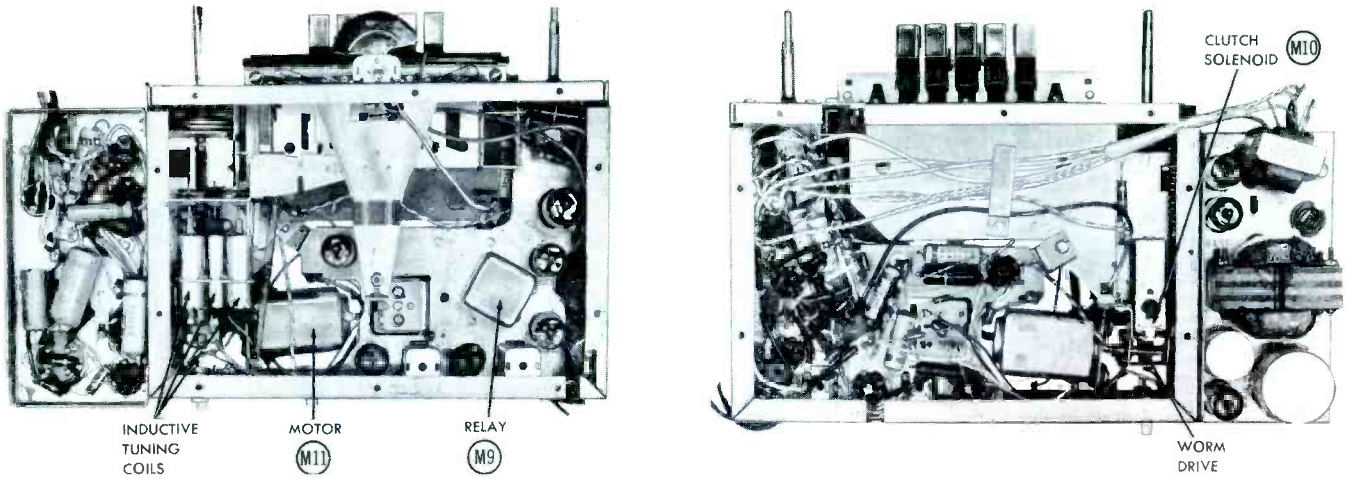
New wave trap principle gives extremely high gain, sharp directivity, in-phase tuning on all channels. New, flat design for low wind resistance!

*Spectrum-tested for balanced color reception!

affiliated with
TEMPO TV products

CLEAR BEAM ANTENNA CORP.
Canoga Park, Calif. • Chicago, Ill.

Warehouses in Seattle, Portland, San Francisco, Honolulu, Dallas, Kansas City, Chicago, Detroit, Baltimore



(A) Top View. (B) Bottom View.

Fig. 2. Mopar Model 902 With Covers Removed.

The grid of the audio phase inverter is connected to ground by a second set of contacts on the relay switch, and thus the receiver is muted while signal seeking is taking place. Power is applied to the drive motor by a third set of contacts. The sensitivity switch is connected into the cathode circuits of the RF and IF amplifiers by a fourth set of contacts, and power is applied by this same set of contacts to the clutch solenoid which disables the manual knob.

The basis of the operation of the 6CS6 phase detector is centered in the phase relationship between the signals on the primary and secondary of the IF transformer L6. In an IF transformer that is connected in a conventional manner, the voltage at the top of the secondary will lag the voltage at the top of the primary by

* * Please turn to page 68 * *

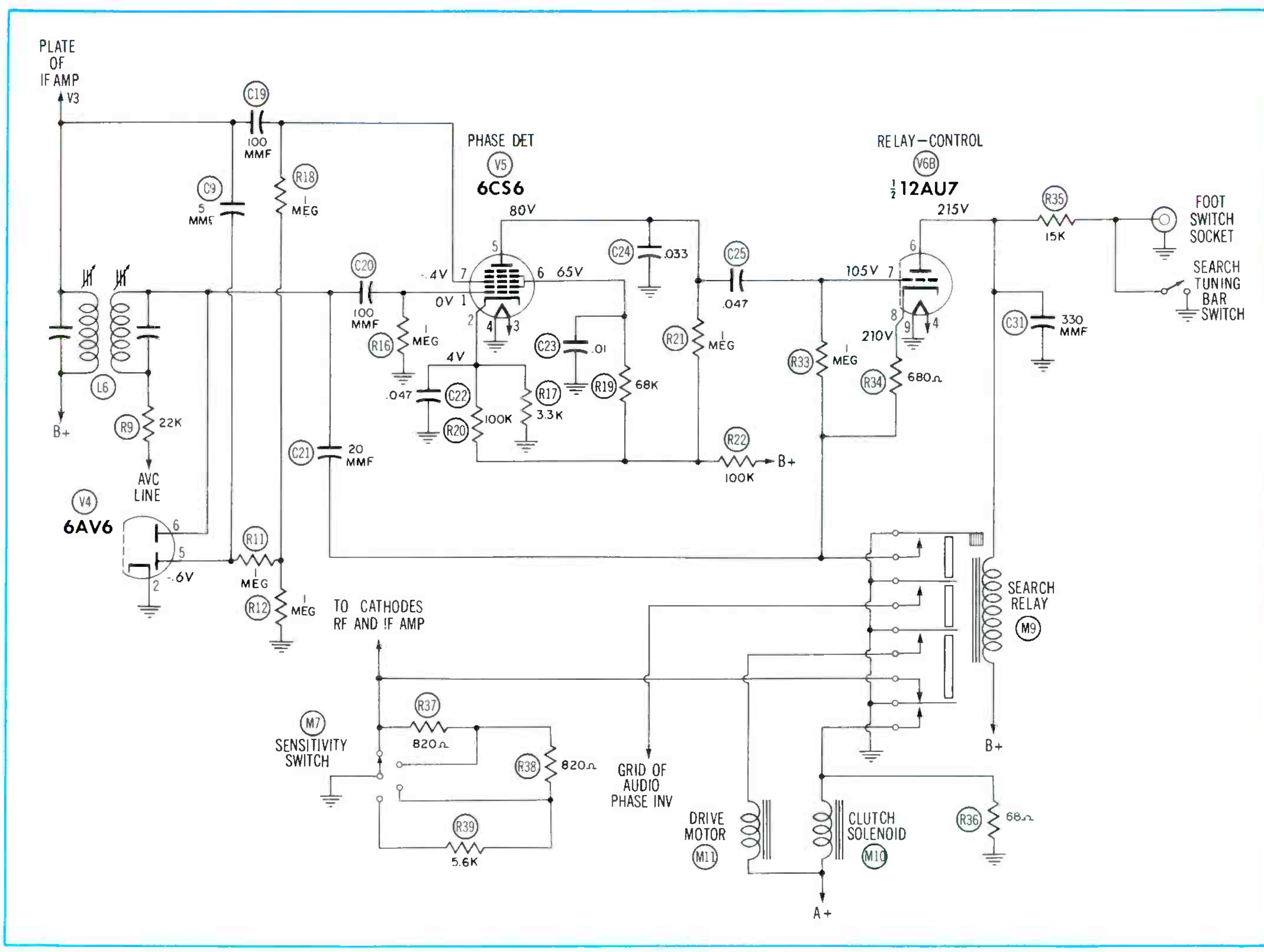
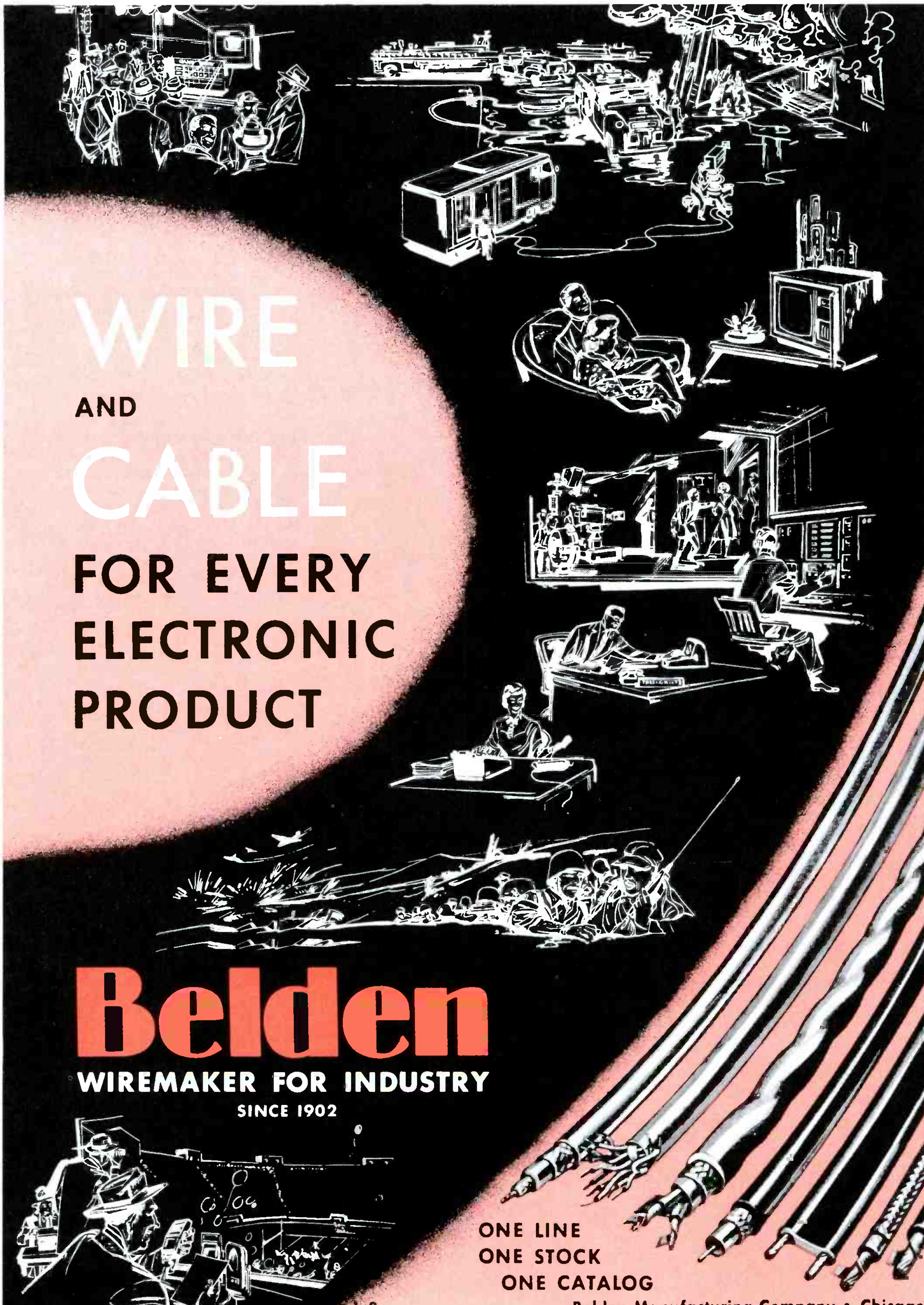
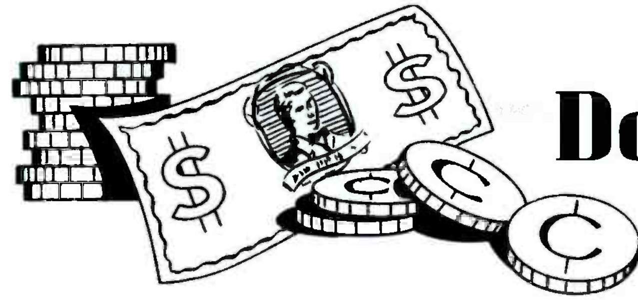


Fig. 3. Partial Schematic Diagram of Mopar Model 902 Showing Signal-Seeking Circuits.


WIRE
AND
CABLE
FOR EVERY
ELECTRONIC
PRODUCT
Belden
WIREMAKER FOR INDUSTRY
SINCE 1902
ONE LINE
ONE STOCK
ONE CATALOG
1-8
Belden Manufacturing Company • Chicago



Dollar and Sense Servicing

by *John Markus*

Editor-in-Chief, McGraw-Hill Radio Servicing Library

PAUSE-TIMERS. Two new record changers in the latest catalog supplement of the Allied Radio Corporation have pause-timers for giving up to five minutes of silence automatically between records. The Audiogersh Miracord XA100 gives a choice of 5 seconds to 5 minutes; whereas, the Swiss-made Thorens CD-43 gives time lapses of 1 to 5 minutes between 78-rpm records and 3 to 13 minutes between 33 1/3 rpm records.

Other interesting new items noted include a sun battery at $1.47, which will feed 2 milliamperes into a 10-ohm load for as long as the sun shines bright. It's a self-generating selenium photocell and can be used in series or series-parallel arrangements to drive transistorized equipment.

A TV hammock at $2.91 is a webbing network 24 inches square for carrying a big picture tube or a TV chassis; the shoulder strap is adjustable. Weller has now come out with a metal-soldering kit at $10.99. It includes acid-core solder (not for radio work), a smoothing tip for heat-sealing and mending plastic articles, and a cutting tip for removing putty or cutting plastic tile. With a 250-watt rating, the iron is also a good tool for fast soldering of heavy TV and radio joints.

MOVIE-MAKING. So that directors can see exactly what is being filmed during the making of a movie, DuMont and RKO-Pathé collaborated on mounting a TV camera right alongside the big 35-mm sound camera on the same tripod. The camera output feeds a monitor receiver in front of the director. The trials were so successful that sound movie cameras of the future may all have built-in TV cameras.

JUST FOR FUN. If you've got a four-drawer filing cabinet in the front office, try labeling its drawers EENY, MEENY, MINY, and MO. It'll make people wonder about you and talk about you, but they'll also remember you the next time they need service.

SILENCE. Instead of enclosing power transformers in snug cubicles lined with sound-absorbing material to cut down annoying hum, GE engineers worked out an electronic way of making the sound kill itself. They pick up and amplify the hum, then aim it right back at the transformer with a loudspeaker. The amplifier gives 180-degree reversal of phase, and a simple adjustment of the volume control serves to match amplitudes so that the sounds cancel.

If the 30-degree beam of silence from the loudspeaker isn't wide enough, another speaker can be added. That is how power companies are silencing neighbors who squawk about the noise from a substation power transformer.

Might be a market for this gadget among some of your customers, for aiming at a neighbor's blaring-after-midnight radio. Won't make for friendly neighbors in this case, though, because the sound-cancelling trick puts the whole radio in a beam of silence and the loud-music lover will hear nothing. Theoretically nothing— but practically, we suspect that some sounds will sneak out and reflect back and forth from room walls without getting cancelled. Also, no amplifier gives exact phase reversal at all audio frequencies; silencing the power transformer was easier because the sounds were all harmonics of the power frequency.

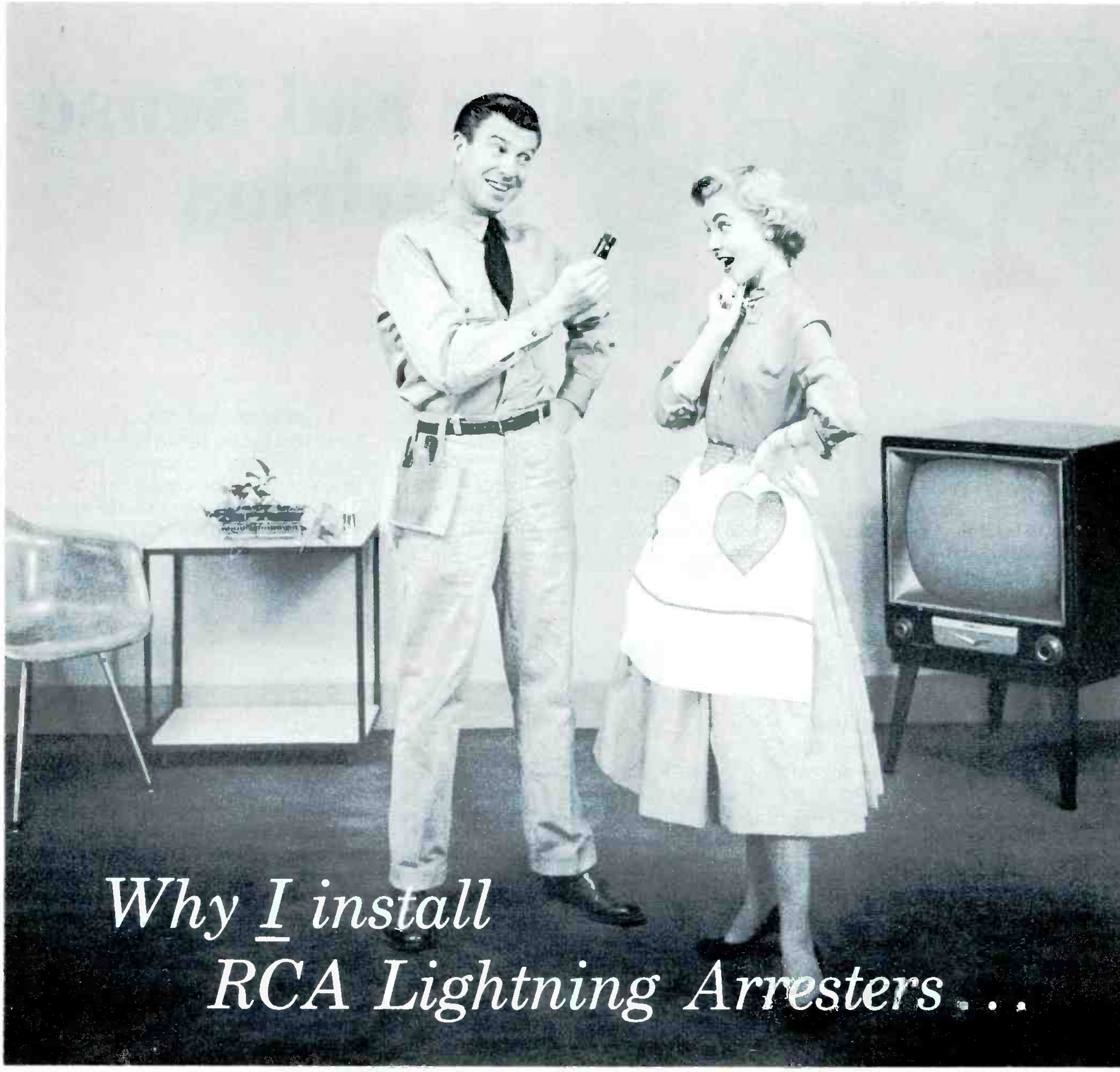
BOOKS FOR TV. In addition to technical books, television has created a new market for books-by-the-foot. In a second-hand bookstore the other day, we eavesdropped on the problems of a young lady whose boss had sent her out for 50 feet or so of "snazzy-looking" books to fill the shelves of a study for a forthcoming TV program. The clerk was quite understanding and assured her that his books appeared on the best of programs, and he fluently discussed various ways of keeping within her budget.

First, they looked over the dollar-a-foot section — mixed sizes, dull-colored bindings, all right for top and bottom shelves on the set but not flashy enough to be "on-camera" for more than a moment. Matched sets at two "bucks" a foot came next — the complete works of poets of yesteryear, and the like — but even with these, she didn't think her boss would be happy. The volumes at 35 cents apiece were better; some had gold lettering on nice cream-colored leather, but the budget began to scream.

Wallpaper printed to resemble filled bookshelves came under discussion at this point, but the all-knowing clerk told her to tune in on a certain channel at 11:00 that evening to see how "lousy" it looked. He then presented their rental plan by which she could have ten feet of literature's finest in bindings for two days for ten dollars to put right behind the hero's head; and she could buy cheaper books to fill the rest of the space. It was a deal.

PUZZLE. If it still takes everything you earn just to live, why do they keep saying that the cost of living is changing?

* * Please turn to page 49 * *



- **Available for UHF and VHF**
- **UHF Model has only 1 db (approx.) loss at 800 mc**
- **Easy to install**
- **Positive contact assured by narrow clamping bite**
- **Strap or screw type construction**
- **RCA quality throughout**

My customers know they're getting their money's worth when I install an RCA Lightning Arrester. The "*best VHF and UHF lightning arresters to come down the line,*" both types are listed by Underwriters' Laboratories, Inc. See your local RCA Tube Distributor. Stock up TODAY!

RCA ®

RADIO CORPORATION of AMERICA

ELECTRONIC COMPONENTS ***HARRISON, N. J.***


. . . Guaranteed indestructible*
exclusive WARD Dura-ramic
Pat. pend.
INDESTRUCTIBLE, CORROSION PROOF
FIBERGLAS AUTOMOBILE AERIAL
® T.M. Reg. O-C F Corp.
6 COLORS
to compliment any car color
*This product is unconditionally guaranteed under normal usage for the period of the ownership by you of the motor vehicle to which it is attached.
BURTON BROWNE ADVERTISING

new exclusive Dura-ramic

The most revolutionary idea in auto aerials is engineered for:

- ***No corrosion***
- ***Color styling***
- ***Indestructibility***
- ***Top performance***

FIBERGLAS* Ward Dura-ramic aerials are made of the same miracle material that has revolutionized fishing rods and is being widely used in the new experimental automobile bodies. Made from millions of fibers of glass, woven together and impregnated with resin under terrific pressures, the FIBERGLAS completely protects the imbedded electronic wires from all bad effects of weather. The FIBERGLAS is also the medium for the six complimentary colors in which Dura-ramic aerials are available. The FIBERGLAS is actually impregnated with the color—color cannot fade, cannot rust, cannot wear off. Dura-ramic FIBERGLAS aerials will bend almost double without damage.

FIELD TESTED Thoroughly tested under the most rugged field conditions, Ward Dura-ramic aerials have been proved electronically satisfactory by famous electronic testing organizations. The aerial length has been proven long enough to give good reception without static—short enough to clear all garage doors.

SELF SELLING PACKAGING Dura-ramic aerials are available in handsome display cartons which tell the whole Dura-ramic story and show an assortment of the six complimentary Dura-ramic colors. The package is a salesman you add to your staff. Dura-ramic aerials are also offered in the attractive individual package shown below. Ward Dura-ramic aerials are the most sales stimulating revolution in the auto-radio accessory field today. Cash in on the great trend to multi-colored autos. Sell the superior Ward Dura-ramic aerial to compliment any color car.

*T.M. Reg. O-CF Corp.

WARD PRODUCTS CORPORATION Cleveland 15, Ohio

Shop Talk

(Continued from page 17)

receiver, the first step was to try another set of channel-5 strips. When the receiver was tested with the new strips in place, it responded normally. Apparently, the first set of strips did not possess a bandwidth wide enough for color; yet they would work satisfactorily with black-and-white signals.

Sufficient circuit bandpass is much more important in color than in monochrome reception. To develop a color picture properly, not only must the sidebands of the color subcarrier be present; but what is perhaps more important, the color burst must also be present. Without the burst, adequate control of the 3.58-mc subcarrier frequency is impossible. Furthermore, in many designs, a certain amplitude of color burst is needed to force the color killer to remove its cutoff bias from the chrominance section. When the burst signal is too weak, the chrominance stages remain closed.

In the preceding case history, it might have been possible to obtain color reception on channel 5 by using another antenna, perhaps one which provided more signal and hence a stronger color burst than the one in use. This possibility was not investigated because adequate color reception could be obtained on the other channels and because it was possible to correct the color deficiency on channel 5 so readily. Had the trouble proved more difficult, an antenna change would have been made.

Another item that made this trouble so easy to locate was the ability of the color-bar generator to develop a signal on channel 5. This is not always possible. Most of the color-bar generators now being produced for the service industry do not have provisions for supplying an RF signal on all the VHF television channels. The generator used in the preceding case history supplied an RF signal on either channel 4, 5, or 6. Had the trouble occurred on some other channel, it might have been necessary to bring the set back to the shop and run an alignment check on the front end. This certainly would have complicated matters considerably.

Case History No. 6

A number of service calls arose because of customer inability to tune a color receiver properly for color reception. Particularly critical in this respect was the setting of the fine-tuning control. Each customer (and this included both the husband and the wife) was given full instructions on the adjustment of each control. Instruction always started with the reception of a black-and-white signal; the procedure was then extended to reception of color signals. The color-intensity control was always adjusted before the color-phase or shading control. The customer was also instructed to adjust the hold or linearity controls when receiving a black-and-white rather than a color picture, if this ever became necessary. The black-and-white picture thus became the anchor from which other adjustments could be made.

Case History No. 7

A certain CBS-Columbia Model 205 could not develop any black-and-white pictures at all; and in the color pictures that did appear, the intensities were all wrong. Blue appeared to be most normal; but all the pastel shades of yellow, cyan, and the like were too dark.

The outstanding clue was the fact that black-and-white pictures could not be developed. When this was linked to the behavior of the set when receiving color signals, the defect could almost be pin-pointed to a single stage. Let us see why.

We knew that color signals were passing through the receiver; and it was logical to assume that whenever they could pass, black-and-white signals could also pass. With this as a premise, all of the RF and video IF stages could be eliminated. For that matter, so could the first video amplifier (which handles both signals) and all of the amplifiers for the color signal. All that actually remained was V15A, the second video amplifier. See Fig. 2. This stage is concerned solely with the brightness signal, and a defect in it could account for the symptoms noted. By checking through this circuit, it was discovered that a cold solder joint at the delay line was preventing signal passage. When this condition was corrected, the receiver returned to operation.

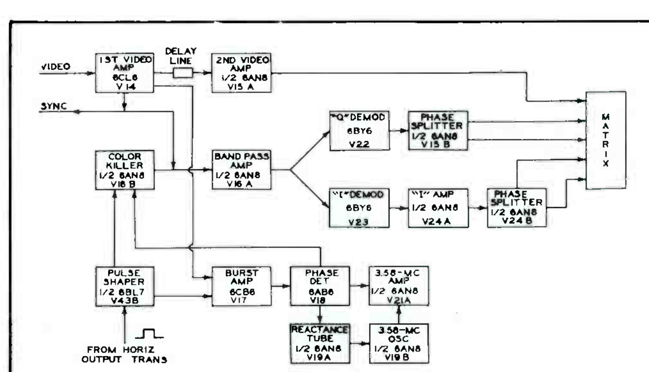


Fig. 2. Partial Block Diagram of CBS-Columbia Model 205.

All of the foregoing case histories dealt with troubles which specifically affected the receiver in its development of color images. There were, in addition, a proportionate number of troubles which could be considered common to black-and-white receivers. Such troubles were that one set had a bad video IF tube, another developed audible sync buzz, and a third had a defect in the vertical-oscillator circuit. These troubles can be identified in color receivers with no more difficulty than in monochrome receivers and with the same servicing techniques.

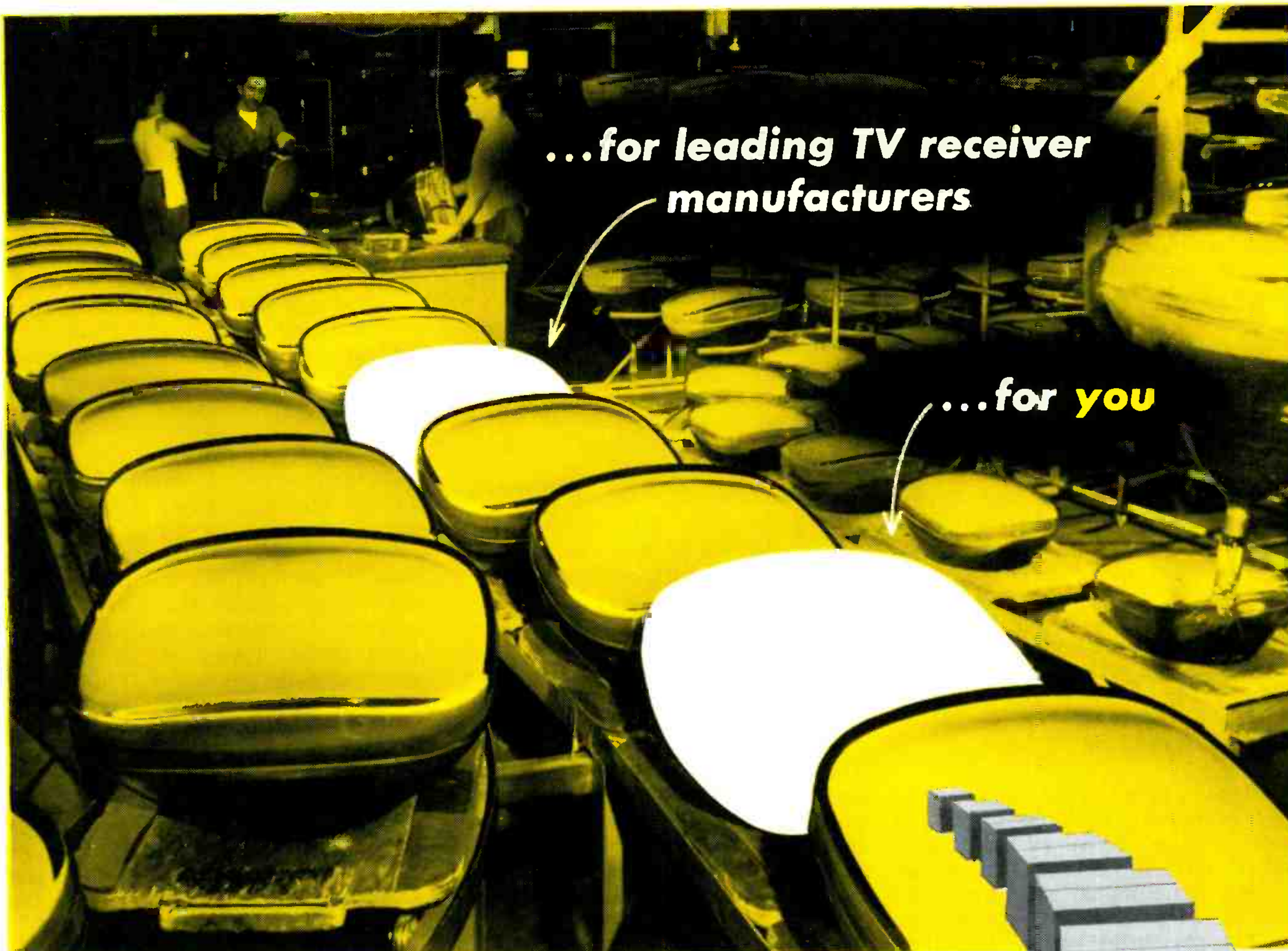
As a general rule, experience thus far has demonstrated that in the initial approach, first consider the symptoms in terms of picture versus sound, then picture versus raster, and finally monochrome versus color. Each step actually leads to the next; and when the proper differentation has been made, many of the possible sources of the trouble will have been eliminated, leaving a relatively small number of suspects to be checked.

REVIEW

One of the difficulties in tracking down troubles in the high-voltage section of a television receiver is the combination of a fairly complex circuitry and the presence of high voltages. Either one can be troublesome; both together are often formidable enough to slow down a technician unnecessarily.

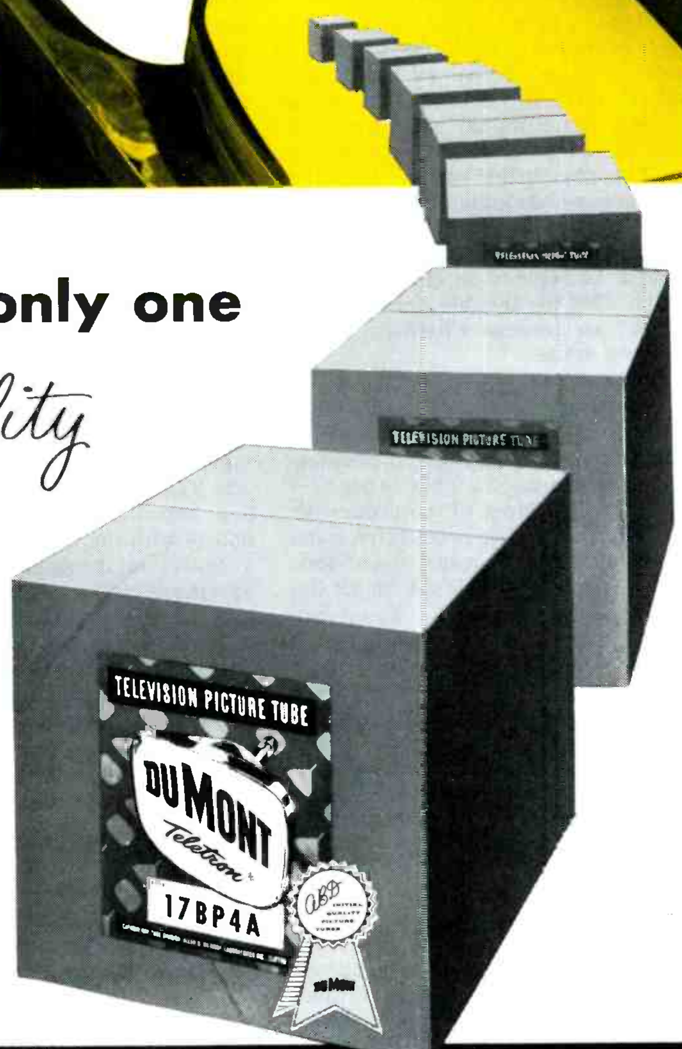
Helpful suggestions for uncovering troubles in high-voltage circuits are contained in two separate and unrelated articles. Actually, the two articles supplement each other to provide a fairly complete discussion of high-voltage circuit servicing; therefore, both are being considered. One article appeared in the September 1953 issue of the DuMont Service News; the other was published in the January 1953 issue of Radio and Television News Magazine and was written by Art Liebscher of RCA.

The DuMont Service News is published by the Teleset Service De-



At Du Mont there is only one

Standard of Quality



The Du Mont label on the carton is your assurance of top quality picture tubes. Tube after tube, month after month—at Du Mont there is only one production standard of quality – the finest, whether for leading TV receiver manufacturers as original equipment, or for you as a replacement.

ALWAYS INSIST ON DU MONT PICTURE TUBES. *They cost no more than ordinary picture tubes yet offer so much more in dependability and performance.*

DU MONT®

ALLEN B. DU MONT LABORATORIES, INC., CLIFTON, N. J. Replacement Sales, Cathode-ray Tube Division

partment of the Allen B. DuMont Laboratories, Inc., 257 Sixteenth Avenue, Paterson, N. J. Subscription is $3.00 per year and includes service data on current DuMont television receivers plus monthly issues of the Service News.

Radio and Television News Magazine is published by the Ziff-Davis Publishing Company, 366 Madison Avenue, New York 17, N. Y. Subscription rates for the United States, its possessions, and Canada are $4.00 per year. Single copies are 35 cents each.

A typical DuMont horizontal-output and high-voltage circuit is shown in Fig. 3. The entire section should be considered because the three functions it performs are all interrelated. It produces the required deflection current in the horizontal-deflection coils, it develops the boost B+, and it provides the high voltage needed by the picture tube.

Generally speaking, loss of deflection current in the deflection yoke or a decrease or disappearance of the boost B+ will cause the high voltage to disappear, too. On the other hand, loss of high voltage will often not affect boost B+ nor deflection current, although no picture will appear on the screen. A common cause for the complete loss of high voltage is either a defective high-voltage rectifier or a defective horizontal-output amplifier. Partial loss of high voltage stems from a weakened horizontal oscillator, a lowered B+, or a greatly increased value for resistor R319.

The first step when the complaint is a blank screen is to check the high voltage. To do this quickly, remove the high-voltage lead from the anode connection of the picture tube and try to draw off a spark from the lead end by holding it a quarter of an inch or so from the receiver chassis. If a strong spark can be obtained, you can be reasonably certain that the proper amount of high voltage is being developed. To determine the exact amount of high voltage present, a suitable VTVM or high-resistance VOM with an auxiliary high-voltage probe is required.

This practice of drawing arcs from the end of the high-voltage lead or from the caps of either the high-voltage rectifier or the horizontal-output amplifier is widely practiced; and when performed by an experienced technician, it can be quite informative on the condition of the various circuits.

A well-insulated screwdriver is also useful in making these tests. Touch the tip of the screwdriver to the point in the circuit from which the arc is to be drawn; then slowly pull the screwdriver away. At the plate of the high-voltage rectifier, a normal spark is 3/8 to 1/2 inch long. Furthermore, since it is an AC spark, it will be rather easy to see.

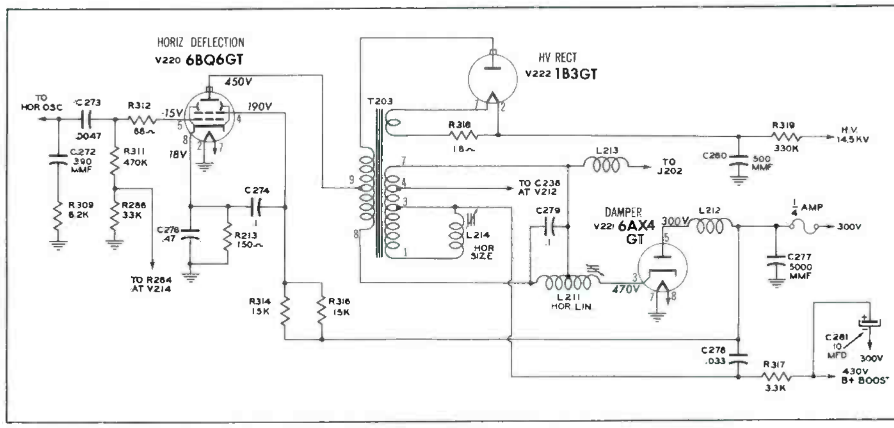


Fig. 3. Horizontal-Output and High-Voltage Circuits in DuMont Model RA-166/171 TV Receivers.

The arc at the plate of the horizontal-amplifier tube is not so readily discernible; and in a well-lighted area, it may be difficult to observe at all. DuMont suggests that the volume control be turned up during this test. A sharp crackling sound when the plate cap of the amplifier tube is touched will indicate the presence of an arc.

Spark tests are simple to perform, and they frequently help pinpoint the source of the trouble. DuMont recommends their use in the interests of faster servicing; however, when the trouble is not revealed by spark tests, then more elaborate checking is needed. For example, if the screen is blank and the high voltage is normal, checking of the picture tube or its B+ voltages is indicated. If the high voltage is not normal, then the B+ and boost B+ voltages to and from the horizontal system should be measured. Another good item to check is the waveform at the grid of the horizontal-output amplifier. Normally, the waveform will appear as shown in Fig. 4A. If it appears instead as shown in Fig. 4B or C, the defect is situated at a point prior to the output stage.

Finally, it is well to remember too, that the width and linearity coils have an effect on the circuit and should be considered.

Another common trouble discussed in the DuMont Service News is blooming. This condition is attributable to poor high-voltage regulation. The chief offender in cases of poor regulation is the high-voltage rectifier. Another possible weak link is a misadjusted linearity coil. In the circuit of Fig. 3, satisfactory linearity can be obtained with the slug almost all the way in or almost all the way out. Only the latter position is correct. With the slug turned all the way in, blooming may occur.

An open boost B+ capacitor C281 will also cause blooming accompanied by brightness variations due to boost B+ change.

In some sets, the high-voltage rectifier tube requires rather frequent replacement. This need for frequent replacement can usually be remedied by increasing the value of the series-filament resistor R318.

One difficulty that service technicians frequently encounter in testing high-voltage circuits is the fact that they have no way to observe waveforms. This is because most instruments are not designed to withstand the high pulse voltages present. Some means is thus needed to reduce the amplitude of these pulse voltages without affecting their shapes. The DuMont service department recommends four different voltage dividers, and these are shown in Fig. 5.

Part A of Fig. 5 shows a voltage divider which consists of two lengths of RG59/U coaxial cable. The longer cable is 3 feet long, the shorter one is 6 inches long. All of the outer shield is removed from the shorter strip, whereas only 3 1/2 inches of the shield are removed from the longer section. Then the two cables

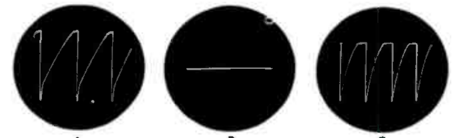


Fig. 4. Waveforms at Grid of Horizontal-Output Amplifier Shown in Fig. 3. (A) Normal. (B) Oscillator Inoperative or Open Coupling Capacitor C273. (C) Open Saw-Tooth Capacitor C272.

NEW Capacitor Resistor-Analyzer AND Quick Capacitor Checker

another Pyramid first

Model CRA-1 $82^{95}

user net price

This fine double duty instrument provides you not only with the complete setup for checking and analyzing all types of capacitors and resistors, but also the "Quick Check" feature enables you to test capacitors while they are wired in a set.

With the Pyramid analyzer there is no need to remove capacitors from the circuit to determine if they are open, shorted or intermittent.

This new development that saves time in servicing and production testing serves the function that required two instruments previously, actually costs less than the older type analyzer plus a separate "quick" capacitor checker.

PYRAMID ELECTRIC CO.
1445 Hudson Blvd., North Bergen, N.J.

2 in 1

BURTON BROWNE ADVERTISING

PYRAMID

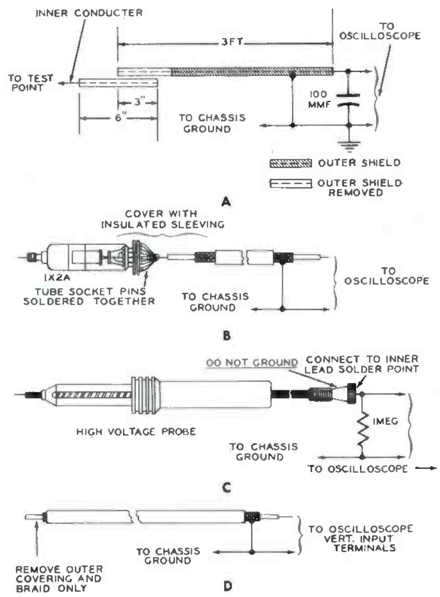


Fig. 5. Four Different Voltage-Divider Probes Suitable for Observing Waveforms in High-Voltage Section.

are overlapped to the extent shown in the figure and are firmly taped into position with plastic electrical tape. At the other end of the 3-foot section, a 100-mmf 500-volt capacitor is connected between the inner and outer conductors.

The reader will recognize that this is a capacitive voltage divider. Since capacitive reactance is inversely proportional to capacitance, most of the applied voltage will appear across the small capacitance formed by the overlapping coaxial sections. Whatever remains will appear across the 100-mmf capacitor and will be forwarded to the scope. The step-down ratio of this divider is about 100 to 1.

The second voltage divider is shown in Fig. 5B. It consists of a 1X2A tube, which acts as a capacitor, and a short length of RG59/U coaxial cable.

The third divider in Fig. 5C employs a high-voltage probe. In the use of this divider, two precautions must be observed. Do not ground the outer shield of the connecting cable, and be sure to connect a one-megohm resistor between the inner conductor of the cable and the receiver chassis. Failure to include the resistor may bring the full pulse voltage to the scope input and may damage the instrument.

The final probe in Fig. 5D consists simply of a section of RG59/U cable. One end of the cable connects to the vertical-input terminal of the scope. At the other end of the cable, the outer shield is removed for a distance of about one inch. By placing this end against the glass envelopes of the horizontal oscillator, amplifier, or damper tubes, the waveforms pulsing through these stages will be coupled to the scope and appear on the screen. This probe (or gimmick, as DuMont calls it) is simple to make and easy to use. Its operation is based on capacitive coupling between the cable and the various components, and thus it has as much right to be labeled a capacitive voltage divider as the probes of Fig. 5A or B.

In Art Liebscher's article in Radio & Television News Magazine, there is a series of photographs showing waveforms obtained in the section which provides horizontal output and high voltage in the RCA Victor Model 17T153 receiver. A schematic diagram of this section is shown in Fig. 6. The various waveforms are illustrated in Figs. 7 through 17. The caption of each illustration gives sufficient information to indicate where each waveform was taken, whether or not it is distorted, and the reason for the distortion. The following comments are in addition to those contained in the various captions.

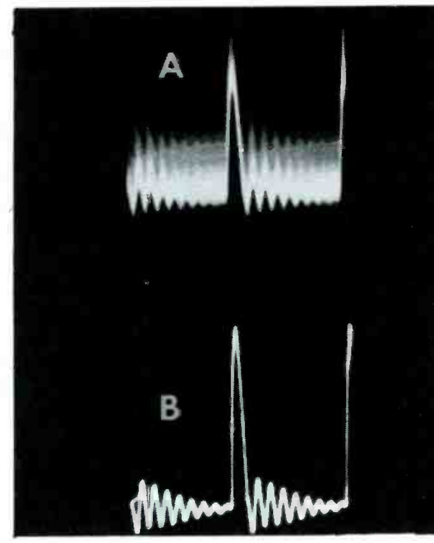


Fig. 7. (A) Waveform at Top Cap of HV Rectifier With Probe Held a Short Distance From Cap. (B) Waveform at Top Cap of HV Rectifier With Probe Touching Cap.

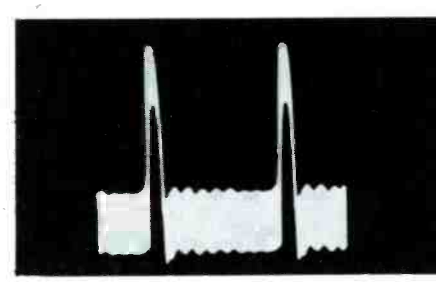


Fig. 8. Hum Mixed With High-Voltage Waveform.

In Fig. 7, the fuzziness in the wave is due to the corona or arcing

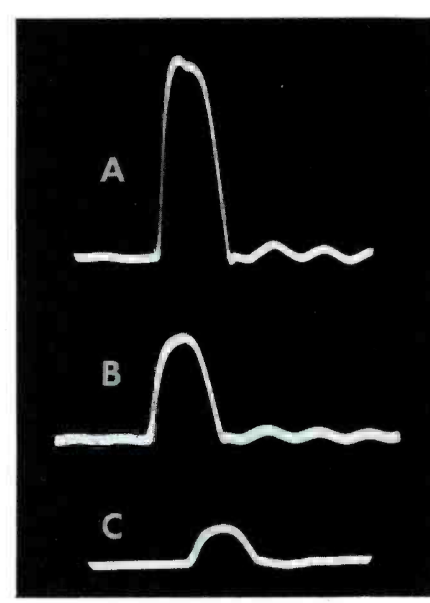


Fig. 9. Expanded Waveform at Plate of Horizontal-Output Tube. (A) Normal 117-Volt Line Voltage. (B) Line Voltage Reduced to 80 Volts. (C) Line Voltage Reduced to 60 Volts.

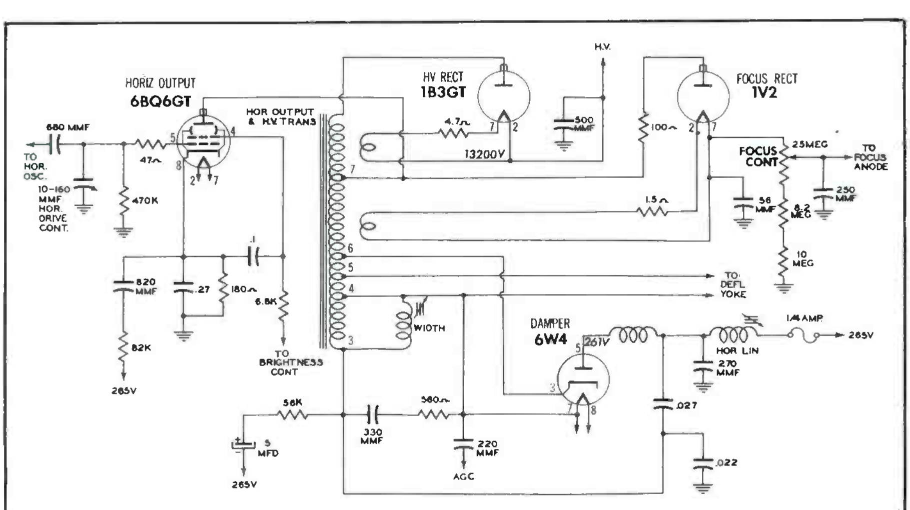


Fig. 6. Horizontal-Output and High-Voltage Section of the RCA Victor Model 17T153 TV Receiver.

another Voice of Music "FIRST"

FIRST HI-FI 4-SPEED CHANGER!

NEW!

The Only Low-Cost HIGH FIDELITY Changer on the Market Today!

The *first* low-cost hi-fi record changer ever offered! The first *precision 4-speed* hi-fi changer ever offered! An exciting advance in record changer convenience, the richly-styled V-M Model 1200 4-Speed Changer introduces new exclusive V-M hi-fi engineering innovations. New direct-drive 4-speed motor (Pat. No. 2655812) . . . new *Easy-Lift* support arm for front loading convenience . . . new precision 16⅔ rpm popular "Talking Book" speed!

THESE FEATURES STAND OUT:

- **New 4-Speed Control.** Automatically plays 33⅓, 45, 78 and the new talking book 16⅔ rpm speeds.
- **tri-o-matic® Spindle.** Exclusive tri-o-matic spindle (Pat. No. 2523045) protects records, eliminates holders that grip record grooves. Records are lowered—not dropped—to spindle shelf. Air-cushion drop to turntable.
- **Easy-Lift Record Support Arm.** Front loading convenience. Easy-Lift handle moves arm up and to side.
- **Aluminum Die Cast Tone Arm.** Rigid, resonance-free and balanced for exact—easy—adjustment to minimum needle pressure specified by manufacturers.
- **New Direct-Drive Motor.** Assures constant speed at all times with minimum wow.
- **New Low-Torque Mechanism.** Twice the life, half the wear. New exclusive bearing for absolute minimum wow and rumble-free performance.
- **All-Weather Dual Sapphire Needle Ceramic Cartridge.** One needle for 16⅔, 33⅓ and 45 rpm . . . one for 78 rpm.
- **Three-Point Spring Suspension.** Protects records at all times . . . affords absolute balance and stability.
- **Completely Jamproof.** Tone arm and all moving parts may be held at any time without damage to mechanism.
- **Automatic Operation.** Automatic tone arm set down for 7", 10", 12" records.
- **Manual Operation** whenever desired.
- **Automatic Shut-Off.** After last record, tone arm returns to rest, motor shuts off.

VM CORPORATION
Benton Harbor 7, Michigan

the Voice of Music

WORLD'S LARGEST MANUFACTURER OF PHONOGRAPHS AND RECORD CHANGERS

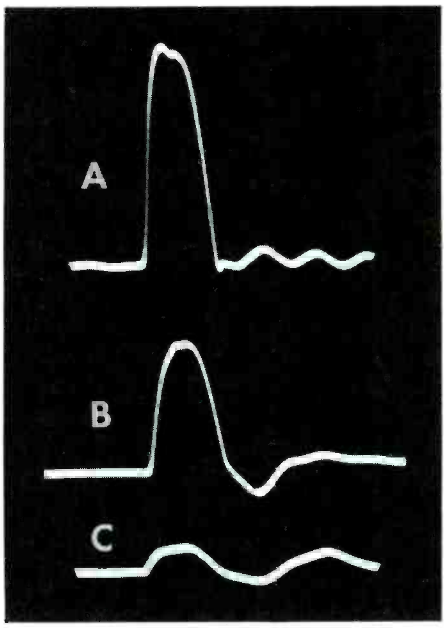


Fig. 10. Expanded Waveform at Plate of Horizontal-Output Tube. (A) Normal Damper-Tube Operation. (B) Heater Voltage in Damper Tube Reduced About 50 Per Cent. (C) Heater Voltage in Damper Tube Reduced About 70 Per Cent.

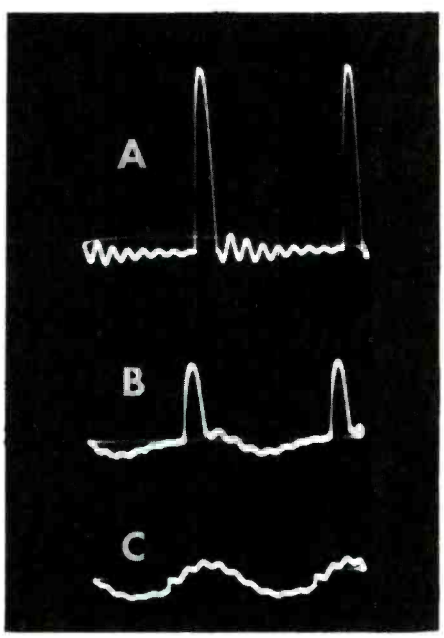


Fig. 11. Waveform at Plate of Horizontal-Output Tube. (A) Normal Operation. (B) Insufficient Damper Emission. (C) Damper Emission Too Low for Raster Lighting.

taking place between the probe point and the plate cap of the rectifier. When the probe tip is placed squarely on the cap, the corona disappears and the waveform becomes very sharp and clear.

In Fig. 8, the hum appearing in the illustration was picked up principally near the handle of the probe

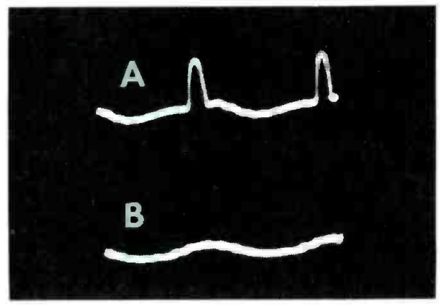


Fig. 12. Waveform at Plate of Horizontal-Output Tube. (A) Heater-to-Cathode Leakage of 10,000 Ohms in Damper Tube. (B) Heater-to-Cathode Short in Damper Tube.

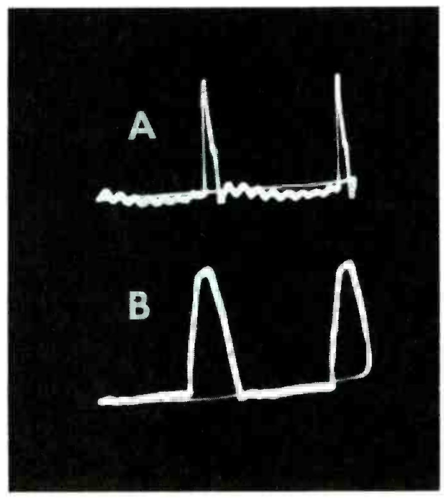


Fig. 13. Waveform at Plate of Horizontal-Output Tube. (A) One-Half of Horizontal-Deflection Yoke Shorted. (B) Open in Horizontal-Deflection Yoke.

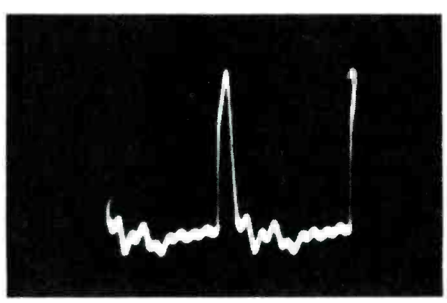


Fig. 14. Waveform at Plate of Horizontal-Output Tube. Open Winding on Portion of Output Transformer Shunted by Width Coil.

which was a high-voltage probe like that shown in Fig. 5C. The hum mixes with the high-voltage signal after the signal level is reduced by the probe resistor.

In all of this waveform analysis, it will be found that the pulse shape is closely related to the proper performance of the deflection components such as the horizontal-output transformer, the yoke, the damper tube, or the width and linearity coils. Look particularly for rounding at the peak or broadening at the base of the pulse. If there is an uneven base line like those shown in Figs. 11B or C, reduced damper-tube conduction and insufficient pulse power are indicated. Marked reduction in pulse amplitude is a sign of excessive loading which is generally caused by shorted components such as the yoke, capacitors, or the horizontal-output transformer.

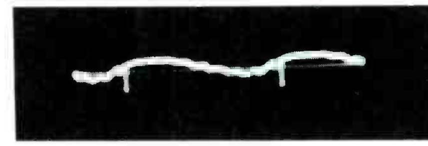


Fig. 15. Waveform at Plate of Horizontal-Output Tube. Linearity Control Shorted.

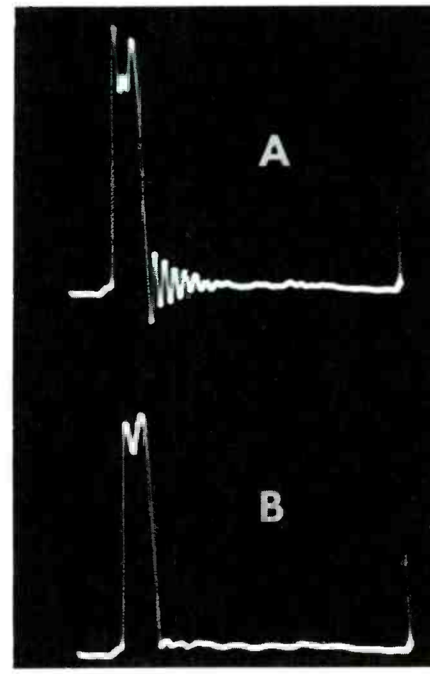


Fig. 16. Horizontal Pulse As Seen With High-Voltage Probe at High Side of Yoke Connection. (A) Additional Damped Wave Due to Open Capacitor Across Half of Yoke. (B) Normal Waveform With New Capacitor.

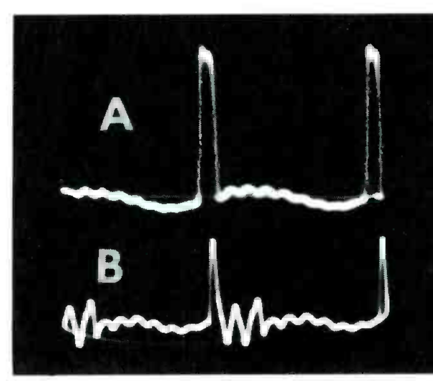
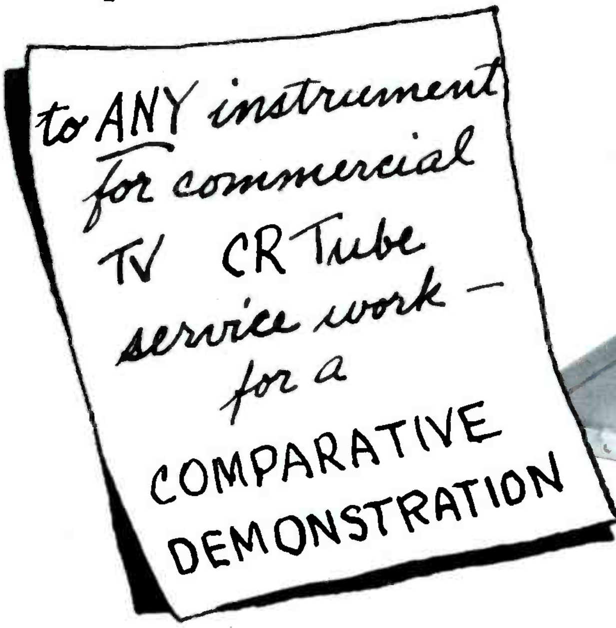


Fig. 17. Waveform at Plate of Horizontal-Output Tube. Short Between Horizontal and Vertical Yoke Windings. (A) Low Side of Horizontal Windings to Center of Vertical Windings. (B) High Side of Vertical Windings to Center of Horizontal Windings.

MILTON S. KIVER

a CHALLENGE by

NEW PORTABLE
Raytronic Beamer



Compact carrying case contains instrument and accessories—and is light weight, too.

Case cover removed for bench work in horizontal position; rubber base lugs.

This portable instrument, identical in operation with the bench model, will make 8 tests to show, positively and accurately, the condition of any TV picture tube—and whether or not it is repairable.

The exclusive Cum-o-tron improved Raytronic Gas Test is now the only circuit for commercial use that employs the same circuitry and voltages used in picture tube laboratories, giving direct readings in fractions of one micro amp.

The Raytronic Beamer makes 5 repairs capable of restoring up to 85% of repairable tubes to satisfactory service. Endorsed and used by leading TV tube and set manufacturers and their distributors, after exhaustive tests.

Thousands of users have verified every claim made for this instrument. They are reaping a new harvest of extra volume, extra profits, attracting new customers, winning loyalty and boosting endorsements from old customers.

Read What They Say!
(from hundreds of written statements)

Raytronic Beamer is the best piece of test equipment I ever used, and will do more for the shop owner. It is actually worth many times its price and is so simple to operate.

J. S. ROHERSON,
ROHERSON ELECTRIC SUPPLY
Pontotoc, Miss.

The first day we used the Raytronic Beamer we repaired 20 CRT8s—1 27", 4 21", 9 17", 4 16", 1 12", and 1 10". We save at least one CRT per day with this instrument and can't think of anything I would hate to part with more.

A. GLASER
ALL AMERICAN TV
Chicago 18, Ill.

See Raytronic Beamer demonstrated — TODAY!

RAYTRONIC LABORATORIES, INC.

9701 Reading Road Cincinnati 15, Ohio

Transport Mechanism in Concertone Model 1520 Tape Recorder

(Continued from page 5)

This control switches signal circuits and has no control of the movement of the tape.

Record-Level Control.

Playback-Gain Control.

Tape-Drive Control.

This control is shown in Fig. 1 in the OFF or idle position. When turned in a counterclockwise direction, the knob will point to the right and the recorder will be in the record or play-back mode of operation.

Speed-Selector Control.

When turned to the OFF (center) position, this control switches off all power to the recorder. When turned in a clockwise direction, the knob will point to the right-hand position; power will be supplied to the recorder; and the capstan motor will run. In this position of the control, the motor turns at a speed of 600 rpm and moves the tape at a speed of 7 1/2 inches per second. In the left-hand position, power is supplied to the recorder and the windings are switched in the motor to cause it to turn at 1200 rpm and therefore the tape is moved at a speed of 15 inches per second. The capstan motor is a hysteresis synchronous motor which turns at all times when the control is turned to one of the ON positions.

Fast-Forward and Rewind Control.

The fast-forward and rewind control is shown in neutral (center) position. When turned clockwise, the knob points to the left-hand position and the tape rewinds on the supply reel. When the control is turned counterclockwise, the knob points to the right-hand position and the tape winds at high speed on the take-up reel. More details will be given later about the operation of this control.

Reel Accommodations

Although the Model 1502 is large enough to accommodate 10 1/2-inch reels (the base measures 14 by 22 inches), a 5-inch reel is shown in Fig. 2 as the supply reel and a 7-inch reel is shown in place in the take-up position. The tape is threaded, and the tape-drive control is in the record or playback position. The covers have been removed from the head assembly.

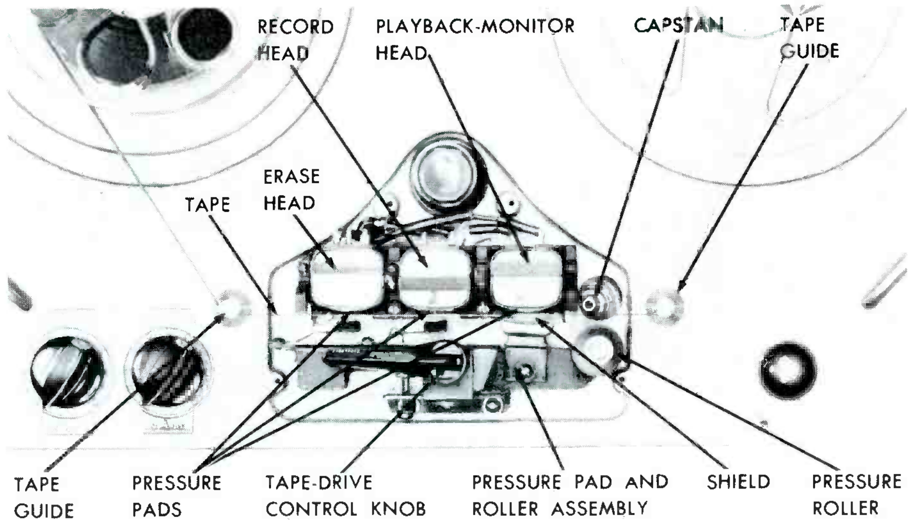


Fig. 4A. Position of Parts in Head Assembly With Tape Threaded and Tape Drive Control Off or Idle. (Covers Removed.)

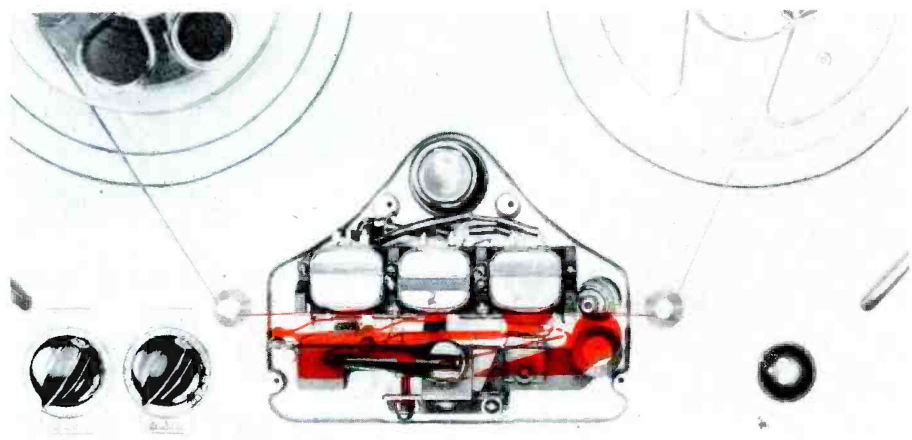


Fig. 4B. Parts Which Move When Tape Drive Control Is Moved to Record or Playback Position. Positions Before Moving Are Shown in Black and After Moving Are in Red.

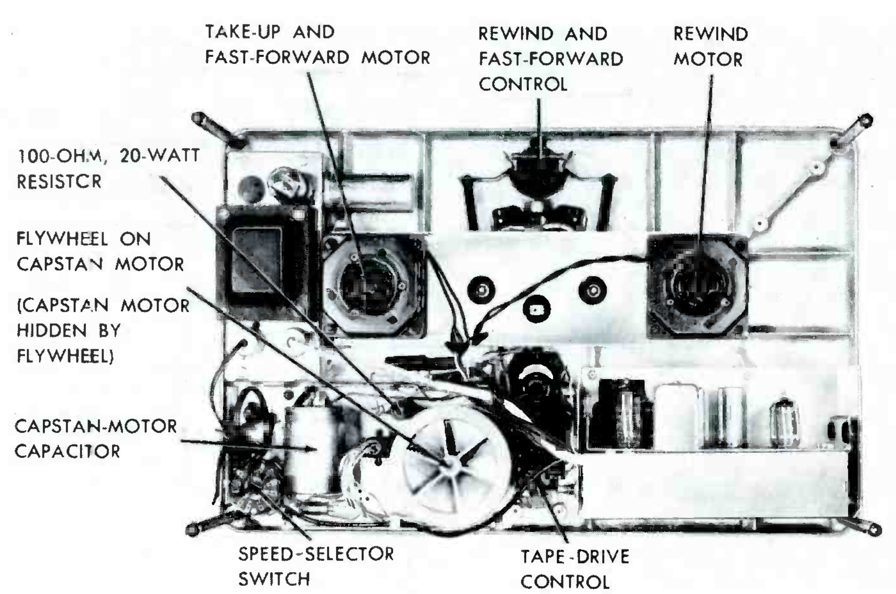


Fig. 5. Bottom View of Concertone Model 1502.

Announcing the NEW

SANGAMO Type 36

PLUG-IN TUBULAR PAPER CAPACITOR

Your answer to those calls for a

PRINTED CIRCUIT REPLACEMENT CAPACITOR

Perhaps you've already had calls for printed circuit replacement capacitors. Now you can offer your customers the first mass produced capacitors for printed circuit chassis. Remember, the new Type 36 plug-in tubular is an exact replacement for most of today's new printed circuit chassis. To stock up now, see your Sangamo jobber or write direct.

MOISTURE-RESISTANT END FILL

BAKELITE MOLDED CASE

LEADS ARE CUT AND PROPERLY SPACED TO FIT

Exact replacement in most of today's printed circuit chassis

Those who know choose Sangamo

The Little Indian

SANGAMO ELECTRIC COMPANY MARION ILLINOIS

In Fig. 3, the reels have been removed to show the spindle which accommodates small plastic reels without the use of adapters. The adapter shown on the take-up spindle must be used when a large 10 1/2-inch reel is being used. Small reels and adapters fit on the center spindle and are turned by the drive pin. The adapter then drives a 10 1/2-inch reel.

The supply and take-up spindles are identical. The body of the spindle assembly has a diameter of nearly 1 1/2 inches and a length of approximately 1 3/8 inches, and this body serves as a turntable and brake drum. The brake shoes (not visible in the figure) are flat felt-covered plates that make contact with the sides of the spindles to stop the reels.

Head Assembly

A close-up view of the head assembly is shown in Fig. 4A. The tape-drive control is in the OFF or idle position. The tape is threaded and in its normal position but does not touch the heads nor the capstan because the pressure pads and pressure roller are moved away from the heads. If the speed-selector switch is turned to one of the ON positions, the capstan will turn but the tape will not move because it does not contact the capstan.

The same view is shown in Fig. 4B but with the tape, pressure pads, and pressure roller shown in red to indicate the positions of the parts after the tape-drive control has been turned to the record or playback position. Only those parts which move when this control is turned are shown in red. The positions before turning the control are shown in black. The pressure-pad and roller assembly is then moved toward the heads. The pressure pads press the tape against the faces of the heads, and the pressure roller holds the tape against the capstan. If the speed-selector control is turned on, the capstan will turn and pull the tape across the face of the heads because of the pressure exerted by the pressure roller upon the tape against the capstan. Note how the face of the playback-monitor head and the tape are shielded when the pressure-pad assembly is in the record or playback position.

Capstan, Rewind, and Take-up Motors

A general view of the underside of the Model 1502 is shown in Fig. 5. The capstan motor is a two-speed hysteresis synchronous motor which turns at 600 and 1200 rpm to obtain tape speeds of 7 1/2 and 15 inches per second. Drive is direct because the motor shaft is the capstan.

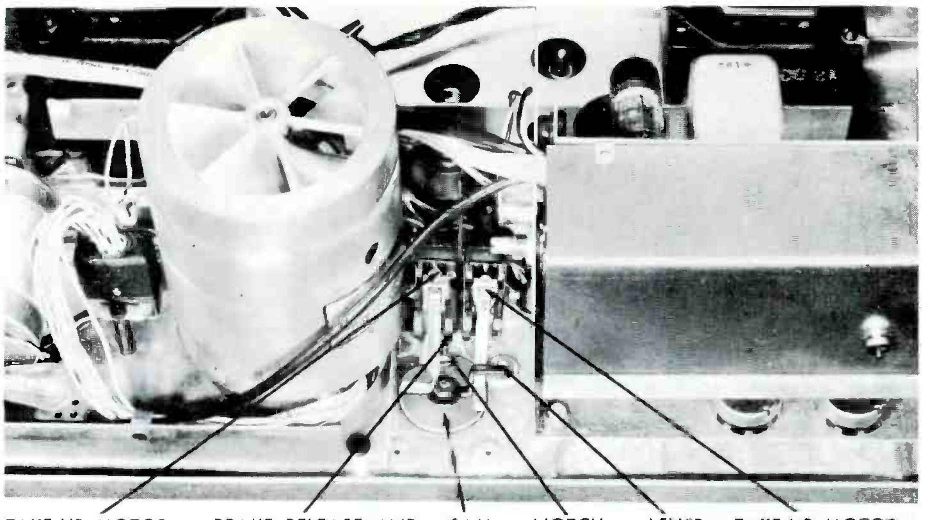


Fig. 6A. Position of Parts When Tape Drive Control Is in Idle Position.

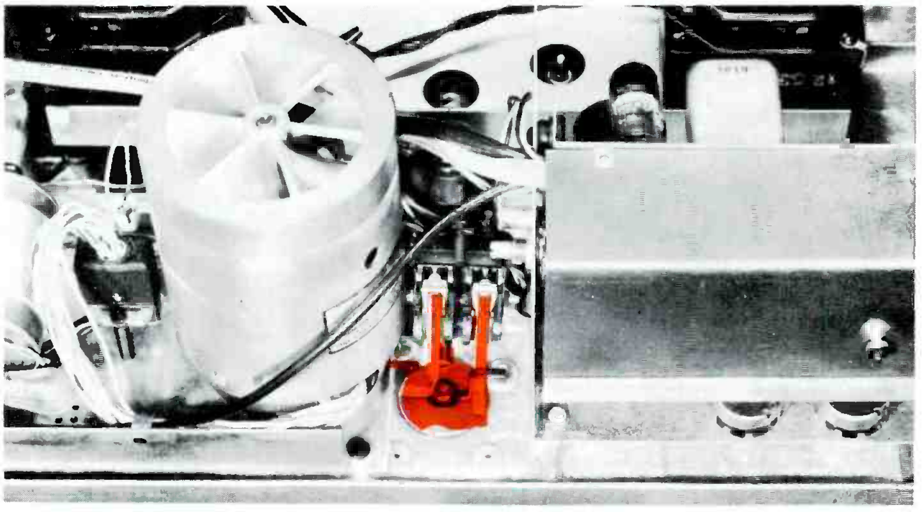


Fig. 6B. Parts Which Move When Tape Drive Control Is Moved to Record or Playback Position. Positions Before Moving Are Shown in Black and After Moving Are in Red.

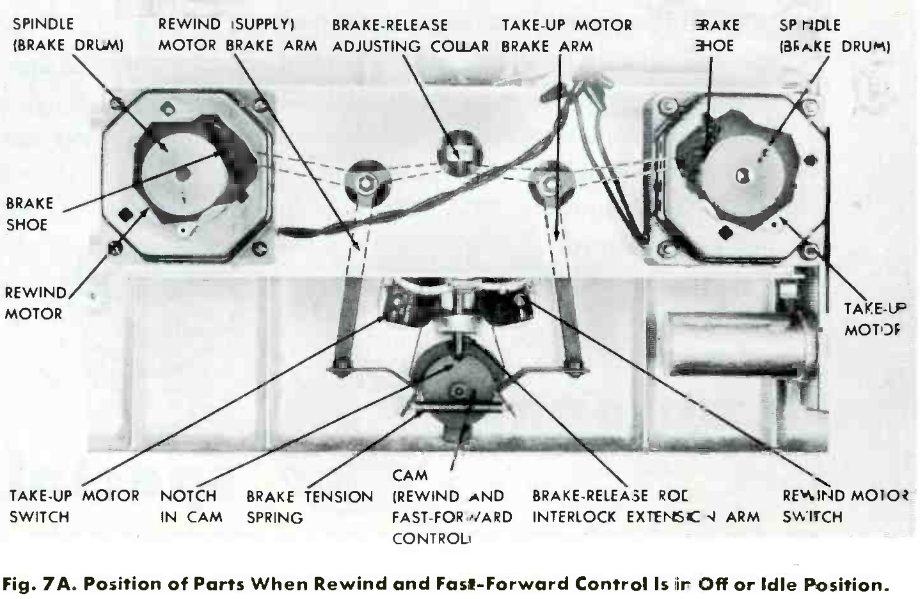
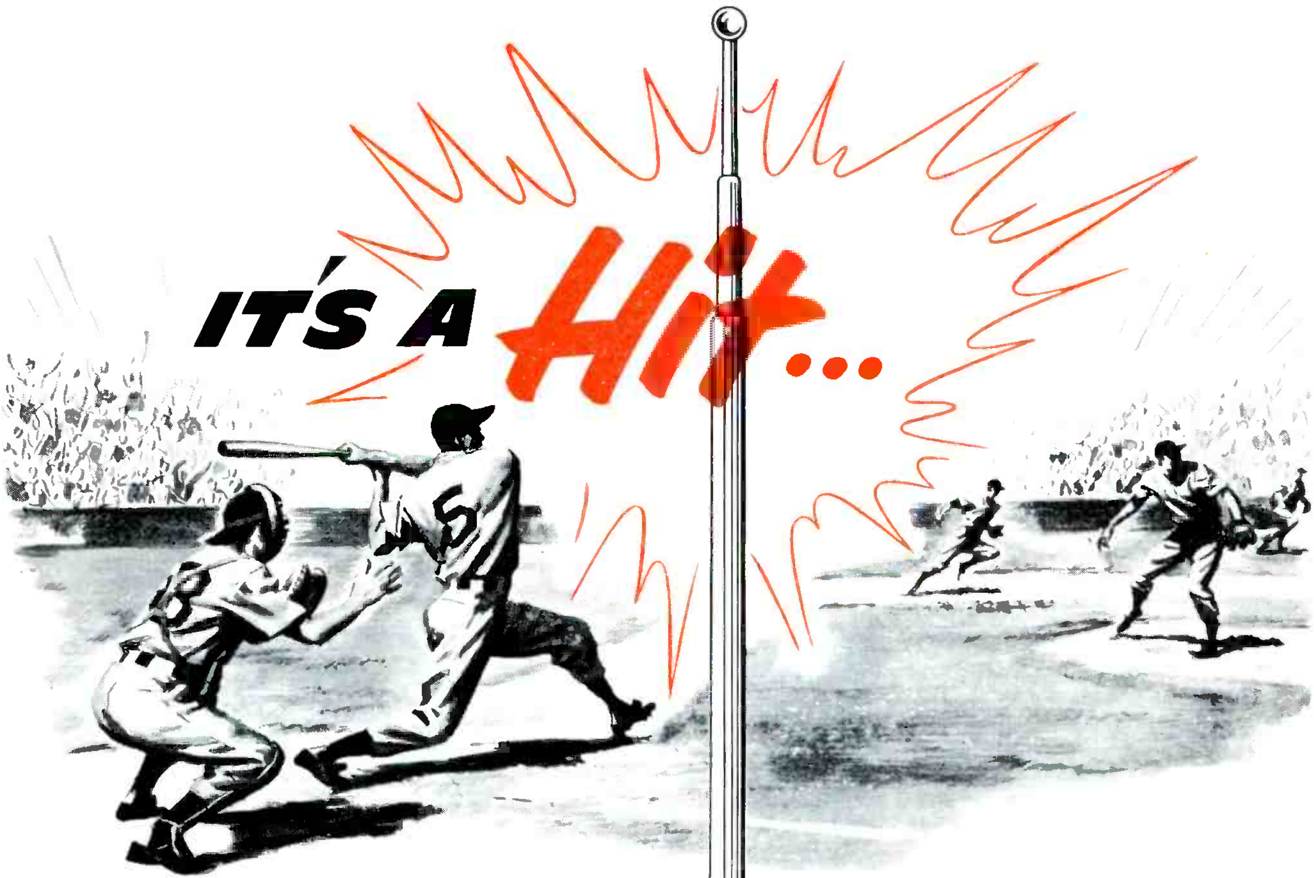


Fig. 7A. Position of Parts When Rewind and Fast-Forward Control Is in Off or Idle Position.



THE ALL NEW

BASEBall*

Automobile Antenna

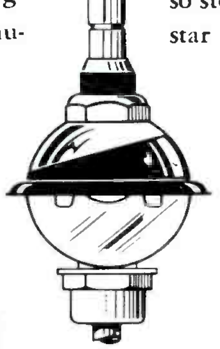
Yes, it's a HIT! A NEW and IMPROVED automobile antenna with more on the ball than anything you've ever handled . . . designed by the same team that produces original equipment antennas for such fine manufacturers as Bendix, Crosley, DuMont, G.E., Lear, Motorola, RCA, Westinghouse and Zenith.

The "Baseball" is loaded with new sales punch . . . an extra rugged, quality-built antenna with positive grounding action . . . no danger of wet-weather shorts . . . finest triple-chrome plating . . . and a price that means easy sales and profits.

Best of all, the Baseball Antenna is made by a team that specializes in the automobile antenna field . . . concentrates its merchandising and advertising support on this one product.

Yes, the "Baseball" gives you a better play for your money all the way around, so step up to the big leaguers — join the all-star names who use A/S products — write today for complete information, catalogs and prices on the NEW "Baseball" Automobile Antenna!

Call your distributor today for complete details.



the antenna a/s specialists co.

MANUFACTURERS OF RADIO COMMUNICATIONS ANTENNAS

* TRADEMARK

12435 Euclid Ave., Cleveland 6, Ohio — SW. 1-2753

The rewind and take-up motors are heavy-duty four-pole induction motors. These are also direct drive because the spindle assemblies are fitted on the motor shafts and are secured with set screws. As mentioned previously, these motors are fitted with mechanical brakes.

Fig. 6A shows the cam and lever of the tape-drive control. The cam operates the brake-release and interlock rod. The lever trips the power and booster switches which are connected to the take-up motor. The tape-drive control is shown in the OFF or idle position. The lever is holding the switch of the take-up motor in its OFF position. The booster switch connected across a 100-ohm, 20-watt resistor is in its normal (closed) ON position. The notch in the cam is aligned with the end of the brake-release rod. In this position, no pressure is exerted upon the rod by the cam.

Shown in red in Fig. 6B are the parts which move when the tape-drive control is turned to the record or playback position. Red indicates the positions after the control was moved, and black shows the positions before the control was moved. The lever has released the switch of the take-up motor and has depressed the booster switch. The cam has pushed the brake-release rod. These movements follow a necessary sequence.

During the first part of the rotation of the tape-drive control as it is turned to the record or playback position, full power is applied to the take-up motor by the motor switch because the booster switch is still in its ON position. At the same time, the brakes of the rewind and take-up motors are released when the cam pushes on the brake-release rod. When the rotation of the tape-drive control is nearly completed, the booster switch is turned off and therefore the torque of the take-up motor is reduced. It is reduced when the booster switch is opened by the lever because the 100-ohm, 20-watt resistor is connected in series with the take-up motor. (The rewind motor is connected in parallel with the resistor.)

The boost in power is needed when the tape begins to move because the capstan starts moving the tape when the tape-drive control is turned; therefore, the take-up reel requires added power to start turning to store the tape. After the tape motion is started, less power is required to maintain tension. Remember that the capstan pulls the tape across the heads and that the take-up and supply reels only maintain tension during the record or playback modes. Since the rewind motor is connected in parallel

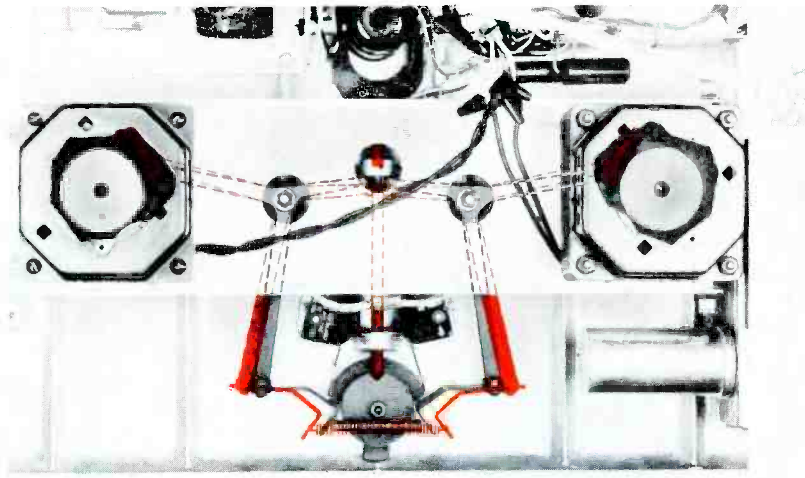


Fig. 7B. Parts Which Move When Tape Drive Control Is Moved to Record or Playback Position. Positions Before Moving Are Shown in Black and After Moving Are in Red.

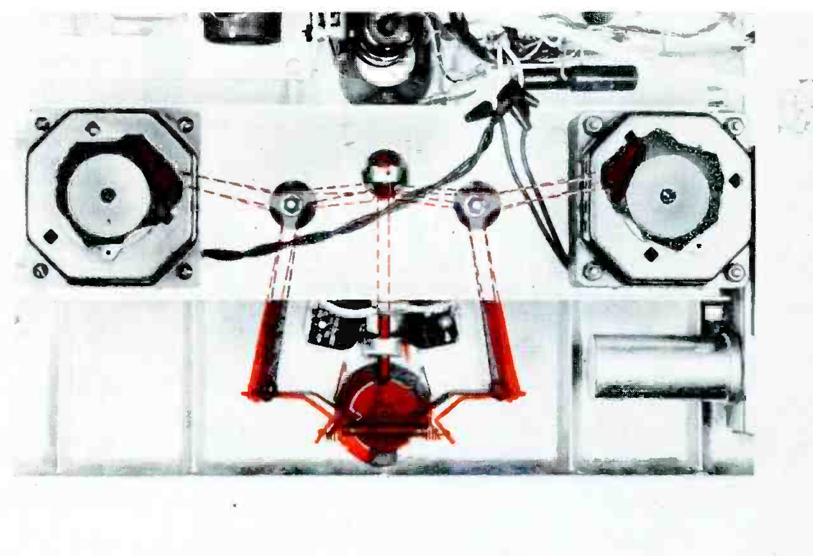


Fig. 7C. Parts Which Move When Fast-Forward and Rewind Control Is Moved to Rewind Position. Positions Before Moving Are Shown in Black and After Moving Are in Red.

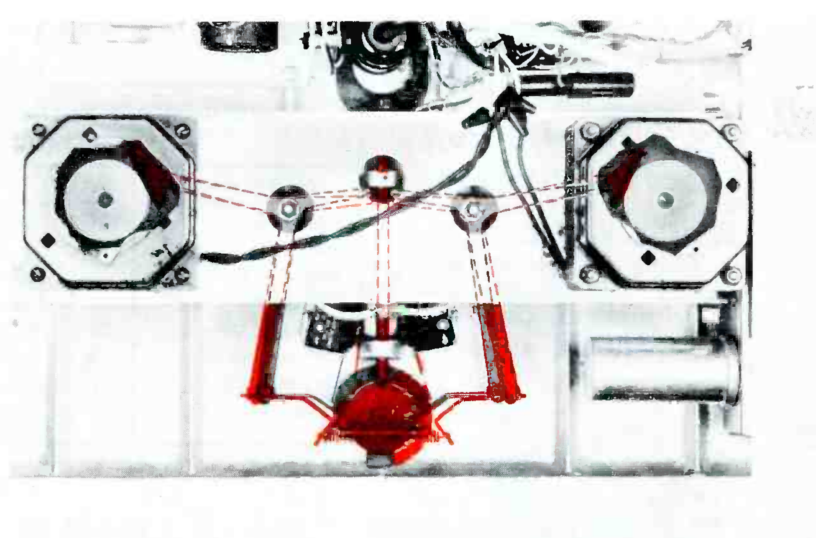
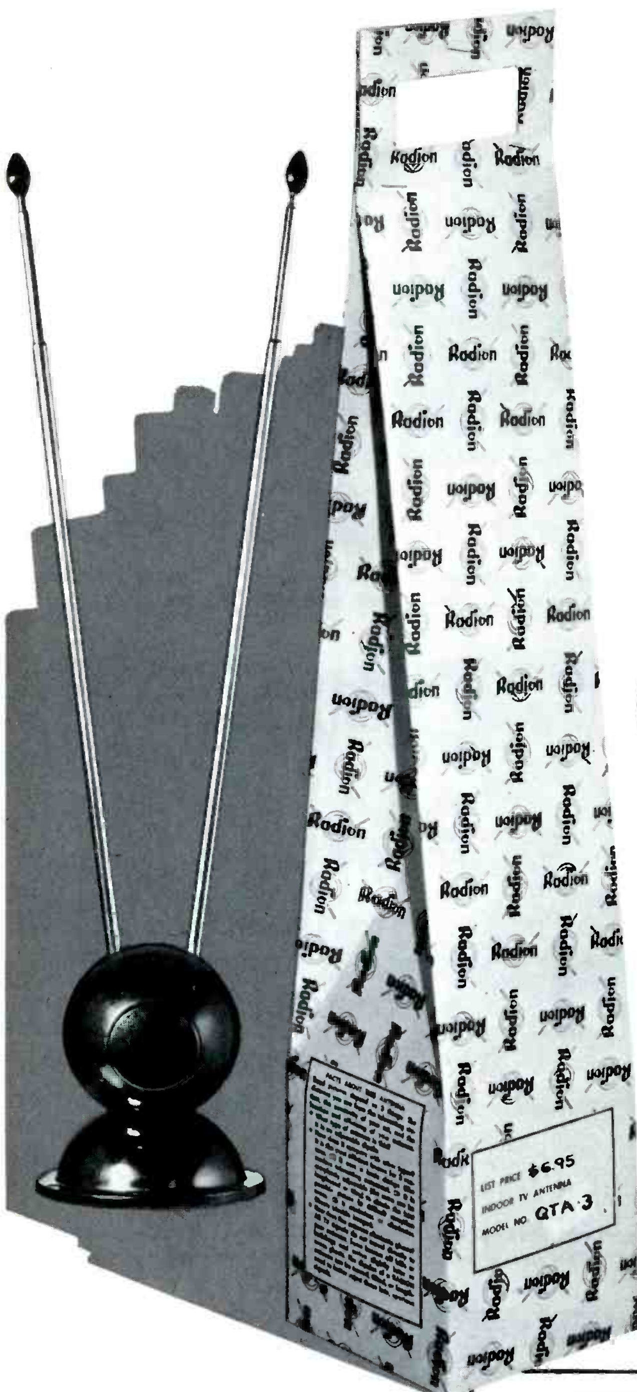


Fig. 7D. Parts Which Move When the Fast-Forward and Rewind Control Is Moved to Fast-Forward Position. Positions Before Moving Are Shown in Black and After Moving Are Shown in Red.



BEHOLD THE PROFIT-PAK CARTON

THAT BOOSTED SALES 23%*

A single carry-out carton won't change your salesroom into a super market overnight, but if your antenna sales haven't kept pace, here's a proven merchandising method for you to use.

*National average

% INCREASE IN ORDERS OCT. '54 THROUGH MARCH '55 OVER SAME MONTHS PREVIOUS YEAR					
DISTRIBUTOR IN:	%	DISTRIBUTOR IN:	%	DISTRIBUTOR IN:	%
Atlanta, Ga.	31	Detroit, Mich.	26	Pittsburgh, Pa.	41
Austin, Tex.	100	Kansas City, Mo.	48	St. Louis, Mo.	110
Buffalo, N.Y.	8	Los Angeles, Cal.	48	St. Paul-Mpls., Minn.	92
Chicago, Ill.	11	Memphis, Tenn.	20	San Antonio, Tex.	230
Cincinnati, Ohio	21	Milwaukee, Wis.	9	San Francisco, Cal.	23
Cleveland, Ohio	8	Oklahoma City, Okla.	11	Seattle, Wash.	300
Columbus, Ohio	26	Omaha, Nebr.	16	Spokane, Wash.	42
Dallas, Tex.	4	Rochester, N.Y.	20	Syracuse, N.Y.	18

Other Radion Sales Builders:

Portable Field Strength Meter for VHF/UHF,

Original all-purpose lightning arrester.

Radion

THE RADION CORPORATION

DEPT. R, 1130 W. WISCONSIN AVENUE, CHICAGO 14, ILLINOIS with the resistor and in series with the take-up motor during the record or playback mode, it also exerts a slight pull on the tape but in a direction opposing the movement of the tape. This aids in maintaining tension.

Sequence of Control Functions

The tape starts to move at the proper time; sufficient take-up at the start of the motion is provided; and tape tension, to prevent breaking or spilling the tape, is maintained — these things happen because the control is designed so that the proper sequence of control functions will occur.

The mechanical arrangement and the switches affected by the rewind and fast-forward control are shown in Fig. 7A. This control is in the OFF or neutral position. The switches of the take-up motor and of the rewind motor are held in their OFF positions by the cam. The motor brakes are engaged because of the pull exerted upon the brake arms by the brake tension spring. The interlock extension arm on the brake-release rod is moved away from the notch in the cam because the tape-drive control is in the OFF or idle position.

The parts that moved when the tape-drive control was moved to the record or playback position are shown in red in Fig. 7B. The positions of the parts before the control was moved are shown in black and after the control was moved are shown in red. The interlock extension arm has been moved into the notch on the cam and locks the rewind and fast-forward control in its neutral position. If the rewind and fast-forward control had not been in its neutral position, the extension arm could not have moved and the tape-drive control would have been locked in its OFF position. These are very good examples of interlocking actions. The brakes are released by the pressure applied on the brake arms by the brake-release adjusting collar.

The rewind and fast-forward control has been turned to the rewind position in Fig. 7C. The tape-drive control had to be in the OFF or idle position before the rewind and fast-forward control could be turned to the rewind position. The red portion indicates positions of the parts after the control was moved, and the black shows the positions of the parts before the control was moved. The cam has released the brakes by moving the brake arms and has also released the rewind-motor switch to start the motor. Note how the shape of the cam causes the brake of the rewind motor to be released first. Then the switch of the rewind motor is turned to the ON position, and this action is followed by the release of the brake for the take-up motor. This is another sequence of movements that provide positive action without breaking or spilling the tape.

The red portion of Fig. 7D shows the positions of the parts after the rewind and fast-forward control is moved to the fast-forward position. The black portion shows the positions before the control is moved. The resulting action is similar to that shown in Fig. 7C, but it is in the opposite sequence. The switch of the take-up motor is turned on, and the switch of the rewind motor remains in its OFF position. The brakes are released.

The Concertone Model 1502 provides an excellent example of a tape-transport mechanism employing three motors. Other arrangements are used in many tape recorders; and in the next article, we will examine and describe a tape-transport system which uses a single motor to operate the mechanism in all modes of operation.

ROBERT B. DUNHAM

Dollars & Sense Servicing

(Continued from page 33)

CAPABILITY OF COLOR. A pail of water filled nearly to the brim must be carried a lot more carefully than one that's half empty, if nothing is to be spilled. Similarly, a TV channel that's filled to the brim with color signals must be handled far more perfectly than when only partially filled by monochrome signals, says Hazeltine's A. V. Loughren. This applies at both the transmitting and receiving ends.

In studios and control rooms, broadcasters are still learning how to carry the nearly full bucket of color signals. Being only human, they're spilling some now and then, with the result that pictures suffer when monochrome sets are tuned to that color program.

At the receiving end, a set that has degenerated to the point where it just barely handles monochrome signals will spill over on color, so that color programs will look pretty poor on it. It's not the fault of color standards nor the station; the receiver needs fixing. As color takes hold, you'll be needing this explanation more and more; it can also serve to bring in profitable overhaul and tune-up jobs that might otherwise be postponed until the set actually goes dead.

If both monochrome and color pictures are good only part of the time when tuned to color, chances are that one of the color cameras at the studio is acting up and not properly matched to the other cameras. We saw this in Peter Pan in which Captain Hook had a bright red jacket most of the time, but on one of the closeup cameras the jacket acquired an awful purplish hue.

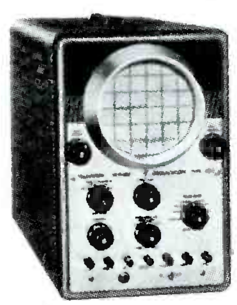
* * Please turn to page 71 * *

FREE 10-DAY TRIAL

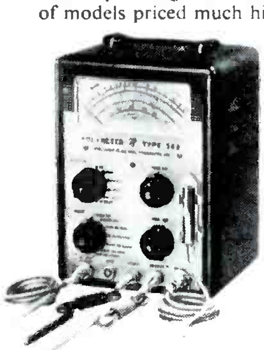
ON THE SYLVANIA TEST EQUIPMENT OF YOUR CHOICE...

then after you decide to buy

Pay as you earn!



▲ **—Type 403** 7" Television Service Oscilloscope—**$269.50** —incorporating advanced features of models priced much higher



◀ **—Type 302** Deluxe Polymeter—**$129.50** —stabilized against calibration errors due to changing line voltage

—Type 620 ▶ New Tube Tester—**$149.50** —equipped to test 600 ma series string tubes as well as all other conventional tubes.

Experience without expense

Sylvania offers you an opportunity to experience the pleasure and profit of using high-quality test equipment, without being obligated to buy. Ask your Distributor to let you take the Sylvania Test Equipment you want back to your shop so you can use it for 10 days. If you're not completely convinced that your Sylvania Test Equipment is accurate and efficient to use, take it back to your Sylvania Distributor. That's all there is to it.

Painless payment plan

If you decide to buy, your Sylvania Distributor will arrange easy payment terms. After a small down payment, you can take up to 18 months to pay on easy credit terms. Your new Sylvania equipment will bring extra profits which will more than pay for itself as you use it.

This offer is limited so see your Sylvania Distributor right away. He'll demonstrate the outstanding features of the Sylvania Test Equipment you need.

For the complete line of Sylvania Test Equipment you can buy on these new terms, write for the complete Test Equipment Brochure, Address Dept. E 35T.

Write for the Complete Test Equipment Brochure

SYLVANIA ELECTRIC PRODUCTS, INC.

Department E 31 T

1740 Broadway New York 19, N. Y.

SYLVANIA

Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y.

In Canada: Sylvania Electric (Canada) Ltd., University Tower Bldg., Montreal

LIGHTING • RADIO • ELECTRONICS • TELEVISION • ATOMIC ENERGY

Color TV Training Series

(Continued from page 11)

The purity magnet is adjusted in two ways. The strength of the magnetic field may be varied by rotating one of the rings with respect to the other, and the direction of the field may be varied by rotating both rings together. The magnetic field should not be made any stronger than is absolutely necessary.

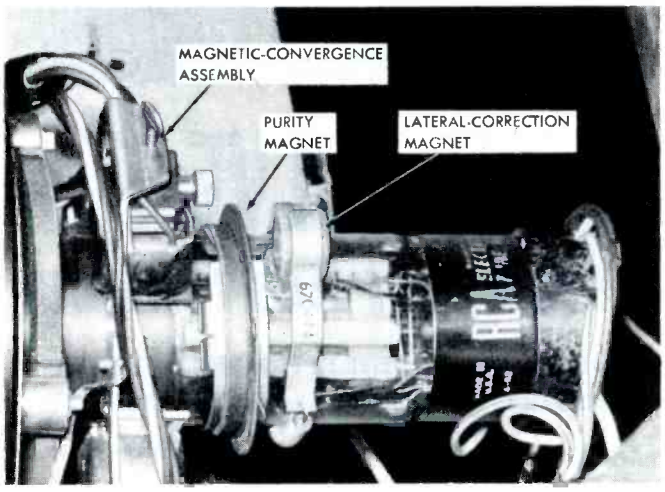


Fig. 10-14. Relative Location of the Purity Magnet in the RCA Victor Model 21-CT-55 Color Receiver.

The best procedure is to begin with a very weak field and to increase the strength gradually until the best results are obtained. The tabs of the two rings should be placed adjacent to each other, and both rings together should be rotated while the effect upon the raster is noted. If there is no appreciable change in the raster, the rings are producing a minimum field. If the raster changes to a considerable degree, the rings are set incorrectly; therefore, one ring should be rotated 180 degrees with respect to the other.

The separation between the tabs should then be gradually increased, and the device should be rotated. The purpose of these adjustments is to obtain a pure red area in the center of the screen. This red area is exactly the same as that obtained when a purity coil is used. (Refer to Fig. A3 of the Color Plate in the April issue of the PF REPORTER.)

After the purity device has been properly adjusted, the next step is to slide the yoke forward while the raster is observed. The red area in the center of the screen should increase in size. The yoke will be positioned properly when the red area has been made as large as possible. The contamination at the edges of the screen should be disregarded during the yoke adjustment. The important thing is to make sure that the red area is as pure and as large as possible and that the yoke is concentric with the neck of the tube. The purity magnet may require a slight readjustment in order to obtain optimum color purity.

The final step in making the purity adjustments is the setting of the field-neutralizing or rim magnets. These components are provided for the purpose of minimizing the effect of stray magnetic fields in the border areas of the viewing screen. The adjustments of the magnets should be made while the light emissions produced by all three beams are observed; therefore, the electron emissions from the blue and green guns should be restored, and the screen controls should be adjusted to produce a white raster having a low brightness level. Color impurity may be noted at the edges of the screen. The rim magnets adjacent to the impure areas should be adjusted until the entire screen appears to be uniformly gray. In some cases, this uniformity may not be perfect and a compromise setting of the rim magnets will have to be made.

The following is the order in which adjustments should be made for obtaining color purity:

1. Set the rim magnets to a neutral position.

2. Position the deflection yoke as far back as possible.

3. Cut off the beams from the green and blue guns, and set the contrast control to its counterclockwise position.

4. Advance the screen control for the red gun, and advance the brightness control.

5. Adjust the purity magnet for an area of pure red illumination at the center of the screen.

6. Move the yoke forward so that the red area becomes as large as possible, and secure the yoke in this position.

7. Readjust the purity magnet for optimum purity.

8. Restore the beam currents from the green and blue guns, and adjust the screen (grid No. 2) controls for a gray screen.

9. Adjust the rim magnets for minimum contamination at the edges of the screen.

Dynamic-Convergence Adjustments

A combination of static and dynamic forces is required to maintain beam convergence during the scanning

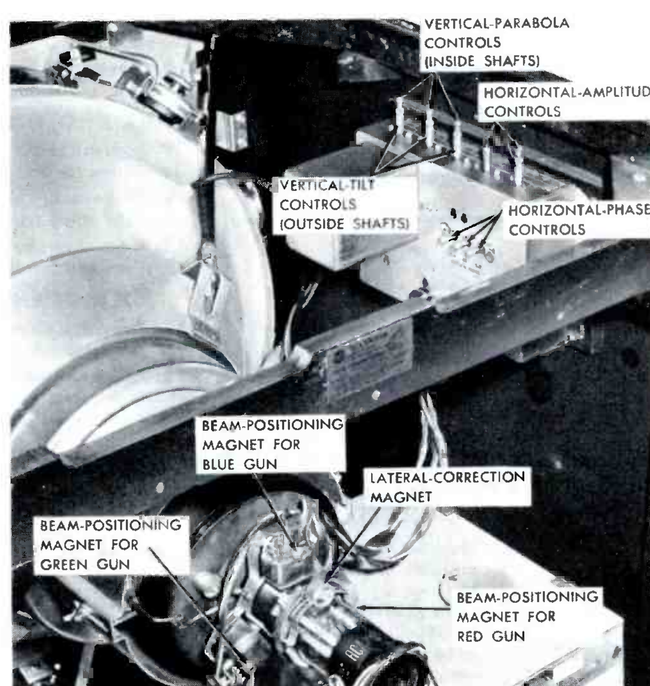


Fig. 10-15. Location of the Controls and Components Used to Obtain Over-all Convergence in the RCA Victor Model 21-CT-55 Color Receiver.

Black and White TV • Color TV • Transistor Radios • AM Radios

WHAT'S YOUR SERVICE PROBLEM?

FM Radios • Amplifiers and Tuners • Auto Radios • Record Changers

PHOTOFACT HELPS YOU SOLVE IT

FASTER, EASIER, BETTER, MORE PROFITABLY!

THE WORLD'S FINEST SERVICE DATA

PHOTOFACT Service Data is the *only* service information based upon first-hand examination of the actual production-run receivers and equipment. It is authentic, uniform data developed through actual study and analysis by service engineers in the Howard W. Sams Laboratories. PHOTOFACT is the *only data* prepared from the practical point of view of the Service Technician.

Thousands of Service Technicians use PHOTOFACT daily for time-saving, profit-boosting service operations. If you've never used PHOTOFACT, you've never realized your full earning power—you've never given such complete customer satisfaction. So get the proof for yourself. Try PHOTOFACT—use it on any job. Your Parts Distributor has the Folder Sets you need for any of the 17,000 TV and radio receivers, changers, recorders, etc., covered in PHOTOFACT. Once you use this great service, we know you'll want the complete PHOTOFACT Library.

ONLY $25 DOWN

Puts a Photofact Service Data Library in Your Shop. Ask Your Photofact Distributor—He Has the Full Easy-Pay Details.

THESE GREAT FEATURES ARE EXCLUSIVE IN PHOTOFACT—THEY HELP YOU EARN MORE DAILY, HELP INSURE CUSTOMER SATISFACTION

FULL SCHEMATIC COVERAGE

1. Famous "Standard Notation" uniform symbols are used in every schematic.

2. The same standard, uniform layout is used for each schematic.

3. Diagrams are clear, large, easy to read, easy to handle.

4. Wave forms are shown right on the TV schematics for quick analysis by 'scope.

5. Voltages appear on the schematics for speedy voltage analysis.

6. Transformer lead color-coding is indicated on the schematic.

7. Transformer winding resistances appear on the schematic.

8. Schematics are keyed to photos and parts lists.

FULL PHOTOGRAPHIC COVERAGE

9. Exclusive photo coverage of all chassis views is provided for each receiver.

10. All parts are numbered and keyed to the schematic and parts lists.

11. Photo coverage provides quicker parts identifications and location.

ALIGNMENT INSTRUCTIONS

12. Complete, detailed alignment data is standard and uniformly presented in all Folders.

13. Alignment frequencies are shown on radio photos adjacent to adjustment number—adjustments are keyed to schematic and photos.

TUBE PLACEMENT CHARTS

14. Top and bottom views are shown. Top view is positioned as chassis would be viewed from back of cabinet.

15. Blank pin or locating key on each tube is shown on placement chart.

16. Tube charts include fuse location for quick service reference.

TUBE FAILURE CHECK CHARTS

17. Shows common trouble symptoms and indicates tubes generally responsible for such troubles.

18. Series filament strings are schematically presented for quick reference.

COMPLETE PARTS LISTS

19. A complete and detailed parts list is given for each receiver.

20. Proper replacement parts are listed, together with installation notes where required.

21. All parts are keyed to the photos and schematics for quick reference.

FIELD SERVICE NOTES

22. Each Folder includes time-saving tips for servicing in the customer's home.

23. Valuable hints are given for quick access to pertinent adjustments.

24. Tips on safety glass removal and cleaning.

TROUBLE-SHOOTING AIDS

25. Includes advice for localizing commonly recurring troubles.

26. Gives useful description of any new or unusual circuits employed in the receiver.

27. Includes hints and advice for each specific chassis.

OUTSTANDING GENERAL FEATURES

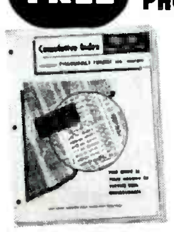
28. Each and every PHOTOFACT Folder, regardless of receiver manufacturer, is presented in a standard, *uniform* layout.

29. PHOTOFACT is a *current* service—you don't have to wait a year or longer for the data you need. PHOTOFACT keeps right up with receiver production.

30. PHOTOFACT gives you *complete* coverage on TV, Radio, Amplifiers, Tuners, Phonos, Changers.

31. PHOTOFACT maintains an inquiry service bureau for the benefit of its customers.

FREE PHOTOFACT CUMULATIVE INDEX



Send for it! Your guide to virtually any model ever to come into your shop; helps you locate the proper PHOTOFACT Folder you need to solve any service problem on any model. Once you have the make and chassis number, it takes just 60 seconds to find the applicable PHOTOFACT Folder.

HOWARD W. SAMS & CO., INC.

Write TODAY *to...*

HOWARD W. SAMS & CO., INC.

Dept. 3E5

2201 E. 46th St., Indianapolis 5, Ind.

for your FREE copy of the valuable Cumulative Index to all PHOTOFACT Folders.

HELPS YOU EARN MORE DAILY

periods. In a receiver which utilizes the principle of magnetic convergence, there are sixteen separate controls or components involved in obtaining over-all beam convergence. The locations of these controls and components in the RCA Victor Model 21-CT-55 are shown in Fig. 10-15. First, there are the four components which must be adjusted to obtain static convergence of the beams; then there are twelve controls which must be adjusted to obtain dynamic convergence of the beams. These are three vertical-parabola controls, three vertical-tilt controls, three horizontal-amplitude controls, and three horizontal-phase controls. One control in each category is associated with one particular gun. This arrangement makes it possible to control individually the dynamic convergence forces exerted upon each beam.

Some manufacturers may use the words "vertical amplitude" instead of "vertical parabola." These references are synonymous, and they indicate the control which is used to adjust the amplitude of the parabolic voltage applied across the convergence coil of a particular electromagnet. A tilt control is used to adjust the amplitude of the saw-tooth voltage applied across the tilt coil of a particular electromagnet. The setting of a tilt control determines the time when the dynamic convergence force on the associated beam will be at maximum during the vertical-scanning period.

A horizontal-amplitude control is used to adjust the amplitude of the sine-wave voltage which is at the horizontal rate and which is applied across the convergence coil of a particular electromagnet. Some manufacturers may call controls of this type horizontal-parabola controls because the effect which the sinusoidal voltage has upon horizontal convergence of the beams closely resembles the effect which the parabolic voltage has upon vertical convergence. The horizontal-phase controls are used to adjust the phase of the sine-wave voltage. The setting of each of these controls will determine the time when the dynamic convergence force upon its associated beam will be at maximum during the horizontal-scanning period.

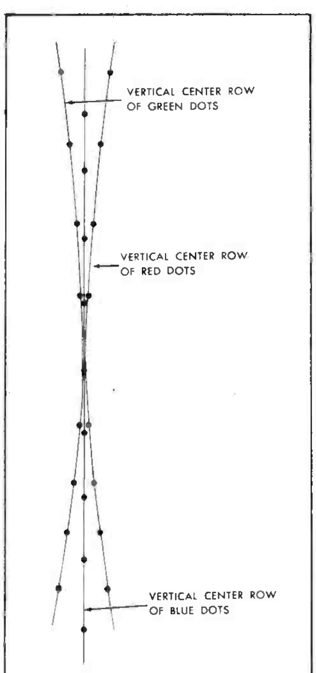


Fig. 10-16. Relationship Between the Dots of Each Color in the Vertical Center Rows Before Dynamic Correction Has Been Applied.

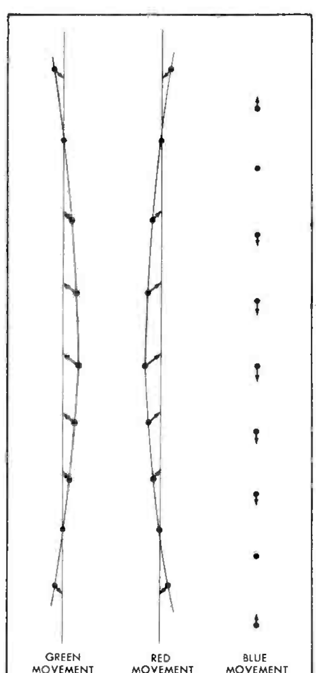


Fig. 10-17. Dot Movements Caused by Adjusting the Parabola Controls.

Vertical Correction

A white-dot generator should be used to make the convergence adjustments. When the signal from such a generator is tuned in, the dot patterns should appear to be approximately like those shown in Fig. B1 of the Color Plate. If this is not the case, the procedure for obtaining static convergence should be repeated. Note that while the dots of light at the center of the screen are converged, the dots at the edges are not. This indicates that when the beams scan the areas at the edges, the beams converge before they reach the shadow mask. This condition is commonly referred to as overconvergence.

The drawing in Fig. 10-16 shows the relationship between the dots of each color in the vertical center rows after the beams have been statically converged and before dynamic correction has been applied. Note that the spacing between the dots is greater at the ends of the rows than toward the center. The application of a parabolic voltage at the vertical rate across the convergence coils increases the convergence force when the beams scan the center of the screen and decreases this force when the beams scan the top and bottom of the screen. As a result, the dots will be moved so that the spacing between the dots of each color will increase at the center of the vertical center rows and will decrease at the top and bottom.

The directions in which the dots of each color are moved by adjustment of the parabola controls are shown by the arrows in Fig. 10-17. If the amplitudes of the parabolic voltages are increased excessively, the spacing between the dots of each color will become greater at the center than at the top and bottom of the vertical center rows.

The application of a saw-tooth voltage at the vertical frequency to the tilt coil of one electromagnet will cause the dots of a particular color at the top of the raster to move in one direction and will cause the dots of this color at the bottom of the raster to move in the opposite direction. The arrows in Fig. 10-18 show the directions in which the dots of each color can be moved as a result of the application of such a voltage to the tilt coils. The application of a saw-tooth voltage of one polarity will cause the dots to move in the directions indicated by the solid arrows; whereas, the application of a saw-tooth

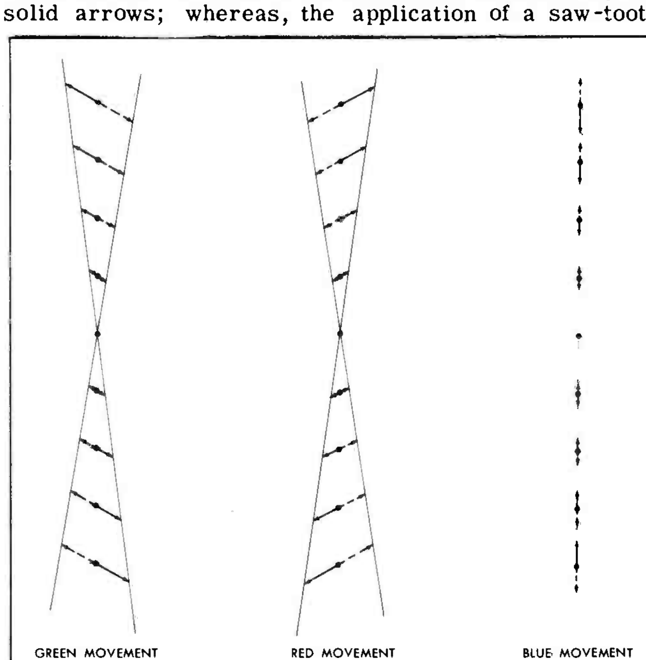


Fig. 10-18. Dot Movements Caused by Adjusting the Tilt Controls.

voltage of the opposite polarity will cause the dots to move in the directions indicated by the dotted arrows. It should be remembered that adjustment of the tilt controls in some receivers will cause the dots to move in only one direction from a static position.

The parabola and tilt controls should be adjusted to achieve symmetrical spacing between the dots of each color in the vertical center rows. Then the beam-positioning magnets can be adjusted to converge the beams so that the vertical center row is composed entirely of white dots.

One method of obtaining vertical dynamic convergence is first to adjust the parabola and tilt controls for equal spacing between the red and green dots along their vertical center rows. The blue beam can be cut off because the blue dots are not to be considered at this time.

When the parabola controls for the red and green beams are advanced excessively, the spacing between the vertical center rows of red and green dots should be greatest at the center of the screen. If maximum spacing does not occur at the center of the screen, the associated tilt controls should be adjusted to produce this condition. The setting of the parabola controls can then be changed to reduce the voltage until the vertical center rows of red and green dots are straight. The appearance of the screen at this point in the procedure is shown in Fig. B4 of the Color Plate. A slight readjustment of the tilt controls may be needed to cause these two rows to be parallel to each other.

A good indication that the parabola and tilt controls for the red and green beams have been adjusted properly may be obtained by readjusting for static convergence of these two beams. This is done by means of the positioning magnets for these beams. Along the entire vertical center row, yellow dots should appear like those shown in Fig. B5 of the Color Plate. If any of the yellow dots are fringed with red or green light, the parabola and tilt controls may be readjusted slightly to minimize this condition.

To complete the adjustments for vertical dynamic convergence, beam emission from the blue gun must be restored. By alternately adjusting the parabola and tilt controls for the blue beam, the vertical center row of blue dots can be spaced equally from the vertical center row of yellow dots. When this is accomplished, the dot patterns will resemble those in Fig. B6 of the Color Plate. Proper adjustment of the beam-positioning magnet for the blue beam and of the lateral-correction magnet will then cause all of the dots of light in the vertical center row to appear as white. This condition may be seen in Fig. B7 of the Color Plate.

Horizontal Correction

The procedure for obtaining beam convergence during the horizontal-scanning period is similar to that used for obtaining vertical convergence. The adjustments for horizontal dynamic correction are made while the dots in a horizontal row nearest the center of the screen are being observed. Before horizontal dynamic voltages are applied, the relationship between the dots of each color

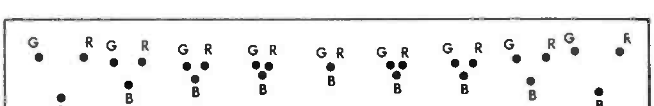


Fig. 10-19. Relationship Between the Dots in the Horizontal Center Rows When the Beams Are Statically Converged.

along their horizontal center rows will be approximately the same as that shown in Fig. 10-19.

The introduction of a sinusoidal voltage across the convergence coil of an electromagnet will cause the dots of a particular color at the middle of the horizontal center row to move in one direction and will cause the dots of the same color at the ends of this row to move in the opposite direction. Fig. 10-20 shows these movements for the dots of each color. Note that the rows of dots become straight instead of curved when sinusoidal voltages having the necessary magnitudes are applied across the convergence coils.

In many cases, however, the dots of one color will not have the same relationship to the dots of the other two colors at opposite ends of the horizontal center rows. This condition is shown by the horizontal center rows in Figs. B1 and B6 of the Color Plate. To compensate for such a condition, the dots of a particular color at one end of the horizontal center row must be moved more than the dots of this color at the other end. This can be accomplished through the use of the associated horizontal-phase control.

Fig. B8 of the Color Plate shows the positions of the blue dots of light along the horizontal center row when the amplitude and phase controls for the blue gun have been adjusted correctly. The first step in obtaining this condition is to advance the amplitude control for the blue gun to its maximum (clockwise) position. This will cause a curvature in the horizontal center row of blue dots. This curvature will be the reverse of that noted before any horizontal-correction voltages were applied.

The spacing between the blue dots and the dots of the other two colors will not be the same along their horizontal center rows. If the horizontal-phase control for the blue gun were varied through its range, the point at which maximum spacing occurs would vary from one side of center to the other. Proper setting of this control will cause maximum spacing between the blue dots and dots of the other two colors to occur at the center of the screen. The horizontal-amplitude control for the blue gun may then be used to reduce the sinusoidal voltage until a straight horizontal center row of blue dots is obtained.

To complete the adjustments for horizontal dynamic convergence, the amplitude and phase controls for the other two guns must be adjusted properly. The controls associated with the green gun should be adjusted until the green dots of light are equally spaced from the blue dots along their horizontal center rows. The red gun can be cut off during these adjustments so that the dots of the other two colors can be observed more easily. When the amplitude and phase controls for the green gun are adjusted correctly, the spacing between the dots along the horizontal center rows will be similar to that shown in Fig. B9 of the Color Plate.

The amplitude and phase controls for the red gun should be adjusted until the red dots are equally spaced from the green dots along their horizontal center rows.

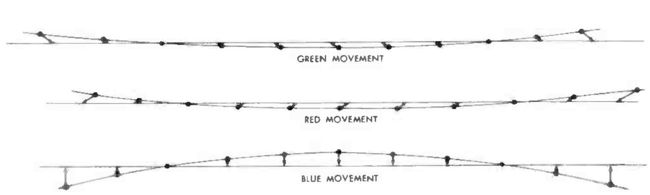
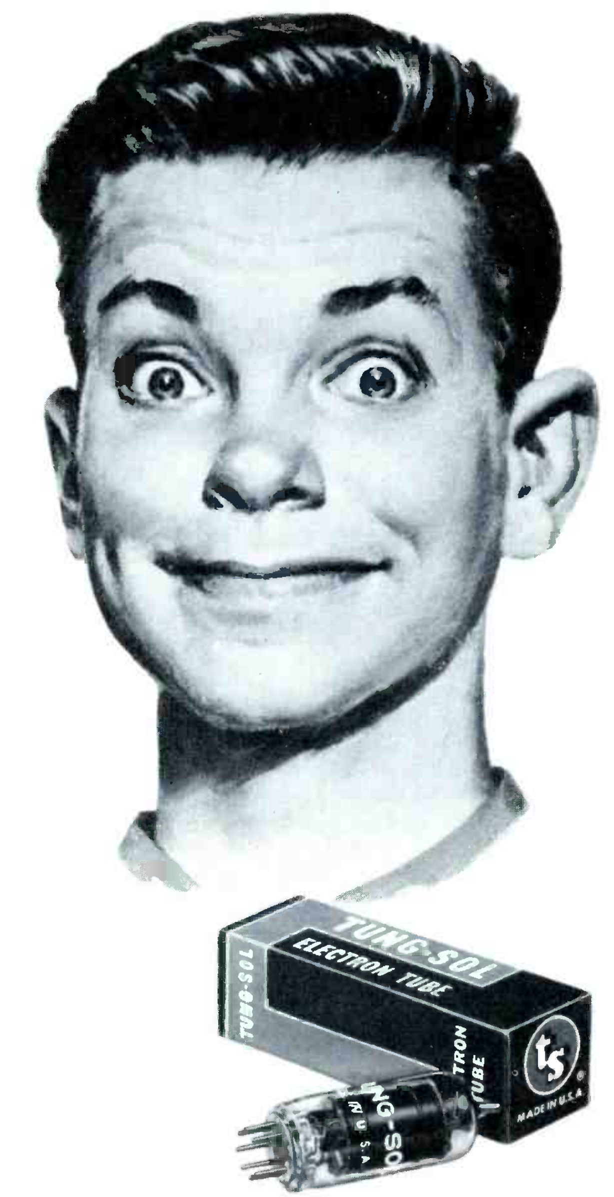


Fig. 10-20. Dot Movements Caused by Adjusting the Horizontal-Amplitude Controls.



Get your share of the 26,000,000 market with the new Jensen TV Duette Hi-Fi Loudspeaker

Every dealer knows that table TV is sound starved . . . you just can't hear all you can see from a small speaker with muffled tone, aimed away from the viewer. TV this way is only half the TV program.

Now you can add high fidelity to table TV . . . make an extra sale with every table TV you sell or service . . . with Jensen's new TV Duette. Here's a true 2-way hi-fi speaker system in handy table design by Jensen—acknowledged leader in hi-fi speakers, that you, Mr. Dealer, can sell at real profit! Easy to demonstrate the big difference in sound with front mounted "show-off" switch—and a third position so the customer can use his TV Duette for record player, tape or radio, too.

Four models listing at $49.50 to $85.50. Find out about Jensen TV Duette today!

These Hi-Fi wholesalers stock TV Duette . . . and the complete Jensen Hi-Fi speaker line

ALLENTOWN, Pa.
Radio Elec. Serv. Co. of Pa.
AMARILLO, Tex.
R & R Electronic Sup.
ANDERSON, Ind.
Anderson Electronic Sup.
APPLETON, Wisc.
Valley Radio Dists.
ATLANTIC CITY, N. J.
Radio Elec. Serv. Co. of N.J.
AUBURN, Me.
Radio Sup. Co., Inc.
BALTIMORE, Md.
Radio Elec. Serv. Co.
BANGOR, Me.
Radio Sup. Co., Inc.
Maine Electronic Sup. Corp.
BIRMINGHAM, Ala.
James W. Clary Co.
BLOOMINGTON, Ind.
Stansifer Radio Co.
BOSTON, Mass.
DeMambro Radio Sup.
BRIDGEPORT, Conn.
Westconn Elec. Sup. Co.
BREMERTON, Wash.
C & G Radio Sup. Co.
BUFFALO, N.Y.
Radio Eqpt. Corp.
BURBANK, Calif.
Dean's Electronics
CADILLAC, Mich.
Straits Dists., Inc.
CAMDEN, N. J.
Radio Elec. Serv. Co. of N.J.
CALUMET, Ill.
Chauncey's Inc.
CHEBOYGAN, Mich.
Straits Dists., Inc.
CHICAGO, Ill.
Chauncey's Inc.
Lukko Sales Co.
Walker-Jimieson Inc.
MERCED, Calif.
Dunlap Whlse. Rad. Co., Inc.
MINNEAPOLIS, Minn.
Lew Bonn Co.
MODESTO, Calif.
Dunlap Whlse. Rad. Co., Inc.
NEWARK, N. J.
All-State Distributors, Inc.
NASHVILLE, Tenn.
Currey's Wholesale Distg.
NEW BRITAIN, Conn.
United Radio Supply
NEW ORLEANS, La.
Southern Radio Sup. Co.
NEW YORK, N. Y.
Sanford Electronics Corp.
NIAGARA FALLS, N. Y.
Niagara Falls Rad. Eqpt. Corp.
NORFOLK, Va.
Radio Supply Co., Inc.
OAKLAND, Calif.
Elmar Electronics, Inc.
OKLAHOMA CITY, Okla.
Johnson Whlse. Electronics
OLEAN, N. Y.
B & O Radio Eqpt. Co.
ORLANDO, Fla.
Thurow Distributors Inc.
OWENSBORO, Ky.
Peerless Elec. Eqpt. Co.
PALO ALTO, Calif.
Zack Radio Supply Co.
PASADENA, Calif.
Electronic Supply Corp.
PENSACOLA, Fla.
Thurow Distributors Inc.
PEORIA, Ill.
Klaus Radio & Elec. Co.
PHILADELPHIA, Pa.
Radio Elec. Serv. Co. of Pa.
PHOENIX, Ariz.
Radio Parts of Ariz.

CLEVELAND, Ohio
Pioneer Electronic Sup.
COLORADO SPRINGS, Colo.
L. B. Walker Radio Co.
COLUMBUS, Ohio
Electronic Supply
CUMBERLAND, Md.
Zimmerman Wholesalers
DALLAS, Tex.
Wilkinson Bros.
DAYTON, Ohio
Srepco, Inc.
DENVER, Colo.
L. B. Walker Radio Co.
DETROIT, Mich.
The Crandall Wholesale Co.
DUBUQUE, Iowa
Boe Distributing Co.
DULUTH, Minn.
Lew Bonn Co.
EASTON, Pa.
Radio Elec. Serv. Co. of Pa.
ERIE, Pa.
Warren Radio Inc.
EVANSTON, Ill.
Chauncey's Inc.
EVANSVILLE, Ind.
Ohio Valley Sound
FARGO, N. D.
Lew Bonn Co.
FOND DU LAC, Wisc.
Harris Radio Corp.
FRESNO, Calif.
Dunlap Whsle. Rad. Co., Inc.
GARY, Ind.
Chauncey's Inc.
Walker-Jimieson Inc.
GRAND JUNCTION, Colo.
L. B. Walker Radio Co.
GRAND RAPIDS, Mich.
Warren Radio Co.
HARRISBURG, Pa.
D & H Distributing
PORTLAND, Me.
Maine Electronic Sup. Corp.
PORTLAND, Ore.
Lou Johnson Co.
POTTSTOWN, Pa.
Geo. D. Barbey Co.
PROVIDENCE, R. I.
DeMambro Radio Sup.
PUEBLO, Colo.
L. B. Walker Radio Co.
READING, Pa.
Geo. D. Barbey Co.
RICHMOND, Va.
Radio Supply Co., Inc.
ROANOKE, Va.
Radio Supply Co., Inc.
RIVERSIDE, Calif.
Electronic Sup. Corp.
SACRAMENTO, Calif.
Dunlap Whlse. Rad. Co., Inc.
SALEM, Ore.
Lou Johnson Co.
SALT LAKE CITY, Utah
Standard Supply Co.
SAN DIEGO, Calif.
Western Rad. & TV Sup. Co.
SAN FRANCISCO, Calif.
Pacific Wholesale Co.
Zack Radio Supply Co.
SAN JOSE, Calif.
Frank Quement, Inc.
SANTA ANA, Calif.
Radio & Telev. Eqpt. Co.
SAULT STE. MARIE, Mich.
Straits Dists., Inc.
SCRANTON, Pa.
Gen. Radio & Electronics
SEATTLE, Wash.
Western Electronic Sup.
Seattle Radio Supply
SPOKANE, Wash.
Columbia Elec. & Mfg. Co.
SPRINGFIELD, Mass.
Soundco Electronic Sup.

BURTON BROWNE ADVERTISING

HAGERSTOWN, Md.
Zimmerman Wholesalers
HOUSTON, Tex.
Lenert Company
HUTCHINSON, Kan.
Interstate Elec. Sup. Corp.
JACKSONVILLE, Fla.
Thurow Dists., Inc.
JAMESTOWN, N. Y.
Warren Radio Inc.
JOPLIN, Mo.
Four-State Radio Sup. Co.
KANSAS CITY, Mo.
Radiolab
LA CROSSE, Wisc.
Lew Bonn Co.
LANCASTER, Pa.
Geo. D. Barbey Co.
LEBANON, Pa.
Geo. D. Barbey Co.
LONGBEACH, Calif.
Dean's Electronics
LOS ANGELES, Calif.
Kierulff & Co.
LOUISVILLE, Ky.
Peerless Elec. Eqpt. Co.
MADISON, Wisc.
Satterfield Rad. Sup., Inc.
MANCHESTER, N. H.
DeMambro Radio Supply
MANITOWOC, Wisc.
Harris Radio Corp.
MARYSVILLE, Calif.
Dunlap Whlse. Rad. Co., Inc.
MEADVILLE, Pa.
Warren Radio Inc.
MEMPHIS, Tenn.
W & W Distributing Co.
ST. LOUIS, Mo.
Interstate Supply Co.
ST. PAUL, Minn.
Lew Bonn Co.
ST. PETERSBURG, Fla.
Thurow Distributors Inc.
STAMFORD, Conn.
Westchester Elec. Sup. Co.
STOCKTON, Calif.
Dunlap Whlse. Rad. Co., Inc.
TACOMA, Wash.
C & G Radio Supply Co.
TALLAHASSEE, Fla.
Thurow Distributors Inc.
TAMPA, Fla.
Goddard Distributors Inc.
TOLEDO, Ohio
Warren Radio Co.
TROY, N. Y.
Trojan Electronic Sup.
UNIONTOWN, Pa.
Zimmerman Wholesalers
WASHINGTON, D. C.
Electronic Wholesalers, Inc.
Silberne Radio & Elec. Co.
WEST PALM BEACH, Fla.
Goddard Distributors Inc.
WHITE PLAINS, N. Y.
Westchester Elec. Sup. Co.
WICHITA, Kan.
Interstate Electronic Sup.
WILKES-BARRE, Pa.
General Rad. & Elec. Co.
WORCESTER, Mass.
DeMambro Radio Supply
YOUNGSTOWN, Ohio
Ross Radio Co.

***WRITE TO JENSEN**

Additional hi-fi wholesaler appointments have been made since this ad was released. If the list does not include one serving your area, write for his name and address. We'll include a free copy of "How to Make Money in Customized High Fidelity."

WORLD'S QUALITY STANDARD FOR MORE THAN A QUARTER CENTURY

Jensen MANUFACTURING COMPANY

Division of The Muter Company, 6601 S. Laramie, Chicago 38, Illinois. IN CANADA: Copper Wire Products, Ltd., Licensee

The blue gun can be cut off during these adjustments so that the red and green dots can be observed more easily. When the amplitude and phase controls for the red gun are adjusted correctly, the spacing between the dots along the horizontal center rows will be similar to that shown in Fig. B10 of the Color Plate.

When beam emission from the blue gun is restored, the spacing between the dots of each color should be the same regardless of which part of the screen is being observed. A good test of the accuracy of this spacing can be made by converging the beams. This is done by repeating the adjustments for static convergence. If white dots of light are produced at all points on the screen, the convergence adjustments are perfect. Inasmuch as perfection is rarely achieved, the photograph in Fig. B11 of the Color Plate will provide the reader with an idea of the appearance of a good dot pattern. The test pattern in Fig. B12 of the Color Plate was observed on a color receiver after convergence adjustments were completed.

The following is a complete step-by-step procedure for making all of the adjustments for dynamic convergence. The figures referred to are those in the Color Plate.

1. Set the dynamic-convergence controls to produce minimum correction.

2. Adjust the beam-positioning magnets and the lateral-correction magnet for static convergence of the beams. See Fig. B1.

3. Cut off the blue beam, and advance the parabola controls for the red and green guns to maximum (clockwise) positions.

4. Adjust the tilt controls for the red and green guns so that maximum separation will occur midway along the vertical center rows of red and green dots.

5. Retard the setting of the parabola controls for the red and green guns until the vertical center rows of red and green dots are straight. See Fig. B4.

6. Readjust the tilt controls for the red and green guns so that the vertical center rows of red and green dots will be parallel.

7. Adjust the positioning magnets to converge the red dots with the green dots so that a vertical center row of yellow dots will be obtained. See Fig. B5.

8. Restore beam emission from the blue gun, and adjust the parabola and tilt controls for this gun so that there will be equal spacing between the blue and yellow dots in the vertical center rows. See Fig. B6.

9. Adjust both the beam-positioning magnet for the blue gun and the lateral-correction magnet in order to converge the blue dots with the yellow dots along the vertical center row. See Fig. B7.

10. Advance the horizontal-amplitude control for the blue gun to maximum.

11. Adjust the horizontal-phase control for the blue gun so that at the center of the screen there will be maximum spacing between the blue dots and the corresponding red and green dots.

12. Retard the amplitude control for the blue gun until the horizontal center row of blue dots is straight. See Fig. B8.

13. Cut off the red beam, and adjust the amplitude and phase controls for the green gun until the green dots are equally spaced from the corresponding blue dots along the horizontal center rows. See Fig. B9.

14. Restore beam emission from the red gun, and cut off the blue beam.

15. Adjust the amplitude and phase controls for the red gun until the red dots are equally spaced from the corresponding green dots along the horizontal center rows. See Fig. B10.

16. Restore beam emission from the blue gun, and adjust the beam-positioning magnets and the lateral-correction magnet to produce an all-white dot pattern. See Fig. B11.

ADJUSTING THE GRAY SCALE

The gray-scale adjustments represent the final steps toward completing the receiver adjustments associated with the picture tube. The term "gray scale" pertains to the various luminance values from black to white. The different values in the gray scale can be reproduced by changing the intensity of light. As the intensity is increased, the values of gray will become lighter; and as the intensity is decreased, the values of gray will become darker.

In order for the color picture tube to reproduce the gray scale, the light emissions from the three color phosphors must be equal. Because of the difference in the efficiencies of the phosphors, the intensities of the three beams will not be equal when the light emissions from the three phosphors are equal. The phosphor efficiencies in one particular tube are such that the red gun contributes 57 per cent, the green gun 25 per cent, and the blue gun 18 per cent of the total ultor current when white light is produced. These percentages will vary slightly in different types and makes of tubes because of differences in the phosphors used.

The proper relationship between the beam currents must be maintained at all times during the reproduction of a monochrome image in order for the various luminance levels to appear as values of gray. When the proper operating voltages for each gun are established, the light outputs from the three phosphors will remain equal as the bias levels of the guns are varied simultaneously. The

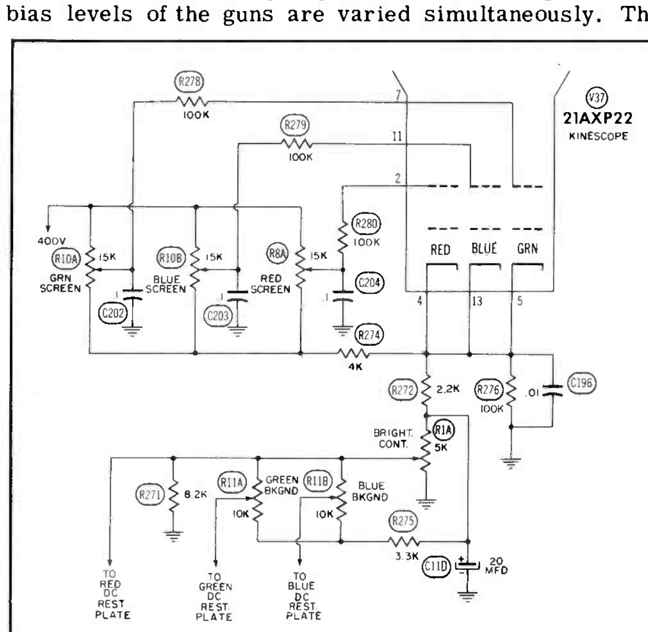


Fig. 10-21. Control Circuits Used to Determine the Operating Voltages of Each Electron Gun in the RCA Victor Model 21-CT-55 Color Receiver.

color picture tube can reproduce monochrome images only under these conditions. Once these conditions are established, the operating voltages for the guns will also be proper for the reproduction of color images.

The schematic diagram in Fig. 10-21 shows the circuits used to determine the operating voltages for each gun in the RCA Victor Model 21-CT-55. Note that there are three screen controls, two background controls, and a brightness control. The term "background" refers to the luminance level of a raster. The background controls are used to adjust individually the static bias levels of their associated guns. Simultaneous variation of the bias levels of all three guns is accomplished by adjusting the brightness control. Each screen control is used to adjust the voltage at the first anode of its associated gun.

Because of the various circuits used, the procedure for adjusting the gray scale differs slightly in different receivers. A receiver which combines the luminance signal with the color-difference signals before applying them to the picture tube usually incorporates video gain controls. These controls are used in the matrix section so that the three signals applied to the picture tube will receive the proper amplification. In a receiver of this type, the video gain controls must be adjusted to obtain proper reproduction of the gray scale.

Some receivers use the picture tube to combine the luminance signal with the color-difference signals. The luminance signal is applied directly to the driven elements of each gun, and no video gain controls are involved in the procedure for adjusting the gray scale.

Although there are some variations in procedure, the screen controls are usually adjusted when the brightness control is set for a bright raster. The video gain controls, if used, are adjusted for a black-and-white picture when the brightness and contrast controls are set for normal operation. The background controls are usually adjusted with the brightness control set for low-brightness reproduction. When the gray scale has been adjusted properly, black-and-white reproduction should be maintained as the brightness control is varied over its normal range.

A procedure which can be used in making the gray-scale adjustments is outlined as follows:

1. Turn the contrast and background controls fully counterclockwise.

2. Set the brightness control to a nearly maximum clockwise position.

3. Alternately adjust the three screen controls to produce a light value of gray.

4. Tune in a black-and-white signal, and adjust the brightness and contrast controls for normal operation.

5. Adjust the video gain controls for reproduction of the image in values of gray. (Disregard this step if video gain controls are not used.)

6. Adjust the brightness control for a very dim monochrome image.

7. Alternately adjust the background controls until the image is reproduced in values of gray.

8. Rotate the brightness control over its normal range. If color shading or tinting is noted in the picture, repeat steps 2, 3, 6, and 7.

C. P. OLIPHANT and VERNE M. RAY

Notes on Test Equipment

(Continued from page 13)

be wide enough to display the entire response curve of the circuit under observation. The lower limit of the range should be close to zero cycles, theoretically; but this ideal is difficult to approach. With prrsent-day video sweep generators, the lc ver limit may be anywhere from 8 to 30 kilocycles. The usable sweep signal should be flat out to an upper limit of 4.5 to 6 megacycles. This results in a response presentation that is very satisfactory.

Three sources of video sweep signal were at hand and were used in obtaining the response curves shown in the illustrations for this article. These were the General Electric Type ST-4A sweep generator, the Jackson TVG-2 television signal generator, and the Simpson chromatic probe and chromatic amplifier. The probe and amplifier were used in conjunction with the Simpson Model 480 Genescope. The receiver was an RCA Victor Model CT-100.

Preliminary Adjustments

The video sweep signal was used for viewing the response of the bandpass amplifier, of the I channel, and of the Q channel. Since the video IF response requires a different signal for viewing, nothing was done toward checking this response. In normal black-and-white reception with a color receiver, the chrominance channels are rendered inoperative by the color-killer circuits. In this way, any noise or unwanted signals from the chrominance channels are prevented from reaching the picture tube. The color killer will also prevent any signal from the video sweep generator from passing through the chrominance channels; therefore, the color killer must be made inoperative in order to develop any response curve.

There may be several ways of disabling the color killer. Fig. 3

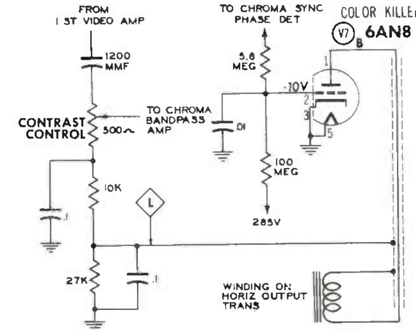


Fig. 3. Color-Killer Section in the RCA Victor Model CT-100 Color Receiver.

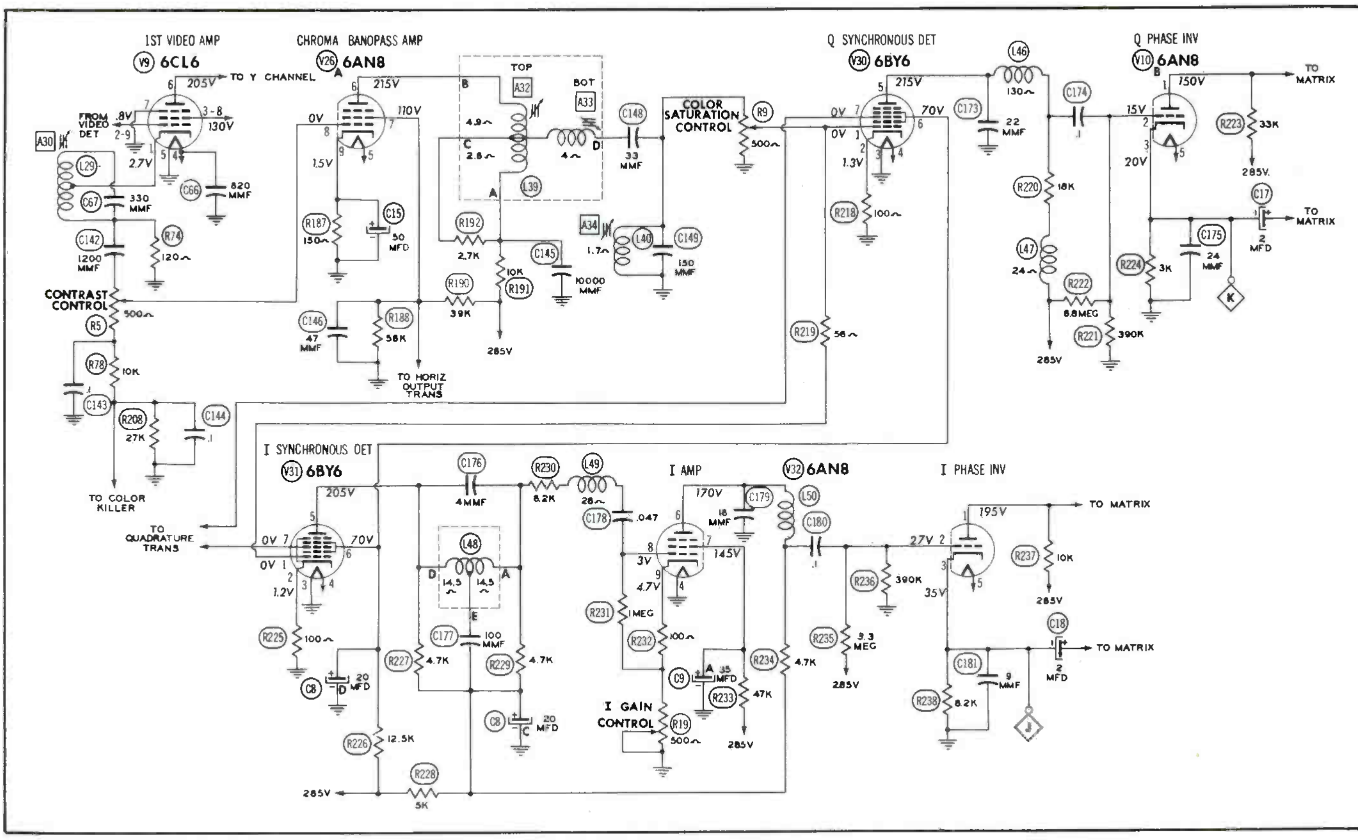


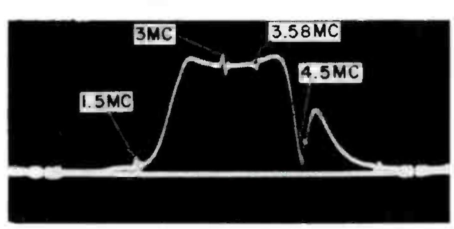
Fig. 4. First Video Amplifier and Chrominance Sections in RCA Victor Model CT-100 Color Receiver.

shows the color-killer section of the RCA Victor Model CT-100 receiver. The manual for this receiver recommends grounding point L to the chassis in order to disable this section. Another preliminary step which helps to obtain a smoother response curve is to block any noise from the video IF stages from entering the chrominance circuits. This can be done by grounding the grid of one of the last video IF stages or by removing a tube in one of these stages. It so happens that the color killer and the fifth video IF stage of the RCA Victor Model CT-100 are combined in one dual-purpose tube; therefore, removal of this one tube accomplishes both of the foregoing objectives at the same time.

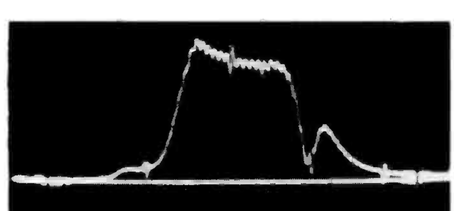
A further aid in obtaining response curves that are free from noise indications is the disabling of the high-voltage supply. This was accomplished in the RCA Victor Model CT-100 color receiver by removing the high-voltage fuse. The difference between the two conditions, with and without high voltage, may be seen in Figs. 5A and 5B. In some instances, the difference may be even more marked, especially if unshielded test leads are used.

When making response checks, the service technician should consult his service data regarding any bias to be applied to the circuits under observation. In this case, no bias was necessary — in fact, it would have been detrimental because the gain of the stages involved was low; and nearly the full output of the generators and the maximum sensitivity of the oscilloscope were necessary to obtain a satisfactory response curve.

Since the technician will need all the signal he can obtain from the circuits, any gain controls between the connection point for the generator and that for the oscilloscope should be set for maximum amplification of the sweep signal. Exceptions must be made if the shape of the response curve is changed as the controls are advanced. The technician can easily distinguish between a condition of uniform increase in relative amplitude at all points on a response curve and a condition of distortion which is indicated when one portion of the response curve increases in amplitude much faster than the remaining portion increases.



(A) With High Voltage Disabled.



(B) With High Voltage Operating.

Fig. 5. Bandpass-Amplifier Response Obtained by Using Input Signal From General Electric Type ST-4A Sweep Generator.

Response of Band-Pass Amplifier

The bandpass-amplifier circuits are designed to amplify only that portion of the video-amplifier response which is within an approximate range of 2 to 4.1 megacycles. This latter range is the band that contains the chrominance information for the I and Q channels. Fig. 4 is a partial schematic diagram of the RCA Victor Model CT-100 receiver and shows the first video amplifier stage, the bandpass amplifier, and the I and Q channels.

In order to view the bandpass response, the video sweep generator was connected to the grid (pin No. 2) of the video amplifier tube V9; and the detector probe feeding the oscilloscope was connected to pin No. 1 of the Q synchronous detector V30. This portion of the circuit offers only one stage of gain because the video amplifier V9 acts as a cathode follower and provides no gain. Part of the gain

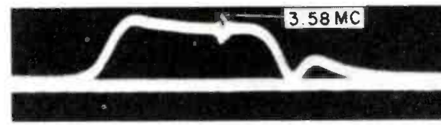


Fig. 6. Bandpass-Amplifier Response Obtained by Using Input Signal From Jackson Model TVG-2 Sweep Generator.

provided by the bandpass amplifier V26B is lost in the bandpass-filter section L39; consequently, a strong sweep signal is required from the generator. Fig. 5A shows the response obtained when the General Electric sweep generator, which was previously mentioned, was used. Fig. 6 shows the response obtained when the Jackson TVG-2 sweep generator was used; and Fig. 7 was obtained when the Simpson Model 480 Genescope, the Model 406 chromatic amplifier, and the chromatic probe were used.

The markers appearing on the response curve of Fig. 5A are at 1.5, 3, 3.58, and 4.5 megacycles. The marker in Fig. 6 is at 3.58 megacycles. This 3.58-mc marker in both cases was produced by the chroma reference oscillator in the receiver itself; and it could be eliminated, if desired, by removing the crystal from the oscillator circuit. The slight differences in the appearances of the response curves from the three signal sources are probably the results of impedance-matching variations and minor differences in the frequency characteristics of the detector probes used. Note that each response curve conforms closely to the idealized curve in Fig. 2A. A check of the sweep outputs of the three generators indicated that all were reasonably flat in the video-frequency range.

Response of I Channel

To obtain the I-channel response, the video sweep signal was introduced at the grid (pin No. 1) of the I synchronous detector; and the detector probe of the oscilloscope was connected at point J of Fig. 4. Point J is the cathode of the I-phase inverter. Two stages of amplification are provided in this channel, and therefore less input signal was required.

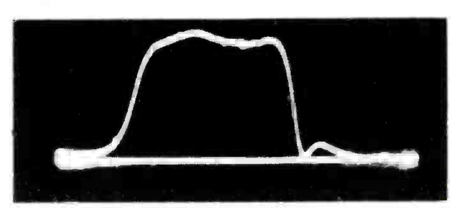
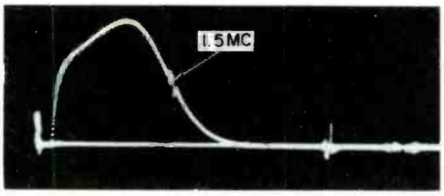
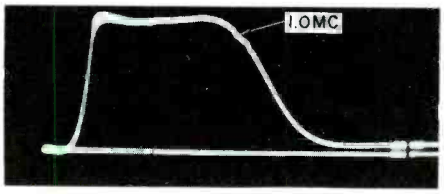


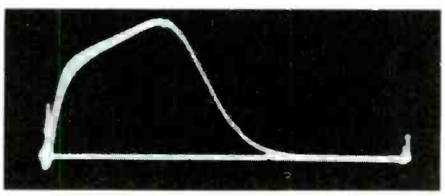
Fig. 7. Bandpass-Amplifier Response Obtained by Using Simpson Model 480 Genescope, Model 406 Chromatic Amplifier, and Chromatic Probe.



(A) Using General Electric Type ST-4A Sweep Generator.



(B) Using Jackson Model TVG-2 Sweep Generator.



(C) Using Simpson Model 480 Genescope, Model 406 Chromatic Amplifier, and Chromatic Probe.

Fig. 8. Response of I Channel.

The responses obtained are shown in Figs. 8A, 8B, and 8C and are in the same order as before. In Fig. 8A, the marker is at 1.5 megacycles; in Fig. 8B, it is at 1 megacycle.

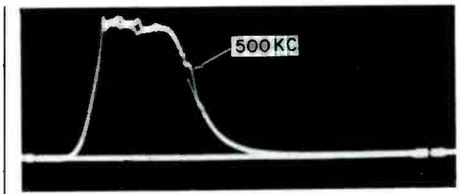
Response of Q Channel

The Q-channel response was obtained in a manner similar to that used for the I channel. The sweep signal was applied to the grid (pin No. 1) of the Q synchronous detector; and the detector probe was connected to point K, the cathode of the Q-phase inverter. See Fig. 4. The setting of the color-saturation control has some effect on the shape of this response curve and considerable effect on the amplitude of the response curve. If the control is set too close to minimum, the signal will be greatly attenuated; and if it is set too high, the loading effect of L40 changes the shape of the response curve somewhat. A setting near the middle of its range seemed to work best.

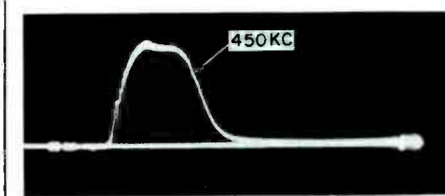
The response curves for the Q channel are shown in Figs. 9A, 9B, and 9C. The same order of application of the sweep generators was maintained. In Fig. 9A, the marker is at 500 kilocycles; and in Fig. 9B, it is at 450 kilocycles.

Interpreting the Response Curve

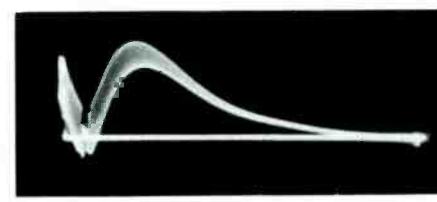
One of the first things that the technician may notice when using a



(A) Using General Electric Type ST-4A Sweep Generator.



(B) Using Jackson Model TVG-2 Sweep Generator.



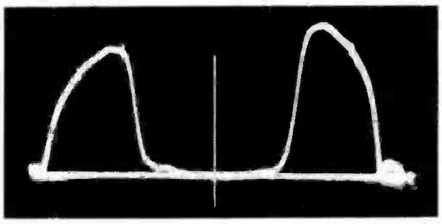
(C) Using Simpson Model 480 Genescope, Model 406 Chromatic Amplifier, and Chromatic Probe.

Fig. 9. Response of Q Channel.

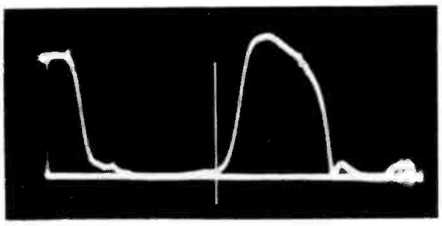
video sweep signal is that two response curves can be obtained. One is the mirror image of the other. This dual response is shown in Fig. 10A and is obtained because of the nature of the circuits which generate most sweep signals. A common method of obtaining a sweep signal that is tunable over a wide range is to produce a beat between two signals — one a frequency-modulated signal and the other an unmodulated RF signal. Either the difference frequency or sum frequency so obtained is the sweep output signal that is desired.

One or the other of the two signals is made tunable so that a wide range of sweep frequencies can be obtained. To cite an example, let us suppose that the sweep-generating unit of a certain generator is designed to operate around a 114-mc fixed frequency and that the RF generating unit is tunable over a certain range of frequencies. These two signals are combined in a mixer circuit.

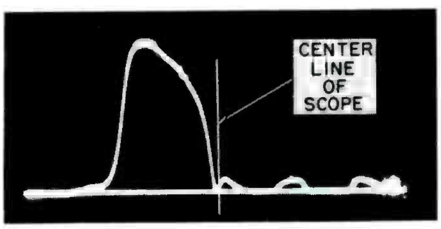
If the sweep width is set to obtain a 9-mc sweep, the signal developed by the sweep-generating unit will be varying to the extent of 4.5 megacycles on each side of 114 megacycles. When the RF generating unit is tuned to develop a 114-mc signal, the output from the mixer is the difference signal having a center frequency of zero and sweeping to 4.5 megacycles on each side of zero. In the response curve on the oscilloscope, each frequency between zero and 4.5



(A) Zero Frequency in Center of Scope Trace.



(B) Zero Frequency Shifted in Order to Center Different Points of the Response Curve for Frequency Identification.



(C) Zero Frequency Shifted in Order to Center Different Points of the Response Curve for Frequency Identification.

Fig. 10. Dual Response Curve Obtained with a Video Sweep Signal.

megacycles will appear twice (four times, if no blanking is used). Since only one curve is necessary to show the response, the other one can be moved off the oscilloscope screen by adjusting the sweep-tuning control. In the example previously cited, the frequency of the RF generating unit might be changed to 118.5 megacycles. The amount of generator tuning necessary to shift the response curve a given amount can be made the basis of a "marker" system for identifying different frequency points on the response curve. This "marker" system will be discussed in some of the paragraphs to follow.

Simpson Chromatic Probe and Chromatic Amplifier

As previously stated, a video sweep signal may be developed internally in a sweep generator by proper choice of the RF and sweep frequencies; however, special care must be given in designing such instruments in order to obtain a sweep output that approaches zero frequency. There is a tendency for two associated oscillators to lock together as they approach the same frequency. The mixing action of the two frequencies does not have to be performed internally but can be done in a circuit arrangement external to the two signal sources. This system has been developed by Simpson and is used in the chromatic probe.

Briefly, the chromatic probe is a crystal-mixer circuit in which the outputs of conventional RF generators and TV sweep generators can be combined to produce a video sweep signal. The chromatic probe is equipped with a cable designed to plug into the Simpson Model 479 and Model 480 generators. In this manner, only one connection to the probe is necessary to mix the two signals. The chromatic amplifier may be used wherever necessary in order to amplify the video sweep signals which are between 8 kilocycles and 4 megacycles. Such amplification is useful when working with the low-gain circuits of a color receiver.

The RF and sweep generators used to supply the signals to the chromatic probe should be set to very nearly the same frequency. In the example shown in Fig. 10A, both generators were set to 30 megacycles on the dial. Any other two identical settings should be just as satisfactory. The zero-frequency point on the response curve falls midway between the two parts of the dual curve. The horizontal-positioning control of the oscilloscope can be adjusted, if necessary, so that this midpoint will be centered on the scope screen. The vertical center line of the scope screen can then be used as a marking point.

It has been previously stated that the center frequency of the sweep output can be shifted and that this provision is the basis for a type of "marker" system. To determine the frequency of any point on the response curve, first set the tuning control of the RF generator so that the frequency of the RF generator is the same as the center frequency of the sweep-generating unit. The center frequency of the sweep output will be zero when this is done. Then, center the zero-frequency point of the dual curve on the oscilloscope screen by means of the horizontal-positioning control on the oscilloscope. The vertical center line on the oscilloscope screen will then serve as a reference point. If it is desired to know the frequency that is represented by a particular point on the response curve, change the frequency of the RF generator until that point on the response curve is at the vertical center line of the oscilloscope. The new frequency from the RF generator should be noted. The difference between this frequency and the frequency which was previously produced by the RF generator is the frequency represented by the point on the response curve.

For example, in Fig. 10A, the generator was set at 30 megacycles; in Fig. 10B, the generator setting has been changed so that the response curve is moved until the vertical center line of the oscilloscope marks the left-hand edge of one curve. The new dial setting was 32 megacycles; therefore, the left-hand edge of the response curve represents a 2-mc frequency. When the generator setting was changed to read 34.5 megacycles, the right-hand edge of the curve fell at the center of the scope screen, as in Fig. 10C; therefore, this point of the response curve represents a 4.5-mc frequency.

Any point on the response curve may be identified in the manner just described. The reader may think of several reasons for using the equipment in this way. If only one RF generator is available, it will have to be used in conjunction with the sweep generator in order to develop the video sweep and will not be available for use as a conventional marker generator. Moreover, in many cases conventional marking methods may be difficult to apply without causing distortion of the response curve.

JACKSON MODEL 712 COLOR BAR/DOT GENERATOR (REVISED VERSION)

An earlier Jackson Model 712 color bar/dot generator was covered in the December 1954 issue of the PF REPORTER. Since then, some changes and additions have been made in the design of the unit by the manufacturer. The new Model 712 is pictured in Fig. 11. A few changes in the outward appearance of the instrument will be mentioned before going into detail about the various functions and signals provided.

The positions formerly occupied by pilot and standby lights on the front panel are now occupied by an RF attenuation control and a horizontal-centering control. These functions are new in the Model 712. The pilot light has not been eliminated but has been moved to a different location on the front panel. A three-position switch has been added on the front panel, and it is effective only when the color-bar selector switch is in

Fig. 11. Jackson Model 712 Color Bar/Dot Generator.

the MULTI position. This three-position switch allows the operator to eliminate either luminance or chrominance from the MULTI color-bar signal.

The earlier model supplied, at one position of the color-bar selector switch, four color bars on the screen of the receiver to which the generator was connected. From left to right, these color bars were: I, Q, R - Y, and B - Y. These same color bars are provided in the new model, but they can be displayed individually or in combinations by means of six different switch positions. The displays contain the following bars: R - Y and B - Y simultaneously, R - Y alone, B - Y alone, I and Q simultaneously, I alone, and Q alone. Furthermore, individual bars of red, green, or blue can be displayed. These functions, together with the production of the MULTI color-bar signal, call for a total of ten positions on the color-bar selector switch of the new Model 712. The earlier model of the generator had only six positions on this switch.

On the rear panel of the instrument chassis of the new Model 712, a SYNC jack has been added so that a horizontal-synchronization signal may be obtained. The 3.58-mc output jack, AFC test point, vertical speed control, and SYNC output jack are accessible without the necessity of removing a cover plate.

The preceding paragraphs cover the main differences and similarities between the two Model 712 color bar/dot generators. A more complete discussion of the features of the newer model follows.

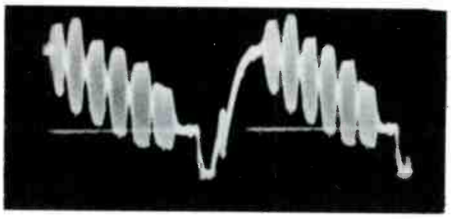
Outputs.

1. Composite video of either positive or negative polarity, with amplitude adjustable to 1 volt across 90 ohms. Either luminance or chrominance can be eliminated from the composite signal.

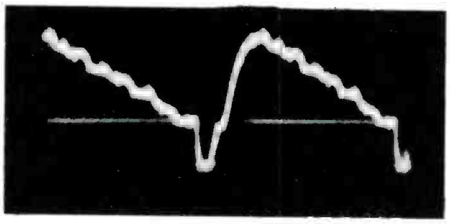
2. Modulated RF on channels 3, 4, or 5. The amplitude is adjustable to .1 volt across 300 ohms. Maximum counterclockwise rotation of the RF ATTEN control turns off the RF signal.

3. A horizontal-sync signal of positive polarity. The amplitude is 1 volt across 200 ohms.

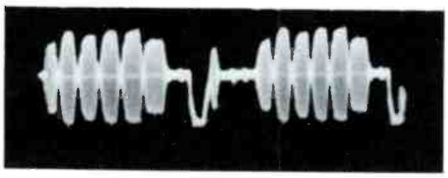
4. Crystal-controlled color subcarrier. The amplitude is 40 millivolts across 200 ohms, and the subcarrier is at burst phase.



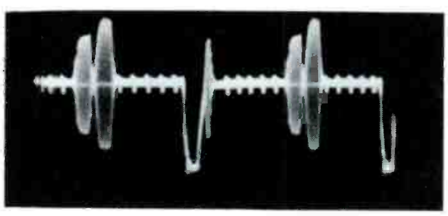
(A) MULTI.



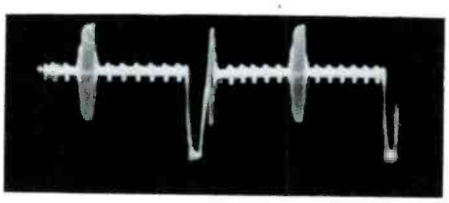
(B) MULTI (Luminance Only).



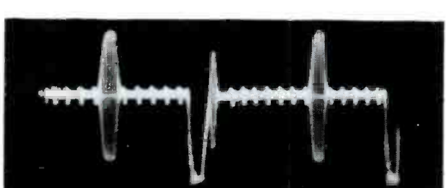
(C) MULTI (Chrominance Only).



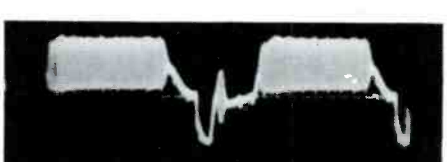
(D) R-Y and B-Y; or I and Q.



(E) R-Y or I.



(F) B-Y or Q.



(G) Single Bar (Red, Green, or Blue).

Fig. 12. Waveforms of Color Signals Obtained From Jackson Model 712 Color Bar/Dot Generator.

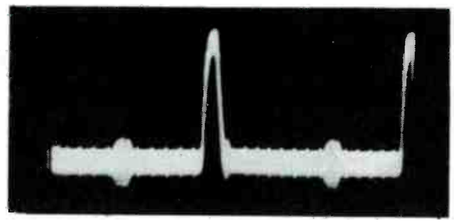


Fig. 13. Horizontal Synchronizing Signal Obtained From Jackson Model 712 Color Bar/Dot Generator.

Synchronizing Signals.

1. Crystal-controlled color-burst signal (NTSC standards).

2. Standard horizontal-sync and blanking signals.

3. Vertical-sync and blanking signals.

Color-Bar Signals.

In the MULTI bar position, the color bars are provided in the following order: white, yellow, cyan, green, magenta, red, blue, and black. The relative luminance and chrominance levels are held to ±10 per cent of the standards for 100-per-cent saturation. The phase angles are accurate to ±5 degrees.

Color-Difference Displays.

Bars are provided in the following combinations: I, Q, I and Q, R - Y, B - Y, R - Y and B - Y. The relative luminance amplitude is zero, and the relative chrominance amplitude is 0.25. Phase angles are maintained within ±2 degrees.

Single Bars.

Red, green, or blue bars are generated individually. The luminance of each bar has a relative amplitude of 0.3, and the chrominance has a relative amplitude of 0.5.

Sound Carrier.

A crystal-controlled sound carrier is provided and is placed 4.5 megacycles from the picture carrier. The amplitude is approximately 25 per cent of the peak amplitude of the picture carrier. The sound carrier may be turned on or off by means of a toggle switch on the front panel. In addition to the color-bar signals, signals are also provided for dot and crosshatch patterns. The full crosshatch pattern is made up of twelve vertical lines and nine horizontal lines. The full dot pattern is made up of 108 dots.

Oscilloscope waveforms of the color-bar signals appear in Figs. 12A through 12G. The video signals are shown with a negative polarity. The signals, in the order of their appearance, are: MULTI, MULTI (luminance only), MULTI (chrominance only), I and Q or R - Y and B - Y, I or R - Y, Q or B - Y, and a single bar (red, green, or blue). Fig. 13 is the signal available at the sync-output jack.

JACKSON MODEL 700 COLOR-BAR GENERATOR

The Jackson Model 700 is pictured in Fig. 14. This color-bar generator provides the same color

Fig. 14. Jackson Model 700 Color-Bar Generator.

signals as the Model 712. It does not, however, provide a dot or crosshatch pattern. Although the same color-bar signals are provided, they are obtained through a slightly different arrangement of front-panel switches.

Three pin jacks are to be found on the rear panel of the chassis beneath a cover plate. These are labeled 3.58 MC., GND., and SYNC.

Other than the differences already mentioned, the Model 700 is substantially the same as the Model 712 in function and appearance.

PAUL C. SMITH

WHEATIES. It had to come, and it did; now you can cut out the side of a Wheaties box and play it on your phonograph at 78 rpm. It's a 5-inch disc embossed on transparent acetate that's glued to the box, and it sounds remarkably good. The average playing time is around 55 seconds.

MARKUS • • *Dollar and Sense Servicing*

Examining Design Features

(Continued from page 31)

90 degrees when the primary and secondary coils are tuned to the same frequency and when the applied signal is at this same frequency. In transformer L6, however, the connections to the secondary have been reversed so that the voltage applied to grid No. 1 of the 6CS6 tube leads by 90 degrees the primary voltage applied to grid No. 3 when the input signal is at the resonant frequency. This phase relationship is shown in Fig. 4B.

At frequencies lower than the resonant frequency of transformer

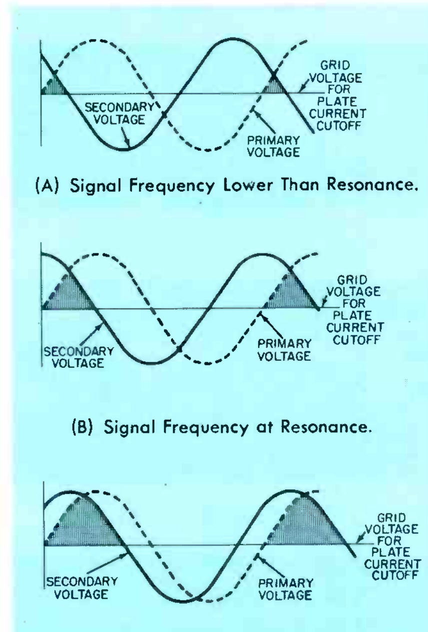


Fig. 4. Grid Voltages on 6CS6 Phase Detector When Different Signal Frequencies Are Applied.

L6, the phase relationship between the primary and secondary voltages becomes greater than 90 degrees; whereas, at frequencies higher than the resonant frequency, the phase relationship becomes less than 90 degrees. The drawings in Fig. 4 indicate the phase relationships of the primary and secondary voltages on the grids of the 6CS6 tube when the applied signal frequency is equal to, higher than, and lower than the resonant frequency of the transformer. When the receiver is searching for a station, capacitor C21 is connected across the secondary coil of transformer L6 by means of a set of contacts in the relay switch. This capacitor lowers the resonant frequency of the secondary so that the new resonant frequency is less than the center frequency of the IF pass-

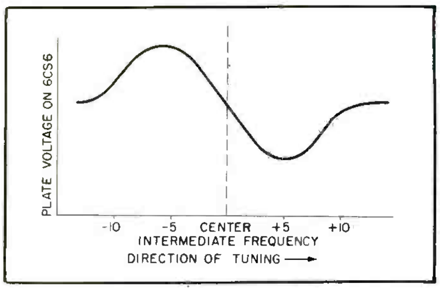


Fig. 5. Curve Indicating Theoretical Operating Characteristics of 6CS6 Phase Detector.

band. The conditions shown in Fig. 4 also apply to this new resonant frequency.

The grids in the 6CS6 tube act as gates and allow the flow of plate current for periods which are determined by the phase relationship between the voltages applied to the grids. The relative amounts of current flow for different phase relationships between the two signals are indicated by the shaded areas in Fig. 4.

The line that marks the cutoff voltage for the two grids is determined by the circuit conditions. (The cutoff voltages required on the separate grids have actual values that are different; but for the purpose of explanation, they have been shown by a single line in each drawing of Fig. 4.) Plate current will flow only when the instantaneous values of both signal voltages are above the cutoff voltage. A bypass capacitor C24 filters out the signal voltages in the plate circuit of the 6CS6 tube; and the average plate current, which changes with frequency, flows through the plate-load resistor R21.

Were it not for special conditions of operation in this circuit, the curve for the plate-current variation as the frequency changes would be the S-curve shown in Fig. 5. The true plate-current variation is shown in Fig. 6; and the special conditions which cause this variation are: (1) the cathode bias on the 6CS6 tube is maintained at a point where the tube operates near plate-current cutoff when no signal is being received, (2) the detuning action of the phasing capacitor C21 shifts the waveform to the left by a fixed amount, (3) the 6CS6 tube is operated at a very low plate voltage so that current saturation is reached quickly, and (4) a bias is applied to grid No. 3 as a result of the conduction of the diode in the 6AV6 tube V4.

Compare the curve of Fig. 6 to that of Fig. 5. The positive portion of the S-curve has been flattened as a result of the cutoff of plate current. Note that the entire curve has been shifted to the left. This means that the sharp negative excursion of voltage occurs when the frequency of the IF signal is lower than the resonant frequency of the transformer. The shift is a result of the action of the phasing capacitor C21. Note also that the negative portion of the S-curve is enlarged in Fig. 6. The signals represented by this negative portion are

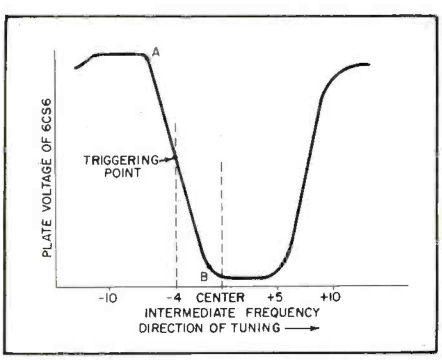


Fig. 6. Curve Indicating Actual Operating Characteristics of 6CS6 Phase Detector in Mopar Model 902.

those which are nearer the center of the IF passband where signals receive the greatest amplification.

The abrupt negative excursion represented by that portion of the curve between A and B in Fig. 6 is the signal needed to cut off the relay-control tube. The triggering point, also shown in Fig. 6, is the point at which the relay-control tube V6B is cut off and at which the search relay is de-energized. Between this triggering point and the center of the IF passband there are normally about four kilocycles, but this number varies depending upon the speed of the tuning mechanism.

If the speed of the tuning mechanism is slow, the voltage change on the plate of the 6CS6 tube will represent a lower frequency; and therefore, C25 will offer a higher impedance to this voltage change. As a result of this condition, the voltage level on the plate of the 6CS6 tube must go to a lower value before the required triggering voltage on the 12AU7 relay-control tube is reached. In Fig. 6, it can be seen that the lower plate voltage on the 6CS6 tube may be obtained at, let us assume, two kilocycles below the center frequency. Since the tuning mechanism is running at a slower speed, however, it will coast only two kilocycles before coming to rest; hence, accurate tuning is preserved.

Additional Features

The range of signal levels over which the automatic-tuning feature will operate is very wide. There is a threshold limit at which the incoming signal is not strong enough to develop a triggering pulse at the grid of the relay-control tube. Strong signals are kept from overloading the No. 3 grid of the 6CS6 tube by an automatic bias feature. A portion of the signal on the No. 3 grid is coupled to one diode plate (pin No. 5) of V4. The voltage which is developed across R12 is used to bias the No. 3 grid in proportion to the signal level. In addition, noise pulses are suppressed by the action of the diode.

When the tuning mechanism is operating and reaches the high end of its tuning range, a mechanical release allows the tuning carriage to return to its low-frequency position. At this position, a projection on the carriage depresses the search-tuning bar and the searching action continues.

The push buttons actuate the search-tuning mechanism, but they control the searching so that the mechanism always stops on the station represented by the push button which was depressed.

WILLIAM E. BURKE
and **LESLIE D. DEANE**

Dollars & Sense Servicing

(Continued from page 49)

SOUND EFFECTS. Your own laughing voice, recorded at some event such as a vaudeville show, may well be heard again one of these days as background for filmed TV programs. Sound-effect firms are now selling laughs by the minute on records or magnetic tape, under headings such as: Applause; Applause and Whistles; Applause from Large, Spirited Audience; Large Audience in Continuous Hilarity; and (from London) Polite Applause with Murmurs.

NEW TRUCK? When spring is in the air, some people get the urge to dig, others go in for romancing, and still others get that new-car gleam in their eyes. All the little knocks and sputterings of the old engine seem magnified a thousandfold on those first warm days of spring, and this goes for the old service truck too. One of the best ways to make that '53 truck run better is simply to find out the delivered price of a corresponding two-tone '55 model.

TECHNICIANS NEEDED. Engineers need more assistants. Ideally, each engineer should have around four technical aides to do his more routine work; but very few have this many. As a result, many engineers are doing assembly work, wiring, soldering, and other simple tasks while drawing salaries as designers and researchers.

During 1953, technical institutes turned out only 1,800 technicians trained in electronics, television, and radio, according to one survey. Salaries of these now range from $50 to $110 a week in industry, and from $57 to $96 a week on government jobs.

The above figures do not take into account the technicians who receive their training in other ways, such as from home-study schools or from books. Far more get their training by studying at home; one school alone enrolls around 35,000 students a year for television and radio training.

SCINTILLATOR. For twice the price of a color TV set, or $1,995 to be exact, you can get a uranium finder that works from cars or even low-flying airplanes for prospecting in comfort. It's a scintillation counter and uses a crystal of thallium-activated sodium iodide. This gives off a flash of light under gamma radiation. A phototube converts the flashes into signals that are amplified and counted over a period of time to get high accuracy. The meter moves slowly up to its final reading over the 60-second counting period, then stops. It's made by Precision Radio Instruments and sold by Allied Radio Corp., Chicago.

ASSEMBLER. Even four-lead pulse transformers are automatically inserted in printed-circuit panels by a new machine built for IBM by General Mills (the flour manufacturer that adopted electronics as a sideline). Unique feature is the way the robot puts a little cone-shaped metal sleeve on the end of each lead and then jabs this sleeve into the punched hole in the panel so that it makes good mechanical contact with the printed wiring. This, to our knowledge, is the first time that a machine has been developed to make a dip-soldered joint just as secure mechanically as those made by hand.

As the panels move under the row of 24 placement heads, parts are jabbed in one by one in much the same manner that staples are driven. First job of the machine is building sub-assemblies for the huge radar computers that will go into early-warning radar stations encircling our country on land, at sea, and up on the Arctic ice.

The machine made by General Mills uses a magazine feed in which standard parts are automatically loaded into metal racks that the operator places on the machine. Another machine, developed by United Shoe Machinery Co., requires belt feeding of components. For this type of machine, Allen-Bradley has come out with a reel package in which 5,000 resistors are held side by side on a belt of pressure-sensitive tape running across the resistor bodies. The hope of the industry, however, is that components will remain standard and that the machines themselves will make whatever changes are necessary for automatic insertion.

ROTATING JOB. More and more new jobs are being found these days for antenna rotators, even though their old top-of-the-house jobs are fading out of the picture. Latest and cutest is RCA's setup for using a closed-circuit industrial TV camera to read a lot of meters in a dangerous or inaccessible location. The small camera and a sealed-beam flood lamp are mounted atop the rotator, and the meters are arranged on a large circular panel in front. Watching the receiver screen at a remote location, the operator can turn the control knob to aim the camera at each meter in turn.

The same rotator setup can be used on any other TV Eye setup such as on one for following a suspected person with the camera as he moves through a department store.

For an attractive night window display that might well bring you business from other merchants, mount a sealed-beam spotlight on a rotator in a show window and position it so that it can be aimed at each item in the window in turn. A small low-speed timer or clock motor and a cam arrangement on the control knob of the rotator can be used to turn the rotator to each item in turn and leave it in each position for perhaps 15 seconds.

SELF-THREADING TAPE. Promised soon is a self-threading magnetic tape magazine using an endless loop that eliminates rewinding. The 300-foot magazines were announced by Cousino, Inc., Toledo, Ohio. Five tape-machine manufacturers are tooling up to produce players capable of handling the new magazines. Price of a prerecorded reel in the magazine is expected to be comparable to that of a 16-minute extended-play record. All the advantages of tape over disks will be realized. Machines for playback alone are promised at retail prices under $50, which will open up tape to a vast new market of music enthusiasts.

The magazine type of tape recording would make possible coin machines that would put any desired musical selection on the tape in a magazine. The customer just puts an unrecorded magazine into a slot, selects his tune, and deposits a coin. The machine would then dub that music on his tape from its master stock. Tunes no longer wanted could be changed in the same way.

Even record shops could use the technique to eliminate the need for keeping a large stock of selections on hand; they'd need only the master tapes in the dubbing machine and a stock of blank tapes.

Some may say this marks the end of the record business, but we'll stick to 78's and just maybe a few 45's. The older the 78's, the better; the tunes of the twenties sure sound swell to our ears when coming through a Western Electric theater speaker by way of a 30-watt Brook amplifier and a GE pickup. But each to his own; new products are what make business boom.

PRICE OF PRESTIGE. In America, they say that a TV service technician can become a college professor if he is willing to make the financial sacrifice. After retirement deductions, tax deductions, organization dues, and the many school-activity contributions expected of our college instructors and professors, the actual take-home pay is pitiful. In general, the grass only looks greener on the other side of the fence; wait till you taste it.

JOHN MARKUS

CORRECTION NOTE

In the March 1955 issue of the PF REPORTER, an article entitled "Deflection Yokes" appeared on page 5. Fig. 3 and a portion of the text in this article contained errors which we feel must be rectified. The following is a revision of the figure and of the fourth and fifth paragraphs.

The cosine yoke is a product of research by engineers in their efforts to eliminate spot distortion at the edges of large-screen picture tubes. The yoke is called a cosine yoke because the distribution of the windings in any one coil is in proportion to the cosine of the angle between the deflection axis of that coil and the radial position of the windings in that coil. The drawing in Fig. 3 shows the location of the deflection axis of the horizontal coils and the radial position X of one winding. The angle θ is the radial angle between the axis and the windings at point X. The number of windings at point X is proportional to the cosine of the angle θ. The number of windings at any other point along the horizontal coil will also be in proportion to the cosine of the angle formed by the radius of that point and the deflection axis.

As the angle θ nears ninety degrees, the number of windings DECREASES greatly. This follows the basic rule of mathematics which states that the cosine of the angle approaches ZERO* as the angle approaches ninety degrees.

*EDITOR'S NOTE: Our faces are red! We said "infinity!"

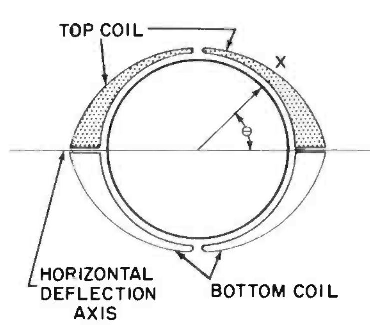


Fig. 3. Distribution of Winding in a Cosine Yoke.

Hints for TV Alignment

(Continued from page 19)

complete with alligator clips, are used to connect the potentiometer into the circuit only when required. This lengthens the useful life of the battery. Using this type of setup, any value of voltage up to 7.5 volts may be readily obtained. This bias pack may also be used in trouble shooting AGC circuits.

If desired, a bias pack can be assembled from a small transformer, a 6AL5 tube, and a potentiometer. A typical circuit of a bias supply is shown in Fig. 4. One of this type could be housed in a standard meter box or in a small utility box of the 3 by 4 by 5-inch size. Several bias packs which are specifically designed to produce bias voltages are now available. One such unit, the Authorized Model 301 multivolter was described in the March issue of the PF REPORTER.

In using a bias supply of types shown in Figs. 3 and 4, it is necessary first to connect the bias supply to the receiver while observing the proper polarity and then to adjust the output voltage to the desired level, using a VTVM to measure the voltage. Any other type of meter would load the circuit and thus give erroneous indication of the output voltage.

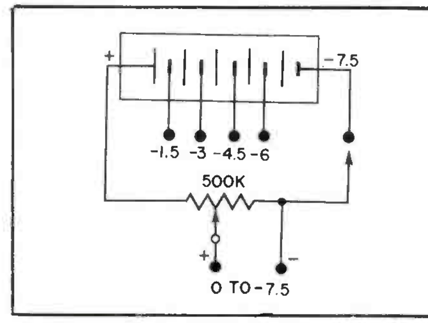


Fig. 3. Schematic Diagram of Battery Bias Pack.

During alignment, it is usually necessary to disable the local oscillator so that the marker pulses may be seen and so that the spurious signals that are caused by the oscillator beating with the signal from the generator may be eliminated. A convenient method of disabling the local oscillator is to use a dummy converter tube; at the same time, the tube provides a method of inserting the signal from the generator. One dummy converter which is commonly used is made by removing the No. 1 pin of a 6J6 tube. A new tube that is known to be good should be used to make the dummy because the signal must be coupled through the converter section of the tube.

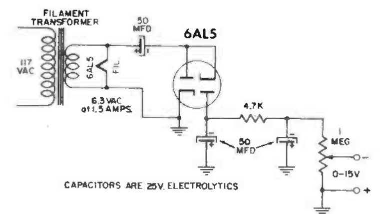


Fig. 4. Schematic Diagram for Bias Supply Using a Vacuum Tube.

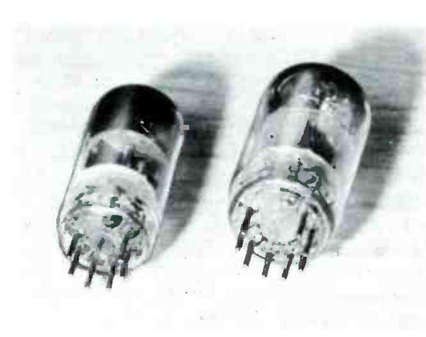


Fig. 5. Dummy Converter Tubes.

Fig. 6. Tube Shield for Use with Dummy Converter.

Some of the newer cascode tuners employ a 6U8 as the converter tube. The removal of pin No. 1 from a good 6U8 tube will make it a dummy converter for use in this type of tuner. Fig. 5 illustrates a 6J6 tube and a 6U8 tube which have been made into dummy converter tubes.

A convenient point at which to apply the signal from the sweep generator is obtained by cutting about 3/4 inch from the bottom of a tube shield and by soldering a heavy loop of wire on the shield, as shown in Fig. 6. The signal from the generator is coupled into the circuit through the capacitance developed between the partial tube shield and the metal tube structure; hence, there is a minimum loading effect on the signal generator, and a possible cause of distortion is therefore eliminated. Partial shields could be constructed for both the 6J6 and the 6U8 dummy converter tubes and left permanently on the tubes. Some provision should be made to store these dummy converter tubes with the alignment equipment so that in the future, they would be readily available.

Clip leads of assorted lengths are very handy items when aligning a receiver. These are lengths of test-lead wire with an alligator clip on each end. In some alignment instructions, it is recommended that coils be shorted out; and this can be done by use of these leads. They can also be used to connect the bias voltage to the AGC line as required. Another possible application would be to connect the cases of the signal generator, the oscilloscope, and the receiver together so that each would have the same common ground.

CAUTION: On receivers which do not have an AC isolation transformer, this type of transformer should be connected between the receiver and the line. This will remove the shock hazard and prevent possible damage to the receiver or test equipment.

Alignment instructions usually specify that dummy antennas and isolation resistors of certain values should be used. These are usually components of standard values, and obtaining them should present no problem. When a dummy antenna or isolation resistor is specified, it is important to make certain that the instructions are followed and that the proper values are used. If these things are not done, then it may be difficult or even impossible to align the receiver and obtain the proper pattern.

Traps

In many cases, the recommended procedure is to adjust the traps first. As a rule, a signal generator and a VTVM are used in adjusting them. Traps should be adjusted to obtain a minimum indication on the VTVM. Actually, this minimum should be in the form of a dip. That is to say, the meter reading should go down sharply and then rise as the trap is adjusted. The point where the indication is the lowest is the point at which maximum trap action is obtained. Little or no variation in the meter reading would indicate faulty trap action or oscillation in the IF strip, or it could indicate some other tuned circuit in the IF

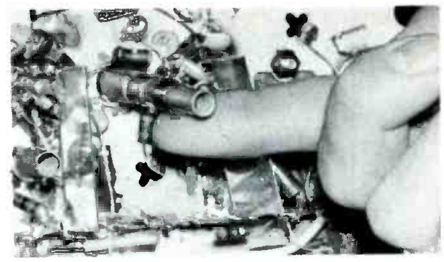


Fig. 7. Detuning Trap with Finger.

strip has been misadjusted so that it is acting like another trap at the particular frequency under investigation.

When improper trap action is indicated, it may be that one of the IF stages or the IF strip is oscillating. To overcome this, adjust the IF coils or transformers at their specified frequencies. After the IF coils have been adjusted, proceed to adjust the traps as outlined in the alignment instructions.

If two traps tuned to the same frequency are employed, then it may be necessary to increase the output of the signal generator after the first trap is adjusted in order to obtain an indication when adjusting the second trap. If the first trap is not shielded in a can, then it could be detuned (as shown in Fig. 7) by putting a finger on the coil. This detuning would make the dip caused by the second trap more pronounced and thus would make it easier to adjust this trap for minimum output.

IF Coils

After the traps are correctly adjusted, then readjust the IF coils at their respective frequencies. Connect the signal generator and the VTVM, as outlined in the alignment instructions. Set the VTVM on the lowest DC scale, connect it in the proper polarity, and adjust the output of the signal generator to get a deflection of about one third of the scale on the meter. When adjusting the coils, keep reducing the output of the signal generator in order to maintain the meter reading in the center third of the scale. This keeps the output of the signal generator from overloading the IF strip, which overloading would give erroneous indications.

In some instances, it may be very difficult to adjust the IF coils in the order outlined in the alignment instructions. This may be the case when the IF strip is completely out of alignment at the start of the procedure. If a case such as this arises, then start with the coil which is supposed to be adjusted last according to the alignment instructions and work backward. After the coils are adjusted in this order, go through the procedure as outlined in the instructions to make sure that each coil is properly adjusted.

Oscillations

Sometimes at the start of an IF alignment procedure, an abnormal reading on the VTVM may be obtained. If the reading is excessive and does not vary when the output of the signal generator is reduced, this is an indication that a stage in the IF strip is oscillating. Under this condition, the IF stages cannot be adjusted until the oscillation is eliminated. The first problem is to locate the stage which is at fault; the next problem is to eliminate the cause.

A condition of oscillation in an IF stage was present in a receiver which the author recently aligned. A signal tracer which had a meter as an indicator and a probe that was responsive to RF was available. The oscillating stage was quickly located, and the condition was corrected simply by turning the adjustment slug of the coil in the plate circuit. The alignment procedure was then carried out as outlined.

There will be cases when the oscillation cannot be eliminated so easily. This would be true if the oscillations were caused by failure of a screen-bypass capacitor or some other component. As a rule, though, it will be found that oscillations are caused by having the plate and grid coils of one stage tuned to the same frequency. Under this condition, an IF amplifier will become a tuned-plate tuned-grid oscillator; and as mentioned, the oscillations can be eliminated by turning the adjustment slug of the plate coil a few turns.

There is the possibility that a misadjusted trap could cause a circuit to oscillate. These oscillations can usually be eliminated by adjusting the traps before adjusting the IF coils.

Over-all Response

After the IF coils are adjusted at their proper frequencies, then the sweep signal is applied and the over-all response of the IF system is checked. It is usually necessary to readjust the IF coils to obtain the correct over-all response pattern. In a good many cases, it will be found that the coil or transformer nearest the detector is tuned to about the center of the IF pass band. In these cases, adjustment of this coil will usually affect tilt of the response curve; adjustment of the IF coils at the higher frequencies will control the high side of the pattern; adjustment of the IF coils at the lower frequencies will control the low side of the pattern.

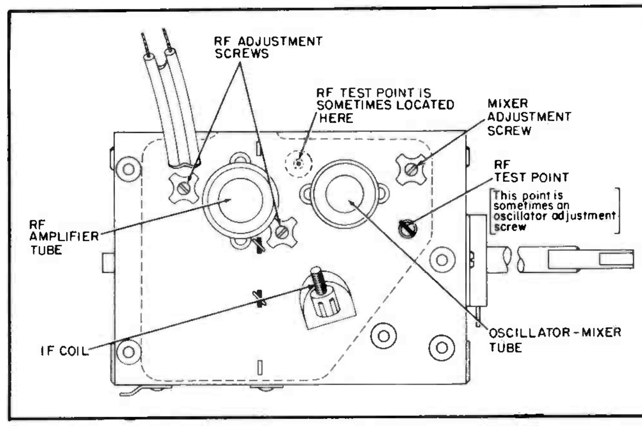


Fig. 8. Top of Standard Coil Tuner Showing Locations of Trimmer Capacitors and Test Point.

In fact, a slight readjustment of only the last three IF coils may produce a satisfactory over-all pattern. If one cannot be obtained with these three adjustments, the other IF coils can be slightly readjusted.

Tuner

In some cases, it may be difficult or even impossible to obtain the proper over-all response pattern by alignment of the IF section. If a satisfactory over-all response cannot be obtained after adjusting the IF coils to their correct frequencies and after adjusting the traps correctly, then it is probable that the tuner is out of alignment.

The IF coil which is located in the tuner and the local oscillator play minor roles in tuner alignment. Actually, the IF coil in the tuner is aligned when the IF strip is aligned; and the oscillator in the turret type of tuners (tuners which use individual coils on each channel) can be adjusted by using the transmitted signal from the stations to be received.

On the Standard Coil tuner, alignment of the RF and mixer stages is accomplished by adjustment of the three capacitors which are available from the top of the tuner. The illustration in Fig. 8 shows the relative locations of these three capacitors which occupy the same positions in both the cascode and pentode types of tuners. The procedure and the frequencies used to make these adjustments are given in the alignment instructions for a large number of receivers now being produced, but there have been a good many receivers for which the alignment data for the tuner may not have been included.

The following information may be used to align those Standard Coil

TABLE I

Channel and Marker Frequencies

Channel No.	Center Frequency (mc)	Video Marker Frequency (mc)	Sound Marker Frequency (mc)
2	57	55.25	59.75
3	63	61.25	65.75
4	69	67.25	71.75
5	79	77.25	81.75
6	85	83.25	87.75
7	177	175.25	179.75
8	183	181.25	185.75
9	189	187.25	191.75
10	195	193.25	197.75
11	201	199.25	203.75
12	207	205.25	209.75
13	213	211.25	215.75

tuners for which no alignment information was provided:

Switch the tuner to channel 10, connect a sweep generator to the antenna terminals of the receiver with a 120-ohm half-watt carbon resistor in series with each lead, tune the generator to the center frequency (195 mc) of channel 10, and adjust the generator for a 10-mc sweep. Connect the hot lead of the oscilloscope to the RF test point on the top of the tuner through a 10K-ohm half-watt carbon resistor, and connect the ground lead of the oscilloscope to the chassis. The RF test point is shown in Fig. 8. Adjust the three trimmer

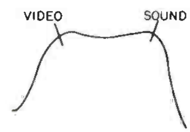


Fig. 9. Tuner Response Curve Showing Marker Positions.

capacitors to produce the pattern shown in Fig. 9. The pattern should indicate maximum gain with the markers located as shown.

Check the response on all channels. It should be the same, with the individual channel markers falling automatically in place. If the response is materially off on a channel to be received, readjust the three trimmers slightly and recheck the response on all channels. Note that it is necessary to change the sweep and marker frequencies to correspond with the channel being checked. Table I gives the various channel and marker frequencies.

Some Standard Coil tuners may have a fourth trimmer capacitor located on the top of the tuner and at the front edge. This trimmer shifts the oscillator frequency on all channels. When this oscillator trimmer is included and the oscillator tube is changed, adjustment of this trimmer may make it unnecessary to adjust each individual oscillator slug in case the new tube has caused the oscillator frequency to be shifted on all channels.

Tuner alignment is not too difficult and only requires that care should be exercised and that high quality test equipment should be employed. This also applies to alignment of the IF or other sections. Another rule for alignment is always to follow the instructions and to use the various dummy antennas and isolation networks. This procedure will ensure good alignment in a minimum of time.

CALVIN C. YOUNG, JR.

Replacement Techniques for Controls

(Continued from page 15)

would be reached after only a slight rotation of the control.

Right-Hand Taper

A logarithmic right-hand taper is represented by TC-3 in Fig. 1. The resistance increases from zero very rapidly at first, then the change in resistance gradually tapers off. At only 50 per cent of rotation, the resistance is approximately 90 per cent of the maximum.

Controls with this taper are primarily used in the contrast and picture-control circuits of television receivers.

TYPES OF MOUNTINGS

The photograph in Fig. 3 shows three different types of control mountings. The one on the left and the one that is most familiar is the threaded-bushing type. Threaded bushing is the oldest method used today and is the one most often encountered. It is the type which is frequently used for front-panel controls because of its rigidity. The standard size for the bushing is 3/8 inch in diameter.

The next type of mounting in Fig. 3 is known as the "tab mount" and is currently being used for rear-panel controls. Tab mounts are primarily being employed at the present time by manufacturers because of the speed of installation and the lower cost. They seem to be sufficiently rigid for the amount of handling they receive on the rear panel. During their installation, care must be taken not to twist off one of the tabs which hold this type of control in place.

The third type of mounting is the snap-on type, and it is also shown in Fig. 3. This mounting is designed for rear-panel use and is being made with a knurled and slotted shaft a half inch long. Its advantages are that installation can be made very rapidly and cost is low. Just push the shaft end of the control into the mounting

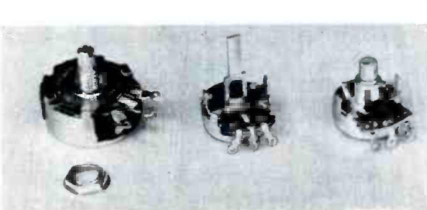


Fig. 3. Three Mounting Arrangements for Controls.

hole first; then the control snaps itself tightly in place. This type of control is manufactured with a linear taper because it is used for a rear-panel or hidden control which almost always requires a linear taper.

SPECIAL CONTROLS

Tapped Controls

The tapped control is just what the word implies. It is the same as any other control except that an additional lug is connected to a point on the resistive element, and this lug provides a take-off point or voltage divider. Such a tap is an integral part of the control; consequently, a tapped control should only be replaced with another control that has the same value and has a tap located at the same point.

Stop Controls

Occasionally, some manufacturers employ a control with a built-in stop. Sometimes the stop is near the top of rotation, thereby preventing full clockwise rotation. In other cases, the stop is near the bottom to prevent full counterclockwise rotation.

Controls which are equipped with stops may be found in vertical circuits in television sets. There they are used as height and vertical-linearity controls. They are sometimes used as horizontal-hold controls. Some manufacturers are using them in AC-DC radios as volume controls. In the latter case, the stop is located near the upper limits of the control, and the upper portion serves as an RF filter resistor in the detector circuit. This upper portion remains in the circuit regardless of the point at which the volume control is set.

The use of a control with a stop has no effect on the operation of the receiver; it only eliminates the need for a fixed resistor. Thus, it brings about a slight reduction in production costs in both material and labor.

If a duplicate control is not readily available, a control with a stop may be replaced with a standard control that has the same taper and the same resistance as the variable portion of the original control. For example, a five-megohm control which has a one-megohm stop near the bottom may be replaced by two components: (1) a four-megohm control that has the same taper and (2) a one-megohm resistor that is connected in series with the bottom of the four-megohm control.

Concentric Dual Controls

Replacements for concentric dual controls are available as pre-

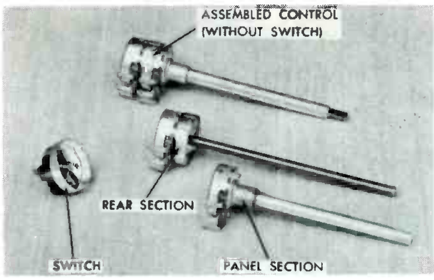


Fig. 4. Centralab "Fastatch" Control, Assembled and Disassembled.

assembled units which can be installed without physical or electrical modifications. These units duplicate the original dual control and are therefore the simplest to use when replacing a defective control.

Since a very large stock of these duplicate dual controls would have to be carried in order to fill the replacement requirements in many different receivers, some service technicians prefer to use universal control parts which can be assembled by the technician and which make it possible for him to construct a wide variety of concentric dual controls.

These universal parts are made by prominent manufacturers of replacement controls. The parts in each line differ from those in the others; therefore, different procedures are required in assembling the controls.

Centralab

Centralab, a division of Globe-Union Inc., manufactures a line of universal parts for making concentric dual controls. These are marketed under the trade name "Fastatch." The panel or front section of the control comes as one assembled part complete with outer shaft, and the rear section comes as another one complete with inner shaft. Both parts are individually packaged.

To assemble a concentric dual control from these parts, it is only necessary to cut the two shafts to the proper lengths, remove the burrs, slip the inner shaft into the outer one and snap the sections together. Then, if a switch is needed, select the "Fastatch" switch desired and snap it onto the rear section of the control. Fig. 4 shows one of these dual controls before and after assembling. A switch is also shown in the figure.

There are 61 panel sections available and 65 rear sections in the "Fastatch" line. From this total of 126 sections, it is possible to make up almost 4,000 different dual controls. The sections are being made available in small stock kits so that the service technician can have the more popular panel and rear sections on hand for immediate use.

International Resistance Company

A kit is made by the International Resistance Company (IRC) and is known as the "Concentrikit." A few of these kits together with a stock of various shafts, switches, and base elements enable the technician to make a wide variety of concentric dual controls.

Each base element is of molded construction and is complete with resistive element, terminals, and collector ring. There are two types of base elements available: (1) the type B with a carbon resistive element and (2) the type W with a wire-wound resistive element.

Each concentric dual control requires the use of two base elements, two covers, and two shafts. A switch can be added if desired.

The photograph in Fig. 5 shows typical parts which were selected from a Concentrikit stock cabinet in order to assemble a dual control. The type W base element goes into the panel section of the sample control, and the type B base element is for the rear section. The panel section is rotated by the outer shaft, and the rear section is turned by the inner shaft.

The photographs in Figs. 6A through 6E show the step-by-step procedure used in assembling this control. First, the outer shaft is placed through the hole in the type W base, as shown in Fig. 6A. Next, the panel cover is placed over the rear of the type W base. See Fig. 6B. The tabs are bent down to fasten the cover securely. There is a flange on the back of the panel-section cover, and the rear section of the dual control fastens to this flange. Place the type B base in the position shown in Fig. 6C. The terminals on the two sections should be aligned to conform with the original control. The inner shaft is then inserted through the entire assembly, and its position is shown

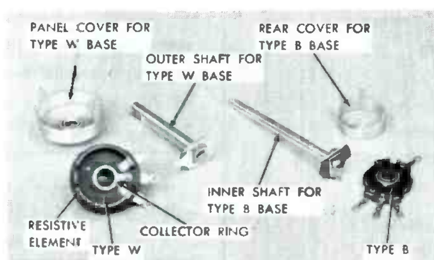
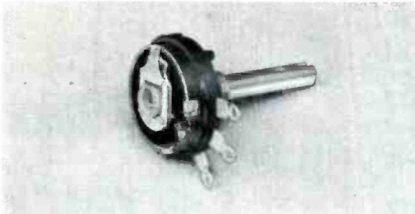
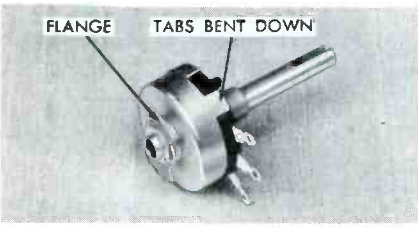


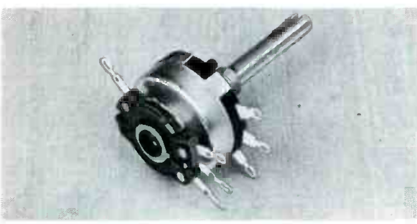
Fig. 5. Parts Used to Construct a Dual Control From IRC "Concentrikit."



(A) Outer Shaft Inserted in Base Element of Panel Section.

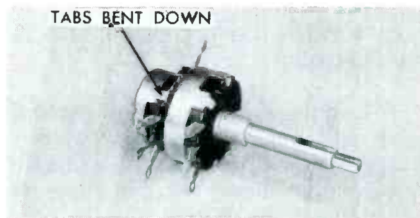


(B) Cover Fastened on Panel Section.



(C) Base Element of Rear Section in Position.

(D) Inner Shaft Inserted.



(E) Cover Fastened on Rear Section.

Fig. 6. Steps in Assembling IRC "Concentrikit" Control.

in Fig. 6D. The next step is to place the rear cover over the back of the assembly and to bend down the tabs which clamp the rear section to the panel section. See Fig. 6E. The control can then be mounted in place on the chassis.

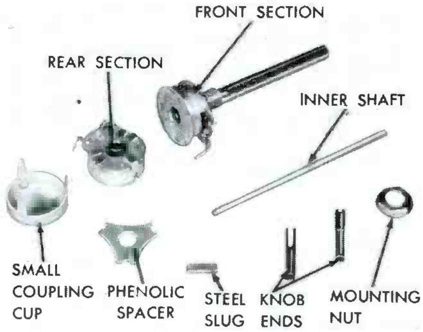
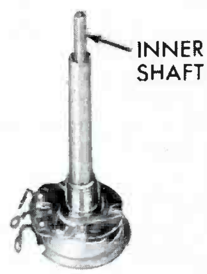


Fig. 7. Parts Used to Construct a Mallory Dual Control.

The completed unit is then ready to wire into the circuit. Note that it was not necessary to cut the shaft. That is because the International Resistance Company makes a very wide variety of shafts for these controls, thus making it possible to duplicate almost any shaft needed.

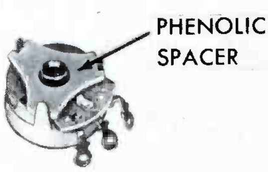
Mallory

Another concentric dual control that can be assembled is manufactured by the P. R. Mallory & Co., Inc. It is known as the "Midgetrol." The parts are supplied as separate front and rear sections. The rear section comes alone in a box; whereas, the

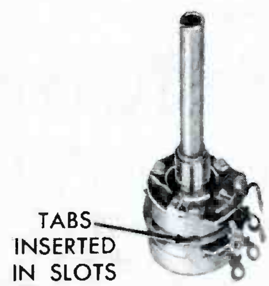


(A) Inner Shaft Inserted Point Downward Into Outer Shaft and Ready for Cutting.

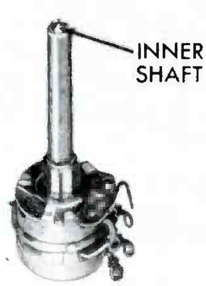
(B) Rear Section Placed in Coupling Cup.



(C) Spacer in Its Proper Position.



(D) Coupling Cup Fastened to Front Section.



(E) Inner Shaft Inserted Point Upward Into Outer Shaft.

(F) Tapping With Hammer to Seat Knob End on Inner Shaft.

Fig. 8. Steps in Assembling a Mallory Dual Control.

box containing the front section also contains the miscellaneous hardware to complete the assembly of the control.

The photograph in Fig. 7 shows the components used to make up one of these control assemblies. Note that there are two knob ends supplied for the inner shaft. One is .187 inch, and the other is .202 inch in diameter. These are both according to the RETMA standards.

The front and rear sections are available in a wide range of popular resistances and tapers. The front sections are also available with wire-wound elements.

The photographs in Figs. 8A through 8F illustrate the step-by-step procedure for assembling one of these controls. First, the shaft on the front or panel section is cut to the proper length. Use a hacksaw or file to slot the shaft, if required. Then, carefully remove the burrs and filings. Next, drop the inner shaft point downward into the outer control shaft, as shown in Fig. 8A. The inner shaft is then cut off even with the end of the outer shaft.

After the shafts have been cut to the proper length, the next step is to place the rear section in the small coupling cup, as shown in Fig. 8B. Place the phenolic spacer on the rear section in such a manner that the slots of the spacer will fall into line with the tabs of the coupling cup, as shown in Fig. 8C. Place the front section on top of the assembly so that the terminals will be directly in line with those of the rear section, and feed the tabs of the coupling cup through the slots provided in the front section. Bend the ends of the tabs out and down, as shown in Fig. 8D.

The next step is to drop the inner shaft, point upward, into the outer control shaft. See Fig. 8E. Select the proper knob end for the best fit on the original knob, and place the steel slug between the tines of the knob end. With the control setting on a solid surface, hold the knob end in position and tap the steel slug firmly until the knob end and the inner shaft are both well seated. This final step is shown in Fig. 8F. After the steel slug is removed, the control will be ready for installation in the receiver.

PROPER METHOD OF CUTTING UNIVERSAL CONTROL SHAFTS

After a control is selected, one important step in the installation is that of cutting the shaft to the proper

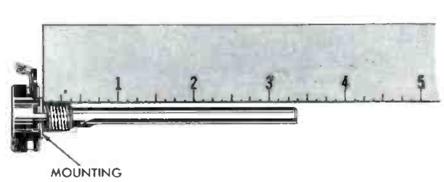


Fig. 9. Proper Method of Measuring Control Shafts.

length if the shaft of the new control is of the universal type.

Use the original shaft as a guide for cutting the shaft of the replacement control. To allow for filing, add approximately 1/32 inch to the length of the original. The measurements for the old shaft as well as for the new should be made from the mounting surface or the mounting plate, as shown in the drawing of Fig. 9. On

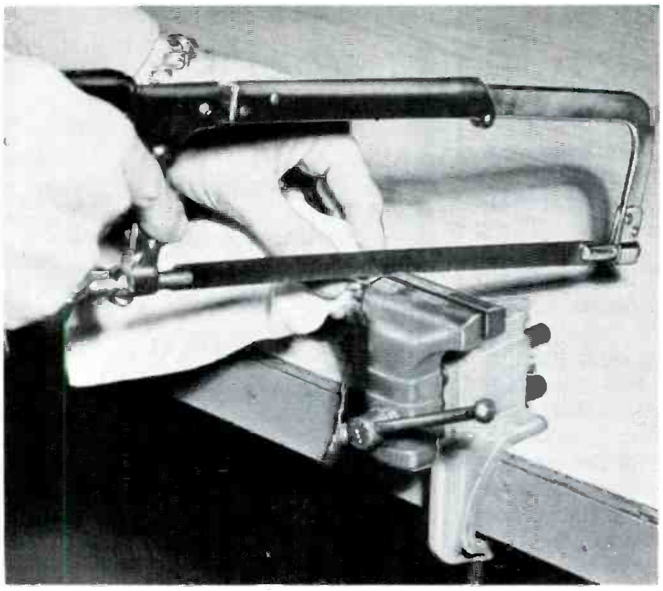


Fig. 10. Cutting the Control Shaft to Proper Length.

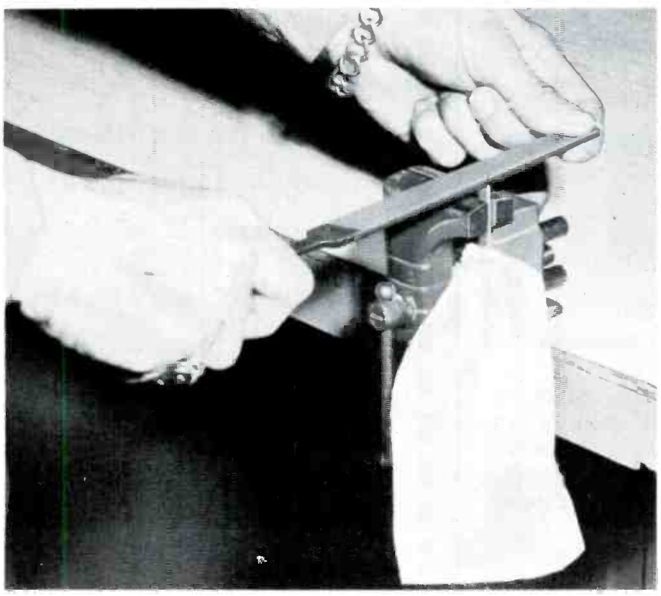


Fig. 11. Filing the Shaft to Eliminate Burrs.

the new control shaft, mark the total length of the original shaft plus the 1/32-inch allowance by making a notch with the edge of a file.

The control is then clamped in a vice, as shown in Fig. 10. Always clamp that portion of the shaft that is to be cut off and never the control itself. The shaft is then cut with a hacksaw, and the cut should be as straight as possible. While this cut is being made, the control should be covered to prevent any filings from falling inside the control and causing damage to it. The photograph in Fig. 10 shows a small cloth bag being used for this purpose. Parts bags work out very nicely for this use, because they can be tied and left on during the filing.

While the control is still covered, smooth the end of the shaft with the file. First file the end of the shaft so that it will be flat, as shown in Fig. 11; then file around the edges to eliminate burrs. Next, the end of the shaft is filed until it is flat on the side or slotted, whichever is necessary.

The same general procedure can usually be followed for concentric controls with universal shafts. Most controls with universal shafts come with printed instructions for measuring and cutting; therefore, little difficulty should be encountered.

HENRY A. CARTER

In the Interest of Quicker Servicing

(Continued from page 21)

its original position; otherwise, the technician may find it difficult to reach the point of minimum buzz at an acceptable volume level.

If the buzz is still too loud, there is the possibility that it may be caused by an overloaded stage or improper AGC action. A good method to determine whether this condition exists is to use a step attenuator, such as the one shown in Fig. 3, in order to reduce the strength of the incoming signal. The attenuator should be connected as shown in the block diagram in Fig. 4. Attenuate the signal to the point where there is a trace of snow in the picture, if this is possible. If the signal should be so strong that no snow can be obtained, then attenuate the signal as much as possible.

Fig. 3. Centralab Step Attenuator.

The fine-tuning control should then be adjusted for the point of best picture and sound, and the transformer in the detector stage should again be adjusted for minimum buzz and maximum volume.

If, through the use of the step attenuator, it is determined that the buzz is due to overloading, then it is certain that the trouble can be eliminated in one of two ways. If a faulty tube is causing the overloaded condition, the tube can be located by substitution and can be replaced. If, however, tube substitution fails to reveal the trouble, an attenuator pad having the required attenuation ratio can be installed in the antenna lead-in. A block diagram of such an arrangement is shown in Fig. 5A. The Centralab company makes an H-pad which can be obtained in a variety of attenuation ratios, and one of these should be suitable for this purpose. If there are several stations that can be received

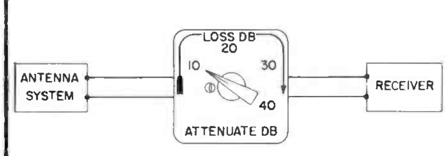
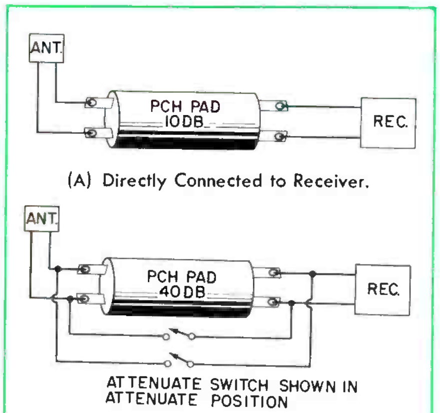


Fig. 4. Block Diagram Showing Attenuator Connected to Receiver.



(A) Directly Connected to Receiver.

(B) Shunted With IN-OUT Switch.

Fig. 5. Simple Attenuator.

in the area and if the entire signal is needed on one or more stations, a DPST switch connected with the H-pad (as shown in Fig. 5B) would make it possible to have the desired attenuation on the strong stations and still have the maximum gain of the antenna available for reception of the weaker stations.

If this procedure does not help to locate and cure the buzz, then the trouble is apparently caused by the failure of a component or it is the result of misalignment and will require shop service.

Adjusting Gated-Beam Detectors

If the receiver employs a detector of the gated-beam type (which uses a 6BN6 tube as a limiter, detector, and audio amplifier), a slightly different procedure is employed to eliminate sync buzz.

In receivers in which the gated-beam detector is employed, the entire detector section can be aligned by using the incoming signal. The first step is to adjust the buzz control for minimum buzz. This control is a variable potentiometer that usually requires a small screwdriver for adjusting. The point of minimum buzz should be over a range of 5 or 6 degrees of rotation of the buzz control.

If adjustment of the control fails to eliminate the buzz, then tune the receiver to a weak station, and properly adjust the fine-tuning control. If no weak station is available, an attenuator such as that illustrated in Fig. 3 may be used to reduce the signal. The slug in the quadrature coil is then adjusted for maximum undistorted sound with a minimum buzz content. Then readjust the buzz control for minimum buzz. If the buzz is still present, substitute a new 6BN6; then repeat the alignment of the detector stage. If the buzz persists, check the AGC action and test for overloading, as previously outlined.

The use of service literature can make the job of eliminating sync buzz much easier in the home because the various alignment points are indicated so that locating the buzz control, the quadrature coil, or the secondary slug of the detector transformer is made easier. The page on Servicing in the Field which has been included in all PHOTOFACT Folders beginning with Folder No. 194 contains much of the information needed to help eliminate sync buzz with a minimum of time and without taking a set to the shop.

The service technician can with a little practice eliminate the sync buzz or determine its source in a matter of only 10 or 15 minutes. This time is well spent because customer relations can be greatly improved through the medium of improved receiver operation.

IN THE SHOP

TROUBLES IN KEYED AGC CIRCUITS

Keyed AGC circuits are often thought to be very difficult to service, but they are not necessarily so if the service technician is able to recognize that a trouble is in the AGC circuit. Often, though, trouble in the AGC circuit displays symptoms which appear to be caused by almost anything except the AGC. These are the cases when the service technician might feel the most puzzled and frustrated.

One of the best ways to find out if the trouble is in the AGC circuit is to try clamping the AGC line with an external battery. Usually, a three-volt battery can be used satisfactorily. The technician should connect the positive lead of the battery to ground and the negative lead to the AGC line at the point where the AGC voltage to the tuner is taken off. If the picture clears up when this is done, the trouble is probably in the AGC circuit.

A keyed AGC circuit can often be serviced successfully by checking with an oscilloscope. The scope is helpful because the keying pulse applied to the AGC tube is very important in the operation of the circuit; and if the keying pulse is found to be absent or too distorted, the AGC action will not be proper.

The following problems are being presented as examples of some of the troubles that do occur and how they were found and corrected by one service technician.

Horizontal Lines in Picture

The complaint which the customer gave concerning this set was a very odd one. The description given over the phone led the technician to believe that sound bars might be getting into the picture. The customer has said that there were "alternate black and white lines across the screen horizontally." When the technician saw the set, however, he knew that the lines were not sound bars because there were entirely too many of them, indicating that the frequency was too high for ordinary audio modulation. The lines were also well defined and did not vary as the sound varied. A photograph of the screen showing this symptom may be seen in Fig. 6.

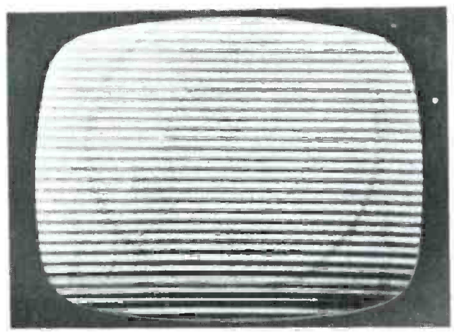
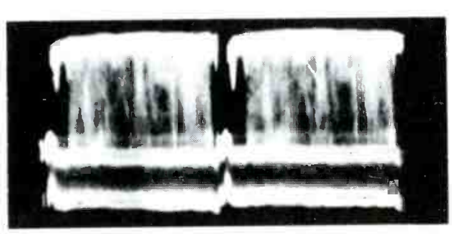
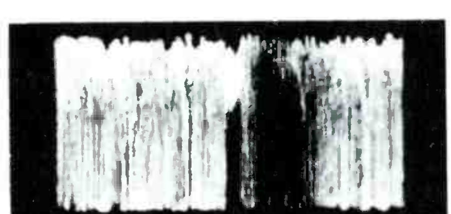


Fig. 6. Horizontal Lines Caused by Open C2.

The technician reasoned that the trouble could not be in the sync section nor in either of the sweep sections, because the picture seemed to be complete and in synchronization. He concluded that whatever the trouble was, it was primarily affecting the video, although it did seem to be causing the sound to be a little distorted, too. At any rate, an oscilloscope check of the video signal was selected as an initial test.



(A) Normal.



(B) Improper Because of Open C2.

Fig. 7. Waveform Obtained Across Video-Detector Load.

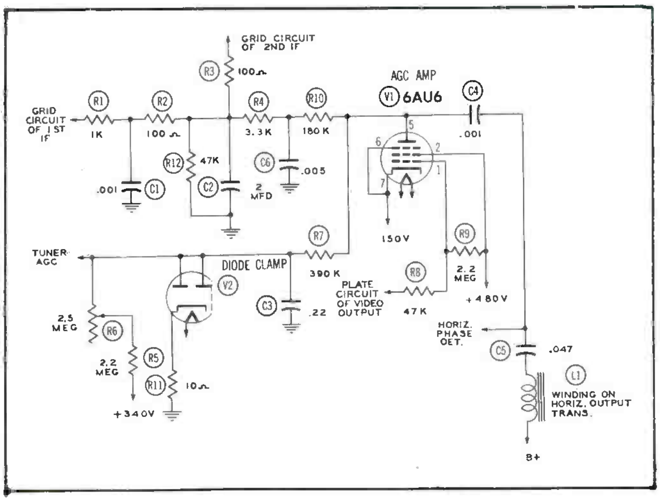


Fig. 8. Typical Circuit in Keyed AGC System.

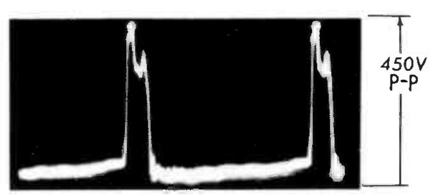
In order to check the signal, the technician placed the oscilloscope leads across the load resistor of the video detector. Instead of finding a signal resembling that shown in Fig. 7A (which is what it should have resembled), he found a signal which looked like that in Fig. 7B and which had several times the normal amplitude. The service technician then moved the oscilloscope lead into the IF stages, and still he found this queer signal. Before proceeding to the tuner, he thought it would be a good move to check the AGC circuit to see if perhaps the same signal were present there. The same waveform was found at the junction of C2 and R4. See the partial schematic diagram in Fig. 8. He then noted that C2 had a capacity rating of 2 microfarads. He realized that a capacitor as large as that should filter and eliminate the signal; therefore, he reasoned that C2 must be open. To prove this, he bridged it with a new 2-mfd capacitor. The signal immediately disappeared from the oscilloscope, and the picture returned to normal. Replacement naturally followed.

This was a case in which a little thought and the utilization of the oscilloscope paid off so that the cause of the trouble was quickly isolated.

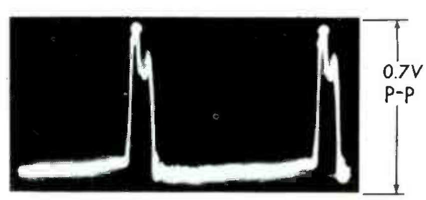
Excessive Contrast and Unstable Synchronization

The complaint concerning this set was that the picture was very dark, had too much contrast, and contained snow. The synchronization was also very unstable. When the AGC line was clamped with a battery, the picture became nearly normal. This combination of symptoms indicated that there was probably AGC trouble.

A check was made of the AGC voltage with the clamping battery removed, and the voltage measured zero. The next step was to check waveforms in the AGC section. The first place checked with the oscilloscope was the plate of the keyed AGC amplifier. Instead of finding the proper waveform with a peak-to-peak amplitude of 450 volts, like that shown in Fig. 9A, the waveform shown in Fig. 9B was the one obtained. It had a peak-to-peak amplitude of only .7 volt.



(A) Normal.



(B) Improper Because of Open C4.

Fig. 9. Waveform at Plate of Keyed AGC Tube.

In order to find the place where the signal was being lost, the technician placed the lead of the oscilloscope on the junction of C4 and C5. See Fig. 8. The waveform at that point was good in both shape and amplitude; hence, C4 had to be open. Further checking with a capacity checker confirmed this, and the capacitor was replaced. The operation of the set then returned to normal.

White Horizontal Streaks

The trouble in another receiver gave some very strange symptoms. These would change from one to the other any time that the fine-tuning control or the horizontal-hold control was changed. At one time, the picture might look like the photograph shown in Fig. 6; and the next time, it might look like that shown in Fig. 10. At other times, it might even fall into

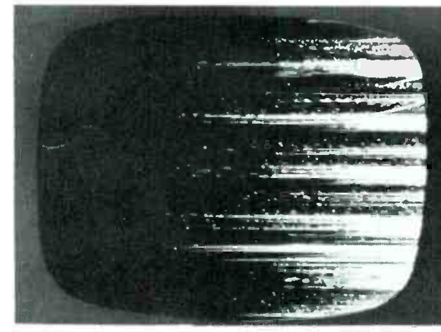


Fig. 10. White Streaks Caused by Open C3.

synchronization and just appear exceptionally snowy. By the time the technician found out all this, he felt sure that these signs pointed to the AGC circuit.

As a first check, the lead of the oscilloscope was placed on the plate of the AGC amplifier. There appeared to be nothing wrong with the shape or amplitude of the pulse. The lead of the oscilloscope was moved to the junction of R1 and C1, where all was satisfactory. The lead was then moved to the junction of R7 and C3. The waveform in Fig. 11 shows what was found when actually there should have been no signal whatever. This signal had an amplitude of 7 volts peak to peak. Next, the AGC circuit was clamped with an external three-volt battery at the junction of R7 and C3. The picture immediately cleared up, and this proved conclusively that the trouble was in that leg of the AGC circuit.

The battery was disconnected, and the AGC voltage was measured at the junction of R7 and C3. It measured a little high. The set was turned off, and resistance measurements were made in this section of the circuit. All resistances checked satisfactorily.

The service technician then checked C3 by bridging it with a new .22-mfd capacitor. The old capacitor was found to be open, so it was removed and the new one was wired into the circuit permanently.

Snowy Picture and Unstable Synchronization

A snowy picture on strong stations as well as on weak ones was the complaint about another set. In addition to this, the synchronization also appeared to be weak or unstable.

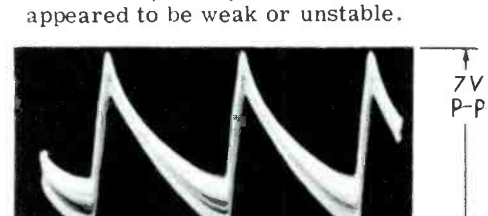


Fig. 11. Improper Waveform at Junction of R7 and C3 When C3 Became Open.

The first step after the usual tube substitution was to measure the AGC voltages. The voltage in the IF leg of the AGC line seemed to be about normal, but that in the tuner leg was abnormally high.

In an attempt to find some explanation as to how the voltage could go so high, the technician examined the schematic diagram of the set. See Fig. 8. He found that a network is incorporated to keep near zero that part of the AGC voltage which is fed to the tuner during the reception of weak signals. This network is composed of R5, R6, and the diode V2. One end of the network is connected to B+. The technician reasoned that an open in either R5 or R6 could cause the AGC voltage in the tuner line to be more negative than it should be. A check with an ohmmeter indicated that R5 was open. When this resistor was replaced, operation became normal.

Negative Picture

The trouble in one receiver was easily recognized as being in the AGC circuit. The picture was very snowy and had poor synchronization, and the slightest change in fine tuning would cause the picture to go negative. To make sure that the trouble was in the AGC circuit, the service technician clamped it with an external battery. The picture cleared up, but the synchronization still remained unstable.

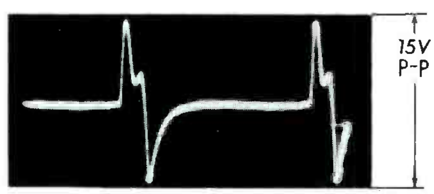


Fig. 12. Improper Waveform at Plate of Keyed AGC Tube When C5 Became Open.

The lead of the oscilloscope was then placed on the plate (pin No. 5) of the AGC amplifier. The pulse or waveform at this point may be seen in Fig. 12. In addition to the distortion, the amplitude was only 15 volts instead of 450 volts. The lead of the oscilloscope was moved to the junction of C4 and C5 where the same signal was found. Again, the lead of the oscilloscope was moved, this time to the junction of C5 and L1. At this point, the signal was normal. The .047-mfd capacitor C5 was checked and found to be open. This explained the unstable synchronization, because the feedback pulse for the horizontal phase detector also passes through C5.

The defective capacitor was replaced with a new one, and the set returned to normal.

HENRY A. CARTER and CALVIN C. YOUNG, JR.

Audio Facts

(Continued from page 27)

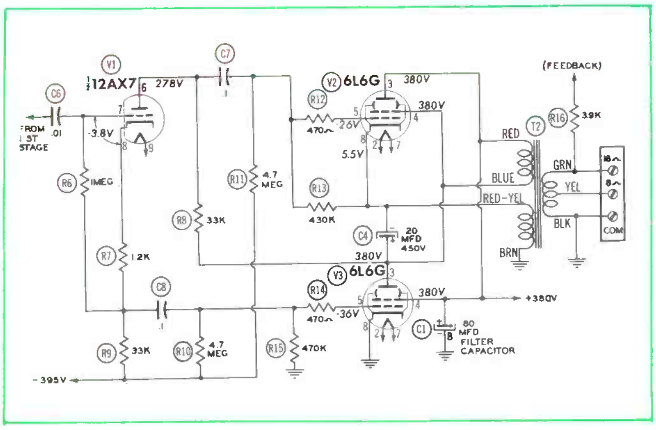


Fig. 3. Phase Inverter and Single-Ended Push-Pull Output Stages Used in National Horizon 20.

operating into the same load; and leakage reactance between the halves of the primary of T2 can have no effect. Therefore, switching transients, which are developed in the conventional push-pull circuit because of leakage reactance and which are the source of the distortion usually associated with class AB operation, cannot occur in the single-ended push-pull stage.

Another advantage of the single-ended arrangement is that since the outputs of V2 and V3 are in parallel, a much lower load impedance is required. An output transformer with a primary impedance of about one fourth that required for a conventional push-pull circuit can be used. This and the other circuit characteristics cited are advantageous because the demands made upon the output trans-

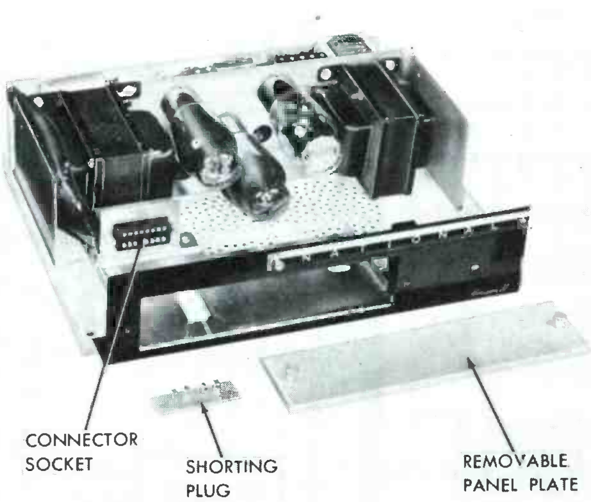


Fig. 4. Top View of National Horizon 20 Amplifier With Cover, Panel Plate, and Shorting Plug Removed.

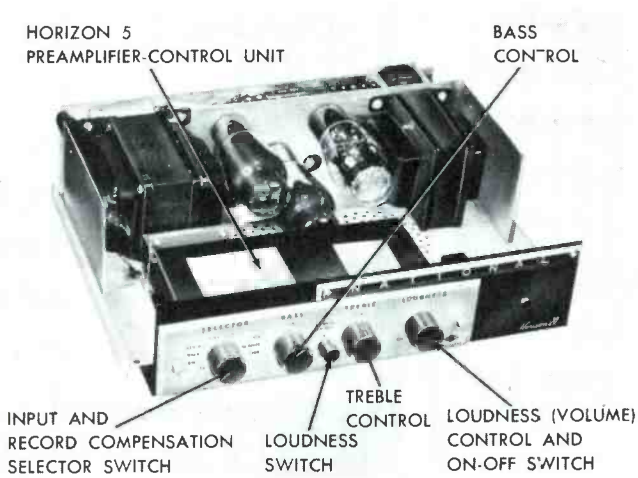


Fig. 5. National Horizon 5 Preamplifier-Control Unit Plugged Into Horizon 20 Amplifier.

former are not so critical as those required in a conventional circuit. The transformer serves chiefly as an impedance-matching device and is not depended upon to couple the output tubes. This last statement is confirmed by the fact that most output transformerless (OTL) amplifiers employ the single-ended push-pull output circuit.

The Horizon 20 has additional features. Many of them can be seen in the illustrations because they are concerned with construction and appearance. Although satisfactory performance is the primary purpose of an amplifier, ease and convenience of installation and operation as well as pleasing appearance of the unit cannot be ignored.

As shown in Figs. 1 and 2, the Horizon 20 is a power amplifier with power supply but with no operating controls. It can be mounted out where it can be seen, or it can be placed on a shelf or in a cabinet out of sight.

National Horizon 5 Preamplifier-Control Unit

When the aluminum plate and shorting plug are removed, as shown in Fig. 4, the Horizon 5 preamplifier control unit can be plugged in, as shown in Fig. 5. The Horizon 5 then becomes a part of the Horizon 20 amplifier which then operates as a self-powered preamplifier and power amplifier unit complete with necessary inputs, outputs, and controls.

The Horizon 5 preamplifier-control unit has some unusual and unique features of its own. It is small and compact, although it contains two dual triode tubes as can be

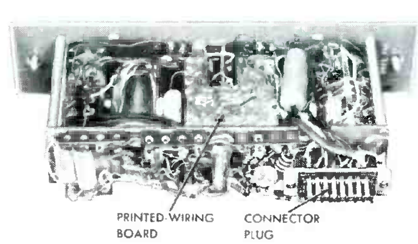


Fig. 6. Top View of National Horizon 5 With Shield Removed.

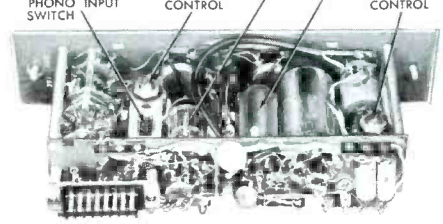


Fig. 7. Bottom View of National Horizon 5 With Shield Removed.

seen in Figs. 6 and 7. The printed wiring board plays an important part in keeping the dimensions small and the construction compact. Inputs are provided for TV, tape, tuner, and phono (magnetic).

Seven positions of the selector switch provide compensation for records following seven recording curves including NARTB, RIAA, LP, AES, 78(noisy), FFRR, and FOR.

Separate bass and treble tone controls provide wide-range boost and droop. The loudness control is equipped with a switch by means of which the loudness-compensation circuit can be disconnected, and thus the control will operate as a volume control. The ON-OFF switch, which controls the amplifier, is mounted on the bass control.

The Horizon 5 is designed for use with the Horizon 20, as shown; and these facilities become features of the amplifier. Power to operate the Horizon 5 is obtained from the amplifier supply through the connecting socket. Three-foot and fifteen-foot cables, complete with connectors, can be obtained for remote operation of the amplifier.

The Horizon 20 and the Horizon 5 are thoroughly engineered and well constructed pieces of high quality equipment manufactured by the National Company, Inc.

We cannot conclude this without mentioning the Criterion AM-FM tuner and the Horizon 10 ten-watt amplifier because they are so closely related to the units already described.

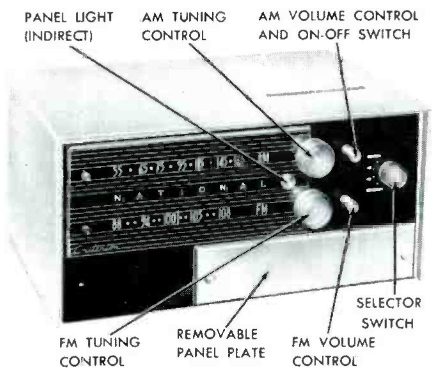


Fig. 8. Front View of National Criterion AM-FM Tuner.

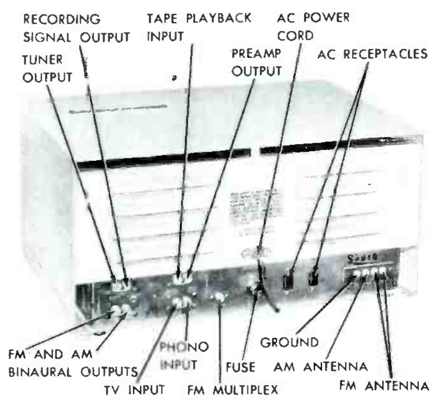


Fig. 9. Rear View of National Criterion AM-FM Tuner.

National Criterion AM-FM Tuner

The Criterion, shown in Figs. 8 and 9, is a 14-tube AM-FM tuner designed for use with or without the Horizon 5 preamplifier. When the removable plate is removed, the preamplifier unit can be inserted in the same way it is plugged into the Horizon 20.

The AM and FM sections can be operated at the same time. Separate tuning and volume controls are provided. In this way, binaural AM-FM broadcasts can be received. Provisions are made for handling multiplex binaural transmission in anticipation of this broadcasting service.

The FM Mutamatic feature provides a very effective squelch circuit which eliminates interstation noise when tuning on the FM band. The AM section is sensitive and selective. A low-distortion detector is used, and the IF passband is wide enough to provide adequate response.

National Horizon 10 Amplifier

The Horizon 10 in Figs. 10 and 11 is a ten-watt amplifier equipped

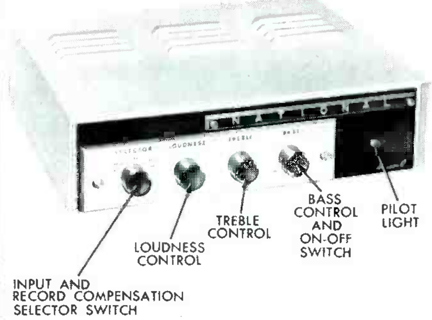


Fig. 10. Front View of National Horizon 10 Amplifier.

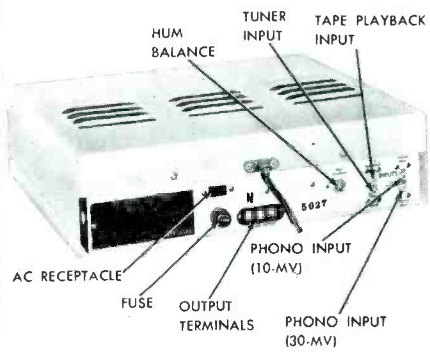


Fig. 11. Rear View of National Horizon 10 Amplifier.

with a built-in preamplifier, loudness control, bass control, treble control, and record-compensation control. The same single-ended push-pull output stage as used in the Horizon 20 is used in the Horizon 10, but the circuit is adjusted for use with 6V6GT output tubes.

Specifications for the Horizon 10 are as follows:

Harmonic Distortion — Less than 0.5 per cent at 10 watts.

Intermodulation Distortion — Less than 1 per cent (400 cps and 7 kc, at a ratio of 4 to 1).

Frequency Response — ±1 db, 20 cps to 20 kc.

Power Response — ±2 db, 20 cps to 20 kc.

Hum and Noise — Better than 70 db below 10 watts (tuner input); better than 50 db below 10 watts (phono input).

Damping Factor — 7 to 1.

Physically, the Horizon 10 is identical in size with the Horizon 20.

ROBERT B. DUNHAM

PF REPORTER

CATALOG and LITERATURE SERVICE

valuable manufacturers' data available to our readers

1E. ATLAS (Atlas Sound Corp.)
New complete 1955 Catalog on loudspeakers, supports, microphone stands, etc. *See advertisement page* 94.

2E. CBS (CBS-Hytron)
Substitution Chart for Television Picture Tubes. *See advertisement page* 20.

3E. CENTRALAB (Centralab, A Division of Globe-Union, Inc.)
P.E.C. Guide Supplement No. 3A. Latest CRL Printed Electronic Circuit plates to replace all major manufacturers' parts. Includes complete test data, cross references, schematics, replacement listings. *See advertisements pages* 79 *and* 93.

4E. CLAROSTAT (Clarostat Mfg. Co., Inc.)
Form No. 753802010—Fuzohm Plug-in Fuse-Type Resistors. *See advertisement page* 18.

5E. CLEAR BEAM (Clear Beam TV Antenna Co.)
Literature on Clear Beam Big 3 All Band Fringe Antennas. *See advertisement page* 30.

6E. CORNELL-DUBILIER (Cornell-Dubilier Electric Corp.)
8-Page Brochure on "Printed Circuitry"—Form PRT 255, 12-Page Bulletin No. 166 RF Attenuation Filters. *See advertisement page* 75.

7E. EICO (Electronic Instrument Co., Inc.)
12-page EICO Catalog describes 38 kits and 42 wired instruments, including scopes, VTVMs, generators, tube testers, etc. Shows how to save 50%. *See advertisement page* 83.

8E. JERSEY (Jersey Specialty Company, Inc.)
"Time of your Life" Contest. *See advertisement page* 86.

9E. JFD (JFD Manufacturing Company, Inc.)
New 1955 32-page TV accessory dealer's catalog, illustrating and describing the most complete line of indoor antennas, masting, lighting arrestors, screw-eyes, mounts, etc. *See advertisement page* 4.

10E. KENWOOD (Kenwood Engineering Co., Inc.)
New 16 page Catalog. Complete line antenna mounts and accessories, includes new aluminum line for special and unusual installation. *See advertisement page* 92.

11E. MALLORY (P. R. Mallory & Co., Inc.)
New replacement parts catalog No. 555—guide for radio, TV and electronic components. Title "Precision Electronic Components" 1955-56. *See advertisement page* 24.

12E. MILLER (J. W. Miller Co.)
No. 156 TV Technicians Coil Replacement Guide—64 pages cross referencing J. W. Miller part number with set manufacturer's converter and video IF coils, peaking coils, sound IF horizontal oscillating coils, width and linearity coils with J. W. Miller part number. *See advertisement page* 82.

13E. PHAOSTRON (Phaostron Co.)
Illustrated literature on "555" Multimeter. Bulletin No. 555-M—5B. *See advertisement page* 76.

14E. RMS (Radio Merchandise Sales)
Annual RMS 28 page catalog No. 55 including the popular "Rotor-Queen". *See advertisement page* 74.

15E. RADIX (The Radix Wire Company)
Complete information on Radix exclusive new STRIP-EASE 300 ohm Low Loss Lead-In that is easier to rip back, faster to install than any other TV lead-in. Also complete information on Radix new 300 ohm Flat Twin Lead and Four Conductor Rotator Cable. *See advertisement page* 62.

16E. RAYTRONIC (Raytronic Laboratories, Inc.)
Catalog Sheet on Portable Model Raytronic Beamer. Also Folder on user profit opportunities. *See advertisement page* 42.

17E. SOUTH RIVER (South River Metal Products Co., Inc.)
New 1955 catalog describing and illustrating complete line of antenna mountings and accessories. *See advertisement page* 94.

18E. SYLVANIA (Sylvania Electric Products, Inc.)
Test Equipment Brochure covering complete line of Sylvania Test Equipment available on Free 10-Day Trial Offer. *See advertisements pages* 28 and 50.

19E. TRIAD (Triad Transformer Corp.)
Catalog TV-55, Replacement TV Guide, listing Triad Correct Replacement Television Transformers. *See advertisement page* 90.

20E. TRIPLETT (Triplett Electrical Instrument Co.)
New Catalog No. AB illustrating complete line of Radio and TV Test Equipment. *See advertisement page* 59.

JUST CHECK AND MAIL THE CARD

1. Circle or check the corresponding numbers of literature you want to receive.
2. Fill in your complete name and address.
3. Detach and mail self-addressed card. No postage necessary.

Please send me the following literature checked below:

1E	2E	3E	4E	5E	6E	7E	8E	9E	10E
11E	12E	13E	14E	15E	16E	17E	18E	19E	20E

Print plainly or type below

Name ________________

Firm ________________

Firm Address ________________

City ________ Zone ____ State ________

OFFER GOOD ONLY UNTIL JULY 1, 1955

Has your address changed since you last wrote us ☐ No ☐ Yes

To guarantee receipt of literature please check one of boxes below:

☐ Independent Serviceman ☐ Dealer with Service Shop ☐ Student

☐ Other (Please explain) ________________

COLOR TV TRAINING SERIES

QUESTIONS ON PART XII

Part XII of the Color TV Training Series, appearing in this issue, should be studied prior to reading the following questions.

The questions are presented to give the reader an opportunity to test himself on the color-television material in this issue.

1. How can it be determined whether or not the high voltage is being regulated properly?
2. Why are the conventional adjustments pertaining to picture size, linearity, and focus made before the purity and convergence adjustments are made?
3. If a picture tube employs the magnetic-convergence principle, why is it necessary to converge the beams statically before proceeding with the purity adjustments?
4. What results should be anticipated when making the adjustments for color purity?
5. If a white-dot generator were being used in making the convergence adjustments, which dots should be observed while making the adjustments for static convergence?
6. Which dots should be observed while making the adjustments for vertical dynamic convergence? For horizontal dynamic convergence?
7. What should be the relationship of the dots when all of the convergence adjustments are completed?
8. What effect will the adjustment of a parabola control have on the dots at the center of the screen with respect to those at the top and bottom?
9. What is the purpose of the gray-scale adjustments?
10. What fact concerning the three phosphors makes it necessary to use different operating voltages for each gun?

C.P.O. & V.M.R.

FIRST CLASS
PERMIT No. 1076
(Sec. 34.9, P. L. & R.)
Indianapolis, Ind.

BUSINESS REPLY CARD
No Postage Stamp Necessary If Mailed in the United States

3¢ POSTAGE WILL BE PAID BY

PF REPORTER

Reader's Literature Service Dept.

2201 EAST 46TH STREET

INDIANAPOLIS 5, IND.

PF REPORTER

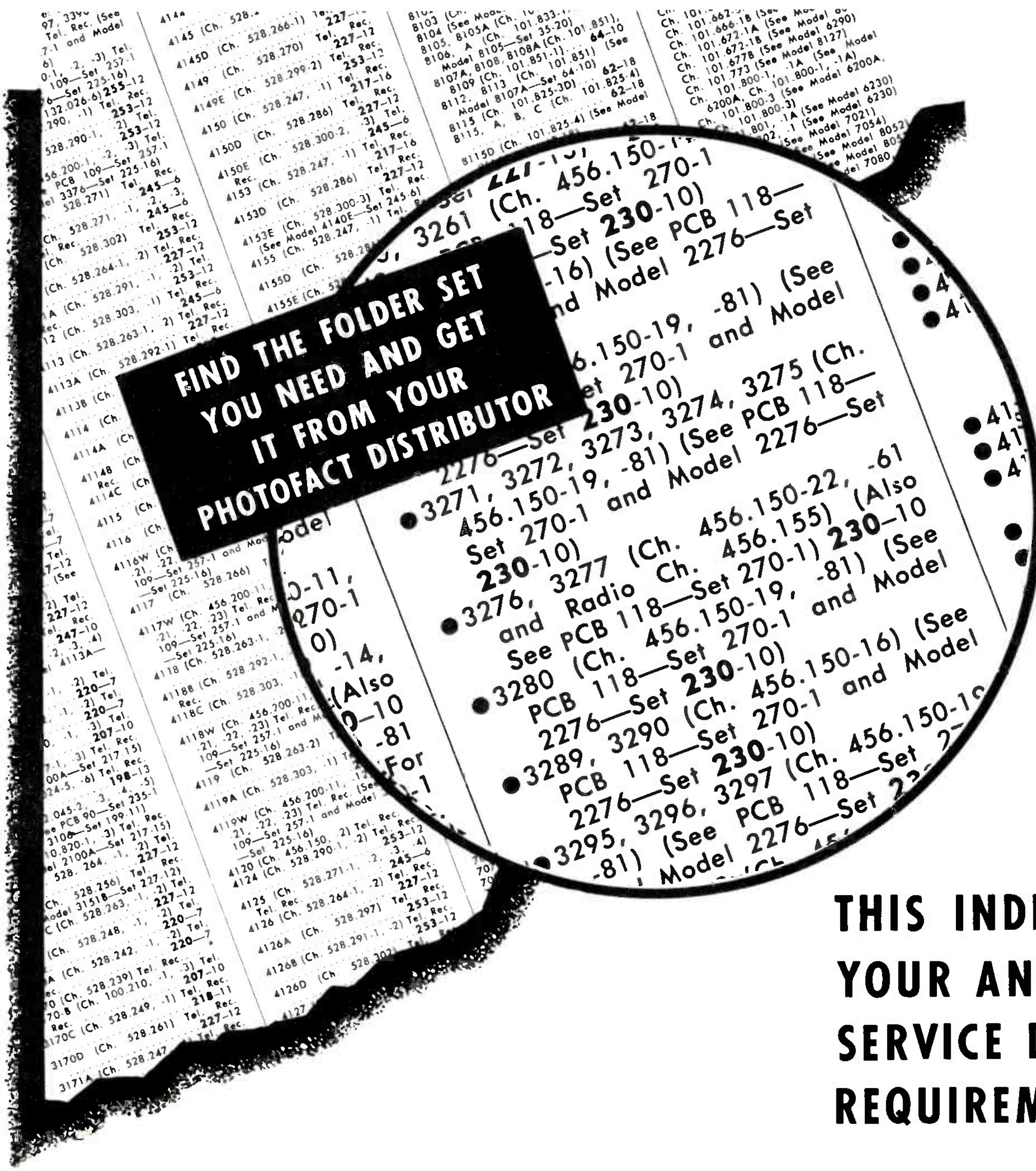
INDEX TO ADVERTISERS
May, 1955

While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of the REPORTER.

Cumulative Index

No. 50
MAY-JUNE 1955

COVERING **PHOTOFACT FOLDER** SETS 1 THRU 277



THIS INDEX IS YOUR ANSWER TO SERVICE DATA REQUIREMENTS

THIS INDEX CURRENT ONLY UNTIL JULY 15th, 1955

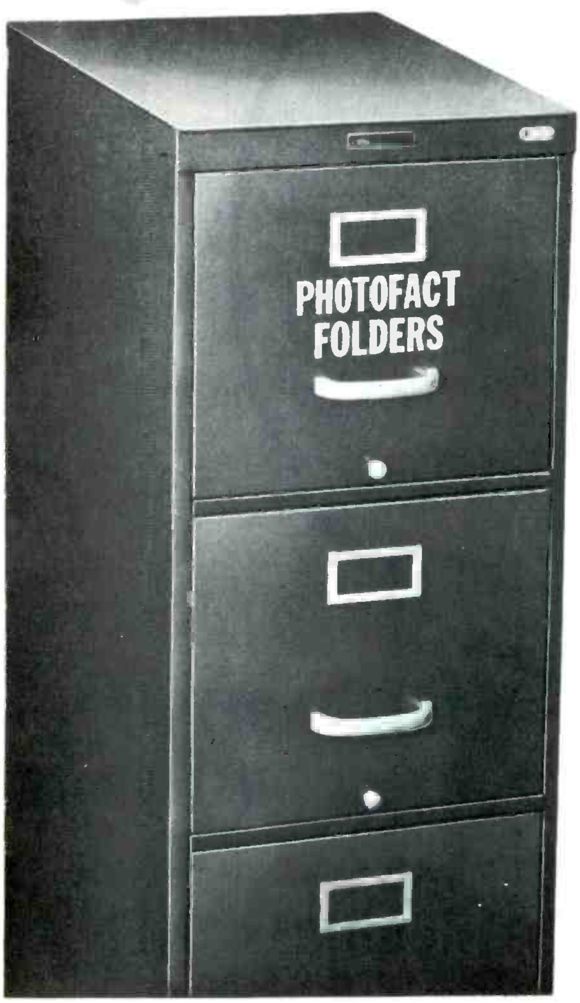
FOR YOUR SHOP!

THE COMPLETE PHOTOFACT

SERVICE DATA LIBRARY

in this one handy file cabinet

the World's Best
TV-RADIO
SERVICE DATA



YOURS FOR ONLY

$25 DOWN

NO CARRYING CHARGES

Yes, only $25 down puts the complete PHOTOFACT Library in your shop NOW . . . covers over 17,000 TV, Radio, Record Changer, Recorder and Amplifier models—everything you need to know to help you earn more daily—all in a quick-reference handsome file cabinet . . .

If you now own some Sets of PHOTOFACT Folders, you can complete your present library this EASY-PAY-WAY.

If you've never used PHOTOFACT Folders, you've never realized your full earning power. Put this file cabinet with its 250 sets of PHOTOFACT Folders to work earning more for you . . . starting right NOW.

SEE YOUR PARTS DISTRIBUTOR TODAY FOR FULL DETAILS

OR WRITE TO:

HOWARD W. SAMS & CO., INC.
2201 East 46th Street
Indianapolis 5, Indiana

Cumulative Index to PHOTOFACT FOLDERS

No. 50 · Covering Folder Sets Nos. 1 through 277 · World's Finest Electronic Service Data

HOW TO USE THIS INDEX

To find the PHOTOFACT Folder you need, first look for the name of the receiver (listed alphabetically below), and then find the required model number. Opposite the model, you will find the number of the PHOTOFACT Set in which the required Folder appears, and the number of that Folder. The PHOTOFACT Set number is shown in bold-face type; the Folder number is in the regular light-face type.

IMPORTANT—1. The letter "A" following a set number in the Index listing, indicates a "Preliminary Data Folder." These folders were designed to provide immediate basic data on TV receivers. Many of these were later superseded by regular Photofact Folders. In those cases where short production runs and/or limited distribution prevented availability of a sample chassis the "A" designation has been retained.

2. Models marked by an asterisk (*) have not yet been covered in a standard Folder. However, regular PHOTOFACT Subscribers may obtain Schematic, Alignment Data or other required information on these models without charge by supplying make, model or chassis number and serial number. (When requesting such data, mention the name of the Parts Distributor who supplies you with your PHOTOFACT Folder Sets.)

3. Production Change Bulletins contain data supplementary to certain models covered in previously issued PHOTOFACT Folders, and are listed in this Index immediately preceding the listing of the original coverage of the model or chassis. These Bulletins should be filed with the Folders covering the models to which the changes apply.

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

ADMIRAL—Cont.

- ●Models 17DX10, 17DX11, 17DX12 (See Ch. 19B1)
- ●Models 17K11, 17K12 (See Ch. 21F1)
- ●Model 17K16 (See Ch. 21F1)
- ●Models 17K21, 17K22 (See Ch. 21F1)
- ●Models 17M15, 17M16, 17M17 (See Ch. 21F1)
- ●Models 17UDX11, 17UDX12 (See Ch. 19S1)
- ●Models 19A11S, SN, 19A12S, SN (See Ch. 19A1)
- ●Models 19A15S, SN (See Ch. 19A1)
- ●Models 20X11, 20X12 (See Ch. 20X1)
- ●Model 20X122 (See Ch. 20X1)
- ●Model 20X136 (See Ch. 20Y1)
- ●Models 20X145, 20X146, 20X147 (See Ch. 20Y1)
- ●Model 22X12 (See Ch. 20Z1)
- ●Models 22X25, 22X26, 22X27 (See Ch. 20Z1)
- ●Models 24A11, 24A12 (See Ch. 20A1)
- ●Model 24A125 (See Ch. 20A1)
- ●Model 24A125AN (See Ch. 20X1)
- ●Models 24A126, 24A127 (See Ch. 20A1)
- ●Models 24C15, 24C16, 24C17 (See Ch. 20B1)
- ●Models 24R11, 24R12 (See Ch. 20T1)
- ●Models 24X15, S, 24X16, S, 24X17S (See Ch. 20X1)
- ●Models 25A15, 25A16, 25A17 (See Ch. 20A1)
- ●Models 26R11, 26R12 (See Ch. 21B1)
- ●Model 26R25 (See Ch. 24H1)
- ●Model 26R25A (See Ch. 21B1)
- ●Model 26R26 (See Ch. 24H1)
- ●Model 26R26A (See Ch. 21B1)
- ●Model 26R35 (See Ch. 24H1)
- ●Model 26R35A (See Ch. 21B1)
- ●Model 26R36 (See Ch. 24H1)
- ●Model 26R36A (See Ch. 21B1)
- ●Model 26R37 (See Ch. 24H1)
- ●Model 26R37A (See Ch. 21B1)
- ●Models 26X35, 26X36 (See Ch. 24D1)
- ●Models 26X36AS, S (See Ch. 21E1)
- ●Model 26X37 (See Ch. 24D1)
- ●Models 26X45, 26X46 (See Ch. 24H1)
- ●Models 26X55, 26X56, 26X57 (See Ch. 24D1)
- ●Models 26X55A, 26X56A, 26X57A (See Ch. 21D1)
- ●Models 26X65, 26X66, 26X67 (See Ch. 24D1)
- ●Models 26X65A, 26X66A, 26X67A (See Ch. 21D1)
- ●Models 26X75, 26X76 (See Ch. 24D1)
- ●Models 26X75A, 26X76A (See Ch. 21D1)
- ●Models 27K12 (See Ch. 21F1)
- ●Models 27K15, A, B, 27K16, A, B, 27K17, A, B (See Ch. 21F1)
- ●Models 27K25, A, B, 27K26, A, B, 27K27, A, B (See Ch. 21F1)
- ●Models 27K35, A, B, 27K36, A, B (See Ch. 21F1)
- ●Models 27K46, A, B (See Ch. 21F1)
- ●Models 27K85, 27K86, 27K87 (See Ch. 21F1)
- ●Model 27M12 (See Ch. 21X2)
- ●Models 27M25, 27M26, 27M27 (See Ch. 21F1)
- ●Models 27M35, 27M36 (See Ch. 21F1)
- ●Models 29X15, 29X16, 29X17 (See Ch. 24F1)
- ●Model 29X25 (See Ch. 24F1)
- ●Model 29X25A (See Ch. 21H1)
- ●Model 29X26 (See Ch. 24F1)
- ●Model 29X26A (See Ch. 21H1)
- ●Model 29X27 (See Ch. 24F1)
- ●Models 30A12, 30A13 (S or SN) (See Ch. 30A1)
- ●Models 30A14, 30A15, 30A16 (See Ch. 30A1)
- ●Models 30B15S, SN, 30B16S, SN, 30B17S, SN (See Ch. 30B1)
- ●Models 30C15S, SN, 30C16S, SN, 30C17S, SN (See Ch. 30C1)
- ●Models 30F15, A, 30F16, A, 30F17, A (See Ch. 20A1)
- ●Models 32X15, 32X16 (See Ch. 20Z1)
- ●Models 32X26, 32X27 (See Ch. 20Z1)
- ●Models 32X35, 32X36 (See Ch. 20Z1)
- ●Models 34R15, A, 34R16, A (See Ch. 20V1)
- ●Model 36R37 (See Ch. 21C1)
- ●Models 36R45, 36R46 (See Ch. 21C1)
- ●Models 36X35, 36X36, 36X37 (See Ch. 24E1 and Ch. 5B2)
- ●Models 36X35A, 37X36A, 36X37A (See Ch. 24E1 and Ch. 5D2)
- ●Models 37F15, A, B, 37F16, A, B (See Ch. 21G1 or Ch. 21Q1 and Ch. 5D2)
- ●Models 37F27, A, B, 37F28, A, B (See Ch. 21G1 or 21Q1 and Ch. 5D2)
- ●Models 37F35, A, B, 37F36, A, B (See Ch. 21G1 or 21Q1 and Ch. 5D2)
- ●Models 37F55, 37F56, 37F57 (See Ch. 21G1 or 21Q1 and Ch. 5D2)
- ●Models 37K15, A, B, 37K16, A, B (See Ch. 21G1 or 21Q1 and Ch. 3C1)
- ●Models 37K27, A, B, 37K28, A, B (See Ch. 21G1 or 21Q1 and Ch. 3C1)
- ●Models 37K35, A, B, 37K36, A, B (See Ch. 21G1 or 21Q1 and Ch. 3C1)
- ●Models 37K55, 37K56, 37K57 (See Ch. 21G1 or 21Q1 and Ch. 3C1)
- ●Models 37M15, 37M16 (See Ch. 21G1 or 21Q1 and Ch. 3C1)

ADMIRAL—Cont.

- ●Models 37M25, 37M26, 37M27 (See Ch. 21Z1)
- ●Models 39X16, A, 39X17, A (See Ch. 24G1 and Ch. 5B2)
- ●Models 39X16B, 39X17B (See Ch. 24G1 and Ch. 5D2)
- ●Model 39X17C (See Ch. 21J1)
- ●Models 39X25, 39X26 (See Ch. 24F1 and Ch. 5D2)
- ●Models 39X25A, 39X26A (See Ch. 21J1)
- ●Models 39X35, 39X36, 39X37 (See Ch. 21J1 and Ch. 3C1)
- ●Models 47M15, A, 47M16, 47M17 (See Ch. 21W1)
- ●Models 47M35, 47M36, 47M37 (See Ch. 21Z1)
- ●Models 52M15, 52M16, 52M17 (See Ch. 21Y1)
- ●Models 57M10, 57M11, 57M12 (See Ch. 21Z1A)
- ●Model 121DX10 (See Ch. 19C1)
- ●Model 121DX11 (See Ch. 19F1A)
- ●Model 121DX12 (See Ch. 19C1)
- ●Model 121DX12A (See Ch. 19C1 or 19F1)
- ●Model 121DX16 (See Ch. 19C1)
- ●Model 121DX16A (See Ch. 19C1 or 19F1)
- ●Model 121DX16L (See Ch. 19K1)
- ●Model 121DX17 (See Ch. 19C1)
- ●Model 121DX17A (See Ch. 19C1 or 19F1)
- ●Model 121DX17L (See Ch. 19K1)
- ●Models 121K15, 121K16, 121K17 (See Ch. 21M1)
- ●Models 121K15A, 121K16A, 121K17A (See Ch. 22M1)
- ●Model 121M10 (See Ch. 22M1)
- ●Models 121M11, 121M12 (See Ch. 21M1)
- ●Models 121M11A, 121M12A (See Ch. 22M1)
- ●Model 121UDX12 (See Ch. 19J1)
- ●Models 121UDX16L, 121UDX17L (See Ch. 19L1)
- ●Model 122DX12 (See Ch. 22F2)
- ●Model 122UDX12 (See Ch. 22G2)
- ●Model 221DX15 (See Ch. 19C1)
- ●Model 221DX15A (See Ch. 19C1 or 19F1)
- ●Model 221DX15L (See Ch. 19K1)
- ●Model 221DX16 (See Ch. 19C1)
- ●Model 221DX16A (See Ch. 19C1 or 19F1)
- ●Model 221DX16L (See Ch. 19K1)
- ●Model 221DX17 (See Ch. 19C1)
- ●Model 221DX17A (See Ch. 19C1 or 19F1)
- ●Model 221DX17L (See Ch. 19K1)
- ●Model 221DX26 (See Ch. 19C1)
- ●Model 221DX26A (See Ch. 19F1)
- ●Model 221DX26L (See Ch. 19K1)
- ●Model 221DX38 (See Ch. 19C1)
- ●Model 221DX38A (See Ch. 19C1 or 19F1)
- ●Models 221K16, A (See Ch. 21K1)
- ●Model 221K26 (See Ch. 21K1)
- ●Model 221K28 (See Ch. 21K1)
- ●Models 221K35, 221K36 (See Ch. 21K1)
- ●Models 221K45, 221K46, 221K47 (See Ch. 21M1)
- ●Models 221K45A, 221K46A, 221K47A (See Ch. 22M1)
- ●Models 221M26, 221M27 (See Ch. 21K1)
- ●Models 221UDX15L, 221UDX16L, 221UDX17L (See Ch. 19L1)
- ●Model 221UDX26L (See Ch. 19L1)
- ●Model 222DX15 (See Ch. 19H1)
- ●Model 222DX15B (See Ch. 22M2)
- ●Model 222DX15S (See Ch. 22C2)
- ●Model 222DX16 (See Ch. 22C2)
- ●Model 222DX16B (See Ch. 22M2)
- ●Model 222DX17 (See Ch. 22C2)
- ●Model 222DX17B (See Ch. 22M2)
- ●Models 222DX26, 222DX27 (See Ch. 22C2)
- ●Model 222DX27B (See Ch. 22M2)
- ●Models 222DX48, 222DX49 (See Ch. 22C2)
- ●Models 222UDX15, 222UDX16, 222UDX17 (See Ch. 22N2)
- ●Models 228DX16, 228DX17 (See Ch. 23A1)
- ●Model 320R17 (See Ch. 21J1)
- ●Models 320R25, 320R26 (See Ch. 21J1)
- ●Models 321DX15, 321DX16, 321DX17 (See Ch. 19E1)
- ●Models 321DX15A, 321DX16A, 321DX17A (See Ch. 19E1 or Ch. 19G1)
- ●Models 321DX15L, 321DX16L, 321DX17L (See Ch. 19N1)
- ●Model 321DX25B (See Ch. 19E1 or Ch. 19G1)
- ●Model 321DX26 (See Ch. 19E1)
- ●Model 321DX26B (See Ch. 19E1 or Ch. 19G1)
- ●Model 321DX27B (See Ch. 19E1 or Ch. 19G1)
- ●Models 321F15, 321F16 (See Ch. 21L1 and Ch. 5D2)
- ●Model 321F18 (See Ch. 21L1 and Ch. 5D2)
- ●Model 321F27 (See Ch. 21L1 and Ch. 5D2)
- ●Models 321F35, 321F36 (See Ch. 21L1 and Ch. 5D2)
- ●Models 321F46, 321F47 (See Ch. 21L1 and Ch. 5D2)
- ●Model 321F49 (See Ch. 21L1 and Ch. 5D2)
- ●Models 321F65, 321F66, 321F67 (See Ch. 21W1 and Ch. 5D2)
- ●Models 321K15, 321K16 (See Ch. 21L1 and Ch. 3C1)
- ●Model 321K18 (See Ch. 21L1 and Ch. 3C1)
- ●Model 321K27 (See Ch. 21L1 and Ch. 3C1)
- ●Models 321K35, 321K36 (See Ch. 21L1 and Ch. 3C1)
- ●Models 321K46, 321K47 (See Ch. 21L1 and Ch. 3C1)
- ●Model 321K49 (See Ch. 21L1 and Ch. 3C1)

ADMIRAL—Cont.

- ●Models 321K65, 321K66, 321K67 (See Ch. 21N1 and 3C1)
- ●Models 321M25, 321M26, 321M27 (See Ch. 21Y1)
- ●Models 321M25A, 321M26A, 321M27A (See Ch. 22Y1)
- ●Models 321UDX15L, 321UDX16L (See Ch. 19P1)
- ●Model 322DX16 (See Ch. 22E2)
- ●Model 322DX16A (See Ch. 22P2)
- ●Model 322UDX16 (See Ch. 22R2)
- ●Models 421M15, 421M16 (See Ch. 21Y1)
- ●Models 421M15A, 421M16A (See Ch. 22Y1)
- ●Models 421M35, 421M36, 421M37 (See Ch. 22Y1)
- ●Models 520M11, 520M12 (See Ch. 22A2A)
- ●Models 520M15, 520M16, 520M17 (See Ch. 22A2)
- ●Models 521M15, 521M16, 521M17 (See Ch. 21Y1)
- ●Models 521M15A, 521M16A, 521M17A (See Ch. 22Y1)

AERMOTIVE

- 181-AD .... 12—1

AERO (See Record Changer Listing)

AIMCEE (See AMC)

AIRADIO

- SU-41D .... 11—1
- SU-52A, B, C (Receiver) .... 13—2
- TRA-1A, B, C (Transmitter) .... 13—1
- 3100 .... 37—1

AIRCASTLE

- C-300 .... 136—3
- DM-700 .... 85—1
- EV-760 .... 85—1
- G-516, G-518 .... 48—3
- G-521 .... 54—3
- G-724 .... 52—25
- G-725 .... 50—1
- K1 .... 93—1
- OA-358VM (See Model 358VM—Set 127-3)
- 06-F, 06-L .... 135—3
- P-20 .... 71—3
- P-22 .... 87—1
- PAM-4 .... 101—1
- PC-8, PC-358 .... 99—1
- PM-78 .... 100—2
- PM-358 .... 98—1
- PX .... 13—35
- REV248 .... 127—2
- RZU248 (See Model REV248—Set 127-2)
- SC-448 .... 62—2
- TD-6 .... 103—3
- WEU-262 .... 91—1
- WRA1-A .... 47—1
- WRA-4M .... 60—1
- ●XB702, XB703 .... 93A—1
- ●XL750, XP775 .... 93A—1
- 7B .... 52—1
- 9 .... 50—2
- ●10C, 10T (See Model 14C—Set 140-3)
- ●12C, 12T (See Model 14C—Set 140-3)
- ●14C, 14T .... 140—3
- 15 .... 67—2
- ●16C, 16T (See Model 14C—Set 140-3)
- ●17C, 17T .... 140—3
- ●20XUT .... 185—3
- 79A .... 137—3
- 88, 88W .... 142—2
- 101 .... 86—1
- 102B .... 98—2
- 106B .... 13—3
- 150, 153 .... 126—2
- 171, 172 .... 96—1
- 198 .... 83—1
- 200 .... 139—3
- 201 .... 81—1
- 211 .... 65—1
- 212 .... 68—3
- 213 .... 63—1
- 227I, 227W .... 84—1
- ●312 (See Model 14C—Set 140-3)
- ●316 (See Model 14C—Set 140-3)
- 350 .... 136—4
- 358VM .... 127—3
- ●412 (See Model 14C—Set 140-3)
- ●416 (See Model 14C—Set 140-3)
- 472.JP24, 472.JP25 (See Model 472.MP25—Set 168-1)
- 472.MP24 (See Model 472.MP25—Set 168-1)
- 472.MP25 .... 168—1
- 472-053VM .... 163—2
- ●472.17XUCM, 472.XUCM.1 (Ch. 317-B) .... 223—2
- ●472.17XUCM.2, 472.XUCM.3, 472.17XUCM.4, 472.17XUCM.5 (Ch. 317-D) .... 223—2
- ●472.17XUCO, 472.17XUCO.1 (Ch. 317-B) .... 223—2
- ●472.17XUT, 472.17XUT.1, 472. XUT.2, 472.XUT.3 (Ch. 217B) (See Model 20XUT—Set 185-3)
- ●472.17XUT.4, 472.17XUT.5 (Ch. 317-B) .... 223—2
- ●472.17XUT.6, 472.17XUT.7, 472. 17XUT.8 (Ch. 317-D) .... 223—2
- ●472.20XUC (Ch. 220B) (See Model 20XUT—Set 185-3)
- ●472.20XUT, 472.20XUT.1, 472. 20XUT.2 (Ch. 220B) (See Model 20XUT—Set 185-3)
- ●472.21XUCM (Ch. 321-B) .... 223—2
- ●472.21XUCO (Ch. 321-B) .... 223—2
- ●472.21XUCO.1, 472.21XUCO.2 (Ch. 321-D) .... 223—2
- ●472.21XUT, 472.21XUT.1 (Ch. 321-B) .... 223—2
- ●472.21XUT.2 (Ch. 321-D) .... 223—2
- ●472.217C, 472.217C.1 (Ch. 317-D) .... 223—2
- ●472.217T, 472.217T.1 (Ch. 317-D) .... 223—2
- ●472.221XC (Ch. 321-D) .... 223—2
- ●472.221XT, 472.221XT.1 (Ch. 321-D) .... 223—2

AIRCASTLE—Cont.

- 472.254 .... 215—2
- 568 .... 14—1
- 568.205 .... 141—2
- 568.205-1 (See Model 200—Set 139-3)
- 568.305 .... 141—2
- 572 .... 55—1
- 594-935 (See Model 935—Set 128-2)
- 602-182144 .... 114—2
- 603-PR-8.1 .... 133—2
- 603.880 .... 230—2
- 604 .... 53—2
- 606-400WB .... 119—2
- 607.299 .... 177—3
- 607-314, 607-315 .... 122—2
- 607.316, -1, 607.317, -1 .... 138—2
- 610.A67 .... 247—2
- 610.C351 .... 174—2
- 610.CL152B, M .... 208—1
- 610.D200 .... 142—3
- 610.F100 .... 138—3
- 610.F151 .... 172—2
- 610.FE153 .... 244—2
- 610.H400 .... 178—2
- 610.P-651.1 .... 179—2
- 610.S500 .... 184—2
- 610.W-100 .... 249—2
- 621 (Ch. FJ-91) .... 14—2
- 626 .... 18—3
- 641 .... 17—1
- 651 .... 15—1
- 652.A25, 652.A35 .... 169—2
- 552.3A6S.1 .... 268—2
- 652.3S1 .... 231—2
- 652.5C1M, V .... 260—3
- 652.5T3M, V .... 246—1
- 652.5T5E, V .... 260—4
- 652.6T1E, V .... 205—2
- 652. 8TF1 .... 254—1
- 652.327SA .... 210—3
- 652.487S .... 211—3
- 652.505 .... 168—2
- 659.511, 659.513 .... 167—2
- 659.520E, I .... 185—4
- 738.B5400, UL .... 250—2
- 9151, W .... 129—2
- 935 .... 128—2
- 965I, W, 965KI, W (See Model 951I—Set 129-2)
- ●1400C, 1400T .... 140—3
- ●1700C, 1700T .... 140—3
- ●2000C .... 140—3
- ●3170 (For TV Ch. See Set 140-3, for Radio Ch. See Model 150—Set 126-2)
- ●4170 (For TV Ch. See Set 140-3, for Radio Ch. See Model 350—Set 136-4)
- 5000, 5001 .... 16—2
- 5002 .... 19—1
- 5003, 5004, 5005, 5006 .... 20—1
- 5008, 5009 .... 46—1
- 5010, 5011, 5012 (Ch. 110) 13—4
- 5015.1 .... 118—3
- 5020 .... 16—3
- 5022 .... 123—2
- 5024 .... 45—1
- 5025 .... 24—2
- 5027 .... 49—3
- 5028 .... 44—1
- 5029 .... 51—1
- 5035 .... 46—2
- 5036 .... 72—2
- 5044 .... 121—2
- 5050 .... 48—4
- 5052 .... 45—2
- 5056-A .... 120—2
- 6042 .... 61—1
- 6050 .... 74—1
- 6053 .... 97—1
- 6514 .... 18—4
- 6541 .... 17—2
- 6544 (See Model 6541—Set 17-2)
- 6547 .... 17—2
- 6611, 6612, 6613, 6630, 6631, 6632, 6634, 6635 .... 15—2
- 7000, 7001 .... 14—3
- 7004 .... 19—2
- 7014, 7015 .... 57—3
- 7015 Early .... 47—2
- 7553 .... 45—3
- 90081, 9008W .... 99—2
- 90091, 9009W .... 97—2
- 90121, 9012W .... 94—1
- 10002 .... 54—1
- 10003-1 .... 46—2
- 10005 .... 62—3
- 10021-1, 10022-1 .... 59—3
- 10023 .... 58—1
- 10024-1 .... 58—2
- 108014, 108504 .... 57—4
- 121104 .... 73—1
- 121124 .... 61—2
- 127084 .... 55—2
- 131504 .... 60—2
- 132564 .... 69—1
- 138104 .... 54—3
- 138124 .... 64—1
- 139114 (See Model 139144—Set 59-4)
- 147114 .... 56—3
- 149654 .... 71—4
- 150084 .... 71—4
- 159144 (See Model 139144—Set 59-4)
- Ch. 217B (See Model 472.17XUT)
- Ch. 220B (See Model 472.20XUC)
- Ch. 317-B (See Model 472.17XUCM)
- Ch. 317-D (See Model 472.17-XUCM.2)
- Ch. 321-B (See Model 472.21XUT)
- Ch. 321-D (See Model 472.21XUT.2)

AIR CHIEF (See Firestone)

AIR KING

- A-400 (Ch. 470) .... 23—1
- A-403 .... 20—2
- A-410 .... 34—1
- A-410 (Revised) .... 40—1
- A-426 .... 43—1
- A-501, A-502 (Ch. 465-4) .... 31—3
- A-510 .... 24—3
- A-511, A-512 .... 30—2
- A-520 .... 49—4
- A-600 .... 26—3
- A-604 .... 81—2
- A-625 .... 50—3

AIR KING—Cont.

- A-650 .... 45—4
- ●A-1000, A-1001 .... 58—3
- ●A1001A .... 75—2
- ●A1016 .... 91—2
- ●A2000, A2001 .... 75—2
- ●2002 (See Model A2000—Set 75-2)
- ●A2010 .... 75—2
- ●A2012 (See Model A1001A—Set 75-2)
- ●12C1 (See Model 16C1—Set 121-3)
- ●12T1, 12T2 (See Model 16C1—Set 121-3)
- ●14T1 (See Model 16C1—Set 121-3)
- ●16C1, 16C2, 16C5 .... 121—3
- ●16M1 .... 121—3
- ●16T1 .... 121—3
- ●16T1B (See Model 16C1 — Set 121-3)
- ●17C2 (Ch. 700-96) .... 151—2
- ●17C5, B (Ch. 700-96) .... 151—2
- ●17C7 (Ch. 700-96) .... 151—2
- ●17K1 (Ch. 700-96) .... 151—2
- ●17K1C (Ch. 700.110, 700.130) .... 150—2
- ●17M1 (Ch. 700-96) .... 151—2
- ●17T1 (Ch. 700-96) .... 151—2
- ●19C1 .... 121—3
- ●20C1, 20C2 (Ch. 700-93) .... 151—2
- ●20K1 (Ch. 700-95) .... 151—2
- ●20M1 (Ch. 700-93) .... 151—2
- ●718R .... 121—3
- 800 .... 66—1
- ●2017R .... 111—2
- 4601 (See Model 4609—Set 11-2)
- 4603 3–26
- 4604 4–25
- 4704D (See Model 4604—Set 4-25)
- 4607, 4608 .... 3—1
- 4609, 4610 (Early) (See Model 4607—Set 3-1)
- 4609, 4610 (Late) .... 11—2
- 4625 .... 13—8
- 4700 .... 39—1
- 4704 .... 12—2
- 4705, 4706 .... 9—1
- 4708 (See Model 4704—Set 12-2)
- Ch. 465-4 (See Model A-501)
- Ch. 470 (See Model A-400)
- Ch. 700-93 (See Model 20C1)
- Ch. 700-95 (See Model 20K1)
- Ch. 700-96 (See Model 17C2)
- Ch. 700.110 (See Model 17K1C)
- Ch. 700.130 (See Model 17K1C)

AIR KNIGHT (SKY KNIGHT)

- CA-500 .... 17—4
- CB-500P 17–31
- N5-RD291 .... 17—3

AIRLINE

- ●BR-3082A, BR-3084A (See Model 35BR-3158A—Set 221-2)
- ●BR-3091A (See Model 35BR-3158A—Set 221-2)
- ●BR-3182A (See Model 35BR-3158A—Set 221-2)
- ●BR-4000A, BR-4001A, BR-4003A, BR-4005A .... 270—2
- GSE-1077A, GSE-1078A .... 250—3
- ●GSE-3176A, B (See PCB 102—Set 248-1 and Model 35GSE-3076A—Set 238-3)
- ●GSE-3178A, B (See PCB 102—Set 248-1 and Model 35GSE-3078A—Set 238-3)
- ●GSE-3195A (See PCB 102—Set 248-1 and Model 35GSE-3095—Set 238-3)
- ●GSE-3197A (See PCB 102—Set 248-1 and Model 35GSE-3097—Set 238-3)
- ●GSE-5001A .... 269—2
- ●GSE-5004A .... 269—2
- ●GSE-5101A .... 269—2
- ●GSE-5104A .... 269—2
- ●GSL-3064C, D (See PCB 116—Set 268-1 and Model 35GSL-3064A—Set 218-3)
- ●GSL-3083C, D (See PCB 116—Set 268-1 and Model 35GSL-3083A—Set 218-3)
- ●GSL-3164A, B, C .... 272—2
- ●GSL-3183A, B, C .... 272—2
- WG-1572C .... 251—1
- WG-2767A .... 241—2
- ●WG-3071E, F, WG-3073 E, F, WG-3075D, E, WG-3077D, E, WG-3079D, E (See PCB 95—Set 240-1 and Model 25WG-3066A—Set 206-2)
- ●WG-3180A (For TV Ch. only See Model 35WG-3171A—Set 222-3)
- ●WG-3190A (For TV Ch. only See Model 35WG-3171A—Set 222-3)
- ●WG-5002A .... 273—2
- ●05BR-3021B .... 150—3
- ●05BR-3024B .... 150—3
- ●05BR-3027A .... 150—3
- ●05BR-3041A 145-1A
- 05GAA-992A .... 125—2
- 05GCB-1540A, 05GCB-1541A .... 131—2
- ●05GCB-3019A .... 116—2
- 05GCD-3658A .... 151—3
- 05GHM-934A .... 167—3
- 05GHM-1061A .... 133—3
- ●05GSE-3020A, B, C (Also see PCB 36—Set 166-1) .... 117—3
- ●05GSE-3037A .... 117—3
- ●05GSE-3042A (Also see PCB 36—Set 166-1) .... 117—3
- ●05WG-1811B (See Model 94WG-1811A—Set 99-4)
- 05WG-1813A .... 127—4
- 05WG-2748C, D, E (See Model 94WG-2748A—Set 90-1)
- 05WG-2748F .... 139—4
- 05WG-2749D .... 129—3
- 05WG-2752 .... 100—3
- 05WG-3016A, B (See Set 100-2 and Model 94WG-3006A—Set 72-4)
- ●05WG-3030A .... 119—3
- ●05WG-3030C .... 148—2
- ●05WG-3031A .... 109—1
- ●05WG-3036A, B .... 148—2
- ●05WG-3038A .... 129—4
- ●05WG-3039A, B .... 148—2
- ●05WG-3045A .... 129—4
- 15BR-1536B, 15BR-1537B .... 146—2

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250

● Denotes Television Receiver.

ARTONE—BENDIX

ARTONE—Cont.
●203D (2nd Prod.) ....172—3
●312 ....170—4
524 ....76—7
●819 ....170—4
●1000, 1001 ....172—3
●3163CR ....170—4
●8163CR, 8193CM ....170—4

ARVIN
●15-550KB-UHF ....262—2
●21-550KB, KM, 21-551TB, TM, 21-552KB, KM, 21-553TB, TM (Ch. TE382) ....266—2
●21-550KBU, KMU, 21-551TBU, TMU, 21-552KBU, KMU, 21-553TBU, TMU (Ch. TE379) 266—2
●21-554KM, KMU (Ch. TE383 "E" Series, TE386-UHF "E" Series) ....264—3
●21-555TG, TGU, TM, TMU (Ch. TE-383 "E" Series, TE-386-UHF "E" Series) ....264—3
●21-557TM, TMU (Ch. TE-383 "E" Series, TE-386-UHF "E" Series) ....264—3
140P (Ch. RE-209) ....25—6
150-TC, 151-TC (Ch. RE-228) ....25—7
150TC, 151TC (Ch. RE-228-1) Late ....39—2
152T (Ch. RE-233) ....33—1
153T (See Model 152T—Set 33-1)
160T, 161T (Ch. RE-232) ....49—5
182TFM (Ch. RE-237) ....32—3
240-P (Ch. RE-243) ....42—2
241P (Ch. RE-244, RE-254, RE-255, RE-256, RE-259) ....47—3
242T, 243T (Ch. RE-251) ....52—3
244P (Ch. RT-244, RE-254, RE-255, RE-256, RE-259) ....47—3
250-P (Ch. RE-248) ....43—4
253T, 254T, 255T, 256T (Ch. RE-252) ....53—5
264T, 265T (Ch. RE-265) ....64—2
280TFM, 281TFM (Ch. RE-253) ....44—2
341T (Ch. RE-274) ....84—3
350P (Ch. RE-267) ....69—3
350-PB (Ch. RE-267-1) ....100—4
350PL (Ch. RE-277-2) ....100—4
351P (Ch. RE-267) ....69—3
351-PB (Ch. RE-267-1) ....100—4
351-PL (Ch. RE-267-2) ....100—4
352-PL, 353-PL (Ch. RE-267-2) ....100—4
355T (Ch. RE-213) (See Model 356T—Set 78-2)
356T, 357T (Ch. RE-273) ....78—2
358T (Ch. RE-233) (See Model 152T—Set 33-1)
360TFM, 361TFM (Ch. RE-260) ....70—2
440T (Ch. RE-278) ....96—3
441T (Ch. RE-278) (See Model 440T—Set 96-3)
442 (Ch. RE-91) ....34—2
444, 444A (Ch. RE-200) ....1—3
444AM, 444M (Ch. RE-200M) 23—3
446P (Ch. RE-280) ....106—2
450T, 451T (Ch. RE-281) ....110—3
460T, 461T (Ch. RE-284) ....107—3
462-CB, 462-CM (Ch. RE-287-1) ....116—3
480TFM, 481TFM (Ch. RE-277, RE-277-1) ....107—4
482CFB, 482CFM (Ch. RE-288-1) ....117—4
540T (Ch. RE-278) ....143—4
542T (See Model 440T—Set 96-3)
544, 544A (Ch. RE-201) ....1—7
544AR, 544R (Ch. RE-201) (See Model 544—Set 1-7)
547A (Ch. RE-242) ....42—3
551T (Ch. RE-297) ....154—2
552AN, 552N (Ch. RE-231) 13—9
553 (Ch. RE-308) ....159—4
554CCB, 554CCM (Ch. RE-306) ....155—3
555, A (Ch. RE-202) ....13—9
558 (Ch. RE-204) 3-16
580TFM (Ch. RE-313) ....152—2
581TFM (Ch. RE-333) ....227—2
582CFB, 582CFM (Ch. RE-310) ....156—4
652-P (Ch. RE292) (See Model 650-P—Set 175-6)
654-P (Ch. RE-292) (See Model 650-P—Set 175-6)
650-P (Ch. RE292) ....175—6
651T (Ch. RE-323) ....251—3
655 SWT (Ch. RE327) ....182—7
657-T (Ch. RE307) ....168—5
664, 664A (Ch. RE-206) 3-23
664, 664A (Ch. RE-206-1). 29—2
665 (Ch. RE-229) 18-10
740T (Ch. RE-278) (See Model 540T—Set 143-4)
741T (Ch. RE352) ....225—4
746P, 747P (Ch. RE347) ....225—5
751TB (See Model 551T—Set 154-2)
753T (Ch. RE-348) ....220—2
758T (Ch. RE-350) ....221—3
760T (Ch. RE-342) ....223—3
780TFM (Ch. RE333) ....227—2
840T (Ch. RE-278-1) ....263—3
848T, 849T (Ch. RE-369) ....259—2
850T (Ch. RE-375) ....262—3
851T (Ch. RE-377) ....266—3
852P (Ch. RE-372) ....258—3
853T (Ch. RE-375) ....262—3
854P (Ch. RE-372) ....258—3
855T (Ch. RE-377) ....266—3
857T (Ch. RE378) ....275—4
858T, 859T (Ch. RE-374) ....261—2
●2120CM (Ch. TE289-2, TE289-3) (Also See PCB 20—Set 134-1) ....120—3
●2121TM (Ch. TE289-2, TE-289-3) (Also see PCB 20—Set 134-1) ....120—3
●2122TM (Ch. TE-289) ....97A—1
●2123TM (Ch. TE-289-2, TE289-3) (Also see PCB 20—Set 134-1) ....120—3
●2124CCM (Ch. TE289-2, TE289-3) (Also see PCB 20—Set 134-1) ....120—3

ARVIN—Cont.
●2126CM (Ch. TE289-2, TE-289-3) (Also see PCB 20—Set 134-1) ....120—3
●2160, 2161, 2162, 2164 (Ch. TE-290) ....126—3
2410P (Ch. RE-244, RE-254, RE-255, RE-256, RE-259) ....47—3
●3100TB, 3100TM, 3101CM, 3120-TM, 3121TM (Ch. TE-272-1, TE-272-2) ....80—2
●3160CM (Ch. TE-276) ....93—2
●4080T (Ch. TE282) ....104—2
●4081T (See Model 4080T—Set 104-2)
●4162CM (Ch. TE-286) ....130—3
●5170CB, CM, 5171TM, 5172CB, CM (Ch. TE-302, -1, -2, -3, -4, -5A, -6) (Also see PCB 50—Set 184-1) ....142—5
●5173TM (Ch. TE-302) (See Model 5170CB)
●5175, 5176 (Ch. TE320) ....179—3
●5204CM, 5206CM (Ch. TE-300) ....149—3
●5210, 5211, 5212 (Ch. TE-315, -1, -2, -3, -4, -5) (Also see PCB 37—Set 166-1 and PCB 50—Set 184-1) ....151—5
●5213TM (Ch. TE334) ....191—5
●6173TM (Ch. TE331-3, -4, -5) (See PCB 66—Set 203-1, PCB 92—Set 237-1 and Model 6175TM—Set 181-4)
●6173TM-UHF (Ch. TE332, -1, -2, -3, -4) (Also see PCB 88—Set 231-1) ....208—2
●6175TM (Ch. TE-331, -1, -2, -3, -4) (Also see PCB 66—Set 203-1) ....181—4
●6175TM-A (Ch. TE331-5) See PCB 66—Set 203-1, PCB 92—Set 207-1 and Model 6175TM—Set 181-4)
●6179TM (Ch. TE-331, -1, -2, -3, -4) (Also see PCB 66—Set 203-1) ....181—4
●6213TB (Ch. TE-319, -1, -2) (See PCB 67—Set 204-1 and Model 6213TM—Set 195-4)
●6213TB-UHF (Ch. TE330, -1, -2, -3, -4, -5, -6) (Also see PCB 88—Set 231-1) ....208—2
●6213TM (Ch. TE-319, -1, -2) (Also see PCB 67—Set 204-1) ....195—4
●6213TM-UHF (Ch. TE330, -1, -2, -3, -4, -5, -6) (Also see PCB 88—Set 231-1) ....208—2
●6215CB (Ch. TE-319, -1, -2) (Also see PCB 67—Set 204-1) ....195—4
●6215CB-UHF (Ch. TE330, -1, -2, -3, -4, -5, -6) (Also see PCB 88—Set 231-1) ....208—2
●6215CM (Ch. TE-319, -1, -2) (Also see PCB 67—Set 204-1) ....195—4
●6215CM-UHF (Ch. TE330, -1, -2, -3, -4, -5, -6) (Also see PCB 88—Set 231-1) ....208—2
6640 (Ch. RE-206-2) ....29—2
●7210CB (Ch. TE337, -1, -2, -3, -4, 31) (Also see PCB 93—Set 238-1) ....189—3
●7210CB-UHF (Ch. TE341, -1, -2, -3, -4, -5, -6, -41) (Also see PCB 63 Set 197-1 and PCB 94—Set 239-1) ....188—4
●7210CM (Ch. TE337, -1, -2, -3, -4, -31) (Also see PCB 93—Set 238-1) ....189—3
●7210CM-UHF (Ch. TE341, -1, -2, -3, -4, -5, -6, -41) (Also see PCB 63—Set 197-1 and PCB 94—Set 239-1) ....188—4
●7212CFP (Ch. TE337, -1, -2, -3, -4, -31) (See PCB 93—Set 238-1 and Model 7210CM—Set 189-3)
●7212CFP-UHF (Ch. TE341, -1, -2, -3, -4, -5, -6, -41) (Also see PCB 63—Set 197-1 and PCB 94—Set 239-1) ....188—4
●7212MEA-UHF (Ch. TE341, -1, -2, -3, -4, -5, -6, -41) (Also see PCB 63—Set 197-1 and PCB 94—Set 239-1) ....188—4
●7214CM (Ch. TE337, -1, -2, -3, -4, -31) (Also see PCB 93—Set 238-1) ....189—3
●7214CM-UHF (Ch. TE341, -1, -2, -3, -4, -5, -6, -41) (Also see PCB 63—Set 197-1 and PCB 94—Set 239-1) ....188—4
●7216CB (Ch. TE-337-1) (See Model 7210CM—Set 189-3)
●7216CB-UHF (Ch. TE341, -1, -2, -3, -4, -5, -6, -41) (Also see PCB 63—Set 197-1 and PCB 94—Set 239-1) ....188—4
●7218CB (Ch. TE337, -1, -2, -3, -4, -31) (Also see PCB 93—Set 238-1) ....189—3
●7218CB-UHF (Ch. TE341, -1, -2, -3, -4, -5, -6, -41) (Also see PCB 63—Set 197-1 and PCB 94—Set 239-1) ....188—4
●7218CM (Ch. TE337, -1, -2, -3, -4, -31) (Also see PCB 93—Set 238-1) ....189—3
●7218CM-UHF (Ch. TE341, -1, -2, -3, -4, -5, -6, -41) (Also see PCB 63—Set 197-1 and PCB 94—Set 239-1) ....188—4
●7219CM-UHF (Ch. TE341, -1, -2, -3, -4, -5, -6, -41) (Also see PCB 63—Set 197-1 and PCB 94—Set 239-1) ....188—4
●7276CB-UHF (Ch. TE340, -1, -2) ....231—3
●7279CM-UHF (Ch. TE340, -1, -2) ....231—3
●8171TM (Ch. TE331-6) (See PCB 66—Set 203-1, PCB 92—Set 237-1 and Model 6175TM—Set 181-4)
●8171TM-UHF (Ch. TE332-5) (See PCB 88—Set 231-1 and Model 6173TM-UHF—Set 208-2)
●8179TM (Ch. TE331-5) (See PCB 66—Set 203-1, PCB 92—Set 237-1 and Model 6175TM—Set 181-4)

ARVIN—Cont.
●8179TM-UHF (Ch. TE332-4) (See PCB 88—Set 231-1 and Model 6173TM-UHF—Set 208-2)
●8211TB (Ch. TE319-3) (See PCB 67—Set 204-1, PCB 89—Set 233-1 and Model 6213TM—Set 195-4)
●8211TB-UHF (Ch. TE330-7) (See PCB 88—Set 231-1 and Model 6213TB-UHF—Set 208-2)
●8211TM (Ch. TE319-3) (See PCB 67—Set 204-1, PCB 89—Set 233-1 and Model 6213TM—Set 195-4)
●8211TM-UHF (Ch. TE330-7) (See PCB 88—Set 231-1 and Model 6213TB-UHF—Set 208-2)
●8213TM (Ch. TE319-3) (See PCB 67—Set 204-1, PCB 89—Set 233-1 and Model 6213TM—Set 195-4)
●8213TM-UHF (Ch. TE330-6) (See PCB 88—Set 231-1 and Model 6213TB-UHF—Set 208-2)
●8213TMA (Ch. TE319-21) (See PCB 67—Set 204-1, PCB 89—Set 233-1 and Model 6213—Set 195-1)
●8213TMA-UHF (Ch. TE330-61) (See PCB 88—Set 231-1 and Model 6213TB-UHF—Set 208-2)
●8215CB-UHF (Ch. TE330-6) (See PCB 88—Set 231-1 and Model 6213TB-UHF—Set 208-2)
●8215CBA (Ch. TE319-21) (See PCB 67—Set 204-1, PCB 89—Set 233-1 and Model 6213TM—Set 195-4)
●8215CBA-UHF (Ch. TE330-61) (See PCB 88—Set 231-1 and Model 6213TB-UHF—Set 208-2)
●8215CM (Ch. TE319-2) (See PCB-67—Set 204-1, PCB 89—Set 233-1 and Model 6213TM—Set 195-4)
●8215CM-UHF (Ch. TE330-6) (See PCB 88—Set 231-1 and Model 6213TB-UHF—Set 208-2)
●8215CMA (Ch. TE319-21) (See PCB 67—Set 204-1, PCB 89—Set 233-1 and Model 6213TM—Set 195-4)
●8215CMA-UHF (Ch. TE330-61) (See PCB 88—Set 231-1 and Model 6213TB-UHF—Set 208-2)
●8218CB (Ch. TE319-3) (See PCB 67—Set 204-1, PCB 89—Set 233-1 and Model 6213TM—Set 195-4)
●8218CB-UHF (Ch. TE330-7) (See PCB 88—Set 231-1 and Model 6213TB-UHF—Set 208-2)
●8218CM (Ch. TE319-3) (See PCB 67—Set 204-1, PCB 89—Set 233-1 and Model 6213TM—Set 195-4)
●8218CM-UHF (Ch. TE330-7) (See PCB 88—Set 231-1 and Model 6213TB-UHF—Set 208-2)
●9210CB (Ch. TE358, -1, -2, -3) ....238—4
●9210CB-UHF (Ch. TE-363, -1, -2, -3) ....238—4
●9210CM (Ch. TE358, -1, -2, -3) ....238—4
●9210CM-UHF (Ch. TE363, -1, -2, -3) ....238—4
●9211TM (Ch. TE355) ....248—2
●9211TM-UHF (Ch. TE-362) 248—2
●9212CFP (Ch. TE358, -1, -2, -3) ....238—4
●9212CFP-UHF (Ch. TE363, -1, -2, -3) ....238—4
●9212MEA (Ch. TE358, -1, -2, -3) ....238—4
●9212MEA-UHF (Ch. TE363, -1, -2, -3) ....238—4
●9213TM (Ch. TE-355) ....248—2
●9213TM-UHF (Ch. TE-362) 248—2
●9215CM (Ch. TE-355) ....248—2
●9215CM-UHF (Ch. TE-362) 248—2
●9216CB (Ch. TE358, -1, -2, -3) ....238—4
●9216CB-UHF (Ch. TE363, -1, -2, -3) ....238—4
●9218CB (Ch. TE358, -1, -2, -3) ....238—4
●9218CB-UHF (Ch. TE363-1, -2, -3) ....238—4
●9218CM (Ch. TE358, -1, -2, -3) ....238—4
●9218CM-UHF (Ch. TE363, -1, -2, -3) ....238—4
●9219CM (Ch. TE358, -1, -2, -3) ....238—4
●9219CM-UHF (Ch. TE363, -1, -2, -3) ....238—4
●9240CB (Ch. TE364, -1) ....235—2
●9240CB-UHF (Ch. TE359, -1) ....235—2
●9240CM (Ch. TE364, -1) ....235—2
●9240CM-UHF (Ch. TE359, -1) ....235—2
●9245CM-UHF (Ch. TE373) ....247—3
Ch. RE-91 (See Model 442)
Ch. RE-200 (See Model 444)
Ch. RE-200M (See Model 444M)
Ch. RE-201 (See Model 544)
Ch. RE-202 (See Model 555)
Ch. RE-204 (See Model 558)
Ch. RE-206 (See Model 664)
Ch. RE-206-1, 206-2 (See Model 664 Late)
Ch. RE-209 (See Model 140P)
Ch. RE-228 (See Model 150TC)
Ch. RE-228-1 (See Model 150TC Late)
Ch. RE-229 (See Model 665)
Ch. RE-231 (See Model 552AN)
Ch. RE-232 (See Model 160T)
Ch. RE-233 (See Model 152T)
Ch. RE-237 (See Model 182TFM)
Ch. RE-242 (See Model 547A)
Ch. RE-243 (See Model 240P)
Ch. RE-244 (See Model 241P)
Ch. RE-248 (See Model 250P)
Ch. RE-251 (See Model 242T)
Ch. RE-252 (See Model 253T)
Ch. RE-253 (See Model 280TFM)
Ch. RE-254, 255, 256, 259 (See Model 241P)
Ch. RE-260 (See Model 360TFM)
Ch. RE-265 (See Model 264T)

ARVIN—Cont.
Ch. RE-267 (See Model 350P)
Ch. RE-267-1, RE-267-2 (See Model 350-PB)
Ch. RE-273 (See Model 356T)
Ch. RE-274 (See Model 341T)
Ch. RE-277, RE-277-1 (See Model 480TFM)
Ch. RE-278 (See Model 540T)
Ch. RE-278-1 (See Model 840T)
Ch. RE-280 (See Model 446P)
Ch. RE-281 (See Model 450T)
Ch. RE-284 (See Model 460T)
Ch. RE-287-1 (See Model 462-CB)
Ch. RE-288-1 (See Model 482CFB)
Ch. RE-292 (See Model 650-P)
Ch. RE-297 (See Model 551T)
Ch. RE-306 (See Model 554CCB)
Ch. RE-307 (See Model 657T)
Ch. RE-308 (See Model 553)
Ch. RE-310 (See Model 582CFB)
Ch. RE-313 (See Model 580TFM)
Ch. RE-323 (See Model 651T)
Ch. RE-327 (See Model 655SWT)
Ch. RE-333 (See Model 581TFM)
Ch. RE-342 (See Model 760T)
Ch. RE-347 (See Model 746P)
Ch. RE-348 (See Model 753T)
Ch. RE-350 (See Model 758T)
Ch. RE-352 (See Model 741T)
Ch. RE-369 (See Model 848T)
Ch. RE-372 (See Model 852P)
Ch. RE-374 (See Model 858T)
Ch. RE-375 (See Model 850T)
Ch. RE-377 (See Model 851T)
Ch. RE-378 (See Model 857T)
Ch. TE-272-1, -2 (See Model 3100TB)
Ch. TE-276 (See Model 3160CM)
Ch. TE282 (See Model 4080T)
Ch. TE-286 (See Model 4162CM)
Ch. TE-289 (See Model 2122TM)
Ch. TE-289-2, TE-289-3 (See Model 2120CM)
Ch. TE-290 (See Model 2160)
Ch. TE-300 (See Model 5204)
Ch. TE-302, -1, -2, -3, -4, -5, -5A, -6 (See Model 5170CB)
Ch. TE-315, -1, -2, -3, -4, -5, -5A, -6 (See Model 5210)
Ch. TE-319, -1, -2 (See Model 6213TM)
Ch. TE-319-3 (See Model 8211TB)
Ch. TE319-21 (See Model 8213TMA)
Ch. TE-320 (See Models 5175, 5176)
Ch. TE330, -1, -2, -3, -4, -5, -6 (See Model 6213TB-UHF)
Ch. TE330-6 (See Model 8213TM-UHF)
Ch. TE330-7 (See Model 8211TB-UHF)
Ch. TE330-61 (See Model 8215CBA-UHF)
Ch. TE-331, -1, -2, -3, -4 (See Model 6175TM)
Ch. TE 331-3 (See Model 6173TM)
Ch. TE 331-5 (See Model 8171TM)
Ch. TE332, -1, -2, -3, -4 (See Model 6173TM-UHF)
Ch. TE332-4 (See Model 8179TM-UHF)
Ch. TE332-5 (See Model 8171TB-UHF)
Ch. TE-334 (See Model 5213TM)
Ch. TE 337-1, -2, -3, -4, -31 (See Model 7210CB)
Ch. TE340, -1, -2 (See Model 7276CB-UHF)
Ch. TE 341, -1, -2, -3, -4, -5, -6, -41 (See Model 7210CB-UHF)
Ch. TE355 (See Model 9211TM)
Ch. TE-358, -1, -2, -3 (See Model 9210CB)
Ch. TE 359-1 (See Model 9240CB-UHF)
Ch. TE362 (See Model 9211TM-UHF)
Ch. TE 363, -1, -2, -3 (See Model 9210CB-UHF)
Ch. TE 364, -1 (See Model 9240CB)
Ch. TE373 (See Model 9245CM-UHF)
Ch. TE-379 (See Model 21-550KBU)
Ch. TE382 (See Model 21-550KB)
Ch. TE-383 "E" Series (See Model 21-554KM)
Ch. TE-386-UHF "E" Series (See Model 21-554KMU)

ASTATIC
CB-1 Tel. UHF Conv.-Booster 224—3
UHF (Tel. UHF Conv.) ....264—4

ASTORIA
●A-21, A-72, A-73L (Similar to Chassis) ....182—3

ASTRASONIC (Also see Pentron)
T-3 ....121—4
748 ....53—6

ATLAS
AB-45 ....14—5

AUDAR
AV-7T ....166—6
MAS-4 "Bingo Amp" ....26—6
P-1A 5-10
P-4A ....19—3
P-5 5-11
P-7 ....44—3
PR-6 13-10
PR-6A ....19—4
RE-8A ....25—8
Telvar BM-25, BMP-25 ....62—5
Telvar FMC-12 ....35—2
Telvar RER-9 ....65—2
WC-7T ....166—6

AUDIO DEVELOPMENT (ADC)
71-F ....128—3

AUTOMATIC
Tom Boy ....27—4
Tom Thumb Buddy ....53—7
Tom Thumb Camera-Radio ....49—6
Tom Thumb Jr. ....26—7
Tom Thumb Personal ATTP ....23—4
B-44 ....60—5
C51 ....178—4
C-54 ....186—2

AUTOMATIC—Cont.
C60 5-20
C-60X 24-10
C 65X (See Model C-60X—Set 24-10)
C300 ....102—1
C-351 ....148—4
CL-152B, M ....192—3
CL-164B ....192—3
CM-333 ....230—3
D200 ....104—3
D-251 ....174—4
DM-132 ....228—3
F-100 ....103—6
F-151 ....147—2
F-790 ....23—5
M-86 ....34—3
M-90 ....67—4
MM-430 ....229—3
P-651 ....173—4
PM-236 ....226—2
S-551 ....146—3
TR-12 ....228—4
●TV-P490 ....81—3
●TV-707, TV-709, TV-710 ....60—6
●TV-712 (See Model TV-707—Set 60-6)
●TV-1205 (See PCB 5—Set 106-1 and Model TV-1249—Set 103-5)
●TV-1249, TV-1250 ....103—5
●TV-1294 (See PCB 5—Set 106-1 and Model TV-1249—Set 103-5)
●TV-1605 (See Model TV-1249—Set 103-5)
●TV-1615 (See Model TV-1249—Set 103-5)
●TV-1649, TV-1650, TV-1651 143—5
●TV-1694 (See Model TV-1249—Set 103-5)
●TV-5006 ....145—4
●TV-5020 ....134—4
●TV-5061 ....145—4
●TV-5077 ....145—4
●TV-5116R ....134—4
●TV-5160 ....134—4
●TVX313 (See Model TV-707—Set 60-6)
●TVX404 (See Model TV-707—Set 60-6)
601, 602 (Series A) 13-11
601, 602 (Series B) ....22—5
612X 1-34
613X (See Model 612X—Set 1-34)
614X, 616X ....8—2
620 ....12—3
640, Series B ....10—4
660, 662, 666 ....22—6
677 ....22—7
720 ....21—4

AVIOLA (Also see Record Changer Listing)
509 ....7—3
601 ....15—3
608 ....16—6
612 ....15—3
618 ....16—6

BELL-AIR
●PL17C (Similar to Chassis) 149-13
●PL20C (Similar to Chassis) 149-13

BELL SOUND SYSTEMS
B-23 ....75—4
PA3710A-P3 (Above Serial No. 78000) ....225—6
PA3715-B ....249—4
PA3725-B ....244—3
PA3750-B ....250—5
RC-47 (RE-CORD-O-FONE) 30—3
RT-65 ....130—4
RT-65, B ....171—3
3D ....256—7
350 ....148—5
352 ....149—4
374SS ....151—6
420 ....150—4
440L, 440S "Belfone" ....25—9
2075 ....10—5
2122 ....77—3
2122A, 2122AR ....153—1
2122B ....199—2
2122R ....76—7
2145, A ....161—2
2150, 2150R ....256—8
2195, 2195MG ....234—1
2199 ....228—5
2200 ....207—1
2210 ....269—4
2255 ....276—2
2256 ....277—2
3706-M ....227—3
3710A (Above Serial No. 78000) ....225—6
3715 ....22—8
3715-B ....249—4
3717-MB, 3717MB3 ....238—5
3723-MB, -MB3 ....224—4
3725 ....22—9
3725-B ....244—3
3728M 24-11
3728MB ....235—3
3750 ....31—5
3750-B ....250—5

BELLTONE
500 5-33

BELMONT (Also see Raytheon)
A-6D110 ....17—7
3AW7 ....10—7
4B17 2-27
4B112, 4B113 (Series A) ....10—6
5D110 22-10
5D128 (Series A) ....9—4
5P19 (Series A) ....9—5
5P113 "Boulevard" ....28—2
6D111 2-33
6D120 24-12
8A59 ....6—4
●21A21 ....93A—4
●22A21, 22AX21, 22AX22 ....55—5

BENDIX
●CMTB21CS (Ch. T14-7) (See Model FB21CU—Set 213-2)
●CMTB21CU (Ch. T14-4) (See Model FB21CU—Set 213-2)
●CMTM21CS (Ch. T14-7) (See Model FB21CU—Set 213-2)

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

BENDIX—Cont.

●CMTM21CU (Ch. T14-4) (See Model FB21CU—Set **213**-2)
●C172 .... **134**—5
●C174 (See Model 2051—Set **111**-3)
●C176, B (See Model 2051—Set **111**-3)
●C182 (See Model C172—Set **134**-5)
●C192 (See Model C172—Set **134**-5)
●C200 .... **134**—5
●FB21C (Ch. T14-7) (See Model FB21CU—Set **213**-2)
●FB21CU (Ch. T-14-4) .... **213**—2
●FM21C (Ch. T14-7) (See Model FB21CU—Set **213**-2)
●FM21CU (Ch. T14-4) .... **213**—2
●FM27C (Ch. T14-3) .... **215**—3
●HB21C (Ch. T14-7) (See Model FB21CU—Set **213**-2)
●HB21CU (Ch. T14-4) .... **213**—2
●HB27C (Ch. T14-3) .... **215**—3
●HM21C (Ch. T14-7) (See Model FB21CU—Set **213**-2)
●HM21CU (Ch. T14-4) .... **213**—2
●KB21C (Ch. T14-1) (See PCB 101—Set 247-1 and Model OAK3—Set **183**-2)
●KB21C (Ch. T14-7) (See Model FB21CU—Set **213**-2)
●KB21CU (Ch. T14-4) .... **213**—2
●KM17C (Ch. T14-1) (See PCB 101—Set 247-1 and Model OAK3—Set **183**-2)
●KM21C (Ch. T14-1) (See PCB 101—Set 247-1 and Model OAK3—Set **183**-2)
●KM21CS (Ch. T14-7) (See Model FB21CU—Set **213**-2)
●KM21CU (Ch. T14-4) .... **213**—2
●KM21E (Ch. T14-15) .... **268**—3
●KM21EU (Ch. T14-16) .... **268**—3
●KMT21E (Ch. T14-15) .... **268**—3
●KMT21EU (Ch. T14-16) .... **268**—3
●OAK3 (Ch. T14-1) (Also see PCB 101—Set 247-1) .... **183**—2
PAR 80 .... **39**—3
●RB21C (Ch. T14-6) (For TV Ch. only see Model FB21CU—Set **213**-2)
●RM21C (Ch. T14-6) (For TV Ch. only see Model FB21CU—Set **213**-2)
●T170 (See Model 2051—Set **111**-3)
●T171 (See Model C172—Set **134**-5)
●T173 (See Model 2051—Set **111**-3)
●T190 (See Model 2051—Set **111**-3)
●TB21C (Ch. T14-1) (See PCB 101—Set 247-1 and Model OAK3—Set **183**-2)
●TB21CS (Ch. T14-7) (See Model FB21CU—Set **213**-2)
●TB21CU (Ch. T14-4) .... **213**—2
●TB21E (Ch. T14-15) .... **268**—3
●TB21EU (Ch. T14-16) .... **268**—3
●TB24DS, DU (Ch. T14-10, -11) .... **215**—3
●TD21C (Ch. T14-7) (See Model FB21CU—Set **213**-2)
●TM17C (Ch. T14-1) (See PCB 101—Set 247-1 and Model OAK3—Set **183**-2)
●TM21C (Ch. T14-1) (See PCB 101—Set 247-1 and Model OAK3—Set **183**-2)
●TM21CS (Ch. T14-7) (See Model FB21CU—Set **213**-2)
●TM21CU (Ch. T14-4) .... **213**—2
●TM21E (Ch. T14-15) .... **268**—3
●TM21EU (Ch. T14-16) .... **268**—3
●TM24DS, DU (Ch. T14-10, -11) .... **215**—3
0526A, 0526B, 0526C, 0526D, 0526E, 0526F .... 1—22
●17K2 (See Model C172—Set **134**-5)
●20K2, 20L2 (See Model C172—Set **134**-5)
●21KD (Ch. T14-1) (Also see PCB 101—Set 247-1) .... **183**—2
●21K3 .... **183**—2
●21T3 (Ch. T14-1) (Also see PCB 101—Set 247-1) .... **183**—2
●21T3A (Ch. T14-1) (See PCB 101—Set 247-1 and Model OAK3—Set **183**-2)
●21X3 (Ch. T14-1) (Also see PCB 101—Set 247-1) .... **183**—2
55L2, 55L3, 55P2, 55P3 .. **51**—4
55X4 .... **58**—6
65P4 .... **52**—4
69B8, 69M8, 69M9 .... **63**—3
75B5, 75M5, 75M8, 75P6, 75W5 .... **59**—5
79M7 .... **66**—3
95B3, 95M3, 95M9 .... **60**—7
110, 110W, 111, 111W, 112, 114, 115 .... **41**—3
●235B1, 235M1 (Ch. Codes MA, MB, MC, MD) .... **69**—4
300, 300W, 301, 302 .... **40**—2
●325M8 (For TV Ch. only see Model 235M1—Set **69**-4)
416A .... **43**—5
526MA, 526MB, 526MC ... **29**—3
613 .... **40**—3
626-A (0626A) .... **12**—4
636A, B, C .... **15**—4
636D (See Model 636A—Set **15**-4)
646A 2-28
656A 2-31
676B, 676C, 676D 5-23
687A .... **61**—3
697A .... **26**—8
736B .... **10**—8
753F, M, W (Ch. C-19) ... **199**—3
847-B .... **27**—5
847-S "Facto-Meter" .... **28**—3
951, 951W .... **136**—6
1217, 1217B, 1217D .... **29**—4
1217D (Late) .... **46**—5
1518, 1519 .... **37**—3
1521 .... **42**—4
1524, 1525 .... **37**—3
1531, 1533 .... **43**—6
●2001, 2002 .... **84**—4
●2020, 2021 .... **84**—4
●2025 .... **99**—5
●2051 (Also see PCB 16—Set 126-1) .... **111**—3
●2060 (Also see PCB 16—Set 126-1) .... **111**—3

BENDIX—Cont.

●2070, 2071 (See PCB 16—Set 126-1 and Model 2051—Set **111**-3)
●3001, 3002 .... **84**—4
●3030, 3031 .... **84**—4
●3033 .... **99**—5
●3051 (Also see PCB 16—Set 126-1) .... **111**—3
●6001 (Also see PCB 16—Set 126-1) .... **111**—3
●6002 .... **99**—5
●6003 (Also see PCB 16—Set 126-1) .... **111**—3
●6090 .... **111**—3
●6100 (Also see PCB 16—Set 126-1) .... **111**—3
●6920 .... **111**—3
●6990 .... **111**—3
●7001 (See PCB 16—Set 126-1 and Model 2051—Set **111**-3)
Ch. C-19 (See Model 753F)
Ch. T14-1 (See Model OAK3)
Ch. T14-3 (See Model FM27C)
Ch. T14-4 (See Model FB21CU)
Ch. T14-6 (See Model RB21C)
Ch. T14-7 (See Model FB21C)
Ch. T14-10, T14-11 (See Model TB24DS)
Ch. T14-15 (See Model KM21E)
Ch. T14-16 (See Model KM21EU)

BLONDER-TONGUE

BTU-1-(14-83) Tel. UHF Conv. .... **229**—4
BTU-2 Tel. UHF Conv. .... **254**—3
99 Tel. UHF Conv. .... **259**—3

BOGEN (See David Bogen)

BREWSTER

9-1084, 9-1085, 9-1086 .. **2**—13

BROCINER

A100 .... **232**—2
A100P .... **198**—2
CA-2 .... **200**—3
CA-2 (Serial No. 771 and up) .... **232**—2
Mark 12 .... **273**—3
UL-1 .... **229**—5

BROOK ELECTRONICS INC.

7 .... **227**—4
3B (Issue 2), 3C .... **184**—4
4B .... **230**—4
10C .... **41**—4
10C2-A .... **43**—7
10C3 .... **72**—5
10C4 (See Model 10C—Set **41**-4 and Model 4B—Set **230**-4)
10D .... **41**—4
12A .... **89**—3
12A2, 12A3 (See Model 12A—Set **89**-3 and Model 3C—Set **184**-4)
12A4 (See Model 12A—Set **89**-3 and Model 4B—Set **230**-4)
22A .... **265**—2

BROOKS LABORATORIES, INC.

ST-10 .... **195**—5
ST-10A .... **237**—3
ST-14A .... **183**—3
ST-15A .... **234**—2

BROWNING

PF-12, RJ12 .... **47**—4
RJ-12A .... **56**—6
RJ-12B .... **146**—4
RJ-14A .... **56**—6
RJ-20 .... **67**—5
RJ-20A .... **132**—3
RJ-22 .... **67**—5
RJ-42 .... **254**—4
RJ-48 .... **261**—3
RV-10 .... **46**—6
RV-10A .... **131**—3
RV-11 .... **46**—6
RV31 .... **198**—3

BRUNSWICK

BJ-6836 "Tuscany" .... **28**—4
C-3300 "Darby" .... **28**—4
D-1000, D-1100 .... **56**—7
D-6876 "Buckingham" .... **29**—5
E-6000, S, SS, SX, T-6000½ "Glascow" (See Model T-4000—Set **29**-5)
T-4000, T-4000½ "Buckingham" .... **29**—5
T-4400, T-4400½ .... **61**—4
T-9000 .... **56**—7
●512, 513 .... **163**—3
●812, 816 .... **163**—3
5000 .... **42**—5
●5125 .... **163**—3
●6165 .... **163**—3
●8125, 8165 .... **163**—3

BRUSH SOUND MIRROR (See Recorder Listing)

BRUSH MAIL-O-VOICE (See Recorder Listing)

BUICK

980690, 980733 .... **18**—9
980744, 980745 .... **19**—5
980782 .... **62**—6
980797, 980798 .... **59**—6
980868 .... **104**—4
980979 (See Model 980868—Set **104**-4)
981111 (See Model 98068—Set **104**-4)
981320 .... **217**—2
981321 .... **224**—5
981323 .... **225**—7
981550 .... **248**—3
981551 .... **257**—2

BUTLER BROS. (See Air Knight or Sky Rover)

CADILLAC (Auto Radio)

7256609 .... **60**—8
7258755 .... **109**—2
7260205 (See Model 7258755—Set **109**-2)
7260405 .... **152**—3
7260905 .... **152**—3
7264165 .... **267**—2
7264185 .... **267**—2

CALLMASTER (See Lyman)

CAPEHART

●B-504-P16 (For TV Ch. see Model 461P—Set **87**-2, For Radio Ch. see Model 35P7—Set **135**-4)
C-14 (Ch. CR-93) .... **263**—4
P-213 (Ch. CR-85) .... **234**—3
RP-152 .... **215**—4
RP153 (Ch. CR-79) .... **258**—4
RP-154B, M (Ch. CR-129 and CA-135) .... **254**—5
RP254 (Ch. CR-147) .... **258**—4
T-30 .... **141**—3
T-54 .... **265**—3
T-522 (Ch. CR-76) .... **209**—1
TC-20 (Ch. C-297) .... **132**—4
TC-62 (Ch. CR-71) .... **192**—4
TC-100 (Ch. C-297) .... **203**—5
TC-101 (Ch. CR-36) .... **203**—5
●1C213 (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●1C213M (Ch. CT-77) (Ch. Series CX-37) (See Ch. CT-77—Set **203**-4)
1P55 (Ch. CR-148) .... **268**—4
●1T17M (Ch. C-298) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●1T17MX (Ch. CT-27) (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●1T172A (Ch. CT-75) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●1T172B, M (Ch. CT-52) (Ch. Series CX-36) .... **187**—3
●1T174 (Ch. CT-99) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●1T174-1 (Ch. CT-110) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●1T174B-1 (Ch. CT-110) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●1T174BS (Ch. CT-126) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●1T174BS-1 (Ch. CT-127) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●1T174M-1 (Ch. CT-110) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●1T174MS (Ch. CT-126) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●1T174MS-1 (Ch. CT-127) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●1T174S (Ch. CT-99) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●1T174S-1 (Ch. CT-110) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2C172M (Ch. CT-52) (Ch. Series CX-36) .... **187**—3
●2T20 (Ch. C-303) (Ch. Series CX-33DX) (See PCB 13—Set 122-4, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●2T20MX (Ch. CT-38) (Ch. Series CX-33DX) (See Ch. CT-38—Set **160**-2)
2T55 (Ch. CR-154) .... **261**—4
●2T214 (Ch. CT-110) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214-1 (Ch. CT-108) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214B-1 (Ch. CT-108) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214BS (Ch. CT-128) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **20**[illegible]-4)
●2T214BS-1 (Ch. CT-129) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214D (Ch. CT-115) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214D-1 (Ch. CT-116) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214M-1 (Ch. CT-108) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214MD (Ch. CT-115) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214MD-1 (Ch. CT-116) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214MS (Ch. CT-128) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214MS-1 (Ch. CT-129) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214S (Ch. CT-128) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●2T214S-1 (Ch. CT-129) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●3C17MX (Ch. CT-27) (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●3C212A (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●3C212B, M (Ch. CT-57) (Ch. Series CX-36) .... **187**—3
●3C212MG (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●3C213 (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●3C213M (Ch. CT-77) (Ch. Series CX-37) (See Ch. CT-77—Set **203**-4)
3T55E (Ch. CR-150) .... **261**—4

CAPEHART—Cont.

●4C20X (Ch. CT-38) (Ch. Series CX-33DX) (See Ch. CT-38—Set **160**-2)
●4C174 (Ch. CT-99) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●4C174-1 (Ch. CT-110) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●4C174M-1 (Ch. CT-110) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●4C174MD (Ch. CT-99) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●4C174MS (Ch. CT-99) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●4C174MS-1 (Ch. CT-110) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●4H212A (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●4H212B, M (Ch. CT-57) (Ch. Series CX-36) .... **187**—3
●4T213 (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●4T213B, M (Ch. CT-77) (Ch. Series CX-37) (See Ch. CT-77—Set **203**-4)
●5C214 (Ch. CT-121) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●5C214-1 (Ch. CT-123) (Ch. CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●5C214B (Ch. CT-121) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●5C214B-1 (Ch. CT-123) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●5C214D (Ch. CT-115) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●5C214D-1 (Ch. CT-116) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●5C214M (Ch. CT-121) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●5C214M-1 (Ch. CT-123) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●5C214MD (Ch. CT-115) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●5C214MD-1 (Ch. CT-116) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●5F212A (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●5F212M (Ch. CT-57) (Ch. Series CX-36) .... **187**—3
●5H213 (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●5H213M (Ch. CT-77) (Ch. Series CX-37) (See Ch. CT-77—Set **203**-4)
●6F212B (Ch. CT-57) (Ch. Series CX-36) .... **187**—3
●6F213 (Ch. CT-77) (Ch. Series CT-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●6F213B (Ch. CT-77) (Ch. Series CX-37) (See Ch. CT-77—Set **203**-4)
●6H213 (Ch. CT-77) (Ch. Series CX-37) (See Ch. CT-77—Set **203**-4)
●7F212 (Ch. CT-57) (Ch. Series CX-36) .... **187**—3
●7F212A (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●7H214 (Ch. CT-121) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●7H214-1 (Ch. CT-123) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●7H214B (Ch. CT-121) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●7H214B-1 (Ch. CT-123) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●7H214D (Ch. CT-115) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●7H214D-1 (Ch. CT-116) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●7H214M (Ch. CT-121) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●7H214M-1 (Ch. CT-123) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●8F212A (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●8F212B (Ch. CT-57) (Ch. Series CX-36) .... **187**—3
●9F212A (Ch. CT-77) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●9F212M (Ch. CT-57) (Ch. Series CX-36) .... **187**—3
●9F214 (Ch. CT-121) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●9F214-1 (Ch. CT-123) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●9F214BD (Ch. CT-115) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●9F214BD-1 (Ch. CT-116) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●9F214MD (Ch. CT-115) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)

CAPEHART—Cont.

●9F214MD-1 (Ch. CT-116) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
10 (Ch. C-312) .... **166**—7
●10W212M (Ch. CTR-68) (Ch. Series CX-36) (For TV Ch. only See Model 1T172M—Set **187**-3)
●11F244 (Ch. CT-95) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●11F244-1 (Ch. CT-112) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●11F244B (Ch. CT-95) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●11F244B-1 (Ch. CT-112) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●11F244M (Ch. CT-95) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●11F244M-1 Ch. CT-112) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
11RP-125F (Ch. CR-129 and CA-135) .... **254**—5
●11W212A (Ch. CT-81) (Ch. Series CX-37) (For TV Ch. only See PCB 113—Set 264-1 and Ch. CT-81—Set **203**-4)
●11W212M (Ch. CT-58) (Ch. Series CX-36) (For TV Ch. only See Model 1T172M—Set **187**-3)
●12F272M (Ch. CT-74) (Ch. Series CX-36) .... **212**—3
●12F274 (Ch. CT-95) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●12F274-1 (Ch. CT-112) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●12F274M (Ch. CT-95) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●12F274M-1 (Ch. CT-112) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●14W214 (Ch. CT-122) (Ch. Series CX-37) (For TV Ch. only See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●14W214-1 (Ch. CT-124) (Ch. Series CX-37-1) (For TV Ch. only See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●15W214 (Ch. CT-122) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●15W214-1 (Ch. CT-124) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●15W214BD-1 (Ch. CT-134) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●15W214MD-1 (Ch. CT-134) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●16T244 (Ch. CT-95) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●16T244-1 (Ch. CT-112) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●16T244BS (Ch. CT-130) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●16T244BS-1 (Ch. CT-131) (Ch. Series CX-37-1) (See PCB113—See 264-1 and Ch. CT-75—Set **203**-4)
●16T244ES (Ch. CT-130) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●16244ES-1 (Ch. CT-131) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●16T244M (Ch. CT-95) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●16T244M-1 (Ch. CT-112) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●16T244MS (Ch. CT-130) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●16T244MS-1 (Ch. CT-131) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●16T244S (Ch. CT-130) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●16T244S-1 (Ch. CT-131) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●18W214FD-1 (Ch. CT-134) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●19C214M (Ch. CT-143) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●19C214M-1 (Ch. CT-144) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●19C214MD (Ch. CT-145) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●19C214MD-1 (Ch. CT-146) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
19N4, 21P4 .... **65**—3
●21T214ES (Ch. CT-143) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●21T214ES-1 (Ch. CT-144) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
●23C214B (Ch. CT-143) (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●23C214B-1 (Ch. CT-144) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250
● Denotes Television Receiver.

CAPEHART—Cont.

●23C214M (Ch. CT-143) (Ch. Series CX-37) See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●23C214M-1 (Ch. CT-144) (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
24N4, 24P4, 26N4 .... **65**—3
29P4, 30P4, 31N4, 31P4 ... **65**—3
32P9, 33P9 .... **64**—3
34P10 (See Model 32P9—Set **64**-3)
35P7 (Ch. P7) .... **135**—4
114N4 .... **65**—3
115P2 .... **67**—6
116N4, 116P4, 118P4 .... **65**—3
●319 (Ch. C-298) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●319AX (Ch. CT-27) (Ch. CX-33DX) (See Ch. CT-27—Set **160**-2)
●320 (Ch. C-289) (Ch. Series CX-33L) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●320BX, MX (Ch. CT-27) (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●321 (Ch. C-281) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●321A (Ch. C-298) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●321AX (Ch. CT-27) (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●322B, M (Ch. C-281) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●322RAB, RAM (Ch. C-298) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●322RA-X (Ch. CT-27) (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●322RB, RM (Ch. C-281) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●323M (Ch. C-286) (Ch. Series CX-33F) (Also see PCB 13—Set 122-1 and PCB 24—Set 142-1) **112**—3
●324B, M (Ch. C-298) (Ch. Series CX-33) (Also see PCB 13—Set 122-1 and PCB 24—Set **142**-1)
●324BX (Ch. CT-27) (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●325AF (Ch. C-298) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●325AFX (CT-27) (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●325F (Ch. C-281) (Ch. Series CX-33) (Also see PCB 13—Set 122-1 and PCB 24—Set 142-1) **112**—3
●326-M (Ch. C-298) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●326MX (Ch. CT-27) (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●327M (Ch. C-285) (Ch. Series CX-33) (For TV Ch. only see PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●328 (Ch. C-299) (Ch. Series CX-33) (For TV Ch. only see PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●328CX, X (Ch. CT-37) (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●331B, M (Ch. C-303) (Ch. Series X-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-2)
●331BX, MX (Ch. CT-38) (Ch. Series CX-33DX) (See Ch. CT-38—Set **160**-2)
●332B, M (Ch. C-286, C-204) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●333M (Ch. C-286) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●334M, 335B, M (Ch. C-303) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●335BX, MX (Ch. CT-38) (Ch. Series CX-33DX) (See Ch. CT-38—Set **160**-2)
●336C (Ch. C-296) (Ch. Series CX-33) (See PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●336CX, FX (Ch. CT-38) (Ch. Series CX-33DX) (See Ch. CT-38—Set **160**-2)
●337CMX (Ch. CT-47) (Ch. Series CX-33DX) (For TV Ch. only see Ch. CT-27—Set **160**-2)
●337M (Ch. C-292) (Ch. Series CX-33K) (For TV Ch. only see PCB 13—Set 122-1, PCB 24—Set 142-1 and Model 323M—Set **112**-3)
●337RACMX (Ch. CT-39) (Ch. Series CX-33DX) (For TV Ch. only see Ch. CT-27—Set **160**-2)
●337RCMX (Ch. CT-47) (Ch. Series CX-33DX) (For TV Ch. only see Ch. CT-27—Set **160**-2)
●337RM (Ch. CT-39) (Ch. Series CX-33DX) (For TV Ch. only see Ch. CT-27—Set **160**-2)
●338X (Ch. CT-45) (Ch. Series CX-33DX) (See Ch. CT-45—Set **160**-2)

CAPEHART—Cont.

●339MX (Ch. CT-38) (Ch. Series CX-33DX) (See Ch. CT-38—Set **160**-2)
●340X, 341X (Ch. CT-45) (Ch. Series CX-33DX) (See Ch. CT-45—Set **160**-2)
413P, 414P .... **67**—6
●461P, 462P12 .... **87**—2
●501P, 502P, 504P (For TV Ch. see Model 461P—Set **87**-2, for Radio Ch. see Model 35P7—Set **135**-4)
●610P, 651P, 661P .... **95A**—1
1002F, 1003M, 1004B (Ch. P-8) .... **135**—4
1005B, M, W (Ch. C-296) .. **132**—5
1006B, M, W (Ch. C-287) .. **132**—5
1007AM (Ch. C-318) ..... **150**—5
●3001, 3002 (Ch. C-272) (Ch. Series CX-30) .... **99A**—1
●3001, 3002 (Ch. C-272) (Ch. Series CX-30A-2) .... **99A**—2
●3004-M (Ch. C-268) (Ch. Series CX-31) (See Ch. CX-31—Set **93A**-5)
●3005 (Ch. C-268) (Ch. Series CX-32) (See Ch. CX-32—Set **93A**-5)
●3006-M (Ch. C-274) (Ch. Series CX-31) (See Ch. CX-31—Set **93A**-5)
●3007 (Ch. C-276) (Ch. Series CX-30) .... **99A**—2
●3008 (Ch. C-297) (Ch. Series CX-32) (See Ch. CX-32—Set **93A**-5)
●3011B, M, 3012B, M (Ch. C-281) (Ch. Series CX-33) ..... **112**—3
●4001-M (Ch. C-268) (Ch. Series CX-31) (See Ch. CX-31—Set **93A**-5)
●4002-M (Ch. C-274) (Ch. Series CX-31) (See Ch. CX-31—Set **93A**-5)
Ch. C-268 (See Model 3004-M)
Ch. C-272 (See Model 3001)
Ch. C-274 (See Model 3006-M)
Ch. C-276 (See Model 3007)
Ch. C-279 (See Model 3008)
Ch. C-281 (See Model 321)
Ch. C-285 (See Model 327M)
Ch. C-286 (See Model 323M)
Ch. C-287 (See Model 1006B)
Ch. C-289 (Ch. Model 320)
Ch. C-292 (See Model 337M)
Ch. C-296 (See Model 336C)
Ch. C-297 (See Model TC-20)
Ch. C-298 (See Model 1T17M)
Ch. C-299 (See Model 328)
Ch. C-303 (See Model 2T20)
Ch. C-312 (See Model 10)
Ch. C-318 (See Model 1007AM)
Ch. CA-135 (See Model RP-154B)
Ch. CR-36 (See Model TC-101)
Ch. CR-71 (See Model TC-62)
Ch. CR-76 (See Model T-522)
Ch. CR-79 (See Model RP153)
Ch. CR-85 (See Model P-213)
Ch. CR-93 (See Model C-14)
Ch. CR-129 (See Model RP-154B)
Ch. CR-147 (See Model RP254)
Ch. CR-148 (See Model 1P55)
Ch. CR-150 (See Model 3T55E)
Ch. CR-154 (See Model 2T55)
●Ch. CT-27 (Ch. Series CX-33DX) .... **160**—2
●Ch. CT-37 (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●Ch. CT-38 (Ch. Series CX-33DX) .... **160**—2
●Ch. CT-39 (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●Ch. CT-45 (Ch. Series CX-33DX) .... **160**—2
●Ch. CT-47 (Ch. Series CX-33DX) (See Ch. CT-27—Set **160**-2)
●Ch. CT-52 (Ch. Series CX-36) (See Model 1T172M)
●Ch. CT57 (Ch. Series CX-36) (See Model 3C212B)
●Ch. CT-58 (Ch. Series CX-36) (See Model 11W212M)
●Ch. CT-74 (See Model 12F272M)
Ch. CT-75 (Ch. Series CX-37) (Also See PCB 113—Set 264-1) **203**—4
Ch. CT-77 (Ch. Series CX-37) (Also See PCB 113—Set 264-1) **203**—4
Ch. CT-81 (Ch. Series CX-37) (Also See PCB 113—Set 264-1) **203**—4
Ch. CT-95 (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-99 (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-108 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-110 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-112 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-115 (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-116 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-77—Set **203**-4)
Ch. CT-121 (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-122 (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-123 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-124 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-126 (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-127 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-128 (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)

CAPEHART—Cont.

Ch. CT-129 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-130 (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-131 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-134 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-143 (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-144 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-145 (Ch. Series CX-37) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
Ch. CT-146 (Ch. Series CX-37-1) (See PCB 113—Set 264-1 and Ch. CT-75—Set **203**-4)
●Ch. CTR-68 (See Model 10W212M)
Ch. P-7 (See Model 35P7)
Ch. P-8 (See Model 1002F)
Ch. Series CX-30, A (See Model 3001)
Ch. Series CX-30-A-2 (See Model 3001)
Ch. Series CX-31 (See Model 3004-M)
Ch. Series CX-32 (See Model 3005)
Ch. Series CX-33 (See Model 325F)
Ch. Series CX-33F (See Model 323M)
Ch. Series CX-33L (See Model 326-M)
Ch. Series CX-33DX (See Ch. CT-27)
Ch. Series CX-36 (See Model 1T172M)
Ch. Series CX-37 (See Ch. CT-75)

CAPITOL

D-17 .... **30**—4
T-13 .... **28**—5
U-24 .... **29**—6

CARDWELL, ALLEN D.

CE-26 .... **14**—6
ES-1 (Tel. UHF Conv.) .... **263**—5

CAVENDISH (See Bell Air)

CAVALIER

4CL4 .... **273**—4
4P3 .... **266**—4
5AT1 .... **241**—4
5B1 .... **238**—6
5C1 .... **242**—4
5R1 .... **265**—4
6A2 .... **265**—5

CBS-COLUMBIA (Also see Air King)

●17C18 (Ch. 817, -1) ...... **188**—5
●17C18 (Ch. 817-2) (See Model 18C18—Set **214**-2)
●17M06 (Ch. 750-3) (See Model 18C18—Set **214**-2)
●17M18 (Ch. 817, -1) ...... **188**—5
●17M18 (Ch. 817-2) (See Model 18C18—Set **214**-2)
●17T18 (Ch. 817, -1) ...... **188**—5
●17T18 (Ch. 817-2) (See Model 18C18—Set **214**-2)
●18C18 Ch. 817-6) .... **214**—2
●18L18 (Ch. 817-2) (See Model 18C18—Set **214**-2)
●18L18 (Ch. 817-6) .... **214**—2
●18M08 (Ch. 817-2) (See Model 18C18—Set **214**-2)
●18M08 (Ch. 817-6) .... **214**—2
●18M18 (Ch. 817-6) .... **214**—2
●18M28 (Ch. 817-6) (See Model 18C18—Set **214**-2)
●18M28 (Ch. 817-46, -86) . **255**—3
●18M38 (Ch. 817-6) (See Model 18C18—Set **214**-2)
●18M38 (Ch. 817-46, -86) .. **255**—3
●18T18 (Ch. 817-6) .... **214**—2
●18T28 (Ch. 817-6) (See Model 18C18—Set **214**-2)
●18T28 (Ch. 817-46, -86) .. **255**—3
●20M18 (Ch. 820, -1) ..... **188**—5
●20M18 (Ch. 820-2) (See Model 18C18—Set **214**-2)
●20M28 (Ch. 820, -1) ..... **188**—5
●20M28 (Ch. 820-2) (See Model 18C18—Set **214**-2)
●20T18 (Ch. 820, -1) ..... **188**—5
●20T18 (Ch. 820-2) (See Model 18C18—Set **214**-2)
●21C11, B (Ch. 1021) ..... **199**—4
●21C18 (Ch. 821) (See Model 17C18—Set **188**-5)
●21C21 (Ch. 1021) .... **199**—4
●21C31B (Ch. 1021) .... **199**—4
●21C41 (Ch. 1021) .... **199**—4
●21T11 (Ch. 1021) .... **199**—4
●22C06 (Ch. 751-3) (See Model 18C18—Set **214**-2)
●22C08 (Ch. 821-6, -6A) .. **214**—2
●22C11, B (Ch. 1021) (See Model 21C11—Set **199**-4)
●22C18 (Ch. 821-6, -6A) .. **214**—2
●22C21 (Ch. 1021) (See Model 21C11—Set **199**-4)
●22C28 (Ch. 821-6, -6A) .. **214**—2
●22C31B (Ch. 1021) (See Model 21C11—Set **199**-4)
●22C38 (Ch. 751-3) (See Model 18C18—Set **214**-2)
●22C38 (Ch. 821-3) (See Model 18C18—Set **214**-2)
●22C38 (Ch. 822-1, -2, -3, -4, -10) .... **255**—3
●22C41 (Ch. 1021) (See Model 21C11—Set **199**-4)
●22C48, B (Ch. 821-4) (See Model 18C18—Set **214**-2)
●22C48, B (Ch. 822-1, -2, -3, -4, -10) .... **255**—3
●22C58 (Ch. 822-1, -2, -3, -4, -10) .... **255**—3
●22C58 (Ch. 821-4) (See Model 18C18—Set **214**-2)
●22C61B (Ch. 1021-2) ..... **230**—5

CBS-COLUMBIA—Cont.

●22C68, B (Ch. 822-1, -2, -3, -4, -10) .... **255**—3
●22C68, B (Ch. 821-4) (See Model 18C18—Set **214**-2)
●22C78, B (Ch. 822-1, -2, -3, -4, -10) .... **255**—3
●22C78, B (Ch. 821-4) (See Model 18C18—Set **214**-2)
●22C88, B (Ch. 822-1, -2, -3, -4, -10, ... **255**—3
●22K38 (Ch. 821-20 and Radio Ch. 2A1) .... **255**—3
●22L18 (Ch. 821-6, -6A) ... **214**—2
●22M08, 22M18 (Ch. 821-6, -6A) .... **214**—2
●22M28 (Ch. 821-4) (See Model 18C18—Set **214**-2)
●22M28 (Ch. 822-1 -2, -3, -4, -10) .... **255**—3
●22M38 (Ch. 821-4) (See Model 18C18—Set **214**-2)
●22M38 (Ch. 822-1, -2, -3, -4, -10, ... **255**—3
●22T11 (Ch. 1021) (See Model 21C11—Set **199**-4)
●22T18 (Ch. 821-6, -6A) .. **214**—2
●22T28, B (Ch. 821-4) (See Model 18C18—Set **214**-2)
●22T28, B (Ch. 822-1, -2, -3, -4, -10) .... **255**—3
●22T38, B (Ch. 822-1, -2, -3, -4, -10) .... **255**—3
●27C31 (Ch. 1027-1) ...... **231**—4
515A, 516A, 517A .... **223**—4
525, 526 .... **222**—4
540, 541 .... **211**—4
545, 546 (See Model 540—Set **211**-4)
2001 Tel. UHF Conv. ...... **207**—2
5220 .... **261**—5
Ch. 2A1 (See Model 22K38)
Ch. 750-3 (See Model 17M06)
Ch. 751-3 (See Model 22C06)
Ch. 817, -1 (See Model 17C18)
Ch. 817-2 (See Model 17C18)
Ch. 817-6 (See Model 18C18)
Ch. 817-46 (See Model 18M28)
Ch. 817-86 (Se Model 18M28)
Ch. 820, 820-1 (See Model 20M18)
Ch. 820-2 (See Model 20M18)
Ch. 821 (See Model 21C18)
Ch. 821-3 (See Model 22C38)
Ch. 821-4 (See Model 22C48)
Ch. 821-6, -6A (See Model 22C08)
Ch. 821-20 (See Model 22K38)
Ch. 822-1, -2, -3, -4 (See Model 22C38)
Ch. 822-10 (See Model 22C38)
Ch. 1021 (See Model 21C11)
Ch. 1021-2 (See Model 22C61B)
Ch. 1027-1 (See Model 27C31)

CENTURY (Also see Industrial Television)

●226, 326 (Ch. IT-26R, IT-35R, IT-39R, IT-46R) .... **99A**—7
●721, 821, 921, 1021 (Ch. IT-21R) .... **97A**—8

CENTURY (20th)

100X, 101, 104 .... **12**—5
200 .... **21**—5
300 .... **21**—6

CHALLENGER

CC8 .... **63**—4
CC18 .... **67**—7
CC30 .... **68**—6
CC60 .... **70**—3
CC618 .... **66**—4
CD6 .... **65**—4
HF8 .... **257**—3
20R .... **69**—5
60R .... **62**—7
200 .... **69**—5
600 .... **62**—7

CHANCELLOR (Also see Radionic)

35P .... **30**—25

CHEVROLET

985792 .... **6**—5
985793 .... **19**—6
986067 .... **90**—2
986146 .... **28**—6
986240 .... **75**—5
986241 .... **58**—7
986388 .... **104**—5
986443 .... **189**—4
986515 .... **149**—5
986516 .... **150**—6
986668 .... **219**—2
986669 .... **224**—6
986771 .... **262**—4
987086 .... **276**—3

CHRYSLER (See Mopar)

CISCO

1A5 .... **37**—4
9A5 .... **20**—3

CLARION

C100 .... **1**—5
C101 .... **5**—9
C102 .... **9**—6
C103 .... **6**—6
C104 .... **1**—4
C105 (See Model C-104—Set **1**-4)
C105A .... **6**—7
C108 (Ch. 101) .... **5**—8
11011 .... **17**—8
11305 .... **18**—11
11411-N .... **30**—5
11801 .... **23**—6
11802V-M (See Model 11801—Set **23**-6)
12110M .... **54**—5
12310-W .... **31**—6
12708 .... **41**—5
12801 .... **61**—5
13101 .... **46**—7
13201, 13203 .... **62**—8
14601 .... **60**—9
14965 .... **66**—5
16703 .... **102**—2

CLARK

PA-10 .... **12**—6
PA-10A .... **18**—12
PA-20 .... **13**—12

CLARK—Cont.

PA-20A .... **18**—13
PA-30 .... **19**—7

CLEARSONIC (See U. S. Television)

COLLINS AUDIO PRODUCTS

FMA-6 .... **99**—6
45-D .... **72**—6

COLLINS RADIO

51J-3 .... **260**—6
75A-1 .... **34**—4
75A-2 .... **171**—4

COLUMBIA RECORDS

202 .... **219**—3
326 .... **275**—5
360 Series "B" .... **215**—5

COMMANDER INDUSTRIES

Commander 3 Tube Record Player .... **17**—10
CD61P .... **19**—9

CONCERTONE (See Recorder Listing)

CONCORD

1N434, 1N435, 1N436 (Similar to Chassis) .... **98**—5
1N437 (Similar to Chassis). **121**—2
1N549 (Similar to Chassis). **38**—5
1N551 (Similar to Chassis). **38**—6
1N554, 1N555 (Similar to Chassis) .... **55**—10
1N556, 1N557 (Similar to Chassis) .... **109**—7
1N559 (Similar to Chassis). **90**—7
1N560 (Similar to Chassis). **109**—7
1N561, 1N562 (Similar to Chassis) .... **97**—8
1N563 (Similar to Chassis). **136**—10
1N819 (Similar to Chassis). **69**—7
6C51B .... **19**—8
6C51W .... **19**—8
6E51B .... **20**—4
6F26W .... **19**—10
6R3ARC .... **21**—7
6T61W .... **22**—11
7G26C .... **20**—5
7R3APW .... **21**—7
1-402, 1-403 .... **45**—6
1-411 .... **48**—5
1-501 (See Model 6E51B—Set **20**-4)
1-504 .... **55**—6
1-509, 1-510 (Se Model 6C51B—Set **19**-8)
1-516, 1-517 .... **49**—7
1-601, 1-602, 1-603 (See Model 7G26C—Set **20**-5)
1-606 .... **45**—7
1-608 (See Model 6F26W—Set **19**-10)
1-609 (See Model 6T61W—Set **22**-11)
1-611 .... **46**—8
1-1201 .... **55**—7
2-105 (See Model 315WL—Set **53**-8)
2-106 .... **54**—6
2-200, 2-201, 2-218, 2-219, 2-232, 2-235, 2-236 , 2-237, 2-238, 2-239, 2-240 .... **62**—9
315WL, 315 WM .... **53**—8
325WL, 325 WN (See Model 2-106—Set **54**-6)

CONRAC

●10-M-36, 10-W-36 (Ch. 36) (See Ch. 36)
●11-B-36 (Ch. 36) (See Ch. 36)
●12-M-36, 12-W-36 (Ch. 36) (See Ch. 36)
●13-B-36 (Ch. 36) (See Ch. 36)
●14-M-36, 14-W-36 (Ch. 36) (See Ch. 36)
●15-P-36 (Ch. 36) (See Ch. 36)
●16-B-36 (Ch. 36) (See Ch. 36)
●17-P-39 (Ch. 39) (See Ch. 39)
●18-M-39, 18-W-39 (Ch. 39) (See Ch. 39)
●20-M-39, 20-W-39 (Ch. 39) (See Ch. 39)
●21-B-39 (Ch. 39) (See Ch. 39)
●22-P-39 (Ch. 39) (See Ch. 39)
●23-M-390, 23-W-390 (Ch. 39) (See Ch. 39)
●24-M-36 (Ch. 36) (See Ch. 36)
●25-W-36 (Ch. 36) (See Ch. 36)
●26-B-36 (Ch. 36) (See Ch. 36)
●27-M-40, 27-W-40 (Ch. 40) (See Ch. 40)
●28-B-40 (Ch. 40) (See Ch. 40)
●29-P-40 (Ch. 40) (See Ch. 40)
●30-M-40, 30-W-40 (Ch. 40) (See Ch. 40)
●31-P-40 (Ch. 40) (See Ch. 40)
●32-M-44, 32-W-44 (Ch. 44) (See Ch. 44)
●33-B-44 (Ch. 44) (See Ch. 44)
●34-P-44 (Ch. 44) (See Ch. 44)
●35-M-61, 35-W-61 (Ch. 61) (See Ch. 61)
●36-B-61 (Ch. 61) (See Ch. 61)
●37-P-61 (Ch. 61) (See Ch. 61)
●38-B-61, 38-M-61 (Ch. 61) (See Ch. 61)
●39-M-61 (Ch. 61) (See Ch. 61)
●40-M-64, 40-W-64 (Ch. 64) (See Ch. 64)
●41-B-64 (Ch. 64) (See Ch. 64)
●42-P-64 (Ch. 64) (See Ch. 64)
●43-B-64, 43-M-64 (Ch. 64) (See Ch. 64)
●Ch. 36 .... **110**—4
●Ch. 39 .... **110**—4
●Ch. 40 Series .... **140**—4
●Ch 44 (See PCB 27—Set 148-1 and Ch. 40—Set **140**-4)
●Ch. 61, 64 Series .... **185**—5

CONTINENTAL ELECTRONICS (See Skyweight)

CONVERSA-FONE

MS-5 (Master Station) SS-5 (Sub-Station) .... **16**—7

CO-OP

6AWC2, 6AWC3, 6A47WCR, 6A47-WT, 6A47WTR .... **56**—8

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200 ● Denotes Television Receiver.
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250 ● Denotes Television Receiver.

CROSLEY—Cont.

●H-21COBH, H-21COBU (Ch. 431-2) 263—6
●H-21COMH, H-21COMU (Ch. 431-2) 263—6
●H-21COSBH, H-21COSBU 263—6
●H-21COWH, H-21COWU (Ch. 431-2) 263—6
●H21HCBH, H-21HCBU (Ch. 431-2) 263—6
●H-21HCWH, H-21HCWU (Ch. 431-2) 263—6
●H-21TOBH (Ch. 431, -2) 263—6
●H-21TOMH (Ch. 431, -2) 263—6
●H-21TOWH (Ch. 431, -2) 263—6
●S11-442M1U, S11-444MU, S11-453MU (Ch. 331-4) 153—3
●S11-459MU (Ch. 321-4) 153—3
●S11-472B1U, S11-474BU (Ch. 331-4) 153—3
●S17CDC1, S17CDC2, S17CDC3, S17CDC4 (Ch. 331-4) 153—3
●S17COC1, S17COC2, S17COC3 (Ch. 331-4) 153—3
9-101 58—8
9-102 50—4
9-103, 9-104W 60—10
9-105, 9-106W 59—7
9-113, 9-114W 53—9
9-117 51—5
9-118W 50—4
9-119, 9-120W 50—5
9-121, 9-122W 54—8
9-201, 9-202M, 9-203B 52—5
9-204, 9-205M 63—5
9-207M 57—6
9-209, 9-212M 53—10
9-213B (See Model 9-209—Set 53-10)
9-214M, 9-214ML 65—6
9-302 47—6
●9-403M, 9-403M-2 79—4
●9-404M 79—4
●9-407, 9-407M-1, 9-407M-2 66—6
●9-409M3 94—3
●9-413B, 9-413B-2, 9-414B 79—4
●9-419M1, 9-419M1-LD, 9-419M2, 9-419M3, 9-419M3-LD 94—3
●9-420M 79—4
●9-422M, 9-422MA 81—6
●9-423M 91A—4
●9-424B 79—4
●9-425 95A—2
10-135, 10-136E, 10-137, 10-138, 10-139, 10-140 (Ch. 285) 93—3
10-307M, 10-308, 10-309 80—4
●10-401 95—2
●10-404MU, 10-404M1U 114—3
●10-412MU 114—3
●10-414MU 116—4
●10-414M1 (Ch. 292) (See Model 10-414MU—Set 116-4)
●10-416MU 116—4
●10-416M1, 10-416M-U (Ch. 292) (See Model 10-414MU—Set 116-4)
●10-418MU 114—3
●10-419MU 104—6
●10-420MU 114—3
●10-421MU 106—4
●10-427MU 125—1A
●10-428MU 129—5
●10-429M (Ch. 292) (See Model 10-414MU—Set 116-4)
●10-429MU 116—4
11-100U, 11-101U, 11-102U, 11-103U, 11-104U, 11-105U (Ch. 301) 127—5
11-106U, 11-107U, 11-108U, 11-109U (Ch. 302) 155—5
11-114U, 11-115U, 11-116U, 11-117U, 11-118U, 11-119U (Ch. 330) 135—5
11-126U, 11-127U, 11-128U, 11-129U (Ch. 312) 125—5
11-207MU, 11-208BU (Ch. 333) 142—6
11-301U, 11-302U, 11-303U, 11-304U, 11-305U (Ch. 303) 124—3
●11-441MU (Ch. 320) 147—4
●11-442MU (Ch. 331) 126—4
●11-443MU (See PCB 22—Set 138-1 and Model 11-442—Set 126-4)
●11-445MU (Ch. 321, -1, -2) 126—4
●11-446MU (Ch. 325) 126—4
●11-447MU (Ch. 321, -1, -2) 126—4
●11-453MU (Ch. 331) 126—4
●11-459M1U, MU (Ch. 321, -1, -2) 126—4
●11-460MU (Ch. 331) 126—4
●11-461 WU (Ch. 320) 147—4
●11-465WU (Ch. 321, -1, -2) 126—4
●11-470BU (Ch. 331) 126—4
●11-471 BU (Ch. 320) 147—4
●11-472BU (Ch. 331) 126—4
●11-473BU (See PCB 22—Set 138-1 and Model 11-442—Set 126-4)
●11-475BU (Ch. 321, -1, -2) 126—4
●11-476BU (Ch. 325) 126—4
●11-477BU (Ch. 321, -1, -2) 126—4
●11-483BU (Ch. 331) 126—4
11-550MU (Ch. 337) 139—5
11-560BU (Ch. 337) 139—5
●17CDC1, 17CDC2, 17CDC3, 17-CDC4 (Ch. 331, -1, -2) (See Model 11-442—Set 126-4)
●17COC1, 17COC2, 17COC3 (Ch. 331, -1) (See Model 11-442—Set 126-4)
46FA, 46FB 15—5
56FA, 56FB, 56FC 31—7
56PA, 56PB 10—9
56TA-L, 56TC-L 4—9
56TD 21—9
56TG 4—3
56TJ 5—14
56TN-L, 56TW-L 4—9
56TP 8—5
56TR, 56TS 17—11
56TU 10—13
56TZ 33—2
57TQ (See Model 56TQ—Set 33-2)
58TA 36—4
58TC (See Model 58TW—Set 38-2)
58TK 34—5
58TL 36—4
58TW 38—2

CROSLEY—Cont.

66CA, CP, CQ (See Model 66CS—Set 18-14)
66CS, 66CSM 18—14
66TA, 66TC, 66TW 5—15
68CP, 68CR 37—5
68TA, 68TW 40—4
86CR, 86CS 12—10
86CR, 86CS (Revised) 36—5
87CQ 36—5
88CR (See Model 87CQ—Set 36-5)
88TA, 88TC 38—3
88TA, 88TC (Revised) (See Set 43-8 and Model 88TA—Set 38-3)
106CP, 106CS 7—6
146CS 25—10
148CP, 148CQ 42—6
148CR (See Model 148CP—Set 42-6)
154927 Tel. UHF Conv. 221—5
Ch. 10E, 10E-1 (See Model E10BE)
Ch. 15-20E (See Model E15BE)
Ch. 30E, 30E-1 (See Model E30BE)
Ch. 75E (See Model E-75)
Ch. 85E (See Model E-85)
Ch. 90E (See Model E-90BK)
Ch. 110F (See Model F-110BE)
Ch. 292 Tel. Rec. (See Model 10-414MU)
Ch. 301 (See Model 11-100U)
Ch. 302 (See Model 11-106U)
Ch. 303 (See Model 11-301U)
Ch. 311, -1 (See Model D-25BE)
Ch. 312 (See Model 11-126U)
Ch. 320 (See Model 11-441MU)
Ch. 321, 321-1, 321-2 (See Model 11-445MU)
Ch. 321-4 (See Model S11-442M1U)
Ch. 323 (See Model 11-443MU)
Ch. 323-3, 323-4 (See Model 20CD1)
Ch. 325 (See Model 11-446MU)
Ch. 330 (See Model 11-114U)
Ch. 331, -1, -2 (See Model 11-442)
Ch. 331-4 Tel. Rec. (See Model S11-442M1U)
Ch. 333 (See Model 11-207MU)
Ch. 337 (See Model 11-550MU)
Ch. 356-1, 356-2 (See Model DU-17CDB)
Ch. 356-3, -4 (See Model DU-17CDB)
Ch. 357 (See Model DU-20CDM)
Ch. 357-1 (See Model DU-21CDM1)
Ch. 359 (See Model DU-17PDM)
Ch. 360 (See Model DU-17PDB)
Ch. 380 (See Model EU-17CDM)
Ch. 381 (See Model EU-21CDB)
Ch. 383 (See Model EU-17COM)
Ch. 384 (See Model EU-21CDB)
Ch. 385, 386, 387 (See Model EU-17COL)
Ch. 386 (See Model EU-21COLBd)
Ch. 387 (See Model EU-21COLBe)
Ch. 390, 391 (See Model EU-21-CDBU)
Ch. 392 (See Model EU-21PDBU)
Ch. 393 (See Model EU-21TOLBU)
Ch. 394 (See Model 21CDLBU)
Ch. 396 (See Model EU-17COLBU)
Ch. 402 (See Model F-17TOLBH)
Ch. 402-1 (See Model F-17TOLBU)
Ch. 402-4 (See Model F-17TOSBH)
Ch. 402-5 (See Model F-17TOSBU)
Ch. 403 (See Model F-21TOLBH)
Ch. 403-1 (See Model F-21TOLBU)
Ch. 404 (See Model F-21CDLBH)
Ch. 404-1 (See Model F-21CDLBU)
Ch. 404-4 (See Model F-21CDLBH)
Ch. 404-5 (See Model F-21CDLBU-1)
Ch. 411, -1 (See Model F-24COLB)
Ch. 412, -1 (See Model F-24CDBH)
Ch. 416, -1 (See Model F-27COBH)
Ch. 426 (See Model G-17TOBH)
Ch. 431 (See Model G-21TOBH)
Ch. 431-2 (See Model H-21COBH)

CROYDON

●C17FM (Also see PCB 57—Set 191-1) 186—4
●C21FM, C21FTM (Also see PCB 57—Set 191-1) 186—4

CRYSTAL PRODUCTS (See Coronet)

DALBAR

Barcombo Jr., Barcombo Sr. 10—14
M8 "Tonamatic" 8—34
100-1000 Series 10—15
400 9—9

DAVID BOGEN

"Twin" 213—3
AMB-1 TV Booster 246—3
AM901 195—6
AM901-1 (See Model AM901—Set 195-6)
BB-1A TV Booster 228—7
BIB-1 (TV Booster) 261—6
DB-10 102—4
DB10A 253—5
DB10-1 (See Model DB10 — Set 102-4)
DB15, G 273—5
DB20 237—6
DO10 231—5
DO30A 270—3
DP-16 166—8
EQR 227—6
ET16 234—6
EX326 76—9
E66 85—4
E75 83—2
FC-1 250—6
FM400A 274—5
FM801 198—4
FR-1 250—6
G-50 30—6
GO-50 26—9
GO-125 22—12
GX50 25—11
H15 80—6
H30 79—5
H50, HL50, H2L50 78—6
H623 71—8
HE-10 154—3
HOH, HOL 80—5
HO10 183—5

DAVID BOGEN—Cont.

HO50 84—5
HO125 87—4
HX30 82—4
HX50 75—7
HX-632 169—5
JOH, JOL 253—6
JX30 257—4
JX50 255—4
J50 258—5
LOH, LOL 80—5
LP16 86—4
LSC 227—6
PH10 73—3
PH10-1 (See Model PH10—Set 68-5)
PR 242—5
PS-1 250—6
PX 183—5
PX10 68—5
PX15 72—7
R300 238—7
R501 33—3
R602 67—8
R604 175—9
R640, R640G 268—5
R701 227—6
R750 277—3
RC 242—5
RP-1, RP-1L 241—5
RP500 243—3
RX 183—5
R300 238—7
R501 33—3
R602 67—8
R604 175—9
R701 227—6
SA10-40 252—6
UCT (Tel. UHF Conv.) 262—6
UCT-1 UHF Conv. 249—6
UP16 86—4
VP17, VP17X 259—4
2AR, 2RS 28—8
11D 77—5
11U 76—10
11X 74—2
21D 77—5
21U 76—10
21X 74—2

DEARBORN

100 22—13

DECCA

DP11 24—15
DP29 19—13
PT-10 25—12

DELCO

R-705 42—7
R-1227, R-1228, R-1229 15—6
R-1230-A, R-1231-A, R-1232-A 14—33
R-1233 42—8
R-1234, R-1235 7—7
R-1236, R-1237 29—7
R-1238 38—4
R-1241 62—11
R-1242 31—8
R-1243 32—4
R-1244, R-1245, R-1246 52—6
R-1248, R-1249, R-1250 66—7
R-1251, R-1252 21—10
R-1253, R-1254, R-1255 47—7
R-1408, R-1409 15—7
●TV-71, TV-71A 99A—3
TV-101 (See Model TV-102—Set 88-3)
●TV-102 88—3
TV-160 85—5
●TV-201 59—8

DeSOTO (See Mopar)

DETROLA

554-1-61A (See Ario Model 554-1-61A—Set 67-2)
558-1-49A 7—8
568-13-221D 9—10
571, 571A, 571B, 571L, 571AL, 571BL 10—16
571X, 571AX, 571BX 9—11
572-220-226A 8—6
577-1-6A 8—7
579 7—9
579-2-58B (See Model 579—Set 7-9)
582 19—14
610-A 55—8
611-A 50—6
626 Series 11—5
7156 48—6
7270 16—8

DEWALD

A500 4—22
A5001 (See Model A500—Set 4-22)
A500W (See Model A500 — Set 4-22)
A501, A502, A503 4—22
A504, A505 16—9
A-507 26—10
A-509 31—9
A-514 27—6
A602, A605 16—10
A608 (See Model A602—Set 16-10)
B-400 35—3
B-401 34—6
B-402 45—8
B-403 52—7
B-504 43—9
B-506 38—5
B-510 34—7
B-512 35—4
B-515 63—6
B-612 42—9
B-614 56—9
●BT-100, BT-101 79—6
C-516 64—4
C-800 69—7
●CT-101 79—6
●CT-102, CT-103, CT-104 82—5
D-E517A 167—5
D-508 106—5
D508A (See Model D-508—Set 106-5)
D-517 131—4
D-518 100—5
D519 (See Model B-506—Set 38-5)
D-616 102—5

DEWALD—Cont.

●DT-120, DT-122 100—6
●DT-160 82—5
●DT-161 100—6
●DT-162, DT-163 118—5
●DT-162R, DT-163A, R (Also see PCB 58—Set 192-1) 136—7
●DT-190 118—5
●DT-190D (Also see PCB 58—Set 192-1) 136—7
●DT-1020, DT-1020A 100—6
●DT-1030, DT-1030A 100—6
●DT-X-160 100—6
E-520 274—6
E-522 141—5
●ET-140, ET-141 118—5
●ET-140R, ET-141R (Also see PCB 58—Set 192-1) 136—7
●E-170, ET-171 (Also see PCB 58—Set 192-1) 136—7
●ET-171-20 208—3
●ET-172 (Also see PCB 58—Set 192-1) 136—7
●ET-190D, R (Also see PCB 58—Set 192-1) 136—7
●ET-190D (Revised) 208—3
F-404 181—5
F-405 198—5
F-523 170—5
●FT-200 (See PCB 58—Set 192-1 and Model DT-162R—Set 136-7)
●FT-200 (Revised) 208—3
●FT-201 (See PCB 58—Set 192-1 and Model DT-162R—Set 136-7)
F-404 181—5
F-405 198—5
F-523 170—5
●G-174 208—3
●G-201 208—3
●G-210, G-211 208—3
G-408 220—3
H-300 UHF Conv. 250—7
H-410 264—6
H-527 239—5
H-528 234—7
H-533 248—4
H-537 269—5
511 71—9

DODGE (See Mopar)

DORN'S (See Bell Air)

DOUGLAS

●327 (Ch. S-103, T-103) 246—4

DREXEL (Mutual Buying Syndicate)

●17CG1, 17TW (Similar to Chassis) 149—13

DUKANE

1A45-A 184—5
1A300, 1B300 189—6
1U325 185—6
4A100 186—5
4B100 (See Model 4A100—Set 186-5)
4C25 Flexiphone 187—4
4C100 200—4

DUMONT

●RA-103 (Also see PCB 6—Set 108-1) 90—3
●RA-103D (Also see PCB 9—Set 114-1) 93—4
●RA-104A (Also see PCB 9—Set 114-1) 93—4
●RA-105 (Also see PCB 6—Set 108-1) 72—8
●RA-105B 95—3
●RA-106 (Supp. to RA-105, Set 72) (Also see PCB 6—Set 108-1) 99A—4
●RA-108A 95—3
●RA-109A-FAS (See PCB 54—Set 188-1 and Model RA-109—Set 110-7)
●RA-109-A1, -A2, -A3, -A5, -A6, -A7 (Also see PCB 14—Set 124-1) 110—7
●RA-110A (Also see PCB 9—Set 114-1) 93—4
●RA-111-A1, -A2, -A4, -A5 106—6
●RA-112-A1, -A2, -A3, -A4, -A5, -A6 (Also see PCB 38—Set 170-1) 119—5
●RA-113-B1, -B2, -B3, -B4, -B5, -B6, -B7, -B8 (Also see PCB 38—Set 170-1) 119—5
●RA-116A *
●RA-117-A1, -A3, -A5, -A6, -A7 131—5
●RA-119A 156—5
●RA-120 (See PCB 51—Set 185-1 and Model RA-113—Set 119-5)
●RA-130A (See PCB 54—Set 188-1 and Model RA-109—Set 110-7)
●RA-147A (See PCB 49—Set 183-1 and Model RA-117A—Set 131-5)
●RA-160, -A1 (Also see PCB 55—Set 189-1) 179—4
●RA-162, -B1, -B4, -B5, -B6, -B7, -B21 through 26 (Also see PCB 55—Set 189-1) 179—4
●RA-164, -A1 (Also see PCB 60—Set 194-1 and PCB 69—Set 206-1) 189—7
●RA-165, -B1, -B2, -B3, -B6, -B7, -B21 through -B26 (Also see PCB 60—Set 194-1 and PCB 69—Set 206-1 189—7
●RA-166, RA-167, RA-168, RA-169, RA-170, RA-171 216—2
●RA-301, RA-301-A1, RA-302 270—4
●RA-306, RA-307 241—6
Andover Model RA-117-A6 (See Model RA-117A)
Andover Model RA-147A (See Model RA-147A)
Ardmore Model RA-112-A1, -A4 (See Model RA-112A)
Banbury Model RA-162-B4 (See Model RA-162)
Banbury Model RA-162-B21 through B26 (See Model RA-162)
Beverly Model RA-165-B2 (See Model RA-165)
Bradford (See Model RA-108A)

DUMONT—Cont.

Bradford Models RA-306, RA-307 (See Model RA-306)
Bristol Models RA-306, RA-307 (See Model RA-306)
Brookville Model RA-113-B1, -B2 (See Model RA-113)
Burlingame Model RA-113-B5, -B6 (See Model RA-113)
Canterbury Model RA-103 (See Model RA-103)
Carlton Model RA-117-A3 (See Model RA-117A)
Chatham (See Model RA-103)
Chatham Model RA-166 (See Model RA-166)
Chatham Model RA-168, RA-169 (See Model RA-168)
Chester (See Model RA-147A)
Clinton Model RA-164-A1 (See Model RA-164)
Club 20 (See Model RA-106A)
Colony (See Model RA-105A)
Devon Model RA-160-A1 (See Model RA-160)
Dynasty (See Model RA-162)
Essex Model RA-167 (See Model RA-167)
Fairfield (See Model RA-110A)
Flanders Model RA-162-B5 (See Model RA-162)
Guilford Model RA-112-A2, -A5 (See Model RA-111A)
Hampton Models RA-306, RA-307 (See Model RA-306)
Hanover Model RA-109-A2, -A6 (See Model RA-109A)
Hanover (See Model RA-109A-FAS)
Hanover Model RA-162 (See Model RA-162)
Hanover II Model RA-170 (See Model RA-170)
Hanover II Model RA-171 (See Model RA-171)
Hartford Models RA-306, RA-307 (See Model RA-306)
Hastings (See Model RA-104A)
Lynwood Model RA-167 (See Model RA-167)
Lynwood Model RA-169 (See Model RA-169)
Manchu (See Model RA-106A)
Mansfield (See Model RA-108A)
Meadowbrook Model RA-103 (See Model RA-103)
Meadowbrook II (See Model RA-147A)
Milford Model RA-165-B1 (See Model RA-165)
Mt. Vernon Model RA-112-A3, -A6 (See Model RA-112A)
Newbury (See Model RA-162)
Newbury II Model RA-170 (See Model RA-170)
Newbury II Model RA-171 (See Model RA-171)
Newport Models RA-306, RA-307 (See Model RA-306)
Oxford Model RA-167 (See Model RA-167)
Park Lane Model RA-117-A7 (See Model RA-117A)
Parklane (See Model RA-147A)
Putnam Model RA-111-A1, -A4 (See Model RA-111A)
Revere Model RA-113-B3, -B4 (See Model RA-113)
Ridgewood Model RA-165-B4 (See Model RA-165)
Ridgewood "41" Model RA-167 (See Model RA-167)
Royal Sovereign (See Model RA-119A)
Rumson (See Model RA-103D)
Rutland Models RA-306, RA-307 (See Model RA-306)
Savoy (See Model RA-103)
Sheffield (See Model RA-103D)
Sheffield Models RA-306, RA-307 (See Model RA-306)
Shelburne Model RA-165-B5 (See Model RA-165)
Sherbrooke Models RA-109-A3 -A7 (See Model RA-109A)
Sherbrooke (See Model RA-109A-FAS)
Sherbrooke (See Model RA-130A)
Somerset (See Model RA-162)
Somerset II Model RA-170 (See Model RA-170)
Somerset II Model RA-171 (See Model RA-171)
Stratford (See Model RA-105A)
Strathmore Model RA-117-A5 (See Model RA-117A)
Sumter Model RA-117-A1 (See Model RA-117A)
Sussex (See Model RA-105B)
Sutton Model (RA-103 (See Model RA-103)
Tarrytown Models RA-113-B7, -B8 (See Model RA-113)
Tarrytown (See Model RA-120)
Wakefield Model RA-165-B3 (See Model RA-164)
Wakefield "41" Model RA-167 (See Model RA-167)
Warren Models RA-306, RA-307 (See Model RA-307)
Warwick Models RA-306, RA-307 (See Model RA-306)
Wellington (See Model RA104A)
Westbrook Models RA-306, RA-307 (See Model RA-306)
Westbury (See Model RA-105A)
Westbury II (See Model RA-109A-FAS)
Westerly Model RA-112-A2, -A5 (See Model RA-112A)
Westwood (See Model RA-110A)
Whitehall (See Model RA-105A)
Whitehall II (See Model RA-130A)
Whitehall II Model RA-162-B7 (See Model RA-162)
Wickford Model RA-162-B1 (See Model RA-162)
Wimbledon Model RA-162-B6 (See Model RA-162)

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

DUMONT—Cont.
Windsor Models RA-306, RA-307 (See Model RA-306)
Winslow (See Model RA-109A-FAS)
Winslow Model RA-109-A1, -A5 (See Model RA-109A)
Winthrop Model RA-103 (See Model RA-103)

DUOSONIC
K1, K2 .... **19**—15
K3, K4 .... **19**—16

DYNAVOX
AP-514 (Ch. AT) .... **28**—9
M-510 .... **15**—8
Swingmaster .... **27**—7
3-P-801 .... **36**—3

ECA
101 (Ch. AA) .... **1**—25
102 .... **14**—7
104 .... **13**—14
105 .... **16**—11
106 .... **7**—10
108 .... **3**—6
121 .... **13**—15
131 .... **16**—12
132 .... **45**—9
201 .... **15**—9
204 .... **32**—5

ECHOPHONE (Also see Hallicrafters)
EC-113 .... **3**—13
EC-306 .... **14**—8
EC-403, EC-404 .... **22**—14
TC-600 .... **4**—18
EX-102, EX-103 .... **64**—5
EX-306 (See Model EC-306—Set **14**-8)

EDWARDS
Fidelotuner .... **33**—4

EICOR (Also see Recorder Listing)
15 .... **135**—6

EKOTAPE (See Recorder Listing)

ELCAR
602 .... **5**—19

ELECTONE
T5TS3 .... **12**—34

ELECTRO
B-20 .... **14**—9

ELECTROMATIC
APH301-A, APH301-C .... **7**—11
606A, 607A .... **5**—32

ELECTRO-TONE
555 .... **13**—17
706, 712 (See Model 555—Set **13**-16)

ELECTRO-VOICE
3300 Tel. UHF Conv. .... **222**—5

ELECTRONIC CORP. OF AMERICA (See ECA)

ELECTRONIC SPECIALTY CO. (See Ranger)

E/L (ELECTRONIC LABS.)
75 (Sub-Station) .... **20**—6
76E, K, M, W (See Model 2701—Set **4**-28)
76RU ("Radio-Utilphone") **20**—6
710B, 710M, 710T, 710W, Orthosonic (Ch. 2875) .... **20**—7
710PB, 710PC Orthosonic (Ch. 2887) .... **24**—16
2660 "Master Utiliphone" .... **8**—8
2701 .... **4**—28
3000 Orthosonic .... **31**—10

EMERSON
501, 502 (Ch. 120000, 120029) .... **2**—1
503 (Ch. 120000, 120029) **1**—18
504 (Ch. 120000, 120029) **2**—1
505 (Ch. 120002) .... **8**—9
505 (Ch. 120041) (See Model 523—Set **5**-27)
506 .... **6**—9
507 .... **8**—10
508 (Ch. 120008) .... **7**—12
509 .... **8**—10
510, 510A (Ch. 120000, 120029) .... **5**—36
511 .... **8**—10
511 (Ch. 120010) (See Model 541—Set **16**-23)
512 (Ch. 120006) .... **9**—12
512 (Ch. 120056) .... **26**—11
514 (Ch. 120007) .... **27**—8
515, 516 .... **12**—11
515, 516 (Ch. 120056) .... **26**—11
517 (Ch. 120010) (See Model 541—Set **16**-13)
518 .... **8**—10
519 (Ch. 120030) .... **30**—7
520 (Ch. 120000, 120029) **2**—1
521 (Ch. 120013, 120031) **7**—13
522 .... **8**—10
523 .... **5**—37
524 .... **17**—12
525 .... **20**—8
528 (Ch. 120038) .... **21**—13
529, 529-9 (Ch. 120028) .. **18**—15
530 (Ch. 120006, Ch. 120056) .... **32**—6
531, 532, 533 .... **11**—6
534 (Ch. 120007) .... **27**—8
535 .... **20**—9
536 (Ch. 120036) .... **21**—14
536A .... **24**—17
537 .... **23**—7
538 (Ch. 120051) (See Model 549—Set **26**-12)
539 .... **9**—13
540A (Ch. 120042) .... **20**—10
541 .... **16**—13
542 (See Model 521—Set **7**-13)
543, 544 (Ch. 120046) .... **19**—30

EMERSON—Cont.
●545 (Ch. 120047) Photofact Servicer **82**
546 (Ch. 120049) .... **21**—15
547A (Ch. 120050) .... **25**—13
548 (Ch. 120051) .... **30**—8
549 (Ch. 120051) .... **26**—12
550 (Ch. 120006) (See Model 512—Set **9**-12)
550 (Ch. 120056) .... **26**—11
551A .... **24**—17
552 .... **20**—8
553A .... **24**—17
556, 557 (Ch. 120018B) .. **70**—4
557B (Ch. 120048B) .... **43**—10
558 (Ch. 120058) .... **31**—11
559A (Ch. 120059) .... **31**—12
560 (Ch. 120016) .... **25**—14
561 (Ch. 120001B) .... **63**—7
563 (Ch. 120063B) .... **73**—4
564 (Ch. 120027) (See Model 540A—Set **20**-10)
565 (Ch. 120018B) .... **70**—4
566 (Ch. 120051) (See Model 549—Set **26**-12)
567 (Ch. 120016) (See Model 560 Set **25**-14)
567 (Ch. 120042) (See Model 540A—Set **20**-10)
568A (Ch. 120070A) .... **58**—9
569A (Ch. 120062A) .... **42**—10
570 (Ch. 120064) .... **97**—3
●571 (Ch. 120066) .... **46**—25
●571 (Ch. 120086B) .... **76**—11
572 (Ch. 120065) (See Model 540A—Set **20**-10)
573B (Ch. 120039B) .... **42**—11
574 (Ch. 120064) .... **97**—3
575 (Ch. 120068A, 120068B) .... **85**—6
576A (Ch. 120069A) .... **40**—5
577B (Ch. 120012B) .... **41**—6
●578 (Ch. 120050) (See Model 547A—Set **25**-13)
579A (Ch. 120034A) .... **61**—6
580 (Ch. 120064) .... **97**—3
581 (Ch. 120014A, B) .... **68**—7
582 (See Model 548—Set **30**-8)
583 (See Model 573B—Set **42**-11)
584 (See Model 558—Set **31**-11)
●585 (Ch. 120025B) .... **61**—7
586 (Ch. 120023B, 120083B) **72**—9
587 (Ch. 120033A, B) .... **71**—10
588 (See Model 547A—Set **25**-13)
590 (Ch. 120101A, B) .... **87**—5
591 (Ch. 120055A) .... **67**—9
593 (Ch. 120063B) .... **73**—4
594, 595 (Ch. 120071A) .. **68**—7
596 .... **61**—6
597 (Ch. 120073B) .... **90**—5
599 (Ch. 120075B) .... **69**—8
●600 (Ch. 120103-B) (Also see PCB 9—Set **114**-1) .... **87**—6
601 (Ch. 120075B) .... **69**—8
602 (Ch. 120072A, 120082A **56**-10
603 (Ch. 120063B) .... **73**—4
604A (See Model 576A—Set **40**-5)
605 (Ch. 120076B) .... **66**—8
●606 (Ch. 120066) .... **46**—25
●606 (Ch. 120086B-D) .... **76**—11
●606 (Ch. 120086B) .... **76**—11
607 (Ch. 120074A) .... **90**—5
●608A (Ch. 120089B) .... **84**—6
●609 (Ch. 120084-B) .... **90**—6
610 (Ch. 120100A, B) .... **71**—10
●611, 612 (Ch. 120087B-D) **76**—11
613A (Ch. 120085A, B) .... **79**—7
●614, B, BC, C (Ch. 120110, B, BC, C) .... **97**—4
●614D (Ch. 120095-B) .... **95A**—3
615 (Ch. 120001B) .... **63**—7
616 (Ch. 120100A, B) .... **71**—10
●619 (Ch. 120092D) .... **76**—11
●620 (Ch. 120091D-QD) .... **76**—11
●621 (Ch. 120098B) .... **108**—5
●622 (Ch. 120098P) .... **108**—5
623 (Ch. 120101A, B) .... **87**—5
●624 (Ch. 120087B-D) .... **76**—11
625 (Ch. 120105B) .... **103**—8
●626 (Ch. 120104B, 120104BJ) .... **84**—6
●627 (Ch. 120107B) .... **76**—11
●628 (Ch. 120098B) .... **108**—5
●629 (Ch. 120114B) (See Model 631—Set **93A**-6)
●629B, 629C (Ch. 120120) . **119**—6
●629D (Ch. 120124B) .... **116**—5
●630 (Ch. 120099B) .... **108**—5
●631 (Ch. 120109) .... **93A**—6
●632 (Ch. 120096B) .... **93A**—7
●633 (Ch. 120114) .... **93A**—6
634B (Ch. 120097B) .... **111**—4
635 (Ch. 120108) .... **92**—1
636A (Ch. 120106A) .... **99**—7
●637, B, BC, C (Ch. 120110, B, BC, C) .... **97**—4
●637A (Ch. 120095-B) .... **95A**—3
●638 (Ch. 120087D) (See Model 571—Set **76**-11)
●639 (Ch. 120103B) (Also see PCB 9—Set 114-1) .... **87**—6
640 (Ch. 120112) .... **93**—5
641B (Ch. 120125B) .... **120**—5
642 (Ch. 120117A) .... **98**—3
643A (Ch. 120111A) .... **91**—4
●644, B, BC, C, (Ch. 120113, B, BC, C) .... **97**—4
645 (Ch. 120115) .... **94**—4
646A (Ch. 120121A) .... **102**—6
646B (Ch. 120121B) .... **102**—6
●647, B, BC, C (Ch. 120113, B, BC, C) .... **97**—4
●648B (Ch. 120134B, G, H) (See PCB 48—Set 182-1 and Model 661B—Set **137**-4)
●649A (Ch. 120094A) .... **106**—7
●650 (Ch. 120113C) (See Model 614—Set **97**-4)
●650 (Ch. 120118B) .... **113**—2
●650B (Ch. 120118B) (See Model 650—Set **113**-2)
●650D (Ch. 120123-B) (Also see PCB 48—Set 182-1) .... **109**—3
●650F (Ch. 120138-B) **133**-1A
●651B (Ch. 120120) .... **119**—6
●651C (Ch. 120109) .... **93A**—6
●651C (Ch. 120124) .... **116**—5

EMERSON—Cont.
●651D (Ch. 120124, B) .... **116**—5
652 (Ch. 120032B) .... **98**—3
653 (Ch. 120080B) .... **98**—3
653B (Ch. 120136-B) .... **159**—5
●654 (Ch. 120118B) .... **113**—2
●654B (Ch. 120118B) (See Model 654—Set **113**-2)
●654D (Ch. 120123B) (Also see PCB 48—Set 182-1) .... **109**—3
●654F (Ch. 120138B) **133**-1A
●655B (Ch. 120123-B) .... **109**—3
●655D (Ch. 120123B) (See Model 650D—Set **109**-3)
●655F (Ch. 120138-B) **133**-1A
656B, 657B (Ch. 120122B) . **111**—5
●658B (Ch. 120124, B) .... **116**—5
●658C (Ch. 120124) (See Model 629D—Set **116**-5)
●660B (Ch. 120133B) .... **131**—6
●661B (Ch. 120134B, G, H) (Also see PCB 48—Set **182**-1) . **137**—4
●662B (Ch. 120127-B) (Also see PCB 18—Set 130-1) .... **125**—6
●663B (Ch. 120128-B) (Also see PCB 18—Set 130-1) .... **125**—6
●664B (Ch. 120133-B) .... **131**—6
●665B (Ch. 120131-B and Radio Ch. 120130-B) .... **146**—6
●666B (Ch. 120135B, G, H, and Radio Ch. 120132B) (Also see PCB 27—Set 148-1) .... **133**—5
●667B, 668B (Ch. 120134B, G, H) (Also see PCB 48—Set 182-1) .... **137**—4
●669B (Ch. 120129B, D) (Also see PCB 24—Set 142-1 and PCB 47—Set 181-1) .... **126**—5
671B (Ch. 120137-B) .... **118**—6
671D (Ch. 120137D) (See Model 671B—Set **118**-6)
672B (Ch. 120097B) .... **131**—7
●673B (Ch. 120133-B) .... **131**—6
●674B (Ch. 120134B, G, H) (Also see PCB 48—Set 182-1) . . **137**—4
●675B (Ch. 120129B, D) (Also see PCB 24—Set 142-1 and PCB 47—Set 181-1) .... **126**—5
●676B (Ch. 120140B) .... **128**—6
●676D (Ch. 120144B, G, H) (Also see PCB 48—Set 182-1) . . **138**—4
●676F (Ch. 120143B) (Also see PCB 50—Set 184-1) .... **148**—6
●677B, 678B (Ch. 120134B, G, H) (Also see PCB 48—Set 182-1) .... **137**—4
679B (Ch. 130116-B) .... **142**—7
●680B (Ch. 120144-B, G, H) (Also see PCB 48—Set 182-1) . . **138**—4
●680D (Ch. 120140B) .... **128**—6
●680D (Ch. 120144B, G, H) (See PCB 48—Set 182-1 and Model 676D—Set **138**-4)
●681B (Ch. 120140B) .... **128**—6
●681D (Ch. 120144B, G, H) (Also see PCB 48—Set 182-1) . . **138**—4
●681F (Ch. 120143B, H) (Also see PCB 50—Set 184-1) .... **148**—6
●684B, 685B (Ch. 120134B, G, H) .... **137**—4
●686B (Ch. 120144B, G, H) (Also see PCB 48—Set 182-1) . **138**—4
●686D (Ch. 120140B) .... **128**—6
●686F (Ch. 120143B, H) (Also see PCB 50—Set 184-1) .... **148**—6
●686L (Ch. 120142B) (Also see PCB 50—Set 184-1) .... **148**—6
●687B (Ch. 120144B, G, H) (Also see PCB 48—Set 182-1) . **138**—4
●687D (Ch. 120140B) (See Model 676B—Set **128**-6)
●687F (Ch. 120143B, H) (Also see PCB 50—Set 184-1) .... **148**—6
●687L (Ch. 120142B) (Also see PCB 50—Set 184-1) .... **148**—6
●688B, 689B, 690B (Ch. 120129B) (Also see PCB 24—Set 142-1 and PCB 47—Set 181-1) .... **126**—5
691B (Ch. 120145-B) .... **160**—3
●692B, 693B, 694B (Ch. 120129B, D) (See PCB 24—Set 142-1, PCB 47—Set 181-1 and Model 669-B—Set **126**-5)
695B (Ch. 120146-B) .... **162**—5
●696B (Ch. 120144B, G, H) (See PCB 48—Set 182-1 and Model 676D—Set **138**-4)
●696F (Ch. 120143B, H) (Also see PCB 50—Set 184-1) .... **148**—6
●696L (Ch. 120142B) (Also see PCB 50—Set 184-1) .... **148**—6
●697B (Ch. 120129B, D) (See PCB 24—Set 142-1, PCB 47 — Set 181-1 and Model 669B — Set **126**-5)
●698B (Ch. 120127B) (See PCB 18—Set 130-1 and Model 662B—Set **125**-6)
●699D (Ch. 120160-B) **165**-1A
●700B Ch. 120153-B) .... **169**—6
●700D (Ch. 120158-B) .... **166**—9
●701B (Ch. 120153-B) .... **169**—6
●701D (Ch. 120158-B) .... **166**—9
●701F (Ch. 120143B) (See PCB 50 Set 184-1 and Model 676F—Set **148**-6)
702B (Ch. 120136-B) .... **159**—5
703B (Ch. 120097-B) .... **160**—4
704 (Ch. 120154-B) .... **184**—6
705A, B (Ch. 120155A ,B) . **208**—4
706B, 707B (Ch. 120156-B) . **178**—5
708B (Ch. 120165-B) (See Model 706B—Set **178**-5)
●709A (Ch. 120162-A) .... **167**—6
710B (Ch. 120146-B) (See Model 695B—Set **162**-5)
●711B (Ch. 120164-B) .... **183**—6
●711F (Ch. 120169-B) .... **206**—4
●712B (Ch. 120164B) .... **183**—6
●712F (Ch. 120169B) .... **206**—4
713B (Ch. 120156-B) (See Model 706B—Set **176**-5)
●714B (Ch. 120153-B) (See Model 700B—Set **169**-6)
●716D (Ch. 120163-D) .... **190**—2
716F (Ch. 120168-D) (See PCB 61—Set 195-1, PCB 71—Set 211-1 and Model 716D—Set **190**-2)
●717D (Ch. 120163-D) .... **190**—2

EMERSON—Cont.
717F (Ch. 120168-D) (See PCB 61—Set 195-1, PCB 71—Set 211-1 and Model 716D—Set **190**-2)
718B (Ch. 120150-B) .... **191**—7
●719D (Ch. 120163-D) .... **190**—2
●719F (Ch. 120168-D) (See PCB 61—Set 195-1, PCB 71—Set 211-1 and Model 716D—Set **190**-2)
●720B (Ch. 120164-B) .... **183**—6
●720D (Ch. 120169B) .... **206**—4
●720F (Ch. 120169-D) .... **206**—4
●721D (Ch. 120166-D) (Also see PCB 65—Set 202-1 and PCB 77—Set **218**-1) .... **197**—5
●722D (Ch. 120163-D) .... **190**—2
724B (Ch. 120151B) .... **208**—5
725A (Ch. 120149A) .... **209**—2
●727D (Ch. 120168D) (See PCB 61—Set 195-1, PCB 71—Set 211-1 and Model 716D—Set **190**-2)
●728D (Ch. 120166-D) (Also see PCB 65—Set 202-1 and PCB 77—Set **218**-1) .... **197**—5
729B (Ch. 120170-B) .... **251**—6
●731D (Ch. 120167-D and Radio Ch. 120152-B) (See PCB 65—Set 202-1 and Model 721D — Set **197**-5)
●732B (Ch. 120169B) .... **206**—4
●732D (Ch. 120164-B) (See Model 711B—Set **183**-6)
●733F (Ch. 120169F and Radio Ch. 120152F) .... **206**—4
●732G (Ch. 120185-B) .... **243**—4
●734B (Ch. 120169B) .... **206**—4
●736B (Ch. 120171-B) (See PCB 65—Set 202-1, PCB 77—Set 218-1 and Model 721D—Set **197**-5)
737A, B (Ch. 120172A, B) . **207**—3
738B (Ch. 120150-B) (See Model 718B—Set **191**-7)
●740D (Ch. 120173-D) (See PCB 65—Set 202-1, PCB 77—Set 218-1 and Model 721D—Set **197**-5)
●741D (Ch. 120168-D) (See PCB 61 Set 195-1, PCB 71—Set 211-1 and Model 716D—Set **190**-2)
●741F (Ch. 120182-D) (Also See PCB 103—Set 249-1 and PCB 117—Set 269-1) .... **235**—5
●742B (Ch. 120169B) .... **206**—4
●742E (Ch. 120185-B) .... **243**—4
●743A (Ch. 120171-B) (See Model 736B)
●743B (Ch. 120171-B) (See PCB 65—Set 202-1, PCB 77—Set 218-1 and Model 721D—Set **197**-5)
744B (Ch. 120175-B) .... **231**—6
745B (Ch. 120176-B) .... **227**—7
746B (Ch. 120177-B) .... **228**—9
747 (Ch. 120178) .... **234**—8
●748B (Ch. 120179-B) .... **263**—7
●748C (Ch. 120203-B) .... **263**—7
●750D (Ch. 120166-D) (See PCB 65—Set 202-1, PCB 77—Set 218-1 and Model 721D—Set **197**-5)
●751D (Ch. 120168-D) (See PCB 61—Set 195-1, PCB 71—Set 211-1 and Model 716D—Set **190**-2)
●752A, B (Ch. 120174-B) . . **243**—4
●753D (Ch. 120180-D) .... **243**—4
●753F (Ch. 120198-D) .... **243**—4
754D (Ch. 120176-B) (See Model 745B—Set **227**-7)
755A, B (Ch. 120174-B) . . **243**—4
756B (Ch. 120125-B) (See Model 641B—Set **120**-5)
●757D (Ch. 120182-D) (Also See PCB 103—Set 249-1 and PCB 117—Set 269-1) .... **235**—5
●757F (Ch. 120194-D) (See PCB 61—Set 195-1, PCB 71—Set 211-1, PCB 86—Set 229-1 and Model 716D—Set **190**-2)
●757J (Ch. 120168-D) (See PCB 61—Set 195-1, PCB 71—Set 211-1, PCB 86—Set 229-1 and Model 716D—Set **190**-2)
●758F (Ch. 120182-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●759C (Ch. 120195-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 785K—Set **235**-5)
●760D (Ch. 120191-D) .... **243**—4
●760F (Ch. 120194-D) (See PCB 61—Set 195-1, PCB 71—Set 211-1, PCB 86—Set 229-1 and Model 716D—Set **190**-2)
●760H (Ch. 120190-D) .... **243**—4
●760J (Ch. 120168-D) (See PCB 61—Set 195-1, PCB 71—Set 211-1, PCB 86—Set 229-1 and Model 716D—Set **190**-2)
●760M (Ch. 120182-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●761C (Ch. 120180-D) .... **243**—4
●762D (Ch. 120191-D) .... **243**—4
●762F (Ch. 120190-D) .... **243**—4
●764F (Ch. 120166-D) (See PCB 65—Set 202-1, PCB 77—Set 218-1 and Model 721D—Set **197**-5)
●765D (Ch. 120173-D) (See Model 740D)
●766D (Ch. 120210-D) .... **243**—4
●767A, B (Ch. 120192-B) . . **243**—4
●767C (Ch. 120169-B) (See Model 711F—Set **206**-4)
●768A (Ch. 120193-D) .... **243**—4
●768C (Ch. 120174-B) (See Model 752A—Set **243**-4)
●769F (Ch. 120173-D) (See Model 740D)
●770C (Ch. 120209-D) .... **243**—4
●771A, B (Ch. 120192-B) . . **243**—4
●771C (Ch. 120169-B) (See Model 711F—Set **206**-4)
●771D (Ch. 120192-D) .... **243**—4
●772A (Ch. 120193-B) .... **243**—4
●773A (Ch. 120192-B) .... **243**—4
●774A (Ch. 120193-B) .... **243**—4
●775A, B (Ch. 120192-F and Radio Ch. 120184-B) .... **243**—4
●776A (Ch. 120193-F and Radio Ch. 120184-B) (See Model 775A—Set **243**-4)

EMERSON—Cont.
●777B (Ch. 120204-B) .... **263**—7
778B (Ch. 120199B) .... **248**—6
779B (Ch. 120170-B) .... **251**—6
●780A (Ch. 120171-B) (See Model 736B)
●781A, B (Ch. 120196-B) (Also See PCB 103—Set 249-1 and PCB 117—Set 269-1) .... **235**—5
●781E (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●782D (Ch. 120166-D) (See Model 721D)
783B (Ch. 120200B) .... **252**—7
●784A (Ch. 120174-B) .... **243**—4
●784E (Ch. 120197-B) (Also See PCB 103—Set 249-1 and PCB 117—Set 269-1) .... **235**—5
●784G (Ch. 120197-D) (Also See PCB 103—Set 249-1 and PCB 117—Set 269-1) .... **235**—5
●784K (Ch. 120197-B) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 784E—Set **235**-5)
●784M (Ch. 120211-D) (See PCB 103—Set 249-1 and Model 741F—Set **235**-5)
●785C, E (Ch. 120198-D) . . **243**—4
●785K (Ch. 120195-D) (Also See PCB 103—Set 249-1) .... **235**—5
●787A (Ch. 120179-B) .... **263**—7
●787B (Ch. 120203-B) .... **263**—7
788B (Ch. 120201B) .... **250**—8
789B (Ch. 120207-B) .... **258**—6
790B (Ch. 120147-B) .... **255**—5
●791D (Ch. 120210-D) .... **243**—4
●792D (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●793E (Ch. 120211-F) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●794A (Ch. 120193-B) (See Model 768A—Set **243**-4)
●795C (Ch. 120192-B) .... **243**—4
●796C (Ch. 120203-B) .... **263**—7
●797B (Ch. 120204-B) .... **263**—7
●797C (Ch. 120205-B) .... **263**—7
●798B (Ch. 120205-B) .... **263**—7
●799E (Ch. 120209-F) .... **243**—4
800B (Ch. 120159-B) .... **267**—3
801 (Ch. 120154-B) (See Model 704—Set **184**-6)
802B (Ch. 120159-B) .... **267**—3
805B (Ch. 120202D) .... **260**—7
806, 807 .... **274**—7
808B (Ch. 120189-B) .... **275**—6
809A (Ch. 120221-A) .... **266**—5
810B (Ch. 120222-B) .... **268**—6
811B (Ch. 120228-B) .... **274**—8
812B (Ch. 120229-B) .... **272**—6
813B (Ch. 120230-B) .... **272**—6
816B (Ch. 120201-B) (See Model 788B—Set **250**-8)
822B (Ch. 120232-B) .... **274**—8
●1000C (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1001E (Ch. 120208-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1001G (Ch. 120211-E) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
1002 .... **16**—14
●1002C (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1002D (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1002F (Ch. 120225-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
1003 (See Model 1002—Set **16**-14
●1003E (Ch. 120208-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1003F (Ch. 120208-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1003G (Ch. 120211-F) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1004C (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1004F (Ch. 120225-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1005E (Ch. 120208-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1005F (Ch. 120208-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1005G (Ch. 120211-F) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1006C (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1006F (Ch. 120225-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1007E (Ch. 120208-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1007G (Ch. 120211-F) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1008C (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1008E (Ch. 120206-D) (See PCB 103—Set 249-1 and Model 741F—Set **235**-5)
●1008F (Ch. 120225-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)
●1009E (Ch. 120208-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set **235**-5)

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

EMERSON—Cont.

●1009G (Ch. 120211F) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1010C (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1011C (Ch. 120208-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—235-5)
●1011G (Ch. 120211-F) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1012D (Ch. 120182-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1012F (Ch. 120223-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1013C (Ch. 120195-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1014D (Ch. 120182-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1015C (Ch. 120195-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 785K—Set 235-5)
●1018C, D (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1022C, D (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1023E (Ch. 120211-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1024C (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1025E (Ch. 120211-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1026C (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1027E (Ch. 120211-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1028C (Ch. 120206-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1029E (Ch. 120211-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1030D, 1032D (Ch. 120220-D) .... 275—7
●1036F (Ch. 120225-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1040D (Ch. 120225-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1040F (Ch. 120225-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1041E (Ch. 120211-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1042D (Ch. 120225-D) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1044F (Ch. 120225-F) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
●1058D, 1060D, 1062D, 1064D (Ch. 120239-D) .... 275—7
●1074F (Ch. 120225-F) (See PCB 103—Set 249-1, PCB 117—Set 269-1 and Model 741F—Set 235-5)
Ch. 120025B (See Model 585)
Ch. 120047 (See Model 545)
Ch. 120066 (See Model 571)
Ch. 120066B (See Model 571)
Ch. 120084B (See Model 609)
Ch. 120086B (See Model 571)
Ch. 120087B-D (See Model 611)
Ch. 120088B (See Model 585)
Ch. 120089B (See Model 608A)
Ch. 120091D-QD (See Model 620)
Ch. 120092D (See Model 619)
Ch. 120094A (See Model 649A)
Ch. 120095-B (See Model 614D)
Ch. 120096B (See Model 632)
Ch. 120098B (See Model 621)
Ch. 120098P (See Model 622)
Ch. 120099B (See Model 630)
Ch. 120103B (See Model 600)
Ch. 120104B (See Model 600)
Ch. 120104B, BJ (See Model 626)
Ch. 120107B (See Model 627B)
Ch. 120109 (See Model 631)
Ch. 120110, B, BC, C (See Model 614, B, BC, C)
Ch. 120110E (See Model 648B)
Ch. 120113, B, BC, C (See Model 644, B, BC, C)
Ch. 120114 (See Model 633)
Ch. 120114B (See Model 629)
Ch. 120118B (See Model 650)
Ch. 120120 (See Model 629B, C)
Ch. 120123B (See Model 650D)
Ch. 120124 (See Model 651C)
Ch. 120124B (See Model 629D)
Ch. 120127-B (See Model 622B)
Ch. 120128-B (See Model 663B)
Ch. 120129B (See Model 669B)
Ch. 120131-B (See Model 665B)
Ch. 120133B (See Model 660B)
Ch. 120134B, G, H (See Model 661B)
Ch. 120135B, G, H (See Model 666B)
Ch. 120136-B (See Model 653B)
Ch. 120138-B (See Model 650F)
Ch. 120140B (See Model 676B)
Ch. 120142B (See Model 686L)
Ch. 120143B, H (See Model 676F)
Ch. 120144B, G, H (See Model 676D)
Ch. 120147-B (Se Model 790B)
Ch. 120149A (See Model 725A)
Ch. 120150-B (See Model 718B)
Ch. 120151-B (See Model 724B)
Ch. 120152-B (See Model 731D)

EMERSON—Cont.

Ch. 120152-F (See Model 733F)
Ch. 120153-B (See Model 700B)
Ch. 120154-B (See Model 704)
Ch. 120155A, B (See Model 705A, B)
Ch. 120158-B (See Model 700D)
Ch. 120159-B (See Model 800B)
Ch. 120160-B (See Model 699D)
Ch. 120162-A (See Model 709A)
Ch. 120163-D (See Model 716D)
Ch. 120164-B (See Model 711B)
Ch. 120166-D (See Model 721D)
Ch. 120167-D (See Model 731D)
Ch. 120168-D (See Model 716F)
Ch. 120169-B (See Model 711F)
Ch. 120169-D (See Model 720F)
Ch. 120169F (See Model 733F)
Ch. 120170-B (See Model 729B)
Ch. 120171-B (See Model 736B)
Ch. 120172A, B (See Model 737A, B)
Ch. 120173-D (See Model 740D)
Ch. 120174-B (See Model 752A)
Ch. 120175-B (See Model 744B)
Ch. 120176-B (See Model 745B)
Ch. 120177-B (See Model 746B)
Ch. 120178 (See Model 747)
Ch. 120179-B (See Model 748B)
Ch. 120180-D (See Model 753D)
Ch. 120182-D (See Model 741F)
Ch. 120184-B (See Model 775A)
Ch. 120185-B (See Model 732G)
Ch. 120189-B (See Model 808B)
Ch. 120190-D (See Model 760H)
Ch. 120191-D (See Model 760D)
Ch. 120192-B (See Model 767A)
Ch. 120192-D (See Model 771D)
Ch. 120192-F (See Model 775A)
Ch. 120193-B (See Model 768A)
Ch. 120193-F (See Model 776A)
Ch. 120194-D (See Model 757F)
Ch. 120195-D (See Model 785K)
Ch. 120196-B (See Model 781A)
Ch. 120197-B (See Model 784E)
Ch. 120197-D (See Model 784G)
Ch. 120198-D (See Model 753F)
Ch. 120199-B (See Model 778B)
Ch. 120200-B (See Model 783B)
Ch. 120201-B (See Model 788B)
Ch. 120202-D (See Model 805B)
Ch. 120203-B (See Model 748C)
Ch. 120204-B (See Model 777B)
Ch. 120205-B (See Model 797C)
Ch. 120206-D (See Model 781E)
Ch. 120207-B (See Model 789B)
Ch. 120208-D (See Model 1001E)
Ch. 120209-D (See Model 770C)
Ch. 120209-F (See Model 799E)
Ch. 120210-D (See Model 766D)
Ch. 120211-D (See Model 784M)
Ch. 120211-F (See Model 793E)
Ch. 120220-D (See Model 1030D)
Ch. 120221-A (See Model 809A)
Ch. 120222-B (See Model 810B)
Ch. 120223-D (See Model 1012F)
Ch. 120225-D (See Model 1002F)
Ch. 120225-F (See Model 1044F)
Ch. 120228-B (See Model 811B)
Ch. 120229-B (See Model 812B)
Ch. 120230-B (See Model 813B)
Ch. 120232-B (See Model 822B)
Ch. 120239-D (See Model 1058D)

EMPRESS

55, 56 .... 7—14

ESPEY (Also see Philharmonic)

RR13, RR13L .... 13—17
7B .... 47—8
7C .... 153—4
18B .... 90—7
31 .... 103—9
100 .... 236—4
101 .... 241—7
200 .... 247—4
300 .... 242—6
400, 500 .... 245—3
511C .... 174—6
512 .... 68—8
512B .... 182—4
513, 514 .... 63—8
524 .... 90—7
581 .... 14—10
621 .... 10—17
641, 642 .... 8—11
651 .... 9—14
652, 653 (See Model 651—Set 9-14)
751 .... 90—7
6511, -2, -5, 6514, 6516, 6517, 6520, -2, 6521, 6533 (Ch. FJ97) (See Model 651—Set 9-14)
6540, 6541 .... 8—12
6542 (Ch. FJ97) (See Model 651—Set 9-14)
6545 (Ch. FP97) .... 5—16
6546 (Ch. FJ97) (See Model 651—Set 9-14)
6547 .... 8—12
6560 (Ch. FJ97) (See Model 651—Set 9-14)
6611, 6612, 6613, 6614, 6615, 6630, 6631, 6632, 6634, 6635 (Ch. 97A) .... 18—16
7541 (Ch. FJ97) (See Model 651—Set 9-14)
7552 .... 90—7

ESQUIRE

60-10, 65-4 .... 14—11
511 .... 157—3
517 (See Model 520—Set 163-5)
520 .... 163—5
550 .... 177—6

FADA

●DL21T .... 200—5
●DL21T8 (See Model 215C — Set 200-5)
●G-925 .... 89—6
●HD821T (See Model UH21T — Set 228-10)
●H212C (See Model UH21T — Set 228-10)
●H218C (See Model UDL2100T—Set 228-10)
●H274T, H276T .... 247—5
●H321T (See Model UDL2100T—Set 228-10)

FADA—Cont.

●H421T (See Model UH21T — Set 228-10)
●H442C .... 247—5
●H542C .... 247—5
●H621T (See Model UH21T — Set 228-10)
P80 .... 27—9
P82 .... 21—16
P100 .... 27—10
P111 .... 178—6
P130 .... 135—7
●R7C15, R7C25 .... 158—3
●R-1025 .... 114—4
●R-1050 .... 114—4
●S4C20 .... 142—8
●S4C40 .... 142—8
●S4T15 .... 142—8
●S4T30 .... 142—8
●S6C55 .... 134—7
●S6C70 .... 134—7
●S6T65 .... 134—7
●S7C20, S7C30 (See Model S6C55—Set 134-7)
●S7C70 .... 134—7
●S7T65 .... 134—7
●S9C10 .... 134—7
●S20T20 (See Model S6C55 — Set 134-7)
●S1015 .... 109—4
●S1020 .... 109—4
●S1030 .... 109—4
●S1055, S1055X .... 134—7
●S1060 .... 134—7
●S1065 .... 134—7
●TV30 .... 74—3
●U1700CD .... 244—4
●U1770CD .... 244—4
●U2150C .... 228—10
●UDL2100T .... 228—10
●UH21T .... 228—10
●V21T (See Model 215C—Set 200-5)
●V21T6 (See Model 215C — Set 200-5)
●V211CD .... 257—5
●V213CD .... 257—5
●V217C (See Model DL21T — Set 200-5)
●V219C (See Model 215C — Set 200-5)
●V271T, V273T .... 259—5
●7C42 .... 179—5
●7C52 .... 179—5
●7T32 .... 177—7
●17T6 .... 204—4
●17T9 .... 204—4
●20C22 .... 180—3
●20T12 .... 180—3
●21C2 .... 200—5
●21T .... 200—5
●21T3 (See Model DL21T — Set 200-5)
●21T4 (See Model 215C—Set 200-5)
●24C4, 24C5 .... 259—5
●24T2 .... 200—5
●24T10 .... 180—3
●173T, 175C, 177CD .... 192—5
●215C .... 200—5
602 .... 14—12
605, 606 Series .... 1—13
609, 610 Series .... 1—15
633 .... 17—13
637 .... 17—14
652 Series .... 1—23
700 .... 32—7
711 .... 28—10
●721 .... 177—7
740 .... 28—10
●775T (See Model 7T32—Set 177-7)
790 .... 64—6
795 .... 36—7
●799 .... 74—3
830 .... 97—5
845 .... 97—6
855 .... 92—2
●880 .... 95A—5
●899 .... 74—3
●925 .... 89—6
●930, 940 .... 74—3
●965 .... 89—6
1000 Series .... 1—17
1001 .... 17—15
●2100C .... 228—10

FAIRMONT

●30T14A-056 (Similar to Chassis) .... 119—3
●38T12A-058 (Similar to Chassis) .... 109—1
●317T3 (Similar to Chassis) . 72—4
●318T4 (Similar to Chassis) . 85—3
●318T4S (Similar to Chassis) 85—3
●318T4-872 (Similar to Chassis) .... 85—3
●318T6A (Similar to Chassis) 85—3
●318T6A-950 (Similar to Chassis) .... 85—3
●318T9A-900 (Similar to Chassis) .... 78—4
●518T6A (Similar to Chassis) 85—3
●518T9A-918 (Similar to Chassis) .... 78—4
●518T10A-916 (Similar to Chassis) .... 78—4
●2318T6A-954 (Similar to Chassis) .... 85—3
●2318T9A-912 (Similar to Chassis) .... 78—4

FARNSWORTH (Also see Record Changer Listing)

EC-260 .... 7—15
EK-081, EK-082, EK-083.. 26—13
EK-262, EK-263BL, E-263WL, E-264BL, EK-264WL, EK-265 7—15
EK-681 .... 26—13
ET-060, ET-061, ET-063... 6—11
ET-064, ET-065, ET-066... 4—2
GK-100, GK-102, GK-103, GK-104 .... 23—8
GK-111, GK-112, GK-114, GK-115 .... 60—11
GK-140, GK-141, GK-142, GK-143, GK-144 .... 24—18
GT-050, GT-051, GT-052.. 35—5
GT-060, GT-061, GT-064, GT-065 .... 35—6
K-267, K-669 (See Model EC-260—Set 7-15)

FARNSWORTH—Cont.

Ch. 150 (See Model ET-060)
Ch. 152, 153 (See Model EC-260)
Ch. 156, 157 (See Model EK-081)
Ch. 158, 159 (See Model ET-064)
Ch. 162 (See Model EC-260)
Ch. 170 (See Model GK-100)
Ch. 193 (See Model EK-081)
Ch. 194, 201, 216 (See Model GK-100)

FEDERAL MFG. CO.

104 (Select-A-Coil) .... 18—17
135 (Select-A-Coil) .... 11—7

FEDERAL TEL. & RADIO CORP.

1021 (See Model 1030T—Set 8-13)
1030T .... 8—13
1031, 1032 (See Model 1030T—Set 8-13)
1040T .... 23—9
1040TB (See Model 1040T—Set 23-9)
1540T .... 8—13

FEDWAY

●321MS39A (Similar to Chassis) .... 226—11
●2321MS39A (Similar to Chassis) .... 226—11

FERRAR

C-81-B .... 17—16
T-61B .... 39—4
WR-11 .... 15—10

FIRESTONE (AIR CHIEF)

4-A-2 (Code No. 297-6-LMMU-143) .... 14—4
4-A-3 (Code No. 297-6-LMFU-134) .... 31—13
4-A-10 (Code No. 297-7-RN228) .... 28—11
4-A-11 (Code No. 188-8-4A11) .... 41—7
4-A-12 (Code No. 213-8-8370) .... 49—8
4-A-15 (Code 177-7-4A15). 36—7
4-A-17 (Code No. 213-7-7170) .... 35—7
4-A-20 (Code 5-5-9000-A). 15—11
4-A-21 (Code No. 5-5-9001A) .... 11—19
4-A-22X (Code No. 5-5-9001B) .... 11—19
4-A-23 (5-5-9003-A) .... 2—29
4-A-24 (Code 291-6-566).. 13—5
4-A-25 (Code 291-6-572).. 13—6
4-A-26 (Code 307-6-9030-A) 33—5
4-A-27 .... 28—12
4-A-31 (Code No. 177-5-4A31) .... 11—20
4-A-37 (Code 177-5-4A37). 13—7
4-A-41 (Code 291-7-576).. 52—8
4-A-42 (Code No. 177-7-4A42) .... 30—9
4-A-60 (Code No. 307-8-9047A) .... 38—6
4-A-61 (Code No. 332-8-137J2T) .... 48—7
4-A-62, 4-A-63 .... 67—10
4-A-64, 4-A-65 .... 68—9
4-A-66 (Code No. 177-8-4A66) .... 74—4
4-A-68 (Code No. 332-8-143653) .... 53—11
4-A-69 (Code No. 155-8-B5) 61—8
4-A-70 .... 136—8
4-A-71 (Code 291-8-628).. 59—9
4-A-78, 4-A-79 .... 117—5
4-A-85 .... 118—7
4-A-86 .... 129—6
4-A-86 (Late) .... 144—4
4-A-87 .... 119—7
4-A-88 .... 132—6
4-A-89 .... 118—7
4-A-92 .... 154—4
4-A-95 .... 144—4
4-A-96 (See Model 4-A-87—Set 119-7)
4-A-97, 4-A-98 .... 147—5
4-A-101, 4-A-102 .... 181—7
4-A-108 (Code 297-2-361). 191—8
4-A-110 .... 215—6
4-A-112 (See Model 4-A-92—Set 154-4)
4A-113, 4A-114 .... 224—8
4-A-115 .... 219—5
4-A-118 (See Model 4-A-92—Set 154-4)
4-A-120 .... 273—6
4-A-121, 4-A-122 .... 244—5
4-A-127, 4-A-128 .... 259—7
4-A-133 .... 266—6
4-A-135, 4-A-136 .... 266—7
4-A-136, 4-A-137 .... 271—3
4-B-1 (Code 7-6-PM15).... 7—1
4-B-2 (Code 7-6-PM14).... 18—18
4-B-6 (Code No. 177-7-PM18) .... 29—8
4-B-56 .... 133—6
4-B-57 .... 124—4
4-B-58 .... 135—8
4-B-60 .... 153—5
4-B-61 .... 155—6
4-B-62 .... 152—6
4-B-63 (Similar to Chassis) 173—4
4-B-67 (Code 120-2-F152). 187—6
4-B-69 .... 235—6
4-B-71 .... 222—6
4-B-72 .... 223—7
4-B-74 .... 268—7
4-B-75 .... 267—4
4-C-3 .... 19—17
4-C-5 (Code 291-7-574).... 33—6
4-C-6 .... 19—17
4-C-13 (Code 332-8-140623 66—9
4-C-16, 4-C-17 .... 120—6
4-C-18 .... 110—8
4-C-19, 4-C-20 .... 170—7
4-C-21 (Code 120-2-C51-U) 185—7
4-C-22 .... 240—2
4-C-24 .... 257—6
●13-G-3 .... 86—5
●13-G-4 (Code 347-9-249B) 73—5
●13-G-5 (Code 291-9-651) 83—3
●13-G-33 .... 108—6
●13-G-46, 13-G-47 .... 140—5
●13-G-48 .... 143—6

FIRESTONE (AIR CHIEF)—Cont.

●13-G-51, 13-G-52 (Code 307-1-9202A, AA, B, BA) .... 193—4
●13-G-56 .... 152—7
●13-G-57 .... 158—4
●13-G-107, 13-G-108 (Code 105-2-700140) .... 197—6
●13-G-109, A (Code 105-2-700100, 105-2-700104) .... 197—6
13-G-110 (Code 334-2-MS29A) .... 180—4
●13-G-110A (Code 334-2-MS31CA) (Also see PCB 60—Set 194-1 and PCB 76—Set 217-1) .... 182—5
●13-G-114, A (Code 105-2-8170) (Ch. 817) .... 198—6
●13-G-115, 13-G-116 (Code 334-2-MS31CA (Also see PCB 60—Set 194-1 and PCB 76—Set 217-1) .... 182—5
●13-G-117 (Code 105-2-8170) (Ch. 817) .... 198—6
●13-G-119, 13-G-120 (Code 334-2-MS31CA) (Also see PCB 60—Set 194-1 and PCB 76—Set 217-1) .... 182—5
●13-G-122 (Code 105-2-700140) .... 197—6
●13-G-124 (Code 105-2-82000) (See Model 13-G-107—Set 197-6)
●13-G-125 (Code 105-2-81700) (See Model 13-G-107—Set 197-6)
●13-G-127 (Code 334-3-MS31D) (See PCB 60—Set 194-1, PCB 76—Set 217-1 and Model 13-G-110A—Set 182-5)
●13-G-128, 13-G-129, 13-G-130 .... 230—6
●13-G-132 .... 230—6
●13-G-134 (Code 105-4-82203) .... 250—9
●13-G-134 (Code 105-4-82210) .... 277—4
●13-G-145, 13-G-146 .... 230—6
●13-G-147 (Code 105-4-75301) .... 277—4
●13-G-148 (Code 105-4-82204) .... 277—4
●13-G-150 .... 256—9
●13-G-153 (See Model 13-G-155—Set 241-8)
●13-G-155 .... 241—8
●13-G-156 (Code 105-4-81786) .... 277—4
●13-G-161, 13-G-162 (Code 105-4-82209) .... 277—4
●13-G-163 (Code 105-4-82210) .... 277—4

FISHER

FM-80 .... 277—5
50-A .... 229—6
50-CB, -CM (50C Series) (Ch. 50CH) .... 209—3
50-F .... 262—7
50-PR .... 262—8
50R, 50RT .... 231—7
70-A .... 263—8
70RT .... 258—7

FLEETWOOD

●600 .... 209—4
●610 .... 248—7
●700 .... 243—5
●710 .... 246—5

FLUSH WALL

5P .... 26—14
5P (Revised) .... 252—8

FORD

FAC-18805-A .... 175—10
FAC-18805-A1 .... 184—7
FAC-18805-B .... 167—7
FAC-18805-C (See Model M4A or Model 3MF)
FAD-18805-D .... 208—6
FAE-18805-A .... 215—7
FDA-18805-A .... 255—6
FDA-18805-B1 .... 236—5
FDA-18805-B-2 .... 250—10
GF890, E (OA-18805-B).. 109—5
M-1 (8A-18805-A1) .... 46—4
M-1A (OA-18805-A1) (See Model M-1—Set 46-4)
M-1A-1 (OA-18805-A1) .. 106—8
M-2 (1A-18805-A1) .... 132—7
M-4 (FAC-18805-A1) .... 184—7
M4-A (FAC-18805-C) (See Model M4—Set 184-7)
M-4B (FDA-18805-B1) .... 236—5
OA-18805-A1 (See Model M-1A or Model M-1A-1)
OA-18805-A2 .... 135—9
OA-18805-B .... 109—5
OBF (OA-18805-A1) (Serial No. 150,000 and below) (See Model M1—Set 46-4)
OBF (OA-18805-A1) (Serial No. 150,001 and up) (See Model M-1A-1—Set 106-8)
OCF751-1 (1A-18805-D) .. 157—4
OMF (OA-18805-A2) .... 135—9
OZF (OA-18805-B) (See Model GF890—Set 109-5)
1A-18805-A1 .... 132—7
1A-18805-A2 .... 131—8
1A-18805-B (See Model 1CF743—Set 133-7 or Model 1CF743-1—Set 158-5)
1A-18805-D .... 157—4
1A-18805-G .... 157—4
1BF (1A-18805-A1) (See Model M-2 Set 132-7)
1CF743 (1A-18805-B) .... 133—7
1CF743-1 (1A-18805-B) .... 158—5
1CFT751-2 (1A-18805-G) . 157—4
1MF (1A-18805-A2) .... 131—8
1SFT751-2 (1A-18805-G) (See Model 1CFT751-2—Set 157-4)
2BF (FAC-18805-A1) (See Model M4—Set 184-7)
2CF754 (FAC-18805-B) .... 167—7
2MF (FAC-18805-A) .... 175—10
3BF (FAD-18805-C) (See Model M-4—Set 184-7)
3MF (FAD-18805-C) .... 206—5
3MFT (FAE-18805-A) .... 215—7
3SF755 (FAD-18805-D) .... 208—6
4BF (See Model M4B—Set 236-5)

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

FORD—Cont.

4MF (FDA-18805-B-2) .... 250—10
4SF765 (FDA-18805-A) ... 255—6
6MF080 (51A-18805-A1) (Ch. 6CA1) ... 10—18
6MF780 (51A-18805-A1) .. 62—12
6MF780-E (51AF-18805) (See Model 6MF780—Set 62-12)
8A-18805 ... 83—4
8A-18805-A ... 44—4
8A-18805-A1 ... 46—4
8A-18805-A3 (See Model 9MF)
8A-18805-B (See Model 8MF880—Set 42-12 or Model 8MF980—Set 61-9)
8A-18805-B1 ... 83—4
8C-18805-B ... 47—9
8MF880 (8A-18805B) ... 42—12
8MF881 (8C-18805B) ... 47—9
8MF980 (8A-18805B) ... 61—9
8MF983 (8A-18805B-1) (8MF983-E (8A-18805) ... 83—4
8ZT (8C-18805-B) (See Model 8MF-881—Set 47-9)
9BF (8A-18805-A1) (See Model M-1—Set 46-4)
9DF (8A-18805-A) (See Model 8072—Set 44-4)
9MF (8A-18805-A3) (See Model 8072—Set 44-4)
9ZF (8A-18805-B1) (See Model 8MF983—Set 83-4)
51A-18805-A1 (See Model 6MF080—Set 10-18 or Model 6MF780—Set 62-12)
51A-18805-B2 ... 45—10
51AF-18805 (See Model 6MF780-E)
7070 (51A-18805-B2) ... 45—10
8072 (8A-18805-A) ... 44—4

GENERAL ELECTRIC—Cont.

●16T1, 16T2, 16T3, 16T4 .. 123—4
●16T5 (See Model 16T4—Set 123-4)
●17C101, 17C102 ... 123—4
●17C103, 17C104, 17C105 (Also see PCB 32—Set 158-1) ... 141—6
●17C107, 17C108, 17C109 (Also see PCB 32—Set 158-1) ... 141—6
●17C110, 17C111 (Early, "D" and "W" Versions) ... 180—5
●17C112 (See PCB 32—Set 158-1 and Model 17C103—Set 141-6)
●17C113 ... 166—10
●17C114 (See PCB 32—Set 158-1 and Model 17C103—Set 141-6)
●17C115 ... 166—10
●17C117 (See Model 17C113—Set 166-10)
●17C120 ... 166—10
●17C125 (See PCB 64—Set 201-1 and Model 21C201—Set 194-2)
●17C125-UHF (For TV Ch. see PCB 64—Set 201-1 and Model 21C201—Set 194-2, for UHF Conv. See Model UHF-103—Set 209-5)
●17C127 (See PCB 97—Set 242-1 and Model 21C115—Set 229-7)
●17T1, 17T2, 17T3 (Also see PCB 32—Set 158-1) ... 141—6
●17T4, 17T5, 17T6 (See PCB 32—Set 158-1 and Model 17C103—Set 141-6)
●17T7 (See Model 17C113—Set 166-10)

GENERAL ELECTRIC—Cont.

●21T1U-UHF (For TV Ch. see PCB 64—Set 201-1 and Model 21T1—Set 194-2, for UHF Conv. see Model UHF-103—Set 209-5)
●21T2 ... 196—3
●21T3 (See Model 21T1—Set 194-2)
●21T3-UHF (For TV Ch. see PCB 64—Set 201-1 and Model 21T1—Set 194-2, for UHF Conv. see Model UHF-103—Set 209-5)
●21T4, 21T5 ... 184—8
●21T6 (See Model 21T1—Set 194-2)
●21T6-UHF (For TV Ch. see PCB 64—Set 201-1 and Model 21T1—Set 194-2, for UHF Conv. see Model UHF-103—Set 209-5)
●21T7, 21T8 ... 225—10
●21T11, 21T12 (See PCB 97—Set 242-1 and Model 21C115—Set 229-7)
●21T14 (Also see PCB 97—Set 242-1) ... 229—7
●21T20, 21T21 ... 237—7
●21T22, 21T23, 21T24, 21T25 ... 265—6
●21T26, -UHF, 21T27, -UHF 264—7
●21T30, 21T31 ("J" Line) .. 275—8
●21T34 (See Model 17T20—Set 265-6)
●24C101 ... 152—8

GENERAL ELECTRIC—Cont.

620, 621, 622 ... 262—9
625, 626 (See Model 612—Set 231-9)
630, 631, 632 ... 261—7
640, 641 (See Model 614—Set 199-6)
650 ... 101—3
741 ... 157—6
752, 753 ... 123—5
754 ... 167—8
755 ... 130—6
756 ... 167—8
757 (See Model 755—Set 130-6)
●800A, B, C, D (See Model 805—Set 78-7)
●802 ... 91A—7
●803 ... 97A—4
●805, 806, 807, 809 Series 78—7
●810 ... 53—12
●811 ... 63—9
●814 ... 69—9
●815 ... 97A—5
●817 ... 78—7
●818 ... 95A—7
●821 ... 78—7
●830 Early ... 81—9
●835 Early ... 81—9
●840 ... 81—9
●901 ... 97A—5
●910 ... 97A—5

GENERAL IMPLEMENT

9A5 ... 37—7

GENERAL INDUSTRIES (See Changer and Recorder Listings)

GENERAL INSTRUMENT (Also see Record Changer Listing)

63A, 64 Tel. UHF Conv. ... 232—7

GENERAL MOTORS CORP. (GMC)

2233029 ... 93—6

GENERAL TELEVISION

1A5, 2A5, 3A5, 5A5 (Ch. 1-1) 1—21
4B5 ... 27—11
5B5G, 5B5Y ... 27—12
9A5 ... 39—6
9B6P ... 36—10
14A4F ... 3—21
15A5 (Ch. 1-1) ... 1—21
17A5 ... 5—22
19A5 (Ch. 1-1) ... 1—21
21A4 ... 12—14
22A5C ... 13—19
23A6 ... 14—14
24B6 ... 37—8
25B5 ... 26—15
26B5 ... 29—11
27C5 ... 36—11

GILFILLAN

56A, 56B ... 1—27
56BC1, 56BCR (See Model 56A—Set 1-27)
56C, 56D ... 1—27
56E (See Model 56A—Set 1-27)
58M, 58W ... 45—12
66A, 66AM ... 8—16
66B "The Overland" ... 8—17
66D, 66DM ... 8—16
66P, 66PM "The El Dorado" 9—15
68B-D ... 46—10
68F ... 46—11
68-48 ... 61—10
86C, 86P, 86U (86 Series) .. 26—16
108-48 ... 59—10

GLOBE

58P1 ... 18—20
6AP1 ... 20—12
6D1 ... 20—13
6P1 ... 20—12
6U1 ... 20—13
7CP-1 ... 28—14
51 ... 19—18
62C ... 19—19
85 ... 49—9
454 ... 41—9
456 ... 40—7
457 ... 39—7
500 ... 21—18
517 ... 21—17
551 ... 16—16
552 ... 27—13
553 ... 28—15
559 ... 50—8

GODFREY

6AD ... 28—17
6SM ... 28—17

GONSET

3-30 Meter Converter ... 61—11
10-11 Meter Converter ... 37—9
ATB-3 ... 70—5
NSA-20 ... 73—6

B. F. GOODRICH (Also see Mantola)

92-523, 92-524, 92-525, 92-526, 92-527, 92-528 ... 148—7

GOTHAM

●319 ... 209—6
●323 ... 251—8

GRANCO

CTU UHF Conv. ... 217—6
LCU UHF Conv. ... 251—9
MTU (Tel. UHF Conv.) ... 265—7

W. T. GRANT (See Grantline)

GRANTLINE

300 (Series B) ... 9—16
500, 501 (Series A) ... 9—17
501-7 ... 35—10
504-7 ... 21—19
508-7 ... 34—8
510-A ... 24—19
605, 616 ... 2—17
641 ... 12—15
651 ... 11—9
5610 ... 35—11
6547 ... 11—10

GROMMES

LJ-2 ... 260—8
LJ-3 ... 277—6
50PG, 51PG ... 163—6
50PG2 ... 206—6
100BA ... 189—10
117PS ... 190—3
205PA ... 191—10
206PA ... 262—10
210PA ... 190—3
215BA ... 198—8

HALLICRAFTERS (Also see Echophone)

A-84 (Run 1) ... 209—7
ATCL-9, -10, -11 (Run 1) .. 225—11
CA-2, CA-2A ... 30—12
CA-4 ... 36—13
S-38 ... 3—7
S-38B ... 121—7
S-38C (Run 2) ... 190—4
S-40 ... 2—19
S-40A ... 33—10
S-40B ... 122—4
S-41G, S-41W ... 10—19
S-47 ... 46—12
S-51 ... 40—8
S-52 ... 48—9
S-53 ... 39—8
S53A, AU ... 171—5
S-55, S-56 ... 55—9
S-58 ... 57—8
S-59 ... 58—10
S-72 ... 82—6
S-72L ... 173—6
S-76, S-76U ... 143—9
S-77 ... 146—7
S-78 ... 124—5
S-78A (Run 1) ... 180—6
S-80 ... 162—6
S-81 ... 166—11
S-82 ... 167—9
ST-74 ... 125—8
ST-83 ... 218—5
SX-42 ... 44—6
SX-43 ... 45—13
SX-62 ... 61—12
SX-71 ... 111—6
●T-54 (Early) ... 48—10
●T-54 (Late) ... 91—6
●T-60 ... 63—10
●T-61, T-64, T-67 (Also see PCB 32—Set 158-1) ... 65—7
●T-68 ... 63—10
TW-25 (Runs 1 and 2) ... 224—9
TW-500 (Runs 1 and 2) ... 251—10
TW-600 (Runs 1 and 2) ... 251—10
TW-1000 (Run 1) ... 221—5
TW-2000 (Run 1) ... 273—7
5R10 ... 130—7
5R10A (Run 1) ... 155—7
5R10A (Run 4) [See Model 5R10A (Run 1)—Set 155-7]
5R11, 5R12, 5R13, 5R14 .. 129—7
5R18, 5R19, 5R20, 5R21, 5R22 (See Model 5R11—Set 129-7)
5R24 ... 168—7
5R30, A, 5R31, A, 5R32, A, 5R33, A, 5R34, A ... 170—8
5R50, 5R51, 5R52 ... 179—6
5R100A (Run 4) [See Model 5R10A (Run 1)—Set 155-7]
5R230, 5R231, 5R232 (Run 1) ... 227—8
8R40, 8R40C ... 181—7
●17T310B, M, W (Ch. A1600D) (Also See PCB 122—Set 276-1) 253—7
400, 406, 409, 410, 411, 412 ... 52—9
●505 (Early) ... 48—10
505 (Late) [See Model T-54 (Late)—Set 91-6]
●506 (Early) (See Model 505 (Early)—Set 48-10]
●506 (Late) ... 91—6
●509, 510 (Also see PCB 32—Set 158-1) ... 65—7
●511 ... 96—5
●512C, 513 ... 80—7
●514 ... 91—6
●515 ... 80—7
●518, 519, 520 ... 92—3
●520E ... 80—7
●521 ... 92—3
●521E ... 80—7
●524 ... 80—7
●600, 601, 602, 603, 604 .. 92—3
●605, 606 ... 107—5
611, 612 ... 250—12
621, 622 ... 271—5
●680, 681 ... 113—3
●690 ... 113—3
●715, A ... 113—3
●716 (See Model 680—Set 113-3)
●730, 731 (Run 1) (See Model 680—Set 113-3)
●740, 741 (Run 1) (See Model 680—Set 113-3)
●745 ... 105—4
●750, 751 ... 105—4
●760, 761 ... 105—4
●805, 806 ... 136—9
●810 ... 136—9
●810A ... 124—6
●810C (See Model 805—Set 136-9)
●811 ... 124—6
●815 ... 124—6
●818, 820 ... 124—6
●821 (See Model 810A—Set 124-6)
●822 ... 124—6
●832, 833 ... 121-1A
●860, 861 ... 124—6
●870, 871 (See Model 810A—Set 124-6)
●880 (See Model 810A—Set 124-6)
●1000 (Ch. W1000D) ... 180—7
●1001 (Ch. F1100D) (See Model 1002—Set 169-7)
●1002, 1003, 1004 (Ch. F1100D) ... 169—7
●1005, 1006 (Ch. A1100D) 177—8
●1007 (Ch. F1100D) ... 169—7
●1008 (Ch. X1000D) ... 180—7
●1010P (Ch. A-1200D, K1200D, W1200D) ... 188—6
●1012P (Ch. A-1200D, K1200D, W1200D) ... 188—6
●1013C (Ch. F1200D) ... 188—6

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250 ● Denotes Television Receiver.

HALLICRAFTERS—Cont.

●1015, 1016, 1017, 1018, 1019 (Ch. A1100D) ....177—8
●1019 (Ch. Z1000D) ....180—7
●1021P (Ch. D1200D, L1200D, X1200D) ....188—6
●1022C (Ch. G1200D) ....188—6
●1025 (Ch. C1000D) ....172—4
●1026P (Ch. D1200D, L1200D, X1200D) ....188—6
●1027C (Ch. G1200D) ....188—6
●1050, A (Ch. AL1200D) (Also see PCB 81—Set 222-1) ....211—7
●1051P, 1052P (Ch. P1200D) (See PCB 75—Set 216-1 and Model 1010P—Set 188-6)
●1053P, 1054P (Ch. R1200D) (See PCB 75—Set 216-1 and Model 1010P—Set 188-6)
●1055C, 1056C (Ch. T1200D) (See PCB 75—Set 216-1 and Model 1010P—Set 188-6)
●1060C, 1061C (Ch. T1200D) (See PCB 75—Set 216-1 and Model 1010P—Set 188-6)
●1062C, 1063C (Ch. J1200D) (See PCB 75—Set 216-1 and Model 1010P—Set 188-6)
●1072 (Ch. AG1200D) ....211—7
●1072A (Ch. AR1200D) ....211—7
●1074 (Ch. AG1200D) ....211—7
●1074A (Ch. AR1200D) ....211—7
●1074AT (Ch. AY1200D) (Also see PCB 81—Set 222-1) ....211—7
●1075 (Ch. AG1200D) ....211—7
●1075A (Ch. AR1200D) ....211—7
●1075AT (Ch. AY1200D) (Also see PCB 81—Set 222-1) ....211—7
●1077 (Ch. AH1200D) ....211—7
●1078 (Ch. AG1200D) ....211—7
●1078A (Ch. AR1200D) ....211—7
●1078AT (Ch. AY1200D) (Also see PCB 81—Set 222-1) ....211—7
●1081, A (Ch. AJ1200D) (Also see PCB 81—Set 222-1) ....211—7
●1081B (Ch. AZ1200D (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1081C (Ch. BA1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1081D (Ch. AZ1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1081E (Ch. BA1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1085A (Ch. AJ1200D) (Also see PCB 81—Set 222-1) ....211—7
●1085B (Ch. AZ1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1085C (Ch. BA1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1085D (Ch. AZ1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1085E (Ch. BA1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1088A (Ch. AJ1200D) (Also see PCB 81—Set 222-1) ....211—7
●1088B (Ch. AZ1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1088C (Ch. BA1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1088D (Ch. AZ1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1092 (Ch. AZ1200D) (See PCB 81—Set 222-1 and Model 1050—Set 211-7)
●1111P (Ch. A1200D) ....188—6
●1113P (Ch. D1200D) ....188—6
1621, 1622 (Run 1) ....253—8
●14808 (Ch. R900D) ....167—10
●17804C ....155—8
●17810M ....152—9
●17811-H ....156—6
●17812, 17813, 17814, 17815-H ....155—8
●17816, 17817 ....156—6
●17819 ....155—8
●17824 ....155—8
●17824-A ....165—6
●17825 (See Model 17804C—Set 155-8)
●17829 (Ch. F1100D) (See Model 1002—Set 169-7)
●17838 ....155—8
●17848, 17849, 17850 ....155—8
●17860-H, 17861-H ....156—6
●17905 (See Model 17810-M—Set 152-9)
●17906 ....165—6
●17908 (See Model 17824-A—Set 165-6)
●17922 (See Model 17824-A—Set 165-6)
●17930, 17931, 17932, 17933, 17934 ....165—6
●20823 (Ch. M900D) ....167—10
●20823B (Ch. L900D) ....167—10
●20823C ....165—6
●20882 ....155—8
●20990, 20990S, 20994 ....154—6
●21923 ....165—6
●21928 ....165—6
●21940 ....165—6
●21980 ....165—6
Ch. A1100D (See Model 1005)
Ch. A1200D (See Model 1010P)
Ch. A1600D (See Model 17T310B)
Ch. AG1200D (See Model 1072)
Ch. AH1200D (See Model 1077)
Ch. AJ1200D (See Model 1081)
Ch. AL1200D (See Model 1050)
Ch. AR1200D (See Model 1072A)
Ch. AX1200D (See Model 1092)
Ch. AY1200D (See Model 1074AT)
Ch. AZ1200D (See Model 1081B)
Ch. BA1200D (See Model 1081C)
Ch. D1200D (See Model 1021P)
Ch. F1200D (See Model 1013C)
Ch. G1200D (See Model 1022C)
Ch. J1200D (See Model 1062C)

HALLICRAFTERS—Cont.

Ch. K1200D (See Model 1010P)
Ch. L1200D (See Model 1021P)
Ch. P1200D (See Model 1051P)
Ch. R1200D (See Model 1053P)
Ch. T1200D (See Model 1055C)
Ch. W1000D (See Model 1000)
Ch. W1200D (See Model 1010P)
Ch. X1000D (See Model 1008)
Ch. X1200D (See Model 1021P)
Ch. Z1000D (See Model 1019)

HAMILTON ELECTRONICS

H-15-S ....16—17
H-20-2S ....16—18

HAMILTON RADIO CORP. (See Olympic)

HAMMARLUND

HQ-129-X ....8—18
SP-400-X ....10—20

HARVEY-WELLS

AT-3B-6, AT-3B-12 ....32—11
ATR-3-6, ATR-2-12 ....36—14

HEATH

HBR-5 ....24—20

HOFFMAN

A-200 (Ch. 103) ....4—23
A-202 (Ch. 119) ....11—11
A-300 ....4—41
A-309 (Ch. 119) ....11—11
A-401 (Ch. 102) ....11—12
A-500 (Ch. 107) ....4—34
A-501 (Ch. 108ST) ....3—35
A-700 (Ch. 110S) ....12—16
B-400 ....17—17
B-1000 ....20—14
C-501 ....48—11
C-502 ....51—9
C-503 ....50—9
C-504 (Ch. 123) ....47—10
C-506, C-507 ....49—10
C-511 ....48—11
C-512 ....51—9
C-513 ....50—9
C-514 ....47—10
C-518 ....61—13
C710 (Ch. 133) ....*
C1006, C1007 ....54—9
●CT-800, CT-801, CT-900, CT-901 ....63—11
●7B104 (Ch. 190, B) ....201—5
●7B110B (Ch. 210, M) ....205—5
●7B113 (Ch. 202) ....205—5
●7B113B (Ch. 212, M) ....194—4
●7B128 (Ch. 212) (See Model 7B113B—Set 194-4)
●7B141, U (Ch. 300-17) (Also see PCB 108—Set 256-1) ....236—6
●7B157, U (Ch. 301-17) ....254—6
●7B303 (Ch. 190, B) ....201—5
●7M103 (Ch. 190, B) ....201—5
●7M109 (Ch. 200) ....205—5
●7M109B (Ch. 210, M) ....205—5
●7M112 (Ch. 202) ....205—5
●7M112B (Ch. 212, M) ....194—4
●7M127 (Ch. 212) (See Model 7B113B—Set 194-4)
●7M140, U (Ch. 300-17) (Also see PCB 108—Set 256-1) ....236—6
●7M156, U (Ch. 301-17) ....254—6
●7M302 (Ch. 190, B) ....201—5
●7P105 (Ch. 190, B) ....201—5
●7P111B (Ch. 210, M) ....205—5
●7P114B (Ch. 212, M) (See Model 7B113B—Set 194-4)
●7P304 (Ch. 190, B) ....201—5
●20B102 (Ch. 183T) ....168—8
●20B102F (Ch. 194) ....201—5
●20B501 (Ch. 183T) ....168—8
●20M101 (Ch. 183T) ....168—8
●20M101F (Ch. 194) ....201—5
●20M500 (Ch. 183T) ....168—8
●20P502 (Ch. 183T) ....168—8
●21B107 (Ch. 191, B) ....201—5
●21B116 (Ch. 196, M) ....195—8
●21B122 (Ch. 211, M) ....194—4
●21B134 (Ch. 211) (See Model 21B122—Set 194-4)
●21B137 (Ch. 196) (See Model 21B116—Set 195-8)
●21B144, U (Ch. 300-21) (Also see PCB 108—Set 256-1) ....236—6
●21B147, U (Ch. 401-21) ....249—8
●21B154, U (Ch. 301-21) ....254—6
●21B161, U (Ch. 406-21) ....250—13
●21B161A, U (Ch. 406-21) (See Model 21B161—250-13)
●21B164, U (Ch. 301-21) ....254—6
●21B164X, U (Ch. 301X-21) (See Model 21B154—Set 254-6)
●21B167, U (Ch. 302) ....254—6
●21B167A, U (Ch. 302) (See Model 21B167—Set 254—6)
●21B301 (Ch. 191, B) ....201—5
●21B306B (Ch. 211, M) ....194—4
●21B309 (Ch. 196M, T) ....195—8
●21B315 (Ch. 211T) (See Model 21B122—Set 194-4)
●21B318, U (Ch. 300-21) (Also see PCB 108—Set 256-1) ....236—6
●21B321, U (Ch. 400-21) ....249—8
●21B331, U (Ch. 405-21) ....250—13
●21B334, U (Ch. 405-21) ....250—13
●21B337, U (Ch. 301-21) ....254—6
●21B337P, U (Ch. 302) ....254—6
●21B339, U (Ch. 406-21) (See Model 21B161—Set 250-13)
●21B352, U (Ch. 408-21) ....277—7
●21B352L, LU (Ch. 408-21L) 277—7
●21B352N, NU (Ch. 408-21N) ....277—7
●21B504 (Ch. 191, B) ....201—5
●21B507 (Ch. 211, M) ....194—4
●21B510, T (Ch. 196) (See Model 21B116—Set 195-8)
●21B701 (Ch. 191, B) ....201—5
●21B701 (Ch. 196M, T) ....195—8
●21B716 (Ch. 211T) (See Model 21B122—Set 194-4)
●21B719, U (Ch. 300-21) (Also see PCB 108—Set 256-1) ....236—6
●21B723, U (Ch. 400-21) ....249—8
●21B729U (Ch. 408-21) ....277—7
●21B901 (Ch. 192) (TV Ch. only) ....201—5

HOFFMAN—Cont.

●21B904 (Ch. 213, M) ....211—8
●21B907 (Ch. 199, M, T and Radio Ch. 182) ....221—6
●21B911 (Ch. 375-21) (See PCB 108—Set 256-1 and Model 21B144—Set 236-6)
●21M106 (Ch. 191, B) ....201—5
●21M115 (Ch. 196, M) ....195—8
●21M121 (Ch. 211, M) ....194—4
●21M133 (Ch. 211) (See Model 21B122—Set 194-4)
●21M136 (Ch. 196) (See Model 21B116—Set 195-8)
●21M143, U (Ch. 300-21) (Also see PCB 108—Set 256-1) ....236—6
●21M146, U (Ch. 401-21) ....249—8
●21M153, U (Ch. 301-21) ....254—6
●21M160, U (Ch. 406-21) ....250—13
●21M160A, U (Ch. 406-21) (See Model 21M160—Set 250-13)
●21M163, U (Ch. 301-21) (See Model 21B154—Set 254-6)
●21M163X, U (Ch. 301X-21) (See Model 21B154—Set 254-6)
●21M166, U (Ch. 302) ....254—6
●21M166A, U (Ch. 302) (See Model 21M166—Set 254-6)
●21M300 (Ch. 191, B) ....201—5
●21M305 (Ch. 201) ....205—5
●21M305B (Ch. 211, M) ....194—4
●21M308 (Ch. 196M, T) ....195—8
●21M314 (Ch. 211T) (See Model 21B122—Set 194-4)
●21M317, U (Ch. 300-21) (Also see PCB 108—Set 256-1) ....236—6
●21M320, U (Ch. 400-21) ....249—8
●21M330, U (Ch. 406-21) ....250—13
●21M333, U (Ch. 406-21) ....250—13
●21M336, U (Ch. 301-21) ....254—6
●21M336P, U (Ch. 302) ....254—6
●21M339, U (Ch. 406-21) (See Model 21B161—Set 250-13)
●21M351, U (Ch. 408-21) ....277—7
●21M351L, LU (Ch. 408-21L) 277—7
●21M351N, NU (Ch. 408-21N) ....277—7
●21M503 (Ch. 191, B) ....201—5
●21M506 (Ch. 211, M) ....194—4
●21M509 (Ch. 196) (See Model 21B116—Set 195-8)
●21M700 (Ch. 191, B) ....201—5
●21M700 (Ch. 196M, T) ....195—8
●21M715 (Ch. 211T) (See Model 21B122—Set 194-4)
●21M718, U (Ch. 300-21) (Also see PCB 108—Set 256-1) ....236—6
●21M721, U, 21M722, U (Ch. 400-21) ....249—8
●21M728L, LU (Ch. 408-21L) 277—7
●21M728N, NU (Ch. 408-21N) ....277—7
●21M728U (Ch. 408-21) ....277—7
●21M900 (Ch. 192) (TV Ch. only) ....201—5
●21M903 (Ch. 213, M) ....211—8
●21M906 (Ch. 199, M, T and Radio Ch. 182) ....221—6
●21M910 (Ch. 375-21) (See PCB 108—Set 256-1 and Model 21B144—Set 236-6)
●21P108 (Ch. 191, B) ....201—5
●21P117 (Ch. 196, M) ....195—8
●21P123 (Ch. 211, M) ....194—4
●21P145, U (Ch. 300-21) (Also see PCB 108—Set 256-1) ....236—6
●21P148, U (Ch. 401-21) ....249—8
●21P168, U (Ch. 302) ....254—6
●21P307B (Ch. 211, M) ....194—4
●21P310 (Ch. 196M, T) ....195—8
●21P322, U (Ch. 400-21) ....249—8
●21P332, U (Ch. 405-21) ....250—13
●21P338P, U (Ch. 302) ....254—6
●21P353, U (Ch. 408-21) ....277—7
●21P353L, LU (Ch. 408-21L) 277—7
●21P353N, NU (Ch. 408-21N) ....277—7
●21P505 (Ch. 191, B) ....201—5
●21P508 (Ch. 211, M) ....194—4
●21P511 (Ch. 196) (See Model 21B116—Set 195-8)
●21P702 (Ch. 191, B) ....201—5
●21P702 (Ch. 196M, T) ....195—8
●21P717 (Ch. 211T) (See Model 21B122—Set 194-4)
●21P720, U (Ch. 300-21) (Also see PCB 108—Set 256-1) ....236—6
●21P724, U (Ch. 400-21) ....249—8
●21P730, U (Ch. 408-21) ....277—7
●21P731, U (Ch. 408-21) ....277—7
●21P731L, LU (Ch. 408-21L) 277—7
●21P731N, NU (Ch. 408-21N) ....277—7
●21P902 (Ch. 192) (TV Ch. only) ....201—5
●21P905 (Ch. 213, M) ....211—8
●21P908 (Ch. 199, M, T and Radio Ch. 182) ....221—6
●21P912 (Ch. 375-21) (Also see PCB 108—Set 256-1) ....236—6
●21U208, U (Ch. 408-21B) ....277—7
●21U208N, NU (Ch. 408-21N) ....277—7
●24B151, U (Ch. 402-24) ....257—7
●24B707 (Ch. 187, B, C) ....159—6
●24B726, U (Ch. 402-24) ....257—7
●24B732, U (Ch. 410-24) ....277—7
●24M150, U (Ch. 402-24) ....257—7
●24M354, U (Ch. 410-24) ....277—7
●24M708 (Ch. 187, B, C) ....159—6
●24M725, U (Ch. 403-24) ....257—7
●24P152, U (Ch. 402-24) ....257—7
●24P356, U (Ch. 410-24) ....277—7
●24P727, U (Ch. 403-24) ....257—7
●24P733, U (Ch. 410-24) ....277—7
●24U-211, U (Ch. 410-24B) 277—7
●27M709 (Ch. 197) ....219—6
●600 (Ch. 154) ....95A—8
●601 (Ch. 155) ....95A—8
●610 (Ch. 140) ....97A—6
●612 (Ch. 142) ....97A—6
●613 (Ch. 149) ....97A—6
●630, 631 (Ch. 170) ....150—7
●632, 633, 634, 635 (Ch. 171) ....150—7
●634A, 635A (Ch. 173) ....150—7
●636, 637 (Ch. 183) ....141—7
●636B, 637B (Ch. 183 B) ....168—8
●638, 639 (Ch. 180) ....144—5

HOFFMAN—Cont.

●826, 827, 828 (Ch. 143) ....95A—8
●830, 831 (Ch. 151) ....97A—6
●832 (Ch. 151) (See Model 830—Set 97A-6)
●836, 837 (Ch. 153) ....93A—8
●840 (Ch. 153) ....93A—8
●846 (Ch. 151) (See Model 830—Set 97A-6)
●847, 848, 849 (Ch. 156) ....97A—7
●860, 861, 862 (Ch. 157) ....97A—7
●866, A, 867, A, 868, A (Ch. 173) ....150—7
●870, 871, 872 (Ch. 170) ....150—7
●876, 877, 878 (Ch. 171) ....150—7
●876A, 877A, 878A (Ch. 173) ....150—7
●880, 881, 882, 883, 884, 885, 886, 887 (Ch. 183) ....141—7
●886B, 887B (Ch. 183B) ....168—8
●890, 891, 892 (Ch. 175) ....150—7
●893, 894, 895, 896, 897 (Ch. 185) ....141—7
●896B, 897B (Ch. 183T) ....168—8
●902 (Ch. 141, Radio Ch. 137) ....*
●912, 913 (Ch. 147) ....95A—8
●914, 915 (Ch. 150) ....97A—6
●917, 918 (Ch. 152) ....97A—6
●920 (Ch. 152) (See Model 830—Set 97A-6)
●946, 947, 948 (Ch. 164) ....97A—7
●950, 951, 952 (Ch. 172), 950A, 951A, 952A (Ch. 174) ....127—6
●953, 954, 955 (Ch. 184) ....141—7
●960, 961, 962 (Ch. 176) ....127—6
●963, 964, 965 (Ch. 186 ....141—7
Ch. 102 (See Model A401)
Ch. 103 (See Model A200)
Ch. 107 (See Model A500)
Ch. 108ST (See Model A501)
Ch. 110S (See Model A700)
Ch. 114 (See Model B1000)
Ch. 119 (See Model A202)
Ch. 123 (See Model C504)
Ch. 137 (See Model 902)
Ch. 140 (See Model 610)
Ch. 141 (See Model 902)
Ch. 142 (See Model 612)
Ch. 143 (See Model 826)
Ch. 147 (See Model 826)
Ch. 149 (See Model 613)
Ch. 150 (See Model 914)
Ch. 151 (See Model 830)
Ch. 152 (See Model 917)
Ch. 153 (See Model 836)
Ch. 154 (See Model 600)
Ch. 155 (See Model 601)
Ch. 156 (See Model 847)
Ch. 157 (See Model 860)
Ch. 164 (See Model 946)
Ch. 170, 171 (See Model 630)
Ch. 172 (See Model 950)
Ch. 173 (See Model 634A)
Ch. 174 (See Model 950A)
Ch. 175 (See Model 890)
Ch. 176 (See Model 960)
Ch. 182 (See Model 21M907)
Ch. 183 (See Model 636)
Ch. 183B, 183M, 183T (See Model 636B)
Ch. 186 (See Model 963)
Ch. 187, B, C (See Model 24B707)
Ch. 190, B (See Model 7B104)
Ch. 191, B (See Model 21B107)
Ch. 192 (See Model 21B901)
Ch. 194 (See Model 20B102F)
Ch. 196, M (See Model 21B116)
Ch. 196T (See Model 21B701)
Ch. 197 (See Model 27M709)
Ch. 199 (See Model 21B907)
Ch. 200 (See Model 7B110B)
Ch. 201 (See Model 21M305)
Ch. 202 (See Model 7B113)
Ch. 210, M (See Model 7M109B)
Ch. 211, M (See Model 21B122)
Ch. 211T (See Model 21B315)
Ch. 212, M (See Model 7B113B)
Ch. 213, M (See Model 21B904)
Ch. 300-17 (See Model 7B141 U)
Ch. 300-21 (See Model 21B144, U)
Ch. 301-17 (See Model 7B157)
Ch. 301-21 (See Model 21B154)
Ch. 301X-21 (See Model 21B164X)
Ch. 302 (See Model 21B167)
Ch. 375-21 (See Model 21B911)
Ch. 400-21 (See Model 21B321)
Ch. 401-21 (See Model 21B147)
Ch. 402-24 (See Model 24B151)
Ch. 403-24 (See Model 24B726)
Ch. 405-21 (See Model 21B331)
Ch. 406-21 (See Model 21B161)
Ch. 408-21, B, L, N (See Model 21B352)
Ch. 410-24, B (See Model 24B732)

HOWARD

472AC, 472AF, 472C, 472F ....31—14
474 ....32—12
●475TV Photofact Servicer .. 84
481B, 481C, 481M ....67—11
482, 482A ....48—12
901A-E, -H, -I, -M, -W (See Model 901A Series—Set 1-8)
901A Series ....1—8
901AP ....10—21
906, 906C ....17—18
909M ....25—15
920 ....5—7

HUDSON (Auto Radio)

DB47 (Fact. No. 6MH089). 25—16
DB848 (Fact. No. 6MH889) 39—9
225908 (Early) ....149—6
225908 (Late) (Ch. 749-1). 167—11
229403 (Ch. 749-2) ....167—11
236476 (SH759) ....215—8
236486 (SH758) ....214—4
238060 (SH758) ....214—4

HUDSON (Dept. Stores)

●30T14A-056 (Similar to Chassis) ....119—3
●38T12A-058 (Similar to Chassis) ....109—1
●317T3 (Similar to Chassis) . 72—4
●318T4 (Similar to Chassis) . 85—3
●318T4S (Similar to Chassis) 85—3
●318T4-872 (Similar to Chassis) ....85—3

HUDSON—Cont.

●318T6A (Similar to Chassis) 85—3
●318T6A-950 (Similar to Chassis) ....85—3
●318T9A-900 (Similar to Chassis) ....78—4
●321MS31C-A (Similar to Chassis) ....182—5
●321MS39A (Similar to Chassis) ....226—11
●518T6A (Similar to Chassis) 85—3
●518T9A-918 (Similar to Chassis) ....78—4
●518T10A-916 (Similar to Chassis) ....78—4
●2318T6A-954 (Similar to Chassis) ....85—3
●2318T9A-912 (Similar to Chassis) ....78—4
●2321MS39A (Similar to Chassis) ....226—11

HUDSON ELECTRONICS

RPM-71 ....186—6
3W ....191—11
11 ....194—5
39HB ....186—7
310R ....190—5
312H ....194—5
324H ....198—9
332H ....123—6
347BL ....121—8
350 ....126—6
374H ....188—7
388 ....191—12

HYDE PARK

●AR14L ....169—8
●AR17L ....169—8
●MST12, MST14 ....168—9
●14TR, 16TR ....168—9
●17CD (1st Prod.) ....168—9
●17CD (2nd Prod.) ....169—8
●17CRR (1st Prod.) ....168—9
●17CRR (2nd Prod.) ....169—8
●17ROG (1st Prod.) ....168—9
●17ROG (2nd Prod.) ....169—8
●20CD (1st Prod.) ....168—9
●20CD (2nd Prod.) ....169—8
●20TR ....168—9
●112X ....168—9
●203D (1st Prod.) ....168—9
●203D (2nd Prod.) ....169—8
●312 ....168—9
●819 ....168—9
●1000, 1001 ....169—8
●3163CR ....168—9
●8163CR ....168—9
●8193CM ....168—9

INDUSTRIAL ELECTRONIC CORP. (See Simplon)

INDUSTRIAL TELEVISION (Also see Century)

●IT-40R, IT-42R (Ch. IT-26R, IT-35R, IT-39R, IT-46R) ....99A—7
●721, 821, 921, 1021 (Ch. IT-21R) ....97A—8

INTERNATIONAL ELECTRONICS (See Recorder Listing)

JACKSON

DP-51 ....156—7
JP-20 ....173—7
JP-30 ....153—7
JP-50 ....155—9
JP-200 ....171—6
JP-300 ....174—7
JP-400 ....171—6
●10C, 10T ....132—8
●12C, 12T ....132—8
●14C, 14T ....132—8
●16C, 16T ....132—8
●17XC, 17XT (See Model 10C—Set 132-8)
●20XC, 20XT (See Model 10C—Set 132-8)
150 ....130—8
153 (See Model 150—Set 130-8)
●214A, 217A, B, C, 220A, B, 221A, B ....171—7
254 ....173—8
255 ....179—7
●312 ....132—8
●316 ....132—8
350 ....131—9
●412 ....132—8
●416 ....132—8
●1400T (See Model 10C—Set 132-8)
●1700, T (See Model 10C—Set 132-8)
●2000C (See Model 10C—Set 132-1)
●5000, 5050 ....88—5
●5200, 5250 ....88—5
●5600, 5650 ....88—5
●Ch. 114H ....162—7
●Ch. 116H, 117H ....162—7
●Ch. 120H ....162—7
●Ch. 317-B, -D ....226—3
●Ch. 321-B, -D ....226—3

JEFFERSON-TRAVIS

MR-28 ....10—22
MR3 ....17—19

JEWEL

●17C9, 17T9, 17TW7 ....187—7
●21C9, 21T9 ....187—7
300 ....23—11
304 ....35—12
500A, B, C; 501A, B, C; 502A, B, C; 503A, B, C; 504A, B, C; 505A, B, C ....15—14
505 "Pin-Up" ....18—21
801 (Trixie) ....45—14
814 ....51—10
910 ....99—8
915 ....99—8
920A ....55—10
921 (See Model 920—Set 55-10)
935, 936 (See Model 920—Set 55-10)
949 ....105—5
955 ....98—5
956 ....144—6
960 ....97—8
960U, 961 (See Model 960—Set 97-8)

NOTE: PCB Denotes **Production Change Bulletin**. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250
● Denotes Television Receiver.

JEWEL—Cont.

985 ... 99—8
5007 ... 183—7
5010 ... 111—7
5020 ... 136-10
5020U (See Model 5020—Set 136-10)
5040 ... 160—5
5050 ... 128—7
5057U ... 109—7
5100, E, U ... 159—7
5125U ... 217—7
5200 ... 194—6
5205 ... 196—4
5250 ... 206—7
5310 ... 225-12

KAISER-FRAZER

100170 ... 128—8
100205 ... 139—6
100330 (See Model 100170—Set 128-8)
200001 ... 35-13
200002 ... 56-13

KAPPLER

102T ... 54-10

KARADIO

M80B ... 233—3
80C ... 66-10
1275, 1275A ... 85—7
1276 ... 115—4

KAYE-HALBERT

● C-024 (Ch. 253) (For TV Ch. only See PCB 63—Set 197-1 and Model 014—Set 146-8)
● 012 (Ch. 243) ... 169—9
● 014 (Ch. 253) (Also see PCB 63—Set 197-1) ... 146—8
● 024 (Ch. 253) (Also see PCB 63—Set 197-1) ... 146—8
● 033, 034, 035, 036, 037 (Ch. 242) ... 139—7
● 044, 045, 046 (Ch. 253) (Also see PCB 63—Set 197-1) ... 146—8
● 074, 076, 077 (Ch. 253) (Also see PCB 63—Set 197-1) ... 146—8
● 104, 114 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012—Set 169-9)
● 104 (Ch. 243) (See Model 012—Set 169-9)
● 114 (Ch. 243) (See Model 012—Set 169-9)
● 114DX (Ch. 253DX) (Also see PCB 45—Set 179-1) ... 170—9
● 122 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012 — Set 169-9)
● 122 (Ch. 243) (See Model 012—Set 169-9)
● 124 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012 — Set 169-9)
● 124 (Ch. 243) (See Model 012—Set 169-9)
● 138 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012 — Set 169-9)
● 138 (Ch. 243) (See Model 012—Set 169-9)
● 144, 145, 146 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012—Set 169-9)
● 144, 145, 146 (Ch. 243) (See Model 012—Set 169-9)
● 146 (Ch. 253) (See Model 014—Set 146-8)
● 146 (Ch. 253DX) (See PCB 45—Set 179-1 and Model 114DX—Set 170-9)
● 154, 164 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012—Set 169-9)
● 154 (Ch. 243) (See Model 012—Set 169-9)
● 164 (Ch. 243) (See Model 012—Set 169-9)
● 174 (Ch. 243) (See Model 012—Set 169-9)
● 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241 (Ch. 231, 242) ... 139—7
● 314 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012 — Set 169-9)
● 314 (Ch. 253DX) (See PCB 45—Set 179-1 and Model 114DX—Set 170-9)
● 322 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012—Set 169-9)
● 322 (Ch. 253DX) (See PCB 45—Set 179-1 and Model 114DX—Set 170-9)
● 324 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012 — Set 169-9)
● 324 (Ch. 253DX) (See PCB 45—Set 179-1 and Model 114DX—Set 170-9)
● 338 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012 — Set 169-9)
● 338 (Ch. 253DX) (See PCB 45—Set 179-1 and Model 114DX — Set 170-9)
● 344 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012 — Set 169-9)
● 344 (Ch. 253DX (See PCB 45—Set 179-1 and Model 114DX—Set 170-9)
● 354 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012 — Set 169-9)
● 354 (Ch. 253DX) (See PCB 45—Set 179-1 and Model 114DX—Set 170-9)
● 356 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012—Set 169-9)
● 356 (Ch. 253DX) (See PCB 45—Set 179-1 and Model 114DX—Set 170-9)
● 385 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012 — Set 169-9)

KAYE-HALBERT—Cont.

● 385 (Ch. 253DX) (See PCB 45—Set 179-1 and Model 114DX—Set 170-9)
● 394, 395, 396 (Ch. 263) (See Ch. 263—Set 217-8)
● 424, 425, 426 (Ch. 253) (Also see PCB 63—Set 197-1) ... 146—8
● 425, 426 (Ch. 253DX) (See PCB 45—Set 179-1 and Model 114DX—Set 170-9)
● 426 (Ch. F-243) (See PCB 96—Set 241-1 and Model 012 — Set 169-9)
● 426 (Ch. 243) (See Model 012—Set 169-9)
● 428 (Ch. 253DX) (See PCB 45—Set 179-1 and Model 114DX—Set 170-9)
● 714 (Ch. 253) (Also see PCB 63—Set 197-1) ... 146—8
● 724 (Ch. 253) (Also see PCB 63—Set 197-1) ... 146—8
● 731, 733 (Ch. 231, 242) ... 139—7
● 734, 735, 736, 737 (Ch. 242) ... 139—7
● 744, 745 (Ch. 253) (Also see PCB 63—Set 197-1) ... 146—8
● 777 (Ch. 253) (Also see PCB 63—Set 197-1) ... 146—8
● 914 (Ch. 253) (Also see PCB 63—Set 197-1) ... 146—8
● 924 (Ch. 253) (See PCB 63—Set 197-1 and Model 014 — Set 146-8)
Ch. F-243 (See Model 104)
Ch. 231 (See Model 231)
Ch. 242 (See Model 033)
Ch. 243 (See Model 012)
Ch. 253 (See Model 014)
Ch. 253DX (See Model 114DX)
● Ch. 263 ... 217—8

KAY MUSICAL INSTRUMENT CO.

77 ... 42-13

KEENEY (J. H.) (See Croydon)

KITCHENAIRE

5 Tube Radio ... 6-14

KNIGHT (Also see Recorder Listing)

SX8L727 ... 244—6
SX10L722 (See Model 722—Set 240-4)
SX11L719 ... 246—7
SX14L721 ... 252—9
SX19L720 ... 248—8
4D-450 ... 40—9
4G-420 ... 88—6
5A150, 5A152, 5A154 ... 12-17
5A-190 ... 14-15
5B-160 ... 20-15
5B-175, 5B-176 ... 20-16
5B-185 ... 22-17
5C-290 ... 30-13
5D-250, 5D-251 ... 55-11
5D-455 ... 34—9
5E-250, 5E-251 (Similar to Chassis) ... 36-25
5E-457 (Similar to Chassis) 53-23
5F-525, 5F-526 ... 53-13
5F-565 ... 55-12
5G-563 (Similar to Chassis) 97—1
5H-570 ... 143-10
5H-571 (See Model 5H-570—Set 143-10)
5H-605 ... 131-10
5H-607, 5H-608 (Similar to Chassis) ... 97-15
5H-678, 5H-679 (Similar to Chassis) ... 109—7
5H-700 ... 123—7
5J-705 ... 174—8
5K715 ... 215—9
6A-122 ... 9-18
6A-127 ... 9-19
6A-195 ... 16-19
6B-122 (See Model 6A-122—Set 9-18)
6B-127 (See Model 6A-127—Set 9-19)
6C-225 ... 30-14
6D-225, 6D-226 (See Model 6C-225—Set 30-14)
6D-235 ... 54-11
6D-360 ... 39-10
6G-400 (See Model 449—Set 83-5)
6H-580 ... 126—7
6K718 ... 217—9
7B-220 ... 27-14
7D-405 ... 39-11
8B-210 ... 20-17
8D-340 ... 46-13
8G-200, 8G-201 ... 128—9
● 9V-101 ... 78—8
10B-249 ... 42-14
11C-300 ... 29-12
11D-302 ... 57—9
12H-610 ... 176—5
14F-490, 14F-495, 14F496. 63-12
15H-609 (See Model 511B—Set 125-9)
19F492, 19F497, 19F498 ... 58-11
20H611 ... 164—4
93SX321 ... 255—7
93-017 ... 31-15
93-024 ... 32-13
93-103 ... 31-16
93-146 ... 36-15
93-155 ... 37-10
93-191 ... 38—8
93-320 ... 74—5
93-330 ... 99—9
93-350 ... 76-13
93-360 ... 79—9
93-370 ... 75-10
93-380 ... 90—8
93-431 ... 167-12
96-279 ... 160—6
96-326 ... 137—5
96-354 (Similar to Chassis) 139-15
97-870 ... 78—9
449 ... 83—5
511B ... 125—9

LAFAYETTE

FA15W, FA15Y ... 15-15
J62, J62C ... 16-21
MC10B, MC10Y ... 14-16
MC11 ... 28-18
MC12 ... 27-15
MC13 ... 15-16
MC16 ... 27-16
P564 (Similar to Chassis) ... 38—5
IN434, IN435, IN436 (Similar to Chassis) ... 98—5
IN437 (Similar to Chassis). 121—2
IN549 (Similar to Chassis). 38—5
IN551 (Similar to Chassis). 38—6
IN554, IN555 (Similar to Chassis) ... 55-10
IN556, IN557 (Similar to Chassis) ... 109—7
IN559 (Similar to Chassis). 90—7
IN560 (Similar to Chassis). 109—7
IN561, IN562 (Similar to Chassis) ... 97—8
IN819 (Similar to Chassis). 69—7
● 1P184 (Similar to Chassis). 149-13
● 1P185, 1P186 (Similar to Chassis) ... 149-13
● 17BM1 (Similar to Chassis). 149-13
● 20CP (Similar to Chassis). 149-13
● 27BM1 (Similar to Chassis). 149-13

LAMCO

1000 ... 16-20

LEAK

TL/12 ... 166-12
RC/PA/U ... 166-12

LEAR (See Record Changer Listing)

LEARADIO

RM-402C (Learavian) ... 42-15
561, 562, 563 ... 1-26
563, 565BL, 566, 567, 568 9-20
1281-PC (Ch. 7B) ... 49-11
6610PC, 6611PC, 6612PC. 9-21
6614, 6615, 6616, 6619 ... 3-18
6617PC ... 16-22
Chassis R-971 ... 51-11

LEE (See Royal)

LEE TONE

AP-100 ... 16-23

LEWYT

615A ... 11-13
711 ... 42-16

LEXINGTON

6545 ... 13-20

LIBERTY

A6K, A6P, 6K ... 20-18
507A ... 20-19

LINCOLN (Auto Radio)

FAA-18805 ... 167—7
FAG-18805-A ... 214—5
FDD-18805-A, -B ... 246—8
GL892 (OL-18805-A) (See PCB 105—Set 252-1 and Ford Model GF890 (OA-18805-B) — Set 109-5)
1CH748 (1H-18805) (See Ford Model 1CF743—Set 133-7)
1CH748-1 (1H-18805) ... 158—5
1H-18805 (See Model 1CH748 or 1CH748-1)
2CH753 (FAA-18805-A) ... 167—7
3SH756 (FAG-18805-A) ... 214—5
4SH764 (FDD-18805-A), 4SH766 (FDD-18805-B) ... 246—8
5EH-18805-A ... 66-11
5EH-18805-B ... 66-11
7ML080 (5EH-18805-A), 7ML081 (5EH18805-B) ... 66-11
8H-18805 ... 83—4
8H-18805-A (See Model 8ML882Z—Set 44-7 or 8ML985Z—Set 83-4)
8L-18805-A (See Model 8ML882—Set 44-7 or 8ML985—Set 83-4)
8L-18805-B ... 83—4
8ML882 (8L-18805-A), 8ML882Z (8H-18805-A) (Ch. 8E82) 44—7
8ML985 (8L-18805-B), 8ML985E (8L-18805-B), 8ML985Z (8H-18805-A), 8ML985ZE (8H-18805) ... 83—4

LINCOLN

S13L-B ... 2-10

LINCOLN (Allied Radio Corp.)

5A-110 ... 5-34

LINDEX CORP. (See Swank)

LIPAN (See Supreme)

LULLABY (See Mitchell)

LYMAN

CM10, CM20 ... 44—8

LYRIC (Also see Rauland)

546T, 546TY, 546TW ... 7-17

MAGIC TONE

500, 501 ... 5-40
504 (Bottle Receiver) ... 22-18
508 (Keg Radio) ... 38—9
510 ... 52-10
900 ... 38—9

MAGNAVOX

CP251M (Chassis AMP-128A, B, AMP-129) ... 254—7
252M (Chassis CR700 and AMP132) ... 260—9
● 104 Series (Ch. CT301 thru CT314) ... 161—4
● 108, 108A Series ... 239—6
● 108B Series ... 240—5
● 300 Series ... 263—9
Chassis AMP-101A, AMP-101B ... 43-12
Chassis AMP-108A, AMP-108B ... 41-10
Chassis AMP-111A, B, C ... 68-10
Chassis AMP-128A, B ... 254—7
Chassis AMP-129 ... 254—7

MAGNAVOX—Cont.

Chassis AMP-131A, B ... 249—9
Chassis AMP132 ... 260—9
● Chassis CMU401AA, CMU402AA, CMU403AA, CMU404AA, CMU405AA, CMU406AA, CMU407AA, 108, 108A Series) ... 239—6
● Chassis CMU410AA, (108, 108A Series) ... 239—6
● Chassis CMU413AA, (108, 108A Series) ... 239—6
● Chassis CMU418AA, CMU419AA, CMU420AA (108, 108A Series) ... 239—6
● Chassis CMUA401BB, CMUA402BB, CMUA403BB, CMUA404BB, CMUA405BB, CMUA406BB, CMUA407BB (108B Series) ... 240—5
● Chassis CMUA410BB (108B Series) ... 240—5
● Chassis CMUA413BB (108B Series) ... 240—5
● Chassis CMUA418BB, CMUA419BB, CMUA420BB (108B Series) ... 240—5
● Chassis CMUB422BC (300 Series) ... 263—9
CP251M (Chassis AMP-128A, B, AMP-129) ... 254—7
Chassis CR-188 (155B Regency Symphony) ... 18-22
Chassis CR190A, CR190B ... 46-14
Chassis CR-192A, CR-193B 41-11
Chassis CR-197C ... 37-11
Chassis CR-198A, B, C (Hepplewhite, Modern Symphony) 17-20
Chassis CR-199 ... 63-13
Chassis CR-200A, B, C, D, E, F ... 44—9
Chassis CR-207A, B, C, D. 41-12
Chassis CR-208A, CR-208B 43-13
Chassis CR-210A, CR-210B. 52-11
Chassis CR-211A, B ... 68-10
Chassis CR300AA-1 ... 268—8
Chassis CR700 ... 260—9
Chassis CR-702A, B (260M Series) ... 271—6
● Chassis CT-214, CT-218 ... 62-13
● Chassis CT-219, CT-220 ... 82—7
● Chassis CT-221 ... 62-13
● Chassis CT-222 ... 82—7
● Chassis CT-224 ... 97A—8
● Chassis CT-232 ... 93A—9
● Chassis CT-235 ... 97A—8
● Chassis CT-236 ... 93A—9
● Chassis CT-237, CT-238 (See Set 95A-9 and Ch. CT219—Set 82-7)
● Chassis CT239 ... 93A—9
● Chassis CT244, CT245, CT246 ... 93A—9
● Chassis CT250, CT251 ... 135-1A
● Chassis CT252, CT253 ... 95A—9
● Chassis CT257, CT258, CT259, CT260 ... 119-1A
● Chassis CT262, CT263, CT264, CT265 ... 155-10
● Chassis CT266, CT267, CT269 ... 131-1A
● Chassis CT-270, CT-271, CT-272, CT-273, CT-274, CT-275, CT-276, CT-277, CT-278, CT-279, CT-280, CT-281, CT-282 ... 148—8
● Chassis CT283 ... 155-10
● Chassis CT284, CT285 ... 131-1A
● Chassis CT286 ... 155-10
● Chassis CT287, CT288 ... 131-1A
● Chassis CT289 ... 155-10
● Chassis CT290 ... 131-1A
● Chassis CT291, CT293 ... 155-10
● Chassis CT294 ... 131-1A
● Chassis CT297 ... 155-10
● Chassis CT301 thru CT314 . 161—4
● Chassis CT331 thru CT349 (105 Series) ... 168-10
● Chassis CT350 thru 357 (105 Series) (See Ch. CT331—Set 168-10)
● Chassis CT358 (107 Series) 226—4
Chassis CT358AA, AB, BA, BB, CB, DC (107 Series) (See Ch. CT358—Set 226-4)
● Chassis CT359AA, AB, BA, BB, CB (107 Series) (See Ch. CT358—Set 226-4)
● Chassis CT362, CT363 (105L, M Series) ... 205—6
● Chassis CT372, CT373 (105L, M, N Series) ... 205—6
● Chassis CT374 (105N Series) ... 205—6
● Chassis CT385AA, AB, BA, BB, CB (107 Series) (See Ch. CT-358—Set 226-4)
● Chassis CT385CB, DC (107 Series) (See Ch. CT358—Set 226-4)
● Chassis CT386AA, AB, BA, BB, CB (107 Series) (See Ch. CT358—Set 226-4)
● Chassis CT401AA, CT402AA, CT403AA, CT404AA, CT405AA, CT406AA, CT407AA (108, 108B Series) ... 239—6
● Chassis CT410AA (108, 108B Series) ... 239—6
● Chassis CT418AA, CT419AA, CT420AA (108, 108A Series) ... 239—6
● Chassis CTA401BB, CTA402BB, CTA403BB, CTA404BB, CTA405BB, CTA406BB, CTA407BB (108B Series) ... 240—5
● Chassis CTA410BB (108B Series) ... 240—5
● Chassis CTA413BB (108B Series) ... 240—5
● Chassis CTA418BB, CTA419BB, CTA420BB (108B Series). 240—5
● Chassis CTB422BC (300 Series) ... 263—9
● Chassis CU401AA, CU402AA, CU403AA, CU404AA, CU405AA, CU406AA, CU407AA (108, 108A Series) ... 239—6
● Chassis CU410AA (108, 108A Series) ... 239—6
● Chassis CU413AA (108, 108A Series) ... 239—6

MAGNAVOX—Cont.

● Chassis CU418AA, CU419AA, CU420AA (108, 108A Series) ... 239—6
● Chassis CUA401BB, CUA402BB, CUA403BB, CUA404BB, CUA405BB, CUA406BB, CUA407BB (108B Series) 240—5
● Chassis CUA410BB (108B Series) ... 240—5
● Chassis CUA413BB (108B Series) ... 240—5
● Chassis CUA418BB, CUA419BB, CUA420BB (108B Series). 240—5
● Chassis MCT228 ... 95A—9

MAGNECORD (See Recorder Listing)

MAGUIRE (Also see Record Changer Listing)

500BI, 500BW, 500DI, 500DW ... 6-15
561BI, 561BW, 561DI, 561DW ... 6-16
571 ... 44-10
661, 661A ... 12-18
700A ... 7-18
700E ... 15-17

MAJESTIC

● G-414 ... 133—8
● G-614 ... 133—8
● G-624 ... 133—8
● G-914 ... 133—8
4L1 ... 270—7
4P1 ... 276—6
5A410 (Ch. 4501), 5A430 (Ch. 4504) ... 1-30
5A445, 5A445R ... 23-12
5AK711 ... 27-17
5AK731, 5AK780 (Ch. 5B05A) ... 28-19
5C-2, 5C-3 ... 169-10
5LA5, 5LA6 ... 130—9
5LA7, 5LA8 ... 132—9
5M1 ... 270—8
6FM714 (Ch. 6B02D) ... 50-10
6FM773 (Ch. 6B11D) ... 57-10
7BK758 (See Model 7J777R—Set 27-18)
7C432 (Ch. 4706) ... 14-17
7C447 (Ch. 4707) (See Model 7C432—Set 14-17)
7FM877, 7FM888 (Ch. 7C11D) ... 56-14
7JK777R (Ch. 4708R) ... 27-18
7JL866 (Ch. 7C25A) ... 60-14
7P420 (Ch. 4705) ... 26-17
7S433, 7S450, 7S470 (Ch. 4702, 4703) ... 22-19
7YR752 (Ch. 7B04A) ... 29-13
7YR753 (Ch. 7B09A-1), 7YR772 (Ch. 7B09A) ... 42-17
8FM744 (Ch. 8B06D) ... 30-15
8FM775 (Ch. 8B08D), 8FM776 (Ch. 8B07D) ... 29-14
8FM889 (Ch. 8C07D) ... 54-12
8JL885 (Ch. 4810B) ... 47-11
8S452, 8S473 (Ch. 4810) ... 8-19
10FM891 (Ch. 10C23E) (See Model 10FM981—Set 65-8)
● 12C4, 12C5 ... 108—7
12FM475, 12FM778, 12FM779 (Ch. 41201) ... 28-20
12FM895 (Ch. 12C22E) ... 59-11
● 12T2, 12T3 ... 108—7
● 12T6 (See Model 12C4—Set 108-7)
● 14C4 (See Model 12C4—Set 108-7)
● 14CT4 ... 133—8
● 14T2 (See Model 12C4—Set 108-7)
● 16C4, 16C5 ... 108—7
● 16CT4, 16CT5 ... 133—8
● 16T2, 16T3 ... 108—7
● 17C42, 17C43 (Series 112, 112-2) (See Series 112—Set 233-4)
● 17C62, 17C64, 17C65 (Series 106) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 17DA (Ch. 101) ... 127—7
● 17GA, 17HA (Ch. 101) ... 127—7
● 17T6A1, 17T6B1 (Series 106) (See Model 70—Set 153-8 and PCB 43—Set 177-1)
● 17T40, 17T41 (Series 112, 112-2) (See Series 112—Set 233-4)
● 17T62 (Series 106) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 19C6, 19C7 ... 133—8
● 20C82, 20C83, 20C84 (Series 108) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 20FP88, 20FP89 (Series 109) ... 170-10
● 20F82, 20F83 (Series 108) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 20F85, 20F86, 20F87 (Series 108) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 20F811 (Series 108) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 20T8A1 (Series 108) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 20T82, 20T83, 20T84 (Series 108) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 21C30, 21C31 (Series 108) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 21D40, 21D41 (Series 108) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 21D50, 21D51 (Series 108) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 21F86, 21F87 (Series 108) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 21F88, 21F89 (Series 108-5) (See PCB 43—Set 177-1 and Model 70—Set 153-8)
● 21P62, 21P63 (Series 110, 111) ... 221—7

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200; Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

MOTOROLA—Cont.

CT8-A (See Ch. 10A—Set **106**-10)
CT9 .... **82**—8
CT52M6 (Ch. R16M6 and P6-2 or P8-2) .... **271**—7
FD-6 .... **7**—20
FD7 (See Model FD-6—Set **7**-20)
FD8 (See Ch. 8A—Set **46**-16)
GM9T (See Ch. 8A—Set **46**-16)
GM9T-A (See Ch. 10A—Set **106**-10)
GMOT (See Ch. 10A—Set **106**-10)
GMT2A (Ch. 2A and P6-2 or P8-2) .... **197**—7
GMT2M (Ch. 2M and P6-2 or P8-2) .... **197**—7
GMT3A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
GMT53A6 (Ch. R17A6 and P6-2 or P8-2) .... **263**—13
HJ2A (Ch. 2A and P6-2 or P8-2) .... **197**—7
HJ2M (Ch. 2M and P6-2 or P8-2) .... **197**—7
HJ3A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
HN2A (Ch. 2A and P6-2 or P8-2) .... **197**—7
HN2A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
HN2M (Ch. 2M and P6-2 or P8-2) .... **197**—7
HN3A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
HN4A6 (Ch. R17A6 and P6-2 or P8-2) .... **263**—13
HN4M6 (Ch. R16M6 and P6-2 or P8-2) .... **271**—7
HN8, HN9 (See Ch. 8A—Set **46**-16)
HN53M6 (Ch. R16M6 and P6-2 or P8-2) .... **271**—7
HNO (See Ch. 10A—Set **106**-10)
HT3A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
ILOTC (See Ch. 10—Set **106**-10)
IL2TC (See Ch. 1A—Set **134**-8)
IL2T2 (See Ch. 1A—Set **134**-8)
KR1 (See Ch. 1A—Set **134**-8)
KR2A (Ch. 2A and P6-2 or P8-2) .... **197**—7
KR2M (Ch. 2M and P6-2 or P8-2) .... **197**—7
KR3A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
KR8, KR9 (See Ch. 8A—Set **46**-16)
KR9A (See Ch. 10A—Set **106**-10)
NHIC .... **139**—9
NH2AC (See Nash Model AC-152—Set **184**-9)
NH3C (See Nash Model NH3C—Set **216**-6)
NH4AC (See Nash Model AC-154—Set **264**-13)
NH6 .... **9**—24
NH8 (See Ch. 8A—Set **46**-16)
OEO (See Ch. 10A—Set **106**-10)
OE2 (See Ch. 8A—Set **46**-16)
OE2A (Ch. 2A and P6-2 or P8-2) .... **197**—7
OE2A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
OE2M (Ch. 2M and P6-2 or P8-2) .... **197**—7
OE6 .... **8**—21
OE8, OE9 (See Ch. 8A—Set **46**-16)
PCO (See Ch. 10A—Set **106**-10)
PC2 (See Ch. 8A—Set **46**-16)
PC2A (Ch. 2A and P6-2 or P8-2) .... **197**—7
PC2A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
PC2M (Ch. 2M and P6-2 or P8-2) .... **197**—7
PC6 .... **8**—21
PC8, PC9 (See Ch. 8A—Set **46**-16)
PC9-A (See Ch. 10A—Set **106**-10)
PD2A (Ch. 2A and P6-2 or P8-2) .... **197**—7
PD3A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
PD2M (Ch. 2M and P6-2 or P8-2) .... **197**—7
SROB (Ch. OB) .... **105**—7
SR1B (See Ch. 1B—Set **136**-11)
SR2A (Ch. 2A and P6-2 or P8-2) .... **197**—7
SR2A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
SR2M (Ch. 2M and P6-2 or P8-2) .... **197**—7
SR3A6 (Ch. R-15A6 and P6-2 or P8-2) .... **256**—10
SR6, SR8, SR9 (See Ch. 8A—Set **46**-16)
SR9A (See Ch. 10A—Set **106**-10)
SR52A6 (Ch. R17A6 and P6-2 or P8-2) .... **263**—13
SR52M6 (Ch. R16M6 and P6-2 or P8-2) .... **271**—7
TC-101, B Tel. UHF Conv. .. **196**—6
TK-17M Tel. UHF Conv. .... **193**—5
TK19M Tel. UHF Conv. .... **193**—5
TK-19ME Tel. UHF Conv. (See Model TK17M—Set **193**-5)
TK-20M Tel. UHF Conv. .... **193**—5
TK-22M Tel. UHF Conv. .... **193**—5
TK-23M Tel. UHF Conv. .... **193**—5
TK-24M Tel. UHF Conv. .... **193**—5
TK-24ME Tel. UHF Conv. (See Model TK17M—Set **193**-5)
TK-31M Tel. UHF Conv. (See Model TK17M—Set **193**-5)
TK-33M Tel. UHF Conv. (See Model TK17M—Set **193**-5)
●VF102, A, C (Ch. TS-7 and Radio Ch. HS-317) .... **51**—14
●VF103, VF103M (Ch. TS-8) **73**—8
●VK101, B, M (Ch. TS-5 and Radio Ch. HS-108) .... **51**—14
●VK106 (Ch. TS-9D) Photofact Servicer **82**
●VK106, B, M (Ch. TS-9, A, B, C) .... **67**—13
●VK106, VK107 (Ch. TS-9E, TS-9E1) .... **77**—6
●VT71B, M-A (Ch. 4B through J) **55**-16
●VT-73, VT-73A (Chassis TS-4J Late) .... **71**—12

MOTOROLA—Cont.

●VT101 (Ch. TS-3) .... **51**—14
●VT105 (Ch. TS-9D) Photofact Servicer **82**
●VT105, VT105M (Ch. TS-9, TS-9A, TS-9B, TS-9C) .... **67**—13
●VT107 (Ch. TS-9D) Photofact Servicer **82**
●VT107, B, M (Ch. TS-9, A, B, C) .... **67**—13
●VT121 (Ch. TS-15) .... **91A**—9
VTK-17M, ME Tel. UHF Conv. (See Model TK17M—Set **193**-5)
WR6 (Ch. HS-18) .... **5**—2
WR7, WR8 (See Model WR6—Set **5**-2)
WS1C (See Willys Model 677012—Set **156**-14)
WS2C (See Willys Model 679517—Set **172**-12)
●Y17K17, A, AB, B (Ch. TS-402Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y17T15A, AE (Ch. VTS-402Y) (Also see PCB 106—Set 253-1) **237**—8
●Y17T16, B, W (Ch. TS-402Y) (Also see PCB 106—Set 253-1) **237**—8
●Y17T20 (Ch. TS-418Y) .... **269**—9
●Y17T20B, E, M (Ch. VTS-418Y) .... **269**—9
●Y21C2 (Ch. TS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21C2A, AB (Ch. WTS-502Y) (See PCB 106—Set 253-1 and Model Y17K17—Set **237**-8)
●Y21C2B (Ch. TS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21F5, B (Ch. TS-502Y, QTS-502Y and Radio Ch. HS-409) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21K12A, AB, AW (Ch. WTS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21K12C, CB, CW, D, DB, DW (Ch. WTS-502Y) (See PCB 106—Set 253-1 and Model Y17K17—Set **237**-8)
●Y21K12G (Ch. RTS-502Y) (See PCB 106 — Set 253-1 and Model Y17K17—Set **237**-8)
●Y21K13 (Ch. TS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21K13A, AB (Ch. RTS-502Y) (See PCB 106—Set 253-1 and Model Y17K17—Set **237**-8)
●Y21K13B (Ch. TS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21K14 (Ch. TS-502Y, QTS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21K14A, AB (Ch. RTS-502Y) (See PCB 106—Set 253-1 and Model Y17K17—Set **237**-8)
●Y21K14B (Ch. TS-502Y, QTS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21K15 (Ch. TS-502Y, QTS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21K15A (Ch. RTS-502Y) (See PCB 106 — Set 253-1 and Model Y17K17—Set **237**-8)
●Y21K16 (Ch. TS-502Y, QTS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●21K16AB, AW (Ch. RTS-502Y) (See PCB 106—Set 253-1 and Model Y17K17—Set **237**-8)
●Y21K16W (Ch. TS-502Y, QTS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21K17 (Ch. TS-502Y) (Also see PCB 106—Set 253-1) .... **237**—8
●Y21K17A (Ch. WTS-502Y) (See PCB 106 — Set 253-1 and Model Y17K17—Set **237**-8)
●Y21K18, B (Ch. PTS-502Y) (See PCB 106 — Set 253-1 and Model Y17K17—Set **237**-8)
●Y21K19, Y21K19B (Ch. WTS-518Y) .... **269**—9
●Y21K20, B (Ch. WTS-525Y, A-00, A-01, A-02, A-03) .... **272**—8
●Y21K31, B (Ch. TTS-525Y) (See Model Y21K20—Set **272**-8)
●Y21K32A, BA (Ch. WTS-525Y) (See Model Y21K20—Set **272**-8)
●Y21T8A, AE (Ch. TTS-502Y) (Also see PCB 106—Set 253-1) **237**—8
●Y21T10 (Ch. VTS-505Y) (See PCB 106 — Set 253-1 and Model Y17K17—Set **237**-8)
●Y21T11, B, W (Ch. VTS-502Y) (Also see PCB 106—Set 253-1) **237**—6
●Y21T13, B (Ch. TS-524Y) (See PCB 106 — Set 253-1 and Model Y17K17—Set **237**-8)
●Y21T14E (Ch. TS-507Y) (See PCB 106 — Set 253-1 and Model Y17K17—Set **237**-8)
●Y21T15 (Ch. WTS-518YA-02) .... **269**—9
●Y21T16, B, E (Ch. WTS-518Y) .... **269**—9
●Y21T17, Y21T17B (Ch. VTS-518Y) .... **269**—9
●Y21T18, B (Ch. RTS-525Y, A-00, A-01, A-02, A-03) .... **272**—8
●Y21T23, B (Ch. TTS-525Y) (See Model Y21K20—Set **272**-8)
●Y24K1, B, Y24K2, B, Y24K3, W (Ch. TS-602Y) .... **233**—6
●Y27K2, B, Y27K3 (Ch. TS-602Y) .... **233**—6
2MF (See Ford Model 2MF—Set **175**-10)
3MF (See Ford Model 3MF—Set **206**-5)
3MFT (See Ford Model 3MFT—Set **215**-7)
5A1 (Ch. HS-6) .... **2**—11
5A5 (Ch. HS-15) .... **3**—11
5A7 (Ch. HS-62), 5A7A (Ch. HS-62A) .... **29**—16
5C1 (Ch. HS-228) .... **116**—9
5C2 (Ch. HS-258) .... **116**—9
5C3 (Ch. HS-262) .... **116**—9
5C4 (Ch. HS-270) .... **116**—9

MOTOROLA—Cont.

5C5 (Ch. HS-271) (See Model 5C1—Set **116**-9)
5C6 (Ch. HS-272) (See Model 5C1—Set **116**-9)
5H11U, 5H12U, 5H13U (Ch. HS-224) .... **117**—9
5J1 (Ch. HS-250), 5J1U (Ch. HS-224 .... **100**—7
5J2 (Ch. HS-250) (See Model 5J1—Set **100**-7)
5J2U (Ch. HS-224) (See Model 5J1—Set **100**-7)
5L1 (Ch. HS-250), 5L1U (Ch. HS-224) .... **100**—7
5L2 (Ch. HS-250) (See Model 5J1—Set **100**-7)
5L2U (Ch. HS-224) (See Model 5J1—Set **100**-7)
5M1, 5M1U, 5M2, 5M2U (Ch. HS-249, HS-223) .... **101**—7
5R11A, 5R12A, 5R13A, 5R14A, 5R15A, 5R16A (Ch. HS-280) (See Model 5R11U—Set **115**-6)
5R11U, 5R12U, 5R13U, 5R14U, 5R15U, 5R16U, (Ch. HS-242) .... **115**—6
5X11U, 5X12U, 5X13U (Ch. HS-243) .... **114**—7
5X21U, 5X22U, 5X23U (Ch. HS-259) .... **120**—9
6F11, 6F11B (Ch. HS-264). **117**—10
6L1, 6L2 (Ch. HS-226) .... **102**—7
6X11U, 6X12U (Ch. HS-245) .... **112**—5
7F11, 7F11B (Ch. HS-265). **113**—5
●7VT1, 7VT2, 7VT5 (Ch. TS-18) .... **83**—6
8FDT (See Ch. 8A—Set **46**-16)
8FM21, 8FM21B (Ch. HS-247) .... **121**—9
8GMT (See Ch. 8A—Set **46**-16)
9FM21, 9FM21B (Ch. HS-246) .... **114**—8
●9T1 (Ch. TS-18, A) (See Model 7VT1—Set **83**-6)
●9VT1, 9VT5 (Ch. TS-18, A) **83**—6
●10T2 (Ch. TS-14B) .... **92**—4
●10VK9 (Ch. TS-9E, TS-9E1) **77**—6
●10VK12 (Ch. TS14, A, B) . **92**—4
●10VK22 (Ch. TS14, A, B) .. **92**—4
●10VT3 (Ch. TS-9E, TS-9E1) **77**—6
●10VT10 (Ch. TS14, A, B) .. **92**—4
●10VT24 (Ch. TS14, A, B) .. **92**—4
●12K1, B (Ch. TS-23B) .... **92**—4
●12K1, B (Ch. TS-53) (See Model 12K2—Set **115**-7)
●12K2, B (Ch. TS-23B) .... **92**—4
●12K2, B (Ch. TS-53) .... **115**—7
●12K3, B (Ch. TS-53) (See Model 12K2—Set **115**-7)
●12T1, B (Ch. TS-23B) .... **92**—4
●12T1, B, 12T2, B (Ch. TS-53) (See Model 12T3—Set **115**-7)
●12T3 (Ch. TS-53) .... **115**—7
●12VF4B, R, R-C (Ch. TS-23, A and Radio Ch. HS-190) .... **92**—4
●12VF26B, B-C, R, R-C (Ch. TS-23A, B and Radio Ch. HS-190A) **92**—4
●12VK11 (Ch. TS-23, A, B) . **92**—4
●12VK15 (Ch. TS-30, A) (Also PCB 5—Set 106-1) .... **93**—7
●12VK18B, 12VK18R (Ch. TS-15C, TS-15C1) .... **77**—6
●12VT13 (Ch. TS-23, A, B).. **92**—4
●12VT13B, R (Ch. TS-23, A, B) (See Model 12VT13—Set **92**-4)
●12VT16, 12VT16B, 12VT16R (Ch. TS-15C, TS-15C1) .... **77**—6
●14K1, B (Ch. TS-88) .... **112**—6
●14K1BH, 14K1H (Ch. TS-115) .... **121**—10
●14P1B (Ch. TS-216) (See Model 14T4—Set **158**-8)
●14P2, 14P2U (Ch. TS-275) . **174**—9
●14T1, B (Ch. TS-88) .... **112**—6
●14T3 (Ch. TS-114) .... **121**—10
●14T3X1 (Ch. TS-114A) (See Model 14T3—Set **121**-10)
●14T4, B (Ch. TS-216) .... **158**—8
●16F1 (Ch. TS-60 and Radio Ch. HS-234) .... **102**—8
●16F1BH, 16F1H (Ch. TS-89 and Radio Ch. HS-324) (For TV Ch. see Set **121**-10, for Radio Ch. see Model 16F1—Set **102**-8)
●16K2 (Ch. TS-74) .... **102**—8
●16K2BH, 16K2H (Ch. TS-94) **121**—10
●16K2L, L-B (Ch. TS-52) .. **93A**—10
●16T1 (Ch. TS-60) .... **102**—8
●16T1BH, 16T1H (Ch. TS-89) **121**—10
●16VF8B, R (Ch. TS-16, -A and Radio Ch. HS-211) (For TV Ch. see Set **93**-7, for Radio Ch. see Model 99FM21R—Set **80**-10)
●16VK1 (Ch. TS-52) .... **93A**—10
●16VK7 (Ch. TS-16, A) (Also PCB 5—Set 106-1) .... **93**—7
●17F1 (Ch. TS-118 and Radio Ch. HS-253) .... **121**—10
●17F1A (Ch. TS-89 and Radio Ch. HS-253) .... **121**—10
●17F1B (Ch. TS-118 and Radio Ch. HS-253) .... **121**—10
●17F1BA (Ch. TS-89 and Radio Ch. HS-253) .... **121**—10
●17F2W (Ch. TS-118 and Radio Ch. HS-253) .... **121**—10
●17F2WA (Ch. TS-89 and Radio Ch. HS-253) .... **121**—10
●17F3, B (Ch. TS-118 and Radio Ch. HS-253) .... **121**—10
●17F3BA (Ch. TS-89 and Radio Ch. HS-253) .... **121**—10
●17F4 (Ch. TS-118 and Radio Ch. HS-253) (See Model 14K1BH) .... **121**—10
●17F4A (Ch. TS-89 and Radio Ch. HS-253) .... **121**—10
●17F5 (Ch. TS-118 and Radio Ch. HS-261) .... **121**—10
●17F5A, 17F5BA (Ch. TS-89 and Radio Ch. HS-261) .... **121**—10
●17F5B (Ch. TS-118 and Radio Ch. HS-261) .... **121**—10
●17F6, B (Ch. TS-118 and Radio Ch. HS-253) (See Model 14K1BH—Set **121**-10)

MOTOROLA—Cont.

●17F6BC, C (Ch. TS-174 and Radio Ch. HS-253) (See Model 14K1BH—Set **121**-10) .... **121**—10
●17F7B (Ch. TS-118) (See Model 14K1BH—Set **121**-10)
●17F7BC (Ch. TS-174 and Radio Ch. HS-253) (See Model 14K1BH—Set **121**-10)
●17F8 (Ch. TS-118) (See Model 14K1BH—Set **121**-10)
●17F8C (Ch. TS-174) (See Model 14K1BH—Set **121**-10)
●17F9, B (Ch. TS-118) (See Model 14K1BH—Set **121**-10)
●17F9BC, C (Ch. TS-174 and Radio Ch. HS-261) (See Model 14K1BH—Set **121**-10)
●17F11 (Ch. TS-228 and Radio Ch. HS-302) .... **165**—7
●17F12, A, B, BA (Ch. TS-325, A, 326, A, and Radio Ch. HS-319) .... **171**—8
●17F12D (Ch. TS-401) (For TV Ch. only see PCB 49—Set 183-1 and Model 21F1—Set **173**-9)
●17F13, B (Ch. TS-395A, 02 and Radio Ch. HS-319) (For TV Ch. see Set **192**-6, and Radio Ch. see Model 17F12—Set **171**-8)
●17F13BC (Ch. TS-408A and Radio Ch. HS-319) (For TV Ch. see Model 21C1—Set **191**-13, for Radio Ch. see Model 17F12—Set **171**-8)
●17F13C (Ch. TS-408A and Radio Ch. HS-319) (For TV Ch. see Model 21C1—Set **191**-13, for Radio Ch. see Model 17F12—Set **171**-8)
17K1A, 17K1BA (Ch. TS-95) **121**—10
17K1BE, E (Ch. TS-172) (See Model 14K1BH—Set **121**-10)
17K2BE, E (Ch. TS-172) (See Model 14K1BH—Set **121**-10)
17K3, 17K3B (Ch. TS-118) . **121**—10
●17K3A, 17K3BA (Ch. TS-89) .... **121**—10
●17K4A (Ch. TS-95) .... **121**—10
●17K4E (Ch. TS-172) (See Model 14K1BH—Set **121**-10)
●17K5 (Ch. TS-118) (See Model 14K1BH—Set **121**-10)
●17K5C (Ch. TS-174) (See Model 14K1BH—Set **121**-10)
●17K5E (Ch. TS-221A) .... **159**—10
●17K6 (Ch. TS-118) (See Model 14K1BH—Set **121**-10)
●17K6C (Ch. TS-174) (See Model 14K1BH—Set **121**-10)
●17K7, B (Ch. TS-118) (See Model 14K1BH—Set **121**-10)
●17K7BC, C (Ch. TS-174) (See Model 14K1BH—Set **121**-10)
●17K8, B (Ch. TS-236) **152**-4A
●17K8A, BA (Ch. TS-228) .. **165**—7
●17K9, B (Ch. TS-220) .... **159**—10
●17K9A, BA (Ch. TS-228) .. **165**—7
●17K9BC (Ch. TS-221, -A) .. **159**—10
●17K10, M (Ch. TS-228) .... **165**—7
●17K10A (Ch. TS-174) (See Model 14K1BH—Set **121**-10)
●17K10E (Ch. TS-314A, B) .. **167**—13
●17K11, B, C (Ch. TS-236) **152**-4A
●17K11A, BA (Ch. TS-228) .. **165**—7
●17K12, A, B, BA, W, WA (Ch. TS-325, A, TS-326, A) .. **171**—8
●17K13A (Ch. TS-326A, B) (See Model 17F12—Set **171**-8)
●17K13D (Ch. TS-401) (See PCB 49—Set 183-11 and Model 21F1—Set **173**-9)
●17K14, A, B (Ch. TS-395, 02) .... **192**—6
●17K14BC (Ch. TS-408A) (See Model 21C1—Set **191**-13)
●17K14C (Ch. TS-408A) (See Model 21C1—Set **191**-13)
●17K14W (Ch. TS-395, -02) **192**—6
●17K14WC (Ch. TS-408A) (See Model 21C1—Set **191**-13)
●17K15, B (Ch. TS-395A, -02) .... **192**—6
●17K15BC (Ch. TS-408A) (See Model 21C1—Set **191**-13)
●17K15C (Ch. TS-408) (See Model 21C1—Set **191**-13)
●17K16 (Ch. TS-395A, -02) **192**—6
●17K16C (Ch. TS-408A) (See Model 21C1—Set **191**-13)
●17K17, A, AB, B (Ch. TS-402) (Also see PCB 106—Set 253-1) **237**—8
●17T1, 17T1B (Ch. TS-118) **121**—10
●17T1A, 17T1BA (Ch. TS-89) **121**—10
●17T2A, 17T2BA (Ch. TS-89) **121**—10
●17T2, 17T2B (Ch. TS-118) **121**—10
●17T3 (Ch. TS-118) .... **121**—10
●17T3A (Ch. TS-89) .... **121**—10
●17T3G (Ch. TS-221, -A) .. **159**—10
●17T3X1 (Ch. TS-118A, B) (See Model 14K1BH—Set **121**-10)
●17T4 (Ch. TS-118) (See Model 14K1BH—Set **121**-10)
●17T4C (Ch. TS-174) (See Model 14K1BH—Set **121**-10)
●17T4E (Ch. TS-221, -A) ... **159**—10
●17T5A (Ch. TS-214) .... **165**—7
●17T5C (Ch. TS-228) .... **165**—7
●17T5D (Ch. TS-236) **152**-4A
●17T5E, F (Ch. TS-314A, B, TS-315A, B) .... **167**—13
●17T6BD, C, D (Ch. TS-236) **152**-4A
●17T6BF, F (Ch. TS-228) ... **165**—7
●17T6G (Ch. TS-314A, B) .. **167**—13
●17T7, A (Ch. TS-325, TS-326) .... **171**—8
●17T8, A, B, BA (Ch. TS-325, TS-326) .... **171**—8
●17T9 (Ch. TS-325A, B) (See Model 17F12—Set **171**-8)
●17T9A (Ch. TS-326A, B) (See Model 17F12—Set **171**-8)
●17T9E (Ch. TS-325A, B) (See Model 17F12—Set **171**-8)
●17T9EF (Ch. TS-401) (See PCB 49—Set 183-1 and Model 21F1—Set **173**-9)
●17T10 (Ch. TS-325B) (See Model 17F12—Set **171**-8)

MOTOROLA—Cont.

●17T10A (Ch. TS-326A, B) (See Model 17F12—Set **171**-8)
●17T10D (Ch. TS-401) (See PCB 49—Set 183-1 and Model 21F1—Set **173**-9)
●17T11 (Ch. TS-395, -02) .. **192**—6
●17T11C (Ch. TS-408A) (See Model 21C1—Set **191**-13)
●17T11E (Ch. TS-400A) .... **194**—9
●17T11EC (Ch. TS-408A) (See Model 21C1—Set **191**-13)
●17T12, B (Ch. TS-395A, -02) .... **192**—6
●17T12C (Ch. TS-408A) (See Model 21C1—Set **191**-13)
●17T12W (Ch. TS-395A, -02) .... **192**—6
●17T12WC (Ch. TS-408A) (See Model 21C1—Set **191**-13)
●17T13 (Ch. TS-410A) (Also see PCB 76—Set 217-1) .... **194**—9
●17T13Y (Ch. TS-410Y) (See PCB 76—Set 217-1 and Model 17T13—Set **194**-9)
●17T14 (Ch. VTS-410A) (See PCB 76—Set 217-1 and Model 17T13—Set **194**-9)
●17T14Y (Ch. VTS-410Y) (See PCB 76—Set 217-1 and Model 17T13—Set **194**-9)
●17T15A, AE (Ch. VTS-402) (Also see PCB 106—Set 253-1) **237**—8
●17T16, B, W (Ch. TS-402) (Also see PCB 106—Set 253-1) ... **237**—8
●17T20 (Ch. TS-418) .... **269**—9
●17T20B, E, M (Ch. VTS-418) .... **269**—9
●19F1 (Ch. TS-67, A and Radio Ch. HS-230) .... **111**—9
●19K1 (Ch. TS-67, -A) .... **111**—9
●19K2, 19K2B (Ch. TS-101) **122**—5
●19K2E, BE (Ch. TS-119, A) (See PCB 53—Set 187-1 and Model 19K2—Set **122**-5)
●19K3, 19K4, 19K4B (Ch. TS-101) .... **122**—5
●20F1, B (Ch. TS-119, A and Radio Ch. HS-230) (Also see PCB 53—Set 187-1) .... **122**—5
●20F2, B (Ch. TS-119B, C) (See PCB 53—Set 187-1 and Model 19K2—Set **122**-5)
●20K1, B, 20K2 (Ch. TS-119B, C) (See PCB 53—Set 187-1 and Model 19K2—Set **122**-5)
●20K3, B, 20K4, B (Ch. TS-119C, C1, D) (See PCB 53—Set 187-1 and Model 19K2—Set **122**-5)
●20K6, 20K6B (Ch. TS-307) **183**—9
●20T1, B, 20T2 (Ch. TS-119B, C) (See PCB 53—Set 187-1 and Model 19K3—Set **122**-5)
●20T2A, 20T2AB (Ch. TS-307) .... **183**—9
●20T2B (Ch. TS-119B, C) (See PCB 53—Set 187-1 and Model 19K2—Set **122**-5)
●20T3, 20T3B (Ch. TS-307) **183**—9
●21C1, B (Ch. TS-292A, B, C) (Also see PCB 63—Set 197-1 and PCB 73—Set 214-1) .... **191**—13
●21C1BD, BDY (Ch. WTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21C1BY (Ch. TS-292AY, BY, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21C1D, DY (Ch. WTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21C1Y (Ch. TS-292AY, BY, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21C2 (Ch. TS-502) (Also see PCB 106—Set 253-1) .... **237**—8
●21C2A, AB (Ch. WTS-502) (See PCB 106—Set 253-1 and Model 17K17—Set **237**-8)
●21C2B (Ch. TS-502) (Also see PCB 106—Set 253-1) .... **237**—8
●21F1, B (Ch. TS-351, A and Radio Ch. HS-316) .... **173**—9
●21F2, B (Ch. TS-292A, B, C and Radio Ch. HS-316A) (Also see PCB 63—Set 197-1 and PCB 73—Set 214-1) .... **191**—13
●21F2BY, 21F2F, FB, FBY, FY (Ch. WTS-292A, AY, B, BY, C, CY and Radio Ch. HS-316A) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—**191**-13)
●21F2Y (Ch. TS-292AY, BY, CY and Radio Ch. HS-316A) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21F3, B (Ch. TS-292A, B, C) (Also see PCB 63—Set 197-1 and PCB 73—Set 214-1) .... **191**—13
●21F3BD, BDY (Ch. WTS-292A, AY, B, BY, C, CY and Radio Ch. HS-316A) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21F3BY (Ch. TS-292AY, BY, CY and Radio Ch. HS-316A) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21F3D, DY (Ch. WTS-292A, AY, B, BY, C, CY and Radio Ch. HS-316A) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21F3Y (Ch. TS-292AY, BY, CY and Radio Ch. HS-316A) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21F5, B (Ch. TS-502, QTS-502 and Radio Ch. HS-409) (Also see PCB 106—Set 253-1) .. **237**—8
●21K1, B (Ch. TS-351) .... **173**—9
●21K2, B (Ch. TS-351) .... **173**—9
●21K3, B, W (Ch. TS-351B) (See Model 21F1—Set **173**-9)

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200; Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

MOTOROLA

MOTOROLA—Cont.

●21K4, A (Ch. TS-292A, B, C) (Also see PCB 63—Set 197-1 and PCB 73—Set 214-1) ....**191**—13
●21K4AY (Ch. TS-292AY, BY, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K4B (Ch. TS-292A, B, C) (Also see PCB 63—Set 197-1 and PCB 73—Set 214-1) ....**191**—13
●21K4BD, BDY (Ch. WTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K4BY (Ch. TS-292AY, BY, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K4C, CB, CBY, CW, CWY, CY, D, DY (Ch. WTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K4W (Ch. TS-292A, B, C) (Also see PCB 63—Set 197-1 and PCB 73—Set 214-1) ....**191**—13
●21K4WD, WDY (Ch. WTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K4WY, 21K4Y (Ch. TS-292AY, BY, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K5, B (Ch. TS-292A, B, C) (Also see PCB 63—Set 197-1 and PCB 73—Set 214-1) ....**191**—13
●21K5BD, BDY (Ch. WTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K5BY (Ch. TS292AY, BY, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K5D, DY (WTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1 PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K5Y (Ch. TS-292AY, BY, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K6 (Ch. TS-292A, B, C) (Also see PCB 63—Set 197-1 and PCB 73—Set **214**-1) ....**191**—13
●21K6D, DY (Ch. WTS-292A, AY, B, BY, C, C) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K6Y (Ch. TS-292AY, BY, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K7 (Ch. TS-292A, B, C) (Also see PCB 63—Set 197-1 and PCB 73—Set 214-1) ....**191**—13
●21K7D, DY (Ch. WTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K7Y (Ch. TS-292AY, BY, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K9, Y (Ch. WTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K10 B, BY, Y (Ch. VTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K11, B, BY, Y (Ch. VTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21K12A, AB, AW (Ch. WTS-502) (Also See PCB 106—Set 253-1) ....**237**—8
●21K12C, CB, CW, D, DB, DW (Ch. WTS-502) (See PCB 106 — Set 253-1 and Model 17K17 — Set **237**-8)
●21K12G (Ch. RTS-502) (See PCB 106—Set 253-1 and Model 17K17—Set **237**-8)
●21K13 (Ch. TS-502) (Also See PCB 106—Set 253-1) ....**237**—8
●21K13A, AB (Ch. RTS-502) (See PCB 106—Set 253-1 and Model 17K17—Set **237**-8)
●21K13B (Ch. TS-502) (Also See PCB 106—Set 253-1) ....**237**—8
●21K14 (Ch. TS-502, QTS-502) (Also See PCB 106—Set 253-1) **237**—8
●21K14A, AB (Ch. RTS-502) (See PCB 106—Set 253-1 and Model 17K17—Set **237**-8)
●21K14B (Ch. TS-502, QTS-502) (Also See PCB 106—Set 253-1) ....**237**—8
●21K15 (Ch. TS-502, QTS-502) (Also See PCB 106—Set 253-1) **237**—8
●21K15A (Ch. RTS-502) (See PCB 106—Set 253-1 and Model 17K17—Set **237**-8)
●21K16 (Ch. TS-502, QTS-502) (Also See PCB 106—Set 253-1) **237**—8
●21K16AB, AW (Ch. RTS-502) (See PCB 106—Set 253-1 and Model 17K17—Set **237**-8)
●21K16W (Ch. TS-502, QTS-502) (Also See PCB 106—Set 253-1) ....**237**—8
●21K17 (Ch. TS-502) (Also See PCB 106—Set 253-1) ....**237**—8
●21K17A (Ch. WTS-502) (See PCB 106—Set 253-1 and Model 17K17—Set **237**-8)
●21K18, B (Ch. PTS-502) (See PCB 106—Set 253-1 and Model 17K17—Set **237**-8)
●21K19, 21K19B (Ch. WTS-518) ....**269**—9
●21K20, B (Ch. WTS-525, A-00, A-01, A-02, A-03) ....**272**—8
●21K31, B (Ch. TTS-525) (See Model 21K20—Set **272**-8)

MOTOROLA—Cont.

●21K32A, BA (Ch. WTS-525) (See Model 21K20—Set **272**-8)
●21T1, B (Ch. TS-351) ....**173**—9
●21T2, B (Ch. TS-351) ....**173**—9
●21T3 (Ch. TS-501A, B) (Also see PCB 63—Set 197-1) ....**191**—13
●21T4A (Ch. TS-324A, B) (Also see PCB 63—Set 197-1) ....**191**—13
●21T4AC, ACE (Ch. TS-292B, C) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21T4ACY (Ch. TS-292AY, BY, CY) (See PCB 63 — Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21T4EA (Ch. TS-324A, B) (Also see PCB 63—Set 197-1) **191**-13
●21T5A, BA (Ch. TS-324A, B) (Also see PCB 63—Set 197-1) ..**191**-13
●21T7, B, BY, Y (Ch. VTS-292A, AY, B, BY, C, CY) (See PCB 63—Set 197-1, PCB 73—Set 214-1 and Model 21C1—Set **191**-13)
●21T8A, AE (Ch. TTS-502) (Also See PCB 106—Set 253-1) ..**237**—8
●21T10 (Ch. VTS-505) (See PCB 106—Set 253-1 and Model 17K17—Set **237**-8)
●21T11, B, W (Ch. VTS-502) (Also See PCB 106—Set 253-1) **237**—8
●21T13, B (Ch. TS-524) (See PCB 106—Set 253-1 and Model 17K17—Set **237**-8)
●21T14E (Ch. TS-507) (See PCB 106 Set 253-1 and Model 17K17—Set **237**-8)
●21T15, 21T16, 21T16B, 21T16E (Ch. WTS-518) ....**269**—9
●21T17, 21T17B (Ch. VTS-518) ....**269**—9
●21T18, B (Ch. RTS-525, A-00, A-01, A-02, A-03) ....**272**—8
●21T23, B (Ch. TTS-525) (See Model 21K20—Set **272**-8)
●24K1, B, 24K2, B, 24K3, W (Ch. TS-602) ....**233**—6
●27K2, B, 27K3 (Ch. TS-602) **233**—6
42B1 (Ch. HS-306) ....**191**—14
45B12 (Ch. HS-8) .... **9**—23
47B11 (Ch. HS-72) .... **29**—17
48L11 (Ch. HS-113) .... **47**—13
49L11Q, 49L13Q (Ch. HS-183) .... **77**—7
51C1, 51C2, 51C3, 51C4 (Ch. HS-288) (See Model 5C1—Set **116**-9)
51L1U, 51L2U (Ch. HS-224) (See Model 5J1—Set **100**-7)
51M1U, 51M2U (Ch. HS-283) ....**149**—8
52B1U (Ch. HS-305) ....**190**—10
52C1 (Ch. HS-309) ....**191**—15
52C1A (Ch. HS-309) (See Model 52C1—Set **191**-15)
52C6 (Ch. HS-310) ....**177**—10
52C6A (Ch. HS-375) (See Model 52C6—Set **177**-10)
52C7 (Ch. HS-310) **177**-10
52C7A (Ch. HS-310) (See Model 52C7—Set **177**-10)
52C8 (Ch. HS-310) ....**177**—10
52C8A (Ch. HS-375) (See Model 52C8—Set **177**-10)
52CW1, 52CW2, 52CW3, 52CW4 (Ch. HS-329) ....**198**—10
52H11U, 52H12U, 52H13U, 52H14U (Ch. HS-313) ....**176**—6
52L1, A, 52L2, A, 52L3, A (Ch. HS-327, HS-357) ....**190**—11
52M1U, 52M2U, 52M3U (Ch. HS-300) ....**188**—10
52R11, 52R12, 52R13, 52R14, 52R15, 52R16 (Ch. HS-289) ....**188**—11
52R11, 52R12, 52R13, 52R14, 52R-15, 52R16 (Ch. HS-289A) (See Model 52R11—Set **188**-11)
52R11A, 52R12A, 52R13A, 52R-14A, 52R15A, 52R16A (Ch. HS-317) ....**178**—7
52R11U, 52R12U, 52R13U, 52R-14U, 52R15U, 52R16U (Ch. HS-315) ....**177**—11
53C1, 53C2, 53C3, 53C4 (Ch. HS-366) ....**236**—7
53C6, 53C7, 53C8, 53C9 (Ch. HS-338) ....**235**—7
53D1 (Ch. HS-359) ....**253**—9
53F2 (Ch. HS-360) ....**234**—9
53H1, 53H2, 53H3, 53H4 (Ch. HS-337) ....**250**—16
53LC1, 53LC2, 53LC3 (Ch. HS-347) ....**217**—10
53R1, U, 53R2, U, 53R3, U, 53R4, U, 53R5, U, 53R6, U (Ch. HS-384, HS-426) ....**247**—8
53R1A, 53R2A, 53R3A, 53R4A, 53R5A, 53R6A (Ch. HS-464) ....**273**—8
53X1, 53X2, 53X3, 53X4 (Ch. HS-336) ....**236**—8
54HF1, B (Ch. HS-443) ....**277**—8
54L1, 54L2, 54L3, 54L4, 54L5, 54L6 (Ch. HS-414) ....**266**—9
55F11 (Ch. HS-30) .... **4**—14
55X11A, 55X12A, 55X13A. **2**—22
56X11 (Ch. HS-94) .... **28**—24
57X11, 57X12 (Ch. HS-60). **28**—25
58A11, 58A12 (Ch. HS-158) **52**—13
58G11, 58G12 (Ch. HS-160) **64**—8
58L11 (Ch. HS-114) .... **45**—17
58R11, 58R12, 58R13, 58R14, 58R-15, 58R16 (Ch. HS-116). **49**—14
58R11A, 58R12A, 58R13A, 58R-14A, 58R15A, 58R16A (Ch. HS-184) .... **69**—11
58X11, 58X12 (Ch. HS-125) **53**—15
59F11 (Ch. HS-188) .... **68**—12
59H11U, 59H12U (Ch. HS-210) .... **97**—9
59L11Q, 59L12Q, 59L14Q (Ch. HS-187) ....**78**—10
59R11, 59R12I, 59R13M, 59R14E, 59R15G, 59R16Y (Ch. HS-167) .... **79**—10
59X11, 59X12I (Ch. HS-180) .... **81**—11
59X21U, 59X22IU (Ch. HS-192) .... **98**—6

MOTOROLA—Cont.

61L1, 61L2 (Ch. HS-226) (See Model 6L1—Set **107**-7)
62C1 (Ch. HS-299) ....**189**—12
62C1A (Ch. HS-299) (See Model 62C1—Set **189**-12)
62C2 (Ch. HS-299) ....**189**—12
62C2A (Ch. HS-299) (See Model 62C2—Set **189**-12)
62C3 (Ch. HS-299) ....**189**—12
62C3A (Ch. HS-299) (See Model 62C3—Set **189**-12)
62CW1 (Ch. HS-324) ....**196**—7
62L1U, 62L2U, 62L3U (Ch. HS-308) ....**183**—10
62X11U, 62X12U, 62X13U (Ch. HS-314) ....**175**—14
62X21 (Ch. HS-326) ....**228**—12
63C1, 63C2, 63C3 (Ch. HS-397) ....**266**—10
63LSS (Ch. HS-415) ....**251**—13
63L1, 63L2, 63L3 (Ch. HS-361) ....**222**—8
63X1, 63X1A, 63X2, 63X3 (Ch. HS-335) ....**238**—9
63X21 (Ch. HS-385) ....**249**—11
64X1, 64X2 (Ch. HS-440) ..**277**—9
65F11 (Ch. HS-31) .... **6**—19
65F12 (See Model 65F11 — Set **6**-19)
65F21 (Ch. HS-26) .... **4**—12
65L11, 65L12 (Ch. HS-7) .. **8**—22
65T21, 65T21B (Ch. HS-32) **1**—1
65X11A, 65X12A, 65X13A, 65X-14A, 65X14B (Ch. HS-2). **4**—8
67F11, 67F12, 67F12B (Ch. HS-63) .... **31**—20
67F14 (Ch. HS-122) .... **55**—15
67F61BN (Ch. HS-69) .... **44**—14
67L11 (Ch. HS-59) .... **31**—21
67X11, 67X12, 67X13 (Ch. HS-58) .... **30**—20
67XM21 (Ch. HS-64) .... **32**—14
68F11, 68F12, 68F14, 68F14B, 68F-14M .... **58**—13
68L11 (Ch. HS-119) .... **45**—18
68T11 (Ch. HS-144) .... **54**—14
68X11, 68X12 (Ch. HS-127), 68X-11A, 68X12A (Ch. HS-127A) .... **56**—16
69L11 (Ch. HS-175) .... **76**—15
69X11, 69X121 (Ch. HS-181) .... **82**—9
72XM21 (Ch. HS-303) ....**176**—7
72XM22 (See Model 72XM21—Set **176**-7)
75F21 (Ch. HS-91) .... **19**—21
75F31 (Ch. HS-36), 75F31A, B (Ch. HS-36A), 76F31 (Ch. HS-98) .... **29**—18
77FM21 (Ch. HS-89), 77FM22, 77-FM22M, 77FM22WM, 77FM23 (Ch. HS-97) .... **33**—13
77XM21, 77XM22, 77XM22B (Ch. HS-102) .... **34**—12
78F11, 78F11M (Ch. HS-150), 78F-12M (Ch. HS-155) .... **56**—17
78FM21, 78FM21M (Ch. HS-132), 78FM22M (Ch. HS-128) .. **59**—13
79FM21, 79FM21B, 78FM21R (Ch. HS-178) .... **88**—7
79XM21, 79VM22 (Ch. HS-168) .... **85**—9
85F21 (Ch. HS-22) .... **6**—20
85K21 (Ch. HS-52) .... **5**—3
88FM21 (Ch. HS-133) .... **54**—15
91FM21 (Ch. HS-203A) (See Model 19F1—Set **111**-9)
92FM21, A, B, BA (Ch. HS-316A) (See Model 21F1—Set **173**-9)
95F31, 95F31B (Ch. HS-39), 95F33 (Ch. HS-38) .... **19**—22
99FM21R (Ch. HS-170) .... **80**—10
107F31, 107F31B (Ch. HS-87) .... **33**—14
309 .... **63**—14
400 .... **99**—10
401 ....**131**—12
401A ....**179**—8
403 ....**216**—5
404 ....**264**—12
405 (Ch. AS-13) .... **3**—8
405M (See Set **21**-25 and Model 405—Set **3**-8)
408 .... **38**—12
405 (See Model 408—Set **38**-12)
412 ....**215**—10
500 .... **98**—7
501 ....**133**—10
501A ....**148**—12
503 ....**221**—8
504 ....**261**—9
505 (Ch. AS-14) .... **4**—37
508 .... **39**—13
509 (See Model 508—Set **39**-13)
553 ....**224**—10
600 .... **97**—10
603 (See Mopar Model 603—Set **65**-9)
604 (See Mopar Model 704—Set **106**-9)
605 (Ch. AS-15) .... **5**—1
606 (See Mopar Model 606—Set **133**-9)
607 (See Mopar Model 607—Set **170**-11)
608 .... **39**—14
608 (Mopar) (See Mopar Model 608—Set **207**-4)
609 (See Model 608—Set **39**-14)
611T (See Mopar Model 610T)—Set **220**-5)
612 (See Mopar Model 609—Set **201**-6)
700 ....**100**—8
701 ....**137**—8
702 (Ch. BT-2 and 6-2) ..**197**—7
705 (Ch. AS-16) .... **7**—19
708 .... **40**—12
709 (See Model 708—Set **40**-12)
800 ....**103**—10
801 ....**138**—6
802 (Ch. BT-2 and P8-2) ..**197**—7
804 (See Mopar Model 804—Set **67**-12)
808 (See Mopar Model 808—Set **107**-6)
814 (See Mopar Model 814—Set **137**-7)

MOTOROLA—Cont.

829 (See Mopar Model 829—Set **247**-7)
Ch. AS-13 (Se Model 405)
Ch. AS-14 (See Model 505)
Ch. AS-15 (See Model 605)
Ch. AS-16 (See Model 705)
Ch. AS-22 (See Model BK-6)
Ch. BT-2 ....**197**—7
Ch. HS-2 (See Model 65X11A)
Ch. HS-6 (See Model 5A1)
Ch. HS-7 (See Model 65L11)
Ch. HS-8 (See Model 45B12)
Ch. HS-15 (See Model 5A5)
Ch. HS-18 (See Model WR6)
Ch. HS-22 (See Model 85F21)
Ch. HS-26 (See Model 65F21)
Ch. HS-30 (See Model 55F11)
Ch. HS-31 (See Model 65F11)
Ch. HS-32 (See Model 65T21)
Ch. HS-36 (See Model 75F31)
Ch. HS-36A (See Model 75F31A)
Ch. HS-38 (See Model 95F33)
Ch. HS-39 (See Model 95F31)
Ch. HS-50 (See Model 55X11A)
Ch. HS-52 (Se Model 85K21)
Ch. HS-58 (See Model 67X11)
Ch. HS-59 (See Model 67L11)
Ch. HS-60 (See Model 57X11)
Ch. HS-62 (See Model 5A7)
Ch. HS-62A (See Model 5A7A)
Ch. HS-63 (See Model 67F11)
Ch. HS-64 (See Model 67XM21)
Ch. HS-69 (See Model 67F61BN)
Ch. HS-72 (See Model 47B11)
Ch. HS-87 (See Model 107F31)
Ch. HS-89 (See Model 77FM21)
Ch. HS-91 (See Model 75F21)
Ch. HS-94 (See Model 56X11)
Ch. HS-97 (See Model 77FM22)
Ch. HS-98 (See Model 76F31)
Ch. HS-102 (See Model 77XM21)
Ch. HS-108 (See Model VK-101)
Ch. HS-113 (See Model 48L11)
Ch. HS-114 (See Model 58L11)
Ch. HS-116 (See Model 58R11)
Ch. HS-119 (See Model 68L11)
Ch. HS-122 (Se Model 67F14)
Ch. HS-124 (See Model 78F11)
Ch. HS-125 (See Model 58X11)
Ch. HS-127 (See Model 68X11)
Ch. HS-127A (See Model 68X11A)
Ch. HS-128 (See Model 78FM22M)
Ch. HS-132 (See Model 78FM21)
Ch. HS-133 (See Model 88FM21)
Ch. HS-137 (See Model VF102)
Ch. HS-144 (See Model 68T11)
Ch. HS-150 (See Model 78F11)
Ch. HS-155 (See Model 78F12M)
Ch. HS-158 (See Model 58A11)
Ch. HS-160 (See Model 58G11)
Ch. HS-167 (See Model 59R11)
Ch. HS-168 (See Model 79XM21)
Ch. HS-170 (See Model 99FM21R)
Ch. HS-175 (See Model 69L11)
Ch. HS-178 (Se Model 79FM21)
Ch. HS-180 (See Model 59X11)
Sh. HS-181 (See Model 69X11)
Ch. HS-183 (See Model 49L11Q)
Ch. HS-184 (See Model 58R11A)
Ch. HS-187 (See Model 59L11Q)
Ch. HS-188 (See Model 59F11)
Ch. HS-192 (See Model 59X21U)
Ch. HS-210 (See Model 59H11U)
Ch. HS-223 (See Model 5M1)
Ch. HS-224 (See Model 5J1U)
Ch. HS-226 (See Model 6L1)
Ch. HS-228 (See Model 5C1)
Ch. HS-230 (See Model 19F1)
Ch. HS-234 (See Model 16F1)
Ch. HS-242 (See Model 5R11U)
Ch. HS-243 (See Model 5X11U)
Ch. HS-244 (See Model 5H11U)
Ch. HS-245 (See Model 6X11U)
Ch. HS-246 (See Model 9FM21)
Ch. HS-247 (See Model 8FM21)
Ch. HS-249 (See Model 5M1)
Ch. HS-250 (See Model 5J1)
Ch. HS-253 (See Model 17F1)
Ch. HS-258 (See Model 5C2)
Ch. HS-259 (See Model 5X21U)
Ch. HS-261 (See Model 17F5)
Ch. HS-262 (See Model 5C3)
Ch. HS-264 (See Model 6F11)
Ch. HS-265 (See Model 7F11)
Ch. HS-270 (See Model 5C4)
Ch. HS-271 (See Model 5C5)
Ch. HS-272 (See Model 5C6)
Ch. HS-283 (See Model 51M1U)
Ch. HS-289, A (See Model 52R11)
Ch. HS-299 (See Model 62C1)
Ch. HS-300 (See Model 52M1U)
Ch. HS-302 (See Model 17F11)
Ch. HS-303 (See Model 71XM21)
Ch. HS-305 (See Model 52B1U)
Ch. HS-306 (See Model 42B1)
Ch. HS-308 (See Model 62L1U)
Ch. HS-309 (See Model 52C1)
Ch. HS-310 (See Model 52C6)
Ch. HS-313 (See Model 52H11U)
Ch. HS-314 (See Model 62X11U)
Ch. HS-315 (See Model 52R11U)
Ch. HS-316 (See Model 21F1)
Ch. HS-317 (See Model 52R11A)
Ch. HS-319 (See Model 17F12)
Ch. HS-324 (See Model 62CW1)
Ch. HS-326 (See Model 62X21)
Ch. HS-327 (See Model 52L1)
Ch. HS-329 (See Model 52CW1)
Ch. HS-335 (See Model 63X1)
Ch. HS-336 (See Model 53X1)
Ch. HS-337 (See Model 53H1)
Ch. HS-338 (See Model 53C6)
Ch. HS-347 (See Model 53LC1)
Ch. HS-357 (See Model 52L1)
Ch. HS-359 (See Model 53D1)
Ch. HS-360 (See Model 53F2)
Ch. HS-361 (See Model 63L1)
Ch. HS-366 (See Model 53C1)
Ch. HS-384 (See Model 53R1)
Ch. HS-385 (See Model 63X21)
Ch. HS-397 (See Model 63C1)
Ch. HS-409 (See Model 21F5)
Ch. HS-414 (See Model 54L1)
Ch. HS-415 (See Model 63LSS)
Ch. HS-426 (See Model 53R1U)
Ch. HS-440 (See Model 64X1)
Ch. HS-443 (See Model 54HF1)
Ch. HS-464 (See Model 53R1A)

MOTOROLA—Cont.

Ch. M-5 (See Model AR96-23)
Ch. OB (See Model SROB)
Ch. PTS-502 (See Model 21K18)
Ch. PTS-502Y (See Model Y21K18)
Ch. P6-2 ....**197**—7
Ch. P8-2 ....**197**—7
Ch. QTS-502 (See Model 21F5)
Ch. QTS-502Y (See Model Y21F5)
Ch. R-15A6 ....**256**–10
Ch. R16M6 See Model HN4M6)
Ch. R-17A6 ....**263**–13
Ch. RTS-502 (See Model 21K12G)
Ch. RTS-502Y (See Model Y21K12G)
Ch. RTS-525, A-00, A-01, A-02, A-03 (See Model 21T18)
Ch. RTS-525Y, A-00, A-01, A-02, A-03 (See Model Y21T18)
Ch. TS-3 (See Model VT-101)
Ch. TS-4B Thru J (See Model VT-71)
Ch. TS-4J Late (See Model VT-73)
Ch. TS-5 (See Model VK101)
Ch. TS-7 (See Model VF-102)
Ch. TS-8 (See Model VF103)
Ch. TS-9, TS-9A, TS-9B, TS-9C (See Model VT105)
Ch. TS-9D (See Model VT105)
Ch. TS-9E, TS-9E1 (See Model VK106)
Ch. TS-14, A, B (See Model 10VK-12)
Ch. TS-15 (See Model VT-121)
Ch. TS-15C, TS-15C1 (See Model 12VK18B)
Ch. TS-16, A (See Model 16VF8B)
Ch. TS-18, A (See Model 7VT1)
Ch. TS-23, A, B (See Model 12-VK11)
Ch. TS-30, A (See Model 12VK15)
Ch. TS-52 (See Model 16K2L)
Ch. TS-53 (See Model 12K2)
Ch. TS-60 (See Model 16F1)
Ch. TS-67 (See Model 19F1)
Ch. TS-74 (See Model 16K2)
Ch. TS-88 (See Model 14K1)
Ch. TS-89 (See Model 16F1BH)
Ch. TS-94 (See Model 16K2BH)
Ch. TS-95 (See Model 17K1A)
Ch. TS-101 (See Model 19K2)
Ch. TS-114A (See Model 14T3X1)
Ch. TS-115 (See Model 14K1BH)
Ch. TS-118 (See Model 17F1)
Ch. TS-118A, B (See Model 17T3X1)
Ch. TS-119, A (See Model 19K2E)
Ch. TS-119B (See Model 20F2)
Ch. TS-119C, C1, D (See Model 20K3)
Ch. TS-172 (See Model 17K1BE)
Ch. TS-174 (See Model 17F6BC)
Ch. TS-214 (See Model 17T5A)
Ch. TS-216 (See Model 14T4)
Ch. TS-220 (See Model 17K9)
Ch. TS-221, -A (See Model 17K5E)
Ch. TS-228 (See Model 17F11)
Ch. TS-236 (See Model 17K8)
Ch. TS-275 (See Model 14P2)
Ch. TS-292A, B, C (See Model 21C1)
Ch. TS-292AY, BY, CY (See Model 21C1Y)
Ch. TS-307 (See Model 20K6)
Ch. TS-314A, B, TS-315A, B (See Model 17K10E)
Ch. TS-324, A, B (See Model 21T4A)
Ch. TS-324AY, BY (See Models 21T4A and TK-19M)
Ch. TS-325, A, TS-326, A (See Model 17F12)
Ch. TS-326Y (See Models 17F12 and VTK-17M)
Ch. TS-351, A (See Model 21F1)
Ch. TS-395, -02 (See Model 17F13)
Ch. TS-400A (See Model 17T11E)
Ch. TS-401 (See Model 17F12D)
Ch. TS-402 (See Model 17K17)
Ch. TS-402Y (See Model Y17K17)
Ch. TS-408A (See Model 17F13C)
Ch. TS-408Y (See Models 17F13C and TK-19M)
Ch. TS-410A (See Model 17T13)
Ch. TS-410Y (See Model 17T13Y)
Ch. TS-418 (See Model 17T20)
Ch. TS-418Y (See Model Y17T20)
Ch. TS-501A (See Model 21T3)
Ch. TS-501Y (See Models 21T3 and TK-24M)
Ch. TS-502 (See Model 21C2)
Ch. TS-502Y (See Model Y21C2)
Ch. TS-507 (See Model 21T14E)
Ch. TS-507Y (See Model Y21T14E)
Ch. TS-524 (See Model 21T13)
Ch. TS-524Y (See Model Y21T13)
Ch. TS-602 (See Model 24K1)
Ch. TS-602Y (See Model Y24K1)
Ch. TTS-502 (See Model 21T8A)
Ch. TTS-502Y (See Model Y21T8A)
Ch. TTS-525, Y (See Model 21K20, Y)
Ch. VTS-292A, AY, B, BY, C. CY (See Model 21K10, Y)
Ch. VTS-402 (See Model 17T15A)
Ch. VTS-402Y (See Model Y17T15A)
Ch. VTS-410 (See Model 17T14)
Ch. VTS-410Y (See Model 17T14Y)
Ch. VTS-418 (See Model 17T20B)
Ch. VTS-418Y (See Model Y17T20B)
Ch. VTS-502 (See Model 21T11)
Ch. VTS-502Y (See Model Y21T11)
Ch. VTS-505 (See Model 21T10)
Ch. VTS-505Y (See Model Y21T10)
Ch. VTS-518 (See Model 21T17)
Ch. VTS-518Y (See Model Y21T17)
Ch. WTS-292A, AY, B, BY, C, CY (See Model 21C1BD, BDY)
Ch. WTS-402Y (See Model Y21K12A)
Ch. WTS-502 (See Model 21K12A)
Ch. WTS-518 (See Model 21K19)
Ch. WTS-518Y (See Model Y21K19)
Ch. WTS-525, A-00, A-01, A-02, A-03 (See Model 21K20)
Ch. WTS-525Y, A-00, A-01, A-02, A-03 (See Model Y21K20)
Ch. 1A ....**134**—8
Ch. 1B **136**–11
Ch. 2A ....**197**—7
Ch. 2M ....**197**—7
Ch. 8A **46**–16
Ch. 10A **106**–10

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250
● Denotes Television Receiver.

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

PHILCO—Cont.

- ●A-UT2277 (Code 123) (Ch. 81, H-1, H-1A) (For TV Ch. see PCB 83—Set 224-1 and Model 53-T1824—Set 201-7, for UHF Tuner see Model UT21B—Set 223-9)
- ●A-UT2279 (Code 123) (Ch. 81, H-1, H-1A) (For TV Ch. see PCB 83—Set 224-1 and Model 53-T1824—Set 201-7, for UHF Tuner see Model UT21B—Set 223-9)
- ●A-UT2280 (Code 128) (Ch. 91A, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1, and Model 53-T1853—Set 185-10)
- ●A-UT2281 (Code 128) (Ch. 91A, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1, and Model 53-T1853—Set 185-10)
- ●A-UT2288 (Code 123) (Ch. 81, H-1, H-1A) (For TV Ch. see PCB 83—Set 224-1 and Model 53-T1824—Set 201-7, for UHF Tuner see Model UT21B—Set 223-9)
- ●A-UT2289 (Code 128) (Ch. 91A, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1, and Model 53-T1853—Set 185-10)
- ●A-UT2292L (Code 128) (Ch. 94A, J-5 and Radio Ch. RT-10) (For TV Ch. Only See PCB 85—Set 226-1 and Model 53-T2285—Set 213-5)
- B569 (Code 121) .... 261—11
- B570 (Code 121) .... 228—13
- B570 (Codes 122, 124) .... 257—12
- B572 (Code 121) (See Model B570—Set 228-13)
- B572 (Code 122) .... 257—12
- B574 (Code 121) .... 229—9
- B649 (See Model B650—Set 226-5)
- B650 .... 226—5
- B651 (See Model 52-640—Set 153-12)
- B-652 .... 234—10
- B656 (See Model 53-656—Set 187-10)
- B710 .... 223—8
- B711 (Code 121) (See Model B710—Set 223-8)
- B712 (Code 121) (See Model 53-701—Set 193-6)
- B714 (Codes 121, 123) ... 229—10
- B714X (Code 121) .... 229—10
- B804 (See Model 53-804—Set 210-4)
- B-956 .... 218—8
- B1349 .... 259—11
- B1350 (See Model 53-1350—Set 203-7)
- B-1352 .... 235—9
- B1750 (See Model 53-1750—Set 203-7)
- B1752 .... 240—6
- B1753 .... 240—6
- B1754 (See Model 53-1754—Set 214-8)
- B1756 .... 241—10
- C-570 (Codes 124,126) .... 272—9
- C-579, C-580 .... 272—10
- C-583, C-584, C-587 (Codes 124, 126) .... 272—9
- C-660 (Code 121) .... 271—8
- C-663 .... 271—9
- C-710 (Codes 124, 126) ... 272—9
- C-716, C-718, C-720 ...... 272—10
- C-721, C-722, C-723, C-724 (Codes 124, 126) .... 272—9
- C-1332 (Code 121) .... 275—10
- C1348 .... 259—11
- C-4608 (Code 121) (See Mopar Model 802—Set 18-24)
- C-4608 (Code 122) (See Mopar Model 802 Revised—Set 42-19)
- C-4908 (See Mopar Model 805—Set 71-11)
- C-5009 (See Mopar Model 809—Set 71-11)
- C-5010 (See Mopar Model 805—Set 71-11)
- C-5109 (See Mopar Model 815—Set 139-8)
- C-5110 (See Mopar Model 816—Set 139-8)
- C-5111 (See Mopar Model 817—Set 139-8)
- C-5209 (See Mopar Model 824—Set 202-3)
- C-5409 (See Mopar Model 830—Set 249-10)
- CR-2 .... 35—17
- CR-4, CR-6 .... 33—17
- CR-8 .... 38—13
- CR-9 .... 44—17
- CR-9R (See Model CR-9—Set 44-17)
- CR-12 .... 39—16
- CR-501 .... 142—9
- CR-503 .... 128—10
- CR-505 .... 130—10
- D-5107 (See Mopar Model 813—Set 139-8)
- D-5207 (See Mopar Model 820—Set 202-3)
- D-5407 (See Mopar Model 820—Set 202-3)
- P-4635 (See Packard Model PA-382042—Set 20-26)
- P-4735 (See Packard Model PA-393607—Set 57-15)
- P-5106 (See Mopar Model 812—Set 139-8)
- P-5206 (See Mopar Model 819—Set 202-3)
- PD-4908 (See Mopar Model 803—Set 66-12)
- S-4624, S-4625 (See Studebaker Model S-4624—Set 21-32)
- S-4626, S-4627 (See Studebaker Model S-4627—Set 19-32)
- S-5123 (See Studebaker Model AC2113—Set 172-11)
- S-5127 (See Studebaker Model AC-2111—Set 166-15)
- S-5323 (See Studebaker Model AC-2301—Set 213-8)
- S-5327 (See Studebaker Model AC-2300—Set 229-14)
- S-5524 (See Studebaker Model AC-2301—Set 213-8)
- S-5528, S-5529 (See Studebaker Model AC-2300—Set 229-14)

PHILCO—Cont.

- UN6-100 .... 19—26
- UN6-400 .... 30—23
- UN6-450 .... 18—26
- UN6-500 .... 17—24
- UN6-550 .... 31—24
- UT20A, B Tel. UHF Tuner (See PCB 82—Set 223-1)
- UT20D Tel. UHF Tuner (See PCB 111—Set 260-1)
- UT21 Tel. UHF Tuner (See PCB 115—Set 267-1)
- UT-21A, B Tel. UHF Tuner 223—9
- UT21C Tel. UHF Tuner (See Model A-UT2272—Set 227-10)
- UT21D Tel. UHF Tuner (See Model 18BU3000—Set 227-10)
- UT25 Tel. UHF Tuner (See PCB 115—Set 267-1)
- ●18B 3000 (Code 130) (Ch. R-181, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●18B 3001 (Code 130) (Ch. R-181, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●18B3002 (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●18B 3100, HM, L (Code 130) (Ch. R-181, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●18B3100W (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 18B3100—Set 227-10)
- ●18B3102, L (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●18B3103 (Code 140) (Ch. R191, D-191) (See PCB 111—Set 260-1 and Model 18B3002—Set 231-12)
- ●18B3104 (Code 150) (Ch. R-201, D-201) .... 241—11
- ●18BU3000 (Code 130) (Ch. R-181U, D-181) (Also see PCB 115—Set 267-1) .... 227—10
- ●18BU3001 (Code 130) (Ch. R-181U, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●18BU3002 (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●18BU3100, HM, L (Code 130) (Ch. R-181U, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●18BU3100W (Code 130) (Ch. R-181U, D-181) (See PCB 115—Set 267-1 and Model 18BU3100—Set 227-10)
- ●18BU3102, L (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●18BU3102, L (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 18B3002—Set 231-12)
- ●18BU3103 (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 18B3002—Set 231-12)
- ●18BU3104 (Code 150) (Ch. R-201, D-201) .... 241—11
- ●22B4000 (Code 130) (Ch. R-181, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●22B4000X, XD (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22B4001, E, L (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22B4002 (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22B4002G (Code 140) (Ch. R-191, D-191) (See PCB 111—Set 260-1 and Model 22B4002—Set 231-12)
- ●22B4002L (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22B4003 (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22B4004 (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22B4005, L (Code 140) (Ch. R-191, D-191) (See Model 18B3002—Set 231-12)
- ●22B4007, L (Code 140) (Ch. R-191, D-191) (See Model 18B3002—Set 231-12)
- ●22B4008, 22B4009 (Code 150) (Ch. R-201, D-201) .... 241—11
- ●22B4100 (Code 130) (Ch. R-181, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●22B4100A (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4100—Set 227-10)
- ●22B4100L (Code 130) (Ch. R-181, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●22B4100X (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4100—Set 227-10)
- ●22B4101 (Code 129) (Ch. R-81B, D-81) (Also See PCB 115—Set 267-1) .... 227—10
- ●22B4101 (Code 130) (Ch. R-181, D-181) .... 227—10
- ●22B4102, L (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22B4103, L (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4100—Set 227-10)
- ●22B4105, L (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4100—Set 227-10)
- ●22B4106 (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12

PHILCO—Cont.

- ●22B4107, L (Code 140) (Ch. R-191, D-191) (See Model 18B3002—Set 231-12)
- ●22B4108 (Code 150) (Ch. R-201, D-201) .... 241—11
- ●22B4109HM (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22B4110, L (Code 150) (Ch. R-201, D-201) .... 241—11
- ●22B4112, L (Code 140) (Ch. R-191, D-191) (See Model 18B3002—Set 231-12)
- ●22B4150 (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- 22B4150L (Code 140) (Ch. R-191, D-191) (See PCB 111—Set 260-1 and Model 22B4150—Set 231-12)
- ●22B4301 (Code 130) (Ch. R-181, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●22B4302 (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22B4303 (Code 130) (Ch. R-181, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●22B4304 (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22B4306, L (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22B4307HM (Code 140) (Ch. R-191, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22B4308 (Code 150) (Ch. R-201, D-201) .... 241—11
- ●22BU4000 (Code 130) (Ch. R-181U, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●22BU4000X, XD (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22BU4001, E, L (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22BU4002, L (Code 140) (Ch. R-191U, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22BU4002, L (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 22BU4002—Set 231-12)
- ●22BU4003 (Code 130) (Ch. R-181U, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22BU4004 (Code 140) (Ch. R-191U, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22BU4004 (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 22BU4004—Set 231-12)
- ●22BU4008, 22BU4009 (Code 150) (Ch. R-201, D-201) .... 241—11
- ●22BU4100 (Code 130) (Ch. R-181U, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●22BU4100A (Code 130) (Ch. R-181U, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22BU4100L (Code 130) (Ch. R-181U, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●22BU4100X (Code 130) (Ch. R-181U, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22BU4101 (Code 129) (Ch. R-81B, D-81) (Also See PCB 115—Set 267-1) .... 227—10
- ●22BU4101 (Code 130) (Ch. R-181U, D-181) .... 227—10
- ●22BU4102, L (Code 140) (Ch. R-191U, D-191) (Also see PCB 111 Set 260-1) .... 231—12
- ●22BU4102, L (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 22BU4102—Set 231-12)
- ●22BU4103, L (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22BU4105, L (Code 130) (Ch. R-181U, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22BU4106 (Code 140) (Ch. R-191U, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22BU4106 (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 22BU4106—Set 231-12)
- ●22BU4108 (Code 150) (Ch. R-201, D-201) .... 241—11
- ●22BU4109HM (Code 140) (Ch. R-191U, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22BU4109HM (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 22BU4109HM—Set 231-12)
- ●22BU4110, L (Code 150) (Ch. R-201, D-201) .... 241—11
- ●22BU4150, L (Code 140) (Ch. R-191U, D-191) (See PCB 111—Set 260-1 and Model 18BU3002—Set 231-12)
- ●22BU4150, L (Code 141) Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 18BU3002—Set 231-12)
- ●22BU4302 (Code 140) (Ch. R-191U, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22BU4302 (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 22BU4302—Set 231-12)

PHILCO—Cont.

- ●22BU4303 (Code 130) (Ch. R-181U, D-181) (Also See PCB 115—Set 267-1) .... 227—10
- ●22BU4304 (Code 140) (Ch. R-191U, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22BU4304 (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 22BU4304—Set 231-12)
- ●22BU4306, L (Code 140) (Ch. R-191U, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22BU4306, L (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 22BU4306—Set 231-12)
- ●22BU4307HM (Code 140) (Ch. R-191U, D-191) (Also see PCB 111—Set 260-1) .... 231—12
- ●22BU4307HM (Code 141) (Ch. R-192U, D-191) (See PCB 111—Set 260-1 and Model 22BU4307HM—Set 231-12)
- ●22BU4308 (Code 150) (Ch. R-201, D-201) .... 241—11
- ●22C4010, L (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22C4010, L (Code 131) (Ch. R-181, D-182) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22C4011 (Ch. 300, 301) .. 276—7
- ●22C4012 (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22C4012 (Code 131) (Ch. R-181, D-182) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22C4013, L, X (Ch. 300, 301) .... 276—7
- ●22C4014 (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22C4014 (Code 131) (Ch. R-181, D-182) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22C4015 (Ch. 300, 301) .. 276—7
- ●22C4118, 22C4119, X, 22C120, L, X, 22C121, L (Ch. 300, 301) .... 276—7
- ●22C4122 (Code 130) (Ch. R-181, D-181) (See PCB 115—Set 267-1 and Model 22B4000—Set 227-10)
- ●22C4122 (Code 131) (Ch. R-181, D-182) (See PCB 115—Set 267-1 and Model 22B400—Set 227-10)
- ●22C4123, 22C4124, L, S (Ch. 300, 301) .... 276—7
- ●22C4127 (Ch. 300, 301) .. 276—7
- ●22C4130, L (Ch. 300, 301) 276—7
- ●24B6106, L (Ch. R-207, D-208) .... 236—10
- ●24B6300 (Ch. R-207, D-208) 236—10
- ●24BU6106, L (Ch. R-207, D-208) .... 236—10
- ●24BU6300 (Ch. R-207, D-208) .... 236—10
- 46-131 .... 5—13
- 46-132 (Revised) .... 32—16
- 46-132 .... 4—20
- 46-142 .... 36—16
- 46-200 Series .... 1—24
- 46-200-1, 46-201, 46-202, 46-203 (See Model 46-200 Series—Set 1-24)
- 46-250, 26-250-1, 26-251 .. 2—12
- 46-350 .... 10—24
- 46-420, 46-201-1 .... 6—22
- 46-421, 46-421-1 .... 5—12
- 46-427 .... 2—25
- 46-480 .... 19—25
- 46-1201 .... 4—35
- 46-1201 (Revised) .... 29—21
- 46-1203 .... 6—23
- 46-1209 .... 13—24
- 46-1213 .... 12—33
- 46-1226 .... 15—24
- 47-204, 47-205 .... 33—18
- 47-1227 .... 25—22
- 47-1230 .... 22—23
- 48-141, 48-145 .... 25—23
- 48-150 .... 34—16
- 48-200, 48-200-1 .... 33—19
- 48-206 .... 37—16
- 48-214 .... 33—19
- 48-225, 48-230 .... 37—15
- 48-250, 48-250-1 .... 32—17
- 48-300 .... 37—17
- 48-360 .... 38—14
- 48-460, 48-460-1 .... 34—17
- 48-461 .... 38—15
- 48-464 .... 26—20
- 48-472, 48-472-1 .... 43—15
- 48-472 (Revised) .... 48—18
- 48-475 .... 40—14
- 48-482 .... 30—24
- 48-4B5 .... 47—19
- ●48-700 .... 68—13
- ●48-1000, 48-1000-5 (Code 122) .... 53—17
- ●48-1001, 48-1001-5 (Code 121 and 122) .... 53—17
- ●48-1050, 48-1050-5 (Code 122) .... 53—17
- 48-1200 .... 29—20
- 48-1201 .... 31—25
- 48-1253 .... 36—17
- 48-1256 .... 34—18
- 48-1260 .... 31—25
- 48-1262 .... 35—19
- 48-1263 .... 32—18
- 48-1264 .... 36—18
- 48-1266 .... 39—15
- 48-1270 .... 42—20
- 48-1274, 48-1276 .... 41—17
- 48-1282 .... 5—18
- 48-1283 (See Model 48-1282—Set 35-18)
- 48-1284 .... 45—20
- 48-1286 .... 51—15
- 48-1290 .... 47—18
- ●48-2500, 48-2500-5 (Codes 121 and 122) .... 89—10
- 49-101 .... 87—8
- 49-500, 49-500-1 .... 48—19
- 49-501, 49-501-1 .... 56—18

PHILCO—Cont.

- 49-503 .... 52—15
- 49-504, 49-504-1 .... 54—17
- 49-505 .... 53—18
- 49-506 .... 48—19
- 49-601 .... 42—21
- 49-602 .... 41—18
- 49-603 .... 59—15
- 49-605, 49-607 .... 58—15
- 49-900-E, 49-900-1 .... 49—16
- 49-901 .... 56—19
- 49-902 .... 51—16
- 49-904 .... 58—16
- 49-905 .... 52—16
- 49-906 .... 57—16
- 49-909 .... 55—17
- ●49-1002 (Code 121) ...... 91A—10
- ●49-1040 (Code 121) ...... 91A—10
- ●49-1040 (Code 123) ...... 92—5
- ●49-1075 (Code 121 and 122) .... 93A—11
- ●49-1076 (Code 122) ...... 93A—11
- ●49-1076 (Code 123), 49-1077 (Code 122) .... 92—5
- 49-1100 .... 47—19
- 49-1101 .... 55—17
- ●49-1150 (Codes 121 and 123) .... 70—6
- ●49-1150 (Codes 122, 124). 92—5
- ●49-1175 (Codes 121 and 123), (Code 121) .... 70—6
- ●49-1175 (Codes 122; 124). 92—5
- ●49-1240 (Codes 121, 123). 93A—11
- ●49-1240 (Code 124) ...... 92—5
- ●49-1275 (Code 121) 93A-11
- ●49-1278 (Code 122) 93A-11
- ●49-1278 (Code 123), 49-1279 (Code 122), 49-1280 (Code 121) 92—5
- 49-1401 45-21
- 49-1404 (See Model 49-1405—Set 54-24)
- 49-1405 .... 54—24
- ●49-1450 (Codes 121A or B, 123A or B, 123T A or B) .... 77—8
- ●49-1475 (Codes 121A, B, 123A, B, 123T A, B) .... 77—8
- ●49-1480 (Code 121A, B, 123A, B, 123T A, B) .... 77—8
- 49-1600 .... 50—13
- 49-1601 (See Model 49-1600—Set 50-13)
- 49-1602, 49-1603, 49-1604, 49-1605 .... 55—18
- 49-1606, 49-1607 .... 53—19
- 49-1609, 49-1611 (See Model 49-1606—Set 53-19)
- 49-1613 .... 91—9
- 49-1615 .... 64—9
- ●50-T701 (Code 121), 50-T702 (Code 122) .... 140—7
- ●50-T1104 (Code 123) (Alse see PCB 29—Set 154-1) .... 114—9
- ●50-T1400, 50-T1401, 50-T1402 (Code 121) (Also see PCB 29—Set 154-1) .... 114—9
- ●50-T1403, 50-T1404 (Codes 121 and 122) (See PCB 29—Set 154-1 and Model 50-T1104—Set 114-9)
- ●50-T1403 (Code 125), 50-T1404, 50-T1406 (Codes 123, 124, 125) .... 115—8
- ●50-T1406 (Codes 121 and 122) (See PCB 29—Set 154-1 and Model 50-T1104—Set 114-9)
- ●50-T1430 (Code 121) (Also see PCB 29—Set 154-1) .... 114—9
- ●50-T1432 (Code 122) (See PCB 29—Set 154-1 and Model 50-T1104—Set 114-9)
- ●50-T1432 (Code 124) .... 115—8
- ●50-T1443 (Codes 122, 123) 94—7
- ●50-T1476, 50-T1477, 50-T1478, 50-T1479 .... 128—11
- ●50-T1481, 50-T1482 ...... 128—11
- ●50-T1483 .... 93A—12
- ●50-T1484 .... 128—11
- ●50-T1600 (Code 121).... 91A—10
- ●50-T1600 (Code 122)..... 110—10
- ●50-T1606 (Code 131) (See Model 50-T1600, Code 121—Set 91A-10)
- ●50-T1630 .... 99A—8
- ●50-T1632, 50-T1633 ..... 91A—10
- ●50-T1632, 50-T1633 (Code 122) .... 110—10
- 50-520, 50-520-1 .... 73—9
- 50-522, 50-522-1, 50-524. 78—11
- 50-526 .... 96—8
- 50-527, 50-527-1 .... 80—11
- 50-620 .... 85—11
- 50-621 .... 89—11
- 50-920, 50-921, 50-922... 88—8
- 50-925 (Code 123) 50-926. 99—12
- 50-1420, 50-1421, 50-1422, 50-1423 .... 97—11
- 50-1720 .... 93—8
- 50-1721, 50-1723, 50-1724 98—9
- 50-1725 .... 93—8
- 50-1726 .... 91—9
- 50-1727 .... 86—7
- ●51-PT1207, 51-PT1208.... 136—12
- ●51-PT1234 .... 136—12
- ●51-PT1282 .... 136—12
- ●51-T1443B, L, M, X, XL (Code 121) (Ch. 31, A1) .... 125—10
- ●51-T1443P, PM, PL, PW (Code 121) (Ch. 3P1, AP1 and Radio Ch. RT-4) .... 123—11
- ●51-T1601, T, 51-T1602 (Code 121) (Ch. 33, C1) .... 138—7
- ●51-T1601, T, 51-1602 (Code 122) (Ch. 32, C1) .... 138—7
- ●51-T1604 (Code 121) (Ch. C, L) (See PCB 20 — Set 134-1 and Model 50-T1600—Set 110-10)
- ●51-T1604 (Code 122) (Ch. B, L) (See PCB 20—Set 134-1 and Model 50-T1600—Set 110-10)
- ●51-T1606 (Codes 121 and 122) (See PCB 20—Set 134-1 and Model 50-T1600—Set 110-10)
- ●51-T1606 (Code 131) (See Model 50-T1600, Code 121—Set 91A-10)
- ●51-T1606 (Code 132) (For Defl. Ch. see Model 50-T1600 (Code 121)—Set 91A-10, for RF Ch. see Model 50-T1600 (Code 122)—Set 110-10)

NOTE: PCB Denotes **Production Change Bulletin.** Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

PHILCO—Cont.

●51-T1607 (Code 121) (Ch. 33, C1) .... **138—7**
●51-T1607 (Code 122) (Ch. 32, C1) .... **138—7**
●51-T1634 (Code 121) (Ch. C, L) (See PCB 20 — Set 134-1 and Model 50-T1600—Set **110**-10)
●51-T1634 (Code 122) (Ch. B, J) (See PCB 20 — Set 134-1 and Model 50-T1600—Set **110**-10)
●51-T1634 (Code 123) (Ch. 33, C1) .... **138—7**
●51-T1634 (Code 124) (Ch. 32, C1) .... **138—7**
●51-T1800 (Code 121) (Ch. 33, C2) .... **148—13**
●51-T1800 (Code 122) (Ch. 32, C2) .... **148—13**
●51-T1830 (Code 121) (Ch. 33, C2) .... **148—13**
●51-T1832 (Code 121) (Ch. 33, C2) .... **148—13**
●51-T1833 (Code 121) (Ch. 3P1, CP1) .... **135—10**
●51-T1834 (Code 121) (Ch. 33, C2) .... **148—13**
●51-T1835 (Code 121) (Ch. 3R2, CR3) .... **135—10**
●51-T1836 (Code 123) (Ch. 34, C3) .... **148—13**
●51-T1836 (Code 125 (Ch. 33, C2) .... **148—13**
●51-T1838 (Code 124) (Ch. 3R2, CR3) .... **135—10**
●51-T1870 (Code 121) (Ch. 3P1, CP1) .... **135—10**
●51-T1871 (Code 121) (Ch. 3P1, CP1) .... **135—10**
●51-T1871 (Code 122) (Ch. 35, CP1) .... **135—10**
●51-T1872 (Code 121) (Ch. 3P1, CP1 and Radio Ch. RT-4).... **135—10**
●51-T1872 (Code 122) (Ch. 35, CP1 and Radio Ch. RT-4).... **135—10**
●51-T1874 (Code 121) (Ch. 3P1, CP1 and Radio Ch. RT-4).... **135—10**
●51-T1875 (Code 121) (Ch. 3P1, CP1 and Radio Ch. RT-2) (For TV Ch. see Set **135**-10, for Radio Ch. see Model 51-T2102—Set **132**-10)
●51-T1876 (Code 121) (Ch. 3P1, CP1 and Radio Ch. RT-4).... **135—10**
●51-T2102 (Code 122) (Ch. 35, F2) .... **132—10**
●51-T2130 (Code 121) (Ch. 35, F2) .... **132—10**
●51-T2132 (Code 121) (Ch. 35, F2) .... **132—10**
●51-T2133 (Code 121) (Ch. 3R2, FR2) .... **132—10**
●51-T2134 (Code 124) (Ch. 35, F2) .... **132—10**
●51-T2136 (Code 124) (Ch. 35, F2) .... **132—10**
●51-T2138 (Code 124) (Ch. 3R2, FR2) .... **132—10**
●51-T2170 (Code 121) (Ch. 35, F2 and Radio Ch. RT-4) (For TV Ch. See Model 51-T2102—Set **132**-10, for Radio Ch. see Model 51-T1833—Set **135**-10)
●51-T2175, 51-T2176 (Code 124) (Ch. 35, F-2 and Radio Ch. RT-2) .... **132—10**
51-530 .... **122—7**
51-532 .... **122—7**
51-534 .... **122—7**
51-537, 51-5371 .... **126-10**
51-629 .... **136—13**
51-631 .... **106—12**
51-632 .... **136—13**
51-930, 51-931, 51-932 .... **153—11**
51-934 .... **102—10**
51-1330 .... **130—11**
51-1730, 51-1730 (L) .... **140—8**
51-1731, 51-1732 .... **124—7**
51-1733, 51-1733 (L), 51-1734 .... **137—9**
●52-T1610 (Code 122) (Ch. 32, C1) (See Model 51-T1601, Code 122—Set **138**-7)
●52-T1612 (Code 122) (Ch. 32, C1) (See Model 51-T1601, Code 122—Set **138**-7)
●52-T1802 (Code 123) (Ch. 37, C2) (See Model 51-T1800—Set **148**-13)
●52-T1802 (Code 124) (Ch. 71, G1) (Also see PCB 57 — Set 191-1) .... **179—9**
●52-T1804 (Code 122) (Ch. 32, C2) (See Model 51-T1800—Set **148**-13)
●52-T1804 (Code 123) (Ch. 37, C2) (See Model 51-T1800—Set **148**-13)
●52-T1808 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T1808 (Code 122) (Ch. 33, C2) (See Model 51-T800—Set **148**-13)
●52-T1810L, M (Code 123) (Ch. 37, C2) .... **148—13**
●52-T1810M (Code 122) (Ch. 33, C2) .... **148—13**
●52-T1812 (Code 122) (Ch. 33, C2) .... **148—13**
●52-T1812 (Code 123) (Ch. 37, C2) .... **148—13**
●52-T1820 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T1821, 52-T1822 (Code 124) (Ch. 71, G1) (Also see PCB 57—Set 191-1) .... **179—9**
●52-T1822 (Code 125) (Ch. 42, G2) (See Model 52-T2157—Set **186**-10)
●52-T1831 (Code 122) (Ch. 33, C2) (See Model 51-T1800—Set **148**-13)
●52-T1839 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T1839 (Code 122) (Ch. 33, C2) (See Model 51-T1800—Set **148**-13)

PHILCO—Cont.

●52-T1839 (Code 123) (Ch. 37, C2) (See Model 51-T1800—Set **148**-13)
●52-T1840 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T1840 (Code 122) (Ch. 33, C2) .... **148—13**
●52-T1840 (Code 123) (Ch. 37, C2) .... **148—13**
●52-T1841L (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T1841L (Code 123) (Ch. 37, C2) (See Model 51-T1800—Set **148**-13)
●52-T1842 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T1842 (Code 122) (Ch. 33, C2) **148-13**
●52-T1842 (Code 123) (Ch. 37, C2) **148-13**
●52-T1842L (Code 124) (Ch. 33, C2) (See Model 52-T1842—Set **148**-13)
●52-T1844 (Code 121) (Ch. 41-D1, DA1) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T1844 (Code 122) (Ch. 33, C2) **148-13**
●52-T1844 (Code 123) (Ch. 37, C2) **148-13**
●52-T1844 (Code 124) (Ch. 33, C2) **148-13**
●52-T1845 (Ch. 3R2, CR2) (Code 124) (See Model 51-T1833—Set **135**-10)
●52-T1850 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T1850-W (Code 124) (Ch. 71, G1) (Also see PCB 57—Set 191-1) .... **179—9**
●52-T1882 (Code 121) (Ch. 44, D4, D4A) (Also see PCB 57—Set 191-1) .... **181—9**
●52-T1882, W (Code 122) (Ch. 35, CP1 and Radio Ch. RT-4) (For TV Ch. see Model 51-T2102—Set **132**-10, for Radio Ch. see Model 51-T1833—Set **135**-10)
●52-T1883 (Code 121) (Ch. 44, D4, D4A) (Also see PCB 57—Set 191-1) .... **181—9**
●52-T2106, 52-T2108, 52-T2110 (Code 121) (Ch. 41, D1, D1A) (Also see PCB 56—Set 190-1) .... **171—9**
●52-T2110 (Code 122) (Ch. 35, F2) (See Model 51-T2102—Set **132**-10)
●52-T2120 (Code 121) (Ch. 41, D1, D1A) (See PCB 57—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T2120 (Code 124) (Ch. 71, G1) (Also see PCB 57 — Set 190-1) .... **179—9**
●52-T2122, L (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T2140 (Code 121) (Ch. 41, D1, D1A) (Also see PCB 56—Set 190-1) .... **171—9**
●52-T2142 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T2142 (Code 122) (Ch. 35, F2) (See Model 51-T2102—Set **132**-10)
●52-T2144 (Code 121) (Ch. 41, D1, D1A) (Also see PCB 56—Set 190-1) .... **171—9**
●52-T2145X (Code 121).... **159-1A**
●52-T2145X (Code 125) (Ch. 44, D4, D4A) (Also see PCB 57 — Set 191-1) .... **181—9**
●52-T2150, W, 52-T2151, L (Code 124) (Ch. 71, G1) (Also see PCB 57—Set 191-1) .... **179—9**
●52-T2151 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T2157 (Code 125) (Ch. 42, G2) .... **186—10**
●52-T2175 (Code 124) (Ch. 35, F-2 and Radio Ch. RT-6) (For TV Ch. see Model 51-T2102—Set **132**-10, for Radio Ch. see Set **159**-2A)
●52-T2176 (Code 124) (Ch. 35, F-2 and Radio Ch. RT-6) (For TV Ch. see Model 51-T2102—Set **132**-10, for Radio Ch. see Set **159**-2A)
●52-T2182 (Code 121) (Ch. 44, D-4, D-4A and Radio Ch. RT-6) (For TV Ch. see PCB 57—Set 191-1 and Set **181**-9, for Radio Ch. see Set **159**-2A)
●52-T2224 (Code 121) (Ch. 41, D1, D-A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T2244 (Code 121) (Ch. 41, D1, D1A) (Also see PCB 56—Set 190-1) .... **171—9**
●52-T2245 (Code 121) (Ch. 44, D4, D4A) (Also see PCB 57—Set 191-1) .... **181—9**
●52-T2252 (Code 121) (Ch. 41, D1, D1A) (See PCB 57—Set 191-1) .... **181—9**
●52-T2252 (Code 124) (Ch. 71, G1) (Also see PCB 57 — Set 191-1) .... **179—9**
●52-T2253 (Code 121) (Ch. 44, D4, D4A) (Also see PCB 57 — Set 191-1) .... **181—9**
●52-T2254 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T2256 (Code 121) (Ch. 41, D1, D1A) (See PCB 57—Set 191-1 and Model 52-T2106—Set **171**-9)
●52-T2258 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)
●52-T2259 (Code 121) (Ch. 41, D1, D1A) (See PCB 56—Set 190-1 and Model 52-T2106—Set **171**-9)

PHILCO—Cont.

●52-T2282, 52-T2283 (Code 121) (Ch. 44, D-4, D-4A and Radio Ch. RT-6) (For TV Ch. see PCB 57—Set 191-1 and Set **181**-9, for Radio Ch. see Set **159**-2A)
52-540, 52-540-I, 52-541, 52-541-I, 52-542-I .... **154—10**
52-544, 52-544-I, 52-544-W .... **163—9**
52-640, 52-641 .... **153—12**
52-643 .... **161—7**
52-940, 52-941, 52-942 .... **156—9**
52-944 .... **169—12**
52-1340 (Codes 121, 122). **160—8**
●53-T1824 (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83 — Set 224-1) .... **201—7**
●53-T1824 (Code 124) (Ch. 71, G1) (Also see PCB 57—Set 191-1) .... **179—9**
●53-T1825 (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83 — Set 224-1) .... **201—7**
●53-T1825 (Code 124) (Ch. 71, G1) (Also see PCB 57—Set 191-1) .... **179—9**
●53-T1826 (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83 — Set 224-1) .... **201—7**
●53-T1826 (Code 124) (Ch. 71, G1) Also see PCB 57—Set 191-1) .... **179—9**
●53-T1827, -F, -HM (Code 126) (Ch. 91, J-1) (See PCB 66—Set 203-1 and Model 53-T1853—Set **185**-10)
●53-T1827, -F, -HM (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-T1852 (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83—Set 224-1) .... **201—7**
●53-T1852 (Code 124) (Ch. 71, G-1) (See PCB 57 — Set 191-1 and Model 52-T1802—Set **179**-9)
●53-T1852F (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83 — Set 224-1) .... **201—7**
●53-T1852HM (Code 123) (Ch. 81, H-1) (See Model 53-T1824—Set **201**-7)
●53-T1852L (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83 — Set 224-1) .... **201—7**
●53-T1852L (Code 124) (Ch. 71, G-1) (See PCB 57—Set 191-1 and Model 52-T1802—Set **179**-9)
●53-T1853, L (Code 126) (Ch. 91, J1) (Also se PCB 66—Set 203-1) .... **185—10**
●53-T1853, L (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-T1854, L (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83—Set 224-1) .... **201—7**
●53-T1883 (Code 125) (Ch. 44, G4) .... **196—11**
●53-T1884 (Code 125) (Ch. 44, G-4 and Radio Ch. RT-9) (TV Ch. Only) .... **196—11**
●53-T1886, L (Code 125) (Ch. 44, G-4 and Radio Ch. RT-9) (TV Ch. Only) .... **196—11**
●53-T2124, L (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83—Set 224-1) .... **201—7**
●53-T2125, L (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83—Set 224-1) .... **201—7**
●53-T2125, L (Code 124) (Ch. 71, G1) (See PCB 57—Set 191-1 and Model 52-T1802—Set **179**-9)
●53-T2126 (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83 — Set 224-1) .... **201—7**
●53-T2126 (Code 125) (Ch. 42, G2) .... **186—10**
●53-T2127 (Code 126) (Ch. 91, J1) (Also see PCB 66—Set 203-1) .... **185—10**
●53-T2152, L (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83—Set 224-1) .... **201—7**
●53-T2152, L (Code 124) (Ch. 71, G1) (See PCB 57—Set 191-1 and Model 52-T1802—Set **179**-9)
●53-T2183 (Code 125) (Ch. 44, G-4 and Radio Ch. RT-9) (TV Ch. only) .... **196—11**
●53-T2225, L (Codes 123 and 133) (Ch. 81, H-1, H-1A) (Also see PCB 83—Set 224-1) .... **201—7**
●53-T2226 (Code 123) (Ch. 81, H-1A) (Also see PCB 83 — Set 224-1) .... **201—7**
●53-T2227 (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83 — Set 224-1) .... **201—7**
●53-T2228 (Code 126) (Ch. 91, J1) .... **185—10**
●53-T2228 (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-T2255 (Code 133) (Ch. 81, H1) .... **201—7**
●53-T2260 (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83 — Set 224-1) .... **201—7**
●53-T2260 (Code 125) (Ch. 42, G2) .... **186—10**
●53-T2262 (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83—Set 224-1) .... **201—7**
●53-T2262 (Code 125) (Ch. 42, G2) .... **186—10**
●53-T2264 (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83—Set 224-1) .... **201—7**
●53-T2264 (Code 125) (Ch. 42, G2) .... **186—10**
●53-T2266, L (Code 126) (Ch. 91, J-1) (Also see PCB 66—Set 203-1) .... **185—10**

PHILCO—Cont.

●53-T2266, L (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82 — Set 223-1 and Model 53-T1853—Set **185**-10)
●53-T2268 (Code 126) (Ch. 91, J1) (Also see PCB 66 — Set 203-1) .... **185—10**
●53-T2269 (Code 126) (Ch. 91, J1) (Also see PCB 66 — Set 203-1) .... **185—10**
●53T2269 (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-2270 (Code 126) (Ch. 91, J1) (Also see PCB 66 — Set 203-1) .... **185—10**
●53-T2270 (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-T2271 (Code 126) (Ch. 91, J1) (Also see PCB 66 — Set 203-1 .... **185—10**
●53-T2271 (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-T2272, L (Code 123) (Ch. 81, H1) .... **201—7**
●53-T2273 C, M (Code 126) (Ch. 91, J1) (Also see PCB 66—Set 203-1) .... **185—10**
●53-T2273, C (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-T2274 (Code 123) (Ch. 81, H-1, H-1A) (Also see PCB 83—Set 224-1) .... **201—7**
●53-T2285, L (Code 126) (Ch. 94, J-4 and Radio Ch. RT-8). **213—5**
●53-T2285, L (Code 128) (Ch. 94, J-5 and Radio Ch. RT-8) (See PCB 85—Set 226-1 and Model 53-T2285—Set **213**-5)
●53-T2285S (Code 126) (Ch. 94A, J-4 and Radio Ch. RT-8) (See Model 53-T2285—Set **213**-5)
●53-T2285S (Code 128) (Ch. 94, J-5 and Radio Ch. RT-8) (See PCB 85—Set 226-1 and Model 53-T2285—Set **213**-5)
●53-T2286 (Code 126) (Ch. 94, J-4 and Radio Ch. RT-8) ... **213—5**
●53-T2287 (Code 126) (Ch. 94, J-4 and Radio Ch. RT-11) (TV Ch. only) .... **213—5**
●53-T2287 (Code 128) (Ch. 94, J-5 and Radio Ch. RT-11) (For TV Ch. see PCB 85 — Set 226-1 and Model 53-T2285—Set **213**-5)
●53-U1827, HM (Code 126) (Ch. 91, J-1) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-U1827 (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-U1852 (Code 123) (Ch. 81, H-1, H-1A (For TV Ch. see PCB 83—Set 224-1 and Model 53-T1824—Set **201**-7, for UHF Tuner see Model UT21A—Set **223**-9)
●53-U1853, L (Code 126) (Ch. 91, J-1) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-U2124 (Code 123) (Ch. 81, H-1, H-1A) (For TV Ch. see PCB 83—Set 224-1 and Model 53-T1824—Set **201**-7, for UHF Tuner see Model UT21A—Set **223**-9)
●53-U2125 (Code 123) (Ch. 81, H-1, H-1A) (For TV Ch. see PCB 83—Set 224-1 and Model 53-T1824—Set **201**-7, for UHF Tuner see Model UT21A—Set **223**-9)
●53-U2226 (Code 123) (Ch. 81, H-1, H-1A) (For TV Ch. see PCB 83—Set 224-1 and Model 53-T1824—Set **201**-7, for UHF Tuner see Model UT21A—Set **223**-9)
●53-U2227 (Code 123) (Ch. 81, H-1, H-1A) (For TV Ch. see PCB 83—224-1 and Model 53-T1824—Set **201**-7, for UHF Tuner see Model UT21A—Set **223**-9)
●53-U2255 (Code 123) (Ch. 81, H-1, H-1A) (For TV Ch. see PCB 83—Set 224-1 and Model 53-T1824—Set **201**-7, for UHF Tuner see Model UT21A—Set **223**-9)
●53-U2260 (Code 123) (Ch. 81, H-1, H-1A) (For TV Ch. see PCB 83—224-1 and Model 53-T1824—Set **201**-7, for UHF Tuner see Model UT21A—Set **223**-9)
●53-U2266, L (Code 126) (Ch. 91, J-1) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-U2266 (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-U2269 (Code 126) (Ch. 91, J-1) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-U2271 (Code 126) (Ch. 91, J-1) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-U2271 (Code 128) (Ch. 91, J-2) (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Model 53-T1853—Set **185**-10)
●53-U2272 (Code 123) (Ch. 81, H-1, H-1A) (For TV Ch. see PCB 83—Set 224-1 and Model 53-T1824—Set **201**-7 for UHF Tuner see Model UT21A—Set **223**-9)
●53-U2285 (Code 126) (Ch. 94, J-4 and Radio Ch. RT-8) (See PCB 85—Set 226-1 and Model 53-T2285—Set **213**-5)

PHILCO—Cont.

●53-U2286 (Code 126) (Ch. 94, J-4 and Radio Ch. RT-10) (For TV Ch. Only see PCB 85—Set 226-1 and Model 53-T2285—Set **213**-5)
53-559 .... **213—6**
53-560 (Code 121).... **189—13**
53-561, 53-562 .... **188—12**
53-563 .... **196—12**
53-564 .... **188—12**
53-566 .... **185—11**
53-651 (See Model 52-640—Set **153**-12)
53-652 (Code 121).... **234—10**
53-656, 53-658 .... **187—10**
53-700, 53-700-I, 53-701, 53-701-I .... **193—6**
53-702 .... **202—5**
53-706, 53-707 .... **202—5**
53-800 .... **210—4**
53-804 .... **210—4**
53-950 .... **200—6**
53-952 .... **200—6**
53-954 .... **200—6**
53-956 .... **218—8**
53-958 .... **200—7**
53-960 .... **199—7**
53-1350 .... **203—7**
53-1750 .... **203—7**
53-1754 .... **214—8**
Ch. B, L (See PCB 20—Set 134-1 and Set **110**-10)
Ch. B, J (See PCB 20—Set 134-1 and Set **110**-10)
Ch. C, L (See PCB 20—Set 134-1 and Set **110**-10)
Ch. R-181, U, D-181, D-182 (Also See PCB 115—Set 267-1) **227**-10
Ch. R-191, R-191U, D-191 (Also see PCB 111—Set 260-1).... **231**-12
Ch. R-192U, D-191 (See PCB 111—Set 260-1 and Set **231**-12)
Ch. R-201, D-201.... **241—11**
Ch. R-207, D-208.... **236—10**
Ch. RT-2 .... **132—10**
Ch. RT-4 .... **135—10**
Ch. RT-6 .... **159**-2A
Ch. RT-8 .... **213—5**
Ch. RT-14 .... **229—11**
Ch. 3P1, AP1.... **123—11**
Ch. 3P1, CP1.... **135—10**
Ch. 3R2, CR2.... **135—10**
Ch. 3R2, CR3.... **135—10**
Ch. 3R2, FR2.... **132—10**
Ch. 31, A1.... **125—10**
Ch. 32, C1.... **138—7**
Ch. 32, C2.... **148—13**
Ch. 33, C1.... **138—7**
Ch. 33, C2.... **148—13**
Ch. 34, C3.... **148—13**
Ch. 35, CP1.... **135—10**
Ch. 35, F2.... **132—10**
Ch. 37, C2.... **148—13**
Ch. 41, D-1, A (Also see PCB 56—Set 190-1).... **171—9**
Ch. 42, G-2.... **186—10**
Ch. 44, D-4, 9 (Also see PCB 57—Set 191-1).... **181—9**
Ch. 44, G-4.... **196—11**
Ch. 71, G-1 (Also see PCB 57—Set 191-1).... **179—9**
Ch. 81, H-1.... **201—7**
Ch. 81A, B, D-81 (Also See PCB 115—Set 267-1).... **227**-10
Ch. 91, J-1 (Also see PCB 66—Set 203).... **185—10**
Ch. 91, A, J-2 (See PCB 66—Set 203-1, PCB 82—Set 223-1 and Set **185**-10)
Ch. 94, J-4.... **213—5**
Ch. 94, A, J-5 (See PCB 85—Set 226-1 and Set **213**-5)
Ch. 300, 301 (See Model 22C4011)

PHILHARMONIC

●20CD28 (See Model 520—Set **173**-10)
●20C2B (See Model 520—Set **173**-10)
●20T2B (See Model 520—Set **173**-10)
●21CD2A (See Model 520—Set **173**-10)
●21C2A (See Model 520—Set **173**-10)
100C .... **38—16**
100T .... **33—20**
●111, 112 (See Model 520—Set **173**-10)
149C, 249-C .... **55—19**
349-C .... **58—17**
●520, 620, 720, 724, 820, 824 .... **173—10**
●920, 924 (Early) (See Model 520—Set **173**-10)
●920, 924 (Late).... **245—4**
●5000 .... **160—9**
●5200, 5201 .... **160—9**
●5221 (See Model 520—Set **173**-10)
●5250 .... **160—9**
●5400, 5401 .... **160—9**
●5450 .... **160—9**
●5600, 5601 .... **160—9**
●5650 .... **160—9**
●5700, 5700 RT, 5701 .... **160—9**
●5750, 5750RT .... **160—9**
●5800 .... **160—9**
●5820 .... **173—10**
●6120 .... **173—10**
6810 (Ch. RR14).... **18—27**
●7120, 7820 .... **173—10**
●8120 .... **173—10**
8701, 8702, 8703, 8710, 8711, 8712 (Ch. RR14).... **18—27**
●8820 .... **173—10**
●9120, 9121 (Early) (See Model 520—Set **173**-10)
●9120, 9121 (Late).... **245—4**
●9820, 9821 (Early) (See Model 520 Set **173**-10)
●9820, 9821 (Late).... **245—4**
Ch. RR14 (See Model 6810)

PHILLIPS 66
(Also see Woolaroc)

3-62A (See Woolaroc Model 3-71A—Set **36**-29)
3-81A .... **48—20**

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

PHILMORE

●CP-731D ... 132-11

PHONOLA

K-92, K-104 ... 51-17
K-105 ... 83-5
K-202, K-263 ... 55-20
TK-134 ... 83-8
TK-146B ... 158-9
TK-234 ... 108-9
TK-236 ... 159-11
TK2146, -2 ... 259-12
TK2149 ... 258-9

PILOT

AA-410 ... 275-11
AA-901 ... 199-8
AA-902 ... 222-9
AA-904 ... 276-8
AF-605 ... 172-7
AF-723, U ... 222-10
AF-821A, U ... 194-10
AF-824 ... 220-6
FM-607 ... 275-12
PA-911 ... 199-8
PA-912 ... 223-10
T-411-U ... 15-25
T-500 Series ... 12-23
T510, T511 ... 5-24
T-521 ... 19-27
T-530 Series ... 12-24
T-601 "Pilotuner" ... 28-26
T-741 ... 37-18
●TV-37 ... 62-16
●TV-270, TV-271, TV-271-U, TV-273, TV-273-U ... 153-13
●TV-275 (See Model TV-270 — Set 153-13)
●TV-290 ... 153-13
●TV-291U (See Model TV-270—Set 153-13)
●TV-293U ... 153-13
●TV-295 ... 153-13
●TV-295 (See Model TV-270—Set 153-13)

PLYMOUTH (See Mopar)

PLYMOUTH (Interstate Stores)

1010 ... 88-2
1020 ... 89-5

POLICALARM

PR-8 ... 103-12
PR-31 ... 105-8

PONTIAC

984170 ... 20-27
984171 ... 14-22
934296, 984570 ... 95-4
984592 ... 165-8
984688 (See Model 984592 — Set 165-8)
984817 ... 217-11

PORTO BARADIO (Also see Porto Products)

PA-510 (9008-A), PB-520 (9008-B) ... 33-16
PA-510, PB-520 (Revised) .. 48-21

PORTO PRODUCTS

SR-600 (Ch. 9040A "Smokerette") (See Porto Baradio Model PA-510 —Set 33-16)

PREMIER

15LW ... 6-24

PURE OIL (See Puritan)

PURITAN

501 (Ch. 5D15WG), 502 (Ch. 5D-25WG) ... 4-5
501X (Ch. 5D15WG), 502X (Ch. 5D25WG) ... 4-26
503 ... 10-25
503W (See Model 503—Set 10-25)
504 (Ch. 6A35WG) ... 5-39
504W (See Model 504—Set 5-39)
506 (6D15SW), 501 (6D25SW) ... 3-10
506X, 507X (See Model 506—Set 3-10)
508 (Code 7A35SW) ... 4-31
509 ... 26-21
515 ... 26-24

RADIO APPARATUS CORP.

(See Policalarm & Monitoradio)

RCA VICTOR (Also see Changer and Recorder Listing)

A-55 (Ch. RC-1087) ... 109-10
A-82 (Ch. RC-1094) ... 137-10
A-101 (Ch. RC1096) (See Model A-108—Set 141-10)
A-106 (Ch. RC622) ... 97-12
A-108 (Ch. RC1096) ... 141-10
●B1-A, B1-B, B1-C (Ch. KCS24-1, KRS20-1, KRS21-1, KRK1-1) (For TV Ch. only see Model 8PCS41—Set 90-9)
●B2-C, B2-F, B2-H (Ch. KCS24-1, KRS20-1, KRS21-1, KRK1-1) (For TV Ch. only see Model 8PCS41—Set 90-9)
B-411 (Ch. RC1098) ... 132-12
BX6 (Ch. RC1082) ... 103-13
BX55 (Ch. RC1088), BX57 (Ch. RC-1088A) ... 102-11
●CT-100 (Ch. CTC2) ... 252-11
HF-2-STD (Ch. RS-146 or RS-146X) (See Model 3HES5—Set 251-14)
HF-5-STD (Ch. RS-146 or RS-146X) (See Model 3HES5—Set 251-14)
MI-12224, MI-12224A ... 81-12
MI-12236, -A, -B, -C, MI-12237, -A, MI-12238, -A, MI-12239, -A ... 78-13
MI-12287, MI-12288 ... 89-12
MI-12289, MI-12290 ... 80-12
MI-12291, MI-12292, MI-12293, MI-12294 ... 86-8
MI-12295 ... 89-12
MI-12296, MI-12298 ... 80-12
MI-12299 ... 89-12
MI-13159 ... 10-26
MI-13167 ... 36-19
PX600 (Ch. RC1110) ... 168-12

RCA VICTOR—Cont.

RV151 (Ch. RK121C, RS-123D) ... 61-17
S1000 (Ch. KCS31-1, RC617B) ... 91A-11
SP-10 (MI-12190) ... 250-17
SP-20 (MI-12191) ... 253-11
ST-1 (MI-12107) ... 255-10
SVP-10 (MI-12198) ... 255-11
SV-1 (MI-12150) ... 257-13
SVT-1 ... 273-10
●T100 (Ch. KCS-38) ... 93-9
●T120, T121 (KCS34C) ... 93-9
●T164 (Ch. KCS40) ... 109-11
●TA-128 (Ch. KCS42A and Radio Ch. RK135D) (For TV Ch. see Set 110-11, for Radio Ch. see Model TA-169—Set 108-10)
●TA-129 (Ch. KCS41A-1 and Radio Ch. RK135D) (For TV Ch. see Set 110-11, for Radio Ch. see Model TA-179—Set 108-10)
●TA169 (Ch. KCS43 and Radio Ch. RK135D) ... 108-10
●TC124, TC125, TC127 (Ch. KCS34B) ... 93-9
●TC165, TC166, TC167, TC168 (Ch. KCS40A) ... 109-11
U1A (Ch. KRK-19) Tel. UHF Conv. ... 190-12
U1B (Ch. KRK-19A) Tel. UHF Conv. ... 190-12
U2 (Ch. KCS79) Tel. UHF Conv. ... 191-16
U70 (Ch. KCS70) Tel. UHF Conv. ... 192-7
X551, X552 (Ch. 1089B, C) 129-9
X711 (Ch. RC-1070A) ... 133-11
1R81 (Ch. RC-1102, A, B, C) (Also see PCB 54—Set 188-1) 156-10
1X51, 1X52, 1X53, 1X54, 1X55, 1X56, 1X57 (Ch. RC-1104, -1, B, B-1, C, D, E) (Also see PCB 51—Set 185-1) ... 172-8
1X591, 1Z592 (Ch. RC1079K, L) ... 159-12
2B400, 2B401, 2B402, 2B403, 2B404, 2B405 (Ch. RC-1114) ... 181-10
2BX63 (Ch. RC-1115) ... 193-7
2C511, 2C512, 2C513, 2C514 (Ch. RC1118, A, B, C) ... 195-10
2C521, 2C522, 2C527 (Ch. RC-1120A) ... 194-11
2ES3 (Ch. RS-142) ... 205-7
2ES31 (Ch. RS-142) ... 205-7
2ES31A (Ch. RS-142) (See Model 2ES31—Set 205-7)
2ES38 (Ch. RS-142) ... 205-7
2ES38A (Ch. RS-142) (See Model 2ES38—Set 205-7)
2R51, 2R52 (Ch. RC1119) 196-13
2S7 (Ch. RC1117D) ... 222-11
2S10 (Ch. RC1111 and Audio Ch. RS141) ... 210-5
●2T51 (Ch. KCS45) (Also see PCB 11—Set 118-1) ... 111-11
●2T60 (Ch. KCS45A) (Also see PCB 11—Set 118-1) ... 111-11
●2T81 (Ch. KCS46 and Radio Ch. RC1090) (For TV Ch. see Model 2T51—Set 111-11, for Radio Ch. see Model 4T141—Set 139-12)
2US7, A (Ch. RC-1117A, C, E) ... 182-8
2X61 (Ch. RC-1080C) ... 197-8
2X62 (Ch. RC-1080D) ... 197-8
2XF91 (Ch. RC-1121) ... 206-9
2XF931, 2XF932, 2XF933, 2XF934 (Ch. RC1121A) ... 209-9
2X621 (Ch. RC-1085B) ... 199-9
3BX51, 3BX52, 3BX53, 3BX54 (Ch. RC-1126) ... 227-11
3BX671 (Ch. RC-1125) ... 228-14
3BX672 (Ch. RC-1125) (See Model 3BX671—Set 228-14)
3HES5 (Ch. RS-146) ... 251-14
3HES5A (Ch. RS-146X) (See PCB 114—Set 265-1 and Model 3HES5—Set 251-14)
3HES5C (Ch. RS-146X) (See Model 3HES5—Set 251-14)
3HES6 (Ch. RS-145, X) ... 249-12
3RF91 (Ch. RC1129) ... 226-6
3US5, A (Ch. RC-1130) ... 267-10
3X521 (Ch. RC1128) ... 226-7
3X532, 3X533, 3X534, 3X535, 3X536 (Ch. RC1128) ... 226-7
4C531, 4C532, 4C533, 4C534, 4C535 (Ch. RC-1144) ... 260-13
4C541, 4C542, 4C543, 4C544, 4C545, 4C547 (Ch. RC-1145) ... 273-11
4C671, 4C672 (Ch. RC-1142) ... 269-11
●4T101 (Ch. KCS-61) ... 139-12
●4T141 (Ch. KCS62 and Radio Ch. RC1090) ... 139-12
4X551, 4X552, 4X553, 4X554, 4X555 (Ch. RC-1146) ... 271-10
4X641 (Ch. RC-1140) ... 259-13
4X643, 4X-644, 4X646, 4X647, 4X648 (Ch. RC-1140) (See Model 4X641—Set 259-13)
4X661 (Ch. RC 1141) ... 265-9
4Y511 (Ch. RC-1134) ... 261-12
●6T53 (Ch. KCS47, T) (See PCB 12—Set 120-1 and Model 6T54—Set 113-7)
●6T54 (Ch. KCS47, T) (Also see PCB 12—Set 120-1) ... 113-7
●6T64, 6T65 (Ch. KCS47A, AT) (Also see PCB 12—Set 120-1) . 113-7
●6T71 (Ch. KCS47A, AT) (Also see PCB 12—Set 120-1) ... 113-7
●6T72 (Ch. KCS40B) ... 109-11
●6T74, 6T75, 6T76 (Ch. KCS47A, AT) (Also see PCB 12—Set 120-1) ... 113-7
●6T84 (Ch. KCS 48, T and Radio Ch. RC-1090) (For TV Ch. see PCB 12 —Set 120-1 and Model 6T54—Set 113-7, for Radio Ch. see Model 4T141—Set 139-12)
●6T86, 6T87 (Ch. KCS 48, T and Radio Ch. RC-1092) (For TV Ch. see PCB 12—Set 120-1 and Model 6T54—Set 113-7, for Radio Ch. see Model 9T89—Set 122-8)

RCA VICTOR—Cont.

●7T103, 7T104 (Ch. KCS47B) 134-9
●7T103B, 7T104B (Ch. KCS 47F) (See PCB 26—Set 146-1 and Model 7T103—Set 134-9)
●7T111B (Ch. KCS47GF-2) . 156-11
●7T112 (Ch. KCS47B) ... 134-9
●7T112B (Ch. KCS 47G) (See PCB 26 —Set 146-1 and Model 7T112—Set 134-9)
●7T112B (Ch. KCS 47GF-2) (See Model 7T111B—Set 156-11)
●7T122, 7T123 (Ch. KCS 47C) ... 134-9
●7T122B, 7T123B (Ch. KCS 47G) (See PCB 26—Set 146-1 and Model 7T122—Set 134-9)
●7T122B, 7T123B (Ch. KCS 47GF-2) (See Model 7T111B—Set 156-11)
●7T124, 7T125 (Ch. KCS 47G) ... 134-9
●7T124B, 7T125B (Ch. KCS 47G) (See PCB 26—Set 146-1 and Model 7T124—Set 134-9)
●7T132 (Ch. KCS47D) ... 143-12
●7T143 (Ch. KCS48A and Radio Ch. RC1092) (For TV Ch. see Set 134-9, for Radio Ch. see Model 9T89—Set 122-8)
8B41 (Ch. RC-1069), 8B42 (Ch. RC-1069A, 8B43 (Ch. RC-1069B) ... 76-16
8B46 (Ch. RC-1069C) (See Model 8B41—Set 76-16)
8BX5 (Ch. RC-1059) ... 46-20
8BX6 (Ch. RC-1040C) ... 44-18
8BX54, 8BX55 (See Model 8BX5—Set 46-20)
8BX65 (See Model 8BX6—Set 44-18)
8F43 (Ch. RC-1037B) ... 97-13
●8PCS41, B, C (Ch. KCS24B-1, KRS-20A-1, KRK1A-1, KCS24C-1, KRK4, KRK2A, KRS21A-1, RS-123C) ... 90-9
8R71 (Ch. RC-1060), 8R72 (Ch. RC-1060A) ... 53-20
8R74, 8R75, 8R76 (Ch. RC-1060, A) ... 53-20
●8T241, 8T243, 8T244 (Ch. KCS28) ... 74-8
●8T270 (Ch. KCS29, KCS29A) 85-13
●8TC270, 8TC271 (Ch. KCS29, KCS-29A) ... 85-13
●8TK29 (Ch. KCS32A, C and Radio Ch. RK135, A) ... 88-9
●8TK320 (Ch. KCS33A-1 and Radio Ch. RK-135A-1) ... 85-13
●8TR29 (Ch. KCS32, B and Radio Ch. RK135, A) ... 88-9
●8TS30 (Ch. KCS20J-1) ... 54-18
●8TV41 (Ch. KCS25D-1, KCS25E-2, RK117A, RS-123A)*
●8TV321, B, 8TV323, B (Ch. KCS-30-1 and Radio Ch. RC-616B, C, J, K) ... 74-8
8V7 (Ch. RC-615) (See Model 77V1—Set 38-18)
8V90 (Ch. RC-618, RC-618A), 8V91 (Ch. RC-616A, RC-616H) 56-20
8V111, 8V112 (Ch. RC-616) 58-18
8V151 ... 61-17
8X53 (Ch. RC-1064) ... 39-17
8X71, 8X72 (RC-1070) ... 63-15
8X521 (RC-1066), 8X522 (RC-1066A) ... 52-17
8X541, 8X542 (Ch. RC-1065, RC-1065A) ... 59-16
8X544, 8X545, 8X546 (See Model 8X541—Set 59-16)
8X547 ... 59-16
8X681, 8X682 (Ch. RC-1061) 65-10
9BX5 (Ch. RC-1059B, C) (See Model 8BX5—Set 46-20)
9BX56 (Ch. RC-1068) ... 79-13
9EY3 (Ch. RS-132) ... 158-10
9EY31, 9EY32 ... 98-10
●9PC41A, B, C (Ch. KCS24C-1, D, KRK-4, KRS20B-1, KRS21A-1, RS-123A) ... 90-9
●9T57 (Ch. KCS49, T) ... 122-8
●9T77 (Ch. KCS49A, AT) . 122-8
●9T79 (Ch. KCS49, A, AT, T) 122-8
●9T89 (Ch. KCS60, T and Radio Ch. RC1092) ... 122-8
●9T105 (Ch. KCS49B) ... 134-9
●9T126 (Ch. KCS49C) ... 134-9
●9T128 (Ch. KCS49C) ... 134-9
●9T147 (Ch. KCS 60A and Radio Ch. RC1092) (For TV Ch. see Set 134-9, for Radio Ch. see Model 9T89—Set 122-8)
●9T240 (Ch. KCS28) ... 74-8
●9T240 (Ch. KCS28A) (See Model 9T240—Set 74-8)
●9T246 (Ch. KCS28C) ... 74-8
●9T246 (Ch. KCS38) ... 93-9
●9T256 (Ch. KCS38C) ... 93-9
●9T270 (Ch. KCS29) ... 85-13
●9TC240 (Ch. KCS28B) ... 74-8
●9TC245 (Ch. KCS34B) ... 93-9
●9TC247, 9TC249 (Ch. KCS34, B) ... 93-9
●9TC272, 9TC275 (Ch. KCS29C) ... 85-13
●9TW309 (Ch. KCS41-1 and Radio Ch. RK135C) (For TV Ch. see Model TA-129—Set 110-11, for Radio Ch. see Set 95A-11)
●9TW333 (Ch. KCS30-1, Radio Ch. RC616N) ... 74-8
●9TW390 (Ch. KCS31-1, RC617A) ... 91A-11
9W101, 9W102, 9W103 (Ch. RC-618B), 9W105 (Ch. RC-618C) ... 73-10
9W106 (Ch. RC-622) ... 97-12
9X561 (Ch. RC-1079B) 9X562 (Ch. RC-1079C) ... 101-9
9X571 (Ch. RC-1079), 9X572 (Ch. RC-1079A) ... 107-7
9X641 (Ch. RC-1080), 9X642 (Ch. RC-1080A) ... 87-9
9X651 (Ch. RC-1085), 9X652 (Ch. RC-1085A) ... 104-9
9Y7 (Ch. 1057B) ... 75-13
9Y51 (Ch. RC-1077) ... 98-11
9Y510 (Ch. RC1077A), 9Y511 (Ch. RC1077B) ... 131-13

RCA VICTOR—Cont.

●16T152 (Ch. KCS47E) ... 160-10
●17H2D, E (See PCB 101—Set 247-1 and Model 17S349—Set 228-15)
●17S349 (Ch. KCS78F) ... 228-15
●17S349G, GU (Ch. KCS78L, M) (See PCB 101—Set 247-1 and Model 17S349—Set 228-15)
●17S349U (Ch. KCS78H) ... 228-15
●17S350 (Ch. KCS78F) ... 228-15
●17S350G, GU (Ch. KCS78L, M) (See PCB 101—Set 247-1 and Model 17S350—Set 228-15)
●17S350U (Ch. KCS78H) ... 228-15
●17S351, U (Ch. KCS78F, H) 228-15
●17S360, U (Ch. KCS78F, H) 228-15
●17S450 (Ch. KCS87 or KCS87X) ... 277-10
●17S450U (Ch. KCS87A) ... 277-10
●17S451 (Ch. KCS87) ... 277-10
●17S451U (Ch. KCS87A) ... 277-10
●17S453 (Ch. KCS87) ... 277-10
●17S453U (Ch. KCS87A) ... 277-10
●17T150, 17T151 (Ch. KCS66C) ... 169-13
●17T153 (Ch. KCS66) ... 158-11
●17T154 (Ch. KCS66) (See Model 17T153—Set 158-11)
●17T155 (Ch. KCS66) ... 158-11
●17T160 (Ch. KCS66) ... 158-11
●17T162 (Ch. KCS66A) (See Model 17T153—Set 158-11)
●17T163 (Ch. KCS66C) ... 169-13
●17T172, 17T173 (Ch. KCS66A) (See Model 17T153—Set 158-11)
●17T172K, 17T173K, 17T174K (Ch. KCS66D) ... 169-13
●17T174 (Ch. KCS66A) ... 158-11
●17T200, 17T201, 17T202 (Ch. KCS72) (Also see PCB 59—Set 193-1) ... 184-12
●17T211 (Ch. KCS72) (Also see PCB 59—Set 193-1) ... 184-12
●17T220 (Ch. KCS72) (Also see PCB 59—Set 193-1) ... 184-12
●17T250DE (Ch. KCS74) ... 193-8
●17T250DE (Ch. KCS74M1) (See Model 17T250DE—Set 193-8)
●17T261DE (Ch. KCS74) ... 193-8
●17T261DE (Ch. KCS74M1) (See Model 17T250DE—Set 193-8)
●17T301, U, 17T302, U (Ch. KCS78, A, B) (Also see PCB 102—Set 248-1) ... 206-10
●17T310 (Ch. KCS78, A, B) (Also see PCB 102—Set 248-1) ... 206-10
●17T352U (Ch. KCS78J) ... 228-15
●17T361, U (Ch. KCS78F, J) 228-15
●21D305, U (Ch. KCS81, A, B) (Also See PCB 114—Set 265-1) 208-8
●21D317 (Ch. KCS81, A, B) (Also See PCB 114—Set 265-1) 208-8
●21D326, U, 21D327, U, 21D328, U, 21D329, U, 21D330, U (Ch. KCS81, A, B) (Also See PCB 114 —Set 265-1) ... 208-8
●21D346, U (Ch. KCS81D, E, Radio Ch. RC1111A and Audio Amp RS-141A) (Also See PCB 116—Set 268-1) ... 219-7
●21D358, U (Ch. KCS81F, J) 230-8
●21D368, U (Ch. KCS81F, J) 230-8
●21D376, U, 21D377, U, 21D378, U, 21D379, U, 21D380, U (Ch. KCS81F, J) ... 230-8
●21D527, U (Ch. KCS90, A) 269-12
●21S348 (Ch. KCS83PJ) ... 242-8
●21S348G (Ch. KCS83PJ, PL) ... 242-8
●21S348GU (Ch. KCS83PM) 242-8
●21S348K (Ch. KCS88A) ... 258-10
●21S348KU (Ch. KCS88H) .. 258-10
●21S353 (Ch. KCS83C) ... 242-8
●21S353G (Ch. KCS83C, PC-"G", PK) ... 242-8
●21S353GU (Ch. KCS83D, PD-"GU") ... 242-8
●21S353U (Ch. KCS83D) ... 242-8
●21S354 (Ch. KCS83C) ... 242-8
●21S354G (Ch. KCS83C, PC-"G", PK) ... 242-8
●21S354GU (Ch. KCS83D, PD-"GU" ... 242-8
●21S354U (Ch. KCS83D) ... 242-8
●21S355 (Ch. KCS83C) ... 242-8
●21S355G (Ch. KCS83C, PC-"G", PK) ... 242-8
●21S355GU (Ch. KCS83D, PD-"GU") ... 242-8
●21S355K (Ch. KCS88) ... 258-10
●21S355KU (Ch. KCS88F) .. 258-10
●21S355U (Ch. KCS83D) ... 242-8
●21S357G (Ch. KCS83C, PC-"G", PK) ... 242-8
●21S357GU (Ch. KCS83D, PD-"GU") ... 242-8
●21S357K (Ch. KCS88) ... 258-10
●21S357KU (Ch. KCS88F) ... 258-10
●21S359G (Ch. KCS83C, PC-"G", PK) ... 242-8
●21S359GU (Ch. KCS83D, PD-"GU") ... 242-8
●21S362G (Ch. KCS83C, PC-"G", PK) ... 242-8
●21S362GU (Ch. KCS83D, PD-"GU") ... 242-8
●21S362K (Ch. KCS88) ... 258-10
●21S362KU (Ch. KCS88F) .. 258-10
●21S362M (Ch. KCS83) ... 242-8
●21S362MU (Ch. KCS83A) .. 242-8
●21S367 (Ch. KCS83) ... 242-8
●21S367G (Ch. KCS83C, PC-"G", PK) ... 242-8
●21S367GU (Ch. KCS83D, D-"GU") ... 242-8
●21S367K (Ch. KCS88) ... 258-10
●21S367KU (Ch. KCS88F) .. 258-10
●21S367U (Ch. KCS83A) .. 245-8
●21S369G (Ch. KCS83C, PC-"G", PK) ... 242-8
●21S369GU (Ch. KCS83D, PD-"GU") ... 242-8
●21S369K (Ch. KCS88) ... 258-10
●21S369KU (Ch. KCS88F) .. 258-10
●21S500 (Ch. KCS87C) ... 277-10
●21S500U (Ch. KCS87D) ... 277-10
●21S501 (Ch. KCS88C, CX) . 272-11
●21S501U (Ch. KCS88K, KX) 272-11

RCA VICTOR—Cont.

●21S502 (Ch. KCS88C, CX) .. 272-11
●21S502U (Ch. KCS88K, KX ... 272-11
●21S503 (Ch. KCS88B, BX) .. 272-11
●21S503U (Ch. KCS88J, JX) 272-11
●21S504 (Ch. KCS88B, BX) 272-11
●21S504U (Ch. KCS88J, JX) .. 272-11
●21S505 (Ch. KCS88B, BX) 272-11
●21S505U (Ch. KCS88J, JX) 272-11
●21S506 (Ch. KCS88B, BX) 272-11
●21S506U (Ch. KCS88J, JX) 272-11
●21S517 (Ch. KCS88B, BX) 272-11
●21S517U (Ch. KCS88J, JX) 272-11
●21S518 (Ch. KCS88C, CX) 272-11
●21S518U (Ch. KCS88K, KX) 272-11
●21S519 (Ch. KCS88B, BX) .. 272-11
●21S519U (Ch. KCS88J, JX) 272-11
●21S521 (Ch. KCS88B, BX) 272-11
●21S521U (Ch. KCS88J, JX) 272-11
●21S522 (Ch. KCS88B, BX) 272-11
●21S522U (Ch. KCS88J, JX) 272-11
●21S523 (Ch. KCS88V, VX) 272-11
●21S523U (Ch. KCS88VA, VAX) ... 272-11
●21S525 (Ch. KCS88B, BX) 272-11
●21S525U (Ch. KCS88J, JX) 272-11
●21S526 (Ch. KCS88E, EX) . 272-11
●21S526U (Ch. KCS88M, MX) ... 272-11
●21S537 (Ch. KCS88D, DX) 272-11
●21S537U (Ch. KCS88L, LX) 272-11
●21S5022 (Ch. KCS88C, CX) 272-11
●21S5022U (Ch. KCS88K, KX) ... 272-11
●21S5251 (Ch. KCS88B, BX) 272-11
●21S5251U (Ch. KCS88J, JX) 272-11
●21S5252 (Ch. KCS88B, BX) 272-11
●21S5252U (Ch. KCS88J, JX) 272-11
●21T159 (Ch. KCS68C, E) (See PCB 56—Set 190-1 and Model 21T176 —Set 157-8)
●21T159DE (Ch. KCS68F) .. 197-9
●21T165 (Ch. KCS68C, E) (See PCB 56—Set 190-1 and Model 21T176 —Set 157-8)
●21T166DE (Ch. KCS68F) (See Model 21T159DE—Set 197-9)
●21T174DE (Ch. KCS68F) ... 197-9
●21T175DE (Ch. KCS68F) (See Model 21T159DE—Set 197-9)
●21T176, 21T177, 21T178, 21T179 (Ch. KCS68C) (Also see PCB 56—Set 190-1) ... 157-8
●21T178DE (Ch. KCS68F) ... 197-9
●21T179 (Ch. KCS68C) (Also see PCB 56—Set 190-1) ... 157-8
●21T179DE (Ch. KCS68F) .. 197-9
●21T197DE (Ch. KCS68A, Radio Ch. RC1111A and Audio Ch. RS141A) ... 209-10
●21T207, G (Ch. KCS72A) (See PCB 59—Set 193-1 and Model 17T200 —Set 184-12)
●21T208 (Ch. KCS72A) (Also see PCB 59—Set 193-1) ... 184-12
●21T217, 21T218 (Ch. KCS72A) (Also see PCB 59—Set 193-1) . 184-12
●21T227, 21T228, 21T229 (Ch. KCS-72A) (Also see PCB 59—Set 193-1) ... 184-12
●21T242 (Ch. KCS72D-1 and Radio Ch. RC1117B) ... 202-6
●21T244 (Ch. KCS72D-2, Radio Ch. RC1111B, and Audio Ch. RS141C) ... 202-6
●21T303, U (Ch. KCS82, A, B) (Also see PCB 110—Set 258-1) 207-7
●21T313, G, GU, U (Ch. KCS82, A, B) (Also see PCB 110—Set 258-1) ... 207-7
●21T314, G, GU, U (Ch. KCS82, A, B) (Also see PCB 110—Set 258-1) ... 207-7
●21T315, U (Ch. KCS82, A, B) (Also see PCB 110—Set 258-1) 207-7
●21T316, U (Ch. KCS82, A, B) (Also see PCB 110—Set 258-1) 207-7
●21T322, U (Ch. KCS82, A, B) (Also see PCB 110—Set 258-1) 207-7
●21T323, U (Ch. KCS82, A, B) (Also see PCB 110—Set 258-1) 207-7
●21T324, U (Ch. KCS82, A, B) (Also see PCB 110—Set 258-1) 207-7
●21T342, U (Ch. KCS82D, E and Radio Ch. RC1117B) (For TV Ch. see Model 21T303, U—Set 207-7, For Radio Ch. see Model 21T242 —Set 202-6)
●21T344, U (Ch. KCS82D, E, Radio Ch. RC1111C and Audio Amp. RS141D) (For TV Ch. See Model 21T303, U—Set 207-7, For Radio Ch. See Model 21D346—Set 219-7)
●21T356U (Ch. KCS83E) ... 232-5
●21T363 (Ch. KCS83) ... 232-5
●21T363G, GU (Ch. KCS83C, E) (See Model 21T363, U—Set 232-5)
●21T363U (Ch. KCS83B) ... 232-5
●21T364 (Ch. KCS83) ... 232-5
●21T364G, GU (Ch. KCS83C, E) (See Model 21T364, U—Set 232-5)
●21T364U (Ch. KCS83B) ... 232-5
●21T365, U (Ch. KCS83, B) 232-5
●21T372, U, 21T373, U, 21T374, U (Ch. KCS83, B) ... 232-5
●21T375 (Ch. KCS83) ... 232-5
●21T375G, GU (Ch. KCS83C, E) (See Model 21T375, U—Set 232-5)
●21T375U (Ch. KCS83B) .. 232-5
●21T392, U (Ch. KCS83F, H & Radio Ch. RC 1117B) (For TV Ch. See Model 21S348—Set 242-8, For Radio Ch. See Model 21T242—Set 202-6)
●21T393, U (Ch. KCS83F, H, Radio Ch. RC-1111C and Audio Amp RS 141D) (For TV Ch. See Model 21S348—Set 242-8, For Radio Ch. See Model 21D346—Set 219-7)
●24D542 (Ch. KCS89) ... 273-12
●24D542U (Ch. KCS89A) .. 273 12
●24D543 (Ch. KCS89) ... 273-12
●24D543U (Ch. KCS89A) .. 273-12
●24D544 (Ch. KCS89B) ... 273-12
●24D544U (Ch. KCS89C) ... 273-12

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin.
Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250
● Denotes Television Receiver.

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250
● Denotes Television Receiver.

RAYTHEON—Cont.

- ●C-2006A (Ch. 20AY21) (Also see PCB 43—Set 177-1) .... **149**—9
- ●C-2103A, C-2105A (Ch. 21AY21) **173**-1A
- ●C-2108A (Ch. 21T1) (Also See PCB 87—Set 230-1) .... **189**—14
- ●C-2109A (Ch. 21T2) (For TV Ch. See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14, For UHF Tuner See Model UHF-100—Set **207**-8)
- ●C-2110A, C-2111A (Ch. 21T1) (Also See PCB 87—Set 230-1) . **189**—14
- ●C-2112A, C-2113A, C-2114A, C-2115A, C-2116A, C-2118A (Ch. 21T3) (Also see PCB 89—Set 233-1) .... **202**—7
- ●C-2127A, C-2129A (Ch. 21T5) (See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14)
- ●C-2137A, C-2138A (Ch. 21T11) .... **244**—8
- ●C-2401A, C-2402A (Ch. 24T3) .... **246**—9
- FR81A, FR82A (Ch. 9AF25A) .... **232**—6
- ●M701 (Ch. 10AX22) (Also see PCB 3—Set 105-1) .... **94**—8
- ●M1101, M1103, M1105 (Ch. 12AX-22) (Also see PCB 3—Set **105**-1) .... **94**—8
- ●M1105B, M-1106, M-1107 (Ch. 12AX26, 12AX27) .... **141**—11
- ●M-1402, M-1403, M-1404 (Ch. 14AX21) .... **123**—12
- ●M-1601 (Ch. 16AX23, 25, 26) .... **99**—14
- ●M-1611A (Ch. 16AY211), M-1611B (Ch. 16AY28) (Also see PCB 19—Set 132-1) .... **124**—8
- ●M-1612A (Ch. 16AY211), M-1612B (Ch. 16AY28) (Also see PCB 19—Set 132-1) .... **124**—8
- ●M-1613A (Ch. 16AY211), M-1613B (Ch. 16AY28) (Also see PCB 19—Set 132-1) .... **124**—8
- ●M-1626 (Ch. 16AY212) .... **165**—2A
- ●M1711A (Ch. 17AY24), M1711B (Ch. 17AY21) (Also see PCB 19—Set 132-1) .... **124**—8
- ●M-1712A (Ch. 17AY24), M-1712B (Ch. 17AY21) (Also see PCB 19—Set 132-1) .... **124**—8
- ●M-1713A (Ch. 17AY24), M-1713B (Ch. 17AY21) (Also see PCB 19—Set 132-1) .... **124**—8
- ●M1725A (Ch. 17AY21) (See PCB 19—Set 132-1 and Model M-1711B—Set **124**-8)
- ●M-1726 (Ch. 17AY21), (See PCB 19—Set 132-1 and Model M-1711B—Set **124**-8)
- ●M-1726A, M-1728A (Ch. 17AY21A) .... **176**—10
- ●M-1733A (Ch. 17T1) (Also see PCB 87—Set 120-1) .... **189**—14
- ●M-1733bA, iA, mA (Ch. 17T1) (See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14)
- ●M-1734A (Ch. 17T2) (For TV Ch. See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14, For UHF Tuner See Model UHF-100—Set **207**-8)
- ●M-1737, iA, mA (Ch. 17T4) (See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14)
- ●M-1750A, C, G, K, M-1751D, F, M-1752E, L (Ch. 17T18) . **261**—13
- ●M-2007A, M-2008A (Ch. 20AY21) (See PCB 43—Set 177-1 and Model C-2001A—Set **149**-9)
- ●M-2101A (Ch. 21AY21) (See Model C-2103A) **173**-1A
- ●M-2107A (Ch. 21T1) (Also see PCB 86—Set 230-1) .... **189**—14
- ●M-2107bA, iA, mA (See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14)
- ●M-2125iA, mA (Ch. 21T5) (See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14)
- ●M-2131A (Ch. 21T11) .... **244**—8
- ●M-2160A, C, G, K, M-2160D, F, M-2161E, L (Ch. 21T19) . **261**—13
- ●P-301 (See Model 7DX21 — Set **81**-13)
- PR-51, A (Ch. 4P12, A) .... **218**—9
- ●RC-1405 (Ch. 14AX21) (For TV Ch. only see Model C-1401—Set **123**-12)
- ●RC-1618A (Ch. 16AY211), RC-1618B (Ch. 16AY28) (Also see PCB 19—Set 132-1) .... **124**—8
- ●RC-1619A (Ch. 16AY211) (Also see PCB 19—Set 132-1) .... **124**—8
- ●RC-1619B (Ch. 16AY28) (Also see PCB 19—Set 132-1) .... **124**—8
- ●RC-1718A (Ch. 17AY24) (See PCB 19—Set 132-1 and Model M-1711A—Set **124**-8)
- ●RC-1718B (Ch. 17AY21) (Also see PCB 19—Set 132-1) .... **124**—8
- ●RC-1719A (Ch. 17AY24) (See PCB 19—Set 132-1 and Model M-1711A—Set **124**-8)
- ●RC-1719B (Ch. 17AY21) (Also see PCB 19—Set 132-1) .... **124**—8
- ●RC-1720A (Ch. 17AY27) .. **147**—9
- ●RC-2005A (Ch. 20AY21) (See PCB 43—Set 177-1 and Model C-2001A—Set **149**-9)
- ●RC-2117A (Ch. 21T3) (Also see PCB 89—Set 233-1) .... **202**—7
- ●RC-2121A, RC-2122A, RC-2123A (Ch. 21T3) (See PCB 89 — Set 233-1 and Model C-2112A—Set **202**-7)
- ●UC-1735A, UC-1736A (Ch. 17T2) (For TV Ch. See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14, For UHF Tuner See Model UHF-100—Set **207**-8)
- ●UC-1740A, UC-1742A (Ch. 17T5) (For TV Ch. See PCB 87—Set 230-1 and Model C1735A—Set **189**-14, For UHF Tuner See Model UHF-100—Set **207**-8)

RAYTHEON—Cont.

- ●UC-2109A, UC-2110A (Ch. 21T2) (For TV Ch. See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14, For UHF Tuner See Model HF-100—Set **207**-8)
- ●UC-2128A, UC-2130A (Ch. 21T6) (For TV Ch. See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14, For UHF Tuner See Model UHF-100—Set **207**-8)
- ●UC-2139A, UC-2141A, UC-2142A, UC-2144A, UC-2145A (Ch. 21T8) .... **239**—7
- ●UC-2403A, UC-2404A, UC-2405A, UC-2406A (Ch. 24T2) .. **237**—9
- ●UM-1734bA, iA, mA (Ch. 17T2) (For TV Ch. See PCB 87—Set 230-1 and Model C1735A—Set **189**-14, For UHF Tuner See Model UHF-100—Set **207**-8)
- ●UM-1738iA, mA (Ch. 17T5) (For TV Ch. See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14, For UHF Tuner See Model UHF-100—Set **207**-8)
- ●UM-2107bA, iA, mA (Ch. 21T2) (For TV Ch. See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14, For UHF Tuner See Model UHF-100—Set **230**-1)
- ●UM-2126iA, mA (Ch. 21T6) (For TV Ch. See PCB 87—Set 230-1 and Model C-1735A—Set **189**-14, For UHF Tuner See Model UHF-100—Set **207**-8)
- ●UM-2133A, UM-2134A, UM-2135A, UM-2136A (Ch. 21T8) . **239**—7
- UHF-100 (UHF Tuner) .... **207**—8
- ●7DX21, 7DX22P .... **81**—13
- ●10AXF23 (Also see PCB 3—Set 105-1) .... **75**—14
- ●10AXF44 (See Model C-1102—Set 94-8 and Model A-10DX24—Set **75**-14)
- ●10DX21, 10DX22 (Also see PCB 3—Set 105-1) .... **75**—14
- ●10DX24 (See Model A-10DX24—Set **75**-14)
- ●18DX21A .... **81**—13
- Ch. 4D16-A (See Model CR-41)
- Ch. 4P12, A (See Model PR-51, A)
- Ch. 8AF25A (See Model FR81A)
- Ch. 10AX22 (See Model M701)
- Ch. 12AX22 (See Model C1102)
- Ch. 12AX26, 12AX27 (See Model C-1104B)
- ●Ch. 14AX21 (See Model C-1401)
- Ch. 16AX23, 25, 26 (See Model C-1602)
- Ch. 16AY28 (See Model C-1615B)
- Ch. 16AY211 (See Model C-1615A) (Also see PCB 19—Set 132-1)
- Ch. 16AY212 (See Model M-1626)
- Ch. 17AY21 (See Model C-1714B)
- Ch. 17AY21A (See Model C-1729)
- Ch. 17AY24 (See Model C-1715A)
- Ch. 17AY27 (See Model RC-1720A)
- Ch. 17T1 (See Model C-1735A)
- Ch. 17T2 (See Model M-1734A)
- Ch. 17T4 (See Model C-1741A)
- Ch. 17T5 (See Model UC-1740A)
- Ch. 17T18 (See Model M-1750A)
- Ch. 20AY21 (See Model C-2001A)
- Ch. 21AY21 (See Model C-2103A)
- Ch. 21T1 (See Model C-2108)
- Ch. 21T2 (See Model C-2109A)
- Ch. 21T3 (See Model C-2112A)
- Ch. 21T5 (See Model C-2127A)
- Ch. 21T6 (See Model UC-2128A)
- Ch. 21T8 (See Model UC-2139A)
- Ch. 21T11 (See Model C-2137A)
- Ch. 21T19 (See Model M-2160A)
- Ch. 24T2 (See Model UC-2403A)
- Ch. 24T3 (See Model C-2401A)

RECORDIO (Wilcox-Gay)

- 1B10 .... **149**—10
- 1C-10 .... **146**—9
- 1J10 (Ch. 1J1) .... **128**—12
- 2A10 .... **163**—10
- 6A10, 6A20 (Ch. 6A) .... **10**—27
- 6B10, 6B20, 6B30, 6B32 .... **8**—27
- 7D42, 7D44 (Ch. 7D1) .... **52**—18
- 7E40, 7E44 .... **47**—20
- 8J10, 8J50 .... **62**—17
- 9G10 .... **91**—10
- 9G40M, 9G42 .... **86**—9
- 9H40B .... **89**—13
- Ch. 1J1 (See Model 1J10)
- Ch. 6A (See Model 6A10)
- Ch. 7D1 (See Model 7D42)

REELEST
(See Recorder Listing)

REGAL (TOK-FONE)

- Tok-Fone (20-watt Amp.) .. **13**—27
- AP40, ARP400, ARP450 .... **15**—26
- BP48 .... **49**—18
- C473 .... **217**—12
- C-527 .... **182**—9
- ●CD31 (See Model 16T31—Set **80**-14)
- CR761 .... **50**—16
- CR762 .... **195**—11
- CR871 .... **238**—11
- FM78 .... **68**—14
- L-7* .... **5**—18
- P-175 .... **183**—12
- W700 (See Model W800—Set **14**-26)
- W800, W801 .... **14**—26
- W900, W901 .... **13**—28
- ●16T31 .... **80**—14
- ●17HD31, 17HD36 .... **147**—10
- ●17T22, 17T22DX .... **143**—13
- ●19C31, 19C36 .... **147**—10
- ●19D31, 19D36 .... **147**—10
- ●20C22, 20C22DX .... **143**—13
- ●20C31, 20C36 .... **147**—10
- ●20D22, 20D22X .... **143**—13
- ●20D31, 20D36 .... **147**—10
- ●20HD31, 20HD36 .... **147**—10
- ●20T22, 20T22DX .... **143**—13
- ●22D17, 22D17DX, 22D19, 22D19DX .... **143**—13
- 205 .... **26**—23
- 208 (See Model W800—Set **14**-26)
- 271 .... **210**—7

REGAL (TOK-FONE)—Cont.

- 472 .... **217**—12
- 575 .... **210**—8
- 747 .... **27**—22
- 777 .... **53**—21
- ●1007 .... **83**—9
- ●1030, 1031 .... **80**—14
- 1049 .... **17**—28
- 1107 .... **41**—19
- ●1207, 1208 .... **83**—9
- ●1230 .... **80**—14
- 1500 .... **38**—19
- ●1607 .... **83**—9
- ●1708, 1708DX .... **143**—13
- 1749 .... **28**—29
- 1877 .... **182**—10
- ●2217, 2217DX, 2219, 2219DX .... **143**—13
- 7152 .... **70**—8
- 7162 .... **69**—12
- 7163 .... **66**—14
- 7251 .... **40**—16

REGENCY

- HF-80 .... **272**—12
- HF-150 .... **265**—10
- HF-350A .... **271**—11
- RC-53 Tel. UHF Conv. .... **266**—12
- RC-600 Tel. UHF Conv. .... **200**—8

REMBRANDT

- ●721, 1606, 1606-15, 1950 . **65**—11

REMLER

- MP5-5-3 .... **8**—28
- 5300B, 5300B1, 53001 .... **23**—18
- 5310 .... **40**—17
- 5400, 5410 .... **44**—19
- 5500 "Scottie Pup" .... **27**—23
- 5505 "Scottie Pup" (See Model 5500—Set **27**-23)
- 5510 "Scottie Pup" .... **27**—23
- 5515 "Scottie Pup" (See Model 5500—Set **27**-23)
- 5520, 5530 "Scottie Junior" **27**—23
- 6000 .... **77**—9

RENARD

- L-1A, PT-1A, 1B5T-1 .... **9**—28

REVERE (Also See Recorder Listing)

- 400 .... **269**—13

ROLAND

- 4P2 .... **266**—13
- 4T1 .... **213**—7
- 5C1 .... **215**—11
- 5C2 .... **225**—14
- 5P2 .... **231**—13
- 5P4 .... **233**—9
- 5T1E .... **205**—8
- 5T1V .... **208**—10
- 5T2M .... **204**—9
- 5T3 .... **231**—14
- 5T4 .... **238**—12
- 5T5 .... **234**—11
- 5X1, 5X2 .... **217**—13
- 5X3, 5X4 .... **247**—9
- 6P2 .... **236**—12
- 6T1M .... **216**—9
- 8FT1M .... **214**—9
- 8XF1, 8XF2 .... **211**—11
- 8XF3-M, 8XF4-M .... **249**—13
- 10TF1 .... **249**—14

ROYAL (Lee)

- AN150, AN160 .... **179**—11
- ●20CP, 20TW (Similar to Chassis) .... **149**—13

SCOTT (E. H.)

- Musicale .... **44**—20
- Music Control, Dynamic Noise Suppressor .... **46**—21
- ●"Ravenswood" .... **150**—11
- ●6T11, 6T11A (Also see PCB 4—Set 105-2) .... **52**—19
- 16A .... **40**—18
- 310 .... **154**—11
- ●400 (See PCB 4—Set 105-2 and Model 6T11—Set **52**-19)
- 510 .... **103**—14
- 515 .... **165**—11
- ●710, 710A, 710X .... **150**—11
- 800-B .... **14**—27
- ●800BT (For TV Ch. see PCB 4—Set 105-2 and Model 6T11—Set **52**-19, for Radio Ch. see Model 800-B—Set **14**-27)
- ●817C (Ch. 9029, 9031) (See Model 820C—Set **178**-9)
- ●817C (Ch. 9036, 9037, 9038, 9039) .... **217**—14
- ●817C (Ch. 9043) .... **234**—12
- ●817CU (Ch. 9029, 9031) (See Model 820C—Set **178**-9)
- ●817T (Ch. 9029, 9031) (See Model 820C—Set **178**-9)
- ●817T (Ch. 9036, 9037, 9038, 9039) .... **217**—14
- ●817T (Ch. 9043) .... **234**—12
- ●817TU (Ch. 9029, 9031) (See Model 820C—Set **178**-9)
- ●820C .... **178**—9
- ●820CU .... **178**—9
- ●820T, 820TU (Se Model 820C—Set **178**-9)
- ●821C (Ch. 9036, 9037, 9038, 9039) .... **217**—14
- ●821C (Ch. 9043) .... **234**—12
- ●821CB (Ch. 9036, 9037, 9038, 9039) .... **217**—14
- ●821CB, CH (Ch. 9043) .... **234**—12
- ●821D (Ch. 9036, 9037, 9038, 9039) .... **217**—14
- ●821D, DB, DBH, DM, DMH (Ch. 9043) .... **234**—12
- ●821RC, RCH (Ch. 9043) .... **234**—12
- ●821T (Ch. 9036, 9037, 9038, 9039) .... **217**—14
- ●821T (Ch. 9043) .... **234**—12
- ●821TB (Ch. 9036, 9037, 9038, 9039) .... **217**—14
- ●821TB, TH, TU (Ch. 9043) . **234**—12
- ●824C, CH, DB, DBH, DM, DMH (Ch. 9045) .... **242**—9
- ●910 .... **150**—11
- ●924W .... **176**—11
- ●924XW (Ch. 9045) .... **242**—9

SCOTT (E. H.)—Cont.

- 1000 .... **180**—8
- 1510 .... **181**—11
- 2000 .... **229**—13
- 2510 .... **233**—10
- Ch. 9029, 9031 (See Model 817C)
- Ch. 9036, 9037, 9038, 9039 (See Model 817C)
- Ch. 9043 (See Model 817C)
- Ch. 9045 (See Model 824C)
- Ch. 9052 .... **265**—12

SCOTT (H. H.)

- 99-A .... **267**—17
- 111-B .... **143**—14
- 112-B .... **144**—8
- 120-A .... **183**—13
- 121-A .... **265**—11
- 210-A .... **79**—15
- 210-B .... **145**—9
- 211-A .... **81**—14
- 214-A (120-A, 220-A) .... **183**—13
- 220-A .... **183**—13
- 232, 232A .... **272**—13

SEARS-ROEBUCK
(See Allstate or Silvertone)

SEEBURG
(See Record Changer Listing)

SENTINEL

- 1U-284GA .... **22**—25
- 1U-284I, 1U-284NA, 1U-284NI, 1U-284W .... **1**—2
- 1U-285P .... **6**—27
- 1U-293CT .... **29**—29
- 1U-293I, 1U-293T, 1U-293W **1**—14
- 1U-294I, 1U-294N, 1U-294T **1**—11
- 1U312PG, 1U312PW .... **103**—15
- 1U-313I, 1U-313W .... **39**—21
- 1U-314E, 1U-314I, 1U-314W .... **38**—21
- 1U-316PM, 1U-316PT .... **48**—22
- 1U-335PG, PI, PM, PW . **105**—9
- 1U338-I, 1U338-R, 1U338-W .... **122**—9
- 1U339-K .... **111**—12
- 1U340-C .... **129**—10
- 1U342K .... **155**—14
- 1U-343 .... **212**—6
- 1U-344 .... **211**—12
- 1U345P .... **183**—14
- 1U346 .... **209**—11
- ●1U416 .... **117**—12
- ●1U419, 1U420 .... **115**—9
- ●1U420B .... **124**—9
- ●1U421, 1U422 (Series "YA") (See PCB 16—Set 126-1 and Model 412—Set **100**-11)
- ●1U423 (Also see PCB 19—Set 132-1) .... **124**—9
- ●1U423B, 1U423-17 (See PCB 19—Set 132-1 and Model 1U423—Set **124**-9)
- ●1U424 (Also see PCB 19—Set 132-1) .... **124**—9
- ●1U424-17 (See PCB 19—Set 132-1 and Model 1U424—Set **124**-9)
- ●1U-425 .... **127**—10
- ●1U428 .... **127**—10
- ●1U429, 1U430, 1U431 (See PCB 25—Set 144-1 and Model 1U420B—Set **124**-9)
- ●1U-432 (Also see PCB 21—Set 136-1) .... **127**—10
- ●1U435 (See PCB 21—Set 136-1 and Model 1U425—Set **127**-10)
- ●1U438, 1U439, 1U440, 1U441, 1U-443, 1U444 (Series "XD, XXD, 2XD") .... **157**—9
- ●1U446, 1U447 (Series "XD, XXD, 2XD") (See Model 1U438—Set **157**-9)
- ●1U447-A, 1U448-A, 1U449-A, 1U-450-A, 1U451-A .... **178**—10
- ●1U448, 1U-449, 1U-450 (Series "XD, XXD, 2XD") (See Model 1U-438—Set **157**-9)
- ●1U-454, 1U-455, 1U-456, 1U-457 (Also see PCB 63—Set 197-1) .... **191**—17
- ●1U-458, 1U-459, 1U-460, 1U-461 .... **199**—10
- ●1U462, 1U463 (Ch. 2WA) . **205**—9
- ●1U500 .... **226**—8
- ●1U510, 1U511, 1U512, 1U513 .... **226**—8
- ●1U515 .... **226**—8
- ●1U-520 .... **226**—8
- ●1U-520B (See PCB 97—Set 242-1 and Model 1U-520—Set **226**-8)
- ●1U-521 .... **226**—8
- ●1U-521B (See PCB 97—Set 242-1 and Model 1U-521—Set **226**-8)
- ●1U-522 .... **226**—8
- ●1U-522B (See PCB 97—Set 242-1 and Model 1U-522—Set **226**-8)
- ●1U-523 .... **226**—8
- ●1U525 .... **226**—8
- ●1U-532, A .... **239**—8
- ●1U-542, A .... **239**—8
- ●1U-552, 1U-554 .... **239**—8
- ●1U-562, 1U-564 .... **239**—8
- ●1U-581, 1U-582 .... **240**—7
- ●1U-584, 1U-585 .... **240**—7
- ●1U-600 (See PCB 97—Set 242-1 and Model 1U-500—Set **226**-8)
- ●1U-610, 1U-612 (See PCB 97—Set 242-1 and Model 1U-510—Set **226**-8)
- ●1U-620, 1U-622 (See PCB 97—Set 242-1 and Model 1U-520—Set **226**-8)
- ●1U-701 .... **262**—11
- ●1U-711 .... **262**—11
- ●1U-714 .... **262**—11
- ●1U-721 .... **262**—11
- ●1U-724 .... **262**—11
- ●1U-752 .... **262**—11
- ●1U-755 .... **262**—11
- ●1U-758 .... **262**—11
- ●1U-762 .... **262**—11
- ●1U-765 .... **262**—11
- ●1U-768 .... **262**—11
- ●1U-791 .... **262**—11
- ●1U-901 .... **275**—14
- ●1U-911, 1U-914 .... **275**—14
- ●1U-921, 1U-924 .... **275**—14
- ●1U-991 .... **275**—14

SENTINEL—Cont.

- L-2841, L-284NA, L-284NI, L-284-NR, L-284W .... **23**—19
- 284GA .... **22**—25
- 284I .... **1**—2
- 284NA, 284NI .... **1**—2
- 285P .... **6**—27
- 286P, 286PR .... **23**—20
- 289T .... **6**—28
- 292K .... **16**—30
- 293 Series .... **1**—14
- 293-CT .... **29**—22
- 293I, 293T, 293W .... **1**—14
- 294 Series .... **1**—11
- 294I, 294N, 294T .... **1**—11
- 295-T .... **22**—26
- 296B, 296M .... **46**—22
- 302-I, 302-T, 302-W .... **33**—23
- 305-I, 305-I-3, 305-W, 305-W3 .... **3**—24
- 309-I, 309-N, 309-R, 309-W **28**—30
- 312PG, 312PW .... **103**—15
- 313-I, 313-W .... **39**—21
- 314-E, 314-I, 314-W .... **38**—21
- 315-I, 315-W .... **40**—19
- 316PM, 316PT .... **48**—22
- 332 (See Model 313-I—Set **39**-21)
- 333 (See Model 315-I—Set **40**-19)
- 335PG, PI, PM, PW .... **105**—9
- 338-I, 338-R, 338-W .... **122**—9
- 339-K .... **111**—12
- 340-C .... **129**—10
- 342K .... **155**—14
- 343 .... **212**—6
- 344 .... **211**—12
- 345P .... **183**—14
- 346 .... **209**—11
- ●400TV .... **73**—11
- ●401, 402 Series .... **70**—9
- ●405TVM .... **73**—11
- ●405 Series .... **70**—9
- ●406 Series .... **70**—9
- ●407 Series .... *
- ●409 Series .... *
- ●411 Series (See Model 401 Series—Set **70**-9)
- ●412, 413, 414, 415 (Series YA, YB, YC, YD, YE, YF) (Also see PCB 4 (Set 105-2) .... **100**—11
- ●416 .... **117**—12
- ●419, 420 .... **115**—9
- ●420B .... **124**—9
- ●421, 422 (See PCB 16—Set 126-1 and Model 412—Set **100**-11)
- ●423, 424 (Also see PCB 19—Set 132-1) .... **124**—9
- ●423B, 423-17 (See PCB 19—Set 132-1 and Model 423B—Set **124**-9)
- ●424 (Also see PCB 19—Set 132-1) .... **124**—9
- ●424-17 (See PCB 19—Set 132-1 and Model 424—Set **124**-9)
- ●425 .... **127**—10
- ●428 .... **127**—10
- ●429, 430, 431 (See PCB 25—Set 144-1 and Model 1U-420B—Set **124**-9)
- ●432 (Also see PCB 21—Set 136-1) .... **127**—10
- ●435 (See PCB 21—Set 136-1 and Model 425—Set **127**-10)
- ●438, 439, 440, 441, 443, 444 (Series "XD, XXD, 2XD") **157**—9
- ●446 (Series "XD, XXD, 2XD") (See Model 438—Set **157**-9)
- ●452, 453 (See Model 1U-447-A—Set **178**-10)
- ●454, 455, 456, 457 (Also see PCB 63—Set 197-1) .... **191**—17
- ●458, 459, 460, 461 (See Model 1U-458—Set **199**-10)
- ●462, 463 (Ch. 2WA) .... **205**—9
- ●464, 465, 466 (See Model 1U-454—Set **191**-17)
- Ch. 2WA (See Model 462)

SETCHELL-CARLSON

- ●A53, A531, A533, A5301, A5302, A-5303 (Ch. 153) .... **243**—8
- ●53 (Ch. 152) .... **209**—12
- ●150 .... **144**—9
- ●151-A17, 151-A17-LR, 151-B17, 151-B17-LR, 151-B20, 151-B20-LR, 151-C20, 151-C20-LR **155**—15
- 416 .... **2**—14
- 427 .... **21**—29
- 437 .... **39**—22
- 447 .... **40**—20
- 458-RD .... **106**—13
- 469 .... **99**—15
- ●531 (Ch. 152) .... **209**—12
- ●551, 552, 553 (Ch. 155) . **276**—9
- 570 .... **97**—15
- ●2500, 2500LP .... **144**—9
- ●5301, 5302 (Ch. 152) .... **209**—12
- ●5501, 5502, 5503 (Ch. 155) .... **276**—9
- Ch. 152 (See Model 53)
- Ch. 153 (See Model A53)
- Ch. 155 (See Model 551)

SHAW

- ●Ch. 224 (Runs 301, 302, 303, 304, 304-1, -2, 305, 305-2) .. **202**—8

SHERATON
(Also See Video Products)

- ●C30B, M .... **176**—13
- ●C30B24, C30M24 .... **176**—13
- ●C-2125 (Ch. 250XL Series) **218**—10
- ●T30M .... **176**—13
- ●T-1755 (Ch. 250XL Series) **218**—10
- ●T-2155 (Ch. 250XL Series) **218**—10
- ●17MT20 (Ch. 530DX Series) **210**—9
- ●17MT20 (Ch. 530DX-A) (See PCB 89—Set 233-1 and Model 17MT20—Set **210**-9)
- ●21BC10 (Ch. 530DX Series) **210**—9
- ●21BC10 (Ch. 530DX-A) (See PCB 89—Set 233-1 and Model 17MT20—Set **210**-9)
- ●21BD10 (Ch. 530DX Series) **210**—9
- ●21BD10 (Ch. 530DX-A) (See PCB 89—Set 233-1 and Model 17MT20—Set **210**-9)
- ●21BT10 (Ch. 530DX Series) **210**—9
- ●21BT10 (Ch. 530DX-A) (See PCB 89—Set 233-1 and Model 17MT20—Set **210**-9)

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250 ● Denotes Television Receiver.

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200 ● Denotes Television Receiver.
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250

SILVERTONE—Cont.

●5124 (Ch. 528.34100) (See PCB 122—Set 276-1 and Model 5100 —Set **264**-17)
●5126 (Ch. 528.31400, 528.31401) .... **264**—17
●5126A (Ch. 528.32800) ... **264**—17
●5126B (Ch. 528.32800) (See PCB 122—Set 276-1 and Model 5126A—Set **264**-17)
●5126C (Ch. 528.34100) (See PCB 122—Set 276-1 and Model 5100 —Set **264**-17)
●5128 (Ch. 528.31800) (See PCB 122 —Set 276-1 and Model 5100— Set **264**-17)
●5128B (Ch. 528.32900) (See PCB 122—Set 276-1 and Model 5100 —Set **264**-17)
●5128C, D (Ch. 528.34500, 528.-34501) (See PCB 122—Set 276-1 and Model 5100—Set **264**-17)
●5130 (Ch. 528.31801) (See PCB 122 —Set 276-1 and Model 5100— Set **264**-17)
●5130B (Ch. 528.32900) (See PCB 122—Set 276-1 and Model 5100 —Set **264**-17)
●5130C, D (Ch. 528.34500, 528.34501) (See PCB 122—Set 276-1 and Model 5100—Set **264**-17)
●5132 (Ch. 528.31900, 528.31901) .... **267**—13
●5139 (Ch. 528.32000, 528,32001) .... **267**—13
●5149 (Ch. 528.32001) ... **267**—13
6002 (Ch. 132.818) ...... **5**—35
6011 (Ch. 132.816), 6012 (Ch. 132.816A) .... **15**—27
6016 (Ch. 132.820) ...... **27**—24
6050 (Ch. 132.825-4) .... **15**—28
6051 (Ch. 110.451), 6052 (Ch. 110.452) .... **13**—29
6052A (Ch. 110.452, -1) (See Model 6051—Set **13**-29)
6071 (Ch. 132.826-1) .... **15**—29
6072 (Ch. 110.454) ...... **13**—30
6092 (Ch. 101.672-1B), 6093 (Ch. 101.672.1A) .... **10**—28
6100 (Ch. 101.660-1A) .... **6**—29
6104 (Ch. 101.662-2D) (See Model 6105—Set **7**-26)
6105 (Ch. 101.622-2B) .... **7**—26
6106A (Ch. 101.662-4E) .. **29**—23
6111 (Ch. 101.662-3C) .... **7**—26
6111A (Ch. 101.662-5F) .. **29**—23
6200A (Ch. 101.800-1) .... **9**—29
6200A (Ch. 101.800-3) ... **65**—12
6203 (Ch. 101.800A) (See Model 6200A—Set **9**-29)
6220, 6220A (Ch. 101.801, 101-801-1A) .... **9**—30
6230 (Ch. 101.802) ...... **11**—21
6230A (Ch. 101.802-1) .. **11**—21
6285A (Ch. 101.666-1B) .. **20**—28
6286 (Ch. 528.6286, -1, -3) **185**—12
6287 (Ch. 528.6287, -1, -3) **185**—12
6290 (Ch. 101.677-B) .... **20**—29
6293 (Ch. 528.6293-2) .... **99**—16
6295 (Ch. 528.6295) ...... **98**—12
6685 (Ch. 139.150, Ch. 139.150-1), Power Shifter .... **15**—30
6950 (Ch. 725.101-1) Tel. UHF Conv. .... **235**—11
7020 (See Model 7021—Set **16**-31)
7021 (Ch. 101.807, 101.807A) .... **16**—31
7025 (Ch. 132.807-2) .... **29**—24
7054 (Ch. 101.808) ...... **15**—31
7070 (Ch. 101.817) ...... **30**—26
7080 (Ch. 101.809) ...... **16**—32
7080, 7080A (Ch. 101.809-2) .... **58**—20
7085 (Ch. 101.814) ...... **30**—27
7086 (Ch. 110.466) ...... **27**—25
7090 (Ch. 101.810) ...... **15**—32
7095 (Ch. 101.826) (See Model 7115—Set **16**-33)
7100 (Ch. 101.811) ...... **17**—29
7102 (Ch. 101.814-1A) ... **30**—27
7103 (Ch. 110.466-1) .... **27**—25
7111 (Ch. 434.140) ...... **30**—28
7115 (Ch. 101.825), 7116 (Ch. 101.825-1A), 7117 (Ch. 101.-825-1B) .... **16**—33
7119 (Ch. 101.825-2C) ... **62**—18
7145 (Ch. 436.200) ...... **23**—21
7148 (Ch. 431.188), 7148A (Ch. 431.188-1) .... **23**—22
7152 (Ch. 109.626) ...... **25**—26
7153 (Ch. 109.627) ...... **26**—30
7165 (Ch. 101.823-A, 1A). **10**—29
7166 (Ch. 101.823, 101.823-1) .... **10**—29
7210 (Ch. 101.820) ...... **32**—20
7220 (Ch. 101.801-2C) (See Model 6220—Set **9**-30)
7226 (Ch. 101.819A) ..... **31**—28
7230 (Ch. 101.802-2A) (See Model 6230—Set **11**-21)
7300 (Ch. 435.240) ...... **45**—22
7350 (Ch. 435.410) ...... **38**—22
7353 (See Model 7350—Set **38**-22)
8000 (Ch. 132.838) ...... **31**—29
8003 (Ch. 132.818-1) .... **53**—22
8004 (See Model 8003—Set **53**-22)
8005 (Ch. 132.839) ...... **33**—26
8010 (Ch. 132.840) ...... **40**—21
8011 (See Model 8010—Set **40**-21)
8020 (Ch. 132.841) ...... **43**—17
8021 (Ch. 132.868) ...... **70**—10
8024, 8025 (Ch. 478.206-1) **80**—15
8050 (Ch. 101.813) ...... **33**—27
8051 (Ch. 101.839) ...... **49**—19
8052 (Ch. 101.808-1C) ... **68**—15
8053 (Ch. 101.808-1D) (See Model 8052—Set **68**-15)
8070 (Ch. 101.817-1A) (See Model 7070—Set **30**-26)
8072 (Ch. 101.834) ...... **34**—19
8073 (Ch. 135.243) ...... **84**—9
8080 (Ch. 101.852) ...... **52**—20
8083, 8083A (Ch. 101.809-1A) .... **58**—20
8084, 8084A (Ch. 101.809-1B) .... **58**—20
8086 (Ch. 101.814-5C) ... **61**—18

SILVERTONE—Cont.

8086A, 8086B (Ch. 101.814-6C) .... **61**—18
8090 (Ch. 101.821) ...... **49**—20
8097 (Ch. 101.825-3G) (See Model 8115—Set **62**-18)
8097A (Ch. 101.825.4) ... **62**—18
8100 (Ch. 101.829) ...... **51**—19
8101, 8101A, 8101B, 8101C (Ch. 101.809-3C) .... **58**—20
8102 (Ch. 101.814-2B) ... **61**—18
8102A (Ch. 101.814-3B) .. **61**—18
8102B (Ch. 101.814-2B) .. **61**—18
8103 (Ch. 110.473) ...... **56**—21
8104 (See Model 8086—Set **61**-18)
8105, 8105A (Ch. 101.833) **35**—20
8106, A (Ch. 101.833-1A) (See Model 8105—Set **35**-20)
8107A, 8108, 8108A (Ch. 101.851), 8109 (Ch. 101.851-1) ... **64**—10
8112, 8113 (Ch. 101.851) (See Model 8107A—Set **64**-10)
8115 (Ch. 101.825-3D) ... **62**—18
8115, A, B, C (Ch. 101.825-4) .... **62**—18
8115D (Ch. 101.825-4) (See Model 8115A—Set **62**-18)
8117 (Ch. 101.825-3E) ... **62**—18
8118 (Ch. 101.825-3F) ... **62**—18
8118 A, B, C (Ch. 101.825-4) .... **62**—18
8118D (Ch. 101.825-4) (See Model 8118A—Set **62**-18)
8124, 8125, 8126 (Ch. 101.831A, 101.831-1) (See Model 8127—Set **41**-20)
8127, A, B, C (Ch. 101.831A), 8128, A, B, C (Ch. 101.831), Wire Recorder Amp. (Ch. 101.-773) .... **41**—20
8127CX (Ch. 101.831A and Wire Recorder Amp. 101.773) (See Model 8127—Set **41**-20)
●8130 .... **49**—21
●8132 (Ch. 101.854) ...... **66**—15
●8133 (Ch. 101.829-1, (Ch. 101.846) .... **66**—15
8144 (Ch. 431.199) ...... **32**—21
8145 (Ch. 109.631) ...... **45**—23
8148 (Ch. 109.632) ...... **44**—22
8149 (Ch. 109.633) ...... **48**—23
8150 (Ch. 109.634) ...... **32**—22
8152 (Ch. 109.635) (See Model 8153—Set **42**-22)
8153 (Ch. 109.635), 8153A (Ch. 109.635-1) .... **42**—22
8155 (Ch. 463.155) ...... **57**—17
8160 (Ch. 109.636A) .... **50**—17
8168 (Ch. 109.638) ...... **46**—23
8169 (Ch. 109.638) (See Model 8168—Set **46**-23)
8200 (Ch. 101.800-2B) (See Model 6200A—Set **65**-12)
8201 (See Model 6200A—Set **65**-12)
8210 (Ch. 101.820-1A) ... **71**—13
8220, 8221 (Ch. 101.801-3D) (See Model 6220—Set **9**-30)
8222 (See Model 6220—Set **9**-30)
8230 (Ch. 101.835) ...... **59**—18
8231 (See Model 8230—Set **59**-18)
8260 (Ch. 101.823-2B) (See Model 7165—Set **10**-29)
8270 (Ch. 101.822), 8270A (Ch. 101.822A) .... **57**—18
9000 (Ch. 132.857) ...... **65**—13
9005, 9006 (Ch. 132.858). **72**—11
9022 (Ch. 132.871) ...... **76**—17
9054 (Ch. 101.849) ...... **63**—16
9073, 9073A (Ch. 135.244), 9073B (Ch. 135.244-1) ...... **83**—10
9073C (Ch. 135.243-1) (See Model 9073—Set **83**-10)
9082 (Ch. 135-245) ...... **101**—11
9084 (Ch. 135.245) (See Model 41 —Set **101**-11)
9101 (Ch. 101.809-3C) (See Model 7080—Set **58**-20)
9102 (See Model 7080—Set **58**-20)
9105 (Ch. 132.875) ...... **89**—14
9107 (Ch. 101.859-1) (See Model 64—Set **113**-8)
9107A (Ch. 101.851-1) (See Model 8107A—Set **64**-10)
9107B (Ch. 101.859-2) (See Model 64—Set **113**-8)
9108 (Ch. 101.859-1) (See Model 64—Set **113**-8)
●9111 (Ch. 110.499) (See Model 9123—Set **79**-16)
●9112 (Ch. 110.499-1) (See Model 9124—Set **79**-16)
●9113 (Ch. 110.499) (See Model 9123—Set **79**-16)
●9114 (Ch. 110.499-1) (See Model 9124—Set **79**-16)
●9115 (Ch. 478.224), 9116 (Ch. 478.221) .... **97**—16
●9116 (Ch. 478.221) ...... **97**—16
●9119, 9120 (Ch. 101.865) *
●9120A (Ch. 101.862-1) ... *
●9121 (Ch. 101.867) ...... *
9122 (Ch. 101.864) (See Model 8132—Set **66**-15)
●9122A (Ch. 101.868) ..... *
●9123 (Ch. 110.499) ...... **79**—16
●9124 (Ch. 110.499-1) .... **79**—16
●9125 (Ch. 478.252) ...... *
●9125A (Ch. 478.253) .... **104**—10
●9125B (Ch. 478.253-1) ... *
●9126 (Ch. 110.499-2) .... **79**—16
●9127 (Ch. 100.499-2) (See Model 9126—Set **79**-16)
●9128A (Ch. 101.868) ..... *
●9129 (Ch. 110.499) (See Model 9123—Set **79**-16)
●9130 (Ch. 110.499-1) (See Model 9124—Set **79**-16)
●9131 (Ch. 478.210) ...... **84**—10
9132 (Ch. 110.499-1) (See Model 9124—Set **79**-16)
●9133, 9134 (Ch. 101.866 and Radio Ch. 101.859) .... **95**—5
●9139, 9140 (Ch. 110.499-1) (See Model 9124—Set **79**-16)
9153 (Ch. 435.417) ...... **67**—16
9161 (Ch. 548.358) ...... **88**—10
9260 (Ch. 101.850) ...... **51**—20
9270 (Ch. 547.245) ...... **82**—11

SILVERTONE—Cont.

9280 (Ch. 528.168) ...... **94**—9
●5126B (Ch. 528.32800) (See Model 5126A—Set **264**-17)
●5128, 5130 (Ch. 528.31800, 528.31801) .... **264**—17
●41102 (Ch. 528.32800) (See Model 5126A—Set **264**-17)
●41282A (Ch. 528.32900) (See PCB 122—Set 276-1 and Model 5100 —Set **264**-17)
●41302A (Ch. 528.32900) (See PCB 122—Set 276-1 and Model 5100 —Set **264**-17)
Ch. 100.043 (See Model 133)
Ch. 100.107 (See Model 133)
Ch. 100.107-1 (See Model 149)
Ch. 100.111 (See Model 143A)
Ch. 100.112 (See Model 161-16)
Ch. 100.120 (See Model 165-16)
Ch. 100.174 (See Model 3068)
Ch. 100.176 (See Model 4068A)
Ch. 100.201 (See Model 69)
Ch. 100.202 (See Model 1066)
Ch. 100.202-1 (See Model 2195-21 or 3195)
Ch. 100.208 (See Model 1176-21)
Ch. 100.208-1 (See Model 2195-21)
Ch. 100.209 (See Model 2170-C)
Ch. 100.210, -1 (See Model 2130)
Ch. 100.210-2 (See Model 3195)
Ch. 100.210-3 (See Model 3130)
Ch. 100.400 (See Model 3177A)
Ch. 101.660-1A (See Model 6100)
Ch. 101.662-2B (See Model 6105)
Ch. 101.662-2D (See Model 6105)
Ch. 101.662-3C (See Model 6111)
Ch. 101.662-4E (See Model 6106A)
Ch. 101.662-5F (See Model 6111A)
Ch. 101.666-1B (See Model 6285A)
Ch. 101.672-1A (See Model 6093)
Ch. 101.672-1B (See Model 6092)
Ch. 101.677B (See Model 6290)
Ch. 101.733 (See Model 8127)
Ch. 101.800-1, -1A (See Model 6200A, Ch. 101.800-1, -1A)
Ch. 101.800-3 (See Model 6200A, Ch. 101.800-3)
Ch. 101.801, -1A (See Model 6230)
Ch. 101.802, -1 (See Model 6230)
101.807, A (See Model 7021)
Ch. 101.808 (See Model 7054)
Ch. 101.808-1C (See Model 8052)
Ch. 101.808-1D (See Model 8053)
Ch. 101.809 (See Model 7080, Ch. 101.809)
Ch. 101.809-1A (See Model 8083)
Ch. 101.809-1B (See Model 8084)
Ch. 101.809-2 (See Model 7080, Ch. 101.809-2)
Ch. 101.809-3C (See Model 8101)
Ch. 101.810 (See Model 7090)
Ch. 101.811 (See Model 7100)
Ch. 101.813 (See Model 8050)
Ch. 101.814 (See Model 7085)
Ch. 101.814-1A (See Model 7102)
Ch. 101.814-2B (See Model 8102)
Ch. 101.814-3B (See Model 8102A)
Ch. 101-814-5C (See Model 8086)
Ch. 101.814-6C (See Model 8086A)
Ch. 101.817 (See Model 7070)
Ch. 101.819A (See Model 7226)
Ch. 101.820 (See Model 7210)
Ch. 101.821 (See Model 8090)
Ch. 101.822 (See Model 8270)
Ch. 101.822A (See Model 8270A)
Ch. 101.823, -1 (See Model 7166)
Ch. 101.823-A, -1A (See Model 7165)
Ch. 101.825 (See Model 7115)
Ch. 101.825-1A (See Model 7116)
Ch. 101.825-1B (See Model 7117)
Ch. 101.825-2C (See Model 7119)
Ch. 101.825-3D (See Model 8115)
Ch. 101.825-3E (See Model 8117)
Ch. 101.825-3F (See Model 8118)
Ch. 101.825-3G (See Model 8097)
Ch. 101.825-4 (See Model 8097A)
Ch. 101.829 (See Model 8100)
Ch. 101.829-1 (See Model 8133)
Ch. 101.831 (See Model 8128)
Ch. 101.831A (See Model 8127)
Ch. 101.831-1 (See Model 8124)
Ch. 101.833 (See Model 8105)
Ch. 101.834 (See Model 8072)
Ch. 101.835 (See Model 8230)
Ch. 101.839 (See Model 8051)
Ch. 101.846 (See Model 8133)
Ch. 101.849 (See Model 9054)
Ch. 101.850 (See Model 9260)
Ch. 101.851 (See Model 8107A)
Ch. 101.851-1 (See Model 8109)
Ch. 101.852 (See Model 8080)
Ch. 101.854 (See Model 8132)
Ch. 101.859 (See Model 9133)
Ch. 101.859-1 (See Model 67)
Ch. 101.859-2 (See Model 64)
Ch. 101.860 (See Model 1058)
Ch. 101.860-3 (See Model 3058)
Ch. 101.861, -1 (See Model 2060)
Ch. 101.864 (See Model 9122)
Ch. 101.865 (See Model 9119)
Ch. 101.865-1 (See Model 9120A)
Ch. 101.866 (See Model 9133)
Ch. 101.867 (See Model 9121)
Ch. 101.868 (See Model 9122A)
Ch. 109.626 (See Model 7152)
Ch. 109.627 (See Model 7153)
Ch. 109.631 (See Model 8145)
Ch. 109.632 (See Model 8148)
Ch. 109.633 (See Model 8149)
Ch. 109.634 (See Model 8150)
Ch. 109.635 (See Model 8153)
Ch. 109.635-1 (See Model 8153A)
Ch. 109.636 (See Model 8160)
Ch. 109.636A (See Model 8160A)
Ch. 109.638 (See Model 8168)
Ch. 110.451 (See Model 6051)
Ch. 110.452 (See Model 6052)
Ch. 110.454 (See Model 6072)
Ch. 110.466 (See Model 7086)
Ch. 110.466-1 (See Model 7103)
Ch. 110.473 (See Model 8103)
Ch. 110.499 (See Model 9123)
Ch. 110.499-1 (See Model 9124)
Ch. 110.499-2 (See Model 9126)
Ch. 110.700-1 (See Model 116)
Ch. 110.700-10 (See Model 116)
Ch. 110.700-40 (See Model 177-19)

SILVERTONE—Cont.

Ch. 110.700-100 (See Model 1117-17)
Ch. 110.700-120 (See Model 1181-20)
Ch. 110.700-140 (See Model 1145-20)
Ch. 110.700-150 (See Model 1183-21)
Ch. 110.702-10, -50 (See Model 1171-17)
Ch. 110.817-1 (See Model 2100A)
Ch. 110.817-3 (See Model 3100A)
Ch. 110.820-1 (See Model 2150A)
Ch. 110.820-3 (See Model 3150)
Ch. 132.011 (See Model 1052)
Ch. 132.011-1 (See Model 1053A)
Ch. 132.012 (See Model 1054)
Ch. 132.012-1 (See Model 1054A)
Ch. 132.021 (See Model 2014)
Ch. 132.022 (See Model 2009)
Ch. 132.024, -1, -2 (See Model 2105)
Ch. 132.024-3 (See Model 2105A)
Ch. 132.024-4 (See Model 2145B)
Ch. 132.024-5, -6 (See Model 3105)
Ch. 132.024-31 (See Model 2105A)
Ch. 132.026-3 (See Model 2056)
Ch. 132.026-6 (See Model 4056)
Ch. 132.027 (See Model 2022)
Ch. 132.035 (See Model 2174)
Ch. 132.035-2 (See Model 3174)
Ch. 132.044 (See Model 3175)
Ch. 132.045, -1, -2, -3, -4, -5 (See Model 3106)
Ch. 132.053 (See Model 3052)
Ch. 132.054 (See Model 3001)
Ch. 132.056 (See Model 3054)
Ch. 132.066 (See Model 3025)
Ch. 132.067 (See Model 4204)
Ch. 132.807-2 (See Model 7025)
Ch. 132.816 (See Model 6011)
Ch. 132.816A (See Model 6012)
Ch. 132.818 (See Model 6002)
Ch. 132.818-1 (See Model 8003)
Ch. 132.820 (See Model 6016)
Ch. 132.825-4 (See Model 6050)
Ch. 132.826-1 (See Model 6071)
Ch. 132.838 (See Model 8000)
Ch. 132.839 (See Model 8005)
Ch. 132.840 (See Model 8010)
Ch. 132.841 (See Model 8020)
Ch. 132.858 (See Model 9005)
Ch. 132.868 (See Model 8021)
Ch. 132.871 (See Model 9022)
Ch. 132.875 (See Model 9105)
Ch. 132.877 (See Model 18)
Ch. 132.878 (See Model 1)
Ch. 132.880 (See Model 210)
Ch. 132.881 (See Model 5)
Ch. 132.884, -1, -2 (See Model 15)
Ch. 132.887 (See Model 51)
Ch. 132.888 (See Model 54)
Ch. 132.889, -2 (See Model 106)
Ch. 132.890 (See Model 179-16)
Ch. 132.896 (See Model 10)
Ch. 132.896-1 (See Model 2023)
Ch. 132.08400 (See Model 4110B)
Ch. 132.08500 (See Model 4112B)
Ch. 134.111 (See Model 72)
Ch. 135.243 (See Model 8073)
Ch. 135.243-1 (See Model 9073C)
Ch. 135.244 (See Model 9073)
Ch. 135.244-1 (See Model 9073B)
Ch. 135.245 (See Model 41)
Ch. 137.906 (See Model 246)
Ch. 137.914, -1, -2, -3 (See Model 2243)
Ch. 137.915 (See Model 2249)
Ch. 139.150, -1 (See Model 6685)
Ch. 319.190 (See Model 1301)
Ch. 319.200 (See Model 1300)
Ch. 319.200-1 (See Model 1300-1)
Ch. 431.188 (See Model 7148)
Ch. 431.188-1 (See Model 7148A)
Ch. 431.199 (See Model 8144)
Ch. 431.202 (See Model 8130)
Ch. 434.140 (See Model 7111)
Ch. 435.240 (See Model 7300)
Ch. 435.410 (See Model 7350)
Ch. 435.417 (See Model 9153)
Ch. 436.200 (See Model 7145)
Ch. 456.150 (See Model 1260)
Ch. 456.150-1 (See Model 1268-21)
Ch. 456.150-2 (See Model 1260)
Ch. 456.150-3 (See Model 1297)
Ch. 456.150-6 (See Model 1260)
Ch. 456.150-7 (See Model 1299)
Ch. 456.150-8 (See Model 2276)
Ch. 456.150-9 (See Model 1299)
Ch. 456.150-11 (See Model 1268)
Ch. 456.150-12 (See Model 2289)
Ch. 456.150-13 (See Model 2280)
Ch. 456.150-14, -18 (See Model 2276)
Ch. 456.150-15 (See Model 1260)
Ch. 456.150-16 (See Model 3263)
Ch. 456.150-17 (See Model 1299)
Ch. 456.150-18 (See Model 2276)
Ch. 456.150-19 (See Model 3260)
Ch. 456.150-21 (See Model 1261)
Ch. 456.150-22 (See Model 3276)
Ch. 456.150-61 (See Model 3276)
Ch. 456.150-81 (See Model 1268)
Ch. 456.200-1, -2, -3 (See Model 3389)
Ch. 456.200-11, -12, -13 (See Model 3360)
Ch. 456.200-21, -22, -23 (See Model 3360)
Ch. 456.200-111, -112, -113, -114, -115, -121, -122, -123, -124, -125 (See Model 3376)
Ch. 463.155 (See Model 8155)
Ch. 478.206-1 (See Model 8024)
Ch. 478.210 (See Model 9131)
Ch. 478.221 (See Model 9116)
Ch. 478.224 (See Model 9115)
Ch. 478.238 (See Model 25)
Ch. 478.240 (See Model 144)
Ch. 478.252 (See Model 9125)
Ch. 478.253 (See Model 9125A)
Ch. 478.253-1 (See Model 9125B)
Ch. 478.257 (See Model 125)
Ch. 478.289 (See Model 112)
Ch. 478.302 (See Model 114)
Ch. 478.303, A (See Model 110)

SILVERTONE—Cont.

Ch. 478.309 (See Model 159)
Ch. 478.311 (See Model 120)
Ch. 478.312 (See Model 144)
Ch. 478.313 (See Model 164-14)
Ch. 478.319 (See Model 163-16)
Ch. 478.338 (See Model 150-14)
Ch. 478.339 (See Model 166-16)
Ch. 478.339-A (See Model 166-17)
Ch. 478.339-B (See Model 1166-17)
Ch. 478.361, A (See Model 1150-14)
Ch. 488.237 (See Model 237)
Ch. 528.168 (See Model 9280)
Ch. 528.171-1 (See Model 225)
Ch. 528.173 (See Model 220)
Ch. 528.174 (See Model 215)
Ch. 528.194 (See Model 1040)
Ch. 528.195, -1, -2 (See Model 1035)
Ch. 528.196 (See Model 1032)
Ch. 528.210, -1 (See Model 1017)
Ch. 528.219 (See Model 1038)
Ch. 528.229 (See Model 2200)
Ch. 528.230 (See Model 2028)
Ch. 528.233 (See Model 2225)
Ch. 528.235 (See Model 2041)
Ch. 528.238 (See Model 2215)
Ch. 528.239 (See Model 3170)
Ch. 528.241 (See Model 3210)
Ch. 528.242, -1, -2 (See Model 3110A)
Ch. 528.247, -1 (See Model 3171A)
Ch. 528.248, -1, -2 (See Model 3110)
Ch. 528.249, -1 (See Model 3170C)
Ch. 528.252 (See Model 3032)
Ch. 528.253 (See Model 3040)
Ch. 528.254 (See Model 3045)
Ch. 528.256 (See Model 3112A)
Ch. 528.258 (See Model 3112C)
Ch. 528.259 (See Model 3200)
Ch. 528.261 (See Model 3170D)
Ch. 528.263, -1, -2 (See Model 3112B)
Ch. 528.264 (See Model 3109)
Ch. 528.264-1, -2 (See Model 3110B)
Ch. 528.265 (See Model 3217)
Ch. 528.266 (See Model 4115)
Ch. 528.266-1 (See Model 4140D)
Ch. 528.268 (See Model 4127A)
Ch. 528.270 (See Model 4115)
Ch. 528.271, -1, -2, -3, -4 (See Model 4108A)
Ch. 528.286 (See Model 4150D)
Ch. 528.290, -1 (See Model 4107)
Ch. 528.290-2 (See Model 3103A)
Ch. 528.291, -1, -2 (See Model 4111A)
Ch. 528.292, -1, -2, -3 (See Model 4118B)
Ch. 528.297 (See Model 4126A)
Ch. 528.299, -1, -2 (See Model 4139A)
Ch. 528.300, -1, -2, -3 (See Model 4140E)
Ch. 528.303, -1 (See Model 4112)
Ch. 528.304, -1 (See Model 4041, B)
Ch. 528.305 (See Model 4035)
Ch. 528.306 (See Model 4025)
Ch. 528.307 (See Model 4225)
Ch. 528.308 (See Model 4210)
Ch. 528.311 (See Model 3040A)
Ch. 528.312, -1 (See Model 4045A)
Ch. 528.630, -1 (See Model 151-16)
Ch. 528.631 (See Model 1184-20)
Ch. 528.631, -1 (See Model 2110A)
Ch. 528.632, -1, -2, -3, -4, -5 (See Model 2110A)
Ch. 528.632A, -1, -2, -3, -5 (See Model 2110A)
Ch. 528.6286, -1, -3 (See Model 6286)
Ch. 528.6287, -1, -3 (See Model 6287)
Ch. 528.6293-2 (See Model 6293)
Ch. 528.6295 (See Model 6295)
Ch. 528.31300, 528.31301 (See Model 5100)
528.31400, 528.31401 (See Model 5110)
Ch. 528.31700, 528.31701 (See Model 5106)
Ch. 528.31800, 528.31801 (See Model 5114)
Ch. 528.31900, 528.31901 (See Model 5118)
Ch. 528.32000, 528.32001 (See Model 4142H)
Ch. 528.32800 (See Model 5126A)
Ch. 528.32900 (See Model 5114B)
Ch. 528.33000 (See Model 5100A)
Ch. 528.33100 (See Model 5106A)
Ch. 528.34000 (See Model 5114B)
Ch. 528.34100 (See Model 5110C)
Ch. 528.34500, 528.34501, 528.-34502, 528.34503 (See Model 5114C)
Ch. 528.34700 (See Model 4103)
Ch. 528.34800 (See Model 4109)
Ch. 547.245 (See Model 9270)
Ch. 548.358 (See Model 9161)
Ch. 548.358-1 (See Model 245)
Ch. 548.360-1 (See Model 239)
Ch. 548.361 (See Model 239)
Ch. 548.363 (See Model 33)
Ch. 548.401-1 (See Model 4242)
Ch. 549.100 (See Model 101)
Ch. 549.100-1 (See Model 101A)
Ch. 549.100-3 (See Model 102A)
Ch. 549.100-4 (See Model 160-12)
Ch. 549.100-5, -6, -7, -8, -9 (See Model 175-16)
Ch. 549.102, -2 (See Model 169-16)
Ch. 725.101-1 (See Model 6950)
Ch. 757.100 (See Model 2007)
Ch. 757.100-1 (See Model 2018)
Ch. 757.110 (See Model 2003)
Ch. 757.120 (See Model 3007)
Ch. 757.130 (See Model 3004)
Ch. 757.140 (See Model 4200)
Ch. 757.150 (See Model 4016)
Ch. 757.300 (See Model 4032)
Ch. 757.421 (See Model 4212)

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

SIMPLON
CA-5 22–27
WVV2 17–30

SKY KNIGHT (See Air Knight)

SKYRIDER (See Hallicrafters)

SKYROVER
N5-RD-250 (9022-N), N5-RD-251 (9022-H) 6–31
N5-RD295 (Ch. 5A7) 21–30

SKY WEIGHT
81B 20–30
82 13–13

SONOGRAPH
BL100 122–10
BW100 (See Model BL100—Set 122-10)

SONORA
RBU-176 5–31
RB-207 (See Model RBU-176—Set 5-31)
RCU-208 5–30
RDU-209 3–29
RET-210 24–24
RGMF-212, RGMF-230 27–26
RKRU-215 (Ch. RKRU) 9–31
RMR-219 19–28
RMR-220, RMR-245 (See Model RMR-219—Set 19-28)
RQU-222 8–23
RWFU-238 23–24
RX-223 19–29
WAU-243 27–27
WBRU-239 32–23
WCU-246 36–22
WDU-233 25–27
WDU-249 37–20
WEU-262 33–28
WGFU-241, WGFU-242 24–25
WJU-252 36–23
WKRU-254A 34–20
WLRU-219A 37–21
WLRU-220A (See Model WLRU-219A—Set 37-21)
WLRU-245A (See Model WLRU-219A—Set 37-21)
YB-299 .... 112—9
100 41–21
101 48–24
102 53–23
171 109–13
172 (See Model 171—Set 109-13)
●302, 303 .... 97A–13
●305 174–11
306 108–11
314, 315 253–13
●323, 324, 325 174–11
327A, 328A 249–16
●332 174–11
335, 336 250–19
341 251–16
348A 249–16
349 251–16
●350, 351 173–13
●352 182–12
356 251–16
366A 249–16
379 253–13
389, 390 .... 245—7
401 47–21
402A (See Model RMR-219)—Set 19-28)
402F (See Model WLRU-219A—Set 37-21)
●413, 414, 415, 416 (For TV Ch. Only See Model 421—Set 221-10)
●421, 422, 423, 424, 425, 426, 428, 429 221–10
441, 442 253–13
458, 459 253–14
464, 465, 466 249–17
467 254–10
470A 249–16
477, 478 253–13

SOUND, INC.
"Intersound" 7–27
MB6P3, MB6P6, MB6P30, MB6R4 35–21
MB7E3 28–31
MB7E8 26–24
5R2 28–32

SPARKS-WITHINGTON (See Sparton)

SPARTON (Also see Record Changer Listing)
4AW17 (Ch. 417) 50–18
4AW17-A (Ch. 417A) 49–22
5A116 (Ch. 5-16) 30–29
5AH06, 5A106 (See Model 5AW06—Set 4-17)
5AM26-PS (Ch. 5-26-PS) 5–17
5AW06 (Ch. 5-06) 4–17
5AW16 (Ch. 5-16) 30–29
6AM06 (Ch. 6-06) 34–21
6AM26 (See Model 6AW26PA—Set 15-33)
6AW26PA (Ch. PC5-6-26) 15–33
6-66A (Ch. 666A) 51–21
7AM46 (Ch. 7-46) 1–31
7AM46PA, 7BM46PA, 7BW46PA (See Model 7AM46—Set 1-31)
8AM46 (Ch. 8-46) 1–31
10AB76-PA, 10AM76-PA, 10BM76-PA (See Model 10BW76-PA—Set 15-34)
10BW76-PA (Ch. 10-76PA) 15–34
●11T210 (Ch. 23U214) 255–14
●12A204 (Ch. 23U214) 255–14
●12A210 (Ch. 23U214) 255–14
●14A204 (Ch. 23U214) 255–14
100, 101 (Ch. 5A7) 38–23
102, 103, 104 (See Model 100—Set 38-23)
121 (Ch. 8L9) 57–19
122 (See Model 121—Set 57-19)
130, 132, 135, 139 (Ch. 5A10) 94–10
141 (See Model 121—Set 57-19)
141A (Ch 8L10) .... 92—6
141XX, 142XX (Ch. 8W10) 126–12

SPARTON—Cont.
142 (See Model 121—Set 57-19)
150, 151, 152, 155 (Ch. 4E10) 91–12
230 (Ch. 5A10, A) 210–10
232 (Ch. 5A10, A) 210–10
329 (Ch. 5A10, A) 210–10
301, 305, 309 (Ch. 4E3) 222–13
320C, 321C (Ch. 5B3C) 237–10
325C (Ch. 5B3C) 237–10
329C (Ch. 5B3C) 237–10
342, 345, 347 (Ch. 5C3) .... 220—9
350, 351 (Ch. 6L3) 197–12
1000, 1001, 1003 (Ch. 12L7) 60–18
1005, 1006, 1007, 1008 (Ch. 8-57) 29–25
1010 (Ch. 7J7) 35–22
1015 (See Model 10BW76PA—Set 15-34)
1020, 1021, 1023 60–18
1030, 1030A (Ch. 6L8) 37–22
1031, A (See Model 1030—Set 37-22)
1035, 1035A, 1036, 1036A, 1037, 1037A, 1039, 1040, 1041 (Ch. 9L8) 62–19
1040XX, 1041XX (Ch. 8W10) 126–12
1051, 1052 (Ch. 6B9) 58–21
1058, 1059, 1060, 1061, 1064 (Ch. 8L9) 57–19
1071 (See Model 121—Set 57-19)
1072 (Ch. 8L9) 57–19
1080 (Ch. 9L8A) (See Model 4900-TV—Set 64-11)
1080A (Ch. 8L10) (See Model 141A—Set 92-6)
1081 (Ch. 9L8A) (See Model 4900-TV—Set 64-11)
1081A (Ch. 8L10) (See Model 141A—Set 92-6)
1085, 1086 (Ch. 8W10) 126–12
1090, 1091 (Ch. 8W10) 126–12
1210, 1211 (Ch. 8W10) (See Model 141XX—Set 126-12)
1300, 1301 (Ch. 6L3) 197–12
●4900TV (Ch. 24TV9C, 3TV9C, 9L8A) 64–11
●4916, 4917, 4918 (Ch. 24TL10, 3TL10, 6S10) .... 164—9
●4920, 4921, 4922 (Ch. 24TM10) .... 164—9
●4935 (Ch. 23TC10) 133-1A
●4939TV, 4940TV, 4941TV (Ch. 24TV9, 3TV9) 64–11
●4942 (Ch. 23TC10) 133-1A
●4944, 4945 (Ch. 3TB10, 24TB10) 86–10
●4951, 4952 (See Model 4900TV—Set 64-11)
●4954 (Ch. 23TC10) 133-1A
4960 (Ch. 23TC10) 133-1A
4964, 4965 (Ch. 23TB10) 157–11
4970, 4971, 4972 (Ch. 8S10) .... 92—6
●5002, 5003 (Ch. 23TD10) 102–13
●5006, 5007 (Ch. 23TD10) 102–13
●5006X (Ch. 25TK10A) 121–13
●5007X (Ch. 25TK10A) 121–13
●5010, 5011 (Ch. 19TS10, A) 104–11
●5014, 5015 (Ch. 19TS10, A) 104–11
●5025 (Ch. 26SS160) 128–13
●5025BA See PCB 22—Set 138-1 and Model 5025—Set 128-13)
●5026 128–13
●5029, 5030 (Ch. 26SD160) 128–13
●5035, 5036, 5037 (Ch. 26SS160L) 128–13
●5052 (Ch. 24TR10, 3TR10) 97A–13
●5056, 5057 (Ch. 19TS10, A) 104–11
●5064, 5065 (Ch. 23TB10) 157–11
●5068, 5069 (Ch. 24TV9C) (See Model 4900TV—Set 64-11)
●5071, 5072 (Ch. 19TS10, A) 104–11
●5075BA (See PCB 22—Set 138-1 and Model 5025—Set 128-13)
●5076 (Ch. 26SS160, B) 128–13
●5076BA (See PCB 22—Set 138-1 and Model 5076—Set 128-13)
●5076BB 128–13
●5077 128–13
●5077BA (See PCB 22—Set 138-1 and Model 5077—Set 128-13)
●5078B 128–13
●5079 128–13
●5079B (See PCB 22—Set 138-1 and Model 5079—Set 128-13)
●5080 128–13
●5080C (See PCB 22—Set 138-1 and Model 5080—Set 128-13)
●5082, 5083 (Ch. 26SD160, 26SD-170) (For TV Ch. see Set 128-13, for Radio Ch. see Model 141XX—Set 126-12)
●5082, 5083 (Ch. 26SD170X, XP) (For TV Ch. see PCB 22—Set 138-1 and Model 5082—Set 128-13, for Radio Ch. see Model 141-XX—Set 126-12)
●5085, 5086 (Ch. 2RD190, 25RD190) 139–14
●5088, 5089, 5090 (Ch. 26SD160, 26SD170 and Radio Ch. 8W10) (For TV Ch. see Set 128-13, for Radio Ch. see Model 141XX—Set 126-12)
●5101, 5102, 5103 (Ch. 26SS170, P) (See PCB 22—Set 138-1 and Model 5025—Set 128-13)
●5104, 5105 (Ch. 26SS170D, P) (See PCB 22—Set 138-1 and Model 5025—Set 128-13)
●5152, 5153, 5154 (Ch. 26SS170, P) (See PCB 22 — Set 138-1 and Model 5025—Set 128-13)
●5155, 5156, 5157 (Ch. 26SD170X, XP) (See PCB 22—Set 138-1 and Model 5025—Set 128-13)
●5158 (Ch. 26SD170, P) (See PCB 22—Set 138-1 and Model 5025—Set 128-13
●5165X, 5166X (Ch. 26SD171) 166–13
●5170, 5171 (Ch. 25SD201, 2SD-201) 147–11
●5175X (Ch. 26SD171) 166–13
●5178X (Ch. 26SD171) 166–13

SPARTON—Cont.
●5182, 5183, 5188, 5189 (Ch. 26SD-170, P and Radio Ch. 8W10) (For TV Ch. see PCB 22—Set 138-1 and Model 5025—Set 128-13, for Radio Ch. see Model 141XX—Set 126-12)
●5191, 5192 (Ch. 25SD201, 2SD201) (See Model 5170—Set 147-11)
●5207, 5208 (Ch. 26SS172, A) 167–14
●5210 (Ch. 26SS172B) 167–14
●5212 (Ch. 21S172) 174–12
●5220 (Ch. 26SD172C) 167–14
●5225, 5226 (Ch. 26SD172C) 167–14
●5240, 5241 (Ch. 21S212) 201–10
●5250, 5252, 5253 (Ch. 21S172) 174–12
●5262, 5263 (Ch. 26SS172, A) 167–14
●5265 (Ch. 26SD172, A) 167–14
●5267, 5268 (Ch. 26SD172, A) 167–14
●5270 (Ch. 26SD172C) 167–14
●5271 (Ch. 26SD172C) (See Model 5207—Set 167-14)
●5272, 5273 (Ch. 26SD172C) 167–14
●5280, 5281 (Ch. 21S212) 201–10
●5288, 5289 (Ch. 25CD202) 178–11
●5290 (Ch. 25SD202) .... *
●5291, 5292, 5293, 5294, 5295 (Ch. 25CD202) 178–11
●5296A, 5297A (Ch. 26CD202) 178–11
●5296, 5297 (Ch. 25SD202) .... *
●5298 (Ch. 25CD202) 178–11
●5299 (Ch. 25CD202) (See Model 5298—Set 178-11)
●5301 (Ch. 21S173-D) 201–10
●5325 (Ch. 25D173A) 222–14
●5325A (Ch. 27D173) 222–14
●5326 (Ch. 25D173A) 222–14
●5326A (Ch. 27D173) 222–14
●5340, 5341 (Ch. 21S213) 201–10
●5342 (Ch. 25D213) (See PCB 104—Set 250-1 and Model 5342A—Set 210-11)
●5342A (Ch. 27D213) 210–11
●5343 (Ch. 25D213) (See PCB 104—Set 250-1 and Model 5342A—Set 210-11)
●5343A (Ch. 27D213) 210–11
●5362 (Ch. 25D173A) 222–14
●5362A (Ch. 27D173) 222–14
●5363 (Ch. 25D173A) 222–14
●5363A (Ch. 27D173) 222–14
●5380, 5381 (Ch. 21S213) 201–10
●5382 (Ch. 25D213) (See PCB 104—Set 250-1 and Model 5342A—Set 210-11)
●5382A (Ch. 27D213) 210–11
●5382B (Ch. 27D213-A) 210–11
●5383 (Ch. 25D213) (See PCB 104—Set 250-1 and Model 5342A—Set 210-11)
●5383A (Ch. 27D213) 210–11
●5383B (Ch. 27D213A) (See Model 5382B—Set 210-11)
●5384 (Ch. 25D213) (See PCB 104—Set 250-1 and Model 5342A—Set 210-11)
●5384A (Ch. 27D213) 210–11
●5385 (Ch. 25D213) (See PCB 104—Set 250-1 and Model 5342A—Set 210-11)
●5386 (Ch. 25D213) (See PCB 104—Set 250-1 and Model 5342A—Set 210-11)
●5386A (Ch. 27D213) 210–11
●5386B (Ch. 27D213A) (See Model 5382B—Set 210-11)
●5387B (Ch. 27D213A) (See Model 5382B—Set 210-11)
●5390 (Ch. 25D213) (See PCB 104—Set 250-1 and Model 5342A—Set 210-11)
●5391 (Ch. 25D213) (See PCB 104—Set 250-1 and Model 5342A—Set 210-11)
●10352 (Ch. 27D213 and Radio Ch. 8W10) (For TV Ch. see Set 210-11, for Radio Ch. see Model 141-XX—Set 126-12)
●10352A (Ch. 27D213A and Radio Ch. 8W10) (For TV Ch. see Model 5382B—Set 210-11, for Radio Ch. see Model 141XX—Set 126-12)
●10353 (Ch. 27D213 and Radio Ch. 8W10) (For TV Ch. see Set 210-11, for Radio Ch. see Model 141XX—Set 126-12)
●10353A (Ch. 27D213A and Radio Ch. 8W10) (For TV Ch. see Model 5382B—Set 210-11, for Radio Ch. see Model 141XX—Set 126-12)
●11322, 11324 (Ch. 21S213A) (See Model 5240—Set 201 10)
●14342 (Ch. 27D213A and Radio Ch. 8W10) (For TV Ch. see Model 5382B—Set 210-11, for Radio Ch. see Model 141XX—Set 126-12)
●15312, 15314 (Ch. 21S213A) (See Model 5240—Set 201-10)
●22312, 22313 (Ch. 29U213) 232—8
●23322, 23323 (Ch. 29U213) 232—8
●24542 (Ch. 29U273) 224–13
●25544 (Ch. 29U273) 224–13
●26542 (Ch. 27D273) 224–13
●26544 (Ch. 27D273) 224–13
Ch. PC-5-6-26 (See Model 6AW26-PA)
Ch. 2RD190 (See Model 5085)
Ch. 2SD201 (See Model 5170)
Ch. 3TB10 (See Model 4944)
Ch. 3TL10 (See Model 4916)
3AR1 217–17
Ch. 3TR10 (See Model 5052)
Ch. 3TV9, 3TV9C (See Model 4900-TV)
Ch. 4E3 (See Model 301)
Ch. 4E10 (See Model 150)
Ch. 5A7 (See Model 100)
Ch. 5-06 (See Model 3AW06)
Ch. 5A10 (See Model 130)
Ch. 5A10, A (See Model 230)

SPARTON—Cont.
Ch. 5B3C (See Model 320C)
Ch. 5C3 (See Model 342)
Ch. 5-16 (See Model 5A116)
Ch. 5-26PS (See Model 5AM26PS)
Ch. 6B9 (See Model 1051)
Ch. 6L3 (See Model 350)
Ch. 6L8 (See Model 1030)
Ch. 6-06 (See Model 6AM06)
Ch. 7L7 (See Model 1010)
Ch. 7-46 (See Model 7AM46)
Ch. 8L9 (See Model 121)
Ch. 8L10 (See Model 141A)
Ch. 8S10 (See Model 4970)
Ch. 8W10 (See Model 141XX)
Ch. 8-46 (See Model 8AM46)
Ch. 8-57 (See Model 1005)
Ch. 9L8 (See Model 1035)
Ch. 9L8A (See Model 4900TV)
Ch. 10-77PA (See Model 10BW76PA)
Ch. 12L7 (See Model 1000)
Ch. 19TS10, 19TS10A (See Model 5010)
Ch. 21S172 (See Model 5212)
Ch. 21S173-D (See Model 5301)
Ch. 21S212 (See Model 5240)
Ch. 21S213 (See Model 5340)
Ch. 21S213A (See Model 11322)
Ch. 23TB10 (See Model 4964)
Ch. 23TC10 (See Model 4935)
Ch. 23TD10 (See Model 5002)
Ch. 23U214 (See Model 11T210)
Ch. 23TD10 (See Model 5002)
Ch. 24TB10 (See Model 4944)
Ch. 24TL10 (See Model 4916)
Ch. 24TM10 (See Model 4920)
Ch. 24TR10 (See Model 5052)
Ch. 24TV9 (See Model 4939TV)
Ch. 24TV9C (See Model 4900TV)
Ch. 25CD202 (See Model 5288)
Ch. 25D173A (See Model 5325)
Ch. 25D213 (See Model 5342)
Ch. 25RD190 (See Model 5085)
Ch. 25SD201 (See Model 5170)
Ch. 25SD202 (See Model 5290)
Ch. 25TK10A (See Model 5006X)
Ch. 26SD160 (See Model 5025)
Ch. 26SD170 (See Model 5082)
Ch. 26SD170P (See Model 5182)
Ch. 26SD170X, XP (See Model 5082)
Ch. 26SD171 (See Model 5165X)
Ch. 26SD172, A (See Model 5267)
Ch. 26SD172C (See Model 5220)
Ch. 26SS160, B (See Model 5076)
Ch. 26SS160L (See Model 5035)
Ch. 26SS170 (See Model 5101)
Ch. 26SS170D, P (See Model 5140)
Ch. 26SS172, A, B (See Model 5207)
Ch. 27D173 (See Model 5325A)
Ch. 27D213 (See Model 5342A)
Ch. 27D213-A (See Model 5382B)
Ch. 27D273 (See Model 26542)
Ch. 29U213 (See Model 22312)
Ch. 29U273 (See Model 24542)
Ch. 417 (See Model 4AW17)
Ch. 417A (See Model 5AW17A)
Ch. 666A (See Model 6-66A)

SPIEGEL (See Aircastle)

STARK
410 40–22
1010 .... 88—2
1020 .... 89—5

STARRETT
●Gotham 101–12
●Henry Hudson, Henry Parks .... 92—7
●John Hancock 96–10
●Nathan Hale 87–12
●Robert E. Lee .... 92—7
●A17CG-1 (Ch. 17S1) (See Ch. 17S1—Set 165-2A)
●A17TG-1 (Ch. 17S1) (See Ch. 17S1—Set 165-2A)
●A20C-2 (Ch. 18S1) (See Ch. 18S1—Set 165-2A)
●A20CD-1 (Ch. 18S1) (See Ch. 18S1—Set 165-2A)
●A20TG (Ch. 18S1) (See Ch. 18S1—Set 165-2A)
●17BM1 (Ch. 12S1) 149–13
●20BM1 (Ch. 15S1) 149–13
●27BM1 (Ch. 12S1) 149–13
●29AM1 (Ch. 14S1) 149–13
●30BM1 (Ch. 15S1) 149–13
●37BB1 (Ch. 12S1) 149–13
●39AM1 (Ch. 14S1) 149–13
Ch. 12S1 (See Model 17BM1)
Ch. 14S1 (See Model 29AM1)
Ch. 15S1 (See Model 20BM1)
Ch. 17S1 .... 165-2A
Ch. 18S1 .... 165-2A

STEELMAN
AF1100 .... 180—9
BE-20, BE-21, BE-22 247–11
1S2 257–15
3A2 250–20
3A4 253–15
3A5 244–11
3AR1 217–17
3AR3 243–10
3D2 211–14
3D3T (See Model 3D5—Set 245-8)
3D5, 3D6 .... 245—8
3E1 251–17
3RP1 210–12
3RP3 238–13
3S2 247–11
102 184–14
107 178–12
151M 223–11
200 23–25
215 165–13
303 19–31
327 182–13
330 186–12
350, 351 21–31
351 (Late) 227–14
357 178–13
450, 451 178–14
487 182–14
517 179–12
595 164–10
597 183–16
601 177–12
602 185–13

STEELMAN—Cont.
4000 176–12
5000 186–13
5101 162–12
6000 163–11

STEWART-WARNER
A51T1 (Code 9020-A), A-51T2 (Code 9020-B), A51T3 (Code 9020-C), A51T4 (Code 9020-D) 17–32
A61CR1 (Code 9034-C), A61CR2 (Code 9034-D), A61CR3 (Code 9034-E), A61CR4 (Code 9034-F) 39–25
A61P1 (Code 9036-A), A61P2 (Code 9036-B), A61P3 (Code 9036-C) 42–23
A72T1 (Code 9026-A), A72T2 (Code 9026-B), A72T3 (Code 9026-C), A72T4 (Code 9026D) 32–24
A92CR3, A92CR3S (Code 9028-C), A92CR6, A92CR6S (Code 9028-F) 29–26
○AVC1 (Code 9054B), AVC2 (Code 9054C), AVT1 (Code 9054A) 64–12
B51T1, B51T2, B51T3 (Code 9044A, B, C) 58–22
B61T1, B61T2 (Code 9046A, B) 59–19
B72CR1 (Code 9038A) 47–22
B92CR1, B92CR2, B92CR3, B92CR4, B92CR8, B92CR9, B92CR10 (Codes 9043A, B, C, D, K, L, M) 65–14
C51T1 (Code 9054-A), C51T2 (Code 9054-B) 41–22
●T-711 (Code 9031-A) 95A–12
●T-711M (Code 9031-AM) 95A–12
●T-712 (Code 9031-B) 95A–12
●TRC-721 (Code 9037-A) 95A–12
●17T-9380A .... 245—9
●21C-9210C (Series "A, B, C, D, E") .... 192—8
●21C-9211D, E, F, G (Series A, B, C) .... 200—9
●21C-9300E, F, G, K, KB, L, LB, M, MB, P (Series A thru T) 223–12
●21C-9325F, G 258–12
●21C-9340E, K, KB, L, LB, M, MB, P 258–12
●21C-9600K, KB, L, LB, M, MB, P 277–11
●21T-9210A (Series "A, B, C, D, E") .... 192—8
●21T-9211B (Series A, B) .... 200—9
●21T-9211C (Series A, B, C) .... 200—9
●21T-9300A, AA, B, D, H, HA, R, RB, S, T (Series A thru T) 223–12
●21T-9340A, B, D, R, RB, S, T 258–12
●21T-9600A, B, D 277–11
●24C-9360A, AB (Series A, AB) 254–11
●24C-9370A, AB (Series A, AB) 254–11
●27C-9212A (Series A, B, C) 211–15
●27C-9310A, AB (Series A, AB) 254–11
●27C-9350A, AB (Series A, AB) 254–11
51T46 (Code 9024B), 51T56 (Code 9024-C) 39–24
51T126 (Code 9018-C), 51T136 (Code 9018-F), 51T146 (Code 9018-H), 51T176 (Code 9018-B) 15–35
61T16 (Code 9022-A), 61T26 (Code 9022-B) .... 1—6
62T16 (Code 9023-C), 62T16 (Code 9023-D), 62T26 (Code 9023-E) 62TC36 (Code 9023-F) 2–21
72CR16, 72CR26 18–28
9000-B 11–22
9001-C, D, E, F 8–29
9002-A, 9002-B, 9002-P, 9002-R 38–24
9005-A, B 13–31
9007-A, F, G 10–30
●9100A, 9100B, 9100C, 9100D, 9100E, 9100F, 9100G, 9100H 75–15
●9103-B, -C, 9104-A, -B, -C 105–10
●9106A, B 118–10
●9108A, B, 9109A, B 118–10
●9113A 118–10
●9120-A, -B, -C, -D, -E, -F 137–11
●9121-A, 9121-B, 9122-A .... 138—9
●9126-A, -B (See PCB 51—Set 185-1 and Model 9120-A—Set 137-11)
●9127-A 162–13
●9132-A 190–13
9150-B, 9150-D, 9150-DZ 104–12
9151-A 106–14
9152-A, -B, -C 102–14
9153-A 108–12
9154-C, 9154-CZ 142–13
9160 AU, BU, CU, DU, EU 171–10
9161A, B, C 170–12
9162A, B 168–13
9164-A, -B (See Model 9162A—Set 168-13)
9165A, -B 193–11
9170-B, -C, -D 230–11
9175-B, BU, G, GU, H, HU 249–18
9180B, H 243–11
9181A, C, D, E, F 245–10
9182-C, -H, -J 255–15
9186A, B 266–16
9187-B, -E, -J 257–16
●9200-A, -C, -D, -FA, -G 132–13
●9200-A, -B (Thru Series "B") (See Model 9202-C (Series "B")—Set 158-12)
●9202-A, -B (Thru Series "H") .... 172—9
●9202-A, -B (Series "M") (See PCB 60—Set 194-1 and Model 9202-A (Series "H")—Set 172-9)
●9202-C, -DA, -DB, -DD, -E, -F (Thru Series "B") 158–12
●9202-C, -DA, -DB, -DD, -DDA, -E, -F (Thru Series "H") .... 172—9
●9202-C, -DA, -DB, -DD, -DDA, -E, -F (Series "M") (See PCB 60—Set 194-1 and Model 9202-A (Series "H")—Set 172-9)
●9202-FA (Thru Series "B") (See Model 9202-C (Series "B")—Set 158-12)

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

STEWART-WARNER—Cont.

●9202-FA (Thru Series "H") 172—9
●9202-FA (Series "M") [See PCB 60 Set 194-1 and Model 9202-A (Series "H")—Set 172-9]
●9203-A 166—14
●9204-A 164—11
●9209-A, AW, B, C, D (Series A, B, C, D, E) 181—14
●9210-C (Series "A, B, C, D, E") 192—8

ST. GEORGE (See Recorder Listing)

STRATFORD

●916, 917, 920, 921, 1016, 1017, 1020, 1021 (Ch.6353,C) 219—11

STRATOVOX

579-58A 6—32

STROMBERG-CARLSON

AM-43 129-11
AM-48, AM-49 131—14
AP-50 130—13
AP-60 273—14
AR-37 128—14
AR-37A 173—15
AR-410 194—12
AR-425 199—12
AU-29 125—11
AU-32 133—12
AU-33 134—10
AU-34 128—15
AU-35 138—10
AU-36 132—14
AU-42 137—12
AU-58 274—12
AV-38, AV-39 126—13
BP-1 259—14
C-1 153—14
C-3 271—14
EP-2 270—16
Hi Fi Et 263—14
●K-1 265—13
SR-401 191—18
SR-405 (Series 103) 237—11
T-4 268—14
●TC-10 (Also see PCB 1—Set 103-19) 79—17
●TC-19 97—17
●TC-125 95A—13
●TS-15, TS-16, TS-125 Series 72—12
●TV-12 (See Model TV-125 — Set 68-16)
●TV-12 PGM (For TV Ch. only see Model TV-125—Set 68-16)
●TV-12M5M (For TV Ch. only see Model TV-125—Set 68-16)
●TV-12LM (See Model TV-125—Set 68-16)
●TV-125 (Ch. 12) 68—16
●16 Series 135—12
●17 Series 135—12
●21TM, TQ 258—13
●22TM, TQ 258—13
●24 Series 138—11
32 11—23
●116 Series 135—12
●117 Series (See Model 119CDM—Set 130-14)
●119C (See PCB 43—Set 177-1 and Model 119CDM—Set 130-14)
●119CDM, 119CM 130—14
●119M5A, D, G, I, M, R 130—14
●119RPM2 130—14
●317RPM, 317TM 146—10
●321CD2M, 321CD20, 321CF, 321-C2M 165—14
●324CDM, 324C5M (Series 324) 172—10
●417C5-M, 417C5-O, 417C5-Dec., 417TX (Series 417) 178—15
●421 Series (Revised) 198—14
●421CDM, CM, TX (Also see PCB 47—Set 181-1) 170—13
●521CDM, CM, CO, C5D 224—14
●521C5G, 521C5I, 521C5M, 521C5O, 521C5R (See Model 521CDM—Set 224-14)
●521TM, TO 224—14
●621ACDM, ACDO, ACM, ACO, AC5E, AC5I, AC5M, AC5O, AC5R, ATM, ATO 236—13
●621CDM, CDO, CM, CO, C5E, C5I, C5M, C5O, C5R, TM, TO 235—12
●622CDM, CDO, CM, CO, C5E, C5I, C5M, C5O, C5R, TM, TO 236—13
●624CDM, CDO, CM, RPM, RPO 240—9
●625CDM, CDO, CM, RPM, RPO 240—9
1020 (See Model 1220 Series—Set 50-19)
1100-H, 1100-HI 20—31
1101-HB, 1101-HI (Ch. 112002), 1101-HM, 1101-HW, 1101-HY Ch. 112001) 2—9
1101-HM, -HW, -HY (Ch. 112001) 2—9
1101-HPW 41—23
1105 (Series 10-11) 18—29
1110-HW, 1110-PTW (Series 10) 18—30
1120 (See Model 1220 Series—Set 50-19)
1121-HW, LW, M1-0, M2-W, M2-Y, PFM, PFW, PGM, PGW, PLM, PLW, PSM (Series 10-11-12) 10—31
1135-PFM, 1135-PLM, 1135-PLW (Series 10-11) 23—26
1200 57—20
1202 (Series 10) 55—21
1204 (Ch. 112021) 34—22
1210M2-M, 1210M2-W, 1210M2-Y, 1210PGM, 1210PLM, 1210PGW (Series 10-11) 37—23
1220 Series 50—19
1235 Series 49—23
1400 57—20
1407PFM, 1407 PLM 58—23
1409M2-M, 1409M2-Y, 1409M2-W, 1409M3-A, 1409M3-M, 1409PG-M, 1409PG-W 62—10
1500 132—15
1507 133—13
1608 150—12

STUDEBAKER

AC2111 (S5127) 166—15
AC2113 (S5123) 172—11
AC-2300 (S-5327) 229—14
AC-2301 (S-5323) 213—8
AC-2686 (S-5528) (See Model AC-2300—Set 229-14)
AC-2687 (S-5524) (See Model AC-2301—Set 213-8)
AC-2721 (S-5529) (See Model AC-2300—Set 229-14)
S-4624, S-4625 21—32
S-4626, S-4627 19—32

SUPREME (Lipan)

711 68—17
712S 63—17
733 60—19
738LP 64—13
750 55—22

SUTCO (Sutton)

21-A Tel. UHF Conv. 201—11
37A UHF Conv. 250—21

SWANK

5 Tube Radio-phono (DU101) 5—21
ER61 17—33

SYLVANIA

C33M Tel. UHF Conv. 199—13
SH758 (See Hudson Model 236486—Set 214-4)
SH759 (See Hudson Model 236476—Set 215-8)
●1-075 (Ch. 1-139) (Also see PCB 48—Set 182-1) 92—8
●1-076 (Ch. 1-108) (Also see PCB 2—Set 103-20 and PCB 49—Set 183-1) 96—11
●1-090 (Ch. 1-168) (Also see PCB 49—Set 183-1) 99—17
●1-113, 1-114 (Also see PCB 48—Set 182-1) 92—8
●1-124, 1-125 (Also see PCB 48—Set 182-1) 92—8
●1-125-1 (Ch. 1-186) (Also see PCB 49—Set 183-1) 113—9
●1-128 (Ch. 1-108) (Also see PCB 2—Set 103-20 and PCB 49—Set 183-1) 96—11
●1-177 (Ch. 1-186) (Also see PCB 48—Set 182-1) 92—8
●1-197 (Ch. 1-139) (See PCB 48—Set 182-1 and Model 1-075—Set 92-8)
●1-197-1 (Ch. 1-186) (Also see PCB 49—Set 183-1) 113—9
●1-210 (Ch. 1-139) (See PCB 48—Set 182-1 and Model 1-075—Set 92-8)
●1-245, 1-246 (Ch. 1-139) (See PCB 48—Set 182-1 and Model 1-075—Set 92-8)
●1-245-1, 1-246-1 (Ch. 1-186) (Also see PCB 49—Set 183-1) 113—9
●1-247 (Ch. 1-168) (Also see PCB 49—Set 183-1) 99—17
1-250, 1-251, 1-252 (Ch. 1-215) 103—16
●22B-11 (Ch. 1-507-1) 174—13
●22M (Ch. 1-387) (See Model 2221M—Set 137-13)
●22M-1, -2 (Ch. 1-387-1) (Also see PCB 41—Set 174-1) 154—12
●22M-11 (Ch. 1-507-1) 174—13
●23B, B-1, M, M-1 (Ch. 1-387-1) (Also see PCB 41—Set 174-1) 154—12
●23B-11 (Ch. 1-507-1) 174—13
●23M-11 (Ch. 1-507-1) 174—13
●24M (Ch. 1-462-1) 154—12
●24M-1 (Ch. 1-387-1) (Also see PCB 41—Set 174-1) 154—12
●24M-3 (Ch. 1-387-1) (See PCB 41—Set 174-1 and Model 24M-1—Set 154-12)
●25M, 25M-1 (Ch. 1-387-1 and Radio Ch. 1-603-1) (For TV Ch. see PCB 41—Set 174-1 and Model 22M-1—Set 154-12, for Radio Ch. see Model 178B—Set 192-9)
●71M (Ch. 1-441) (See Model 7110XB)
●71M-1 (Ch. 1-502-1) (Also see PCB 42—Set 176-1) 163—12
●72B (Ch. 1-366) (See PCB 55—Set 189-1 and Model 7110X—Set 124-10)
●72B-1 (Ch. 1-502-1) (Also see PCB 42—Set 176-1) 163—12
●72B-11 (Ch. 1-502-3) (See PCB 42—Set 176-1 and Model 71M-1—Set 163-12)
●72M (Ch. 1-366) (See PCB 55—Set 189-1 and Model 7110X—Set 124-10)
●72M-1 (Ch. 1-502-1) (Also see PCB 42—Set 176-1) 163—12
●72M-2 (Ch. 1-437-3) (See Model 73B-5)
●72M-11 (Ch. 1-502-3) (See PCB 42—Set 176-1 and Model 71M-1—Set 163-12)
●73B (Ch. 1-366) (See PCB 55—Set 189-1 and Model 7110X—Set 124-10)
●73B-5 (Ch. 1-437-3) (See PCB 41—Set 174-1 and Model 7140MA—Set 131-15)
●73B-11 (Ch. 1-502-3) (See PCB 42—Set 176-1 and Model 71M-1—Set 163-12)
●73M (Ch. 1-366) (See PCB 55—Set 189-1 and Model 7110X—Set 124-10)
●73M-1, 73M-2 (Ch. 1-502-2) (Also see PCB 42—Set 176-1) 163—12
●73M-3, -5, -6 (Ch. 1-437-3) (See PCB 41—Set 174-1 and Model 7140MA—Set 131-15)
●73M-11 (Ch. 1-502-3) (See PCB 42—Set 176-1 and Model 71M-1—Set 163-12)
●74B (Ch. 1-356) (See PCB 55—Set 189-1 and Model 6140M—Set 120-10)
●74B-1 (Ch. 1-437-1) (See PCB 41—Set 174-1 and Model 7140MA—Set 131-15)

SYLVANIA—Cont.

●74B-2 (Ch. 1-437-2) (See PCB 41—Set 174-1 and Model 7140MA—Set 131-15)
●74M (Ch. 1-356) (See PCB 55—Set 189-1 and Model 6140 M—Set 120-10)
●74M-1 (Ch. 1-437-1) (See PCB 41—Set 174-1 and Model 7140MA—Set 131-15)
●74M-2 (Ch. 1-437-2) (See PCB 41—Set 174-1 and Model 7140 MA—Set 131-15)
●74M-3 (Ch. 1-437-2) (See Model 74M-2)
●75B, M, M-1 (Ch. 1-437-1 and Radio Ch. 1-603-1) (For TV Ch. see Model 5150M—Set 131, for Radio Ch. see Model 178B—Set 192-9)
●105B (Ch. 1-504-1) 212—8
●105BU (Ch. 1-504-2, -4) 212—8
●105M (Ch. 1-504-1) 212—8
●105MU (Ch. 1-504-2, -4) 212—8
●105-14 Series (Ch. 1-514-1, -3) (Also See PCB 100—Set 245-1) 234—13
●105-14 "U" Series (Ch. 1-514-4) (Also See PCB 100—Set 245-1) 234—13
●120B (Ch. 1-510-1) 212—8
●120BU (Ch. 1-510-2, -4) 212—8
●120M (Ch. 1-510-1) 212—8
●120MU (Ch. 1-510-2, -4) 212—8
●120-20 Series (Ch. 1-520-1, -3) (Also See PCB 100—Set 245-1) 234—13
●120-20 "U" Series (Ch. 1-520-4) (Also See PCB 100—Set 245-1) 234—13
●126B (Ch. 1-510-1) 212—8
●126BU (Ch. 1-510-2, -4) 212—8
●126L (Ch. 1-510-1) 212—8
●126LU (Ch. 1-510-2, -4) 212—8
●126M (Ch. 1-510-1) 212—8
●126MU (Ch. 1-510-2, -4) 212—8
●150A, L (Ch. 1-437-3) (Codes CO6 and up) 187—11
●155A, L, M (Ch. 1-437-3) (Codes CO6 and up) 187—11
●172K (Ch. 1-508-1, -3) (Also see PCB 70—Set 210-1) 192—9
●172KU (Ch. 1-508-2) (Also see PCB 70—Set 210-1) 192—9
●172M (Ch. 1-508-1, -3) (Also see PCB 70—Set 210-1) 192—9
●172MU (Ch. 1-508-2) (Also see PCB 70—Set 210-1) 192—9
●175B (Ch. 1-508-1, -3) (Also see PCB 70—Set 210-1) 192—9
●175BU (Ch. 1-508-2) (Also see PCB 70—Set 210-1) 192—9
●175L, M (Ch. 1-508-1, -3) (Also see PCB 70—Set 210-1) 192—9
●175MU (Ch. 1-508-2) (Also see PCB 70—Set 210-1) 192—9
●175-18 Series (Ch. 1-518-1, -3) (Also See PCB 107—Set 255-1) 229—15
●175-18 "U" Series (Ch. 1-518-2) (Also See PCB 107—Set 255-1) 229—15
●176B (Ch. 1-508-1, -3) (Also see PCB 70—Set 210-1) 192—9
●176BU (Ch. 1-508-2) (Also see PCB 70—Set 210-1) 192—9
●176L, M (Ch. 1-508-1, -3) (Also see PCB 70—Set 210-1) 192—9
●176MU (Ch. 1-508-2) (Also see PCB 70—Set 210-1) 192—9
●177B (Ch. 1-508-1, -3) (Also see PCB 70—Set 210-1) 192—9
●177BU (Ch. 1-508-2) (Also see PCB 70—Set 210-1) 192—9
●177M (Ch. 1-508-1, -3) (Also see PCB 70—Set 210-1) 192—9
●177MU (Ch. 1-508-2) (Also see PCB 70—Set 210-1) 192—9
●178B (Ch. 1-508-1, -3 and Radio Ch. 1-603-1) (Also see PCB 70—Set 210-1) 192—9
●178BU (Ch. 1-508-2 and Radio Ch. 1-603-1) (Also see PCB 70—Set 210-1) 192—9
●178M (Ch. 1-508-1, -3 and Radio Ch. 1-603-1) (Also see PCB 70—Set 210-1) 192—9
●178MU (Ch. 1-508-2 and Radio Ch. 1-603-1) (Also see PCB 70—Set 210-1) 192—9
●200M (Ch. 1-504-1) 212—8
●200MU (Ch. 1-504-2, -4) 212—8
●205 Series (Ch. 1-504-1, -2, -4) 212—8
●220 Series (Ch. 1-510-1, -2, -4) 212—8
●225M (Ch. 1-510-1) 212—8
●225MU (Ch. 1-510-2, -4) 212—8
●226 Series (Ch. 1-510-1, -2, -4) 212—8
●250 Series (Ch. 1-504-1, -2, -4) 212—8
●270 Series (Ch. 1-510-1, -2, -4) (See Model 120B—Set 212-8)
●271 Series (Ch. 1-510-1, -2, -4) (See Model 120B—Set 212-8)
●275 Series (Ch. 1-510-1, -2, -4) 212—8
●300 Series (Ch. 1-514-1, -3) (Also See PCB 100—Set 245-1) 234—13
●300 "U" Series (Ch. 1-514-4) (Also See PCB 100—Set 245-1) 234—13
●301 Series (Ch. 1-514-5) (Also See PCB 100—Set 245-1) 234—13
●301 "U" Series (Ch. 1-514-6) (Also See PCB 100—Set 245-1) 234—13
●306 Series (Ch. 1-514-3) (Also See PCB 100—Set 245-1) 234—13
●306 "U" Series (Ch. 1-514-4) (Also See PCB 100—Set 245-1) 234—13
●320 Series (Ch. 1-520-1, -3) (Also See PCB 100—Set 245-1) 234—13
●320 "U" Series (Ch. 1-520-4) (Also See PCB 100—Set 245-1) 234—13
●321 Series (Ch. 1-520-5) (See PCB 100—Set 245-1 and Model 120-20 Series—Set 234-13)

SYLVANIA—Cont.

●321 "U" Series (Ch. 1-520-6) (See PCB 100—Set 245-1 and Model 120-20 "U" Series—Set 234-13)
●321-1 Series (Ch. 1-520-0, -7) (See PCB 100—Set 245-1 and Model 326 Series—Set 234-13)
●325 Series (Ch. 1-520-1, -3) (Also See PCB 100—Set 245-1) 234—1
●325 "U" Series (Ch. 1-520-4) (Also See PCB 100—Set 245-1) 234—13
●326 Series (Ch. 1-520-0, -7) (Also See PCB 100—Set 245-1) 234—13
●326 "U" Series (Ch. 1-520-8) (Also See PCB 100—Set 245-1) 234—13
●331 Series (Ch. 1-513-1, -3) 248—9
●331 "U" Series (Ch. 1-513-2, -4) 248—9
●336 Series (Ch. 1-513-1, -3) 248—9
●336 "U" Series (Ch. 1-513-2, -4) 248—9
●372 Series (Ch. 1-518-1, -3, -5) (Also See PCB 107—Set 255-1) 229—15
●372 "U" Series (Ch. 1-518-2, -6) (Also See PCB 107—Set 255-1) 229—15
●373 Series (Ch. 1-518-1, -3, -5 and Radio Ch. 1-603-1) (For TV Ch. See PCB 107—Set 255-1 and Set 229-15, For Radio Ch. See Model 178B—Set 192-9)
●373 "U" Series (Ch. 1-518-2, -6) (For TV Ch. See PCB 107—Set 225-1 and Set 229-15, For Radio Ch. See Model 178B—Set 192-9)
●375 Series (Ch. 1-518-1, -3, -5) (Also See PCB 107—Set 255-1) 229—15
●375 "U" Series (Ch. 1-518-2, -6) (Also See PCB 107—Set 255-1) 229—15
●376 Series (Ch. 1-518-1, -3) (Also See PCB 107—Set 255-1) 229—15
●376 "U" Series (Ch. 1-518-2) (Also See PCB 107—Set 255-1) 229—15
●377 Series (Ch. 1-518-1, -3, -5) (Also See PCB 107—Set 255-1) 229—15
●377 "U" Series (Ch. 1-518-2, -6) (Also See PCB 107—Set 255-1) 229—15
●386B (Ch. 1-512-1) 220—10
●386BU (Ch. 1-512-2) 220—10
●386M (Ch. 1-512-1) 220—10
●386MU (Ch. 1-512-2) 220—10
●401 Series (Ch. 1-514-5) (See PCB 100—Set 245-1 and Model 301 Series—Set 234-13)
●401 "U" Series (Ch. 1-514-6) (See PCB 100—Set 245-1 and Model 301 "U" Series—Set 234-13)
●410 Series (Ch. 1-530-1) (See PCB 100—Set 245-1 and Model 105-14 Series—Set 234-13)
●410 "U" Series (Ch. 1-530-2) [See PCB 100—Set 245-1 and Model 105-14 "U" Series—Set 234-13)
●420 Series (Ch. 1-520-1, -3) (See PCB 100—Set 245-1 and Model 320 Series—Set 234-13)
●420 "U" Series (Ch. 1-520-4) (See PCB 100—Set 245-1 and Model 320 "U" Series—Set 234-13)
●421 Series (Ch. 1-520-5) (See PCB 100—Set 245-1 and Model 120-20 Series—Set 234-13)
●421 "U" Series (Ch. 1-520-6) (See PCB 100—Set 245-1 and Model 120-20 "U" Series—Set 234-13)
●425 Series (Ch. 1-520-5) (See PCB 100—Set 245-1 and Model 120-20 Series—Set 234-13)
●425 "U" Series (Ch. 1-520-6) (See PCB 100—Set 245-1 and Model 120-20 "U" Series—Set 234-13)
430L (Ch. 1-254) 165—15
433B, GR, H, LU, RE, YE (Ch. 1-604-1) 225—17
454BR, GR, H, RE (Ch. 1-606-1) 247—12
●500 Series (Ch. 1-514-3) (See Model 105-14 Series)
●500 "U" Series (Ch. 1-514-4) (See Model 105-14 "U" Series)
510B, 510H, 510W (Ch. 1-215) 103—16
511B, H, M, 512BR, CH, GR, RE, YE (Ch. 1-601-1) 160—12
513B, CH, GR, H, M, RE, YE (Ch. 1-601-2) 221—11
●515 Series (Ch. 1-520-5) (See Model 321 Series)
●515 "U" Series (Ch. 1-520-6) (See Model 321 "U" Series)
●527 Series (Ch. 1-518-5) (See PCB 107—Set 255-1 and Model 175-18—Set 229-15)
●527 "U" Series (Ch. 1-518-6) (See PCB 107—Set 255-1 and Model 175-18 Series—Set 229-15)
540B, BA, 540H, HA, 540M. MA 119—11
541B, H, M, 542BR, CH, GR, RE, YE (Ch. 1-602-1) 159—13
543 (Ch. 1-602-2) 225—18
563B (Ch. 1-601-3) 221—11
568 (Ch. 1-601-4) 271—15
593 (Ch. 1-602-3) 225—18
614B, GR, H, RE (Ch. 1-605-1) 274—13
●1110X (Ch. 1-329) (See PCB 47—Set 181-1 and Model 1210X—Set 128-16)
●1210X (Ch. 1-381) (Also see PCB 44—Set 178-1) 128—16
●2130B, M, W (Ch. 1-462) (See PCB 55—Set 189-1 and Model 5130B—Set 120-10)
●2140B, M (Ch. 1-462) (See PCB 55—Set 189-1 and Model 5140B—Set 120-10)
●2221M (Ch. 1-387) 137—13
●4120M (Ch. 1-260) (Also see PCB 55—Set 189-1) 124—10
●4130B, E, M, W (Ch. 1-260) (Also see PCB 55—Set 189-1) 124—10

SYLVANIA—Cont.

●5130B, M, W (Ch. 1-290) (Also see PCB 17—Set 128-1) 120—10
●5140B, M (Ch. 1-290) (Also see PCB 17—Set 128-1) 120—10
●5150M (Ch. 1-274) 131—15
5184 (Ch. 1-601-5) 271—15
●6110X (Ch. 1-261) (Also see PCB 55—Set 189-1) 124—10
●6120B, M, W (Ch. 1-261) (Also see PCB 55—Set 189-1) 124—10
●6130B, M, W (Ch. 1-261) (Also see PCB 55—Set 189-1) 124—10
●6140M, W (Ch. 1-271) 120—10
●7110X (Ch. 1-366) (Also see PCB 55—Set 189-1) 124—10
●7110XB (Ch. 1-441) (See PCB 55—Set 189-1 and Model 7110X—Set 124-10)
●7110XF (Ch. 1-366-66) (Also see PCB 55—Set 189-1) 124—10
●7110XFA (Ch. 1-442) 131—15
●7111M (Ch. 1-441) (See PCB 55—Set 189-1 and Model 7110X—Set 124-10)
●7111MA (Ch. 1-366) (See PCB 55—Set 189-1 and Model 7110X—Set 124-10)
●7120 (Ch. 1-366) (Also see PCB 55—Set 189-1) 124—10
●7120BF (Ch. 1-366-66) (Also see PCB 55—Set 189-1) 124—10
●7120M (Ch. 1-366) (Also see PCB 55—Set 189-1) 124—10
●7120MF (Ch. 1-366-66) (Also see PCB 55—Set 189-1) 124—10
●7120MFA (Ch. 1-442) 131—15
●7120W (Ch. 1-366) (Also see PCB 55—Set 189-1) 124—10
●7120WF (Ch. 1-366-66) (Also see PCB 55—Set 189-1) 124—10
●7130B (Ch. 1-366) (Also see PCB 55—Set 189-1) 124—10
●7130BF (Ch. 1-366-66) (Also see PCB 55—Set 189-1) 124—10
●7130E, M (Ch. 1-366) (Also see PCB 55—Set 189-1) 124—10
●7130MF (Ch. 1-366-66) (Also see PCB 55—Set 189-1) 124—10
●7130MFA (Ch. 1-442) 131—15
●7130W (Ch. 1-366) (Also see PCB 55—Set 189-1) 124—10
●7130WF (Ch. 1-366-66) (Also see PCB 55—Set 189-1) 124—10
●7140M, W (Ch. 1-356) (See PCB 55—Set 189-1 and Model 6140M—Set 120-10)
●7140MA, 7140WA (Ch. 1-437) 131—15
●7150M (Ch. 1-357) 131—15
●7160B (Ch. 1-357) 131—15
Ch. 1-108 (See Model 1-076)
Ch. 1-139 (See Model 1-075)
Ch. 1-168 (See Model 1-090)
Ch. 1-186 (See Model 1-125-1)
Ch. 1-215 (See Model 1-250)
Ch. 1-254 (See Model 430L)
Ch. 1-260 (See Model 4120M)
Ch. 1-261 (See Model 6110X)
Ch. 1-271 (See Model 6140M)
Ch. 1-274 (See Model 5150M)
Ch. 1-290 (See Model 5130B)
Ch. 1-356 See Model 74B)
Ch. 1-357 (See Model 7150M)
Ch. 1-366 (See Model 7110X)
Ch. 1-366-66 (See Model 7110XF)
Ch. 1-381 (See Model 1210X)
Ch. 1-387 (See Model 2221M)
Ch. 1-387-1 (See Model 22M-1)
Ch. 1-437 (See Model 7140MA)
Ch. 1-437-1 (See Model 74B-1)
Ch. 1-437-2 (See Model 74B-2)
Ch. 1-437-3 (See Model 73B-5)
Ch. 1-437-3 (Codes CO6 and up) (See Model 150A)
Ch. 1-441 (See Model 7110XB)
Ch. 1-442 (See Model 7110XFA)
Ch. 1-462-1 (See Model 24M)
Ch. 1-502-1 (See Model 71M-1)
Ch. 1-502-2 (See Model 73M-1)
Ch. 1-502-3 (See Model 73M-11)
Ch. 1-504-1 (See Model 105B)
Ch. 1-504-2, -4 (See Model 105BU)
Ch. 1-507-1 (See Model 22B-11)
Ch. 1-508-1 (See Model 172K)
Ch. 1-508-2 (See Model 172KU)
Ch. 1-508-3 (See Model 172K)
Ch. 1-510-1 (See Model 120B)
Ch. 1-510-2, -4 (See Model 120BU)
Ch. 1-512-1 (See Model 386B)
Ch. 1-512-2 (See Model 386BU)
Ch. 1-513-1 (See Model 331 Series)
Ch. 1-513-2 (See Model 331 "U" Series)
Ch. 1-513-3 (See Model 331 Series)
Ch. 1-513-4 (See Model 331 "U" Series)
Ch. 1-514-1, -3 (See Model 105-14 Series)
Ch. 1-514-4 (See Model 105-14 "U" Series)
Ch. 1-514-5 (See Model 301 Series)
Ch. 1-514-6 (See Model 301 "U" Series)
Ch. 1-518-1 (See Model 175-18 Series)
Ch. 1-518-2 (See Model 175-18 "U" Series)
Ch. 1-518-3 (See Model 175-18 Series)
Ch. 1-518-5 (See Model 372 Series)
Ch. 1-518-6 (See Model 372 "U" Series)
Ch. 1-520-0 (See Model 326 Series)
Ch. 1-520-1, -3 (See Model 120-20 Series)
Ch. 1-520-4 (See Model 120-20 "U" Series)
Ch. 1-520-5 (See Model 321 Series)
Ch. 1-520-6 (See Model 321 "U" Series)
Ch. 1-520-7 (See Model 326 Series)
Ch. 1-520-8 (See Model 326 "U" Series)
Ch. 1-530-1 (See Model 410 Series)
Ch. 1-530-2 (See Model 410 "U" Series)
Ch. 1-601-1 (See Model 511B)

NOTE: PCB Denotes **P**roduction **C**hange **B**ulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250 ● Denotes Television Receiver.

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

WESTINGHOUSE—Cont.

●H-701K21 (Ch. V-2217-2) (See PCB 43—Set 177-1 and Model H-667T17—Set **167**-15)
●H-702K17, H-703K17 (Ch. V-2216-2, -3) (See PCB 40—Set 172-1, PCB 45—Set 179-1, PCB 52—Set 186-1 and Model H-767T17—Set **167**-15)
●H-704T17 (Ch. V-2216-2) (See PCB 40—Set 172-1, PCB 45—Set 179-1, PCB 51—Set 185-1, PCB 52—Set 186-1 and Model H-667T17—Set **167**-15)
●H-704T17 (Ch. V-2216-4, -5) **202**–10
●H-705K17 (Ch. V-2216-2, -3) (See PCB 40—Set 172-1, PCB 45—Set 179-1, PCB 52—Set 186-1 and Model H-667T17—Set **167**-15)
●H-706T16 (Ch. V-2207-1) .. **193**–12
●H-708T20 (Ch. V-2220-1, -3, -11) **193**–12
●H-710T21 (Ch. V-2217-2, -3) (See PCB 40—Set 172-1, PCB 43—Set 177-1, PCB 43—Set 177-1, PCB 52—Set 186-1 and Model H-667T17—Set **167**-15)
●H-710T21 (Ch. V-2217-4, -5) **202**–10
●H-711T21 (Ch. V-2217-2, -3) (See PCB 40—Set 172-1, PCB 43—Set 177-1, PCB 52—Set 186-1 and Model H-667T17—Set **167**-15)
●H-711T21 (Ch. V-2217-4, -5) **202**–10
●H-713K21 (Ch. V-2217-2, -3) (See PCB 40—Set 172-1, PCB 43—Set 177-1, PCB 52—Set 186-1 and Model H-667T17—Set **167**-15)
●H-714K21 (Ch. V-2217-2, -3) (See PCB 40—Set 172-1, PCB 43—Set 177-1, PCB 52—Set 186-1 and Model H-667T17—Set **167**-15)
●H-714K21 (Ch. V-2217-4, -5) **202**–10
●H-715K21 (Ch. V-2217-2, -3) (See PCB 40—Set 172-1, PCB 43—Set 177-1, PCB 52—Set 186-1 and Model H-667T17—Set **167**-15)
●H-715K21 (Ch. V-2217-4, -5) **202**–10
●H-718K20 (Ch. V-2220-2) . **193**–12
●H-720K21 (Ch. V-2217-2, -3) (See PCB 40—Set 172-1, PCB 43—Set 177-1, PCB 52—Set 186-1 and Model H-667T17—Set **167**-15)
●H-720K21 (Ch. V-2217-4, -5) **202**–10
●H-721K21 (Ch. V-2217-2, -3) (See PCB 40—Set 172-1, PCB 43—Set 177-1, PCB 52—Set 186-1 and Model H-667T17—Set **167**-15)
●H-721K21 (Ch. V-2217-4, -5) **202**–10
●H-722K21 (Ch. V-2217-2, -3) (See PCB 40—Set 172-1, PCB 43—Set 177-1, PCB 52—Set 186-1 and Model H-667T17—Set **167**-15)
●H-722K21 (Ch. V-2217-4, -5) **202**–10
●H-723K21 (Ch. V-2217-5) . **202**–10
●H-724T20, H-725T20 (Ch. V2220-2) **193**–12
●H-730C21 (Ch. V-2218-1 and Radio Ch. V-2180-9, -10) **190**–16
●H-730C21 (Ch. V-2218-2 and Radio Ch. V-2180-9, -10) (Also see PCB 59—Set 193-1 and PCB 68—Set 205-1) **190**–16
●H-730C21 (Ch. V-2218-11 and Radio Ch. V-2180-9, -10) (Also see PCB 59—Set 193-1) **190**–16
●H-732C21 (Ch. V-2218-1 and Radio Ch. V-2180-9, -10) **190**–16
●H-732C21 (Ch. V-2218-11 and Radio Ch. V-2180-9, -10) (Also see PCB 59—Set 193-1) **190**–16
●H-733C21 (Ch. V-2218-1 and Radio Ch. V-2180-9, -10) **190**–16
●H-733C21 (Ch. V-2218-11 and Radio Ch. V-2180-9, -10) (Also see PCB 59—Set 193-1) **190**–16
●H-736T17 (Ch. V-2227-1) (Also see PCB 89—Set 233-1) **214**–10
●H-737T17 (Ch. V-2216-5) . **202**–10
●H-737T17 (Ch. V-2232-2) . **212**—9
●H-738T17 (Ch. V-2227-1) (Also see PCB 89—Set 233-1) **214**–10
●H-739T17, H-739TU17 (Ch. V-2227-2) **214**–10
●H-740T21, H-742K21, H-743K21 (Ch. V-2233-1) (Also See PCB 99—Set 244-1) .... **212**—9
.... **212**—9
●H-746K21, H-746KU21, H-747K21, H-747KU21 (Ch. V-2233-4) **215**–16
●H-750T21 (Ch. V-2233-3) . **212**—9
●H-751T21 (Ch. V-2217-4, -5) **202**–10
●H-751T21 (Ch. V-2233-2) . **212**—9
●H-752T21 (Ch. V-2233-2) . **212**—9
●H-753K21 (Ch. V-2233-3) . **212**—9
●H-754K21 (Ch. V-2217-4, -5) **202**–10
●H-754K21 (Ch. V-2233-2) . **212**—9
●H-755K21 (Ch. V-2233-2) . **212**—9
●H-756K21 (Ch. V-2217-4, -5) **202**–10
●H-756K21 (Ch. V-2233-2) . **212**—9
●H-757K21 (Ch. V-2217-4, -5) **202**–10
●H-757K21 (Ch. V-2233-2) . **212**—9
●H-758K21 (Ch. V-2217-4, -5) **202**–10
●H-758K21 (Ch. V-2233-2) . **212**—9
●H-759K21 (Ch. V-2217-4, -5) **202**–10
●H-759K21 (Ch. V-2233-2) . **212**—9
●H-760T21 (Ch. V-2233-2) . **212**—9
●H-760TU21 (Ch. V-2233-2) **212**—9
●H-761T21 (Ch. V-2233-2) . **212**—9
●H-761TU21 (Ch. V-2233-2) **212**—9
●H-769T21 (Ch. V-2263-12, -14) **253**–17
●H-769TU21 (Ch. V-2273-122) **253**–17
●H-770T21A (Ch. V-2263-12) **253**–17

WESTINGHOUSE—Cont.

●H-770TU21A (Ch. V-2273-122) **253**–17
●H-771T21A (Ch. V-2263-12) **253**–17
●H-771TU21A (Ch. V-2273-122) **253**–17
●H-786K21 (Ch. V-2263-12) **253**–17
●H-786KU21 (Ch. V-2273-122) **253**–17
●H-787K21 (Ch. V-2263-12) **253**–17
●H-787KU21 (Ch. V-2273-122) **253**–17
●H-795T27, H-795TU27 (Ch. V-2250-1) (Also see PCB 105—Set 252-1) **241**–12
●H-798T17 (Ch. V-2260-12, -14) **255**–17
●H-798TU17 (Ch. V-2270-122, -124) **255**–17
●H-799T17 (Ch. V-2260-12, -14) **255**–17
●H-799TU17 (Ch. V-2270-122, -124) **255**–17
H-802 (Ch. V-11900-1, -2, -3, -4, -5, V-11213) Tel. UHF Conv. **209**–13
●H-815T24, H-815TU24 (Ch. V-2250-1, -4) (Also see PCB 105—Set 252-1) **241**–12
●H-817K24, H-817KU24 (Ch. V-2250-1, -4) (Also see PCB 105—Set 252-1) **241**–12
●H-822K21 (Ch. V-2263-12) **253**–17
●H-822KU21 (Ch. V-2273-122) **253**–17
●H-823K21 (Ch. V-2263-12) **253**–17
●H-823KU21 (Ch. V-2273-122) **253**–17
●H-827T21 (Ch. V-2263-12, -13, -14, -15) **253**–17
●H-827TU21 (Ch. V-2273-122, -134) **253**–17
●H-828T21 (Ch. V-2263-12, -13, -14, -15) **253**–17
●H-828TU21 (Ch. V-2273-122, -134) **253**–17
●H-829T21 (Ch. V-2263-12, -13, -14, -15) **253**–17
●H-829TU21 (Ch. V-2273-122, -134) **253**–17
●H-830K21 (Ch. V-2263-11, -12, -13, -14) **253**–17
●H-830KU21 (Ch. V-2273-111, -122, -124, -132, -134) **253**–17
●H-831K21 (Ch. V-2263-11, -12, -13, -14) **253**–17
●H-831KU21 (Ch. V-2273-111, -122, -124, -132, -134) **253**–17
●H-834K21 (Ch. V-2263-22) **253**–17
●H-834KU21 (Ch. V-2273-222) **253**–17
●H-835K21 (Ch. V-2263-22) **253**–17
●H-835KU21 (Ch. V-2273-222) **253**–17
●H-836T21 (Ch. V-2263-35) **253**–17
●H-836TU21 (Ch. V-2273-322) **253**–17
●H-838K21 (Ch. V-2263-15) **253**–17
●H-838K21A (Ch. V-2263-15) (See Model H-769T21—Set **253**-17)
●H-838K21B (Ch. V-2313-15, -25, -35) **270**–18
●H-838KU21 (Ch. V-2273-122) **253**–17
●H-838KU21A (Ch. V-2273-124) (See Model H-769TU21—Set **253**-17)
●H-838KU21B (Ch. V-2323-101, -122, -124, -201, -301) . **270**–18
●H-839K21 (Ch. V-2263-15) **253**–17
●H-839KU21 (Ch. V-2273-122) **253**–17
●H-840CK15 (Ch. V-2284-15) **259**–15
●H-841T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-841TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-842T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-842TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-843K21 (Ch. V-2313-15, -25, -35) **270**–18
●H-843KU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-844K21 (Ch. V-2313-15, -25, -35) **270**–18
●H-844KU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-847K21 (Ch. V-2313-15, -25, -35) **270**–18
●H-847KU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-848K21 (Ch. V-2313-15, -25, -35) **270**–18
●H-848KU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-853K24 (Ch. V-2314-15, -25) **274**–16
●H-853KU24 (Ch. V-2324-203) **274**–16
●H-854K24 (Ch. V-2314-15, -25) **274**–16
●H-854KU24 (Ch. V-2324-203) **274**–16
●H-861T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-861TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-862T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-862TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-863T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-863T21A (Ch. V-2263-35) (See Model H-769T21—Set **253**-17)
●H-863TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-863TU21A (Ch. V-2273-324) (See Model H-769TU21—Set **253**-17)
●H-864T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-864T21A (Ch. V-2263-35) (See Model H-769T21—Set **253**-17)
●H-864T21B (Ch. V-2313-15, -25, -35) **270**–18
●H-864TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18

WESTINGHOUSE—Cont.

●H-864TU21A (Ch. V-2273-324) (See Model H-769TU21—Set **253**-17)
●H-864TU21B (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-865T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-865T21A (Ch. V-2263-35) (See Model H-769T21—Set **253**-17)
●H-865T21B (Ch. V-2313-15, -25, -35) **270**–18
●H-865TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-865TU21A (Ch. V-2273-324) (See Model H-769TU21—Set **253**-17)
●H-865TU21B (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-866T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-866T21A (Ch. V-2263-35) (See Model H-769T21—Set **253**-17)
●H-866T21B (Ch. V-2313-15, -25, -35) **270**–18
●H-866TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-866TU21A (Ch. V-2273-324) (See Model H-769TU21—Set **253**-17)
●H-866TU21B (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-867T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-867TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-867TU21A (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-868T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-868TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-868TU21A (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-869K24 (Ch. V-2314-15, -25) **274**–16
●H-869KU24 (Ch. V-2324-203) **274**–16
●H-870K24 (Ch. V-2314-15, -25) **274**–16
●H-870KU24 (Ch. V-2324-203) **274**–16
●H-871T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-871TU21 (Ch. V-2323-101, -122, -124, -201, -301) **270**–18
●H-872T21 (Ch. V-2313-15, -25, -35) **270**–18
●H-872TU21 (Ch. V-2323-101, -122, -125, -201, -301) **270**–18
●H-873T21A (Ch. V-2263-35) (See Model H-769T21—Set **253**-17)
●H-873TU21A (Ch. V-2273-324) (See Model H-769TU21—Set **253**-17)
●H-875T24, A, C (Ch. V-2314-15, -25) **274**–16
●H-875TU24, C (Ch. V-2324-203) **274**–16
●H-876T24 (Ch. V-2314-15, -25) **274**–16
●H-876TU24, A (Ch. V-2314-15, -25) **274**–16
●H-877T24, A (Ch. V-2314-15, -25) **274**–16
●H-877TU24, A (Ch. V-2324-203) **274**–16
●H-878K24, B (Ch. V-2314-15, -25) **274**–16
●H-878KU24, B (Ch. V-2324-203) **274**–16
●H-881K24 (Ch. V-2314-15, -25) **274**–16
●H-881KU24 (Ch. V-2324-203) **274**–16
H-1251 .... **3**–19
Ch. V-2102 (See Model H-104)
Ch. V-2102-1 (See Model H-138)
Ch. V-2103 (See Model H-153)
Ch. V-2103-3 (See Model H-214)
Ch. V-2107 (See Model H-133)
Ch. V-2118 (See Model H-161)
Ch. V-2119-1 (See Model H-164)
Ch. V-2120 (See Model H-165)
Ch. V-2122 (See Model H-157)
Ch. V-2123 (See Model H-178)
Ch. V-2124-1 (See Model H-169)
Ch. V-2127 (See Model H-183)
Ch. V-2128, V-2128-1 (See Model H-182)
Ch. V-2128-2 (See Model H-202)
Ch. V-2130-1 (See Model H-196)
Ch. V-2130-11DX, -12DX (See Model H-196A (DX))
Ch. V-2130-21DX, -22DX (See Model H-207A (DX))
Ch. V-2130-31DX, -32DX (See Model H-225 (DX))
Ch. V-2131, V-2131-1 (See Model H-185)
Ch. V-2132 (See Model H-186M)
Ch. V-2133 (See Model H-188)
Ch. V-2134 (See Model H-190)
Ch. V-2136 (See Model H-307T7)
Ch. V-2136-1 (See Model H-316C7)
Ch. V-2136-2 (See Model H-324T7)
Ch. V-2136-4 (See Model H-328C7)
Ch. V-2136-5R (See Model H-334T7UR)
Ch. V-2137-5U (See Model H-334T7U)
Ch. V-2137 (See Model H-203)
Ch. V-2137-1 (See Model H-199)
Ch. V-2137-2 (See Model H-198)
Ch. V-2137-3, V-2137-3S (See Model H-231)
Ch. V-2144, V-2144-1 (See Model H-210)
Ch. V-2146-05 (See Model H-216)
Ch. V-2146-11DX (See Model H-217)
Ch. V-2146-21DX, -25DX (See Model H-226)
Ch. V-2146-35DX (See Model H-217B)
Ch. V-2146-45 (See Model H-216)
Ch. V-2148 (See Model H300T5)
Ch. V-2149 (See Model H-217B)
Ch. V-2149-1 (See Model H-216)
Ch. V-2149-2 (See Model H-231)
Ch. V-2149-3 (See Model H-603C-12)

WESTINGHOUSE—Cont.

Ch. V-2150-01, V-2150-02 (See Model H-223)
Ch. V-2150-31 (See Model H-242)
Ch. V-2150-41 (See Model H-601K-12)
Ch. V-2150-51 (See Model H-231)
Ch. V-2150-61, A, B (See Model H-600T16)
Ch. V-2150-81, -82, -84 (See Model H-251)
Ch. V-2150-91A (See Model H-604-T10)
Ch. V-2150-94 (See Model H-604-T10, A)
Ch. V-2150-94C (See Model H-609T10)
Ch. V-2150-101 (See Model H-605T12)
Ch. V-2150-111, A (See Model H-606K12)
Ch. V-2150-136 (See Model H-610T12)
Ch. V-2150-146 (See Model H-613K16)
Ch. V-2150-176, U (See Model H-617T12)
Ch. V-2150-177U (See Model H-617T12)
Ch. V-2150-186, A, C, CA (See Model H-618T16)
Ch. V-2150-197 (See Model H-625T12)
Ch. V-2151-1 (See Model H-302P5)
Ch. V-2152-01 (See Model H-603-C12)
Ch. V-2152-16 (See Model H-611C12)
Ch. V-2153 (See Model H303P4)
Ch. V-2153-1 (See Model H-312P4)
Ch. V-2156 (See Model H-309P5)
Ch. V-2156-1U (See Model H-342-P5U)
Ch. V-2156-2 (See Model H-405P5)
Ch. V-2157, U (See Model H-318T5)
Ch. V-2157-1, -1U (See Model H-321T5)
Ch. V-2157-2, -2U (See Model H-323T5)
Ch. V-2157-3U (See Model H-327T6U)
Ch. V-2157-4U (See Model H338-T5U)
Ch. V-2157-5 (See Model H-355T5)
Ch. V-2157-6 (See Model H-359T5)
Ch. V-2157-8 (See Model H-367T5)
Ch. V-2157-9 (See Model H-374T5)
Ch. V-2157-10 (See Model H-382T5)
Ch. V-2157-11 (See Model H-385T5)
Ch. V-2157-12 (See Model H-388T5)
Ch. V-2157-13 (See Model H-420T5)
Ch. V-2157-14 (See Model H-391T5)
Ch. V-2161, V-2161U (See Model H-310T5)
Ch. V-2164, U (See Model H-331P4)
Ch. V-2164-2 (See Model H-400P4)
Ch. V-2171 (See Model H-627K16)
Ch. V-2172 (See Model H-626T16)
Ch. V-2173 (See Model H-633C17)
Ch. V-2175 (See Model H-636T17)
Ch. V-2175-1 (See Model H-641-K17)
Ch. V-2175-3, -4 (See Model H-640T17)
Ch. V-2175-5 (See Model H-641K17)
Ch. V-2176 (See Model H-630T14)
Ch. V-2177 (See Model H-637T14)
Ch. V-2178, -1, -3 (See Model H-638K20)
Ch. V-2180-1 (See Model H350T7)
Ch. V-2180-2 (See Model H-354C7)
Ch. V-2180-3 (See Model H-660C17)
Ch. V-2180-5 (See Model H-357C10)
Ch. V-2180-8 (See Model H-370T7)
Ch. V-2180-9, -10 (See Model H-730C21)
Ch. V-2180-13 (See Model H-469R12)
Ch. V-2181-1 (See Model H-361T6)
Ch. V-2181-2 (See Model H-393T6)
Ch. V-2182-2 (See Model H-414P4)
Ch. V-2184-1 (See Model H-378T5)
Ch. V-2184-2 (See Model H-397T5)
Ch. V-2184-4 (See Model H-447T4)
Ch. V-2185-1 (See Model H-409P4)
Ch. V-2186-1 (See Model H-417T5)
Ch. V-2188-1 (See Model H-422P4)
Ch. V-2189-4 (See Model H-443T5)
Ch. V-2192, -1 (See Model H-639T17)
Ch. V-2192, -3, -4, -5, -6 (See Model H-640T17A)
Ch. V-2194, V-2194A, V-2194-1 (See Model H-642K20A)
Ch. V-2194-2, -3 (See Model H-652K20)
Ch. V-2200-1 (See Model H-651-K17)
Ch. V-2201-1 (See Model H-652-K20)
Ch. V-2202-2 (See Model H-653K24)
Ch. V-2203-1 (See Model H-660C17)
Ch. V-2204-1 (See Model H-659T17)
Ch. V-2206-1 (See Model H-665T16)
Ch. V-2207-1 (See Model H-706T16)
Ch. V-2210-1 (See Model H-653K24)
Ch. V-2214-1 (See Model H-689T16)
Ch. V-2215-1 (See Model H-681T17)
Ch. V-2216-1 (See Model H-667T17)
Ch. V-2216-2, -3 (See Model H-678K17)
Ch. V-2216-4, -5 (See Model H-704T17)
Ch. V-2217-1 (See Model H-673K21)
Ch. V-2217-2, -3 (See Model H-692T21)
Ch. V-2217-4, -5 (See Model H-710T21)

WESTINGHOUSE—Cont.

Ch. V-2218-1, -2, 11 (See Model H-730C21)
Ch. V-2218-1 (See Model H-688K24)
Ch. V-2220-1 (See Model H-708T20)
Ch. V-2220-2 (See Model H-718K20)
Ch. V-2220-3, -11 (See Model H-708T20)
Ch. V-2227-1 (See Model H-736T17)
Ch. V-2227-2 (See Model H-739T17)
Ch. V-2232-2 (See Model H-737T17)
Ch. V-2233-1 (See Model H-740T21)
Ch. V-2233-2 (See Model H-751T21)
Ch. V-2233-3 (See Model H-750T21)
Ch. V-2233-4 (See Model H-746K21)
Ch. V-2235-1 (See Model H-469R12)
Ch. V-2236-1 (See Model H-475T5)
Ch. V-2250-1 (See Model H-795T27)
Ch. V-2250-4 (See Model H-815T25)
Ch. V-2263-11, -12, -13, -14 (See Model H-830K21)
Ch. V-2263-15 (See Model H-827T21)
Ch. V-2263-22 (See Model H-834K21)
Ch. V-2263-35 (See Model H-836T21)
Ch. V-2273-111, -122, -124, -132, -134 (See Model H-830KU21)
Ch. V-2273-222 (See Model H-834KU21)
Ch. V-2273-322 (See Model H-836TU21)
Ch. V-2273-324 (See Model H-833TU21A)
Ch. V-2284-15 (See Model H-840CK15)
Ch. V-2313-15, -25, -35 (See Model H-838K21B)
Ch. V-2314-15, -25 (See Model H-853K24)
Ch. V-2323-101, -122, -124, -201, -301 (See Model H-833KU21B)
Ch. V-2324-203 (See Model H-853KU24)
Ch. V-11213 (See Model H-802)
Ch. V-11900-1, -2, -3, -4, -5 (See Model H-802)

WILCOX-GAY
(Also see Majestic)
(Also see Recordio)

●G-306, G-402, G-403, G-404 (See Majestic Model 12T2—Set **108**-7)
●G-414 (See Majestic Model G-414—Set **133**-8)
●G-426, G-427 (See Majestic Model 12T2—Set **108**-7)
●G-614, G-624 (See Majestic Model G-414—Set **133**-8)
●G-914 (See Majestic Model G-414—Set **133**-8)
●OD-446M (OD Series) **101**–17
●OF439-1-C (Ch. OF Series) **98**–15
OD Series (See Model OD-446M)
400A, B, C **242**–12

WILLYS-OVERLAND

8030 (670777) **50**–23
670777 (See Model 8030—Set **50**-23)
677012 .... **156**–14
679517 .... **172**–12

WILMAK

W-446 "DENchum" **21**–11

WIRE RECORDING CORP.
(See Recorder Listing)

WOOLAROC

3-1A (Ch. 6-9022-J), 3-2A (Ch. 6-9022-K) **6**–37
3-3A (Code 7-9003-D) **6**–38
3-5A **22**–32
3-6A/5 .... **24**–32
3-9A, 3-10A **7**–30
3-11A (Ch. 56A76) **8**–33
3-12/3 .... **23**–33
3-13A, 3-14A, 3-15A, 3-16A **34**–28
3-17A, 3-18A **34**–29
3-20A **24**–33
3-29A **7**–31
3-61A (See Model 3-71A—Set **36**-29)
3-70A **31**–34
3-71A **36**–29

ZENITH (Also see Record Changer Listing)

G500 (Ch. 5G40) **83**–16
G503 (Ch. 5G41) **99**–19
G510, G510Y (Ch. 5GO2). **84**–14
G511, G511W, G511Y (Ch. 5G01) **85**–14
G516 (Ch. 5G03) **109**–15
G615, G615W, G615Y (Ch. 6G05) **86**–14
G660, G663, G665 (Ch. 6G01) **96**–12
G723 (Ch. 7G04) **104**–13
G724 (Ch. 7G02) **103**–18
G725 (Ch. 7G01) **101**–18
G881, G882, G883, G884, G885 (Ch. 8G20) **98**–16
●G-2322 (Ch. 23G22) **98**–17
●G2322Z (Ch. 23G24) (See Ch. 23G24—Set **91A**-13)
●G2322Z1 (Ch. 23G24Z1) (See Ch. 23G24—Set **91A**-13)
●G-2327Z (Ch. 23G24) (See Ch. 23G24—Set **91A**-13)
●G-2340, R (Ch. 23G22) ... **98**–17
●G2340RZ, Z (Ch. 23G24) (See Ch. 23G24—Set **91A**-13)
●G2340Z1, G2340RZ1 (Ch. 23G24Z1) (See Ch. 23G24—Set **91A**-13)
●G2346R (Ch. 23G22) **98**–17

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

ZENITH—Cont.

●G2350RZ, Z (Ch. 23G24) (See Ch. 23G24—Set 91A-13)
●G2353EZ (Ch. 23G24) (See Ch. 23G24—Set 91A-13)
●G2353EZ1 (Ch. 23G24Z1) (See Ch. 23G24—Set 91A-13)
●G2356EZ (Ch. 23G24) (See Ch. 23G24—Set 91A-13)
●G2420E (Ch. 24G20) 93–11
●G2420-EOX (Ch. 24G20-OX) 93–11
●G2420R (Ch. 24G20) 93–11
●G2420-ROX (Ch. 24G20-OX) 93–11
●G2437RZ, G2438RZ, Z, G2439RZ (Ch. 24G26 (See Ch. 24G26—Set 91A-12)
●G2441 (Ch. 24G24) 98–17
●G2441R (Ch. 24G22/24) .. 98–17
●G2441RZ, Z (Ch. 24G26) (See Ch. 24G26—Set 91A-12)
●G2441Z1, G2441RZ1 (Ch. 24G26-Z1) (See Ch. 24G26—Set 91A-12)
●G2442E, R (Ch. 24G22/24) 98–17
●G2442RZ (Ch. 24G26) (See Ch. 24G26—Set 91A-12)
●G2442EZ1, G2442RZ1 (Ch. 24G-26Z1) (See Ch. 24G26—Set 91A-12)
●G2448R (Ch. 24G22/24) .. 98–17
●2448RZ (Ch. 24G26) (See Ch. 24G26—Set 91A-12)
●G2448RZ1 (Ch. 24G26Z1) (See Ch. 24G26—Set 91A-12)
●G2454R (Ch. 24G21) 93–11
●G-2454-ROX (Ch. 24G21-OX) 93–11
●G2854R-OX (Ch. 28F20) (See Model 28T960—Set 64-15)
●G2951, R, OX, ROX, G2952, R, ROX (Ch. 29G20, -OX) .. 95–8
●G2957, R (Ch. 23G23 and Radio Ch. 6G20) 98–17
●G2958R (Ch. 23G23 and Radio Ch. 6G20) 98–17
●G-3059R (Ch. 24G23/25 and Radio Ch. 6G20) 98–17
●G3062 (Ch. 24G23/25 and Radio Ch. 6G20) 98–17
●G3157RZ, Z (Ch. 23G24 and Radio Ch. 8G20/22) (See Ch. 23G24 and Ch. 8G20/22—Set 91A-13)
●G3157Z1, G3157RZ1 (Ch. 23G24Z1 and Radio Ch. 8G22) (See Ch. 23G24 and Ch. 8G20/22—Set 91A-13)
●G3158RZ (Ch. 23G24 and Radio Ch. 8G20/22) (See Ch. 23G24 and Ch. 8G20/22—Set 91A-13)
●G3158RZ1 (Ch. 23G24Z1 and Radio Ch. 8G22) (See Ch. 23G24 and Ch. 8G20/22—Set 91A-13)
●G3173RZ, Z, G-3174RZ (Ch. 23G24 and Radio Ch. 8G20/22) (See Ch. 23G24 and Ch. 8G20/22—Set 91A-13)
●G3259RZ (Ch. 24G26 and Radio Ch. 8G20/22) (For TV Ch. see Ch. 24G26—Set 91A-12, For Radio Ch. see Ch. 8G20/22—Set 91A-13)
●G3259RZ1 (Ch. 24G26Z1 and Radio Ch. 8G22) (For TV Ch. see Ch. 24G26—Set 91A-12, for Radio Ch. see Ch. 8G20/22—Set 91A-13)
●G3262Z (Ch. 24G26 and Radio Ch. 8G20/22) (For TV Ch. see Ch. 24G26—Set 91A-12, for Radio Ch. see Ch. 8G20/22—Set 91A-13)
●G3262Z1 (Ch. 24G26Z1 and Radio Ch. 8G22) (For TV Ch. see Ch. 24G26—Set 91A-12, for Radio Ch. see Ch. 8G20/22—Set 91A-13)
●G3275RZ (Ch. 24G26 and Radio Ch. 8G20/22) (For TV Ch. see Ch. 24G26—Set 91A-12, for Radio Ch. see Ch. 8G20/22—Set 91A-13)
●G3276Z (Ch. 24G26 and Radio Ch. 8G20/22) (For TV Ch. see Ch. 24G26—Set 91A-12, for Radio Ch. see Ch. 8G20/22—Set 91A-13)
H401, G (Ch. 4H40) 156–15
H500 (Ch. 5H40) 152–12
H503, Y (Ch. 5H41) 151–12
H511, H511W, H511Y (Ch. 5H01) 147–13
H615 (Ch. 6G05) 140–14
H615Z1 (Ch. 6G05Z1)...... 178–16
H661E, H661R (Ch. 6H01) 125–13
H664 (Ch. 6H02) 149–15
H665, R, RZ, Z (Ch. 6H01) 125–13
H723 (Ch. 7H04) 122–12
H723Z (Ch. 7H04Z) 134–14
H723Z1 (Ch. 7H04Z1) (See Model H724Z1—Set 163-14)
H723Z2 (Ch. 7H04Z2) 178–17
H724 (Ch. 7H02) 126–15
H724Z (Ch. 7H02Z) (See Model H723Z—Set 134-14)
H724Z1 (Ch. 7H02Z1) 163–14
H724Z2 (Ch. 7H02Z2) 178–17
H725 (Ch. 7G01Z) 135–15
H880, H880R (Ch. 8H20 Revised) 127–14
H880RZ (Ch. 8H20) 114–12
H1083E (Ch. 10H20) (See Model H3467R—Set 120-13)
H1086R, H-1087R (Ch. 10H20) (See Model H3467R—Set 120-13)
●H2029R, H2030E, H2030R (Ch. 20H20) 144–15
●H2041R (Ch. 20H20) 144–15
●H-2052R, H2053E (Ch. 20H20) 144–15
●H2226E, R, H2227E, H2227R (Ch. 22H20) 114–13
●H2229R, H2230E, R (Ch. 22H21) 151–13
●H2241R (Ch. 22H21) 151–13
●H2242E, R (Ch. 22H22) .. 151–13
●H2250R (Ch. 22H20) 114–13
●H2252R, H2253E (Ch. 22H21) 151–13
●H2254R (Ch. 22H22) 151–13

ZENITH—Cont.

●H2255E (Ch. 22H20) 114–13
●H2328E, EZ, R, RZ (Ch. 23H22, Z) 118–11
●H2329R, RZ (Ch. 23H22, Z) (See Model H2328EZ—Set 118-11)
●H2330E, R (Ch. 23H22) (See Model H2328EE—Set 118-11)
●H2341R (Ch. 23H22) (See Model H2328E—Set 118-11)
●H2352R, RZ, H2353E, EZ Ch. 23H22, Z) 118–11
●H2436Q (Ch. 24H21) (See Model H3477R—Set 120-13)
●H2437E, H-2438R, H-2439R (Ch. 24H20) 120–13
●H2443R (Ch. 24H20) (See Model H2437E—Set 120-13)
●H2445R (Ch. 24H21) 120–13
●H2447R (Ch. 24H21) 120–13
●H2449E (Ch. 24H20) 120–13
●H2868 (Ch. 20H20 and Radio Ch. 8H20Z) (For TV Ch. see Model H-2029R—Set 144-15, for Radio Ch. see Model J880—Set 168-14)
●H3068R (Ch. 22H21 and Radio Ch. 8H20Z) (For TV Ch. see Model H2229R—Set 151-13, for Radio Ch. see Model J880—Set 168-14)
●H3074 (Ch. 20H20 and Radio Ch. 10H20Z) (For TV Ch. see Model H2029R—Set 144-15, for Radio Ch. see Model H2229R—Set 151-13)
●H3168R (Ch. 23H22 and Radio Ch. 8H20) (For TV Ch. see Model H2328E—Set 118-11, for Radio Ch. see Model H880RZ—Set 114-12)
●H3267, R (Ch. 24H20 and Radio Ch. 8H20) (For TV Ch. see Set 120-13, for Radio Ch. see Model H800RZ—Set 114-12)
●H3273E, H3274R (Ch. 22H21 and Radio Ch. 10H20Z) 151–13
●H3284R (Ch. 22H22 and Radio Ch. 10H20Z) 151–13
●H3467R (Ch. 24H20 and Radio Ch. 10H20) 120–13
●H3469E (Ch. 24H20 and Radio Ch. 10H20) (See Model H3467R—Set 120-13)
●H3475R (Ch. 24H20 and Radio Ch. 10H20) 120–13
●H3477R (Ch. 24H21 and Radio Ch. 10H20) 120–13
●H3478E (Ch. 24H21 and Radio Ch. 10H20) 120–13
●H3490EQ (Ch. 24H21 and Radio Ch. 10H20Z) (For TV Ch. see Model H2445R—Set 120-13, for Radio Ch. see Model H3273E—Set 151-13)
HF14, E (Ch. 3M02) 270–19
HF15E, R (Ch. 3M02) 270–19
HFM1184E (Ch. 11M20) ... 267–15
HFM1190R (Ch. 11M20) ... 267–15
HFR14, E (Ch. 3M02) ... 270–19
HFR15, E (Ch. 3M02) ... 270–19
HFR-20E (Ch. 5R20) 272–16
HFR-21R (Ch. 5R20) 272–16
J402 (Ch. 4J40) 178–18
J420T (Ch. 4J60T) 185–16
J504, Y (Ch. 5J41) 219–12
J514 (Ch. 5J03) 176–14
J615, F, G, W, Y (Ch. 6J05) 182–16
J616 (Ch. 6J03) 179–14
J644, J665E, R (Ch. 6J02) 172–13
J733, G, R, Y (Ch. 7J03) .. 186–17
J880, J880R (Ch. 8H20Z) .. 168–14
J1083E, EZ (Ch. 10H20Z) (See Model H3273E—Set 151-13)
J1086, R, RZ (Ch. 10H20Z) (See Model H3273E—Set 151-13)
J1087, Z (Ch. 10H20Z) (See Model H3273E—Set 151-13)
●J2026R (Ch. 20J21) 159–18
●J2027E, R, J2029E, R, J2030E, R (Ch. 20J21) 159–18
●J2031R (Ch. 20J21) (See Model J2026R—Set 159-18)
●J2032R (Ch. 20J22) (See Model J2051E—Set 159-18)
●J2040E, J2042R, J2043R, J2044E, R (Ch. 20J21) 159–18
●J2049R (Ch. 20J21) (See Model J2027E—Set 159-18)
●J2050R (Ch. 20J21) (See Model J2027E—Set 159-18)
●J2051E, J2053R, J2054R, J2055R (Ch. 20J22) 159–18
●J2126R (Ch. 21J21) 159–18
●J2127E, R, J2129E, R, J2130E, R (Ch. 21J20) 159–18
●J2140E, J2142R, J2143R, J2144E, R (Ch. 21J20) 159–18
●J2151E, J2153R, J2154R, J2155R (Ch. 21J21) 159–18
●J2868R (Ch. 20J21 and Radio Ch. 8H20Z) (For TV Ch. see Set 159-18, for Radio Ch. see Model J880—Set 168-14)
●J2968R (Ch. 21J20 and Radio Ch. 8H20Z) (For TV Ch. see Set 159-18, for Radio Ch. see Model J880—Set 168-14)
●J3069E (Ch. 20J21 and Radio Ch. 10H20Z) (For TV Ch. see Set 159-18, for Radio Ch. see Model H3273E—Set 151-13)
●J3169E (Ch. 21J20 and Radio Ch. 10H20Z) (For TV Ch. see Set 159-18, for Radio Ch. see Model H3273E—Set 151-13)
K401 (Ch. 4K40) 230–14
K412G, R, W, Y (Ch. 4K01) 195–13
K510, K510W, K510Y (Ch. 5K02) 181–15
K515 (Ch. 5K03) (See Model J514 Set 176-14)
K518 (Ch. 5J03) (See Model J514 —Set 176-14)
K526, W, Y (Ch. 5K04) .. 215–18
K622, F, G, W (Ch. 6K03) 203–17
K666R (Ch. 6K02) 203–18
K725, F, G (Ch. 7K01) 212–10
K777E, R (Ch. 7K20) 190–17
●K1812E (Ch. 19K22) 184–15
●K1812E-3 (Ch. 19K22-3) .. 214–11

ZENITH—Cont.

●K1812R (Ch. 19K22) 184–15
●K1812R-3 (Ch. 19K22-3) .. 214–11
●K1815E, R (Ch. 19K20) ... 184–15
●K1820E (Ch. 19K20) 184–15
●K1820E-3 (Ch. 19K20-3) .. 219–13
●K1820R (Ch. 19K20) 184–15
●K1820R-3 (Ch. 19K20-3) .. 219–13
●K1846E (Ch. 19K20) 184–15
●K1846E-3 (Ch. 19K20-3) .. 219–13
●K1846R (Ch. 19K20) 184–15
●K1846R-3 (Ch. 19K20-3) .. 219–13
●K1850E, R (Ch. 19K20) ... 184–15
●K1880R (Ch. 19K20) 184–15
●K1880R-3 (Ch. 19K20-3 and Radio Ch. 8H20Z) (For TV Ch. see Set 219-13, for Radio Ch. see Model J880—Set 168-14)
●K2229E (Ch. 19K24) (See Model K1812E—Set 184-15)
●K2229E-3 (Ch. 19K24-3) .. 214–11
●K2229R (Ch. 19K23) 184–15
●K2229R-3 (Ch. 19K24-3) .. 214–11
●K2230E, R (Ch. 21K20) ... 187–14
●K2235E (Ch. 19K23) (See Model K1812E—Set 184-15)
●K2235E-3 (Ch. 19K23-3) .. 219–13
●K2235R (Ch. 19K23) (See Model K1812E—Set 184-15)
●K2235R-3 (Ch. 19K23-3) .. 219–13
●K2240E, R (Ch. 21K20) ... 187–14
●K2258E (Ch. 19K23) (See Model K2258R—Set 184-15)
●K2258E-3 (Ch. 19K23-3) .. 219–13
●K2258R (Ch. 19K23) 184–15
●K2258R-3 (Ch. 19K23-3) .. 219–13
●K2260R (Ch. 21K20) 187–14
●K2260R-3 (Ch. 21K20-3) .. 220–12
●K2262R (Ch. 19K23) (See Model K2229R—Set 184-15)
●K2262R-3 (Ch. 19K23-3) .. 219–13
●K2263E (Ch. 21K20) 187–14
●K2263E-3 (Ch. 21K20-3) .. 220–12
●K2266, R (Ch. 21K20) 187–14
●K-2266R-3 (Ch. 21K20-3) .. 220–12
●K2267E (Ch. 21K20) 187–14
●K2267E-3 (Ch. 21K20-3) .. 220–12
●K2268R (Ch. 21K20) 187–14
●K2270H, R (Ch. 21K20) ... 187–14
●K2271H (Ch. 21K20) (See Model K2230E—Set 187-14)
●K2271H-3 (Ch. 21K20-3) .. 220–12
●K2286R (Ch. 19K23) 184–15
●K2286R-3 (Ch. 19K23-3 and Radio Ch. 7K21) (TV Ch. only) .219–13
●K2287R (Ch. 21K20 and Radio Ch. 8H20Z) (For TV Ch. see Set 187-14, for Radio Ch. see Model J880 —Set 168-14)
●K2287R-3 (Ch. 21K20-3) .. 220–12
●K2288E (Ch. 19K23) 184–15
●K2290R, K2291E (Ch. 21K20 and Radio Ch. 10H20Z) (For TV Ch. see Set 187-14, for Radio Ch. see Model H3273E—Set 151-13)
●K2291E-3 (Ch. 21K20 and Radio Ch. 10H20Z) (For TV Ch. see Set 220-12, for Radio Ch. see Model H3273E—Set 151-13)
●K2872R, K2873E (Ch. 29K20) 215–19
L401 (Ch. 4L40) 230–14
L403F, G, R, Y (Ch. 4L41) 221–14
L406R (Ch. 4L42) 220–13
L505F, R, Y (Ch. 5L41) 224–18
L507 (Ch. 5L42) 229–18
L515 (Ch. 5L06) 238–15
L518, F, G, W, Y (Ch. 5L03) 217–18
L520 (Ch. 5L07) 238–15
L565E, R (Ch. 5L09) 242–13
L566 (Ch. 5L08) 245–12
L600 (Ch. 6L40) 254–13
L622, F, G, W (Ch. 6L03) 222–16
L677E, R (Ch. 6L20) 241–13
L721 (Ch. 7L05) 226–12
L845R, L846E, H (Ch. 8L21) 234–14
L880 (Ch. 8L20) 234–14
L1083E (Ch. 10L20) 233–13
L1086R (Ch. 10L20) 233–13
●L1800R, RU (Ch. 19L34, U) (For TV Ch. See Model L1812E—Set 223-14 For UHF Tuner See Model L2571RU—Set 227-16)
●L1812E (Ch. 19L26) 223–14
●L1812EU (Ch. 19L26U) (For TV Ch. See Model L1812E—Set 223-14, For UHF Tuner See Model L2571RU —Set 227-16)
●L1812R (Ch. 19L26) 223–14
●L1812RU (Ch. 19L26U) (For TV Ch. See Model L1812R—Set 223-14, For UHF Tuner See Model L2571RU —Set 227-16)
●L1820E (Ch. 19L26) 223–14
●L1820EU (Ch. 19L26U) (For TV Ch. See Model L1820E—Set 223-14, For UHF Tuner See Model L2571RU —Set 227-16)
●L1820R (Ch. 19L26) 223–14
●L1820RU (Ch. 19L26U) (For TV Ch. See Model L1820R—Set 223-14, For UHF Tuner See Model L2571RU —Set 227-16)
●L1846E, EU, R, RU (Ch. 19L25, U) 232–11
●L1846E, EU, R, RU (Ch. 19L28, U) (For TV Ch. See Model L2229E— Set 223-14, For UHF Tuner See Model L2571RU—Set 227-16)
●L2228 R, RU (Ch. 19L33, U) (For TV Ch. See Model L2229E—Set 223-14, For UHF Tuner See Model L2571RU—Set 227-16)
●L2229E (Ch. 19L28) 223–14
●L2229EU (Ch. 19L28U) (For TV Ch. See Model L2229E—Set 223-14, for UHF Tuner see Model L2571RU —Set 227-16)
●L2229R (Ch. 19L28) 223–14
●L2229RU (Ch. 19L28U) (For TV Ch. See Model L2229R—Set 223-14, For UHF Tuner See Model L2571RU —Set 227-16)
●L2235E (Ch. 19L28) 223–14
●L2235EU (Ch. 19L28U) (For TV Ch. See Model L2235E—Set 223-14, For UHF Tuner See Model L2571RU —Set 227-16)

ZENITH—Cont.

●L2235R (Ch. 19L28) 223–14
●L2235RU (Ch. 19L28U) (For TV Ch. See Model 2235R—Set 223-14, For UHF Tuner See Model L2571RU —Set 227–16)
●L2236E, EU, R, RU (Ch. 19L27, U) 232–11
●L2237E, R (Ch. 19L27) (See Model L2236E—Set 232-11)
●L2237E, R (Ch. 19L28) (See Model L2229E—Set 223-14)
●L2237EU, RU (Ch. 19L27U) (See Model L2236E—Set 232-11)
●L2237EU, RU (Ch. 19L30U) (For TV Ch. See Model L2229E—Set 223-14 For UHF Tuner See Model L2571RU—Set 227-16)
●L2250, E, R (Ch. 19L27) (See Model L2236E—Set 232-11)
●L2250, E, R (Ch. 19L28) (See Model L2229E—Set 223-14)
●L2250EU, RU, U (Ch. 19L27U) (See Model L2236E—Set 236-11)
●L2250EU, RU, U (Ch. 19L30U) (For TV Ch. See Model L2229E—Set 223-14, For UHF Tuner See Model L2571RU—Set 227-16)
●L2258E, EU, R, RU (Ch. 19L27, U) 232–11
●L2258E, EU, R, RU (Ch. 19L28, U) (For TV Ch. See Model L2229E— Set 223-14, For UHF Tuner See Model L2571RU—Set 227-16)
●L2259E, EU, R, RU, L2260R, RU, L2261E, EU, H, HU (Ch. 21L21, U) 239–12
●L2262C, CU, R, RU (Ch. 19L27, U) 232–11
●L2262C, CU, R, RU (Ch. 19L28, U) (For TV Ch. See Model L2229E— Set 223-14 For UHF Tuner See Model L2571RU—Set 227-16)
●L2266R, RU, L2267E, EU, H, HU (Ch. 21L21, U) 239–12
●L2270, U (Ch. 21L21, U) .. 239–12
●L2281, E, EU, R, RU, U (Ch. 19L27, U and Radio Ch. 4L03) . 232–11
●L2281, E, EU, R, RU (Ch. 19L28, U and Radio Ch. 4L03) (For TV Ch. See Model L2229E—Set 223-14, For Radio Ch. and UHF Tuner See Model L2281EU—Set 232-11)
●L2285R, RU (Ch. 19L27, U and Radio Ch. 8L20) 232–11
●L2285R, RU (Ch. 19L28 and Radio Ch. 8L20) (For TV Ch. See Model L2229E—Set 223-14, For Radio Ch. and UHF Tuner See Model L2285RU—Set 232-11)
●L2287R, RU (Ch. 21L21, U and Radio Ch. 10L20) 239–12
●L2571R, RU (Ch. 22L20, U) 227–16
●L2572R, RU (Ch. 22L20, U) 227–16
●L2573E, EU (Ch. 22L20, U) 227–16
●L2574R, RU (Ch. 22L20, U) 227–16
●L2575E, EU (Ch. 22L20, U) 227–16
●L2575Y, YU (Ch. 22L20, U) (See Model L2575E—Set 227-16)
●L2592R, RU (Ch. 22L20, U and Radio Ch. 10L20) 227–16
●L2593H, HU (Ch. 22L20, U and Radio Ch. 10L20) 227–16
●L2876E, EU, R, RU (Ch. 22L20, U) 227–16
●L2878R, RU (Ch. 22L20, U) 227–16
●L2879E, EU (Ch. 22L20, U) 227–16
●L2894HU (Ch. 22L20U and Radio Ch. 10L20) 227–16
M403G, L, R, V, W, Y (Ch. 4L41) (See Model L403F—Set 221-14)
M505F, R, Y (Ch. 5L41) (See Model L505F—Set 224-18)
M510G, R, W, Y (Ch. 5M02) 265–16
●M1800E (Ch. 19M20) 259–16
●M1800EU (Ch. 19M20U) .. 259–16
●M1800EZ (Ch. 19M20Z) ... 259–16
●M1800R (Ch. 19M20) 259–16
●M1800RU (Ch. 19M20U) .. 259–16
●M1800RZ (Ch. 19M20Z) ... 259–16
●M1800RZ1, RUZ1 (Ch. 19L34, U) (For TV Ch. See Model L1812E— Set 223-14, For UHF Tuner See Model L2571RU—Set 227-16)
●M2228R (Ch. 19M21) 259–16
●M2228RU (Ch. 19M21U) .. 259–16
●M2228RZ (Ch. 19M21Z) ... 259–16
●M2229E (Ch. 19M21) 259–16
●M2229E (Ch. 19M21U) ... 259–16
●M2229EZ (Ch. 19M21Z) ... 259–16
●M2229R (Ch. 19M21) 259–16
●M2229RU (Ch. 19M21U) .. 259–16
●M2229RZ (Ch. 19M21Z) ... 259–16
●M2230E (Ch. 19M21) 259–16
●M2230EU (Ch. 19M21U) .. 259–16
●M2249RZ (Ch. 19M21Z) ... 236–16
●M2230R (Ch. 19M21) 259–16
●M2230RU (Ch. 19M21U) .. 259–16
●M2230RZ (Ch. 19M21Z) ... 259–16
●M2230RZ2 (Ch. 19M21) .. 259–16
●M2237EU (Ch. 20M20U) .. 261–17
●M2237EZ (Ch. 20M20Z) ... 261–17
●M2237R (Ch. 20M20) 261–17
●M2237RU (Ch. 20M20U) .. 261–17
●M2237RZ (Ch. 20M20Z) ... 261–17
●M2249E (Ch. 19M21) 259–16
●M2249EU (Ch. 19M21U) .. 259–16
●M2249EZ (Ch. 19M21Z) ... 259–16
●M2249R (Ch. 19M21) 259–16
●M2249RU (Ch. 19M21U) .. 259–16
●M2249RZ (Ch. 19M21Z) ... 239–16
●M2250E (Ch. 19M21) 259–16
●M2250EU (Ch. 19M21U) .. 259–16
●M2250EZ (Ch. 19M21Z) ... 259–16
●M2250R (Ch. 19M21) 259–16
●M2250RU (Ch. 19M21U) .. 259–16
●M2250RUZ (Ch. 19M21UZ) 259–16
●M2250RZ (Ch. 19M21Z) .. 259–16
●M2251EUZ1, RUZ1 (Ch. 19L30U) Tel. Rec. (For TV Ch. See Model L1812E—Set 223-14 For UHF Tuner See Model L2571RU—Set 227-6)
●M2251RZ1, Z1 (Ch. 19L28) (See Model L2229E—Set 223-14)
●M2252E (Ch. 19M21) 259–16
●M2252EU (Ch. 19M21U) .. 259–16

ZENITH—Cont.

●M2252EZ (Ch. 19M21Z) ... 259–16
●M2252R (Ch. 19M21) 259–16
●M2252RU (Ch. 19M21U) .. 259–16
●M2252RZ (Ch. 19M21Z) ... 259–16
●M2258RZ1 (Ch. 19L28) (See Model L2229E—Set 223-14)
●M2258RUZ1 (Ch. 19L30U) (For TV Ch. See Model L2229E—Set 223-14, For UHF Tuner See Model L2571RU—Set 227-6)
●M2260R (Ch. 20M20) 261–17
●M2260RU (Ch. 20M20U) .. 261–17
●M2260RUZ (Ch. 20M20UZ) 261–17
●M2260RZ (Ch. 20M20Z) ... 261–17
●M2261E (Ch. 20M20) 261–17
●M2261EU (Ch. 20M20U) .. 261–17
●M2261EZ (Ch. 20M20Z) ... 261–17
●M2267Y (Ch. 20M20) 261–17
●M2267YU (Ch. 20M20U) .. 261–17
●M2267YZ (Ch. 20M20Z) ... 261–17
●M2570R (Ch. 20M21) 273–15
●M2570RUZ (Ch. 20M21ZU) 273–15
●M2570RZ (Ch. 20M21Z) ... 273–15
●M2570U (Ch. 20M21U) ... 273–15
R509F, R, V, W, Y (Ch. 5R05) 273–16
R511F, R, V, W (Ch. 5R01) 269–17
R512F, R, V, W (Ch. 5R10) 277–13
R514, F, V, W (Ch. 5L06) (See Model L515—Set 238-15)
R600, L (See Model L600—Set 254-13)
R623F, G, R, W, Y Ch. 6R03) 274–17
●R1800E, EU (Ch. 19R20, U) 267–16
●R1800EUZ (Ch. 19M20U) .. 259–16
●R1800EZ (Ch. 19M20) 259–16
●R1800R, RU (Ch. 19R20, U) 267–16
●R1800RUZ (Ch. 19M20U) .. 259–16
●R1800RZ (Ch. 19M20) 259–16
●R1812E, EU (Ch. 19R20, U) 267–16
●R1812EUZ (Ch. 19M20U) .. 259–16
●R1812EZ (Ch. 19M20) 259–16
●R1812R, RU (Ch. 19R20, U) 267–16
●R1812RUZ (Ch. 19M20U) .. 259–16
●R1812RZ (Ch. 19M20) 259–16
●R2229E, EU (Ch. 19R21, U) 267–16
●R2229EUZ (Ch. 19M21U) .. 259–16
●R2229EZ (Ch. 19M21) 259–16
●R2229R, RU (Ch. 19R21, U) 267–16
●R2229RUZ (Ch. 19M21U) .. 259–16
●R2229RZ (Ch. 19M21) 259–16
●R2230E, EU (Ch. 19R21, U) 267–16
●R2230EUZ (Ch. 19M21U) .. 259–16
●R2230EZ (Ch. 19M21) 259–16
●R2230R, RU (Ch. 19R21, U) 267–16
●R2230RUZ (Ch. 19M21U) .. 259–16
●R2230RZ (Ch. 19M21) 259–16
●R2237E, EU, R, RU (Ch. 22R20, U) 276–10
●R2249E, EU (Ch. 19R21, U) 267–16
●R2249EUZ (Ch. 19M21U) .. 259–16
●R2249EZ (Ch. 19M21) 259–16
●R2249R, RU (Ch. 19R21, U) 267–16
●R2249RUZ (Ch. 19M21U) .. 259–16
●R2249RZ (Ch. 19M21) 259–16
●R2250E, EU (Ch. 19R21, U) 267–16
●R2250EUZ (Ch. 19M21U) .. 259–16
●R2250EZ (Ch. 19M21) 259–16
●R2250R, RU (Ch. 19R21, U) 267–16
●R2250RUZ (Ch. 19M21U) .. 259–16
●R2250RZ (Ch. 19M21) 259–16
●R2253M, MU (Ch. 19R21, U) 267–16
●R2257E, EU (Ch. 19R22, U) 267–16
●R2257EUZ (Ch. 19M21U) . 259–16
●R2257EZ (Ch. 19M21) 259–16
●R2257R, RU (Ch. 19R22, U) 267–16
●R2257RUZ (Ch. 19M21U) . 259–16
●R2257RZ (Ch. 19M21) 259–16
●R2258E, EU (Ch. 19R21, U) 267–16
●R2258EUZ (Ch. 19M21U) . 259–16
●R2258EZ (Ch. 19M21) 259–16
●R2258R, RU (Ch. 19R21, U) 267–16
●R2258RUZ (Ch. 19M21U) .. 259–16
●R2258RZ (Ch. 19M21) 259–16
●R2359E, EU, R, RU (Ch. 22R20, U) 276–10
●R2360R, RU (Ch. 22R20, U) 276–10
●R2367E, EU, Y, YU (Ch. 22R20, U) 276–10
●R2368R, RU (Ch. 22R20, U) 276–10
●R2387R, U (Ch. 22R20, U and Radio Ch. 10L20) (For Radio Ch. See PFF 227-16 or 233-13) . 276–10
●R2391E, EU (Ch. 22R20, U and Radio Ch. 10L20) (For Radio Ch. See PFF 227-16 or 233-13) 276–10
●R2671E (Ch. 22R21) 274–18
●R2671EU (Ch. 22R21U) ... 274–18
●R2671R (Ch. 22R21) 274–18
●R2671RU (Ch. 22R21U) 274–18
●R2975R (Ch. 22R21) 274–18
●R2975RU (Ch. 22R21U) 274–18
●R2976E (Ch. 22R21) 274–18
●R2976EU (Ch. 22R21U) 274–18
●R2979E (Ch. 22R21) 274–18
●R2979EU (Ch. 22R21U) 274–18
S-9010 (Ch. 4L02) 230–15
S-9011, S-9012 (Ch. 3L01) . 247–16
S-9013 (Ch. 3M01) 257–20
●T2229E, R, Y (Ch. 19R21) (See Model R2253M—Set 267-16)
●T2230E, R (Ch. 19R21) (See Model R2253M—Set 267-16)
●T2250E, R (Ch. 19R21) (See Model R2253M—Set 267-16)
●T2253M (Ch. 19R22) (See Model R2257E—Set 267-16)
●T2256E, R (Ch. 19R21) (See Model R2253M—Set 267-16)
●T2257E, R (Ch. 19R22) (See Model R2257E—Set 267-16)
●T2261, E, H, R, Y (Ch. 19R22) (See Model R2257E—Set 267-16)
●T2262E, R (Ch. 19R22) (See Model R2257E—Set 267-16)
4G800 (Ch. 4E41) 35–27
4G800WZ, 4G800YZ, 4G800Z (Ch. 4E41Z) 52–23
4G903, 4G903Y (Ch. 4F40) 76–20
4K016 (Ch. 4C52) 6–39
4K035 (Ch. 4C53) 6–40
5D011, 5D027 (Ch. 5C01, 5C01Z) 3–17
5D810 (Ch. 5E02) 54–21
5G003 (Ch. 5C40) 17–35

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200 Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250 ● Denotes Television Receiver.

ZENITH—Cont.

5G003Z (Ch. 5C40Z, 25G003ZZ (Ch. 5C40ZZ) 30–31
5G036 (Ch. 5C51) 30–32
5R080-5R086 (Ch. 5C02, 5C04) .... 4—4
6D014, 6D014W (Ch. 6C01) 9–35
6D015, 6D015Y (Ch. 6C05, 6C05Z) 3–24
6D029, 6D029G (Ch. 6C01) 9–35
6D030 (Ch. 6C05, 6C05Z).. 3–24
6D815, 6D815W, 6D815Y (Ch. 6E05) 55–24
6G001, 6G001Y (Ch. 6C40) 3–14
6G001YZ1 (See Model 6G001—Set 3-14)
6G004Y (Ch. 6C41) 20–35
6G038 (Ch. 6C50) 32–30
6G801 (Ch. 6E40) 53–26
6R084 (Ch. 6C21) 20–36
6R087 (Ch. 6C22) 7–32
7R886 (Ch. 6E02) 34–30
7H820, 7H820W (Ch. 7E01) 43–24
7H822 (Ch. 7E02), 7H822WZ, 7H822Z (Ch. 7E02Z) 55–25
7H918 (Ch. 7F03) 75–18
7H920, 7H920W (Ch. 7F01) 77–13
7H921 (Ch. 7F04) 73–16
7H922 (Ch. 7F02) 87–15
7R070 (Ch. 6C06) 37–25
7R887 (Ch. 7E22) 54–22
8G005Y (Ch. 8C40) 7–33
8G005YT (Z1) (Ch. 8C40T) (Z1), 8G005YT (Z2) (Ch. 8C40T) (Z2) 53–27
8H023 (Ch. 8C01) 4–40
8H032, 8H033 (Ch. 8C20). 1–33
8H034 4–40
8H050, 8H051, 8H052, 8H061 1–33
8H832, 8H861 (Ch. 8E20). 52–24
9H079, 9H079E, 9H079R, 9H081, 9H082R, 9H085R, 9H088R (Ch. 8C21) 7–34
9H881, 9H882R, 9H885, 9H888R (Ch. 9E21) 43–25
9H984, 9H984LP (Ch. 9F22) 64–14
9H995 (Ch. 9E21Z) 74–12
12H090, 12H091, 12H092, 12H093, 12H094 (Ch. 11C21) 2–20
14H789 (Ch. 13D22) 41–24
●27T965R (Ch. 27F20) .... 95—8
●28T925, E, R (Ch. 28F22) . 64–15
●28T926E, R (Ch. 28F25) (See Model 28T925—Set 64-15)
●28T960E (Ch. 28F20) (See Model 28T960—Set 64-15)
●28T960E-Z (Ch. 28F20Z) (See Model 28T960—Set 64-15)
●28T960-GO, 28T960K (Ch. 28F20) (See Model 28T960—Set 64-15)
●28T961E, 28T961-GO (Ch. 28F21) (See Model 28T961—Set 64-15)
●28T962R (Ch. 28F20) (See Model 28T962—Set 64-15)
●28T962R-Z (Ch. 28F20Z) (See Model 28T962—Set 64-15)
●28T963 (Ch. 28F21) 64–15
●28T964R (Ch. 28F23) 74–13
●37T996RLP (Ch. 28F23 and Radio Ch. 9E21Z) (For TV Ch. see Model 42T999RLP—Set 74-13, for Radio Ch. see Model 9H995—Set 74-12)
●37T998RLPU (Ch. 28F20 and Radio Ch. 9E21Z) (For TV Ch. see Model 28T960—Set 64-15, for Radio Ch. see Model 9H995—Set 74-12)
●42T999RLP (Ch. 28F23, Radio Ch. 13D22) (See Model 28T964R—Set 74-13)
Ch. 3L01 (See Model S-9011)
Ch. 3M01 (See Model S-9013)
Ch. 3M02 (See Model HF14)
Ch. 4C52 (See Model 4K016)
Ch. 4C53 (See Model 4K035)
Ch. 4E41 (See Model 4G800)
Ch. 4E41Z (See Model 4G800Z)
Ch. 4F40 (See Model 4G903)
Ch. 4H40 (See Model H-401)
Ch. 4J40 (See Model J402)
Ch. 4J60T (See Model J420T)
Ch. 4K01 (See Model K412G)
Ch. 4K40 (See Model K401)
Ch. 4L02 (See Model S-9010)
Ch. 4L03 (See Model L2281)
Ch. 4L40 (See Model L401)
Ch. 4L41 (See Model L403F)
Ch. 4L42 (See Model L406R)
Ch. 5C01, 5C01Z (See Model 5D011)
Ch. 5C02, 5C02Z (See Model 5R080)
Ch. 5C04 (See Model 5R080)
Ch. 5C40 (See Model 5G003)
Ch. 5C40Z (See Model 5G003Z)
Ch. 5C40ZZ (See Model 5G003ZZ)
Ch. 5C51 (See Model 5G036)
Ch. 5E02 (See Model 5D810)
Ch. 5G01 (See Model G511)
Ch. 5G02 (See Model G510)
Ch. 5G03 (See Model G516)
Ch. 5G40 (See Model G500)
Ch. 5G41 (See Model G503)
Ch. 5H01 (See Model H511)
Ch. 5H40 (See Model H500)
Ch. 5H41 (See Model H503)
Ch. 5J03 (See Model J514)
Ch. 5J41 (See Model J504)
Ch. 5K02 (See Model K510)
Ch. 5K03 (See Model K518)
Ch. 5K04 (See Model K526)
Ch. 5L03 (See Model L518)
Ch. 5L06 (See Model L515)
Ch. 5L07 (See Model L520)
Ch. 5L08 (See Model L566)
Ch. 5L09 (See Model L565E)
Ch. 5L41 (See Model L505F)
Ch. 5L42 (See Model L507)
Ch. 5M02 (See Model M510G)
Ch. 5R01 (See Model R511F)
Ch. 5R05 (See Model R509F)
Ch. 5R10 (See Model R512F)
Ch. 5R20 (See Model HFR-20E)
Ch. 6C01 (See Model 6D014)
Ch. 6C05, Z (See Model 6D015)
Ch. 6C06 (See Model 7R070)
Ch. 6C21 (See Model 6R084)
Ch. 6C22 (See Model 6R087)
Ch. 6C40 (See Model 6G001)
Ch. 6C41 (See Model 6G004Y)
Ch. 6C50 (See Model 6G038)
Ch. 6E02 (See Model 6R886)
Ch. 6E05 (See Model 6D815)
Ch. 6E40 (See Model 6G801)
Ch. 6G01 (See Model G660)
Ch. 6G05 (See Model G615)
Ch. 6G05Z1 (See Model H615Z1)
Ch. 6G20 (See Model G2957)
Ch. 6H01 (See Model H661E)
Ch. 6H02 (See Model H664)
Ch. 6J02 (See Model J644)
Ch. 6J03 (See Model J616)
Ch. 6J05 (See Model J615)
Ch. 6K02 (See Model K666R)
Ch. 6K03 (See Model K622)
Ch. 6L03 (See Model L622)
Ch. 6L20 (See Model L677E)
Ch. 6L40 (See Model L600)
Ch. 6R03 (See Model R623F)
Ch. 6R40, 6R41 (See Model L600)
Ch. 7E01 (See Model 7H820)
Ch. 7E02 (See Model 7H822)
Ch. 7E02Z (See Model 7H822WZ)
Ch. 7E22 (See Model 7R887)
Ch. 7F01 (See Model 7H920)
Ch. 7F02 (See Model 7H922)
Ch. 7F03 (See Model 7H918)
Ch. 7F04 (See Model 7H921)
Ch. 7G01 (See Model G725)
Ch. 7G01Z (See Model H725)
Ch. 7G02 (See Model G724)
Ch. 7G04 (See Model G723)
Ch. 7H02 (See Model H724)
Ch. 7H02Z (See Model H724Z)
Ch. 7H02Z1 (See Model H724Z1)
Ch. 7H02Z2 (See Model H724Z2)
Ch. 7H04 (See Model H723)
Ch. 7H04Z (See Model H723Z)
Ch. 7H04Z1 (See Model H723Z1)
Ch. 7H04Z2 (See Model H723Z2)
Ch. 7J03 (See Model J733)
Ch. 7K01 (See Model K725)
Ch. 7K20 (See Model K777E)
Ch. 7L05 (See Model L721)
Ch. 8C01 (See Model 8H023)
Ch. 8C20 (See Model 8H032)
Ch. 8C21 (See Model 9H079)
Ch. 8C40 (See Model 8G005Y)
Ch. 8C40T(Z1) [See Model 8G005-YT (Z1)]
Ch. 8C40T (Z2) [See Model 8G005-YT (Z2)]
Ch. 8E20 (See Model 8H832)
Ch. 8G20 (See Model G881)
Ch. 8G20/22 .... 91A–13
Ch. 8H20 (See Model H880RZ)
Ch. 8H20 Revised (See Model H880)
Ch. 8H20Z (See Model J880)
Ch. 8L20 (See Model L880 or L2285R)
Ch. 8L21 (See Model L845R)
Ch. 9E21 (See Model 9H881)
Ch. 9E21Z (See Model 9H995)
Ch. 9F22 (See Model 9H984)
Ch. 10H20 (See Model H3467R)
Ch. 10H20Z (See Model H3273E)
Ch. 10L20 (See Model L1083E or L2592R)
Ch. 11C21 (See Model 12H090)
Ch. 11M20 (See Model HFM1184E)
Ch. 13D22 (See Model 14H789)
Ch. 19K20 (See Model K1815E)
Ch. 19K20-3 (See Model K1820E-3)
Ch. 19K22 (See Model K1812E)
Ch. 19K22-3 (See Model K1812E-3)
Ch. 19K23 (See Model K2229R)
Ch. 19K23-3 (See Model K2235E-3)
Ch. 19K24 (See Model K2229E)
Ch. 19K24-3 (See Model K2229E-3)
Ch. 19L25, U (See Model L1846E, EU)
Ch. 19L26, U (See Model L1812E, EU)
Ch. 19L27, U (See Model L2236E, EU)
Ch. 19L28, U (See Model L2229E, EU)
Ch. 19L30, U (See Model L2250EU)
Ch. 19L33, U (See Model L2228R, RU)
Ch. 19L34, U (See Model L1800R, RU)
Ch. 19M20 (See Model M1800E)
Ch. 19M20U (See Model M1800EU)
Ch. 19M20Z (See Model M1800EZ)
Ch. 19M21 (See Model M2228R)
Ch. 19M21U (See Model M2228RU)
Ch. 19M21UZ (See Model M2250-RUZ)
Ch. 19M21Z (See Model M2228RZ)
Ch. 19R20, U (See Model R1800E, EU)
Ch. 19R21, U (See Model R2229E, EU)
Ch. 19R22, U (See Model R2257E, EU)
Ch. 20H20 (See Model H2029R)
Ch. 20J21 (See Model J2027E)
Ch. 20J22 (See Model J2026R)
Ch. 20M20 (See Model M2237R)
Ch. 20M20U (See Model M2237EU)
Ch. 20M20Z (See Model M2237EZ)
Ch. 20M21 (See Model M2570R)
Ch. 20M21U (See Model M2570U)
Ch. 20M21Z (See Model M2570RZ)
Ch. 20M21ZU (See Model M2570RUZ)
Ch. 21J20 (See Model J2127E)
Ch. 21J21 (See Model J2127R)
Ch. 21K20 (See Model K-2230E)
Ch. 21K20-3 (See Model K2260R-3)
Ch. 21L21, U (See Model L2259E, EU)
Ch. 22H20 (See Model H2226R)
Ch. 22H21 (See Model H2229R)
Ch. 22H22 (See Model H2242E)
Ch. 22L20, U (See Model L2571R, RU)
Ch. 22R20, U (See Model R2237E)
Ch. 22R21 (See Model R2671E)
Ch. 22R21U (See Model R2671EU)
Ch. 23G22 (See Model G2322)
Ch. 23G23 (See Model G2957)
Ch. 23G24 .... 91A–13
Ch. 23G24Z1 (See Model G2322Z1)
Ch. 23H22, 23H22Z (See Model H-2328E)
Ch. 24G20 (See Model G2420E)
Ch. 24G20-OX (See Model G2420-EOX)
Ch. 24G21 (See Model G2454R)
Ch. 24G21-OX (See Model G2454-ROX)
Ch. 24G22/24 (See Model G2441R)
Ch. 24G23/25 (See Model G3059R)
Ch. 24G24 (See Model G2441)
Ch. 24G26 .... 91A–12
Ch. 24G26Z1 (See Model G2441Z1)
Ch. 24H20 (See Model H2437E)
Ch. 24H21 (See Model H2445R)
Ch. 27F20 (See Model 27T965R)
Ch. 28F20 (See Model 28T960E)
Ch. 28F20Z (See Model 28T960E-Z)
Ch. 28F21 (See Model 28T961E)
Ch. 28F22 (See Model 28T925E)
Ch. 28F23 (See Model 28T964R)
Ch. 28F25 (See Model 28T926E)
Ch. 28K20 (See Model K2872R)
Ch. 29G20 (See Model G2951)

RECORD CHANGERS

(CM-1) indicates service data *also* available in Howard W. Sams 1947 Record Changer Manual. (CM-2) indicates service data available in Howard W. Sams 1948 Record Changer Manual. (CM-3) indicates service data available in Howard W. Sams 1949, 1950 Record Changer Manual. (CM-4) indicates service data available in Howard W. Sams 1951, 1952 Record Changer Manual. (CM-5) indicates service data available in Howard W. Sams 1953 Record Changer Manual.

ADMIRAL

RC-150 .... (CM-1) 26–31
RC160, RC160A, RC161, RC-161A (See Model RC200—Set 9 and Model RC-160—Set 21-37)
RC-170, RC-170A .. (CM-1) 31—2
RC-180, RC181 ... (CM-2) 76—1
RC-182 (See Model RC-181—Set 76-1 and Supplement—Set 76-2) (CM-2)
RC-200 .... (CM-1) 9
RC-210, RC211, RC212 (CM-3) .... 72—1
RC-220, RC-221, RC-222, RC-320, RC-321, RC-322 [See Set 79-1 and Changes in Set 108-2 (CM-3)]
RC400 .... (CM-4) 104—1
RC500 .... (CM-4 132—2
RC-550 [See Model RC-500—Set 132-2 (CM-4) and Model RC-550—Set 185-2 (CM-5)]
RC600 .... (CM-5) 218—2

AERO

46A .... (CM-1) 19–34
47A .... (CM-2) 77—2

AVIOLA

100 .... (CM-1) 33–32

BELMONT

C-9 .... (CM-2) 34–21

COLLARO

RC.521, RC.522 ... (CM-5) 205—4
3RC.521, 3RC.522. (CM-5) 205—4
3RC-531, 3RC-532 .... 237—4

COLUMBIA RECORDS

104 .... 124—2
950-274 .... 276—4

CRESCENT

C-200 .... (CM-1) 20–37
6 Series .... (CM-3) 89—4

CRESCENT—Cont.

250 Series .... (CM-2) 78—5
350 Series .... (CM-2) 80—3
500 Series .... (CM-5) 197—4

FARNSWORTH

P-51, P56 .... (CM-1) 13–36
P-72, P73 .... (CM-2) 75—8

GARRARD

RC-60 .... (CM-2) 81—7
RC-80 .... (CM-4) 157—5
RC90 .... 258—8

GENERAL ELECTRIC

P6 .... (CM-2) 79—8

GENERAL INDUSTRIES

RC130L .... (CM-1) 22–33

GENERAL INSTRUMENT

204 .... (CM-1) 23–34
205 .... (CM-1) 10

LEAR

PC-206A .... (CM-1) 18–33

MAGUIRE

ARC-1 .... (CM-1) 7

MARKEL

70, 71 .... (CM-2) 84—8
74, 75 [See Set 91-7 (CM-3) and Supplement—Set 131-11]

MILWAUKEE ERWOOD

10700 .... (CM-1) 16–37
11200 .... (CM-2) 86—6
11600 .... (CM-3) 73—7
12300 .... (CM-4) 138—5

MOTOROLA

B24RC, B25RC, B27RC, B28RC .... (CM-1) 12–35
RC30 .... (CM-2) 80—9
RC36, A .... (CM-4) 147—8

MOTOROLA—Cont.

RC36C (See Model RC36—Set 147-8)
RC37 .... (CM-4) 141—8
RC40 [See Model RC37—Set 141-8 (CM-4)]

OAK

6666 .... (CM-1) 19–35
9201 .... (CM-3) 111–10

PHILCO

D10, D10A .... (CM-1) 14–21
M-4 .... (CM-1) 25–30
M-7 .... (CM-1) 28–35
M-8 .... (CM-2) 83—7
M-9C .... (CM-2) 74—7
M-12C .... (CM-3) 109—9
M-20 .... (CM-3) 103–11
M-22 .... (CM-4) 140—6

RCA

R-198-1, -2 .... 273—9
RP168 .... (CM-3) 72–10
RP-176 .... (CM-1) 25–31
RP-177 .... (CM-2) 44–27
RP-178 .... (CM-2) 79–12
RP-190 Series .... (CM-4) 144—7
RP-197-1, -6, B-1 .... 273—9

SEEBURG

K .... (CM-1) 11–36
L .... (CM-1) 24–34
M .... (CM-1) 32–19
S, SQ .... (CM-2) 78–12

SILVERTONE

101.761-2, 101.762-2 .... (CM-2) 77–10
101.761-3, 101.762-3 .... (CM-2) 83–11
101.762, 101.763 .... (CM-2) 88–11
488.218 .... 243—9
488.219 (Late) .... 244—9

SPARTON

C48 .... (CM-2) 87–11

THORENS

CD-40 .... (CM-1) 39–29
CD43 222–15

TRAV-LER

A .... (CM-3) 72–13

UNIVERSAL CAMERA

100 .... (CM-1) 36–30

UTAH

550 .... (CM-1) 8
650 .... (CM-1) 22–34
7000 .... (CM-1) 27–31
7001 .... (CM-2) 83–15

V-M

200-B .... (CM-1) 15–36
400 .... (CM-1) 26–33
400 (Late) .... (CM-2) 90–13
402, 400C .... (CM-2) 82–12
402D, 400D .... (CM-2) 87–14
404 [See Model 405—Set 73-14 (CM-3)]
405 .... (CM-3) 73–14
406, 407 .... (CM-3) 102–16
800 .... (CM-1) 21–38
800-D .... (CM-2) 84–12
802 .... (CM-3) 77–12
910 .... (CM-3) 115–14
935, 936 252–13
950 [See Set 107-13 (CM-3) and Supplement—Set 131-17]
950, 951 (Late) ... (CM-5) 216–11

WEBSTER-CHICAGO

50 .... (CM-1) 24–35
56 .... (CM-1) 17–36
70 .... (CM-1) 29–28
77 .... (CM-4) 137–14
100 .... (CM-4) 135–14

WEBSTER-CHICAGO—Cont.

106 .... (CM-4) 146–12
121, 122, 123, 124, 125 .... (CM-5) 206–12
126, 127, 129 .... (CM-5) 208–13
133 .... (CM-2) 82–13
148 .... (CM-2) 86–12
246 .... (CM-2) 74–11
256 .... (CM-2) 88–13
346 .... (CM-3) 100–12
356, 357 .... (CM-3) 106–16

WESTINGHOUSE

V4914 .... (CM-2) 47–26
V4944 .... (CM-2) 86–13
V6235 134–13
V6676 136–15

ZENITH

S11478 .... (CM-1) 23–35
Series 700R .... (CM-2) 91—8
S11680 .... (CM-1) 27–32
S14001 .... (CM-2) 75–17
S13675, S-14002, S14006, S14008 .... (CM-2) 85–15
S14004, S14007 .. (CM-2) 79–18
S14012, S14014 .. (CM-3) 110–14
S14022 .... (CM-3) 112–15
S14023 .... (CM-3) 105–14
S14024, S14025 .. (CM-3) 112–15
S14026 .... (CM-3) 105–14
S14027 .... (CM-3) 112–15
S-14028, S-14029, S-14030, S-14031 .... (CM-4) 145–13
S-14036 .... (CM-4) 145–13
S-14053, S-14054, S-14056, S-14057 226–13

MISCELLANEOUS

Series 700F .... (CM-2) 89—9
Series 700F 33/45. (CM-3) 75–11
Series 700FLP .... (CM-2) 101—6
Series 700FS .... (CM-2) 104—8

NOTE: PCB Denotes Production Change Bulletin. Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200. Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250. ● Denotes Television Receiver.

RECORDERS

AMPEX
400A, 401A (CM-5) 213—1

AMPRO
730 (CM-4) 133—4
731 (For electrical unit see Folder 166-5; for mechanical unit see Folder 133-4)
731-R (See Model 731)
755, 756 262—1

BRUSH SOUND MIRROR
BK-401 (CM-1) 42–25
BK-403 (CM-2) 78—3
BK-416 (CM-2) 81—4
BK-437, BK-437S, BK-441, BK-442, BK-443P (CM-5) 164—3
BK-455P 245—2

BRUSH MAIL-A-VOICE
BK-501, BK-502, BK-503 (CM-1)

COLUMBIA-BELL & HOWELL
350 272—3

CONCERTONE
1401 (401) (CM-4) 155—4

CRESCENT
H-1A (CM-4) 130—5
H-2A1 Series (CM-3) 119—4
H-19 Series "Steno" (CM-4) 122—3
H-20A1 (See Model H22A1—Set 125-4)

CRESCENT—Cont.
H-22A1 125—4
H2000 Series (CM-4) 120—4
M-2001 Series (CM-4) 120—4
M-2500 Series (CM-4) 120—4
M-3000 Series (CM-4) 120—4
M-3001 Series (CM-4) 120—4
M-3500 Series (CM-4) 120—4
900 Series 239—3
1000 Series (CM-2)
1000 Series Revised (CM-3) 77—4

CRESTWOOD
CP-201 (CM-3) 118—4
400 Series (401, 402) 251—5

DUKANE
11A55FF, 11B55 (CM-5) 187—5
11A75 248—5

EICOR
230 223—6
400 235—4
1000 (CM-3) 90—4

EKOTAPE (WEBSTER-ELECTRIC)
101-4, 5, 102-4, 5, 103-4, 5, 104-4, 5 (CM-3) 116–12
101-8, 101-9, 102-9, 103-8 (CM-5) 170—6
109, 110, 111, 112 (CM-4) 152—5
114, 115, 116, 117 (CM-5) 189—8
205, 206 228—8

FEDERAL
37-B 259—6

GENERAL INDUSTRIES
R70, R90 (CM-1) 35–28
R90L [See Model R90—Set 35-28 (CM-1)]
250 (CM-4) 143—8

INTERNATIONAL ELECTRONICS
PT3 (CM-2) 88—4

KNIGHT
96-144 (CM-4) 158—6
96-485 (CM-5) 183—8
96-499 (CM-4) 158—6
96-590 240—3
96RX675 269—7

LEAR DYNAPORT
WC-311-D (CM-2) 80—8

MAGNECORD
AD-1R "AudiAd" (CM-2) 84—7
PT6, A, AH, AHX, AX (CM-5) 190—6
PT63-A, AH, AHX, AX (CM-5) 190—6

MASCO
DC37R (CM-4) 148—9
D37 (CM-4) 148—9
D37R (CM-4) 148—9
LD37, LD37R (CM-4) 148—9
52, 52C, 52CR, 52L, 52LR, 52R (CM-5) 214—6
375 (CM-3) 117—7

MITCHELL
1290 263–12

PENTRON
HT-225, TR-4 267—9
PB-A2, PB-1 (CM-5) 184–11
9T-3 (CM-4) 153–10
9T-3C (CM-4) 162—9

RCA
MI-12875 (CM-2) 85–12
SRT-301 (MI-15910) 224–11

RECORDIO (See Wilcax Gay)

REELEST
C1A (CM-4) 123–13

REVERE
T-100 (CM-4) 149–11
T-500 [See Model T-100—Set 149-11 (CM-4)]
TR-200, TR-600 (For electrical unit see Folder 165-10; for mechanical unit see Folder 149-11)
T-70153, T-70157, T-70163, T-70167, T-70253, T-70257, T-70263, T-70267, T-77153, T-77157, T-77163, T-77167, T-77253, T-77257, T-77263, T-77267 (CM-5) 193—9

SILVERTONE
70 (Ch. 567.230, 577.231) (CM-4) 121–11
771 (CM-1) 26–32
101.774-2, 101.774-4 (CM-3) 114–10

ST. GEORGE
1100 Series (CM-1) 40–24

TAPE MASTER
PT-121 (CM-5) 186–14
PT-125 (CM-5) 198–15
PT-150 [For Mechanical Unit Only See Model PT-125—Set 198-15 (CM-5)]

TELECTRO-TAPE
A 254–12

TDC
130 (Stereotone) 256–13

WEBSTER-CHICAGO
79-80 (CM-1) 37–26
178 (CM-3) 113–12
210 (CM-4) 159–17
228 (CM-4) 156–13
2010 [See Model 210—Set 159-17 (CM-4)]

WEBSTER ELECTRIC (See Ekotape)

WILCOX GAY
2A10, 2A10B, 2A11, 2A11B 180–10
3A10, 3A11 (CM-5) 200–13
3C10 (CM-5) 215–17
3F10 (CM-5) 220–11
4A10 255–18

WIRE RECORDING CORP.
WP (CM-2) 76–19

ADDITIONAL PHOTOFACT BENEFITS

From time to time, PHOTOFACT Folder Sets include valuable "bonus" aids, as well as useful data of a special nature. The following materials are extra benefits incorporated in the PHOTOFACT Folder Sets indicated, at no additional cost.

	Set No.
1—RETMA Production Source Code (Jan. 1, 1954)	246
2—RETMA Production Source Code (Supplement)	258
3—TRADE DIRECTORY—Parts Manufacturers	12
4—National Electrical Code on Antennas	88
5—Record Changer Cross Reference by Manufacturer and Model	118
6—Mica Capacitor Color Codes	48
7—Ion Trap Alignment	62
8—"Let's Look at the Sync Pulses"	64
9—Replacement of Disc & Plate Type Ceramic Capacitors	68
10—Certificate entitling subscriber to PHOTOFACT Volume Labels for Vols. 1-10	62
11—Certificate entitling subscriber to PHOTOFACT Volume Labels for Vols. 11-20	102
12—Alliance Model ATR Rotator	216
13—Alliance Model DIR Rotator	240
14—Alliance Model F-4 Rotator	250
15—Alliance Model HIR Rotator	242
16—Alliance Model T-10 Rotator	254
17—Alliance Model U-83 Rotator	256
18—Photofact Television Course appearing serially in	38-51, 54
19—CR Tube Dimension Chart	112
20—CR Electromagnetic Tube Characteristics Chart	112
21—CR Tube Interchangeability Chart	112
22—NPA maintenance and repair information	130
23—General Electric Clock Data	160

NOTE: PCB Denotes Production Change Bulletin.
Production Change Bulletin Nos. 1 Through 63 Are All Contained in Set No. A-200
Production Change Bulletin Nos. 64 Through 104 Are All Contained in Set No. A-250
● Denotes Television Receiver.

"Red Letter" days for RCA mean "BIG BUSINESS" days for you

Here's how RCA is telling Mr. & Mrs. America about RCA Picture Tubes in LIFE . . . in TV GUIDE

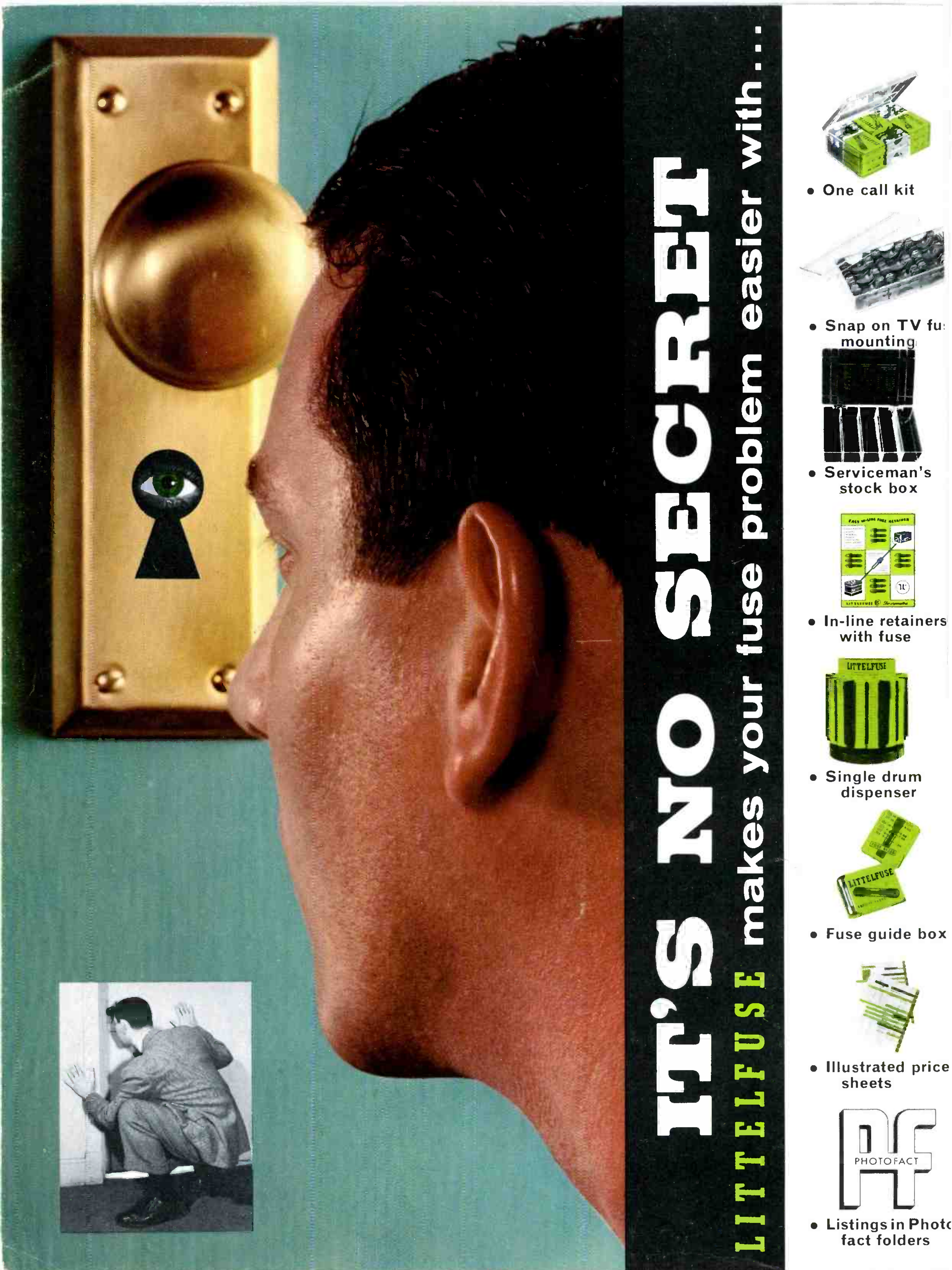
RCA consumer ads are reaching 30,000,000 prospective TV replacement tube buyers, over and over again in 1955—many of them are *your* customers and prospective customers.

And here's why more and more TV technicians find RCA Picture Tubes are fast becoming their easiest-selling and largest-volume line of replacement picture tubes:

- Premium performance at no extra cost
- Full 12-month warranty to consumer
- Hottest consumer ad program in the industry

To minimize call-backs—to assure your customer of premium-performance, install a new RCA Picture Tube whenever replacement is indicated.

RADIO CORPORATION of AMERICA
TUBE DIVISION **HARRISON, N. J.**



IT'S NO SECRET
LITTELFUSE makes your fuse problem easier with...
• One call kit
• Snap on TV fu
mounting
• Serviceman's stock box
• In-line retainers with fuse
LITTELFUSE
• Single drum dispenser
LITTELFUSE
• Fuse guide box
• Illustrated price sheets
PHOTOFACT
• Listings in Photo fact folders