J. E. Ruedy

RCA VICTOR

"The STANWICK"
Models 21-CT-7835(U)—Mah. Grain
Models 21-CT-7837(U)—Oak Grain

"The WESTCOTT"
Models
21-CT-7855(U)—Mah. Grain
21-CT-7857(U)—Oak Grain

"The DARTMOUTH"
Models
21-CT-7865(U)—Mah. Grain
21-CT-7866(U)—Wal. Grain
21-CT-7867(U)—Oak Grain

COLOR TELEVISION RECEIVERS

MODELS

21-CT-7835(U), 21-CT-7837(U), 21-CT-7855(U), 21-CT-7857(U), 21-CT-7865(U), 21-CT-7866(U), 21-CT-7867(U)

Chassis No. CTC5B, CTC5C, CTC5D or CTC5E

— Mfr. No. 274 —

SERVICE DATA

— 1956 No. T5 —

PREPARED BY COMMERCIAL SERVICE
RCA SERVICE CO., INC.
CAMDEN 8, N. J.
FOR
RADIO CORPORATION OF AMERICA
RCA VICTOR TELEVISION DIVISION

GENERAL DESCRIPTION

All models are color television receivers, capable of reception of either black and white or color programs. The receivers employ a shadow mask, three gun, directly viewed metal kinescope.

Models without a "U" designation in the model number are receivers with VHF only and feature full 12 channel VHF coverage. Models with the "U" designation in the model number are UHF/VHF receivers and feature full 12 channel VHF coverage plus any UHF channels desired.

The receivers feature: intercarrier FM sound system; stabilized horizontal AFC; magnetic convergence and electrostatic focus; crystal controlled AFC color synchronization; low level color demodulation and a color "killer" circuit to disable the color channel during black and white reception.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

PICTURE SIZE—Approx. 254 sq. ins. on a 21AXP22A Kinescope

TELEVISION R-F FREQUENCY RANGE

Models 21-CT-7835 to 21-CT-7867
All 12 VHF channels . . . 54 mc. to 88 mc., 174 mc. to 216 mc.

Models 21-CT-7835U, 21-CT-7867U
Any of 70 UHF channels . . . . . 470 mc. to 890 mc.
Any of 12 VHF channels . . 54 mc. to 88 mc., 174 mc. to 216 mc.

INTERMEDIATE FREQUENCIES

Picture I-F Carrier Frequency . . . . . 45.75 mc.
Sound I-F Carrier Frequency . . . . . 41.25 mc.
Color Sub-Carrier Frequency . . . . . (Nominal) 42.17 mc.

ANTENNA INPUT IMPEDANCE . . . . . 300 ohms balanced

POWER RATING . . . . . 117 V. A.C., 60 Cy., 375 watts

RCA TUBE COMPLEMENT

Tube Used	Function
Tuner KRK40B (Models with VHF only)	
(1) RCA 6BQ7A	R-F Amplifier
(2) RCA 6X8	R-F Oscillator and Mixer
Tuner KRK40C (UHF/VHF Models)	
(1) RCA 6AF4 or 6AF4A	UHF Oscillator
(2) RCA 6BQ7A	VHF R-F Amplifier UHF I-F Amplifier
(3) RCA 6X8	VHF R-F Oscillator & Mixer
All Models	
(4) RCA 6DE6	1st Picture I-F Amp.
(5) RCA 6DE6	2nd Picture I-F Amp.
(6) RCA 6CB6	3rd Picture I-F Amp.

A 1N60 Crystal is used for the picture 2nd Detector.

First Edition—First Printing 5-29-56

Printed in U. S. A.

ELECTRICAL AND MECHANICAL SPECIFICATIONS (Continued)

RCA TUBE COMPLEMENT (continued)

(7) RCA 6AW8 ..... 1st Video Amp. & Horiz. Blank.
(8) RCA 12BY7A ..... 2nd Video Amplifier
(9) RCA 6AU6 ..... Sound I-F Amplifier
(10) RCA 6T8 ..... Ratio Det. & 1st Audio Amp.
(11) RCA 6AQ5 ..... Audio Output
(12) RCA 6U8 (6U8A) ..... AGC Amp. & 1st Sync. Amp.
(13) RCA 6CG7 ..... Vertical Osc. & Sync. Output
(14) RCA 6AQ5 ..... Vertical Output
(15) RCA 6CG7 ..... Horiz. Osc. & Control
(16) RCA 6CB5A ..... Horiz. Output
(17) RCA 6AU4GTA ..... Damper
(18) RCA 1V2 ..... Focus Rectifier
(19) RCA 3A3 ..... High Voltage Rectifier
(20) RCA 6BK4 ..... Shunt Regulator
(21) RCA 6AW8 ..... Killer & Band Pass Amplifier
(22) RCA 12AT7 ..... "B-Y" Demodulator
(23) RCA 12AT7 ..... "G-Y" Demodulator
pg. 1 (24) RCA 6CB6 (6CB6A, 6CF6) ..... 3.58 MC Osc.
(25) RCA 6AN8 ..... Burst Keyer & Amp.
(26) RCA 5U4GB (2 Tubes) ..... Rectifiers
(27) RCA 21AXP22A ..... Kinescope

A 1N60 crystal is used for the sound detector.

AUDIO POWER OUTPUT RATING ..... 3 watts max.
SWEEP DEFLECTION ..... Magnetic
FOCUS ..... Electrostatic
CONVERGENCE ..... Magnetic

CHASSIS DESIGNATIONS

CTC5B ..... Models 21CT7835 & 21CT7837
CTC5C ..... Models 21CT7835U & 21CT7837U
CTC5D ..... Models 21CT7855, 21CT7857, 21CT7865, 21CT7866 & 21CT7867
CTC5E ..... Models 21CT7855U, 21CT7857U, 21CT7865U, 21CT7866U & 21CT7867U

OPERATING CONTROLS (SIDE)

Models with VHF only

Channel Selector, Fine Tuning ..... Dual Control Knobs

UHF/VHF Models

VHF Channel Selector and UHF Changeover Switch, VHF Fine Tuning ..... Dual Control Knobs
UHF Tuning ..... Single Control Knob

All Models

Sound Volume and On-Off Switch, Brightness ..... Dual Control Knobs

OPERATING CONTROLS (FRONT)

Vertical Hold ..... Single Control Knob
Contrast ..... Single Control Knob
Hue ..... Single Control Knob
Color & Color On/Off Switch ..... Single Control Knob
Horizontal (Freq.) ..... Single Control Knob

NON-OPERATING CONTROLS (FRONT)

Height ..... Screwdriver Adjustment
Vertical Linearity ..... Screwdriver Adjustment
AGC ..... Screwdriver Adjustment

NON-OPERATING CONTROLS (REAR)

Focus ..... Screwdriver Control
Killer Threshold ..... Screwdriver Control
Width Switch ..... Screwdriver Control
Horizontal Centering ..... Screwdriver Control
Vertical Centering ..... Screwdriver Control

NON-OPERATING CONTROLS (TOP OF CHASSIS)

FM Trap ..... Screwdriver Adjustment
Horizontal Tuning ..... Screwdriver Adjustment
Purifying ..... Magnet Adjustment

SET-UP CONTROLS (FRONT)

Blue D.C., Blue D.C. Lateral ..... Dual Control
Red & Green D.C. ..... Dual Control
Magnetic Field Equalizing ..... (6) Magnet Adjustments
Red Vertical Amplitude & Tilt ..... Dual Control
Green Vertical Amplitude & Tilt ..... Dual Control
Blue Vertical Amplitude & Tilt ..... Dual Control
Red Horizontal Amplitude ..... Screwdriver Adjustment
Blue Horizontal Amplitude ..... Screwdriver Adjustment
Green Horizontal Amplitude ..... Screwdriver Adjustment
Red Horizontal Tilt ..... Screwdriver Adjustment
Green Horizontal Tilt ..... Screwdriver Adjustment
Blue Horizontal Tilt ..... Screwdriver Adjustment
Blue Screen, Green Screen ..... Dual Control
Red Screen ..... Dual Control (Vert. Lin.)
Green Background, Blue Background ..... Dual Control

HIGH VOLTAGE WARNING

OPERATION OF THIS RECEIVER OUTSIDE THE CABINET OR WITH THE COVERS REMOVED, INVOLVES A SHOCK HAZARD FROM THE RECEIVER POWER SUPPLIES. WORK ON THE RECEIVER SHOULD NOT BE ATTEMPTED BY ANYONE WHO IS NOT THOROUGHLY FAMILIAR WITH THE PRECAUTIONS NECESSARY WHEN WORKING ON HIGH VOLTAGE EQUIPMENT. DO NOT OPERATE THE RECEIVER WITH THE HIGH VOLTAGE COMPARTMENT COVER OPENED. BEFORE TURNING THE RECEIVER ON, INSURE THAT THE GROUND LEAD AROUND THE KINESCOPE MASK IS FASTENED SECURELY AT ALL POINTS INCLUDING THE CONNECTION TO THE CONTROL COVER. THE SCREW HOLDING THE TOP COVER OF THE H.V. COMPARTMENT MUST BE TURNED FULLY CLOCKWISE.

KINESCOPE HANDLING PRECAUTIONS

DO NOT REMOVE THE RECEIVER CHASSIS, INSTALL, REMOVE OR HANDLE THE KINESCOPE IN ANY MANNER UNLESS SHATTERPROOF GOGGLES ARE WORN. PEOPLE NOT SO EQUIPPED SHOULD BE KEPT AWAY WHILE HANDLING KINESCOPES. KEEP THE KINESCOPE AWAY FROM THE BODY WHILE HANDLING.

The following adjustments are necessary when turning the receiver on for the first time.

BLACK and WHITE RECEPTION

1. Turn the Color control fully counter-clockwise and turn the receiver "ON". Advance the SOUND VOLUME control to approximately mid-position.

2. Set the VHF CHANNEL SELECTOR and UHF CHANGE-OVER switch to the desired VHF channel, or to UHF position, whichever applies. UHF channel selection is made by setting the UHF TUNING control to the desired UHF channel with the VHF CHANNEL switch at UHF position.

3. Advance the CONTRAST control approximately one-quarter turn.

4. Turn the BRIGHTNESS control fully counter-clockwise then clockwise until a light pattern appears on the screen.

5. Adjust the FINE TUNING control for best picture quality and the SOUND VOLUME for suitable volume.

6. Adjust the VERTICAL HOLD control until the pattern stops vertical movement.

7. Adjust the HORIZONTAL HOLD control until a picture is obtained and centered.

8. Turn the BRIGHTNESS control for normal screen brightness.

9. Adjust the CONTRAST control for suitable picture contrast.

10. In switching from one channel to another, it may be necessary to repeat steps numbers 5 and 9.

11. When the receiver is turned on again after an idle period, it should not be necessary to repeat the adjustments. If any adjustment is necessary, steps 5 and 9 are generally sufficient.

12. If noise or slight streaks appear in color, turn COLOR control fully counter-clockwise, turning off the color control switch.

COLOR RECEPTION

1. Adjust the receiver for a black and white picture as outlined above, with the fine tuning control advanced to its most clockwise position where most detailed picture is obtained.

2. Set the CHANNEL SELECTOR to the desired channel broadcasting a color program.

3. Advance the COLOR control approximately one and one-half turns from its maximum counter-clockwise position.

4. Carefully advance the VHF FINE TUNING or UHF TUNING control clockwise until strong interference appears and picture begins to disappear, then counter-clockwise, slowly to the position where sound bars just disappear from the picture and color is in the picture.

5. Adjust both the COLOR control and HUE control for the desired saturation or strength of color and for hue quality of the picture (redness, blueness, etc.)—to achieve the most pleasing flesh tones.

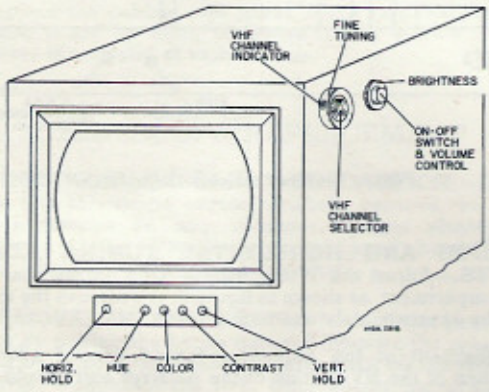


Figure 1—Operating Controls VHF Models

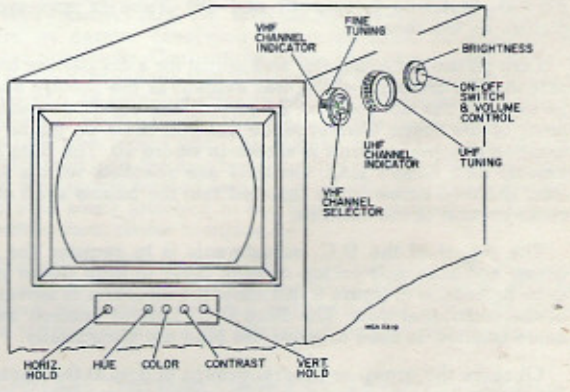


Figure 2—Operating Controls UHF/VHF Models

INSTALLATION INSTRUCTIONS

cc is NEG.

UNPACKING.—These receivers are shipped complete in cardboard cartons. The kinescope is shipped in place in the receiver.

Take the receiver out of the carton and remove all packing material.

Make sure that all tubes are in place and are firmly seated in their sockets.

Check to see that the kinescope high voltage connector is in place.

Plug the power cord into the 117 volt a-c power source and turn the receiver power switch to the "on" position.

Connect the antenna transmission line to the receiver.

Adjust the receiver, as outlined in the "OPERATING INSTRUCTIONS", for a black and white picture.

With the Horizontal Oscillator and AGC system operating properly, it should be possible to sync the picture at this point. However, if the AGC control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading it will be necessary to adjust the AGC control.

Remove the front control knobs and take out the control case to gain access to the AGC control. Refer to chassis top view for AGC control location.

AGC concentric with CONTRAST

Select the channel with the strongest signal and turn the AGC control fully counter-clockwise. Advance the control clockwise until a bend is noted at the top of the picture, then back about 25° from the start of the bend. about -10v. on pin (6) of V204 6U8A

The receiver should operate normally and produce proper black and white or color pictures. However, although the receiver has been correctly adjusted at the factory, several minor adjustments may be required dependent upon the treatment accorded the instrument during shipment.

Observe the picture for good black and white reproduction over all areas of the screen. No noticeable color shading should be evident, unless the instrument has come under the influence of a strong magnetic field during shipment. Color shading refers to a color cast in a portion of the screen and not to color fringes at the edge of objects. If shading is evident the instrument should be demagnetized.

Using the demagnetizing coil specified on page 10, slowly move the coil around the front faceplate of the kinescope, the sides and front of the receiver and very slowly withdraw the coil to a distance of about six feet before disconnecting the coil from the AC source. This prodecure should correct any color shading that is evident.

The static or D.C. convergence of the receiver should also be checked when the instrument is installed. To do this, observe objects in the picture for color fringing around the

Killer Control - see pg. 18

edges of the objects. Slight fringing not over 1/32" around objects on the outer edges of the kinescope will not require any readjustment. The center area should show no fringing. It is possible, however, that the magnet assemblies on the kinescope neck may have been jarred from their original positions and objectionable fringing may be evident.

Remove the rear panel of the receiver and check the positions of the convergence coil and blue lateral magnet assemblies. The proper location for these assemblies is shown in figure 7. Reposition them if they have shifted from their proper positions. This should correct the fringing condition mentioned above. If the fringing is still evident, it will be necessary to check the settings of D.C. convergence controls at the front of the receiver.

The control knobs and case must be removed to gain access to the D.C. convergence controls. Remove the knobs on the operating controls under the lid of the case. Remove the two screws holding the case and pull the case straight out to remove.

A dot generator should be used for setting the D.C. convergence controls as it provides a stationary pattern on the screen. A test pattern transmitted by the station may be used, but is generally more difficult for interpretation of exactly which direction a beam is being shifted.

Connect the dot generator to the antenna or if the RCA WR-36A is employed connect the generator to the WG-306A video adapter plugged into the 2nd Video Amplifier socket. Connect the ground lead to the receiver chassis and the "horizontal" lead to the insulation of the red lead of the deflection yoke. Clip the "vertical" lead to terminal "G" on PW400. (Refer to figures 40 and 46). Tune in and sync a picture on the receiver.

Turn on the dot generator and adjust for a dot pattern on the screen. The fringing which was evident in the picture should be seen on the dot pattern. To correct this condition readjustment of the Static Convergence controls must be made. The location of these controls is shown in figure 10. The Blue D.C. Lateral and Green D.C. Controls are reached with a small long shanked screwdriver inserted into the hollow shaft of the outer portion of the controls.

The object of the D.C. adjustments is to register the red, green and blue dots on top of each other to form single white dots. Reference to figure 9 will show the direction of movement of the individual dots. The Blue D.C. Lateral control, as the name implies, is used to move the blue dot horizontally.

Observe the group or several groups of dots at the center of the screen and adjust the four D.C. controls to produce a single white dot, or dots if observing several groupings, at the center of the screen. This should eliminate any color fringing over the entire dot pattern except possibly a very slight fringing, as mentioned before, at the extreme outer edges.

The above adjustments should be all that are required in those few cases where the conditions mentioned exist at time of set-up of the receiver. However, if these adjustments do not correct the condition, reference to COMPLETE SET-UP PROCEDURE should be made.

Also check the horizontal oscillator adjustment and the conventional adjustments of focus, height, vertical linearity, horizontal linearity, width and electrical centering. The checks for these adjustments are listed below. Normally, no readjustment should be necessary.

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.—Turn the horizontal hold control to the extreme counter-clockwise position. The picture should be out of sync with multiple bars slanting to the right.

Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 1 to 3 bars sloping downward to the right are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. The picture should remain in sync for a minimum of three additional clockwise turns of the control. At the extreme clockwise position, the picture should be out of sync, with multiple bars slanting to the left.

Rotate the control counter-clockwise to the pull-in point. Continue counter-clockwise rotation for one full turn from pull-in. This will be the proper setting of the control.

When the receiver passes the above checks and the picture is normal and stable, the horizontal oscillator is properly aligned.

ADJUSTMENT OF HORIZONTAL OSCILLATOR.—If in the preceding check the receiver failed to hold sync for a minimum of three full turns and the AGC system is in proper adjustment it will be necessary to adjust the Horizontal Oscillator by the method outlined in the alignment procedure on page 17.

CENTERING ADJUSTMENT.—Centering is accomplished by adjustment of the two electrical centering controls located on the rear of the chassis as shown in figure 3.

Adjust the vertical centering control R134 and the horizontal centering control R128 to center the picture within the mask of the kinescope. If the picture does not fully cover the masked area of the kinescope, adjust the positioning for equal distribution of blank area at top and bottom and at each side.

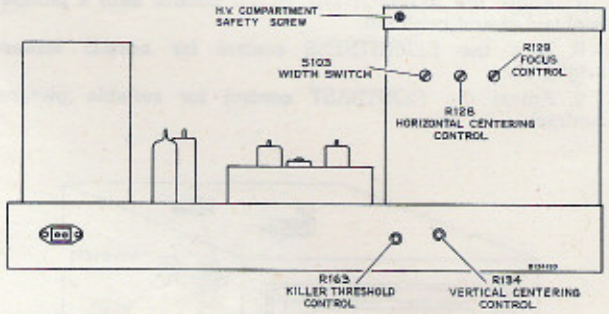


Figure 3—Rear Chassis Adjustments

WIDTH AND HORIZONTAL TUNING ADJUSTMENTS.—Adjust the Width Switch S103 on the rear of the HV compartment, as shown in figure 3, to overscan the masking area by approximately one inch at each side.

Adjustment of the horizontal tuning control affects the operation of the HV section of the receiver and should not be attempted at this point.

If it is impossible to fill the mask by the above width adjustment, it will be necessary to follow the procedure outlined under HORIZONTAL DEFLECTION ALIGNMENT on page 17 of the "ALIGNMENT PROCEDURE."

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS.—Adjust the height control R144B and the Vertical Linearity Control R108A (controls under cabinet front cover—see figure 40), until the picture or test pattern is symmetrical from top to bottom. Make the final adjustment to overscan the mask by one inch at both top and bottom. Recheck the horizontal and vertical centering for correct positioning of the picture with respect to the mask.

FOCUS.—Adjust the focus control R129 on the rear of the HV compartment for maximum overall definition of fine picture detail.

CHECK OF VHF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see that the receiver r-f oscillator is adjusted to the proper frequency on all channels. If adjustments are required, these should be made by the method outlined in the alignment procedure on page 14.

The adjustments are accomplished by unmounting the tuner bracket assembly from the side of the cabinet. To do this, remove all of the knobs on the side of the cabinet. Remove the nuts holding the tuner mounting bracket and drop to a position where adjustments can be made. The oscillator for the UHF tuner section of UHF/VHF tuners should be adjusted only by the method outlined on page 15 under Alignment Procedure.

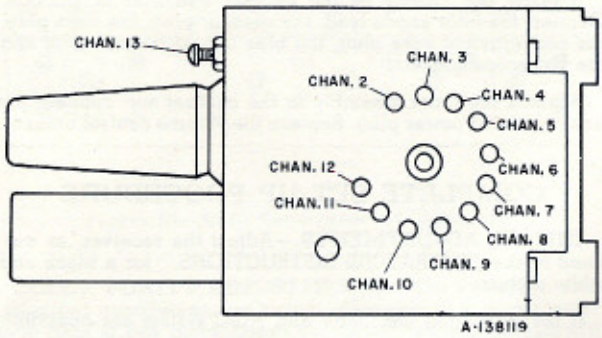


Figure 4—KRK40B or KRK40C VHF Oscillator Adjustments

FM TRAP ADJUSTMENT.—In some instances interference may be encountered from a strong FM station signal. A trap is provided to eliminate this type of interference. To adjust the trap tune in the station on which the interference is observed and adjust the FM trap for minimum interference in the picture.

CAUTION.—In some receivers, the FM trap will tune down into channel 6 or ever into channel 5. Needless to say, such an adjustment will cause greatly reduced sensitivity on these channels. If channels 5 or 6 are to be received, check to make sure that it does not affect sensitivity on these two channels.

Replace the cabinet rear panel. Make sure that the screws holding it are up tight, otherwise it may vibrate when the receiver is operated at high volume.

KINESCOPE REPLACEMENT

KINESCOPE HANDLING PRECAUTION.—**Do not open the kinescope carton, install, remove, or handle the kinescope in any manner, unless shatterproof goggles are worn. People not so equipped should be kept away while handling the kinescope.**

REMOVAL OF KINESCOPE.—Take off the front control knobs by pulling the knobs outward. Remove the side control knobs by pulling the knobs outward. Take off the rear of the receiver. Disconnect the H.V. Ultor anode connector inside the H.V. compartment. Remove the yoke plug and unplug the speaker. Remove the plug from the convergence yoke assembly and disconnect the kinescope socket.

The tuner assembly must be removed for removal of the Kinescope. Unplug the link cable and power cable from the tuner. Loosen the self-tapping screws holding the volume control bracket and slide the bracket up to the enlarged openings and remove from the tuner assembly. Remove the screws holding the tuner bracket and remove the bracket from the receiver.

The main chassis must be out of the cabinet for removal or installation of the kinescope. Take out the bolts holding the chassis and slide the chassis out from the rear. The kinescope should be installed with the cabinet resting on its face. Lay the cabinet on its face with a heavy pad used to protect the cabinet front.

Remove the blue beam positioning magnet, the purifying magnet assembly and the convergence yoke by sliding them off the kinescope neck. Leave the yoke fastened to the kinescope H.V. insulator.

Remove the four nuts holding the kinescope mounting brackets to the front mask assembly. Refer to figure 5. Slide each bracket upward, then out under the equalizing magnet projections at the open end. Remove the springs and rubber cushions under the brackets.

Lift the high voltage insulator, with the yoke attached, up and off the kinescope neck. Grasp the flange of the kinescope at the insulator and lift out of the mask.

Remove the insulator from around the flange and unclip the anode connector.

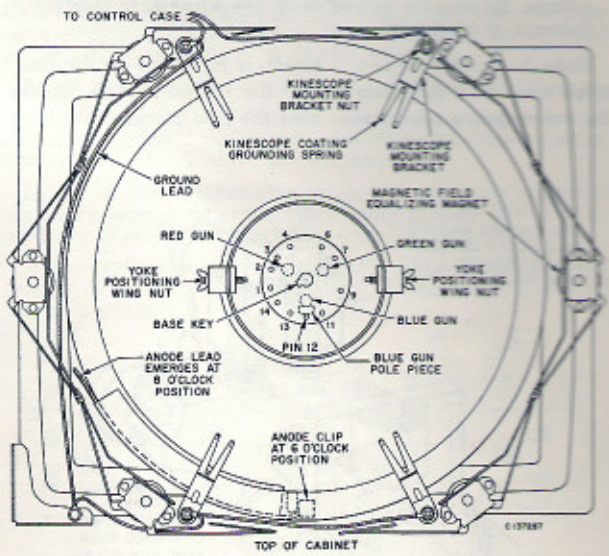


Figure 5—Kinescope Assembly

INSTALLATION OF KINESCOPE.—Take the kinescope from its carton, observing the precautions in handling as noted previously. Connect the anode lead at the position shown in figure 5. Place the insulator around the flange with the lead emerging at approximately the 8 o'clock position. Grasp the kinescope by the flange and place it into the front mask with the blue gun facing you. The position of the blue gun may be determined from the numbers moulded into the kinescope base. The blue gun is located next to pin 12. The blue beam positioning pole piece attached to the blue gun is another means of identification. (Refer to figure 5.)

Replace the HV insulator and yoke assembly over the neck of the kinescope. Replace the four kinescope mounting clamps, springs and rubber cushions and tighten the clamps in place. The receiver may now be returned to an upright position.

CAUTION: The rubber cushions must be replaced first, then the grounding springs and finally the mounting clamps. Do not install the cushions between the grounding springs and the clamps, to do so will prevent the kinescope coating

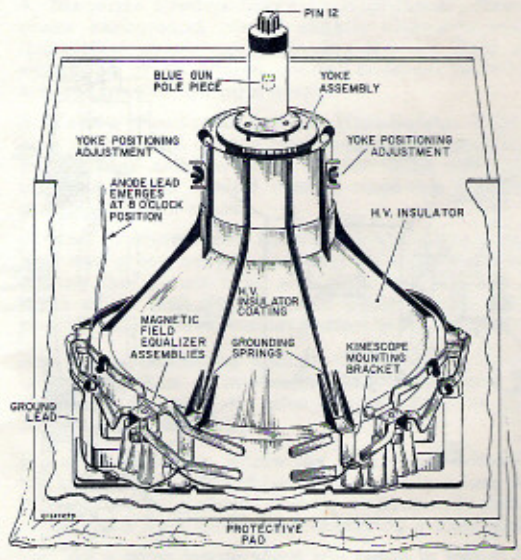


Figure 6—Kinescope Installation

from being grounded and it will charge to the ultor anode voltage. Be sure the ground lead, see figure 5, is securely fastened at all points.

Slide the convergence coil assembly forward over the kinescope neck with the leads toward the kinescope bell. Center the convergence pole pieces over the pole pieces at the front

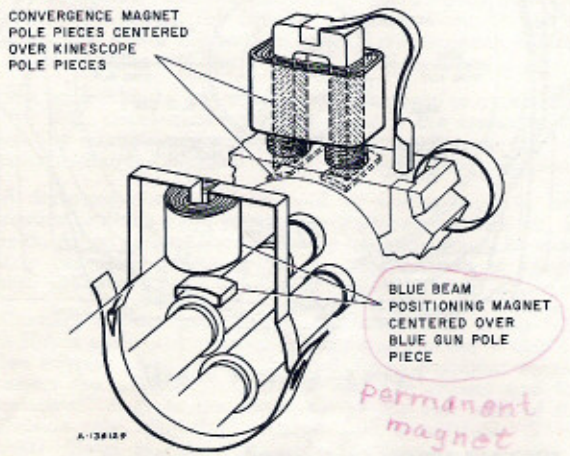


Figure 7—Location of Convergence and Blue Beam Positioning Magnets

end of the kinescope guns. The opening between the two magnets should be over the opening between the pole pieces. Refer to figure 7. The blue coil must be positioned over the blue gun. The proper coil may be identified by the color of the wires fastened to the rear of each coil. Improper positioning will result in inability to properly converge the kinescope beams. Place the purifying magnet over the kinescope neck with the small tabs toward the bell of the kinescope as shown in figure 8. Position the assembly approximately ¼ inch behind the converging coil and magnet assembly. Place the blue beam positioning magnet on the kinescope neck exactly in the position shown in figure 7.

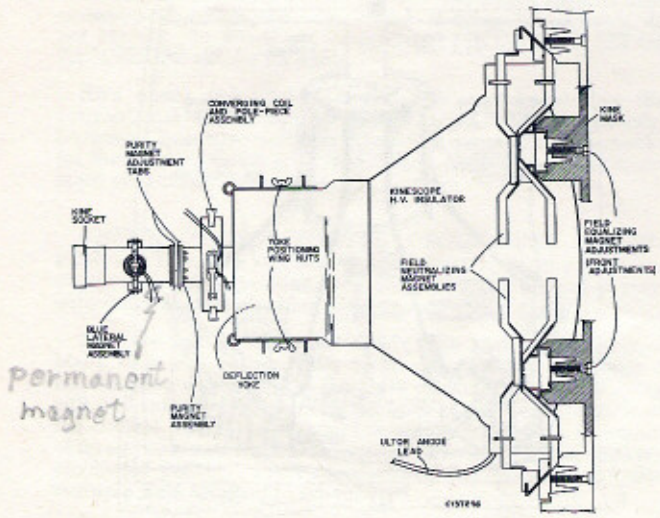


Figure 8—Kinescope Adjustments and Components

Replace the chassis in the cabinet and bolt in position. Connect the ultor anode lead, the speaker plug, the yoke plug, the convergence yoke plug, the blue lateral magnet plug and the kinescope socket.

Replace the tuner assembly in the cabinet and connect the link cable and power plug. Replace the volume control bracket.

COMPLETE SET-UP PROCEDURE

INITIAL ADJUSTMENTS.—Adjust the receiver, as outlined in the "OPERATING INSTRUCTIONS," for a black and white picture.

If the Horizontal Oscillator and AGC system are operating properly, it should be possible to sync the picture at this point. However, if the AGC control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading it will be necessary to adjust the AGC control. Turn the AGC control counter-clockwise until the receiver operates normally and the picture can be synchronized. (Refer to figure 40 for adjustment location.)

At this point it is necessary to check the horizontal oscillator and the conventional adjustments of height, vertical linearity, width, focus, and electrical centering.

PRELIMINARY CONVERGENCE ADJUSTMENT.—The dot signal generator should be connected to the receiver to provide a dot pattern on the kinescope for making convergence adjustments.

To do this, clip the "horizontal lead" from the dot generator to the insulation of the red lead of the deflection yoke cable.

Clip the "vertical lead" from the dot generator to terminal "G" of PW400, on top of the board, see figures 40 and 46.

For generators with internal vertical sync omit this connection.

Connect the "ground lead" to the receiver chassis and the "Video Output" to the WG-306A adapter plugged into the 2nd Video amplifier V402 socket.

Set the receiver to obtain a signal from some channel. This will provide sync pulses to the dot generator.

NOTE.—Dot generators which provide an RF output may be connected to the antenna terminals of the receiver.

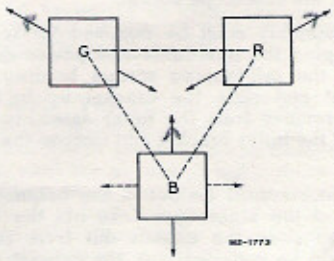


Figure 9—Dot Movement Pattern

Preset the red, green and blue horizontal and vertical amplitude controls to minimum, fully counter-clockwise. Refer to figures 15 and 17 for control locations. Preset the red, green and blue vertical tilt controls to mid-range.

Adjust the red, green and blue D.C. controls shown in figure 10, and the blue D.C. lateral control to produce a white dot in the center of the screen. The direction of movement of the dots is shown in figure 9. Lateral movement of the blue dot is accomplished by rotation of the blue D.C. lateral control, see figure 10.

Keep the receiver in focus when making the above adjustments.

Set the generator to "stand by" position.

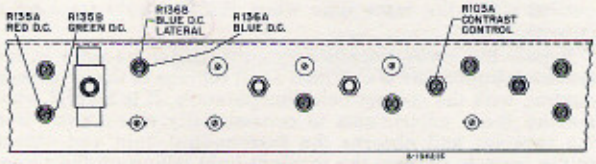


Figure 10—Static Convergence Adjustments

COLOR PURITY ADJUSTMENTS.—The kinescope and associated components should be subjected to a strong magnetic field at this point. Using the demagnetizing coil, slowly move the coil around the kinescope, the sides and front of the receiver and very slowly withdraw to about six feet before disconnecting the coil. (Minimum contamination should result from the demagnetizing procedure.)

Set the red tabs on the purity magnet together. Refer to figure 8.

Retract the six field neutralizing magnets into their housings. These adjustments are accessible from the front of the receiver after the frong trim has been removed. The procedure for removing the trim is described under KINESCOPE AND SAFETY GLASS CLEANING on page 9. The location of the neutralizing magnet adjustments is shown in figure 11 below. Turn the six adjusting screws fully counter-clockwise to pull the magnets back into their housings.

Loosen the wing nuts at each side of the yoke and slide the yoke as far to the rear as possible. See figure 8.

Turn the blue and green screen controls fully counter-clockwise. The control locations are on the front apron behind the control case, which should be removed, and are shown in figure 12.

Rotate the purity magnet around the neck of the kinescope and at the same time adjust the tabs on the magnet to produce a uniform red screen area, at approximately the eight o'clock position, with this area displaced from the center of the kinescope by a distance of approximately one-half the area itself.

Move the yoke forward and adjust for best overall red screen uniformity without neck shadow and with minimum purity error at the edges while observing the blue and green screens.

Tune in and adjust the receiver for a black and white picture.

Adjust the neutralizing magnets for best white uniformity in the areas of the individual magnets.

Check each color field for purity to insure that the screen purity has not been sacrificed at the expense of uniformity when adjusting the field equalizing magnets.

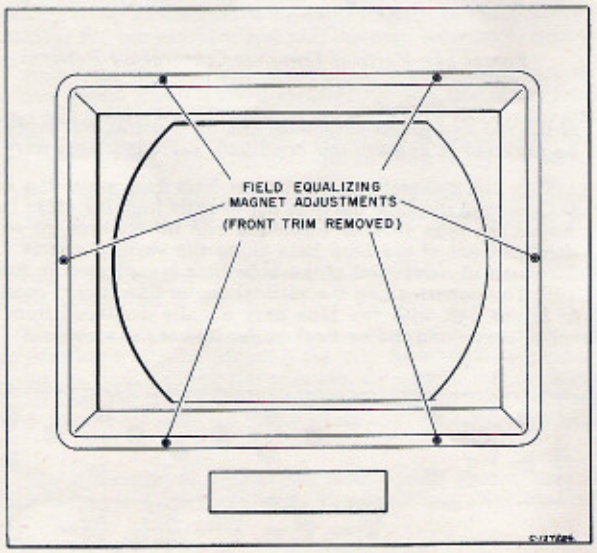


Figure 11—Equalizing Magnet Adjustments

KINESCOPE TEMPERATURE, SCREEN AND BACKGROUND ADJUSTMENTS.—Set the screen controls maximum counter-clockwise and the green and blue background controls 30% from maximum counter-clockwise.

Turn the contrast control to the center of its mechanical range.

Measure the bias on the red gun on the grid and cathode using the "VoltOhmyst". Adjust the brightness control for a reading of −70 volts on the meter.

Leave the brightness control at this setting and adjust the three screen controls for a grey picture (Color temperature of 8200° Kelvin) at a very low light level.

After setting the screen controls do not change the setting of the red screen control during the balance of this procedure.

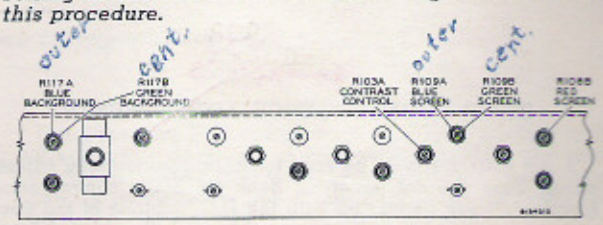


Figure 12—Screen and Background Adjustments

Advance the contrast control and observe the picture. One color will normally predominate in the high brightness areas of the picture. Depending on the color which is predominant proceed as follows:

1. **Green Predominant In Highlights**—Turn the green background control slightly counter-clockwise making the picture magenta and observing the low light areas adjust the green screen control clockwise to achieve grey in low light areas.

2. **Blue Predominant In Highlights**—Turn the blue background control slightly counter-clockwise making the picture yellow and observing the low light areas adjust the blue screen control clockwise to achieve grey in low light areas.

3. **Blue/Green (Cyan) Predominant In Highlights**—Turn both the blue and green background controls slightly counter-clockwise making the picture red and adjust the blue and green screen controls clockwise to achieve grey in low light areas.

Any of the above conditions is an indication that the color temperature is too high and steps 1, 2 or 3 are designed to lower the temperature to the correct value (8200° K).

4. **Magenta Predominant In Highlights**—Turn the green background control slightly clockwise making the picture green and observing the low light areas adjust the green screen control counter-clockwise to achieve grey in low light areas.

5. **Yellow Predominant In Highlights**—Turn the blue background control slightly clockwise making the picture blue and observing the low light areas adjust the blue screen control counter-clockwise to achieve grey in low light areas.

6. **Red Predominant In Highlights**—Turn both the blue and green background controls slightly clockwise making the picture cyan and observing the low light areas adjust both the blue and green screen controls counter-clockwise to achieve grey in low light areas.

Any of the conditions described in steps 4, 5, and 6 is an indication of low color temperature and these steps are designed to raise the temperature to the correct value (8200° K).

Note.—A condition where the receiver is adjusted to too high a color temperature will result in a loss of red in the picture detail and will be obvious as inability to obtain good flesh tones when observing a color picture.

Too low a color temperature will result in loss of blue, green or blue/green colors in the picture with objects assuming a generally reddish brown cast, however, this condition is not nearly as objectionable in viewing

the color picture as the condition where red is insufficient.

It should be kept in mind that color temperature refers to the cast of the white or grey produced (bluish-white, high temperature; pinkish-white, low temperature) and not to the brightness level.

Vary the brightness control through its range and observe all areas of the picture. No color should be predominant in either high or low brightness areas at any setting of the brightness control. At the point of extinction of the three guns, observation with a microscope should show the three guns cutting off at the same time when the low light tracking is correct.

Repeat the above adjustments until proper tracking in low and high-light areas is obtained at all settings of the brightness control, with the correct color temperature. It is helpful when making these adjustments to occassionally move away from the receiver and observe the surrounding light and objects in the room to prevent the incident light falling on the screen from affecting a true interpretation of a proper black and white condition. A light standard to determine proper Kelvin temperature of 8200°, if available, is very helpful when making the above tracking adjustments.

STATIC CONVERGENCE ADJUSTMENTS

A dot pattern should be used for static convergence adjustments. Turn the dot generator back on. Static convergence adjustments are performed with the D.C. controls of the convergence coil and magnet assembly and the blue lateral magnet. See figure 10.

Recheck the dot pattern for white dots in the center of the screen. If necessary, readjust the four D.C. adjustments to again produce this condition. At this point the dot pattern should appear as shown in figure 13. The center dots should be converged, with mis-convergence at the sides and at the top and bottom of the screen. The dot triangles may not necessarily be equilateral triangles as shown in the illustration but should produce approximately the pattern shown.

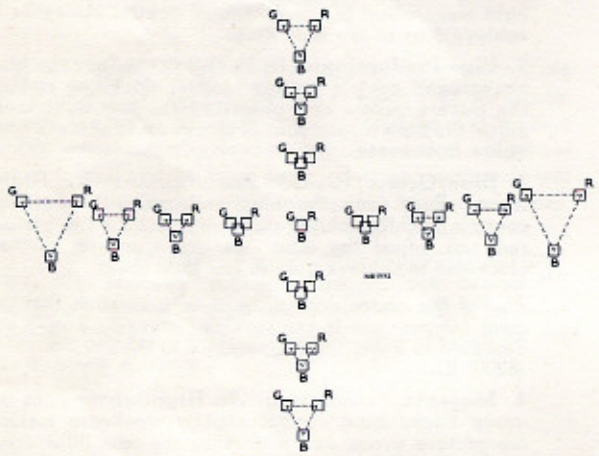


Figure 13—Center Static Convergence Pattern

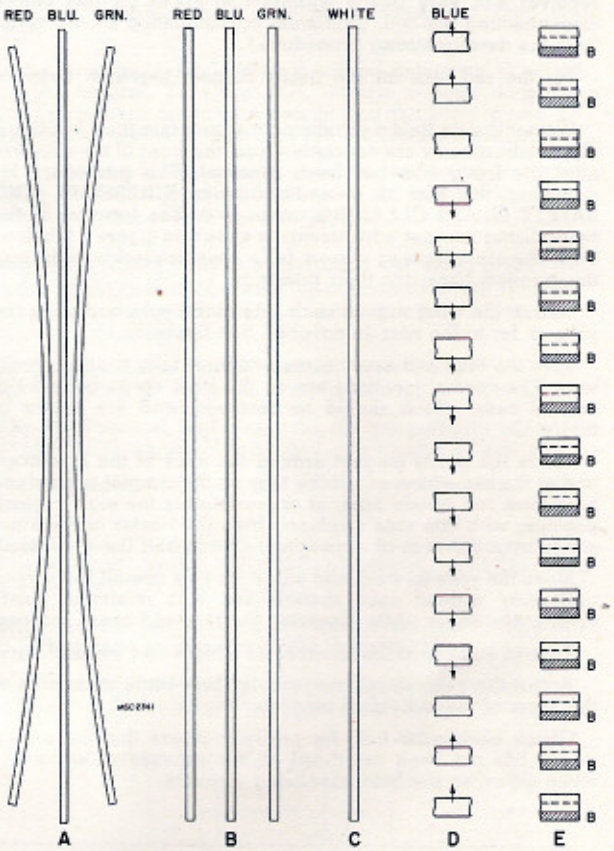


Figure 14—Vertical Dynamic Convergence Patterns

DYNAMIC CONVERGENCE ADJUSTMENTS

VERTICAL CONVERGENCE.—Vertical dynamic convergence should be performed before horizontal convergence.

Turn the dot/bar generator back on and set for vertical bars.

Referring to the vertical bar at the center of the screen, turn the red vertical amplitude control fully clockwise and adjust the red vertical tilt control for maximum displacement of the red bar at the center of the screen.

Turn the green vertical amplitude control fully clockwise and adjust the green vertical tilt control for maximum displacement of the green bar at the center of the screen. The direction of center displacement should be opposite to red. The center row of bars will appear as shown in figure 14A.

Adjust the red and green vertical amplitude and tilt controls to produce straight vertical red and green bars parallel to the blue bar. See figure 14B. Converge the three bars using the red and green D.C. controls to form a single white vertical bar at the center of the screen as in figure 14C. Slight readjustment of the red and green amplitude and tilt controls will probably be required to achieve this condition. Refocus if necessary.

Turn the generator to horizontal bars and using the blue D.C. control displace the blue bar slightly from the other bars. Adjust the blue vertical amplitude and tilt controls for equal displacement of the blue bars along the vertical center line. Direction of movement of the blue bars is indicated in figure 14D. The pattern along the vertical center line should conform to figure 14E with the blue bars equally displaced from the other bars along the vertical center line of the screen.

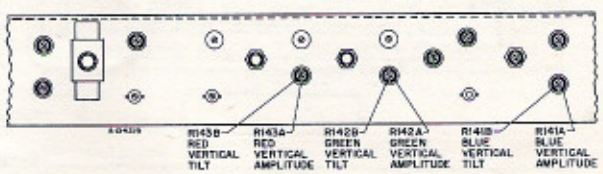


Figure 15—Vertical Dynamic Convergence Controls

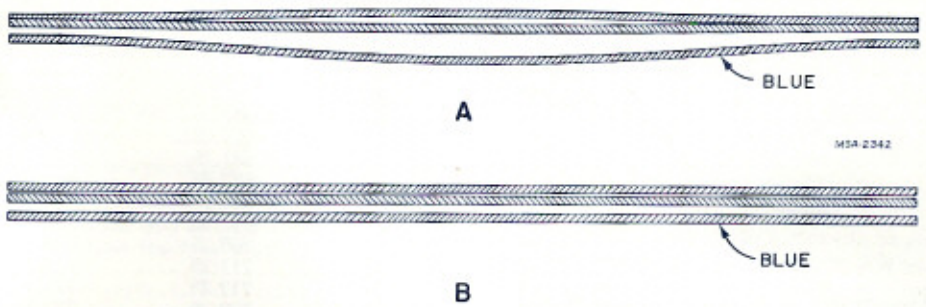


Figure 16—Horizontal Dynamic Convergence Patterns

HORIZONTAL CONVERGENCE.—The procedure for horizontal convergence is approximately the same as that used for vertical convergence. The horizontal row of bars nearest the center, however, is used for reference.

Turn the blue horizontal amplitude control clockwise until a bow in the blue bar appears in the center of the screen. The pattern will approximate that shown in figure 16A. Alternately adjust the blue horizontal phasing and amplitude controls to produce a straight horizontal blue bar across the center of the screen.

Shunt the red grid of the kinescope at the chassis rear apron through a 100,000 ohm resistor to ground. Alternately adjust the green horizontal amplitude and tilt controls to produce a green bar parallel to the blue bar over its entire length at the center of the screen.

Remove the shunt from the red grid and shunt the green grid to ground. Alternately adjust the red horizontal amplitude and tilt controls to produce a red bar parallel to the blue bar over its entire length at the center of the screen. Remove the shunt on the green grid.

Using the blue D.C. control move the blue bar close to the red and green bars and, if necessary, touch up the above adjustments slightly until all three bars are equally displaced along the entire center line of the screen. Refer to figure 16B.

Turn the generator to a dot pattern and using the red, green and blue D.C. controls converge the dot pattern. The dot pattern should now show maximum convergence over the entire area of the screen.

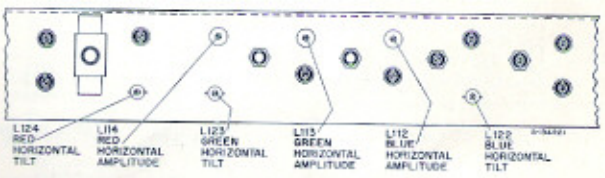


Figure 17—Horizontal Dynamic Convergence Adjustments

KINESCOPE AND SAFETY GLASS CLEANING.—The safety glass may be removed to allow for cleaning of the safety glass and kinescope faceplate if required.

To do this remove the knobs from the controls under the control cover at the front of the cabinet. Remove the two screws holding the control case and pull the case outward to remove.

Along the top edge of the control case opening are two round hooks. Insert a small screwdriver into one of the hooks and pull the hook downward, at the same time pulling the front trim outward above the hook. Repeat the same procedure for the second hook. The trim will now be loose along the bottom.

Pull the trim outward approximately six inches and slide it downward out of the recesses at the top of the screen and remove.

Four clips holding the safety glass will now be visible at the sides of the glass.

Remove the rear panel of the receiver and reach in and release each clip by pressing the clip together then pushing it out the front through the opening. Be careful that the safety glass does not fall outward when removing the last clip. Refer to figure 18 for location of the trim retainers and safety glass clips.

The kinescope faceplate and safety glass should only be cleaned with a soft cloth and "Windex" or similar cleaning agent.

Replace the safety glass, trim and control case by a reversal of the removal procedure.

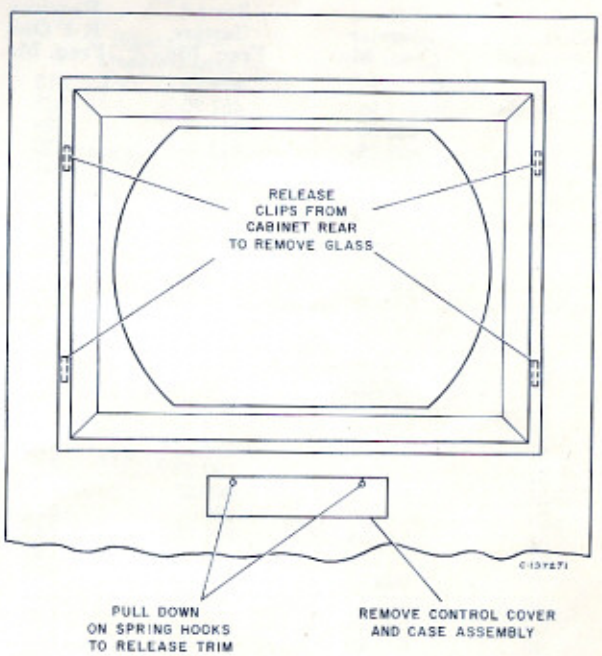


Figure 18—Safety Glass Removal

TEST EQUIPMENT

TEST EQUIPMENT.—To properly service these receivers, the following test equipment, or its equivalent, may be employed.

VHF Sweep Generator meeting the following requirements:

(a) Frequency Ranges
0 to 5 mc. Video Sweep
35 to 90 mc., 1 mc. to 12 mc. sweep width
170 to 225 mc., 12 mc. sweep width

(b) Output adjustable with at least .1 volt maximum.

(c) Output constant on all ranges.

(d) "Flat" output on all attenuator positions.

(RCA WR-59C or WR-58B Modified for Video Sweep)

VHF Signal Generator to provide the following frequencies with crystal accuracy:

(a) Intermediate frequencies
4.5 mc., 40.0 mc. to 60.0 mc.

(b) Radio frequencies

Channel Number	Picture Carrier Freq. Mc.	Sound Carrier Freq. Mc.	Receiver R-F Osc. Freq. Mc.
2	55.25	59.75	101
3	61.25	65.75	107
4	67.25	71.75	113
5	77.25	81.75	123
6	83.25	87.75	129
7	175.25	179.75	221
8	181.25	185.75	227
9	187.25	191.75	233
10	193.25	197.75	239
11	199.25	203.75	245
12	205.25	209.75	251
13	211.25	215.75	257

(c) Output of these ranges should be adjustable and at least .1 volt maximum.

(RCA WR-39C or WR-89A Crystal Calibrator)

VHF Heterodyne Frequency Meter with crystal calibrator if the signal generator is not crystal controlled.

UHF Sweep Generator with a frequency range of 470 mc. to 890 mc. RCA Types WR-40A, WR-41A or WR-86A or their equivalent.

UHF Signal Generator to provide the following frequencies with crystal accuracy if RCA Type WR-41A or WR-86A is used.

Channel Number	Picture Carrier Freq. Mc.	Sound Carrier Freq. Mc.	Receiver R-F Osc. Freq. Mc.
14	471.25	475.75	517
15	477.25	481.75	523
16	483.25	487.75	529
17	489.25	493.75	535
18	495.25	499.75	541
19	501.25	505.75	547
20	507.25	511.75	553
21	513.25	517.75	559
22	519.25	523.75	565
23	525.25	529.75	571
24	531.25	535.75	577
25	537.25	541.75	583
26	543.25	547.75	589
27	549.25	553.75	595
28	555.25	559.75	601
29	561.25	565.75	607
30	567.25	571.75	613
31	573.25	577.75	619
32	579.25	583.75	625
33	585.25	589.75	631
34	591.25	595.75	637
35	597.25	601.75	643
36	603.25	607.75	649
37	609.25	613.75	655
38	615.25	619.75	661
39	621.25	625.75	667
40	627.25	631.75	673
41	633.25	637.75	679
42	639.25	643.75	685
43	645.25	649.75	691
44	651.25	655.75	697
45	657.25	661.75	703
46	663.25	667.75	709
47	669.25	673.75	715
48	675.25	679.75	721
49	681.25	695.75	727
50	687.25	691.75	733
51	693.25	697.75	739
52	699.25	703.75	745
53	705.25	709.75	751
54	711.25	715.75	757
55	717.25	721.75	763
56	723.25	727.75	769
57	729.25	733.75	775
58	735.25	739.75	781
59	741.25	745.75	787
60	747.25	751.75	793
61	753.25	757.75	799
62	759.25	763.75	805
63	765.25	769.75	811
64	771.25	775.75	817
65	777.25	781.75	823
66	783.25	787.75	829
67	789.25	793.75	835
68	795.25	799.75	841
69	801.25	805.75	847
70	807.25	811.75	853
71	813.25	817.75	859
72	819.25	823.75	865
73	825.25	829.75	871
74	831.25	835.75	877
75	837.25	841.75	883
76	843.25	847.75	889
77	849.25	853.75	895
78	855.25	859.75	901
79	861.25	865.75	907
80	867.25	871.75	913
81	873.25	877.75	919
82	879.25	883.75	925
83	885.25	889.75	931

Absorption Type Video Marker Box.—Marker Box to provide the following frequencies: 0.5 mc.; 1.5 mc.; 3.0 mc. and 4.1 mc. RCA WG-295A or equivalent.
(Used with RCA WR-59C Generator)

Adapter.—Video Adapter, RCA WG-306A or equivalent.

Bais Source.—A 100 volt bias source (battery or other).

Bias Supply.—Bias source to supply three outputs variable between 0-15 volts D.C.—RCA WG-240A.

Color Bar Generator.—RCA WR-61A, or equivalent.

Demagnetizing Coil.—Approximately 425 turns of #20 enameled wire 12 inches in diameter. Connected across 117 volt 60 cycle AC source.

Dot-Bar Generator.—RCA WR-36A or equivalent.

Electronic Voltmeter.—A voltmeter with a 1.5 volt DC scale is required. RCA Senior or Master "VoltOhmyst" ® (with Diode Probe RCA WG-264 and HV Probe RCA WG-289 with WG-206) or its equivalent.

I-F Load and Detector Block.—Refer to figure 21 under Alignment Procedure.

Microscope.—A microscope of approximately 12 power for phosphor dot observation.

Milliameter.—A meter with a 0-500 M.A. range is required for HV measurement.

R-F Modulator.—RCA WG-304A or equivalent.

Television Picture Carrier Signal Generator (with provision for Wide Band Modulation).—i.e. RCA WR-39C Crystal Calibrator modulated by RCA WR-59C Sweep Generator. Used with WG-304A R-F Modulator.

Video Sweep Generator.—Sweep Generator with a range of 0 to 5 mc. with markers—RCA WR-59C and Marker Box.

VHF Attenuator Pad.—Refer to figure 27 under Alignment Procedure.

Wide Band Oscilloscope.—RCA WO-78A or equivalent.

The Horizontal Deflection Circuit must be disabled by removing fuse F103 when performing the alignment of the Sound I-F, Picture R-F and I-F, and Video sections of the receiver. This is done to prevent horizontal pulse interference on the oscilloscope.

A 2500 ohm 100 watt resistor must be connected from the +385 volt buss to ground.

Turn the AGC control fully clockwise and the Focus Control counter-clockwise.

Connect a bias box to the grid of the Band Pass Amplifier, Pin 7 of V701A, and adjust the bias supply for −8 volts at the grid.

SOUND I-F ALIGNMENT

Remove the bottom shield over the Picture I-F board PW300. Connect the signal generator to the junction of CR302, L302, C313 on PW300.

Connect two matched 100,000 ohm resistors in series, between the junction of R206/C211 and ground, test point TP202 on PW200.

Connect the "VoltOhmyst" to the junction of R206/C211 at TP202 and to ground.

Set the signal generator to 4.5 mc. with maximum output and adjust T201 Sound take-off and T202 (top and bottom) RATIO DETECTOR TRANSFORMER for maximum indication on the "VoltOhmyst".

Adjust the signal level from the signal generator for −12 volts on the "VoltOhmyst" when finally peaked. This is approximately the operating level of the ratio detector for average signals.

Move the "VoltOhmyst" to the junction of R204, C209 and C210, test point TP201. Connect the ground lead of the "VoltOhmyst" to the junction between the two 100,000 resistors.

Tune T102 (bottom), ratio detector secondary, for zero DC on the "VoltOhmyst".

Remove the resistors, signal generator and "VoltOhmyst" from the circuit.

VIDEO 4.5 MC TRAP ADJUSTMENT

Short the grid pin −1 of V303, 3rd Picture I-F Amplifier, with a short jumper to ground.

Connect the VHF signal generator to the grid of the 1st Video Amplifier Terminal "D" of PW400, and set the generator to 4.5 MC. with internal modulation of the generator.

Connect the oscilloscope, using the oscilloscope diode probe, to terminal "D" of the Band Pass Transformer T702.

Adjust T701 (bottom), at the grid of V701A, Band Pass Amplifier, for minimum 4.5 MC. indication on the oscilloscope.

NOTE.—The −8 volt bias inserted at the grid, pin 7 of V701A, in the initial set-up may have to be lowered to obtain sufficient indication on the oscilloscope.

Remove the jumper from pin 1 of V303, the oscilloscope and the signal generator. Replace the bottom shield on PW300.

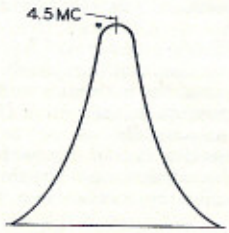


Figure 19 Sound IF Response

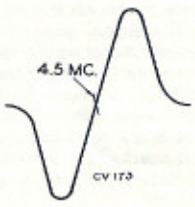


Figure 20 Ratio Det. Response

PICTURE I-F TRANSFORMER ADJUSTMENTS

All Models

Connect the sweep generator, in series with a 1500 mmf. ceramic capacitor, to the grid of the 1st Picture I-F Amplifier, pin 1 of V301. Set the generator to I-F output.

Couple the signal generator loosely to the 1st Picture I-F grid in order to obtain markers.

Connect the bias box to terminal "B" of PW300 and adjust the bias supply for −9 volts of I-F bias at terminal "B". Short terminal "C" of PW400 to ground.

Connect one of the load leads of the "I-F Test Block" to the plate of the 3rd Picture I-F Amplifier, pin 5 of V303. Connect the "Detector" lead of the "I-F Test Block" to the plate of the 2nd Picture I-F Amplifier, and the oscilloscope to the "Oscilloscope" terminals of the Test Block. Refer to figure 21A for proper connection.

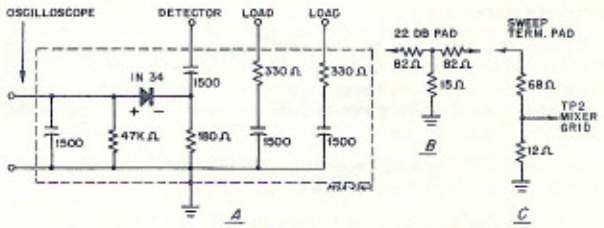


Figure 21-IF Test Block & Sweep Sound Attenuation Pads

Insert markers at 42.17 mc. and at 45.75 mc. from the signal generator and adjust T301, (top and bottom) 1st Picture I-F transformer, for the response shown in figure 22. Use 0.1 volts peak-to-peak on the oscilloscope when making the adjustment.

Remove the "I-F Test Block", the sweep and signal generators and the oscilloscope.

Reconnect the oscilloscope in series with a 10,000 ohm composition resistor, to terminal "D" of PW400, pin 7 of V401A 1st Video Amplifier.

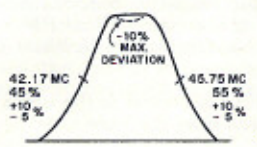


Figure 22— Double-Tuned T301 Response

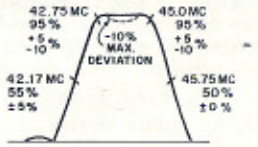


Figure 23— Overall I-F Response from Mixer Grid

Connect the signal generator, in series with a 1500 mmf. ceramic capacitor, to the mixer grid test point TP2. Keep the leads as short as possible. The bottom shield of the picture I-F board must be in place for the following adjustments.

Pre-set the Sound Rejection Control R312 to the center of its mechanical range.

Set the VHF signal generator to each of the following frequencies and tune the specified adjustment for maximum indication on the oscilloscope. In each instance the generator should be checked against the crystal calibrator to insure the generator is on the proper frequency.

45.75 mc	T2
45.75 mc	L301
42.50 mc	T302
43.80 mc	T303 (bottom core)

Set the signal generator to each of the following frequencies and adjust the corresponding circuit for minimum indication on the oscilloscope.

41.25 mc	L102
47.25 mc	L103
41.25 mc	T303 (top core)
41.25 mc	R312

Recheck the adjustment of T303 (bottom core) for maximum indication at 43.8 mc. after making the above adjustments.

Disconnect the sweep and signal generators.

SWEEP ALIGNMENT OF PICTURE I-F

All Models

Connect the sweep generator, in series with a 1500 mmf. ceramic capacitor, to the mixer grid test point TP2. Use the shortest leads possible, with not more than one-half inch of unshielded lead at the end of the sweep cable. Connect the sweep ground lead to the top of the tuner case.

Set the channel selector to channel 4.

Connect a second bias source to the R-F AGC terminal of the tuner and adjust the supply for −4 volts of R-F bias. The I-F bias at test point TP301 of PW300 should remain at −9 volts.

Couple the signal generator to the 1st picture I-F grid to provide markers. The output from the generator should be kept as low as possible and still provide visible markers on the response curve.

Check the response on the oscilloscope. The curve should conform to that shown in figure 23. Slight readjustment of T2, T302 and T303 (bottom core) may be made to obtain the proper response. Use 3 volts peak-to-peak on the oscilloscope when checking the response.

Recheck R312 sound rejection control and T303 (top core) for minimum indication on the oscilloscope at 41.25 mc.

Connect the oscilloscope to terminal "F" on PW300. Insert a 22DB pad and the sweep termination, see figure 21B and 21C, in series with the sweep output cable.

Couple the signal generator loosely to the 1st Picture I-F grid and insert a marker at the picture carrier frequency 45.75 mc. Adjust the sweep and oscilloscope for one-inch of deflection between the base line and the picture carrier marker. Mark the base line and the picture carrier marker points on the oscilloscope.

Remove the 22DB pad from the sweep output, leave the sweep termination pad connected. Move only the oscilloscope centering controls and place the base line at the base line point previously marked. Move the trace horizontally to place the 41.25 mc. sound notch opposite the one-inch mark made for the picture carrier. *Do not change any adjustments except the oscilloscope centering controls to accomplish the repositioning. The I-F bias at terminal "B" of PW300 may have to be lowered to get sufficient indication on the oscilloscope.*

Adjust L102, 41.25 mc. trap, until the bottom of the notch is on the picture carrier mark one inch from the base line.

Remove all test equipment.

Models 21-CT-7835U to 21-CT-7867U Only

To align the I-F amplifier circuit of the KRK40C, connect the VHF sweep generator to the front terminal of the 1N82 crystal holder in series with a 1000 ohm resistor and a 1500 mmf. ceramic capacitor. Use the shortest leads possible, grounding the sweep ground lead to the tuner case.

To do this, remove the crystal cover and connect the resistor, after insulating the lead with tubing, to the crystal front terminal.

Set the UHF CHANGEOVER switch to the UHF position, and the UHF TUNING between channels 43 and 44 at 650 mc.

Connect a 180 ohm composition resistor and a 1500 mmf. capacitor in series between test point TP3 and ground with the capacitor connected to TP3 and the resistor to ground. Connect the oscilloscope diode probe to the junction between the resistor and capacitor. (See figure 30.)

Couple the VHF signal generator loosely to the diode probe in order to obtain markers. Connect a bias source to the AGC terminal on the tuner. Adjust the bias supply to produce −4.0 volts of bias, as measured by the "VoltOhmyst" at the AGC terminal on the tuner.

Set the sweep generator to produce 0.5 volt or less peak-to peak on the oscilloscope.

Adjust C808, on the UHF section of the tuner for maximum gain with 45.75 mc. and 42.5 mc. markers as shown in figure 24.

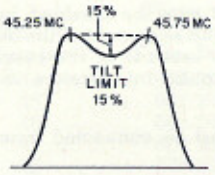


Figure 24— KRK40C L9 and C808 Response

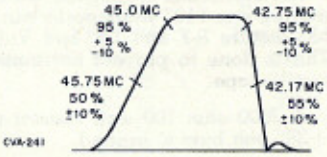


Figure 25— Overall RF-IF Response with KRK40B or KRK40C

If necessary adjust L35 to place the 45.75 mc. marker at the peak of the curve. Adjust L49 for minimum tilt of the curve as shown in figure 24. (Tilt limit is 20% maximum). If necessary knife coil L55 to obtain the bandwidth shown in figure 24.

Remove the resistor, capacitor and diode probe from TP3 and connect the oscilloscope, in series with a 10,000 ohm resistor, to terminal "D" of PW400. Use 3.0 v peak-to-peak on the oscilloscope.

Connect the VHF sweep generator to the antenna terminals. Keep the R-F AGC bias at −4.0 V and the I-F bias at −9.0 volts.

Couple the signal generator loosely to the grid of the first picture I-F amplifier.

Switch through all VHF channels and check for proper curve shape as in figure 25. T303 (bottom core) may be adjusted for up to 5% correction in tilt. L301 may be readjusted for up to 5% correction in picture carrier position. Do not readjust T2 or any other picture I-F adjustments.

Disconnect the VHF sweep generator and connect the UHF sweep generator to the antenna terminals. Check on all UHF channels for proper wave shape as shown in figure 25, retouching C808, L35 and L49 if necessary to correct any overall tilt.

Remove the sweep and marker generators and the bias supplies.

ANTENNA MATCHING UNIT ALIGNMENT

The F-M Trap which is mounted in the antenna matching unit may be adjusted without adversely affecting the alignment of the unit.

To align the antenna matching unit disconnect the lead from the F-M trap L5 to the channel selector switch S1F.

With a short jumper, connect the output of the matching unit through a 1000 mmf. capacitor to the grid of the second pix i-f amplifier, pin 1 of V302.

Replace the cover on the matching unit while making all adjustments.

Remove the first pix i-f amplifier tube V301.

Connect the positive terminal of a bias box to the chassis and the potentiometer arm to terminal "B" of PW300. Set the potentiometer to produce approximately −9.0 volts of bias at terminal "B" of PW300.

Connect an oscilloscope, in series with a 10,000 ohm resistor, to terminal "D" of PW400 and set the oscilloscope gain to maximum.

Connect a VHF signal generator to the antenna input terminals. Modulate the signal generator 30% with an audio signal.

NOTE.—Inductances in KRK40C matching units are not slug tuned and therefore must be knifed for adjustment.

Tune the signal generator to 45.75 mc. and adjust the generator output to give an indication on the oscilloscope. Adjust L4 (knife coil) in the antenna matching unit for minimum audio indication on the oscilloscope.

Tune the signal generator to 41.25 mc. and adjust L3 (knife coil) for minimum audio indication on the oscilloscope.

Remove the jumper from the output of the matching unit.

Connect a 300 ohm ½ watt composition resistor from L5 to ground, keeping the leads as short as possible.

Connect an oscilloscope low capacity crystal probe from L5 to ground. The sensitivity of the oscilloscope should be approximately 0.03 volts per inch. Set the oscilloscope gain to maximum.

Connect the VHF sweep generator to the matching unit antenna input terminals. In order to prevent coupling reactance from the sweep generator into the matching unit, it is advisable to employ a resistance pad at the matching unit terminals. Figure 27 shows three different resistance pads.

Connect the signal generator loosely to the matching unit antenna terminals.

Set the sweep generator to sweep from 45 mc. to 54 mc. With RCA Type WR59A sweep generators, this may be accomplished by retuning channel number 1 to cover this range.

Adjust L1 and L3 (knife coils) to obtain the response shown in figure 26. L1 is most effective in locating the position of the shoulder of the curve at 52 mc. and L3 should be adjusted to give maximum amplitude at 53 mc. and above consistent with the specified shape of the response curve. The adjustments in the matching unit interact to some extent. Repeat the above procedure until no further adjustments are necessary. (NOTE.—Second harmonic output from the sweep generator may cause distortion of the response. Tune L5 F-M trap for maximum inductance to eliminate distortion when adjusting the matching unit. Be sure to return the L5 slug to its original position after adjusting the matching unit to prevent attenuation on channel 5 or 6.)

Restore the connection between L5 and S1F. Replace V301.

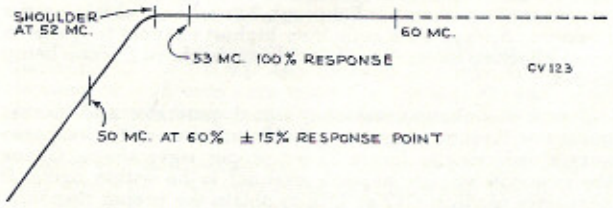


Figure 26—Antenna Matching Unit Response

KRK40B OR KRK40C TUNER ALIGNMENT

All Models

VHF ALIGNMENT (KRK35A or C Section).— A tuner unit which is operative and requires only touch up adjustments, requires no presetting of adjustments. For such units, skip the remainder of this paragraph. For units which are completely out of adjustment, preset C33 all the way out. Set channel 7 to 13 oscillator slugs one turn from tight. Do not change any adjustment in the antenna matching unit.

Unplug the link cable from the tuner jack J2 (J3). Using a plug of the same type, connect a 39 ohm composition resistor across the plug and insert the plug in J2 (J3) in place of the link cable.

Short the AGC terminal of the tuner to ground with a short jumper.

Connect a 56 ohm composition resistor from L5 to ground at the tuner end of the coil. This point is accessible through the hole below the F-M Trap adjustment on the matching unit.

Set the channel selector switch to channel 8.

Preset C28 to read −3.5 volts at the test point TP1, as read on the "VoltOhmyst". The limits for oscillator injection voltage are 2.5 volts minimum and not exceeding a maximum of 5.5 volts.

Turn the fine tuning control fully clockwise.

Adjust C29 for proper oscillator frequency, 227 mc. This may be done in several ways. The easiest way and the way which will be recommended in this procedure will be to use the signal generator as a heterodyne frequency meter and beat the oscillator against the signal generator. To do this, tune the signal generator to 227 mc. with crystal accuracy. Insert one end of a piece of insulated wire into the tuner unit through the hole provided for the adjustment of C23. Be careful that the wire does not touch any of the tuned circuits as it may cause the frequency of the tuner oscillator to shift. Connect the other end of the wire to the "r-f" in terminal of the signal generator. Adjust C29 to obtain an audible beat with the signal generator.

Turn C33 (slug) clockwise until the beat note just begins to change, then turn one full turn in the same clockwise direction.

Return the fine tuning control to the mechanical center of its range.

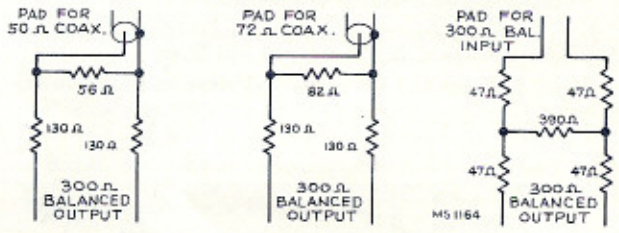


Figure 27—Sweep Attenuator Pads

NOTE.—If on some units, it is not possible to reach the proper channel 8 oscillator frequency by adjustment of C25, switch to channel 13 and adjust L56 to obtain proper channel 13 oscillator frequency as indicated in the table on page 8.

Switch back to channel 8 and readjust C33 (slug) and back again to channel 13 and adjust L56. Repeat several times until proper adjustment is obtained.

Connect the sweep generator through a suitable attenuator, as shown in figure 27 to the input terminals of the antenna matching unit.

Connect the signal generator loosely to the antenna terminals.

Set the sweep generator to cover channel 8.

Set the oscilloscope to maximum gain and use the minimum input signal which will produce a usable pattern on the oscilloscope. Excessive input can change oscillator injection during alignment and produce consequent misalignment even though the response as seen on the oscilloscope may look normal.

Insert markers of channel 8 picture carrier and sound carrier, 181.25 mc. and 185.75 mc.

Adjust C17, C23 and C26 for approximately correct curve shape, frequency, and band width as shown in figure 29.

C17 tunes the r-f amplifier plate circuit and affects the frequency of the pass band most noticeably. C26 tunes the mixer grid circuit and affects the tilt of the curve most noticeably. C23 is the coupling adjustment and hence primarily affects the response band width. Adjust C23 to place the markers at the 100% response points on the curve.

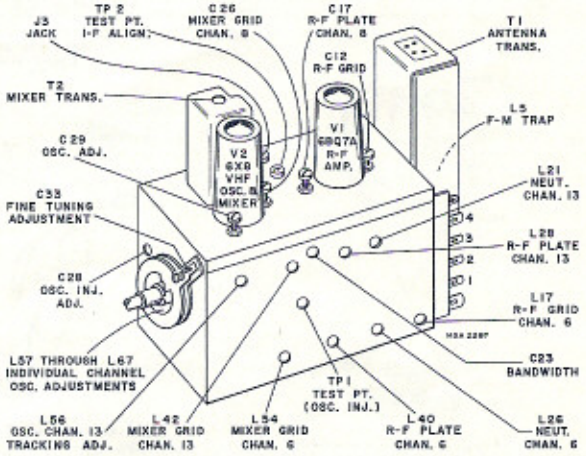


Figure 28—KRK40B VHF Tuner Adjustments

Not this! See pg 4. of Supplement KRK35C

Connect the "VoltOhmyst" to test point TP1. Adjust C28 to read −3.5 volts dc on the "VoltOhmyst" at TP1. Readjust C26, C23 and C17 for proper response. Repeat if necessary until the proper response is obtained.

Set the receiver channel switch to channel 13.

Set the sweep generator to channel 13.

From the signal generator, insert channel 13 sound and picture carries markers, 211.25 mc. and 215.75 mc.

Adjust L42 and L28 for proper response as shown in figure 29.

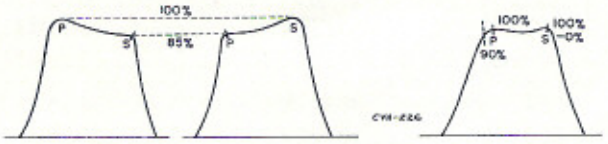


Figure 29—Tuner VHF R-F Response

Turn off the sweep and signal generators.

Connect the "VoltOhmyst" to the tuner test point TP1.

Check the oscillator injection voltage to be within limits as previously specified. Adjust if necessary to bring within range.

If it was necessary to readjust C28, turn the sweep and signal generators back on and recheck the channel 13 response. Readjust L42 and L28 if necessary.

Set the sweep generator and signal generator to channel 8.

Readjust C26, C23 and C17 for correct curve shape, frequency and band width.

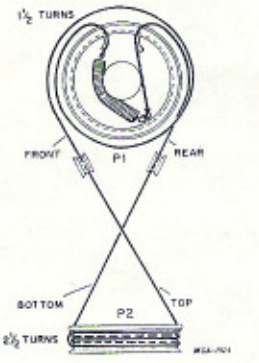
Turn off the sweep and signal generators, switch back to channel 13 and check the oscillator injection voltage at TP1 if C26 was adjusted in the recheck of channel 8 response.

If the initial setting of the oscillator injection trimmer was far off it may be necessary to adjust the oscillator frequency and response on channel 8, adjust the oscillator injection on channel 13 and repeat the tracking procedure several times before the proper setting is obtained.

Check the response on channels 7 through 13 to insure all channels are within limits with respect to tilt, band width and injection voltage.

Turn off the sweep generator and switch the receiver to channel 6.

Adjust the signal generator to the channel 6 oscillator frequency 129 mc.



TUNER DIAL CORD

Set the fine tuning control to the center of its mechanical range.

Adjust L61 for an audible beat. Turn the sweep generator back on and set to channel 6. Adjust L40 and L54 for proper curve shape as shown in figure 29. The valley should be approximately 20%. Recheck the oscillator injection voltage at TP1, to insure that it is within the limits specified. Readjust C28 if necessary.

If C28 required adjustment, switch the receiver and the signal generator to channel 8. Readjust C26 for correct curve shape and recheck C29 and C33 for proper oscillator frequency.

Check the response of channels 2 through 6 by switching the receiver channel switch, sweep generator and marker generator to each of these channels and observing the response and oscillator injection voltage obtained. See figure 29 for typical response curves. It should be found that all these channels have the proper resopnse with the markers above 85% response and the valley approximately 20% down.

If the markers fail to fall within this requirement readjust L40 and L54. Knife coils L36 to L39 and L50 to L53 to achieve minimum tilt on channels 5 through 2 in order to obtain proper response. Always knife coils from highest channel to lowest to avoid affecting the tuning of the channels above the one being knifed.

Switch the channel selector, signal generator and marker generator through channels 7 to 13 and observe the response curves, referring to figure 21 for proper wave shape. Check the injection voltage at each channel to be within limits. If necessary readjust C17 or C16 to obtain the proper response.

With the receiver and signal generator on channel 13 adjust L49 for an audible beat with the signal generator.

Adjust the oscillator to frequency on all channels by switching the receiver and the frequency standard to each channel and adjusting the appropriate oscillator slug to obtain the audible beat. It should be possible to adjust the oscillator to obtain the audible beat on each channel. Recheck the oscillator injection voltage on each channel to verify that the voltage is within the specified limits.

Remove the dummy load plug from J2 (J3) on the tuner and reinsert the I-F cable.

Connect the oscilloscope, in series with a 10,000 ohm resistor, to terminal "D" of PW400. Set the oscilloscope gain to maximum.

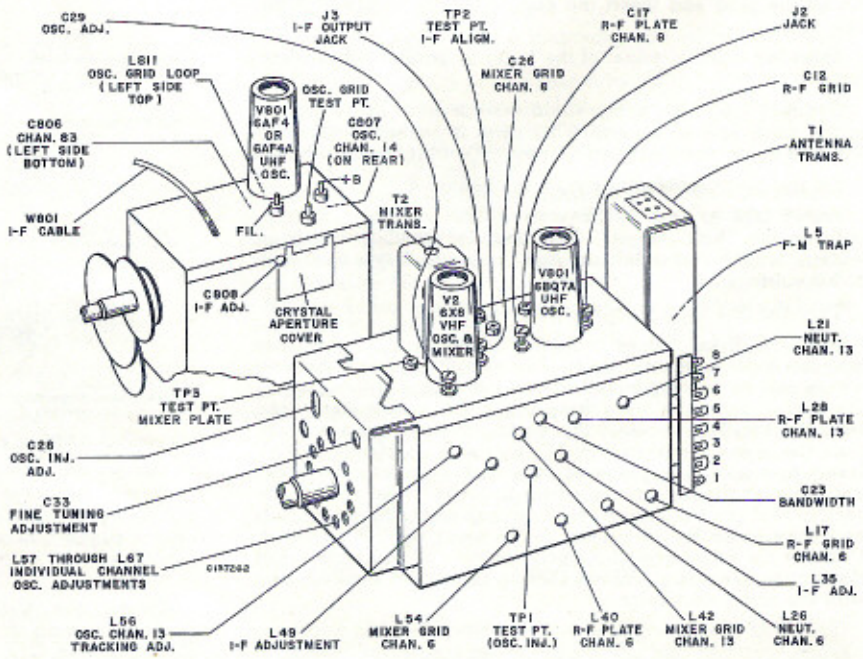


Figure 30—KRK40C UHF/VHF Tuner Adjustments

Connect a bias source to terminal "B" of PW300 and ground the positive terminal of the supply.

Adjust the bias to read −9.0 volts of bias at terminal "B".

Connect a 15 volt bias supply to the AGC terminal of the tuner and set the supply to read −15 volts at the AGC terminal.

Set the sweep generator to channel 13 and adjust L21 for minimum indication on the oscilloscope.

Switch the sweep generator to channel 6 and adjust L26 for minimum indication on the oscilloscope.

Remove the oscilloscope, and reconnect without the 10,000 ohm resistor to test point TP1 on the tuner.

Readjust the bias supply to read −4.0 volts of bias at the AGC terminal on the tuner.

Set the sweep generator to channel 8 and insert channel 8 picture and sound markers.

Observe the response on the oscilloscope and adjust C12 for maximum amplitude at the midpoint of the curve.

Switch the sweep and marker generators to channel 13 and adjust L12 (knife coil) for maximum amplitude at midpoint of the curve. Switch back to channel 8 and readjust C12 and then back to channel 13 and readjust L12.

Reconnect the oscilloscope, using the 10,000 ohm resistor, to terminal "D" of PW400 and increase the bias at the AGC terminal to −15 volts once more. On channel 13 readjust L21 for minimum indication on the oscilloscope and on channel 6 readjust L26 for minimum indication.

Move the oscilloscope back to test point TP1 and reset the bias supply for −4.0 volts at the AGC terminal. Touch up C12 on channel 8 and L12 on channel 13 once more for maximum indication at the midpoint of the response curve.

Switch the sweep and marker generators to channel 6.

Adjust L17 for maximum amplitude at the midpoint of the curve.

Switch through all channels from channel 13 down to channel 2 and observe the response. The valley at the midpoint of the curve should now be 85% or above on all channels. If not it will be necessary to knife coils L7 through L11 and L13 through L16 to achieve this condition. Be sure to knife the coils starting at the highest frequency channel and proceeding to the lowest. This is important as adjustment of any coil will affect all channels lower in frequency.

Remove all test equipment used in the above procedure.

Models 21-CT-7835U to 21-CT-7867U Only

KRK40C UHF ALIGNMENT (KRK36B UHF Section).—R-F alignment of the UHF section of the tuner may only be performed with the UHF section removed from the tuner assembly. RF adjustments require removal of the tuner shield which may only be done with the UHF tuner separate from its mounting.

I-F and oscillator adjustment may be accomplished without removing the tuner.

Connect a 100 ohm composition resistor between the center conductor of the I-F cable W801 and the tuner case.

Connect the oscilloscope using diode detector, to the center conductor of W801 at the 100 ohm resistor, employing the preamplifier if needed with the oscilloscope used. Ground the oscilloscope to the tuner case.

Connect the output of the UHF sweep generator, through a 300 ohm attenuator pad, to the antenna terminals and set the sweep generator to sweep channel 83, centered on 887.5 mc. Adjust the output of the sweep generator to full sweep width.

A test dial made to fit over the split gear on the tuner shaft is necessary for accurate alignment. Scribe marks at 0°, 5° and 164° should be marked on the test dial for reference. The 0° reference point is located with the capacitor plates fully meshed. With the stop pin on the tuner against the stop plate on the gear assembly the plates will be in the proper fully meshed position.

Rotate the tuning dial to the 164°, Channel 83, position.

Connect the VHF signal generator in series with a 1000 ohm resistor to the junction of W801 and L810. This may be done by inserting the lead from the resistor, which should be covered with insulated tubing, through the aperture provided for crystal removal. (See figure 30.) Insert markers for 41.25 mc., 43.5 mc. and 45.75 mc.

Connect the UHF marker generator loosely to the antenna terminals and insert a marker at 887.5 mc.

Adjust R-F trimmer capacitor tabs C804 and C805 for a maximum amplitude overcoupled response curve centered at 887.5 mc. as shown in figure 32 (A).

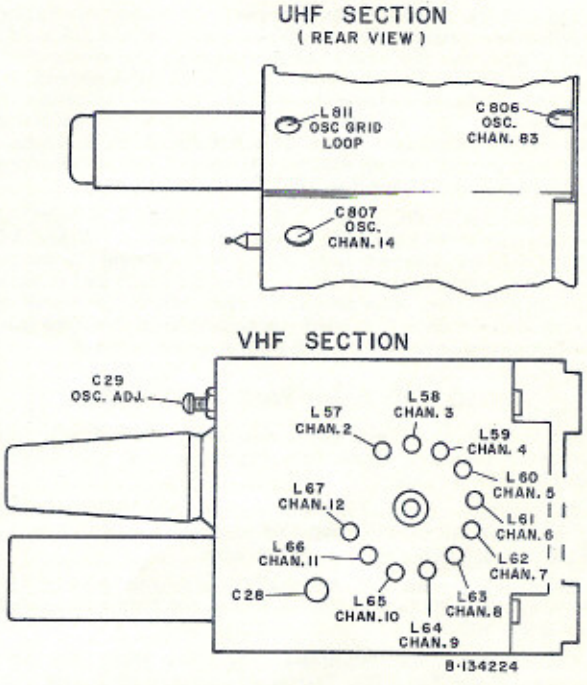


Figure 31—Tuner Oscillator Adjustments

Adjust the oscillator trimmer capacitor C306 until the 43.5 mc. marker coincides with the marker at 887.5 mc. The markers for 41.25 and 45.75 should be symmetrically located on the top of the response curve as in figure 32(A).

Set the UHF sweep and marker generators to 473.5 mc. Rotate the tuning dial to the 5°, Channel 14, position.

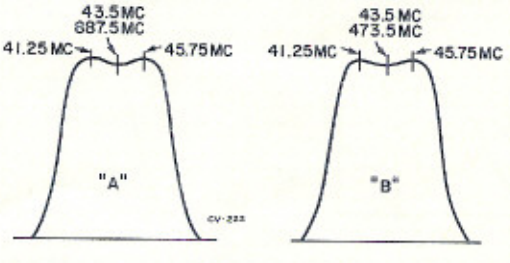


Figure 32—Tuner UHF R-F Responses

Adjust the oscillator trimmer C807 until the 43.5 mc. marker coincides with the 473.5 mc. marker, with the 41.25 and 45.75 markers as shown. The inductance loop L811 across the oscillator grid coil may be repositioned, if necessary, to bring the oscillator trimmer within range. Refer to figure 30 for location of the aperture for making this adjustment.

Repeat the above adjustments, as necessary, until the proper responses are obtained. Tune through the entire range and check the tracking. When perfectly tracked the markers should be on top of the response curves, however, mistracking to the extent indicated below are permissible.

Using the highest amplitude marker as a 100% reference level, the other marker shall not fall below 86% (75%) and no portion of the response curve shall exceed 107% (115%). Midpoint of the curve shall be between 92% (85%) and 107% (115%).

NOTE.—Percentages shown are for observation with a linear detector. Parenthesized values are where a square law detector is employed. The plates must be knifed with the shield cover removed. Always knife the plates while tuning lower in frequency to prevent affecting the tracking above the point of knifing.

Connect the "VoltOhmyst" between the center conductor of W801 and ground. Set the "VoltOhmyst" to the 1.5 v. DC scale. Tune over the entire range observing the reading on the meter. A reading between .03 and .4 volts should be obtained. Voltages outside these limits are an indication of low B voltage, low or high crystal impedance or an oscillator tube outside allowable limits. This voltage is an indication of correct crystal current and may be varied by repositioning the flag L809 with respect to L803.

Connect the "VoltOhmyst" to the "Osc. Grid Test Point" of the tuner (refer to figure 30). A reading between .75 and 3.5 volts should be obtained. Readings above or below this range will cause crystal currents outside allowable limits and in such cases the oscillator tube should be replaced. Replacement of the oscillator tube will require recalibration at the high and low frequency ends of the band as previously outlined.

VIDEO AND BAND PASS ALIGNMENT

Set the Channel Selector to the VHF channel with the flattest R-F response. (Refer to last paragraph of VHF TUNER ALIGNMENT on page 15.)

Connect one output of the bias supply to the AGC terminal on the tuner. Adjust the supply to read −4.0 volts DC on the "VoltOhmyst" at the tuner AGC terminal.

Connect a second output of the bias supply to terminal "B" of PW300. Adjust the supply for a bias of −9.0 volts at terminal "B" of PW300.

Connect the −100 volt bias source to the grid of the burst keyer tube, pin 2 of V704. This point corresponds to test point TP702 on the Chroma Board.

Keep the Chroma bias, at pin 7 of V701, set for a voltage of −8.0 volts DC.

Be sure the 1st Video Amplifier tube is in place in its socket.

Turn the Killer Threshold control fully counter-clockwise.

Connect the "VoltOhmyst", using the R-F probes, to the cathode of V703, G-Y Demodulator, either on pin 3 or pin 8. A reading up to 20 volts should be obtained on the "VoltOhmyst". No reading is an indication that the 3.58 mc. oscillator is not running and in this case T704 should be adjusted to obtain a reading.

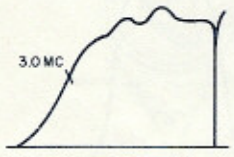


Figure 33—Video Response at 1st Video Amplifier

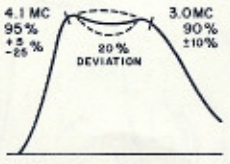


Figure 34—Overall I-F and Video Peaker Response

Move the "VoltOhmyst" to terminal "C" of the C. W. Driver Primary Transformer T705 and adjust T705 top and bottom cores for maximum indication on the "VoltOhmyst".

Connect the "VoltOhmyst" to terminal "C" of the C. W. Driver Secondary Transformer T706 and adjust T706 for maximum indication on the "VoltOhmyst".

Connect the oscilloscope, using the oscilloscope diode probe and video marker box, to terminal "C" of PW400, at the 1st Video Amplifier cathode.

Set the signal generator to the oscillator frequency of the channel selected previously. (See table on page 10.) Connect an insulated wire to the "R.F. IN" terminal of the generator and insert the free end into the tuner at the adjustment for C23. See figure 28 or 30.

Adjust the fine tuning control to obtain an audible beat with the signal generator. This will set the oscillator exactly on frequency.

Connect the sweep and signal generators, using the R-F modulator, to the antenna terminals and set the sweep generator for video sweep. Set the signal generator to the picture carrier frequency for the channel being used.

Connect the "VoltOhmyst", using the diode probe, between terminals "B" and "D" of PW400. Adjust the output from the generators to produce a −1.5 volt reading on the "VoltOhmyst".

The response on the oscilloscope should conform to the curve shown in figure 33.

Disconnect the oscilloscope and diode probe from terminal "C" of PW400 and reconnect the oscilloscope and diode probe to terminal "F" of T702, the Band Pass Transformer.

Load the transformer by connecting a 330 ohm, 1 watt, resistor across terminals "F" and "B" of T702.

Adjust T701 (bottom), Chroma Take-Off Transformer, for the response shown in figure 34.

Remove the 330 ohm load on T702 and connect the oscilloscope and diode probe to terminal "D" of T702.

Adjust T702 (top and bottom cores) for correct wave shape as indicated in figure 35. (Note: If proper response cannot be obtained run the top core through the coil and approach the coil from the opposite direction to obtain the correct response.)

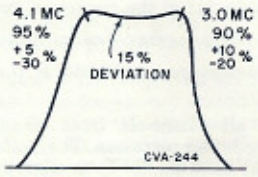


Figure 35—Overall I-F and Band Pass Response

Connect the oscilloscope to each of the kinescope grids at test points TP704, TP705 and TP706. The responses should approximate those shown in figure 36 any unusual deviation from these curves would indicate improper operation of the demodulator circuits.

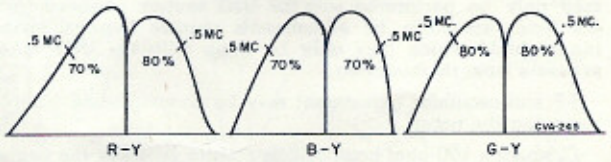


Figure 36—Color Difference Curves at Kinescope Grids

Remove all bias sources, the 2500 ohm resistor loading the +385 volt buss and the oscilloscope. Replace the fuse F103.

AGC ALIGNMENT

The adjustment of the AGC control should be made as outlined under INSTALLATION INSTRUCTIONS on page 3 to conform to the particular reception area involved.

A nominal setting, where the reception area is undetermined, may be defined in the following manner.

Feed a 30,000 microvolt R-F signal into the antenna terminals (signal should be modulated at a level of 85%).

Connect the oscilloscope to terminal "C" of PW400 and calibrate the oscilloscope for an 11 volt peak-to-peak reading.

Adjust the AGC control R103B for an 11 volt peak-to-peak indication on the oscilloscope.

HORIZONTAL DEFLECTION ALIGNMENT

Connect the 0-500 ma. meter across the terminals of the horizontal output tube fuse F104.

Connect the "VoltOhmyst", using the HV probe, to the cup at the base of the HV rectifier tube V101. It is necessary to open the HV compartment to do this. Loosen the screw holding the top of the HV compartment and slide the top to the rear.

Discharge the cup of the H.V. rectifier V101.

NOTE.—The screw holding the top of the HV compartment is designed with a very long thread and will require approximately one-half minute to completely loosen. The screw is purposely designed in this fashion to allow time for any charge existing to be dissipated before the HV compartment can be opened. However, it is not an interlock and the receiver, when turned on, will develop the full 20 KV at the rectifier cup.

Turn the receiver on and tune in a station.

Set the width switch, on the rear of the HV compartment, to its center position.

Adjust the vertical hold control R144A, if necessary, to sync the picture vertically.

Adjust the horizontal hold control L118 if necessary, to bring the picture into sync horizontally.

Connect the oscilloscope, using the low capacity probe, to terminal "J" of PW600, the junction between the horizontal hold control and the sine wave coil.

Adjust the horizontal sine wave coil L601 until the two peaks are at the same height. During this adjustment, the picture must be kept in sync by readjusting the horizontal hold control L118 if necessary. Refer to figure 37 for proper adjustment.

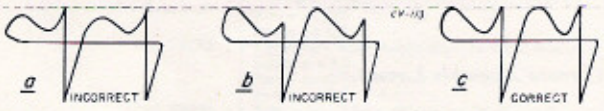


Figure 37—Horizontal Oscillator Waveforms

Operation of the horizontal hold control, should cause the picture to lose sync at either end of its rotation. From the counter-clockwise position, the picture should pull into sync with between 1 and 3 bars present. The picture should remain in sync for a minimum of three complete turns of the control clockwise from the pull-in point.

The proper point of operation of the control is determined as follows:

Turn the control fully clockwise, then counter-clockwise until pull-in occurs. Continue counter-clockwise rotation for one full turn past the pull-in point. This will set the proper operating position of the control.

Observing the reading on the milliameter, adjust the Horizontal Tuning Coil L106, for minimum current indication on the meter. The reading should not exceed 220 ma.

Adjust the height and vertical linearity controls for 1" overscan at both top and bottom of the screen, with 117v. ac line voltage. With 105v. ac line voltage the picture should be adjusted to just fill the mask.

Adjust the focus control R129 for proper focus.

Check the voltage reading on the "VoltOhmyst". A reading between 18,000 and 22,000 volts should be obtained, with a nominal reading of 20,000 volts being desirable.

NOTE.—To check the operation of the HV regulator, a reading of the current of V105 the 6BK4 shunt regulator should be taken.

Insert a 0-1000 microammeter (RCA WV-84A or equivalent) in series with the V105 cathode. This point is accessible on the terminal board and is designated on the schematic diagram as a test jumper in the V105 cathode circuit.

A reading of 800 microamperes should be obtained with 20KV of ultor anode voltage.

COLOR AFC ALIGNMENT

A color bar signal should be fed to the receiver for AFC alignment. Turn the color bar generator "on" (allow 5 minute warmup), and connect the "VoltOhmyst" between the "Meter" terminal and grounds.

Set the metering switch to the "SUB-CARRIER" position and set the "SUB-CARRIER AMP." control to maximum. A reading of −1.2 volts (±20%) should be obtained on the "VoltOhmyst". Set the metering switch to the "SYNC" position and adjust the "SYNC AMPLITUDE" control for a reading of −1.5 volts on the "VoltOhmyst" from the metering terminals. Turn the "60 CYCLE MOD." switch "on". The reading should increase to −1.85 volts. Turn the metering switch and 60 cycle mod. switch to "off" positions.

Connect the "R-F OUT." of the color bar generator to the receiver antenna terminals. Turn the channel selector to channel 3 and adjust the "HOR. HOLD" control of the generator until the bar pattern synchronizes on the kinescope.

Adjust the Fine Tuning Control until the picture on the kinescope shows no sound interference. Advance the color control R116 until color appears in the bar pattern. If the width is properly adjusted (as explained in Installation Instructions) 10 color bars will be seen on the kinescope.

Set the color control and contrast control to the middle of their mechanical range.

Make sure the 3.58 mc. oscillator is running by observing the output at one of the demodulator tube cathodes as explained previously under VIDEO AND BAND PASS ALIGNMENT. Readjust T704 if necessary to start the oscillator.

Connect the "VoltOhmyst" to terminal "C" of the C.W. Driver Primary Transformer T705 and adjust T705 top and bottom cores for maximum indication on the "VoltOhmyst".

Move the "VoltOhmyst" to terminal "C" of the C.W. Driver Secondary Transformer T706 and adjust T706 for maximum indication on the "VoltOhmyst".

Turn the color control fully clockwise.

Ground terminal "A" of the Band Pass Transformer T702 with as short a ground as possible. As short a ground as possible is essential and a convenient method is to use a small screwdriver to accomplish this.

Adjust T704 Burst Amplifier Transformer for zero beat as observed on the kinescope.

Return the color control to the center of its range.

Connect the "VoltOhmyst" to TP707 at terminal "C" of T703. Set the Hue control R164 maximum counter-clockwise.

Connect the oscilloscope to the blue kinescope grid at test point TP704 on the Chroma Board PW700.

Shunt terminal "B" of PW700 to ground through a 150 mmf. capacitor.

Adjust T703 Burst Keyer Transformer for maximum D.C. on the "VoltOhmyst".

Remove the 150 mmf. capacitor at terminal "B". Return the Hue control to mid-range.

Move the "VoltOhmyst" to terminal "C" of T706 C.W. Driver Secondary Transformer and observe the voltage indicated on the meter.

Observe the bar pattern on the oscilloscope connected to the blue kinescope grid test point and rock the Hue control back and forth from one extreme to the other and adjust T705 C.W. Driver Primary Transformer (bottom core) for equal swing of the third bar (R-Y) about the zero axis. The sine wave pattern should swing symmetrically around cancellation at the third bar as the Hue control is rocked back and forth. Refer to figure 38A. Return the Hue control to cancellation of the third (R-Y) bar. If T705 requires much adjustment, recheck for zero beat at T704 and repeat adjustment of T705 (bottom).

Again observe the voltage reading on the meter. The voltage should not decrease more than 1½ volts at terminal "C" of T706 when the above adjustment is made.

Reconnect the "VoltOhmyst" to terminal "C" of T705 and check the reading.

Move the oscilloscope to the green kinescope grid at test point TP706 on the Chroma Board PW700. Check for cancellation of the first and seventh bars. Adjust T705 C.W. Driver Primary Transformer (top core), if necessary, for cancellation of the first and seventh bars. Refer to figure 38B.

Move the oscilloscope to the red kinescope grid test point TP705 on the Chroma Board PW700. Check the cancellation of the sixth bar and touch up T705 (top core) for cancellation of the sixth bar. Refer to figure 38C. The voltage on the "VoltOhmyst" at terminal "C" of T705 should be within 1½ volts

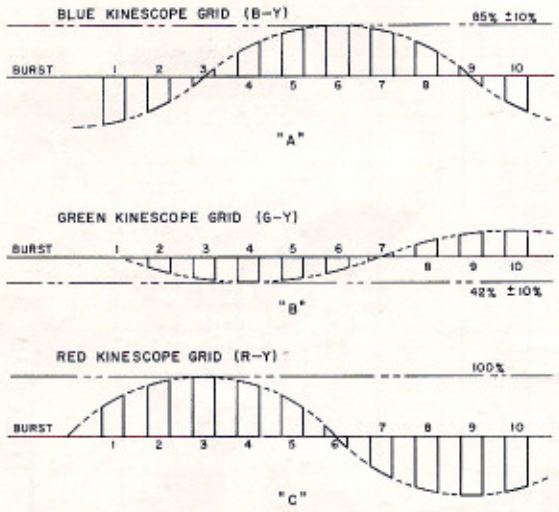


Figure 38—Waveforms at Kinescope Grids

of the reading taken above, before adjustment of T705 (top) for G-Y.

Observe the amplitude of the bar pattern on the oscilloscope connected to the red kinescope grid at test point TP705. Let this value represent 100%.

Connect the oscilloscope to the blue kinescope grid test point TP704 and observe the amplitude of the bar pattern. This should be 85% ±10% of the amplitude at the red grid. (Refer to figure 38.)

Connect the oscilloscope to the green kinescope grid test point TP706. The amplitude should be 42% ±10% of the amplitude at the red grid.

DEMODULATOR PHASE ADJUSTMENT IN THE FIELD

A reasonable check and adjustment of the demodulator phase of the receiver may be made in the field by the following method, where an oscilloscope is not readily available.

Turn the color bar generator "on" (allow 5 minute warmup), and connect the "VoltOhmyst" between the "meter" terminal and ground. Set the metering switch to the "SUB-CARRIER AMP." control to maximum. A reading of 1.2 volts (±20%) should be obtained on the "VoltOhmyst" from the metering terminals.

Turn the "60 CYCLE MOD." switch "on". The reading should increase to −1.85 volts. Turn the metering switch and 60 cycle mod. switch to "off" positions.

Connect the "R-F OUT." of the color bar generator to the receiver antenna terminals. Turn the channel selector to channel 3 and adjust the "HOR. HOLD" control of the generator until the bar pattern synchronizes on the kinescope.

Adjust the Fine Tuning control until the picture on the kinescope shows no sound interference. Advance the Color control R116 until color appears in the bar pattern. If the width is properly adjusted (as explained in Installation Instructions) 10 color bars will be seen on the kinescope.

Set the contrast and brightness controls to normal setting as in reception of a black and white picture.

Set the Color control R116 to the center of its range.

Connect the "VoltOhmyst" to terminal "C" of T705, and observe the reading on the meter.

Set the Hue control to the center of its range. Connect separate 100,000 ohm resistors from the green and red kinescope grids to ground at the test points TP705 and TP706 on PW700. Observe the bar pattern on the kinescope. The third bar should be the same brightness level as the background. If necessary, adjust T705 (bottom) until the third bar is the same brightness as the background, with the Hue control in the center of its range.

Shunt the red and blue kinescope grids. The first and seventh bars should be the same brightness level as the background. If necessary, adjust T705 (top) until the centers of the first and seventh bars are the same brightness level as the background.

Shunt the green and blue kinescope grids. The center of the sixth bar should be the same brightness level as the background. Retouch T705 (top) if necessary to produce this condition.

After completing the above adjustments the voltage on the "VoltOhmyst" at terminal "C" should be within 1½ volts of its original reading.

Remove the shunts on the kinescope grids, the "VoltOhmyst" and the color bar generator.

KILLER THRESHOLD CONTROL ADJUSTMENT

Switch the receiver to a channel where no signal is being received and advance the contrast control until noise is visible on the kinescope.

Advance the Color control R116 fully clockwise. Color should be present in the noise pattern on the kinescope.

Adjust the Killer Threshold control R163 until the color visible in the noise pattern just disappears.

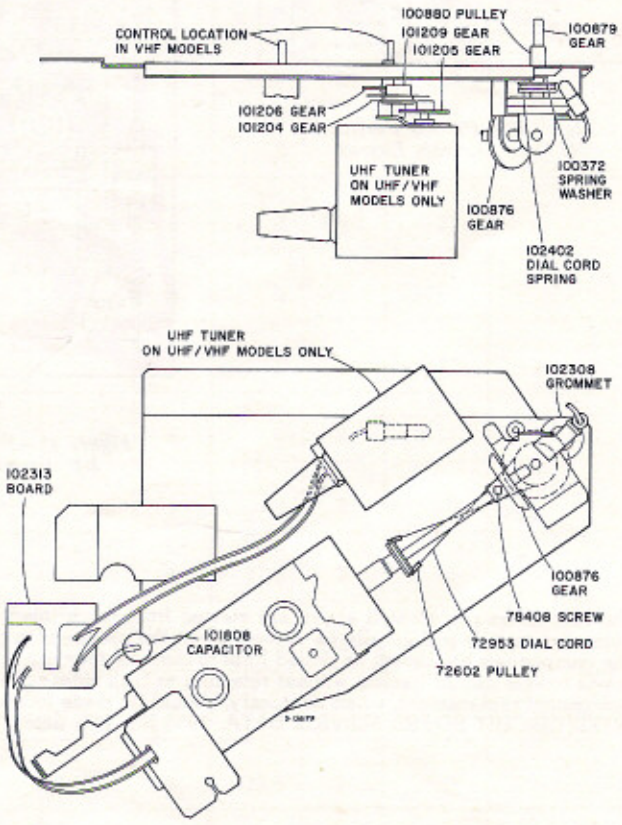


Figure 39—Tuner Assembly Parts Identification

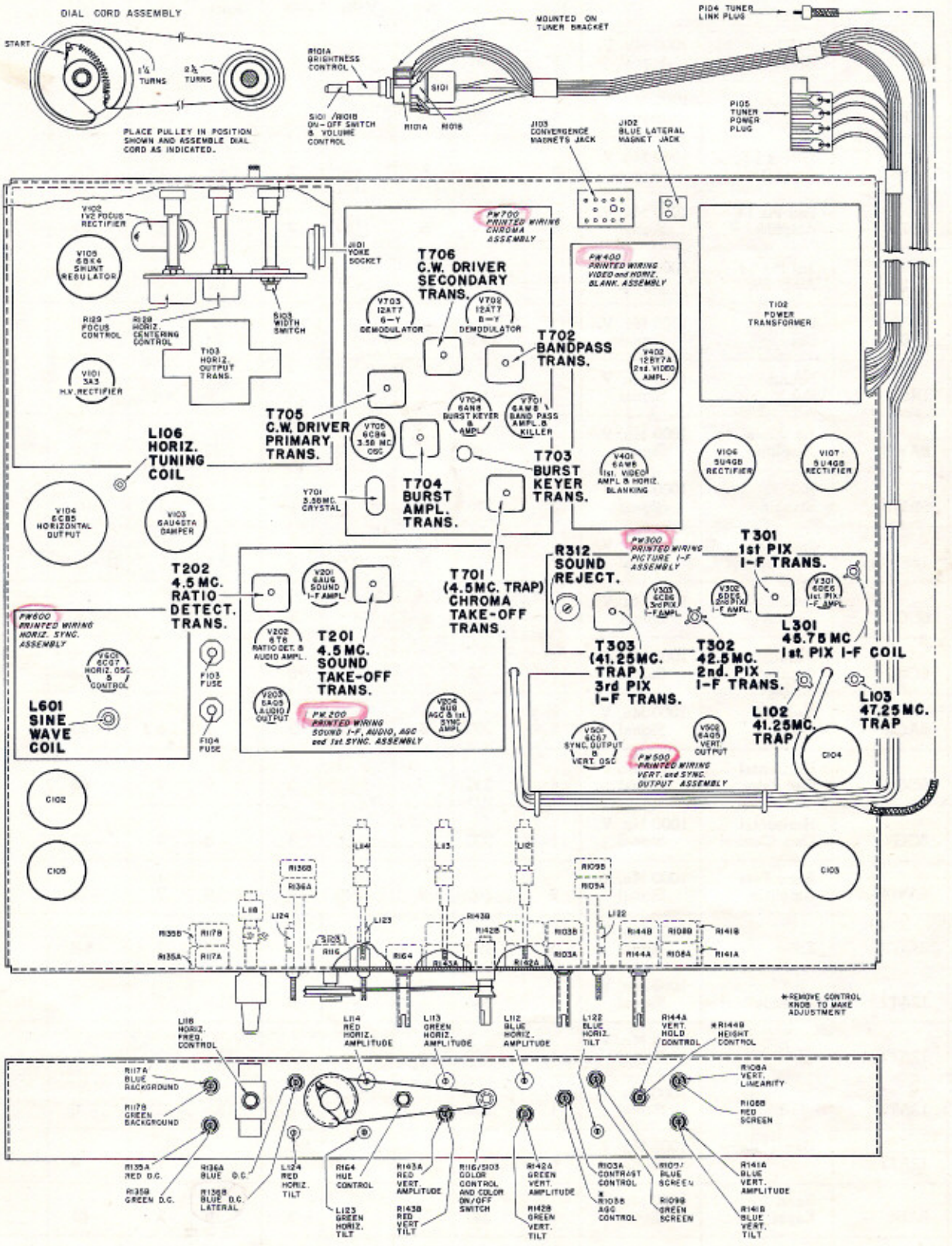


Figure 40—Top Chassis View showing Adjustments

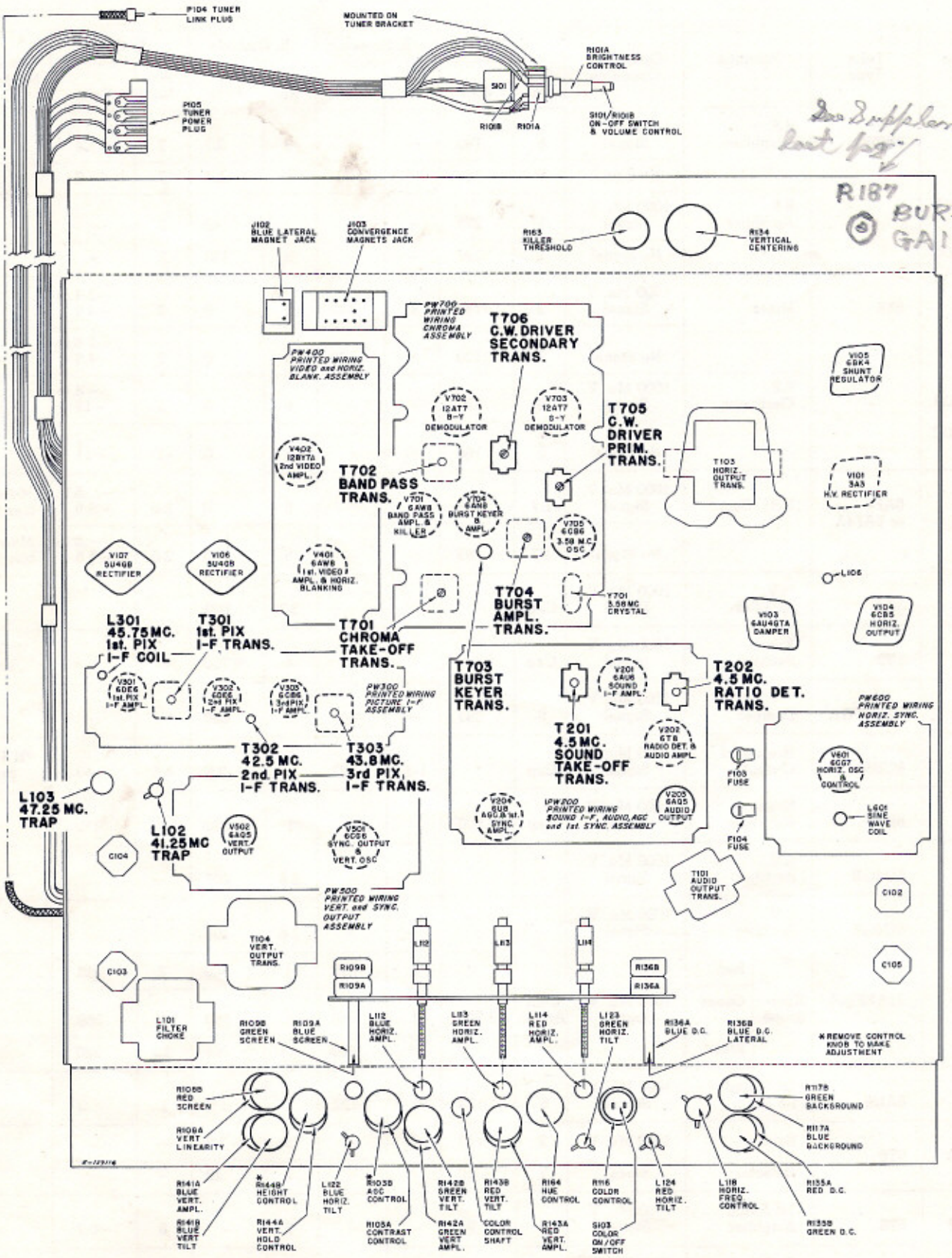


Figure 41—Bottom Chassis View showing Adjustments

21-CT-7835 to 21-CT-7867 Incl.
21-CT-7835U to 21-CT-7867U Incl.

VOLTAGE CHART

The following measurements represent the following conditions. A 1000 microvolt black and white signal was fed into the receiver, the picture synchronized and the AGC control properly adjusted. Voltages shown are read with a type WV97A Senior "VoltOhmyst" between the indicated terminal and chassis ground and with the receiver operating on 117 volts, 60 cycles, a-c.

Tube No.	Tube Type	Function	Operating Condition	E. Plate		E. Screen		E. Cathode		E. Grid		Notes on Measurements
				Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	
V1	6BQ7A	R-F Amplifier	1000 Mu. V. Signal	6	140	–	–	8	0.1	7	−3.2	
			No Signal	6	130	–	–	8	1.1	7	0	
KRK40B KRK40C		R-F Amplifier	1000 Mu. V. Signal	1	275	–	–	3	140	2	–	
			No Signal	1	240	–	–	3	130	2	–	
V2	6X8	Mixer	1000 Mu. V. Signal	9	140	8	140	6	0	7	−2.4 to −4.0	
			No Signal	9	120	8	120	6	0	7	−2.8 to −4.5	
KRK40B KRK40C		R-F Oscillator	1000 Mu. V. Signal	3	170	–	–	6	0	2	−8 to −12	
			No Signal	3	160	–	–	6	0	2	−7 to −11	
V801	6AF4 or 6AF4A	UHF Osc.	1000 Mu. V. Signal	1-7	100	–	–	5	0	2-6	− .5 to −2.5	Measured at bias terminal
			No Signal	1-7	95	–	–	5	0	2-6	−.5 to −2.5	Measured at bias terminal
V101	3A3	H.V. Rectifier	1000 Mu. V. Signal	Cap	*	–	–	2-7	19,500	–	–	
V102	1V2	Focus Rectifier	1000 Mu. V. Signal	Cap	*	–	–	4	6,700	–	–	*H.V. Pulse present
V103	6AU4GTA	Damper	1000 Mu. V. Signal	5	393	–	–	3	880	–	–	
V104	6CB5A	Horizontal Output	1000 Mu. V. Signal	Cap	*	1-8	172	3-6	7.5	4-5	−40	*H.V. Pulse present
V105	6BK4	Shunt Regulator	1000 Mu. V. Signal	Cap	19,500	–	–	1	390	5	375	
V106	5U4GB	L.V. Rectifier	1000 Mu. V. Signal	–	–	–	–	2-8	405	–	–	
V107	5U4GB	L.V. Rectifier	1000 Mu. V. Signal	–	–	–	–	2-8	405	–	–	
V108	21AXP22A	Kine-scope Red	1000 Mu. V. Signal	Ultor Anode	19,500	3	620	4	340	2	255	
		Kine-scope Green				7	640	5	350	6	268	
		Kine-scope Blue				11	660	13	365	12	280	
V201	6AU6	1st Sound I-F Amp.	1000 Mu. V. Signal	5	132	6	132	7	1.3	1	0	
V202A	6T8	Ratio Detector	1000 Mu. V. Signal	2	−13	–	–	5	−3.9	–	–	
				7	−3.5	–	–	1	12	–	–	
V202B	6T8	1st Audio Amplifier	1000 Mu. V. Signal	9	92	–	–	7	–	8	−0.7	
V203	6AQ5	Audio Output	1000 Mu. V. Signal	5	365	6	375	2	150	7	128	

VOLTAGE CHART

21-CT-7835 to 21-CT-7867 Incl.
21-CT-7835U to 21-CT-7867U Incl.

Tube No.	Tube Type	Function	Operating Condition	E. Plate		E. Screen		E. Cathode		E. Grid		Notes on Measurements
				Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	
V204A	6U8	AGC Amplifier	1000 Mu. V. Signal	6	−31	5	300	7	148	2	124	*H.V. Pulse present
V204B	6U8	1st Sync. Amplifier	1000 Mu. V. Signal	1	38	–	–	8	0	9	−45	
V301	6DE6	1st Pix I-F Amplifier	1000 Mu. V. Signal	5	190	6	190	2	0.65	1	−4.0	
V302	6DE6	2nd Pix I-F Amplifier	1000 Mu. V. Signal	5	180	6	180	2	1.0	1	−4.5	
V303	6CB6	3rd Pix I-F Amplifier	1000 Mu. V. Signal	5	138	6	138	2	1.8	1	0	
CR301	1N60	Pix Det.	1000 Mu. V. Signal	–	18.5	–	–	–	20	–	–	
CR302	1N60	Sound Det.	1000 Mu. V. Signal	–	−1.4	–	–	–	0	–	–	
V401A	6AW8	1st Video Amplifier	1000 Mu. V. Signal	9	148	8	170	6	22	7	19	
V401B	6AW8	Hor. Blanking	1000 Mu. V. Signal	3	270	–	–	1	2.9	2	−107	
V402	12BY7A	2nd Video Amplifier	1000 Mu. V. Signal	7	317	8	200	1	3.4	2	−.5	
V501A	6CG7	Sync. Output	1000 Mu. V. Singla	1	72	–	–	3	0	2	−1.5	
V501B	6CG7	Vertical Oscillator	1000 Mu. V. Signal	1	73	–	–	8	0	7	−38	
V502	6AQ5	Vertical Output	1000 Mu. V. Signal	5	290	6	300	2	3	1 & 7	−23	
V601A	6CG7	Horizontal Oscillator	1000 Mu. V. Signal	6	235	–	–	8	0	7	−88	
V601B	6CG7	Horizontal Osc. Control	1000 Mu. V. Signal	1	300	–	–	3	5	2	−27	
V701A	6AW8	Band Pass Amplifier	1000 Mu. V. Signal	9	240	8	240	6	0	7	−14	
V701B	6AW8	Killer	1000 Mu. V. Signal	3	190	–	–	1	.3	2	−5.8	
V702A	12AT7	"B-Y" Demodulator	1000 Mu. V. Signal	6	305	–	–	8	11.6	7	0	
V702B	12AT7		1000 Mu. V. Signal	1	260	–	–	3	11.6	2	0	
V703A	12AT7	"G-Y" Demodulator	1000 Mu. V. Signal	1	295	–	–	3	13.8	2	0	
V703B	12AT7		1000 Mu. V. Signal	6	275	–	–	8	13.8	7	0	
V704A	6AN8	Burst Keyer	1000 Mu. V. Signal	1	280	–	–	3	0	2	−66	
V704B	6AN8	Burst Amplifier	1000 Mu. V. Signal	6	275	7	250	9	0	8	−7	
V705	6CB6	3.58 MC. Oscillator	1000 Mu. V. Signal	5	290	6	136	2	0	1	−7.4	

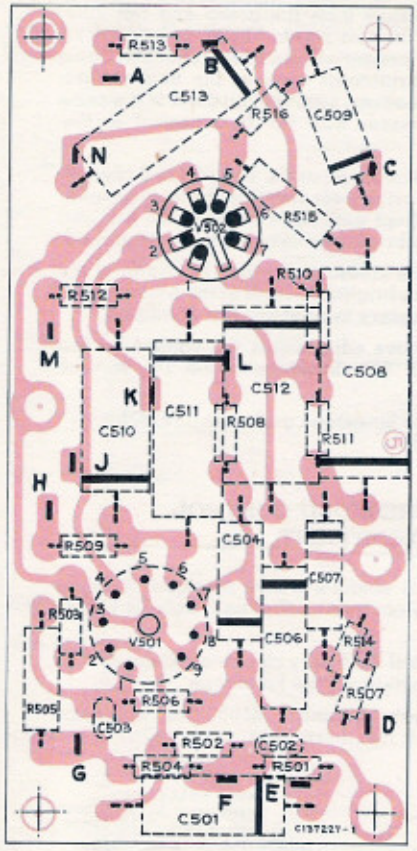


Figure 42—PW500 Vertical & Sync Assembly Layout

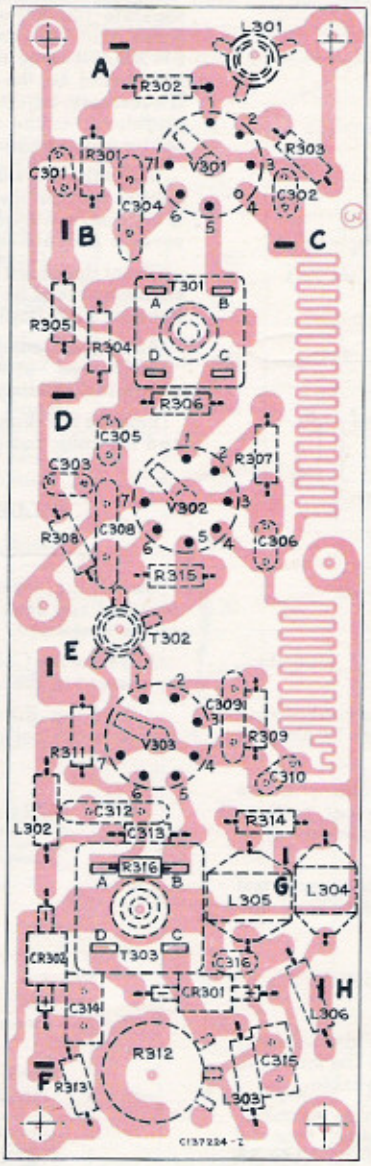


Figure 43—PW300 Picture I-F Assembly Layout

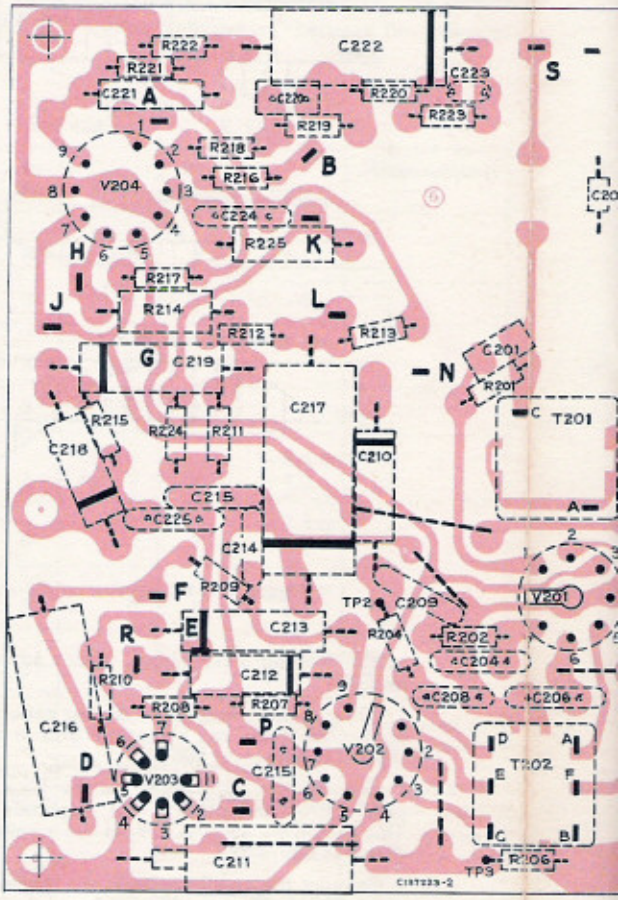


Figure 44—PW200 Sound I-F & Audio Assembly Layout

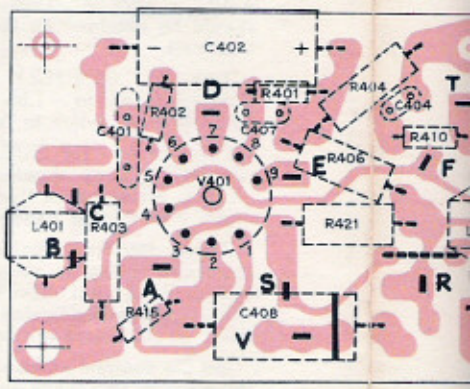


Figure 46—PW400 Vi Assem

The assemblies represented above are viewed from the printed wiring side of the boards and are oriented as they will usually be viewed when the chassis is in position for servicing.

The components are shown by dotted lines to indicate they are on the reverse side of the board. This will enable circuit tracing without referring to both sides of the board.

Component replacement, when necessary, should be made following the techniques outlined in PRINTED CIRCUIT BOARD SERVICE DATA, 1955 No. T13, dated 11/15/55.

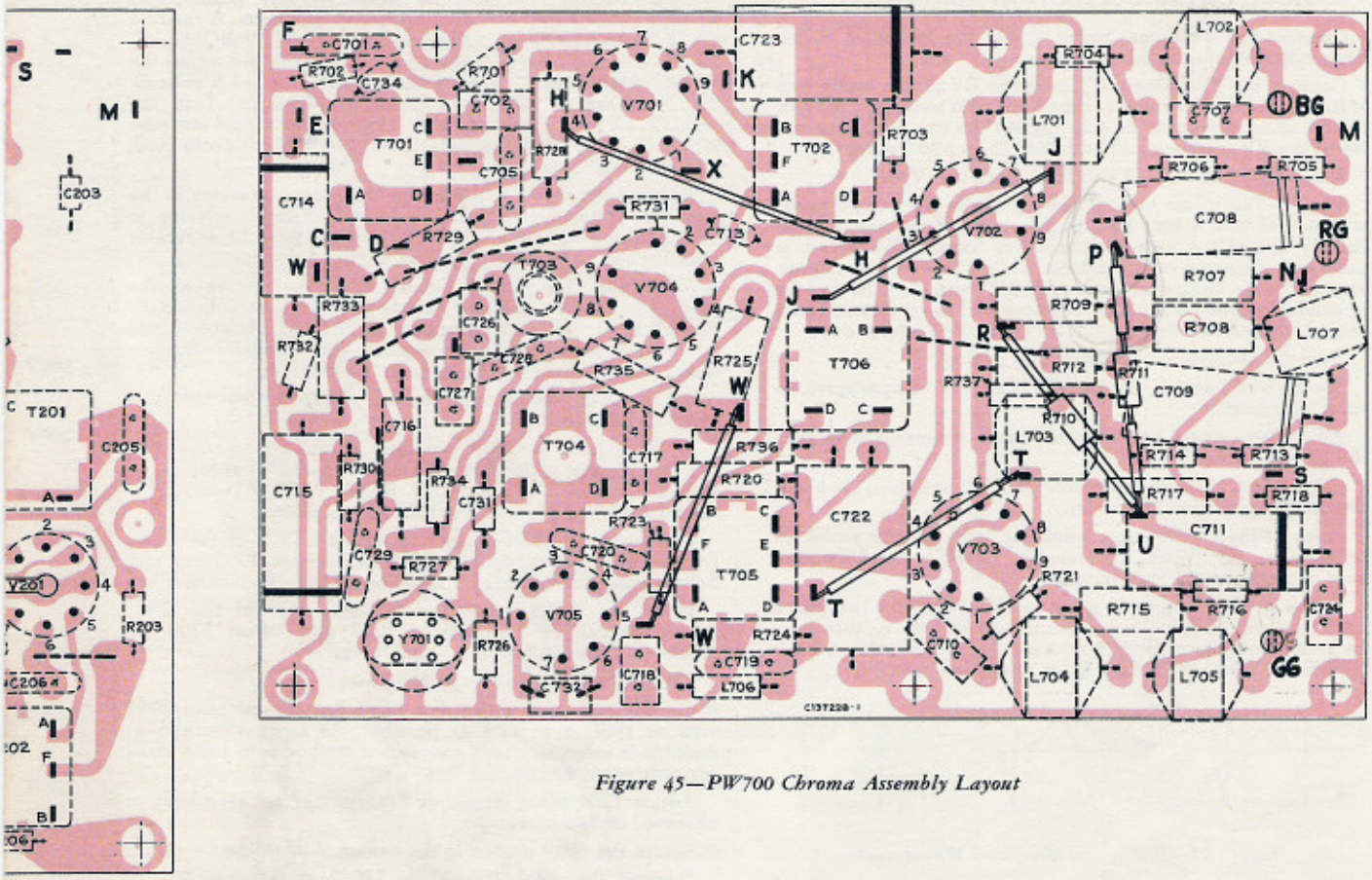
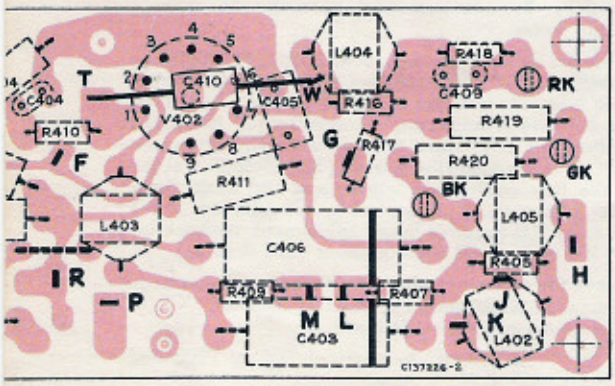


Figure 45—PW700 Chroma Assembly Layout



PW400 Video & Horizontal Blanking Assembly Layout

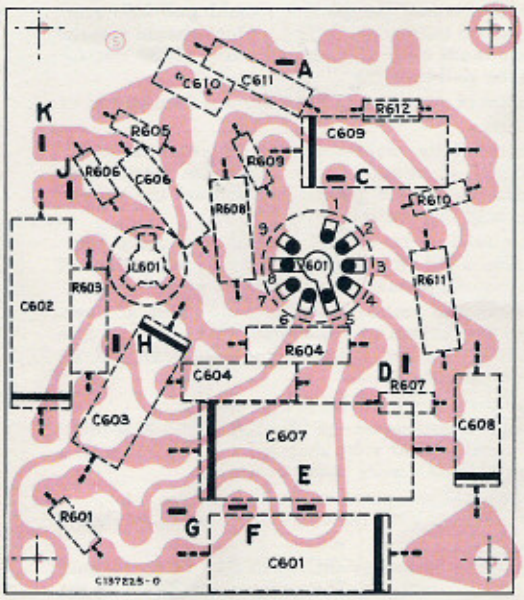


Figure 47—PW600 Hor. Oscillator Assembly Layout

KRK40B VHF TUNER CIRCUIT SCHEMATIC DIAGRAM
(For CTC5B or CTC5D Chassis—VHF Models)

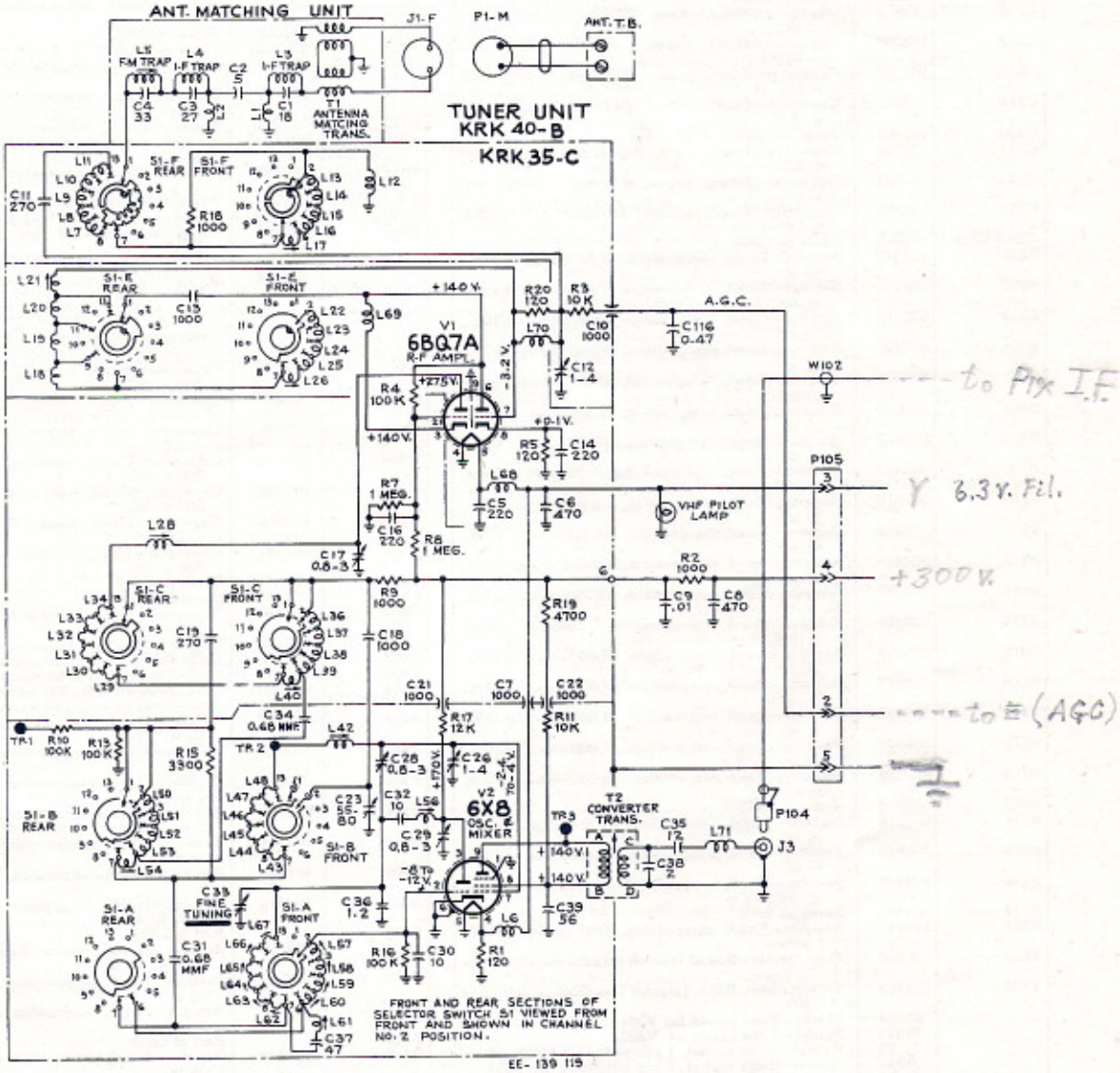


Figure 48—Tuner Circuit Schematic Diagram for Models 21-CT-7835 to 21-CT-7867 Incl.

NOTE: The CTC5B or CTC5D chassis listed above are identical to those shown in large schematic, except for the tuner which is a KRK40B, shown in schematic above. All schematic notes also pertain to these chassis for the equivalent VHF model.

11-18-66, 6X8 OK in spite of no getter visible
6U8 heat a little low
6BQ7A one fil out
all 3 IFs OK.

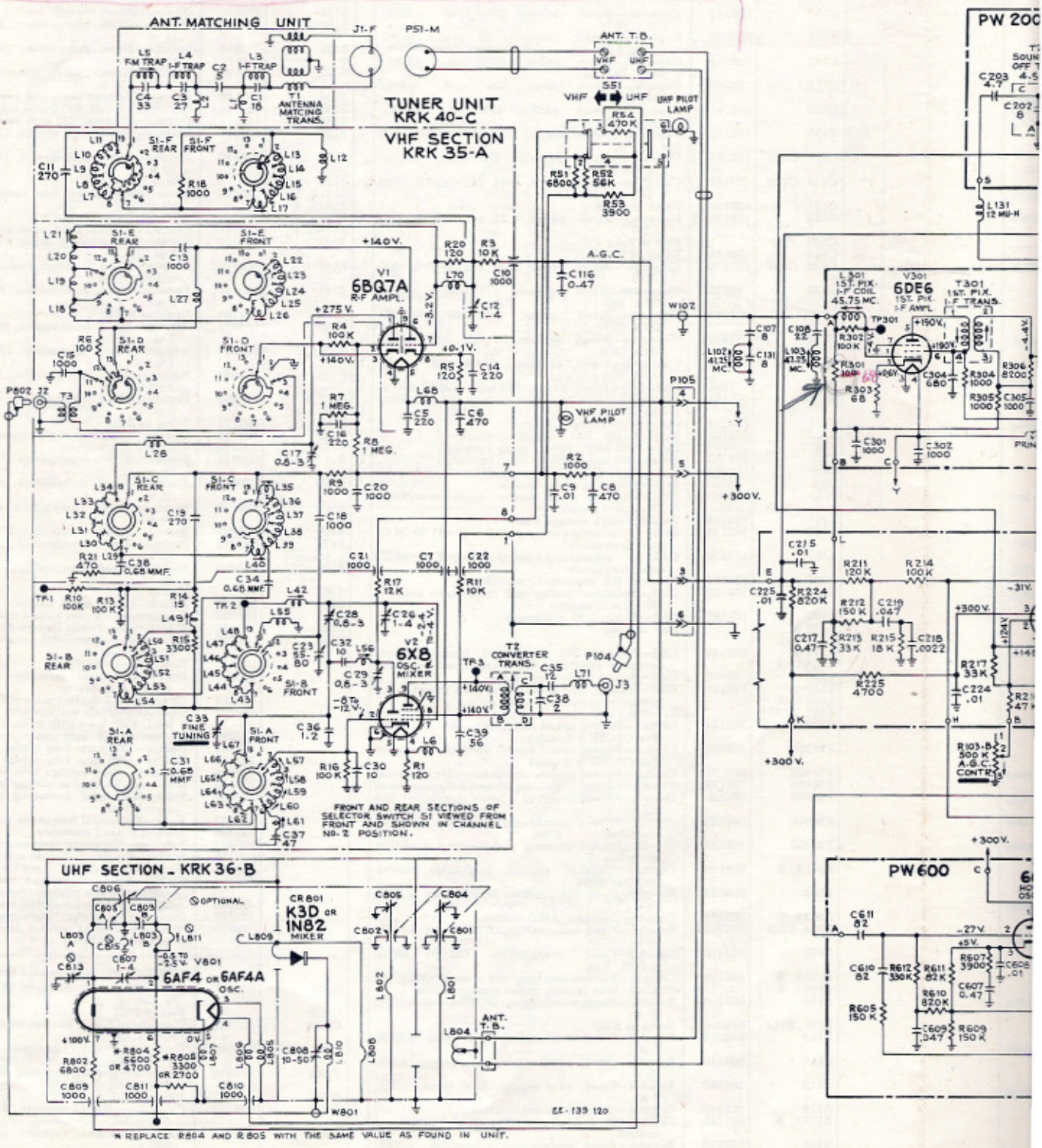
(6U8 & 6U8A are the same tubes)

OVER

NOT for CTC5B

CIRCUIT SCHEMATIC DIAGRAM CTC5B, CT

(CTC5B and CTC5D Use KRK40B Tune

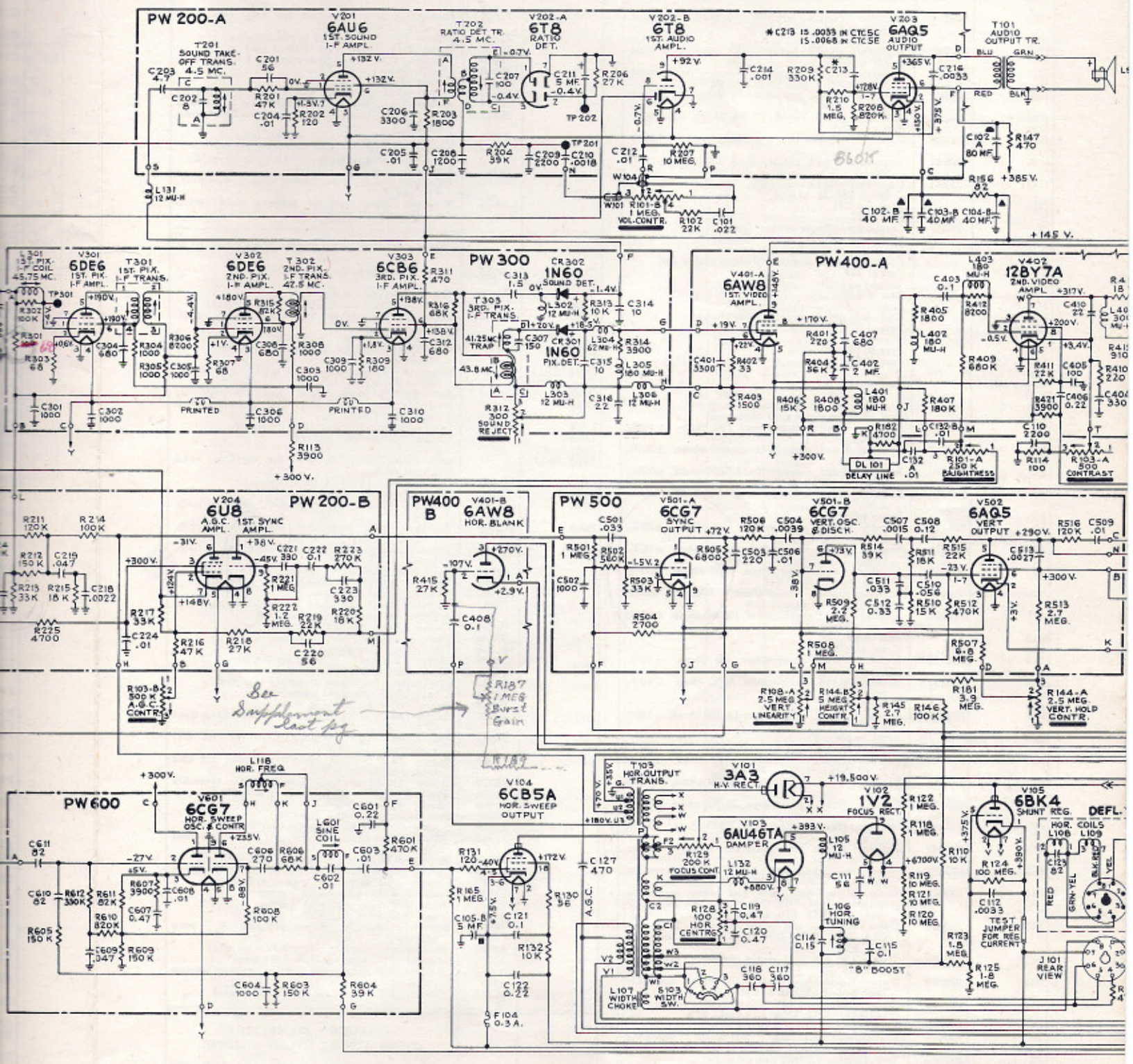


Direction of arrows at controls indicates clockwise rotation.

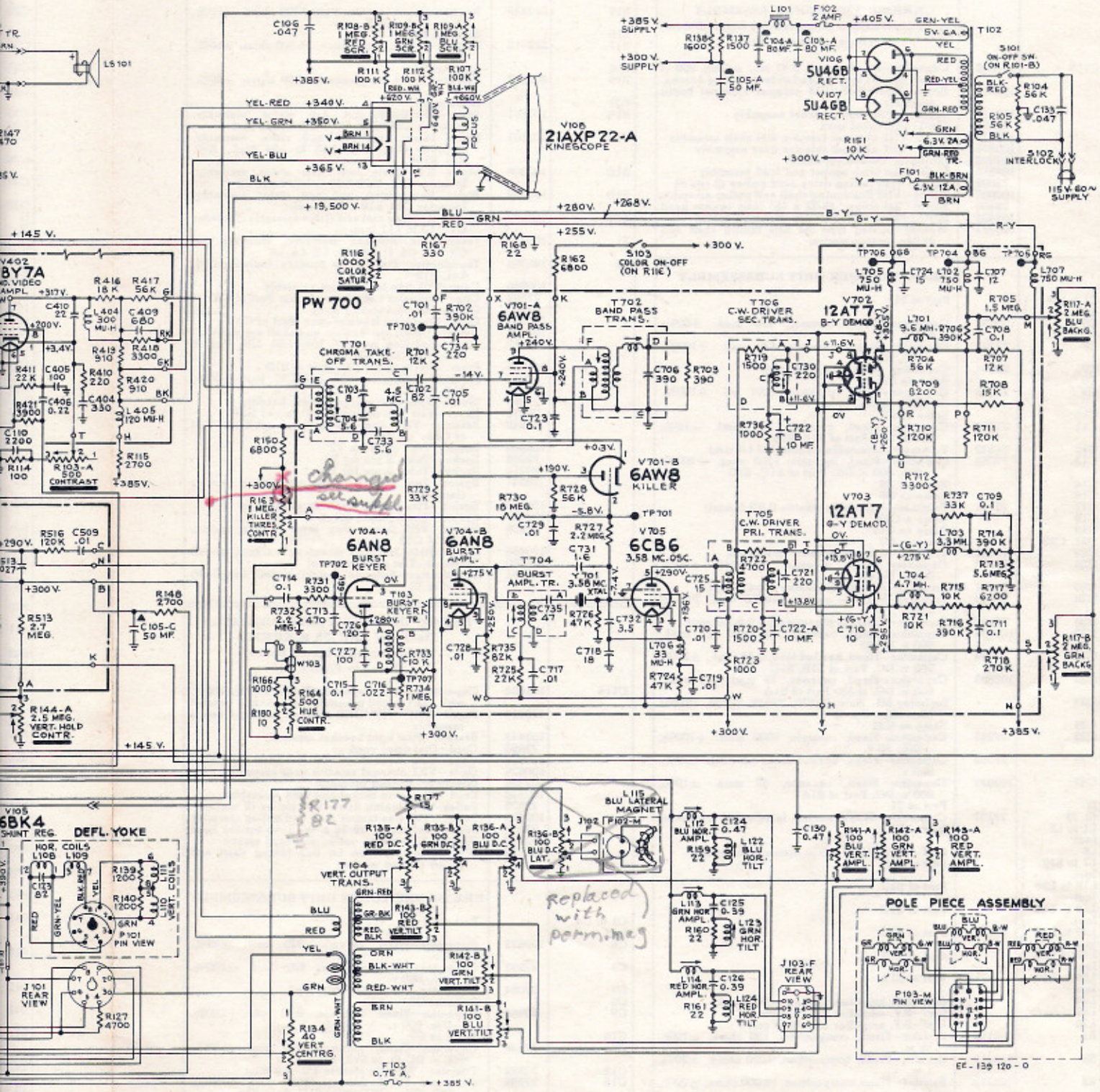
DIAGRAM CTC5B, CTC5C, CTC5D OR CTC5E
C5D Use KRK40B Tuner—See Figure 48)

Pg. 25

v1964
sound was fuzzy



All capacitance values less than 1 in MF and above 1 in MMF unless otherwise noted. All resistance values in ohms. K = 1000.



All voltages measured with "Volt-Ohmyst" and 1000 Microvolt Black and White signal. Voltages should hold within ±20% with 117 v. a-c supply.

Figure 49—Circuit Schematic Diagram CTC5B, CTC5C, CTC5D or CTC5E

SYMBOL NO.	STOCK NO.	DESCRIPTION
		KRK40B VHF TUNER ASSEMBLY (Includes KRK35C Subassembly Listed Below) *(Refer to Figure 39)*
C116	101808	Capacitor—Fixed, paper, 0.47 mf., ±20%, 200 vt with one (1) lead grounded to mounting bracke.
	102313	Board—VHF—VHF/UHF antenna terminal board assembly
	102445	Bracket—Pilot light bracket assembly
	72953	Cord—Dial drive cord
	100879	Gear—VHF channel selector dial shaft assembly
	100876	Gear—VHF channel selector gear assembly
	102308	Grommet—Rubber grommet
	102310	Lead—Pilot lamp socket and lead assembly
	72602	Pulley—Fine tuning drive cord pulley (2 req'd)
	100880	Pulley—VHF fine tuning shaft and pulley assembly
	78408	Screw—Set screw, #6-32 x ¼" long square head
	102402	Spring—Fine tuning pulley dial cord spring
	100372	Washer—Spring type for fine tuning shaft and pulley friction washer
		KRK35C TUNER UNIT SUBASSEMBLY
C1 to C4 Incl.		Part of T1
C5	100672	Capacitor—Fixed, ceramic, 220 mmf. ±20%, 500 v.
C6	77293	Capacitor—Fixed, ceramic, 470 mmf. +100%, −0%, 500 v.
C7	77084	Capacitor—Feed thru 1000 mmf.
C8		Same as C6
C9	73960	Capacitor—Fixed, ceramic, 0.01 mf. +100%, −0%, 500 v.
C10		Same as C7
C11	77838	Capacitor—Fixed, ceramic, 270 mmf. ±10%, 500 v. DC. Part of S1B, S1E
C12	76532	Trimmer—Adjustable steatite 1.0-4.0 mmf.
C13	77252	Capacitor—Fixed, ceramic, 1000 mmf. +100%, −0%, 500 v. DC. Part of S1C, S1D
C14		Same as C5
C16		Same as C5
C17	77151	Trimmer—Adjustable steatite 0.8-3.0 mmf.
C18		Same a C13
C19		Same as C11
C21, C22		Same as C7
C23	79551	Trimmer—Adjustable mica 55-80 mmf.
C25	78603	Capacitor—Fixed, ceramic, 82 mmf. ±10%, 500 v. N-1400
C26	100671	Trimmer—Adjustable steatite 1.0-4.0 mmf.
C28	77913	Trimmer—Variable steatite 0.8-3.0 mmf. Part of S1A
C29	79192	Trimmer—Variable plunger type 0.8-3.0 mmf.
C30	102305	Capacitor—Fixed, ceramic, 10 mmf. ±1 mmf., 500 v. N-330
C31	71504	Capacitor—Fixed, headed lead, 0.68 mmf., ±20%, 500 v. DC. Part of S1B, S1C
C32	102883	Capacitor—Fixed, ceramic, 10 mmf. ±1 mmf., 500 v. DC. N-330 Part of S1A
C33		Includes Stk. No's—78270, 77849, 77854, 102804 (See Misc. Pg. 4)
C34		Same as C31
C35	77252	Capacitor—Fixed, ceramic, 1000 mmf. +100%, −0%, 50 v.
C36	78532	Capacitor—Fixed, headed lead, 1.2 mmf. ±10%, 500 v.
C37	102882	Capacitor—Fixed, ceramic, 47 mmf. ±10%, 500 v. DC. Part of S1A
J1		Part of T1
J2, J3	78237	Connector—Single contact female, I.F. connector
L1 to L5 Incl.		Part of T1
L6		Coil—Oscillator & mixer filament choke coil
L7 to L17 Incl.		Part of S1E
L18 to L26 Incl.		Part of S1D
L28 to L34 Incl.		Part of S1C
L36 to L40 Incl.		Part of S1C
L42 to L54 Incl.		Part of S1B
L56 to L67 Incl.		Part of S1A
L68		Coil—R.F. amplifier filament choke coil.
L69		Coil—R.F. amplifier filter reactor
L70		Coil—R.F. amplifier grid filter coil
R1	502112	Resistor—Fixed, composition, 120 ohms, ±10%, ½ w.
R2	512210	Resistor—Fixed, composition, 1000 ohms, ±20%, 1 w.
R3	502310	Resistor—Fixed, composition, 10,000 ohms, ±20%, ½ w.
R4	502410	Resistor—Fixed, cmposition, 100,000 ohms, ±20%, ½ w.
R5		Same as R1
R7, R8	502510	Resistor—Fixed, composition, 1 megohm, ±10%, ½ w.
R9	502210	Resistor—Fixed, composition, 1000 ohms, ±10%, ½ w. Part of S1C, S1E
R10	502410	Resistor—Fixed, composition, 100,000 ohms, ±20%, ½ w. Part of S1B
R11	512310	Resistor—Fixed, composition, 10,000 ohms, ±10%, 1 w.
R13		Same as R10
R15	502233	Resistor—Fixed, composition, 3300 ohms, ±10%, ½ w. Part of S1B
R16		Same as R4
R17	522312	Resistor—Fixed, composition, 12,000 ohms, ±10%, 2 w.
R18		Same as R9
R19	502247	Resistor—Fixed, composition, 4700 ohms, ±20%, ½ w.
R20		Same as R1
S1A	102881	Stator—Oscillator coil and stator assembly, Includes C28, C32, C37, L56 to L67 Incl.
S1B	102307	Stator—Mixer grid coil and stator assembly, Includes C19, C31, L42 to L54 Incl., R10, R13, R15
S1C	102306	Stator—R.F. plate coil and stator assembly, Includes C18, C34, L28 to L40 Incl., R9
S1D	100698	Stator—Neutralizing coil and stator assembly, Includes C13, L18 to L26 Incl.
S1E	100697	Stator—Antenna coil and stator assembly. Includes C11, L7 to L17 Incl.
T1	100454	Transformer—Antenna matching, Includes C1, C2, C3, C4, J1, L1, L2, L3, L4, L5
T2	102302	Transformer—Pix I.F. link primary. Includes C24, L41, R12
	100886	Cam—VHF fine tuning cam assembly
	77854	Clip—Oscillator trimmer core clip. Part of C33
	77860	Connector—Grounding strap
	102304	Core—Oscillator trimmer core. Part of C33
	102303	Detent—Detent mechanism and shaft assembly
	77917	Form—Coil form for L17, L26, L40, L54, Part of S1B, S1C, S1D, S1E
	101746	Form—Coil form for L21, Part of S1D
	77912	Form—Coil form for L28, L42, L56. Part of S1A, S1B, S1C
	77861	Guide—Fine tuning lever guide, bakelite
	78270	Lever—VHF fine tuning lever. Part of C33
	77849	Retainer—VHF fine tuning lever retainer. Part of C33
	100668	Shield—Tube for V1 & V2
	79366	Socket—Tube, 9 pin for V1
	79718	Socket—Tube, 9 pin for V2
	78241	Spring—Fine tuning lever stabilizing spring (formed)
	100763	Spring—Fine tuning lever tension spring
	100023	Spring—Stator shield grounding spring
	77856	Spring—VHF fine tuning lever tension spring, Part of C33
	100666	Strap—Stator and rotor mounting bracket (2 req'd)
	76460	Terminal—Test point terminal
	73591	Transformer—Antenna matching coil (stand-off) Part of T1
		KRK40C UHF/VHF TUNER ASSEMBLY (Includes KRK35A & KRK36B Subassemblies Listed Below) *(Refer to Figure 39)*
C116	101808	Capacitor—Fixed, paper, 0.47 mf., ±20%, 200 v. with one (1) lead grounded to mounting bracket
	102313	Board—VHF—VHF/UHF antenna terminal board assembly
	102445	Bracket—Pilot light bracket assembly
	72953	Cord—Dial drive cord
	100879	Gear—VHF channel selector dial shaft assembly
	100876	Gear—VHF channel selector gear assembly
	102308	Grommet—Rubber grommet
	102310	Lead—Pilot lamp socket and lead assembly
	72602	Pulley—Fine tuning drive cord pulley (2 req'd)
	100880	Pulley—VHF fine tuning shaft and pulley assembly
	78408	Screw—Set screw, #6-32 x ¼" long square head
	102402	Spring—Fine tuning pulley dial cord spring
	100372	Washer—Spring type for fine tuning shaft and pulley friction washer
		KRK35A VHF TUNER UNIT SUBASSEMBLY
C1 to C4 Incl.		Part of T1.
C5	100672	Capacitor—Fixed, ceramic, 220 mmf. ±20%, 500 v.
C6	77293	Capacitor—Fixed, ceramic, 470 mmf. ±100%, −0%, 500 v.
C7	77084	Capacitor—Feed thru, 1000 mmf.
C8		Same as C6
C9	73960	Capacitor—Fixed, ceramic, 0.01 mf. +100%, −0%, 500 v.
C10		Same as C7
C11	77838	Capacitor—Fixed, ceramic, 270 mmf. ±10%, 500 v. DC Pt. of S1B, S1F
C12	76532	Trimmer—Variable steatite 1.0—4.0 mmf.
C13	77252	Capacitor—Fixed, ceramic, 1000 mmf. +100%, −0%, 500 v. DC. Pt. of S1C, S1D, S1E
C14		Same as C5
C15		Same as C13
C16		Same as C5
C17	77151	Trimmer—Variable steatite 0.8—3.0 mmf.
C18		Same as C13
C19		Same as C11
C20		Same as C13
C21, C22		Same as C7
C23	79551	Trimmer—Adjustable mica, 55-80 mmf.
C24		Part of T2
C25	78603	Capacitor—Fixed, ceramic, 82 mmf. ±10%, 500 v.
C26	100671	Trimmer—Variable steatite 1.0-4.0 mmf.

REPLACEMENT PARTS (Continued)

SYMBOL NO.	STOCK NO.	DESCRIPTION
C28	77913	Trimmer—Variable steatite 0.8 mmf.—3.0 mmf. Pt. of S1A
C29		Same as C17
C30	102305	Capacitor—Fixed, ceramic, 10 mmf. ±1 mmf. 500 v. N-330
C31	71504	Capacitor—Fixed, headed lead, 0.68 mmf. ±20%, 500 v. DC. Pt. of S1B S1C
C32	102883	Capacitor—Fixed, ceramic, 10 mmf. ± 1 mmf. 500 v. DC Pt. of S1A
C33		Includes—77584, 77849, 78270, 79192, 102304
C34		Same as C31
C35	77252	Capacitor—Fixed, ceramic, 1000 mmf. +100%, −0%, 500 v.
C36	78532	Capacitor—Fixed, headed lead, 1.2 mmf. ±10%, 500 v.
C37	102882	Capacitor—Fixed, ceramic, 47 mmf. ±10%, 500 v. DC. Pt. of S1A
C38		Same as C31
J1		Part of T1
J2	78237	Connector—Single contact female
L1 to L5 Incl.		Part of T1
L6		Coil—Oscillator & mixer filament choke coil
L7 to L17 Incl.		Part of S1F
L18 to L26 Incl.		Part of S1E
L27		Coil—R.F. amplifier plate filter choke
L28 to L40 Incl.		Part of S1C
L41		Part of T2
L42 to L54 Incl.		Part of S1B
L56 to L67 Incl.		Part of S1A
L68		Coil—R.F. amplifier filament choke coil
L70		Coil—R.F. amplifier grid choke coil
R1	502112	Resistor—Fixed, composition, 120 ohms, ±10%, ½ w.
R2	512210	Resistor—Fixed, composition, 1000 ohms, ±20%, 1 w.
R3	502310	Resistor—Fixed, composition, 10,000 ohms, ±20%, ½ w.
R4	502410	Resistor—Fixed, composition, 100,000 ohms, ±20%, ½ w.
R5		Same as R1
R6	502110	Resistor—Fixed, composition, 100 ohms, ±20%, ½ w. Part of S1D
R7, R8	502510	Resistor—Fixed, composition, 1 megohm, ±10%, ½ w.
R9	502210	Resistor—Fixed, composition, 1000 ohms, ±20%, ½ w. Part of S1C, S1F
R10	502410	Resistor—Fixed, composition, 100,000 ohms, ±20%, ½ w. Part of S1B
R11	512310	Resistor—Fixed, composition, 10,000 ohms, ±10%, 1 w.
R12		Part of T2
R13		Same as R10
R14	502015	Resistor—Fixed, composition, 15 ohms, ±10%, ½ w. Part of S1B
R15	502233	Resistor—Fixed, composition, 3300 ohms, ±10%, ½ w. Part of S1B
R16		Same as R4
R17	522312	Resistor—Fixed, composition, 12,000 ohms, ±10%, 2 w.
R18		Same as R9
R20		Same as R1
R21	502147	Resistor—Fixed, composition, 470 ohms, ±20%, ½ w. Part of S1C
R51	522268	Resistor—Fixed, composition, 6800 ohms, ±10%, 2 w.
R52	502356	Resistor—Fixed, composition, 56,000 ohms, ±10%, ½ w.
R53	502239	Resistor—Fixed, composition, 3900 ohms, ±10%, ½ w.
R54	502447	Resistor—Fixed, composition, 470,000 ohms, ±20%, ½ w.
S1A	102881	Stator—Oscillator coil and stator assembly, Includes—C28, C32, C37, L56 to L67 Incl.
S1B	100695	Stator—Mixer grid coil and stator assembly, Includes—C11, C19, C31, C34, C38, L42 to L54 Incl., R10, R13, R14, R15
S1C	100694	Stator—R.F. coil and stator assembly, Includes—C13, C15, C18, C20, L28 to L40 Incl., R9, R18, R21
S1D	100696	Stator—I.F. coil and stator assembly, Includes—C15, R6, T3
S1E	100698	Stator—Neutralizing coil and stator assembly, Includes—C13, L18 to L26 Incl.
S1F	100697	Stator—Antenna coil and stator assembly, Includes—C11, L7 to L17 Incl., R18
SS1	102884	Switch—Antenna slide switch assembly
T1	100454	Transformer—Antenna matching assembly, Includes—C1, C2, C3, C4, J1, L1, L2, L3, L4, L5
T2	102302	Transformer—I.F. pix link primary
T3	100677	Coil—I.F. coil assembly. Part of S1D
	77680	Bracket—Grounding strap connector
	78430	Cam—Actuating cam for antenna slide switch
	100886	Cam—VHF fine tuning cam and pulley assembly
	73591	Coil—Antenna matching coil (stand-off) 2 req'd. Part of T1
	102304	Core—Fine tuning oscillator core. Part of C33
	102301	Detent—Detent mechanism and shaft assembly
	77917	Form—Coil form for L17, L26, L35, L54. Part of S1B, S1C, S1E, S1F
	101746	Form—Coil form for L21. Part of S1E
	78581	Form—Coil form for L28, L49. Part of S1B, S1C
	77912	Form—Coil form assembly for L40, L42, L56. Part of S1A, S1B, S1C
	77861	Guide—Fine tuning lever guide bakelite
	78270	Lever—Fine tuning lever. Part of C33
	77849	Retainer—Fine tuning cam retainer. Part of C33
	100668	Shield—Tube for V1, V2
	79366	Socket—Tube 9 pin for V1
	100023	Spring—Coil and stator shield grounding spring
	77584	Spring—Fine tuning core retaining clip. Part of C33
	78241	Spring—Fine tuning lever stabilizing spring (formed)
	77856	Spring—Fine tuning lever tension spring
	100763	Spring—Tuning dial cord extension spring
	100666	Strap—Coil and stator mounting strap (2 req'd)
	76460	Terminal—Test point contact
	79192	Trimmer—Fine tuning oscillator trimmer assembly. Part of C33
	100674	Washer—Spring type for antenna slide switch actuating shaft mounting
		KRK36B UHF TUNER UNIT SUBASSEMBLY
C801 to C803 Incl.	79553	Rotor—Variable tuning capacitor
C804, C805	79554	Stator—Oscillator stator assembly
C806	79585	Disc—Oscillator trimmer capacitor assembly
C807	79556	Capacitor—Adjustable ceramic, 0.8-3.5 mmf. Part of L803
C808	79558	Capacitor—Trimmer, 10-50 mmf.
C809 to C811 Incl.	79559	Capacitor—Feed-thru, 1000 mmf., +100%, −0%, 500 v. DC
C812, C813	79560	Capacitor—Fixed, ceramic, 1 mmf., ±0.1 mmf., 500 v. DC N750
CR801	77489	Rectifier—UHF diode crystal (germanium) rectifier
L803	79557	Coil—Oscillator plate filter coil complete with capacitor—C807
L804	79564	Loop—Antenna terminal loop assembly
L805 to L807 Incl.	79565	Choke—R.F. choke, 15 turns
L808, L809		Coil—Mixer coupling coil for oscillator and output section
L810	79567	Coil—I.F. output coil, 0.15 microhenry
L811	79566	Loop—Oscillator loop
R801	502222	Resistor—Fixed, composition, 2200 ohms, ±10%, ½ w.
R802	512268	Resistor—Fixed, composition, 6800 ohms, ±10%, 1 w.
R803	502247	Resistor—Fixed, composition, 4700 ohms, ±10%, ½ w.
	79583	Ball—Rotor shaft front ball bearing (7 req'd)
	79573	Ball—Rotor shaft rear ball bearing (1 req'd)
	103049	Bearing—Front ball race
	79561	Board—Crystal mounting board assembly complete with capacitor and bracket
	79575	Cover—Crystal holder and cover
	79574	Fastener—Crystal cover fastener
	101204	Gear—Fast drive gear
	101205	Gear—R.F. rotor gear assembly (on gang)
	101206-A	Gear—UHF dial drive gear
	101209	Gear—UHF drive gear assembly (die cast)
	79576	Gear—UHF drive gear assembly
	79568	Screw—#6-20 for bearing race
	79578	Screw—#6-23 x 5/32" long set for UHF drive gear (2 req'd)
	70527	Screw—#6-32 x 3/16" long Allen Hd. for R.F. rotor gear assembly
	79563	Screw—#6-32 x .562"—adjustable core for fine tuning capacitor (C807)
	79570	Screw—#10-32 set screw for rear bearing assembly
	101208	Shaft—UHF drive shaft assembly (steel)
	79580	Shield—Tube for V801
	79581	Shield—Tube socket grounding
	79579	Socket—Tube, 7 pin miniature for V801
	79562	Spacer—Tank oscillator assembly spacer (steatite) 5/16" long
	79571	Spring—R.F. section grounding spring (front)
	79572	Spring—Rotor section grounding spring (4 req'd)
	79577	Spring—UHF drive gear tension spring
	101203	Stop—UHF drive stop with 1 wing
	101201	Stop—UHF drive stop with 2 wings
	101202	Stop—UHF drive stop with 3 wings
	79582	Support—Oscillator stator support, 3/4" long steatite
	35969	Washer—"C" type to retain R.F. rotor gear
	33726	Washer—"C" type for UHF drive gear
	100674	Washer—R.F. rotor gear friction washer (spring type)
	101212	Washer—R.F. rotor gear insulating washer
		CHASSIS ASSEMBLIES CTC5B, CTC5C, CTC5D & CTC5E
C101	102080	Capacitor—Fixed, paper, .022 mf., ±10%, 200 v. DC
C102A, B	102786	Capacitor—Fixed, electrolytic, 80/40 mf., 450/200 v.
C103A, B		
C104A, B		
C105A, B, C	102161	Capacitor—Fixed, electrolytic, 50/5/50 mf., −10 ±50/100%, 450/450/350 v. DC
C106	102172	Capacitor—Fixed, paper, .047 mf., ±10%, 600 v. DC
C107	102316	Capacitor—Fixed, ceramic, 5.6 mmf., ±1.0 mmf., 500 v. DC
C108	100924	Capacitor—Fixed, ceramic, 22 mmf., ±5%, v. DC

SYMBOL NO.	STOCK NO.	DESCRIPTION
C110	102173	Capacitor—Fixed, ceramic, 2200 mmf., ±10%, 500 v. DC
C111	102790	Capacitor—Fixed, ceramic, 56 mmf., ±100 −0%, 5 KV
C112	102174	Capacitor—Fixed, paper, .0033 mf., ±10%, 600 v. DC
C113	75248	Capacitor—Fixed, mica, 220 mmf., ±5%, 1000 v. DC
C114	102191	Capacitor—Fixed, paper, 0.15 mf., ±10%, 600 v. DC
C115	102176	Capacitor—Fixed, paper, 0.1 mf., ±10%, 600 v. DC
C117, C118	102791	Capacitor—Fixed, ceramic, 360 mmf., ±10%, 2 KV N-2200
C119, C120	79148	Capacitor—Fixed, paper, 0.47 mf., ±10%, 200 v. DC
C121	102176	Same as C115
C122	102178	Capacitor—Fixed, paper, 0.22 mf., ±10%, 600 v. DC
C123		Part of Yoke
C124	79148	Same as C119
C125, C126	102179	Capacitor—Fixed, paper, 0.39 mf., ±10%, 200 v. DC
C127	78622	Capacitor—Fixed, ceramic, 470 mmf., ±20%, 500 v. DC
C130	79148	Capacitor—Fixed, paper, 0.47 mf., ±10%, 200 v. DC
C131	55326	Capacitor—Fixed, ceramic, 10 mmf., ±0.5 mmf., 500 v. DC
C132A, B	75877	Capacitor—Fixed, ceramic, .01/.01 mf., +100 −0%, 500 v.
C133	7392	Capacitor—Fixed, paper, .047 mf., ±20%, 600 v.
DL101	102184	Line—Delay line, 6" long, 120 ohms DC resistance 120 ohms
F101	102792	Fuse—Main heater
F102	102182	Fuse—2 amp., 250 v. glass cartridge
F103	102165	Fuse—.750 amp., 250 v., glass cartridge
F104	102164	Fuse—.300 amp., 250 v., glass cartridge
J101	102787	Connector—8 contact, female, for deflection yoke
J102	78255	Connector—2 contact—female
J103	102167	Conector—Pole piece magnet assy. connector—12 contact female
L101	102134	Reactor—High voltage filter
L102	102135	Coil—I.F. accompanying sound trap—41.25 M.C. oper. frequency
L103	102136	Coil—I.F. adjustment sound trap—47.25 M.C. oper. frequency
L105	100441	Reactor—R.F. reactor, 12 microhenry
L106	102137	Coil—Horizontal tuning coil, inductance range—.35-1.0 millihenries
L107	102181	Coil—Width, 0.37 millihenry
L108 to L111 Incl.		Part of Yoke
L112 to L114 Incl.	102138	Coil—Peaking, 750 microhenry, horizontal convergence amplitude (blue, green and red coils)
L118	79966	Coil—Horizontal frequency coil
L122 to L124 Incl.	102139	Coil—Peaking, 250 microhenry, blue, green & red horizontal convergence tilt coils
L131, L132		Same as L105
PW200	102123	Circuit—Printed sound circuit assembly less tubes (For CTC5B & C only)
PW200	102590	Circuit—Printed sound circuit assembly less tubes (For CTC5D & E only)
PW300	102121	Circuit—Printed picture circuit assembly less tubes
PW400	102125	Circuit—Printed video circuit assembly less tubes
PW500	102120	Circuit—Printed vertical circuit assembly less tubes
PW600	102122	Circuit—Printed synchroguide circuit assembly less tubes
PW700	102127	Circuit—Printed chroma plate circuit assembly less tubes
R101A, B	102156	Control—"On-Off" volume, brightness control. Includes S101
R102	502322	Resistor—Fixed, composition, 22,000 ohms, ±10%, ½ w.
R103A, B	102151	Control—Contrast, AGC control
R104, R105	502356	Resistor—Fixed, composition, 56,000 ohms, ±10%, ½ w.
R107	522410	Resistor—Fixed, composition, 100,000 ohms, ±10%, 2 w.
R108A, B	102144	Control—Vertical linearity, red screen control
R109A, B	102143	Control—Blue screen, green screen control
R110	502310	Resistor—Fixed, composition, 10,000 ohms, ±10%, ½ w.
R111, R112	522410	Same as R107
R113	102314	Resistor—Fixed, wire wound, 3900 ohms, ±10%, 7 w.
R114	502110	Resistor—Fixed, composition, 100 ohms, ±5%, ½ w.
R115	102789	Resistor—Fixed, wire wound, 2700 ohms, ±5%, 7 w.
R116	102159	Control—Color saturation control
R117A, B	102145	Control—Blue background, green background control
R118	522510	Resistor—Fixed, composition, 1 megohm, ±20%, 2 w.
R119 to R121 Incl.	522610	Resistor—Fixed, composition, 10 megohm, ±20%, 2 w.
R122	522510	Same as R118
R123	512518	Resistor—Fixed, composition, 1.8 megohm, ±5%, 1 w.
R124	514710	Resistor—Fixed, composition, 100 megohm, ±20%, 1 w.
R125	512518	Same as R123
R127	512247	Resistor—Fixed, composition, 4700 ohms, ±10%, 1 w.
R128	102149	Control—Horizontal centering control
R129	102150	Control—Focus control
R130	502056	Resistor—Fixed, composition, 56 ohms, ±10%, ½ w.
R131	502112	Resistor—Fixed, composition, 120 ohms, ±10%, ½ w.
R132	79182	Resistor—Fixed, wire wound, 10,000 ohms, ±10%, 10 w.
R134	102148	Control—Vertical centering control
R135A, B	102140	Control—DC red, DC green control
R136A, B	102141	Control—DC blue, DC blue lateral control
R137	102169	Resistor—Fixed, wire wound, 1500 ohms, ±10%, 10 w.
R138	102170	Resistor—Fixed, wire wound, 1600 ohms, ±10%, 10 w.
R139, R140		Part of Yoke
R141A, B, R142A, B, R143A, B	102142	Control—Red, green, blue vertical amplitude and tilt control
R144A, B	102146	Control—Vertical hold, vertical height control
R145	512527	Resistor—Fixed, composition, 2.7 megohm, ±10%, 1 w.
R146	502410	Resistor—Fixed, composition, 100,000 ohms, ±10%, ½ w.
R147	522147	Resistor—Fixed, composition, 470 ohms, ±10%, 2 w.
R148	102789	Same as R115
R150	102171	Resistor—Fixed, wire wound, 6800 ohms, ±10%, 7 w.
R151	512310	Resistor—Fixed, composition, 10,000 ohms, ±10%, 1 w.
R156	31959	Resistor—Fixed, composition, 82 ohms, ±10%, 1 w.
R159 to R161 Incl.	523022	Resistor—Fixed, composition, 22 ohms, ±10%, 2 w.
R162	102171	Same as R150
R163	102152	Control—Killer threshold control
R164	102157	Control—Hue control
R165	502510	Resistor—Fixed, composition, 1 megohm, ±10%, ½ w.
R166	502210	Resistor—Fixed, composition, 1000 ohms, ±10%, ½ w.
R167	502133	Resistor—Fixed, composition, 330 ohms, ±5%, ½ w.
R168	502022	Resistor—Fixed, composition, 22 ohms, ±5%, ½ w.
R177	502015	Resistor—Fixed, composition, 15 ohms, ±10%, ½ w.
R180	502010	Resistor—Fixed, composition, 10 ohms, ±10%, ½ w.
S101		Part of R101
S103	102160	Switch—Rotary width switch
T101	100037	Transformer—Audio output transformer
T102	102131	Transformer—Power transformer
T103	102132	Transformer—Horizontal output and high voltage transformer
T104	102133	Transformer—Vertical output transformer
	102394	Board—4 contact terminal board to connect chassis to tuner
	74594	Connector—2 contact male A.C. connector
	102183	Connector—High voltage tube cap connector and lead, 6¼" long with nylon cap for V104
	78269	Connector—I.F. lead connector male
	102162	Holder—.300 amp. fuse holder
	102163	Holder—.750 amp. fuse holder
	78215	Insulator—High voltage tube socket insulator
	102168	Insulator—Vertical centering control insulator
	100407	Knob—Horizontal centering or focus or width switch knob
	79533	Knob—Horizontal frequency coil knob
	102186	Lead—I.F. lead assembly
	100372	Retainer—Horizontal frequency coil knob retainer
	102185	Socket—Kinescope socket assembly
	31251	Socket—Tube socket, 7 pin for V104 to V107 Incl.
	102166	Socket—Tube socket and shell assembly—high voltage—8 pin phenolic for V101
	68590	Socket—Tube socket, octal, for V103
	102788	Socket—Tube socket, 9 pin miniature for V104
	78219	Washer—Vellutex washer for high voltage tube socket mounting
		PW200—Printed Sound Circuit Assembly
C201	102207	Capacitor—Fixed, ceramic, 56 mmf., ±10%, 500 v. DC
C202		Part of T201
C203	102235	Capacitor—Fixed, headed-lead, 4.7 mmf., ±10%, 500 v. DC
C204, C205	73960	Capacitor—Fixed, ceramic, .01 mf., ±100 −0%, 500 v. DC
C206	102233	Capacitor—Fixed, ceramic, 3300 mmf., ±10%, 500 v. DC
C207		Part of T202
C208	102232	Capacitor—Fixed, ceramic, 1200 mmf., ±10%, 500 v. DC
C209	102173	Capacitor—Fixed, ceramic, 2200 mmf., ±10%, 500 v.
C210	102217	Capacitor—Fixed, paper, .0018 mf., ±10%, 400 v. DC
C211	78943	Capacitor—Fixed, electrolytic, 5 mf., +100 −0%, 50 v.
C212	101000	Capacitor—Fixed, paper, .01 mf., ±10%, 200 v. DC
C213	102174	Capacitor—Fixed, paper, .0033 mf., ±10%, 600 v. DC (For CTC5B & C only)
C213	102226	Capacitor—Fixed, paper, .0068 mf., ±10%, 600 v. DC (For CTC5D & E only)
C214	102234	Capacitor—Fixed, ceramic, .001 mf., ±10%, 500 v. DC

SYMBOL NO.	STOCK NO.	DESCRIPTION
C215	73960	Same as C204
C216	73819	Capacitor—Fixed, paper, .0033 mf., ±10%, 1600 v. DC
C217	100299	Capacitor—Fixed, paper, 0.47 mf., ±20%, 200 v. DC
C218	102223	Capacitor—Fixed, paper, .0022 mf., ±10%, 600 v. DC
C219	78921-A	Capacitor—Fixed, paper, .047 mf., ±10%, 200 v. DC
C220	102207	Same as C201
C221	39640	Capacitor—Fixed, mica, 330 mmf., ±10%, 500 v. DC
C222	77423	Capacitor—Fixed, paper, 0.1 mf., ±20%, 400 v. DC
C223	102229	Capacitor—Fixed, ceramic, 330 mmf., ±10%, 500 v. DC
C224, C225	73960	Same as C204
R201	502347	Resistor—Fixed, composition, 47,000 ohms, ±10%, ½ w.
R202	502112	Resistor—Fixed, composition, 120 ohms, ±10%, ½ w.
R203	502218	Resistor—Fixed, composition, 1800 ohms, ±10%, ½ w.
R204	502339	Resistor—Fixed, composition, 39,000 ohms, ±10%, ½ w.
R206	502327	Resistor—Fixed, composition, 27,000 ohms, ±5%, ½ w.
R207	502610	Resistor—Fixed, composition, 10 megohm, ±20%, ½ w.
R208	502482	Resistor—Fixed, composition, 820,000 ohms, ±5%, ½ w.
R209	502433	Resistor—Fixed, composition, 330,000 ohms, ±20%, ½ w.
R210	502515	Resistor—Fixed, composition, 1.5 megohm, ±5%, ½ w.
R211	502412	Resistor—Fixed, composition, 120,000 ohms, ±5%, ½ w.
R212	502415	Resistor—Fixed, composition, 150,000 ohms, ±5%, ½ w.
R213	502333	Resistor—Fixed, composition, 33,000 ohms, ±5%, ½ w.
R214	522410	Resistor—Fixed, composition, 100,000 ohms, ±10%, 2 w.
R215	502318	Resistor—Fixed, composition, 18,000 ohms, ±10%, ½ w.
R216	502347	Resistor—Fixed, composition, 47,000 ohms, ±10%, ½ w.
R217	502333	Resistor—Fixed, composition, 33,000 ohms, ±10%, ½ w.
R218	502327	Resistor—Fixed, composition, 27,000 ohms, ±10%, ½ w.
R219	502322	Resistor—Fixed, composition, 22,000 ohms, ±10%, ½ w.
R220	502318	Same as R215
R221	502510	Resistor—Fixed, composition, 1.0 megohm, ±10%, ½ w.
R222	502512	Resistor—Fixed, composition, 1.2 megohm, ±10%, ½ w.
R223	502427	Resistor—Fixed, composition, 270,000 ohms, ±10%, ½ w.
R224	502482	Same as R208
R225	512247	Resistor—Fixed, composition, 4700 ohms, ±10%, 1 w.
T201	102256	Transformer—Sound take-off transformer. Includes C202
T202	102253	Transformer—Ratio detector transformer. Includes C207
	73584	Shield—Tube shield for V201
	76972	Shield—Tube shield for V202
	102192	Socket—Tube socket, 7 pin wafer for V201
	101216	Socket—Tube socket, 7 pin miniature for V203
	102271	Socket—Tube socket, 9 pin wafer for V202
		PW300—Printed Picture I-F Circuit Assembly
C301 to C303 Incl.	78623	Capacitor—Fixed, ceramic, 1000 mmf., ±20%, 500 v. DC
C304	102237	Capacitor—Fixed, ceramic, 680 mmf., ±10%, 500 v. DC N-2200
C305, C306	78623	Same as C301
C307		Part of T303
C308	102237	Same as C304
C309	102234	Capacitor—Fixed, ceramic, 1000 mmf., ±20%, 500 v. DC
C310, C311	78623	Same as C301
C312	102237	Same as C304
C313	71500	Capacitor—Fixed, headed-lead, 1.5 mmf., ±10%, 500 v. DC
C314, C315	102205	Capacitor—Fixed, ceramic, 10 mmf., ±1.0 mmf., 500 v. DC
C316	102793	Capacitor—Fixed, ceramic, 22 mmf., ±10%, 500 v.
CR301, CR302	76675	Crystal—I.F. pix and sound detector
L301	10227	Transformer—Filter transformer
L302, L303	100441	Coil—R.F. choke coil, 12 microhenry
L304	102201	Coil—Peaking coil, 62 microhenry
L305	102351	Coil—Peaking coil, 180 microhenry
L306	100441	Same as L302
R301	502210	Resistor—Fixed, composition, 1000 ohms, ±20%, ½ w.
R302	502333	Resistor—Fixed, composition, 33,000 ohms, +5%, ½ w.
R303	502068	Resistor—Fixed, composition, 68 ohms, ±5%, ½ w.
R304	502210	Resistor—Fixed, composition, 1000 ohms, ±10%, ½ w.
R305	502210	Same as R301

SYMBOL NO.	STOCK NO.	DESCRIPTION
R306	502282	Resistor—Fixed, composition, 8200 ohms, ±5%, ½ w.
R307	502068	Same as R303
R308	502210	Same as R304
R309	502118	Resistor—Fixed, composition, 180 ohms, ±5%, ½ w.
R311	502147	Resistor—Fixed, composition, 470 ohms, ±10%, ½ w.
R312	102385	Resistor—Fixed, composition, 300 ohms
R313	502310	Resistor—Fixed, composition, 10,000 ohms, ±10%, ½ w.
R314	502239	Resistor—Fixed, composition, 3900 ohms, ±5%, ½ w.
T301	102262	Transformer—1st. I.F. pix transformer
T302	102258	Transformer—2nd. I.F. pix transformer
T303	102265	Transformer—3rd. I.F. pix transformer. Includes C307
	73584	Shield—Tube shield for V301, V302, V303
	102192	Socket—Tube socket, 7 pin wafer for V301, V302, V303
		PW400—Printed Video Circuit Assembly
C401	102233	Capacitor—Fixed, ceramic, 3300 mmf., ±10%, 500 v. DC
C402	78920	Capacitor—Fixed, electrolytic, 2 mf., −10 +100%, 350 v. DC
C403	79251	Capacitor—Fixed, paper, 0.1 mf., ±10%, 200 v. DC
C404	102229	Capacitor—Fixed, ceramic, 330 mmf., ±10%, 500 v. DC
C405	102208	Capacitor—Fixed, ceramic, 100 mmf., ±20%, 500 v. DC
C406	100650	Capacitor—Fixed, paper, 0.22 mf., ±10%, 200 v. DC
C407	102231	Capacitor—Fixed, ceramic, 680 mmf., ±20%, 500 v. DC
C408	79251	Same as C403
C409	102231	Same as C407
C410	102794	Capacitor—Fixed, ceramic, 22 mmf., ±10%, 500 v.
L401	102196	Coil—Peaking coil, 180 microhenry. Includes R408
L402	102198	Coil—Peaking coil, 180 microhenry
L403	102197	Coil—Peaking coil, 180 microhenry. Includes R412
L404	102200	Coil—Peaking coil, 300 microhenry
L405	102199	Coil—Peaking coil, 120 microhenry
R401	502122	Resistor—Fixed, composition, 220 ohms, ±10%, ½ w.
R402	502033	Resistor—Fixed, composition, 33 ohms, ±5%, ½ w.
R403	512215	Resistor—Fixed, composition, 1500 ohms, ±5%, 1 w.
R404	512356	Resistor—Fixed, composition, 56,000 ohms, ±10%, 1 w.
R405	502218	Resistor—Fixed, composition, 1800 ohms, ±5%, ½ w.
R406	522315	Resistor—Fixed, composition, 15,000 ohms, ±10%, 2 w.
R407	502418	Resistor—Fixed, composition, 180,000 ohms, ±10%, ½ w.
R408		Part of L401
R409	502468	Resistor—Fixed, composition, 680,000 ohms, ±10%, ½ w.
R410	502122	Resistor—Fixed, composition, 220 ohms, ±5%, ½ w.
R411	522322	Resistor—Fixed, composition, 22,000 ohms, ±10%, 2 w.
R412		Part of L403
R415	502327	Resistor—Fixed, composition, 27,000 ohms, ±10%, ½ w.
R416	502318	Resistor—Fixed, composition, 18,000 ohms, ±10%, ½ w.
R417	502356	Resistor—Fixed, composition, 56,000 ohms, ±10%, ½ w.
R418	502233	Resistor—Fixed, composition, 3300 ohms, ±10%, ½ w.
R419, R420	512191	Resistor—Fixed, composition, 910 ohms, ±5%, 1 w.
R421	522239	Resistor—Fixed, composition, 3900 ohms, ±10%, 2 w.
	101213	Shield—Tube shield for V401
	102271	Socket—Tube socket, 9 pin wafer for V401
	102270	Socket—Tube socket, 9 pin wafer for V402
		PW500—Printed Vertical Circuit Assembly
CS01	100369	Capacitor—Fixed, paper, .033 mf., ±10%, 400 v. DC
CS02	78623	Capacitor—Fixed, ceramic, 1000 mmf., ±20%, 500 v. DC
CS03	102228	Capacitor—Fixed, ceramic, 220 mmf., ±20%, 500 v. DC
CS04	102218	Capacitor—Fixed, paper, .0039 mf., ±10%, 400 v. DC
CS06	102220	Capacitor—Fixed, paper, .01 mf., ±10%, 400 v. DC
CS07	102216	Capacitor—Fixed, paper, .0015 mf., ±10%, 400 v. DC
CS08	102175	Capacitor—Fixed, paper, 0.12 mf., ±10%, 600 v. DC
CS09	77424	Capacitor—Fixed, paper, .01 mf., ±20%, 200 v. DC
CS10	102504	Capacitor—Fixed, paper, .056 mf., ±10%, 400 v. DC
CS11	102227	Capacitor—Fixed, paper, .033 mf., ±10%, 600 v. DC

SYMBOL NO.	STOCK NO.	DESCRIPTION
C512	102215	Capacitor—Fixed, paper, 0.33 mf., ±10%, 200 v. DC
C513	73818	Capacitor—Fixed, paper, .0027 mf., ±10%, 1600 v. DC
R501	502510	Resistor—Fixed, composition, 1.0 megohm, ±10%, ½ w.
R502	502456	Resistor—Fixed, composition, 560,000 ohms, ±10%, ½ w.
R503	502333	Resistor—Fixed, composition, 33,000 ohms, ±10%, ½ w.
R504	502227	Resistor—Fixed, composition, 2700 ohms, ±5%, ½ w.
R505	512268	Resistor—Fixed, composition, 6800 ohms, ±10%, 1 w.
R506	502412	Resistor—Fixed, composition, 120,000 ohms, ±10%, ½ w.
R507	502568	Resistor—Fixed, composition, 6.8 megohm, ±10%, ½ w.
R508	502510	Same as R501
R509	502522	Resistor—Fixed, composition, 2.2 megohm, ±10%, ½ w.
R510	502315	Resistor—Fixed, composition, 15,000 ohms, ±5%, ½ w.
R511	502318	Resistor—Fixed, composition, 18,000 ohms, ±5%, ½ w.
R512	502447	Resistor—Fixed, composition, 470,000 ohms, ±20%, ½ w.
R513	502456	Same as R502
R514	502339	Resistor—Fixed, composition, 39,000 ohms, ±10%, ½ w.
R515	512322	Resistor—Fixed, composition, 22,000 ohms, ±5%, 1 w.
R516	502412	Resistor—Fixed, composition, 120,000 ohms, ±10%, ½ w.
	102193	Socket—Tube socket, 7 pin miniature for V502
	102270	Socket—Tube socket, 9 pin miniature for V501
		PW600—Printed Horizontal Circuit Assembly
C601	79740	Capacitor—Fixed, paper, 0.22 mf., ±20%, 200 v. DC
C602	73594	Capacitor—Fixed, paper, .01 mf., ±5%, 600 v. DC
C603	102221	Capacitor—Fixed, paper, .01 mf., ±20%, 600 v. DC
C604	39652	Capacitor—Fixed, mica, 1000 mmf., ±5%, 500 v.
C606	76579	Capacitor—Fixed, mica, 270 mmf., ±10%, 1000 v. DC
C607	100299	Capacitor—Fixed, paper, 0.47 mf., ±20%, 200 v. DC
C608	77424	Capacitor—Fixed, paper, .01 mf., ±20%, 200 v. DC
C609	77422	Capacitor—Fixed, paper, .047 mf., ±20%, 400 v. DC
C610	102203	Capacitor—Fixed, ceramic, 82 mmf., ±10%, 500 v. DC
C611	76474	Capacitor—Fixed, mica, 82 mmf., ±10%, 1000 v.
L601	102195	Coil—Horizontal frequency coil
R601	502447	Resistor—Fixed, composition, 470,000 ohms, ±10%, ½ w.
R603	512415	Resistor—Fixed, composition, 150,000 ohms, ±10%, 1 w.
R604	512339	Resistor—Fixed, composition, 39,000 ohms, ±10%, 1 w.
R605	502415	Resistor—Fixed, composition, 150,000 ohms, ±10%, ½ w.
R606	502368	Resistor—Fixed, composition, 68,000 ohms, ±10%, ½ w
R607	502239	Resistor—Fixed, composition, 3900 ohms, ±10%, ½ w.
R608	512410	Resistor—Fixed, composition, 100,000 ohms, ±5%, 1 w.
R609	502415	Resistor—Fixed, composition, 150,000 ohms, ±5%, ½ w.
R610	502482	Resistor—Fixed, composition, 820,000 ohms, ±10%, ½ w.
R611	512382	Resistor—Fixed, composition, 82,000 ohms, ±10%, 1 w.
R612	502433	Resistor—Fixed, composition, 330,000 ohms, ±10%, ½ w.
	102194	Socket—Tube socket, 9 pin miniature for V601
		PW700—Printed Chroma Circuit Assembly
C701	73960	Capacitor—Fixed, ceramic, .01 mf., +100 −0%, 500 v. DC
C702	102203	Capacitor—Fixed, ceramic, 82 mmf., ±10%, 500 v. DC
C703, C704		Part of T701
C705	73960	Same as C701
C706		Part of T702
C707	102211	Capacitor—Fixed, ceramic, 12 mmf., ±10%, 500 v. DC
C708, C709	78922	Capacitor—Fixed, paper, 0.1 mf., ±10%, 400 v. DC
C710	102210	Capacitor—Fixed, ceramic, 10 mmf., ±1.0 mmf., 500 v. DC
C711	78922	Same as C708
C713	102230	Capacitor—Fixed, ceramic, 470 mmf., ±10%, 500 v. DC
C714	79251	Capacitor—Fixed, paper, 0.1 mf., ±20%, 200 v. DC
C715	77423	Capacitor—Fixed, paper, 0.1 mf., ±20%, 400 v. DC
C716	102080	Capacitor—Fixed, paper, .022 mf., ±10%, 200 v. DC
C717	73960	Same as C701
C718	102209	Capacitor—Fixed, ceramic, 120 mmf., ±10%, 500 v. DC
C719, C720	73960	Same as C701
C721		Part of T705
C722A, B	79786	Capacitor—Fixed, electrolytic, dual 10 mf., +250 −10%, 25 v.
C723	79149	Capacitor—Fixed, paper, 0.1 mf., ±20%, 600 v. DC
C724	102212	Capacitor—Fixed, ceramic, 15 mmf., ±10%, 500 v. DC
C725		Part of T706
C726	102209	Same as C718
C727	102206	Capacitor—Fixed, ceramic, 100 mmf., ±10%, 500 v. DC
C728, C729	73960	Same as C701
C730		Part of T706
C731	102236	Capacitor—Fixed, headed-lead, 1.6 mmf., ±5%, 500 v. DC
C732	102204	Capacitor—Fixed, ceramic, 3.5 mmf., ±50 mmf., 500 v. DC
C733		Part of T701
C734	102228	Capacitor—Fixed, ceramic, 220 mmf., ±10%, 500 v. DC
C735		Part of T704
L701	102245	Coil—Peaking coil, 9600 microhenries
L702	102202	Coil—Peaking coil, 750 microhenry
L703	102243	Coil—Peaking coil, 3300 microhenry
L704	102244	Coil—Peaking coil, 4700 microhenry
L705	102202	Same as L702
L706	100441	Coil—R.F. choke coil—non-insulated, 12 microhenry
L707	102202	Same as L702
R701	502312	Resistor—Fixed, composition, 12,000 ohms, ±10%, ½ w.
R702	502439	Resistor—Fixed, composition, 390,000 ohms, ±10%, ½ w.
R703	30498	Resistor—Fixed, composition, 390 ohms, ±10%, ½ w.
R704	502356	Resistor—Fixed, composition, 56,000 ohms, ±10%, ½ w.
R705	502515	Resistor—Fixed, composition, 1.5 megohm, ±10%, ½ w.
R706	502439	Same as R702
R707	522312	Resistor—Fixed, composition, 12,000 ohms, ±5%, 2 w.
R708	522310	Resistor—Fixed, composition, 10,000 ohms, ±5%, 2 w.
R709	512310	Resistor—Fixed, composition, 10,000 ohms, ±5%, 1 w.
R710, R711	502412	Resistor—Fixed, composition, 120,000 ohms, ±10%, ½ w.
R712	512256	Resistor—Fixed, composition, 5600 ohms, ±5%, 1 w.
R713	31455	Resistor—Fixed, composition, 5.6 megohm, ±10%, ½ w.
R714	502439	Same as R702
R715	522310	Same as R708
R716	502439	Same as R702
R717	512256	Same as R712
R718	502427	Resistor—Fixed, composition, 270,000 ohms, ±10%, ½ w.
R719		Part of T706
R720	512215	Resistor—Fixed, composition, 1500 ohms, ±10%, 1 w.
R721	502310	Resistor—Fixed, composition, 10,000 ohms, ±10%, ½ w.
R722		Part of T705
R723	502210	Resistor—Fixed, composition, 1000 ohms, ±10%, ½ w.
R724	512347	Resistor—Fixed, composition, 47,000 ohms, ±10%, 1 w.
R725	522322	Resistor—Fixed, composition, 22,000 ohms, ±10%, 2 w.
R726	502347	Resistor—Fixed, composition, 47,000 ohms, ±10%, ½ w.
R727	502522	Resistor—Fixed, composition, 2.2 megohm, ±10%, ½ w.
R728	512356	Resistor—Fixed, composition, 56,000 ohms, ±10%, 1 w.
R729	512333	Resistor—Fixed, composition, 33,000 ohms, ±10%, 1 w.
R730	502618	Resistor—Fixed, composition, 18 megohm, ±10%, ½ w.
R731	502233	Resistor—Fixed, composition, 3300 ohms, ±10%, ½ w.
R732	502522	Same as R727
R733	522310	Resistor—Fixed, composition, 10,000 ohms, ±10%, 2 w.
R734	502510	Resistor—Fixed, composition, 1 megohm, ±10%, ½ w.
R735	512382	Resistor—Fixed, composition, 82,000 ohms, ±10%, 1 w.
R736	512210	Resistor—Fixed, composition, 100 ohms, ±10%, 1 w.
R737	502333	Resistor—Fixed, composition, 33,000 ohms, ±10%, ½ w.
T701	102260	Transformer—Chroma take-off transformer. Includes C703, C704, C733
T702	102263	Transformer—Band pass plate transformer. Includes C706
T703	102251	Transformer—Burst keyer transformer
T704	102250	Transformer—Burst ampl. Includes C735
T705	102268	Transformer—C.W. driver primary. Includes C721, C725, R722
T706	102266	Coil—C.W. driver secondary. Includes C730, R719
Y701	102249	Crystal—3.58 MC

SYMBOL NO.	STOCK NO.	DESCRIPTION
	101213	Shield—Tube shield for V701
	76972	Shield—Tube shield for V702, V703, V704
	73584	Shield—Tube shield for V705
	102192	Socket—Tube socket, 7 pin wafer for V705
	102239	Socket—Tube socket, 7 pin wafer for Y701
	102271	Socket—Tube socket, 9 pin wafer for V701, V702, V703, V704
		SPEAKER ASSEMBLY 961402-1
	101182	Speaker—6" x 9" P.M. speaker complete with cone and voice coil (3.2 ohms) for Models 21CT7865 & U, 21CT7866 & U, 21CT7867 & U
		SPEAKER ASSEMBLY 92586-4
	74664	Speaker—8" P.M. speaker complete with cone and voice coil (3.2 ohms) for Models 21CT7835 & U, 21CT7837 & U, 21CT7855 & U, 21CT7857 & U
		MISCELLANEOUS
	102292	Back—Cabinet back assembly
	102392	Baffle—Speaker baffle assembly for mahogany grain instruments for Models 21CT7835 & U
	102393	Baffle—Speaker baffle assembly for walnut grain and oak grain instruments for Models 21CT7837 & U
	102288	Bezel—Cabinet bezel assembly
	102287	Bracket—Deflection yoke mounting bracket (2 req'd)
	102277	Bracket—Hidden control cover and case mounting bracket
	102284	Bracket—Kine shield mounting bracket (4 req'd)
	102286	Bracket—Kine shield clip bracket—brass (2 req'd)
	102289	Clip—Cabinet bezel retaining clip
	X3477	Cloth—Cabinet grille cloth—for mahogany grain instruments—for Models 21CT7855 & U
	X3539	Cloth—Cabinet grille cloth—for oak grain instruments—for Models 21CT7857 & U, 21CT7866 & U, 21CT7867 & U
	X3612	Cloth—Cabinet grille cloth—for mahogany grain instruments—for Models 21CT7865 & U
	102295	Coil—Pole piece magnet assembly—coils (3), cores (3) and connector
	77726	Connector—2 contact male for blue beam positioning magnet coil
	51209	Connector—8 contact male—deflection yoke connector
	102272	Connector—12 contact male—Pole piece magnet assembly, coils, connector and shell
	102275	Cover—Hidden control cover and case assembly for mahogany grain instruments for Models 21CT7835 & U, 21CT7855 & U, 21CT7865 & U
	102276	Cover—Hidden control cover and case assembly for oak grain instruments for Models 21CT7837 & U, 21CT7857 & U, 21CT7867 & U
	102831	Cover—Hidden control cover and case assembly for walnut grain instruments for Models 21CT7866 & U
	101302	Emblem—"Super" emblem for mahogany grain and walnut grain instruments for Models 21CT7835 & U, 21CT7855 & U, 21CT7865 & U, 21CT7866 & U
	101303	Emblem—"Super" emblem for oak grain instruments for Models 21CT7837 & U, 21CT7857 & U, 21CT7867 & U
	101148-B	Escutcheon—UHF dial escutcheon—dark wine—for mahogany grain instruments for Models 21CT7835U, 21CT7855U, 21CT7865U
	101149-B	Escutcheon—UHF dial escutcheon—deep umber gray—for walnut grain and oak grain instruments for Models 21CT7837U, 21CT7857U, 21CT-7866U, 21CT7867U

SYMBOL NO.	STOCK NO.	DESCRIPTION
	102278	Glass—Safety glass
	101124-B	Knob—Brightness—gold rim—for all Models
	102274	Knob—Color contrast, horizontal hold, hue & tone control knobs—dark maroon—for all Models
	102497	Knob—Fine tuning—gold—for all Models
	101138-B	Knob—"On-Off" volume—wine—for mahogany grain instruments for Models 21CT7835 & U, 21CT7855 & U, 21CT7865 & U
	100621-B	Knob—"On-Off" volume—taupe—for walnut and oak grain instruments for Models 21CT7837 & U, 21CT7857 & U, 21CT7866 & U, 21CT7867 & U
	102653	Knob—UHF tuning—dark wine—for mahogany grain instruments for Models 21CT7835U, 21CT7855U, 21CT7865U
	102578	Knob—UHF tuning—taupe—for walnut and oak grain instruments for Models 21CT7837U, 21CT7857U, 21CT7866U, 21CT7867U
	102502	Knob—VHF channel selector—wine—for mahogany grain instruments for Models 21CT7835, 21CT7855, 21CT7865
	102503	Knob—VHF channel selector—taupe—for walnut grain and oak grain instruments for Models 21CT7837, 21CT7857, 21CT7866, 21CT7867
	102500	Knob—VHF/UHF channel selector—dark wine—for mahogany grain instruments for Models 21CT7835U, 21CT7855U, 21CT7865U
	102501	Knob—VHF/UHF channel selector—taupe—for walnut grain and oak grain instruments for Models 21CT7837U, 21CT7857U, 21CT7866U, 21CT7867U
	11891	Lamp—Pilot lamp (Mazda #44)
	102291	Latch—Cabinet bezel latch
	102437	Lead—Anode lead and connector
	102438	Lining—Kine shield lining
	102298	Magnet—Blue beam positioning magnet assembly
	102495	Magnet—Color equalizer magnet assembly (6 req'd)
	79604	Magnet—Purity magnet ring assembly
	100699	Marker—Channel marker gilt nail for UHF models only
	102457	Mask—Color equalizer mask
	100982	Nameplate—"RCA Victor" nameplate for hidden control cover
	102842	Ornament—"V" shaped ornament for Models 21CT7865 & U, 21CT7866 & U, 21CT7867 & U
	102290	Retainer—Cabinet bezel latch retainer
	102280	Retainer—Safety glass retainer
	102293	Screw—#10-32 x 3/8" long wing for deflection yoke mounting
	102279	Seal—Safety glass dust seal (rubber)
	102498	Shield—Fine tuning and channel selector knobs—wine—for mahogany grain instruments for Models 21CT7835 & U, 21CT7855 & U, 21CT7865 & U
	102499	Shield—Fine tuning and channel selector knobs—taupe—for walnut grain and oak grain instruments for Models 21CT7837 & U, 21CT7857 & U, 21CT7866 & U, 21CT7867 & U
	102283	Shield—Kine shield polysthylene
	102282	Spring—Cabinet grounding spring
	102281	Spring—Hidden control cover and case assembly grounding spring
	30330	Spring—Knob retaining spring for knobs: 100621-B, 101138-B
	102582	Spring—Knob retaining spring for knobs: 100944-B, 100945-B, 100946-B, 100947-B
	76837	Spring—Knob retaining spring for knobs: 101124-B, 101806, 101807, 102274
	73914	Spring—Knob retaining spring for knobs: 101148-B, 101149-B, 101276-B
	102296	Spring—Pole piece magnet holder retaining spring
	102297	Spring—Pole piece magnet coil core tension spring (formed)
	102299	Strap—Blue beam positioning magnet strap
	102285	Yoke—Deflection yoke assembly and plug. Includes C123, L108, L109, L110, L111, R139, R140, T101