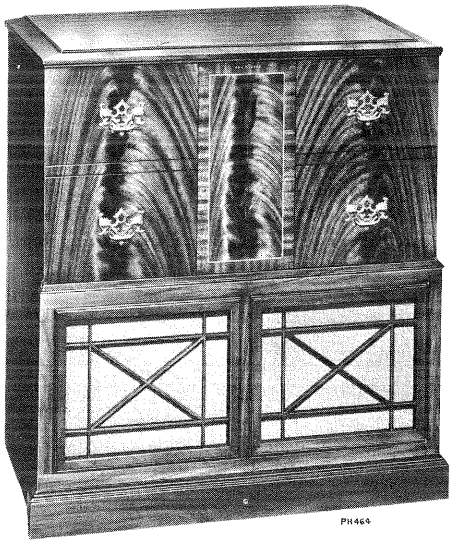


Model 9TW309 Walnut, Mahogany or Toasted Mahogany

RCA VICTOR

TELEVISION, AM-FM RADIO PHONOGRAPH COMBINATION MODEL 9TW309

Chassis Nos. KCS41-1, RK135C

— Mfr. No. 274 —

SERVICE DATA

— 1949 No. T13 —

RADIO CORPORATION OF AMERICA
RCA VICTOR DIVISION
CAMDEN, N. J., U. S. A.

GENERAL DESCRIPTION

Model 9TW309 receiver employs twenty-six tubes plus three rectifiers and a 12LP4 kinescope.

The television receiver is provided with Electronic Magnifier deflection circuits by which the center portion of the picture may be enlarged to fill the screen. Choice of picture coverage is made by operation of a remote switch.

The radio tuner unit which feeds through the television audio system covers the AM and the FM broadcast bands.

Two record changers are provided to play 45 and 78 RPM records.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

PICTURE SIZE..... 87 square inches on a 12LP4 kinescope

TELEVISION R-F FREQUENCY RANGE

All 12 television channels, 54 mc. to 88 mc., 174 mc. to 216 mc.
Fine Tuning Range....±250 kc. on chan. 2, ±650 kc. on chan. 13
Picture Carrier Frequency .....25.75 mc.
Sound Carrier Frequency .....21.25 mc.

RADIO TUNING RANGE

Broadcast .....540-1,600 kc.
Frequency Modulation .....88-108 mc.
Intermediate Frequency—AM .....455 kc.
Intermediate Frequency—FM .....10.7 mc.

POWER SUPPLY RATING .....115 volts, 60 cycles, 300 watts

AUDIO POWER OUTPUT RATING .....6.0 watts max.

CHASSIS DESIGNATIONS

Television Chassis KCS41-1
Radio Chassis RK135C
78 RPM Record Changer RP178
45 RPM Record Changer RP168
Refer to Service Data RP178 or RP168 for information on the record changers.

LOUDSPEAKER—92569-8 (RL111-10) .....12 inch PM Dynamic
Voice Coil Impedance .....3.2 ohms at 400 cycles

WEIGHT

Chassis with Tubes in Cabinet .....183 lbs.
Shipping Weight .....221 lbs.

DIMENSIONS (inches)	Width	Height	Depth
Cabinet (outside)	37	38¾	22¾
Chassis (Overall)	19⅜	12¼	20¼

RECEIVER ANTENNA INPUT IMPEDANCE....300 ohms balanced

If necessary, the television chassis may be fed separately from either a 300 ohm balanced line or a 72 ohm co-ax.

RCA TUBE COMPLEMENT

	Tube Used	Function
(1)	RCA 6AG5	R-F Amplifier
(2)	RCA 6AG5	Converter
(3)	RCA 6J6	R-F Oscillator
(4)	RCA 6AU6	1st Sound I-F Amplifier
(5)	RCA 6AU6	2nd Sound I-F Amplifier
(6)	RCA 6AL5	Sound Discriminator
(7)	RCA 6AV6	1st Audio Amplifier
(8)	RCA 6V6GT	Audio Output
(9)	RCA 6BA6	1st Picture I-F Amplifier
(10)	RCA 6AG5	2nd Picture I-F Amplifier
(11)	RCA 6BA6	3rd Picture I-F Amplifier
(12)	RCA 6AG5	4th Picture I-F Amplifier
(13)	RCA 6AL5	Picture 2nd Detector & Sync Limiter
(14)	RCA 12AU7	1st and 2nd Video Amplifier
(15)	RCA 6SN7GT	AGC Amplifier & Vertical Sweep Osc.
(16)	RCA 6SN7GT	AGC Rectifier & 1st Sync Separator
(17)	RCA 6SN7GT	Sync Amplifier & 2nd Sync Separator
(18)	RCA 6K6GT	Vertical Sweep Output
(19)	RCA 6SN7GT	Horizontal Sweep Oscillator and Control
(20)	RCA 6BG6G	Horizontal Sweep Output
(21)	RCA 6W4GT	Damper
(22)	RCA 1B3-GT/8016	High Voltage Rectifier
(23)	RCA 5U4G	Power Supply Rectifier (2 tubes)
(24)	RCA 12LP4	Kinescope

(Radio Tuner Chassis)

(1)	RCA 6J6	Mixer and Oscillator
(2)	RCA 6BA6	I-F Amplifier
(3)	RCA 6AU6	F-M Driver
(4)	RCA 6AL5	Ratio Detector
(5)	RCA 6BF6	AM Detector AVC

Specifications continued on page 2

REFER TO PAGES 186 TO 201 FOR TELEVISION ALIGNMENT PROCEDURE, SERVICE HINTS, SUPPLEMENTARY DATA AND WAVEFORM PHOTOGRAPHS.

9TW309 ELECTRICAL AND MECHANICAL SPECIFICATIONS

(Continued)

PICTURE I-F FREQUENCIES

Picture Carrier Frequency ..... 25.75 mc.
Adjacent Channel Sound Trap ..... 27.25 mc.
Accompanying Sound Traps ..... 21.25 mc.
Adjacent Channel Picture Carrier Trap ..... 19.75 mc.

SOUND I-F FREQUENCIES

Sound Carrier Frequency ..... 21.25 mc.
Sound Discriminator Band Width between peaks ..... 350 kc.

VIDEO RESPONSE ..... To 4 mc.

FOCUS ..... Magnetic

SWEEP DEFLECTION ..... Magnetic

SCANNING ..... Interlaced, 525 line

HORIZONTAL SCANNING FREQUENCY ..... 15,750 cps

VERTICAL SCANNING FREQUENCY ..... 60 cps

FRAME FREQUENCY (Picture Repetition Rate) ..... 30 cps

OPERATING CONTROLS (front panel)

Channel Selector, Fine Tuning ..... Dual Control Knobs
Tone, Sound Volume and On-Off Switch ..... Dual Control Knobs
Picture Horizontal Hold, Picture Vertical Hold ..... Dual Control Knobs
Picture Brightness ..... Dual Control Knobs
Function Switch ..... Single Control Knob
Radio Tuning ..... Single Control Knob

NON-OPERATING CONTROLS

Horizontal Centering ..... rear chassis adjustment
Vertical Centering ..... rear chassis adjustment
Shunt Width Coil ..... rear chassis screwdriver adjustments
Series Width Coil ..... rear chassis screwdriver adjustment
Expanded Width Coil ..... rear chassis screwdriver adjustment
Width Selector Switch ..... rear chassis screwdriver adjustment
Height ..... rear chassis adjustment
Horizontal Linearity ..... rear chassis screwdriver adjustment
Vertical Linearity ..... rear chassis adjustment
Horizontal Drive ..... rear chassis screwdriver adjustment
Horizontal Oscillator Frequency ..... bottom chassis adjustment
Horizontal Oscillator Waveform ..... side chassis adjustment
Focus ..... rear chassis adjustment
Ion Trap Magnet ..... top chassis adjustment
Deflection Coil ..... top chassis wing nut adjustment
Focus Coil ..... top chassis screwdriver adjustment

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 SHIELD REMOVED.

KINESCOPE HANDLING PRECAUTIONS

DO NOT OPEN THE KINESCOPE SHIPPING CARTON, INSTALL, REMOVE OR HANDLE THE KINESCOPE IN ANY MANNER UNLESS SHATTERPROOF GOGGLES, AND HEAVY GLOVES ARE WORN. PEOPLE NOT SO EQUIPPED SHOULD BE KEPT AWAY WHILE HANDLING KINESCOPES. KEEP THE KINESCOPE AWAY FROM THE BODY WHILE HANDLING.

The kinescope bulb encloses a high vacuum and, due to its large surface area, is subjected to considerable air pressure. For these reasons, kinescopes must be handled with more care than ordinary receiving tubes.

The large end of the kinescope bulb—particularly that part at the rim of the viewing surface—must not be struck, scratched or subjected to more than moderate pressure at any time. In installation, if the tube sticks or fails to slip smoothly into its socket, or deflecting yoke, investigate and remove the cause of the trouble. Do not force the tube. Refer to the Receiver Installation section for detailed instructions on kinescope installation. All RCA kinescopes are shipped in special cartons and should be left in the cartons until ready for installation in the receiver. Keep the carton for possible future use.

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

1. Turn the radio FUNCTION switch to Tel.

2. Turn the receiver "ON" and advance the SOUND VOLUME control to approximately mid-position.

3. Set the STATION SELECTOR to the desired channel.

4. Adjust the FINE TUNING control for best sound fidelity and SOUND VOLUME for suitable volume

5. Turn the BRIGHTNESS control fully counterclockwise, then clockwise until a light pattern appears on the screen.

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 counterclockwise until the retrace lines just disappear.

9. Adjust the PICTURE control for suitable picture contrast.

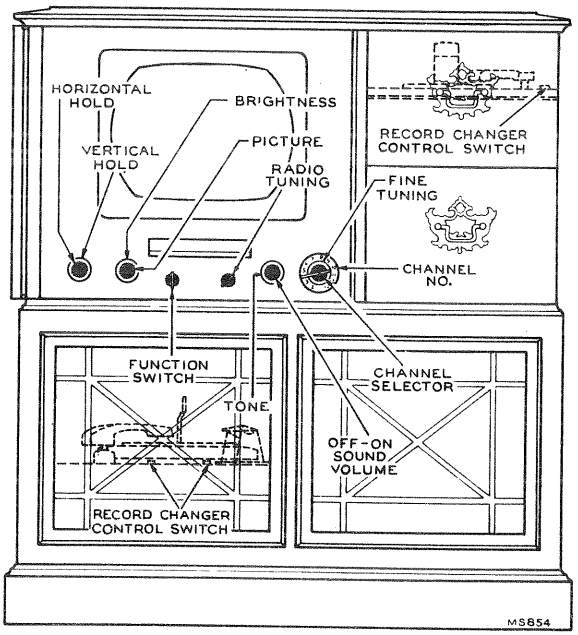


Figure 1—Receiver Operating Controls

10. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

11. In switching from one station to another, it may be necessary to repeat steps numbers 4 and 9.

12. To operate the Electric Magnifier, push the button on the remote cable.

13. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 4 is generally sufficient.

14. If the positions of the controls have been changed, it may be necessary to repeat steps numbers 1 through 9.

15. For radio operation turn the FUNCTION switch to AM or FM and tune in station with the radio TUNING control.

16. For phono operation, turn the function switch to PH for operation of the 78 rpm changer or to XPH for operation of the 45 rpm changer.

INSTALLATION INSTRUCTIONS

UNPACKING.—The 9TW309 receiver is packed complete with kinescope in a cardboard carton. To unpack, turn the shipping carton on its side and tear open the carton bottom flaps. Fold the flaps up along the side of the carton and turn the carton back up. Lift the carton up and off the cabinet.

A flat skid is attached to the bottom of the receiver cabinet which will permit the cabinet to be moved about without stressing the cabinet joints. To remove the skid, take off the nuts from the two bolts that hold the cabinet on the skid. With a man at each end of the cabinet, lift the cabinet off the skid.

From the rear of the cabinet remove the red bracket which holds the RP168 record changer drawer in the closed position. Slide the drawer out. From the top of the changer, remove the three filler plugs from over the motorboard mounting screws. Loosen these three screws just enough to permit removal of two wooden shipping strips under the edge of the motorboard. Tighten the screws just enough to keep the motorboard springs from rattling and replace the filler plugs.

Remove the red bracket which holds the RP178 changer drawer in the closed position. Open the drawer and from the top of the changer, loosen the motorboard mounting bolts until the changer floats free.

The operating control knobs are packed in a paper bag and tied to a crossmember in back of the cabinet. Remove the bag and install the knobs on the proper control shafts.

Remove the television compartment back.

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

Check to see that the high voltage lead is attached to the kinescope second anode connector socket on the bell of the tube.

Connect the antenna transmission line to the receiver antenna terminals.

Plug the receiver power cord into a 115 volt a-c power source. Turn the power switch to the "on" position, the function switch to Tel, the brightness control three-quarters clockwise, and picture control counterclockwise.

ION TRAP MAGNET ADJUSTMENT.—Set the ion trap magnet approximately in the position shown in Figure 2. Starting from this position immediately adjust the magnet by moving

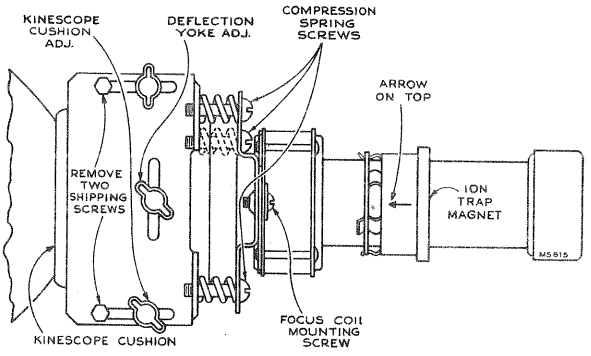


Figure 2—Yoke and Focus Coil Adjustments

it forward or backward at the same time rotating it slightly around the neck of the kinescope for the brightest raster on the screen. Reduce the brightness control setting until the raster is slightly above average brilliance. Adjust the focus control (R191 on the chassis rear apron) until the line structure of the raster is clearly visible. Readjust the ion trap magnet for maximum raster brilliance. The final touches on this adjustment should be made with the brightness control at the maximum position with which good line focus can be maintained.

DEFLECTION YOKE ADJUSTMENT.—If the lines of the raster are not horizontal or squared with the picture mask, rotate the deflection yoke until this condition is obtained. Tighten the yoke adjustment wing screw.

PICTURE ADJUSTMENTS.—It will now be necessary to obtain a test pattern picture in order to make further adjustments. See steps 3 through 9 of the receiver operating instructions.

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 threshold control is misadjusted, and the receiver is overloading, it may be impossible to sync the picture.

If the receiver is overloading, turn R138 on the rear apron (see Figure 3) clockwise until the set operates normally and the picture can be synced.

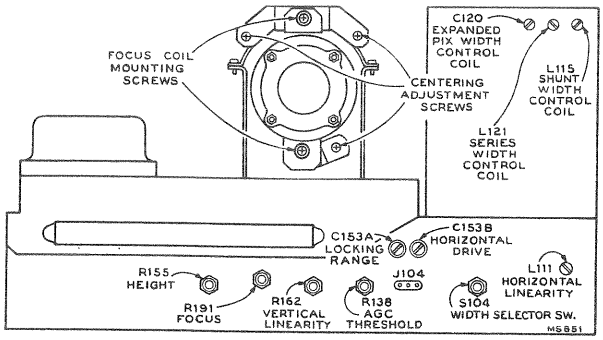


Figure 3—Rear Chassis Adjustments

CHECK OF HORIZONTAL OSCILLATOR ALIGNMENT.—Turn the horizontal hold control to the extreme counter-clockwise position. The picture should remain in horizontal sync. Momentarily remove the signal by switching off channel then back. Normally the picture will be out of sync. Turn the control clockwise slowly. The number of diagonal black bars will be gradually reduced and when only 3 bars sloping downward to the left are obtained, the picture will pull into sync upon slight additional clockwise rotation of the control. Pull in should occur when the control is approximately 90 degrees from the extreme counter-clockwise position. The picture should remain in sync for approximately 90 degrees of additional clockwise rotation of the control. At the extreme clockwise position, the picture should be out of sync and should show 1 vertical or diagonal black bar in the raster.

If the receiver passes the foregoing checks and the picture is normal and stable, the horizontal oscillator is properly aligned. Skip "Alignment of Horizontal Oscillator" and proceed with "Focus Coil Adjustments."

ALIGNMENT OF HORIZONTAL OSCILLATOR.—If in the above check the receiver failed to hold sync with the hold control at the extreme counter-clockwise position or failed to hold sync over 90 degrees of clockwise rotation of the control from the pull-in point, it will be necessary to make the following adjustments:

Horizontal Frequency Adjustment.—Turn the horizontal hold control to the extreme clockwise position. Tune in a television station and adjust the T109 horizontal frequency adjustment (under the chassis) until the picture is just out of sync and the horizontal blanking appears as a vertical or disagonal black bar in the raster.

Horizontal Lock in Range Adjustment.—Set the horizontal hold control to the full counter-clockwise position. Momentarily remove the signal by switching off channel then back. Slowly turn the horizontal hold control clockwise and note the least number of diagonal bars obtained just before the picture pulls into sync.

If more than 3 bars are present just before the picture pulls into sync, adjust the horizontal locking range trimmer C153A slightly clockwise. If less than 3 bars are present, adjust C153A slightly counter-clockwise. Turn the picture control counter-clockwise, momentarily remove the signal and recheck the number of bars present at the pull in point. Repeat this procedure until 3 bars are present.

Repeat the adjustments under "Horizontal Frequency Adjustment" and "Horizontal Locking Range Adjustment" until the conditions specified under each are fulfilled. When the horizontal hold operates as outlined under "Check of Horizontal Oscillator Alignment" the oscillator is properly adjusted.

If it is impossible to sync the picture at this point 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 For field purposes paragraph "A" under Horizontal Oscillator Waveform Adjustment may be omitted.

FOCUS COIL ADJUSTMENTS.—The focus coil should be adjusted so that there is approximately ¼ inch of space between the rear cardboard shell of the yoke and the flat of the front face of the focus coil. This spacing gives best average focus over the face of the tube. However, it may be necessary to change this distance slightly in order to compensate for small differences in strength of the permanent magnets in the coil. In order to prevent the beam from striking the neck of the kinescope, it is important that the axis of the hole through the focus coil should be kept in accurate alignment with the axis of the neck of the kinescope.

CENTERING ADJUSTMENTS.—Centering is obtained by loosening the two focus coil mounting screws and sliding the coil up or down or from side to side. If a corner of the raster is shadowed, check the position of the ion trap magnet. Slightly reposition it to eliminate the shadow and recenter the picture by sliding the coil. In extreme cases it may be necessary to adjust one or more of the focus coil compression screws to eliminate a corner shadow.

Recheck the position of the ion trap magnet to insure that maximum brilliance is obtained. It is important that the kinescope not be operated with the ion trap magnet adjusted for less than maximum brightness. To do so may cause injury to the tube.

PICTURE SIZE AND LINEARITY.—Connect the "Electronic Magnifier" switch to its socket on the rear apron of the chassis. Set the switch to the large (expanded) picture position. Set the Expanded Width Selector Switch S104 to the counter-clockwise position and adjust the Expanded Width Control L120 so that the test pattern outer circle normally tangent to the top of the picture is now tangent to the side of the picture. (If the width is not sufficient, set the Expanded Width Selector Switch to the center or the clockwise end position.) Adjust the Horizontal Drive and the Horizontal Linearity Control until the pattern is symmetrical from left to right. In general, the core of the Linearity Control Coil should be between ½ to all the way out of the coil.

Set the "Electronic Magnifier" switch to the normal size position. Observe to see if the picture width is correct. If it is not, adjust either the Series Width Control Coil L121, or the Shunt Width Control Coil L115 until the picture is the correct width. If the Series Width Coil core is out too far, the picture will "ring" on the left half. This ring will be shown as one or more faint light or dark vertical bars somewhere on the left half of the picture with resulting poor horizontal linearity.

When the proper width is obtained, switch to the expanded picture position, wait for a few seconds then switch back to the normal position. Observe if the top of the picture immediately assumes its final position or if it takes several seconds to come to a stop. If the picture requires more than a second to become still, adjust the core of L115 or L121 in and the other out while maintaining the proper width. Repeat the above test and observe if the picture immediately comes to rest when switched to the normal size position. Continue to adjust L115 and L121 until this condition is satisfied and the picture is the proper width. Observe the picture horizontal linearity and if necessary retouch Horizontal Drive, Linearity and Width Controls L115 and L121.

With the "Electronic Magnifier" switch in normal position, adjust the Height (R155) and the Vertical Linearity control (R162) as usual in order to obtain good vertical linearity. In addition, if difficulty is experienced in obtaining good vertical linearity at the top one-half inch of the picture, slightly adjust the Vertical Peaking Control L119.

Switch to the expanded picture position and note if the proper aspect ratio is obtained. If not, adjust L112 and/or S104.

Adjustments of the horizontal drive control affect horizontal oscillator hold and locking range. If the drive control was adjusted, recheck the oscillator alignment.

FOCUS.—Adjust the focus control (R191 on chassis rear apron) for maximum definition in the test pattern vertical "wedge" and best focus in the white areas of the pattern.

AGC THRESHOLD CONTROL.—The AGC threshold control R138 is adjusted at the factory and normally should not require readjustment in the field.

To check the adjustment of the AGC Threshold Control, tune in a strong signal, sync the picture and turn the picture control to the maximum clockwise position. Turn the brightness control counter-clockwise until the vertical retrace lines are just invisible. Momentarily remove the signal by switching off channel and then back. If the picture reappears immediately, the receiver is not overloading due to improper setting of R138. If the picture requires an appreciable portion of a second to reappear, R138 should be readjusted.

Set the picture control at the maximum clockwise position. Turn R138 fully clockwise. The top one-half inch of the picture may be bent slightly. This should be disregarded. Turn R138 counter-clockwise until there is a very, very slight bend or change of bend in the top one-half inch of the picture. Then turn R138 clockwise just sufficiently to remove this bend or change of bend.

If the signal is very weak, the above method may not work as it may be impossible to get the picture to bend. In this case, turn R138 counter-clockwise until the snow in the picture becomes more pronounced, then clockwise until the best signal to noise ratio is obtained.

The AGC control adjustment should be made on a strong signal if possible. If the control is set too far counter-clockwise on a weak signal, then the receiver may overload when a strong signal is received.

CHECK OF R-F OSCILLATOR ADJUSTMENTS.—Tune in all available stations to see if 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 The adjustments for channels 2 through 5 and 7 through 12 are available from the front of the cabinet by removing the station selector escutcheon as shown in Figure 4. Adjustment for channel 13 is on top of the chassis and channel 6 adjustment is in the kinescope well.

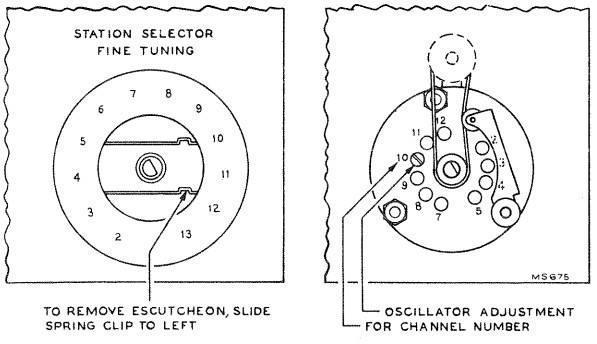


Figure 4—R-F Oscillator Adjustments

Replace the cabinet back and make sure that the screws are tight in order to prevent rattling at high volume.

WEAK SIGNAL AREA OPERATION.—Since the vast majority of receivers are sold in strong signal areas, the chassis are aligned to produce the cleanest pictures in those areas. However, if the receiver is to be operated in a weak signal area, better performance can be obtained by "peaking" the r-f unit.

To peak the r-f unit in these receivers, disconnect the 390 ohm resistor which is on top of the r-f unit chassis. Adjust L66 to obtain the best possible picture on the weakest low channel station received.

If the peaked receiver is subsequently taken to a strong signal area, the resistor R14 should be connected in place and L66 adjusted for "flat" response on the low channels.

CHASSIS REMOVAL.—To remove the chassis from the cabinet for repair or installation of a new kinescope, remove the back and the knobs, unplug all cables and remove the chassis bolts under the cabinet. Withdraw the chassis from the back of the cabinet. The kinescope is held on the chassis by means of a special strap, so that the chassis and the kinescope can be handled together, as a unit.

KINESCOPE HANDLING PRECAUTION.—Do not install, remove, or handle the kinescope in any manner, unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away while handling the kinescope. Keep the kinescope away from the body while handling.

To remove the kinescope, remove the kinescope socket, the ion-trap magnet, and the second-anode connector. Loosen the cross-recessed head screw on the kinescope strap. Withdraw the kinescope toward the front of the chassis.

INSTALLATION OF KINESCOPE.—Slide the kinescope cushion toward the rear of the chassis. Loosen the deflection yoke adjustment, slide the yoke toward the rear of the chassis and tighten.

The kinescope second anode contact is a recessed metal well in the side of the bulb. The tube must be installed so that this contact is up but rotated approximately 30 degrees toward the high-voltage compartment.

Insert the neck of the kinescope through the deflection and focus coils. If the tube sticks, or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

Slip the ion trap magnet assembly over the neck of the kinescope.

Connect the kinescope socket to the tube base.

Connect the high voltage lead to the kinescope second anode socket.

Wipe the kinescope screen surface and front panel safety glass clean of all dust and finger marks.

As may be seen by inspection, the radio dial lights and dial pointer are attached to the cabinet front panel. The dial cord is attached to the receiver chassis. The method of attachment may be seen in Figure 5.

Slide the dial pointer to the stop on the high frequency end of the dial. Turn the radio tuning shaft until the gang is completely unmeshed.

To replace the chassis in the cabinet, first tighten the cross recessed head screw on the kinescope strap. Slide the chassis into the cabinet until there is sufficient slack in the pilot light cable then attach the pilot light sockets to the pilot light bracket.

Insert the chassis to its proper position, then install the six chassis bolts and tighten. Loosen the kinescope strap from the rear of the chassis. Push the kinescope forward until the face of the tube is against the mask. Push the yoke cushion forward against the kinescope flare then tighten the cushion adjusting screws. Push the yoke forward and tighten Tighten the kinescope strap. Replace the control knobs.

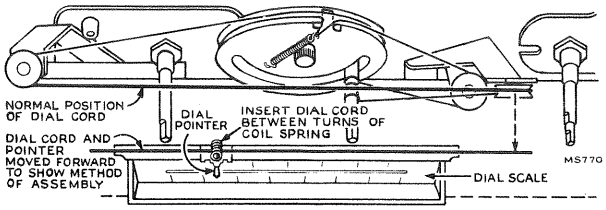


Figure 5—Dial Cord and Pointer Assembly

To hook up the dial pointer, reach over the television chassis to the radio and press the dial cord well into the coil spring.

Turn the set on and to radio position to see that the dial lighting is correct. If it is not, adjust the dial lights and shields. Tune in a station of known frequency and check the dial calibration.

CABINET ANTENNA.—A cabinet antenna is provided which may be employed in strong signal areas in which no reflections are experienced. The antenna leads are brought out near the receiver antenna terminal board.

The link on the antenna terminal board is for use in case it is desirable to connect a separate "A" band antenna.

CHASSIS TOP VIEW

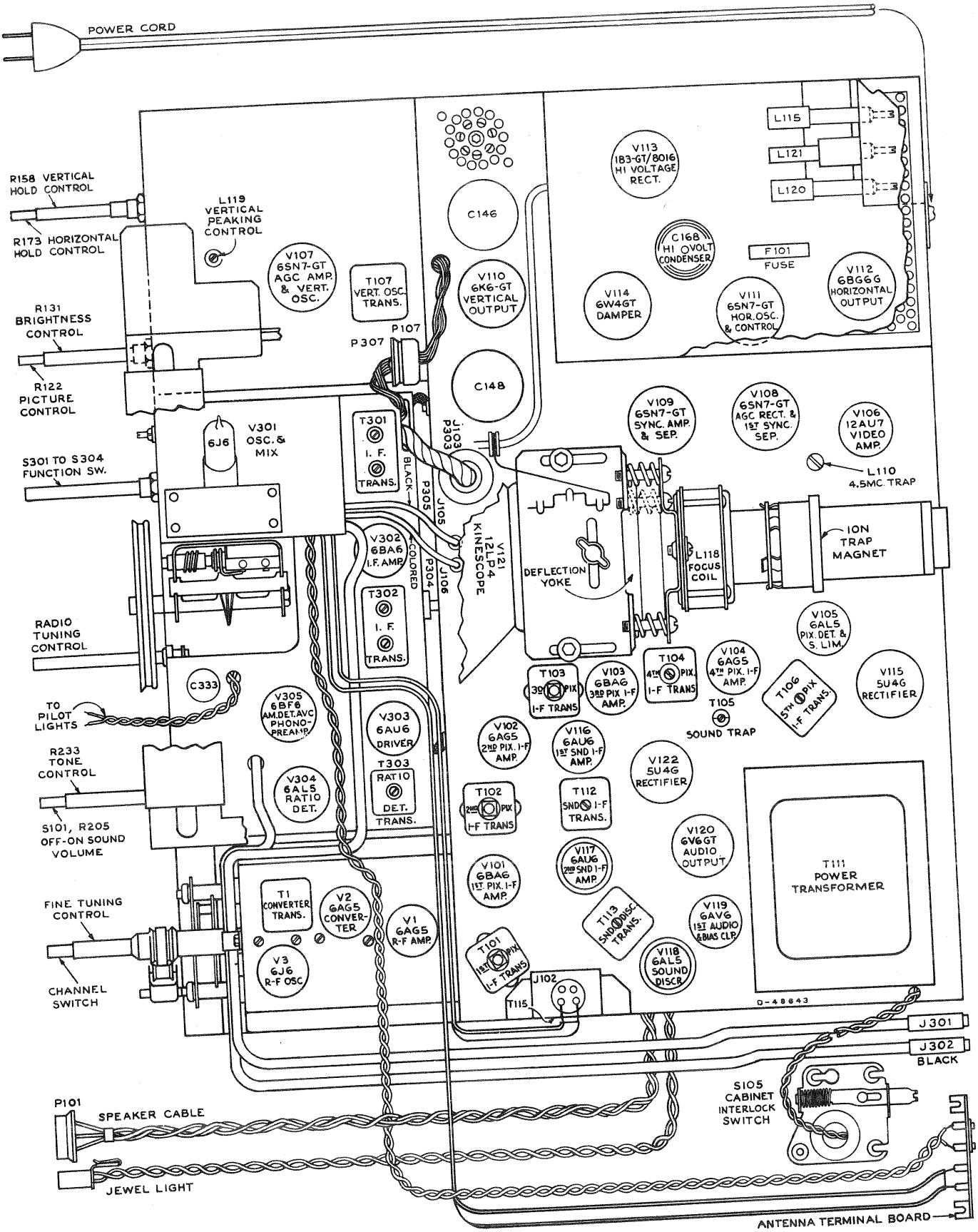


Figure 6—Chassis Top View

CHASSIS BOTTOM VIEW 9TW309

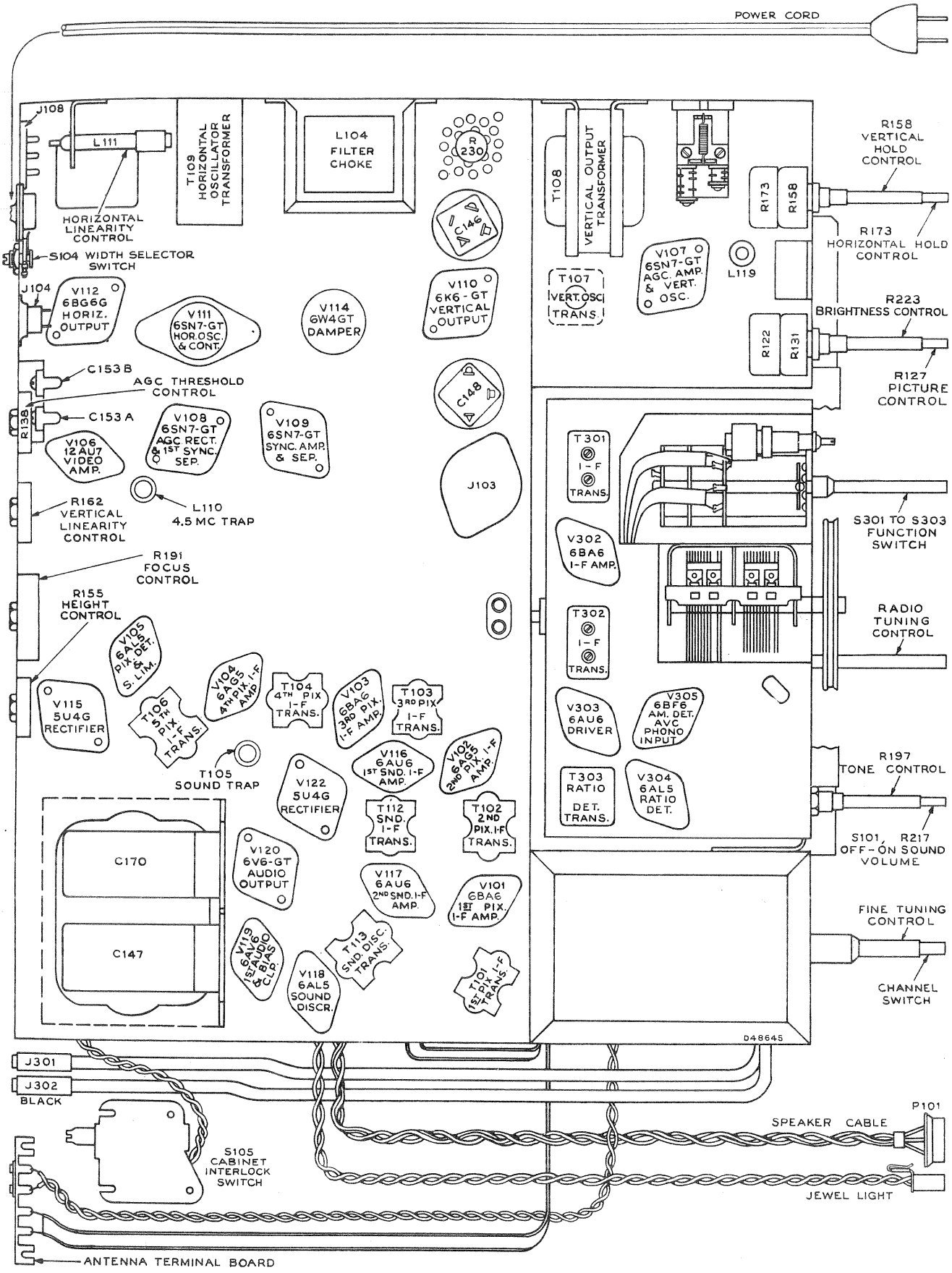


Figure 7—Chassis Bottom View

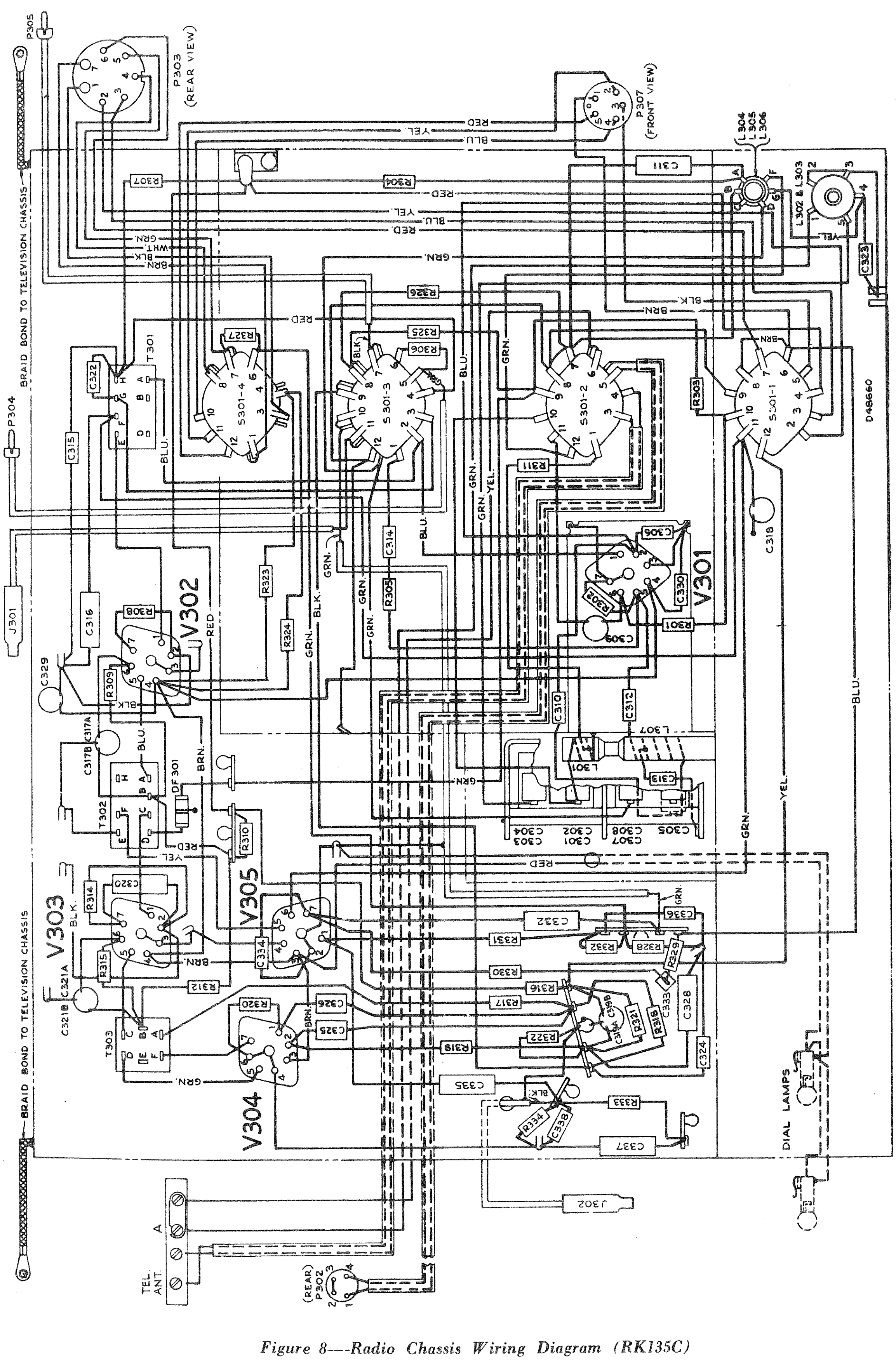


Figure 8—Radio Chassis Wiring Diagram (RK135C)

9TW309

VOLTAGE CHART

The following measurements represent two sets of conditions. In the first condition a 2200 microvolt test pattern signal was fed into the receiver, the picture was synced and the AGC threshold control was properly adjusted. The second condition was obtained by removing the antenna leads and short-circuiting the receiver antenna terminals. Voltages shown are as read with "Jr. 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		I Plate (ma.)	I Screen (ma.)	Notes on Measurements
				Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts			
V1	6AG5	R-F Amplifier	2200 Mu. V. Signal	5	140	6	142	2 & 7	0	1	−2.4	5	2	
			No Signal	5	67	6	111	2 & 7	0	1	−.4	14.0	5.0	
V2	6AG5	Converter	2200 Mu. V. Signal	5	*130 to 140	6	*130 to 140	2 & 7	0	1	*−3.0 to −7.0	*7.1 to 7.7	*2.3 to 2.7	*Depending upon channel
			No Signal	5	*104 to 109	6	*104 to 109	2 & 7	0	1	*−2.0 to −6.0	*5.3 to 5.9	*.8 to 1.0	
V3	6J6	R-F Oscillator	2200 Mu. V. Signal	1 & 2	*88 to 95	—	—	7	.19	5 & 6	*−5.1 to −7.3	*1.9 to 2.7	—	*Depending upon channel
			No Signal	1 & 2	*68 to 81	—	—	7	.16	5 & 6	*−4.5 to −6.6	*1.8 to 2.1	—	
V101	6BA6	1st Pix. I-F Amplifier	2200 Mu. V. Signal	5	130	6	130	7	.3	1	−12.5	2.8	1.3	
			No Signal	5	100	6	100	7	1.7	1	+.3	7.5	3.5	
V102	6AG5	2d Pix. I-F Amplifier	2200 Mu. V. Signal	5	120	6	120	2 & 7	.75	1	0	8.2	2.5	
			No Signal	5	112	6	112	2 & 7	.65	1	0	6.8	2.1	
V103	6BA6	3d Pix I-F Amplifier	2200 Mu. V. Signal	5	90	6	120	7	.5	1	−2.4	4.0	3.8	
			No Signal	5	70	6	100	7	.75 .6	1	−.4	11.0	4.8	
V104	6AG5	4th Pix. I-F Amplifier	2200 Mu. V. Signal	5	170	6	135	2 & 7	1.35	1	0	6.5	2.0	
			No Signal	5	165	6	115	2 & 7	1.1	1	0	5.9	1.8	
V105 A	6AL5	Picture 2d Det.	2200 Mu. V. Signal	7	−115	—	—	1	−112	—	—	.48	—	
			No Signal	7	−118	—	—	1	−120	—	—	—	—	
V105 B	6AL5	Sync Limiter	2200 Mu. V. Signal	2	−107	—	—	5	−56	—	—	—	—	
			No Signal	2	−60	—	—	5	−60	—	—	—	—	
V106	12AU7	1st Video Amplifier	2200 Mu. V. Signal	1	−9	—	—	3	−111	2	−115	4.38	—	
			No Signal	1	−28	—	—	3	−114	2	−116	3.82	—	
V106	12AU7	2d Video Amplifier	2200 Mu. V. Signal	6	*135	—	—	8	*−.1	7	−4.5	6.2	—	*At max. contrast
			No Signal	6	*195	—	—	8	*−.6	7	−17	6.9	—	
V107 A	6SN7 GT	AGC Amplifier	2200 Mu. V. Signal	5	−12.6	—	—	6	−55.5	4	−56.5	.9	—	
			No Signal	5	+.3	—	—	6	−60	4	−66	.3	—	
V107 B	6SN7 GT	Vertical Oscillator	2200 Mu. V. Signal	2	86	—	—	3	−115	1	−170	.2	—	
			No Signal	2	72	—	—	3	−120	1	−170	.2	—	
V108	6SN7 GT	AGC Rectifier	2200 Mu. V. Signal	5	87	—	—	6	+.3	4	−8.5	3	—	
			No Signal	5	90	—	—	6	−26	4	−35	.28	—	
V108	6SN7 GT	1st Sync Separator	2200 Mu. V. Signal	2	89	—	—	3	1.35	1	−8.5	.1	—	
			No Signal	2	76	—	—	3	−21	1	−27	.1	—	
V109	6SN7 GT	Sync Amplifier	2200 Mu. V. Signal	2	153	—	—	3	0	1	−4.7	5.25	—	
			No Signal	2	160	—	—	3	0	1	−5.2	3.75	—	

9TW309

RADIO ALIGNMENT PROCEDURE

If any lead dressing is necessary, it should be done before aligning the receiver. When making a complete alignment follow the table below in sequence. If only a portion of the circuit is to be aligned select the portion required and follow with the remaining steps in the section. Any adjustments made on the 455 kc. I-F's make it necessary to adjust the 10.7 mc. I-F's.

"AM" R-F—I-F ALIGNMENT

Test-Oscillator.—For all alignment operations, connect low side of the test-osc. to the receiver chassis, and keep the osc. output as low as possible to avoid a-v-c action. **Output Meter.**—Connect the meter across the speaker voice coil, and turn the receiver volume control to max.

Steps	Connect the High Side of the Test. Osc. to—	Tune Test Osc. to—	Function Switch	Turn Radio Dial to—	Adjust the following
1	Antenna terminal in series with .01 mfd.	455 kc. Modulated	AM	Low Freq. end of Dial	†Top and bot. cores of T301 and T302. (For max. voltage across voice coil.)
2	Ant. terminal through dummy ant. of 200 mmfs.	1,620 kc.	AM	Min. capacity	Osc. C308 for maximum output.
3		1,400 kc.	AM	Tune to signal	Ant. C304 for maximum output.
4		600 kc.	AM	600 kc.	Osc. L306 and Ant. L303.
5	Repeat steps 2, 3 and 4 for maximum output.				

† Use alternate loading. Connect an 18,000-ohm resistor across the primary to load the plate winding while the grid winding of the same transformer is being peaked. Then load the grid winding with the 18,000-ohm resistor while the plate winding is being peaked.

RATIO DETECTOR ALIGNMENT

Connect probe of "VoltOhmyst" to negative side of C328 and low side to chassis. Connect output meter across speaker voice coil.

Steps	Connect the High side of the Test. Osc. to—	Tune Test Osc. to—	Function Switch	Radio Dial Tuned to—	Adjust
6	Pin No. 1 of 6AU6 (V303) in series with .01 mfd.	10.7 mc. 30% AM Modulated	FM	———	Top of T303 for maximum DC on "VoltOhmyst."
7	Pin No. 1 of 6AU6 (V303) in series with .01 mfd.		FM	———	Bottom of T303 for minimum audio output on meter.
8	Repeat steps 6 and 7 as necessary making final adjustment with r-f input level set to give approximately –3.0 volts d-c on "VoltOhmyst."				

"FM" R-F—I-F ALIGNMENT

Steps	Connect the High Side of the Test. Osc. to—	Tune Test Osc. to—	Function Switch	Radio Dial Tuned to—	Adjust
9	Terminal 3 of S202 rear through 270 ohms.	10.7 mc.	FM	88 mc.	*T301 and T302 with r-f input set to give –3 volts on "VoltOhmyst."
10	Terminal 3 of S202 rear through 270 ohms.	106 mc	FM	106 mc.	Set C302 to max. capacity. Squeeze L307 and adjust C302 for maximum.
11	Terminal 3 of S202 rear through 270 ohms.	90 mc.	FM	Tune to signal	Squeeze L301 and rock gang for maximum output.
12	Repeat steps 10 and 11 as required.				

* Use a 680-ohm resistor to load the plate winding while the grid winding of the same transformer is being peaked. Then the grid winding is loaded with 680-ohm resistor while the plate winding is being peaked.

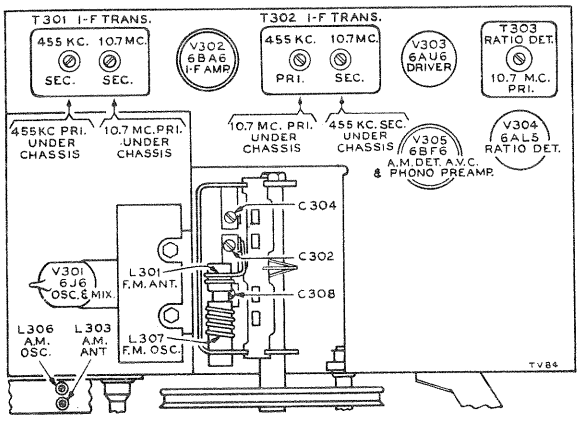


Figure 9—Chassis, Top View, Showing Adjustments

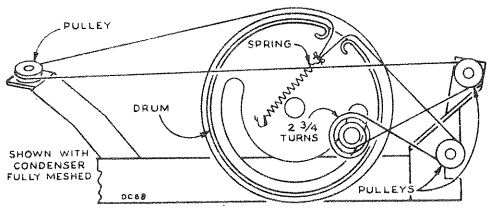


Figure 10—Dial and Drive Cord Assembly

CRITICAL LEAD DRESS:

1. Ground lead on pin 2 of V302 and V303 should be dressed down flat on chassis.
2. Dual .005 mfd. capacitors and diode filter should be dressed to clear the bottom of the cabinet.
3. Dress C329 across V302 sockets with short and direct leads.
4. Dress V302 plate lead from pin 5 down to the chassis.
5. Dress AVC lead from R321 to switch down to chassis and against back of gang mounting plate.
6. Dress lead from pin 6 of V305 down to chassis and against back of gang mounting plate.
7. Dress AVC lead from 1st I-F to switch against chassis and against gang mounting plate.
8. Dress lead from switch to pin 1 of V301 against plate supporting gang.
9. Dress all insulated F-M leads down to chassis.
10. Connect C309 with short lead to pin 6 of V301 keeping body of cap away from plate lead and switch terminals.
11. The coupling between L301 and L307 should be adjusted to give proper injection voltage to the mixer grid. This has been found to be correct when the distance between adjacent end turns is 3/8" to 7/16" measured at top of the form.
12. Dress cabled leads away from antenna transmission lines.
13. Dress all uninsulated bus wire so as to avoid short circuits.

VOLTAGE CHART

Tube No.	Tube Type	Function	Operating Condition	E. Plate		E. Screen		E. Cathode		E. Grid		I Plate (ma.)	I Screen (ma.)	Notes on Measurements
				Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts			
V109	6SN7 GT	Sync Separator	2200 Mu. V. Signal	5	220	—	—	6	−51	4	−106	.4	—	
			No Signal	5	215	—	—	6	−51	4	−62	.35	—	
V110	6K6-GT	Vertical Output	2200 Mu. V. Signal	3	205	4	205	8	−72	5	−91		*7.85	*Screen connected to plate
			No Signal	3	200	4	200	8	−79	5	−101		*7.7	
V111	6SN7 GT	Horizontal Osc. Control	2200 Mu. V. Signal	2	*34	—	—	3	−105	1	−95	.2	—	*Variation of hold gives −21.9 to +56 volts on plate
			No Signal	2	*23	—	—	3	−110	1	−110	.2	—	
V111	6SN7 GT	Horizontal Oscillator	2200 Mu. V. Signal	5	90	—	—	6	−120	4	−175	2.4	—	
			No Signal	5	77	—	—	6	−120	4	−175	2.4	—	
V112	6BG6G	Horizontal Output	2200 Mu. V. Signal	Cap	Do Not Meas.	8	150	3	−105	5	−125	72	9.4	
			No Signal	Cap	Do Not Meas.	8	145	3	−110	5	−125	70	9.2	
V113	1B3GT /8016	H. V. Rectifier	Brightness Min.	Cap	Do Not Meas.	—	—	2 & 7	10200	—	—	0	—	
			Brightness Average	Cap	Do Not Meas.	—	—	2 & 7	9700	—	—	.1	—	
V114	6W4GT	Damper	2200 Mu. V. Signal	5	Do Not Meas.	—	—	3	295	—	—	66	—	
			No Signal	5	Do Not Meas.	—	—	3	280 295	—	—	65	—	
V115 V122	5U4G	Rectifier	2200 Mu. V. Signal	4 & 6	335			2 & 8	235	—	—	245	—	*A-C measured from plate to trans. center tap
			No Signal	4 & 6	335			2 & 8	230	—	—	250	—	
V116	6AU6	1st Sound I-F Amplifier	2200 Mu. V. Signal	5	134	6	134	7	.75	1	−.15	8.2	3.3	
			No Signal	5	110	6	110	7	.8	1	−.2	5.7	2.6	
V117	6AU6	2nd Sound I-F Amplifier	2200 Mu. V. Signal	5	133	6	81	7	0	1	−9	1.6	.8	
			No Signal	5	120	6	65	7	0	1	−.4	3.35	1.15	
V118	6AL5	Sound Discrim.	2200 Mu. V Signal	2	−8.4	—	—	5	5.8	—	—	—	—	
			No Signal	2	−.4	—	—	5	.1	—	—	—	—	
			2200 Mu. V. Signal	7	−3.7	—	—	1	0	—	—	—	—	
			No Signal	7	−.4	—	—	1	0	—	—	—	—	
V119	6AV6	1st Audio Amplifier	2200 Mu. V. Signal	7	90	—	—	2	0	1	−18	.49	—	
			No Signal	7	90	—	—	2	0	1	−.8	.4	—	
V120	6V6-GT	Audio Output	2200 Mu. V. Signal	3	70	4	90	8	−99	5	−110	19.3	3.3	
			No Signal	3	60	4	80	8	−111	5	−120	18	3	
V121	12LP4	Kinescope	2200 Mu. V. Signal	Cap	9700	10	285	11	40	2	6	.1	—	*Average Brightness
			No Signal	Cap	9500	10	285	11	42	2	14	—	—	*Average Brightness
V301	6J6	Mixer and Oscillator	No Signal	1 2	110 95	— —	— —	7	0	6 5	−2.0 −5.0	— —	— —	
V302	6BA6	Radio I-F Amplifier	No Signal	5	195	6	90	7	.8	1	−0.2	—	—	Function switch in F-M position
V303	6AV6	Radio F-M Driver	No Signal	5	190	6	135	7	1.3	1	0	—	—	
V304	6AL5	Radio Radio Det.	No Signal	2 7	−0.2 −0.2	—	—	5 1	−0.2 −0.1	— —	— —	— —	— —	
V305	6BF6	Radio A-M Det.	No Signal	7	100	—	—	2	0	1	−6.2	—	—	

9TW309 R-F UNIT WIRING DIAGRAM

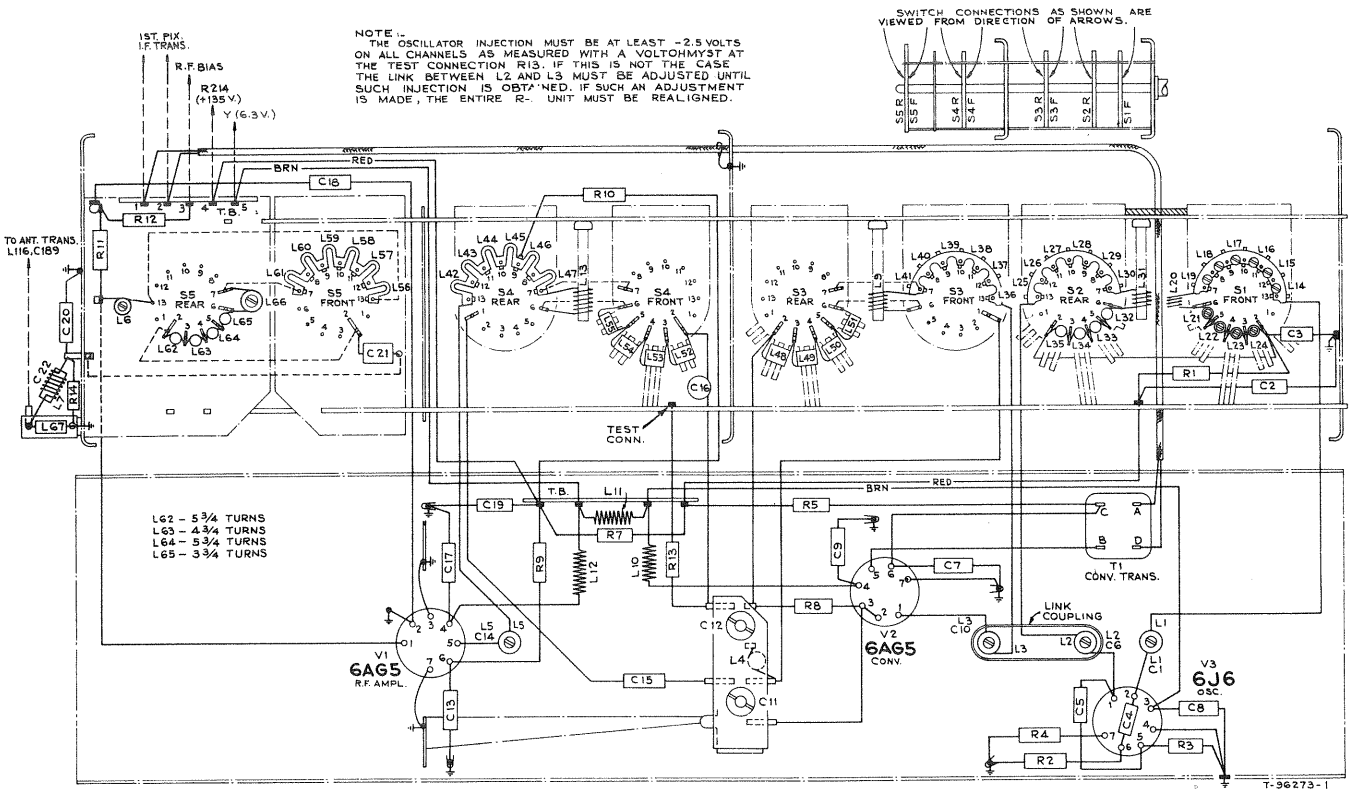


Figure 11—R-F Unit Wiring Diagram

CRITICAL LEAD DRESS:

1. The ground bus from pin 2 and the center shield of V117 socket should not be shortened or rerouted.
2. Do not change the dress of the filament leads or the bypass capacitors in the picture or sound i-f circuits. The filament leads between V117, V118 and V119 should be down against the chassis and away from grid or plate leads.
3. If it is necessary to replace any of the 1500 mmf capacitors in the picture i-f circuit, the lead length must be kept as short as possible.
4. Picture i-f coupling capacitors C106, C111, C115 and C121 should be up and away from the chassis and should be clear of the pix i-f transformer adjustments by at least ¼ inch. If the dress of any of these capacitors is changed, the i-f alignment should be rechecked.
5. Leads to L102 and L103 must be as short as possible.
6. Dress peaking coils L105, L106 and L107 up and away from the chassis.
7. Dress C183 across tube pins 5 and 6 with leads not exceeding ⅜ inch.
8. Dress C129 and C130 up and away from the chassis.
9. Dress the yellow lead from the picture control away from the chassis and away from the volume-control leads. Dress the yellow lead from pin 8 of V106 away from the chassis.
10. Dress the green lead from pin 2 of V106 away from the chassis.
11. Dress R168, R169, R170, R176 and R178 up and away from the chassis.
12. The leads to the volume control should be dressed down against the chassis and away from V117 and V118.
13. Contact between the r-f oscillator frequency adjustment screws and the oscillator coils or channel switch eyelets must be avoided.
14. Dress leads from the width control coils away from the transformer frame.
15. Dress T110 winding leads as shown in Figure 12.

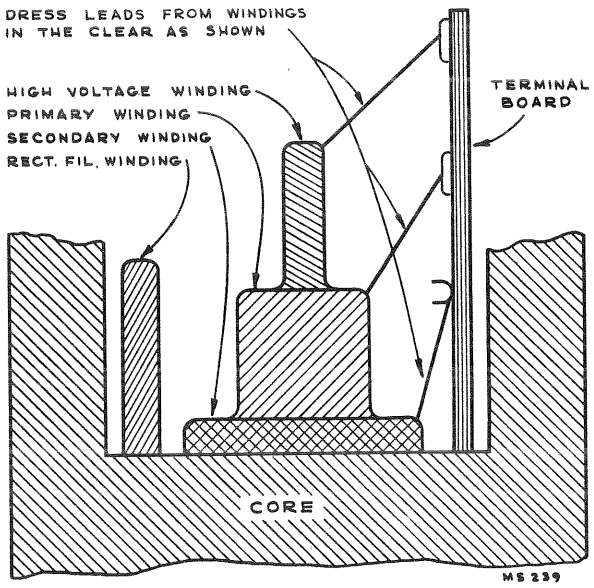
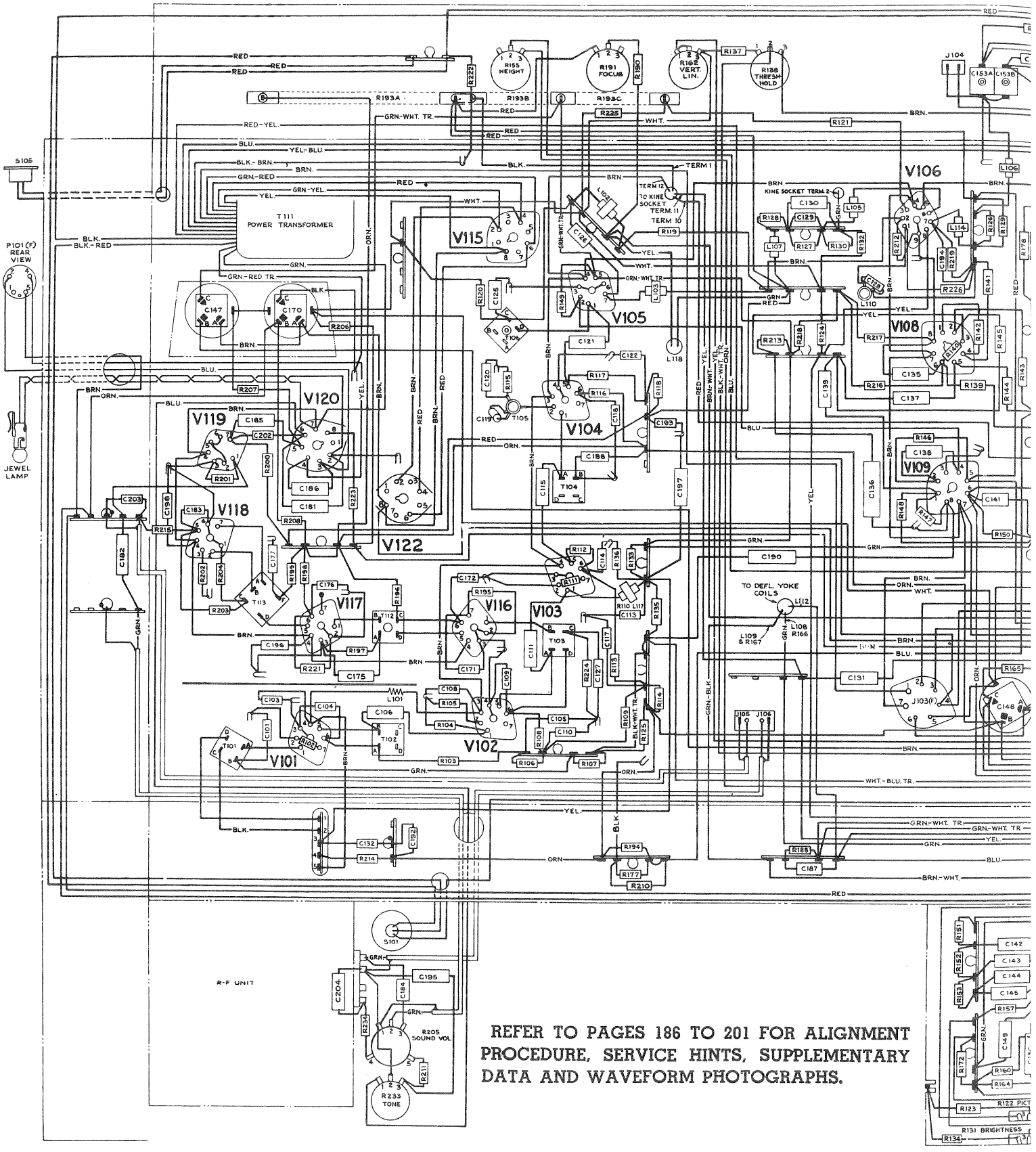


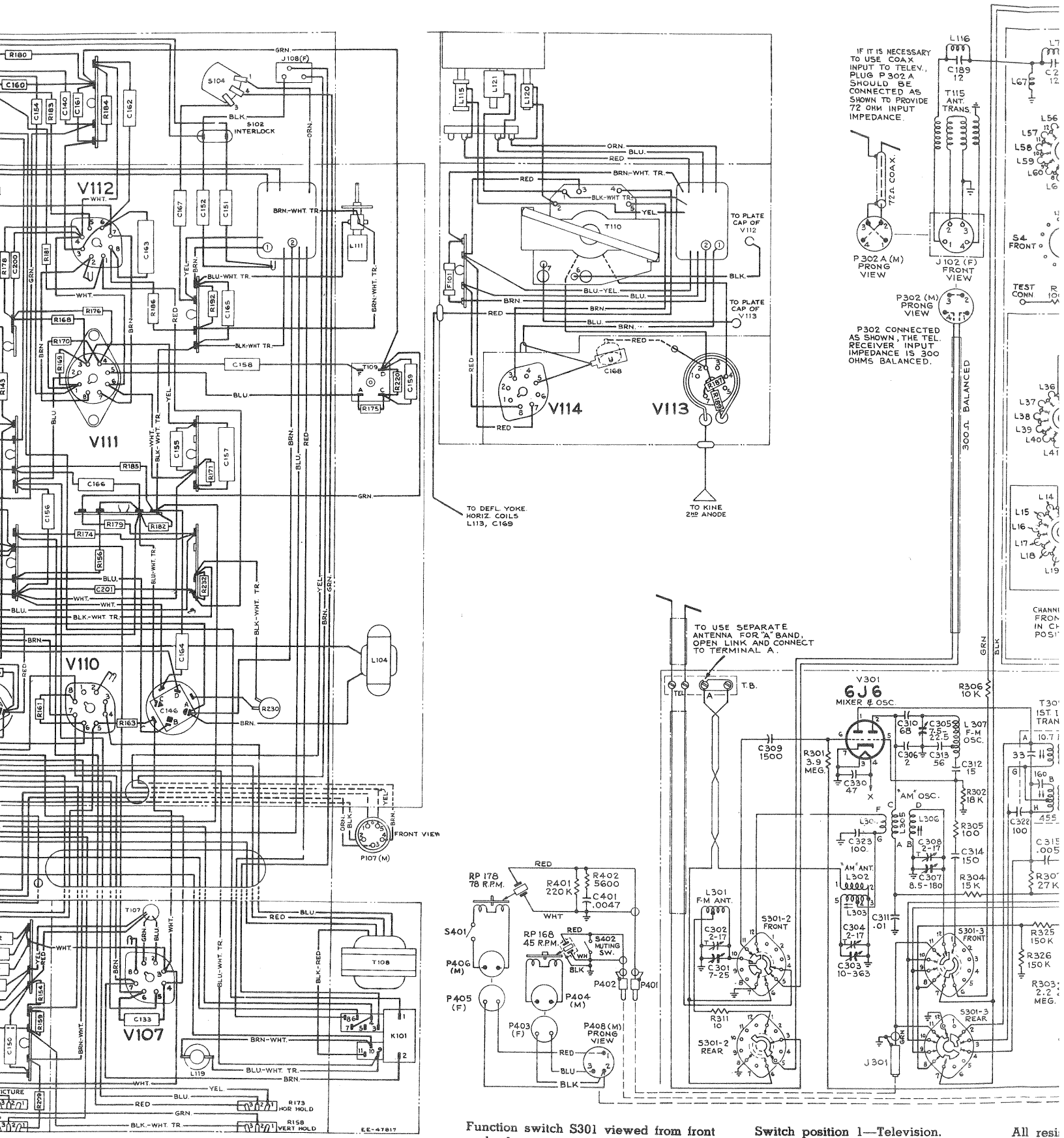
Figure 12—T110 Lead Dress



REFER TO PAGES 186 TO 201 FOR ALIGNMENT PROCEDURE, SERVICE HINTS, SUPPLEMENTARY DATA AND WAVEFORM PHOTOGRAPHS.

Figure 13—Chassis Wiring Diagram

WIRING DIAGRAM



Function switch S301 viewed from front and shown in Number 1 (maximum counterclockwise position).

Switch position 1—Television.
Switch position 2—AM.
Switch position 3—FM.
Switch position 4—Phono 45 RPM.
Switch position 5—Phono 78 RPM.

All resi
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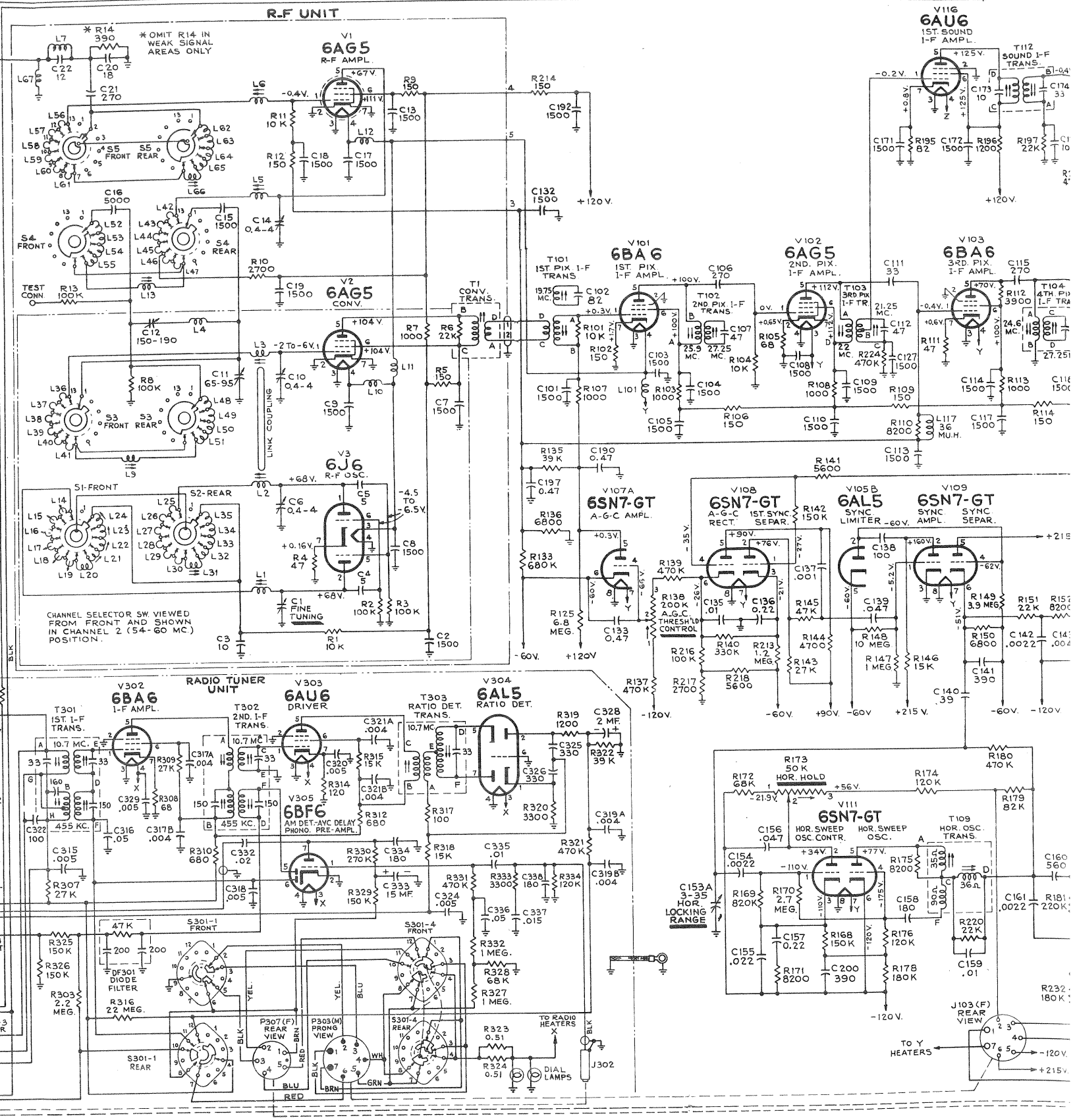

All resistance values in ohms. K = 1,000.

All capacitance values less than 1 in MF and above 1 in MMF unless noted.

Coil resistance values less than 1 ohm are not shown.

Direction of arrows at controls indicates clockwise rotation.

In some receivers, substitutions have caused changes in component lead color codes, in electrolytic capacitor values and their lug identification markings.

All voltages measur
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brightness control set
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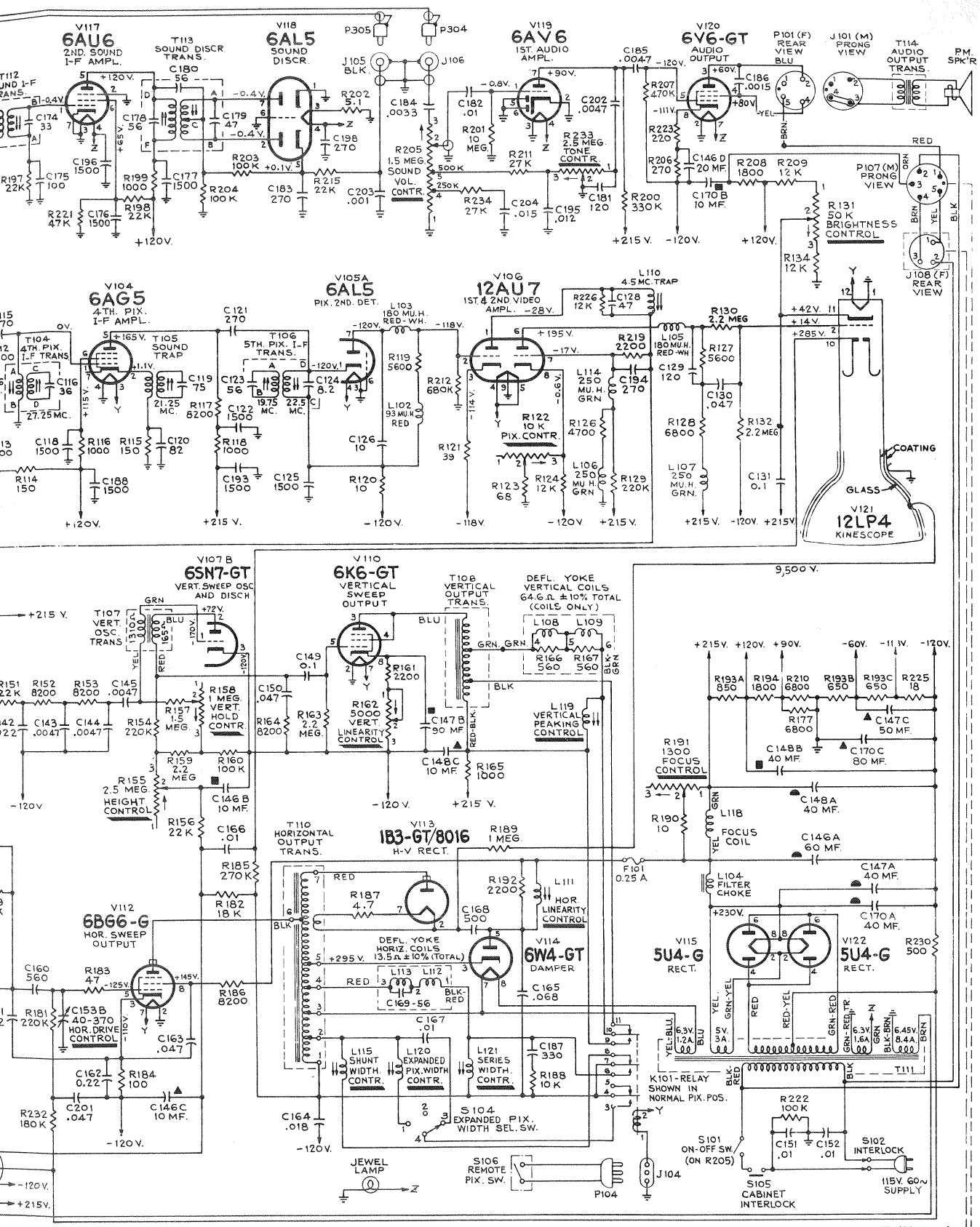

Figure 14—Circuit Schematic Diagram

measured with "VoltOhm-
nput with 117 v. a-c supply
trol fully clockwise and the
ol set for average bright-

Some receivers have been field modified to replace the RP178 changer with type 960282. Compensation was changed by adding a .0068 mfd capacitor in parallel with C184, another .0068 mfd capacitor in parallel with C185 and a 120K resistor in parallel with R334.

STOCK No.	DESCRIPTION
	SPEAKER ASSEMBLIES
	92569-8W
	RL-111-10
	RMA—#274
13867	Cap—Dust cap
74901	Cone—Cone complete with voice coil (3.2 ohms)
5039	Connector—4 prong male connector (J101)
74900	Speaker—12" P.M. (6.8 oz.) speaker complete with cone and voice coil (3.2 ohms) less transformer and plug
74902	Transformer—Output transformer (T114)
	Note: If stamping in instruments does not agree with above speaker number, order replacement parts by referring to model number of instruments, number stamped on speaker and full description of part required.
	MISCELLANEOUS
74895	Back—Cabinet back
74054	Bracket—Dial lamp bracket (2 required)
71599	Bracket—Pilot lamp bracket
72457	Cable—Shielded pickup cable complete with pin plug for 45 RPM changer
74296	Cable—Shielded pickup cable complete with pin plug for 78 RPM changer
13103	Cap—Pilot lamp cap
73920	Capacitor—Tubular, paper, .0047 mfd., 600 volts (C401)
74883	Case—Plastic case and bottom cover for electronic magnifier switch
71892	Catch—Bullet catch and strike for doors (3 required)
74055	Clip—Spring clip for dial and bezel assembly (2 required)
X3067	Cloth—Grille cloth for mahogany or walnut instruments
X3068	Cloth—Grille cloth for toasted mahogany instruments
74882	Connector—3 contact male connector for electronic magnifier cable (P104)
30868	Connector—2 contact female connector for motor cable
14782	Connector—3 contact male connector for motor cable
30870	Connector—2 contact male connector for motor cable
74581	Cover—Mounting screw cover (plug-in type) for 45 RPM changer (3 required)
74891	Cushion—Vinylite cushion (edging) for making panel
74898	Decal—Control panel function decal for mahogany or walnut instruments
74899	Decal—Control panel function decal for toasted mahogany instruments
71984	Decal—Trade mark decal (RCA Victor)
74273	Decal—Trade mark decal (Victrola)
74052	Dial—Dial scale and bezel assembly
74809	Emblem—"RCA Victor" emblem
73642	Escutcheon—Channel marker escutcheon for mahogany or walnut instruments
73740	Escutcheon—Channel marker escutcheon for toasted mahogany instruments
74755	Glass—Safety glass
37396	Grommet—Rubber grommet for mounting speaker (4 required)
72856	Grommet—Rubber grommet to mount 78- RPM changer (3 required)
74308	Hinge—Television compartment door hinge (1 set)
74896	Hinge—Record storage compartment door hinge (1 set)
70166	Hinge—Speaker compartment door hinge—upper
73200	Hinge—Speaker compartment door hinge—lower
74051	Indicator—Station selector indicator
73994	Knob—Fine tuning knob—dark—for mahogany or walnut instruments (outer)
73995	Knob—Fine tuning knob—light—for toasted mahogany instruments (outer)
73996	Knob—Channel selector knob—dark—for mahogany or walnut instruments (inner)
73997	Knob—Channel selector knob—light—for toasted mahogany instruments (inner)
73998	Knob—Vertical hold control, brightness control or tone control knob—dark—for mahogany or walnut instruments (outer)
73999	Knob—Vertical hold control, brightness control or tone control knob—light—for toasted mahogany instruments (outer)
74056	Knob—Tuning or selector switch knob—dark—for mahogany or walnut instruments
74057	Knob—Tuning or selector switch knob—light—for toasted mahogany instruments
74000	Knob—Horizontal hold control, picture control or volume control and power switch knob—dark—for mahogany or walnut instruments (inner)
74001	Knob—Horizontal hold control, picture control or volume control and power switch knob—light—for toasted mahogany instruments (inner)
11765	Lamp—Dial or pilot lamp—Mazda 51
74208	Nut—Tee nut to mount 45 RPM changer (3 required)
73109	Nut—Tee nut to mount 78 RPM changer (3 required)
74162	Plate—Mounting plate for interlock switch
74897	Pull—Door pull (4 required)
	Resistor—Fixed, composition:
	5600 ohms, ±10%, ½ watt (B402)
	220,000 ohms, ±10%, ½ watt (B401)
73741	Screw—¼-20 x 2" fillister head screw for mounting 78 RPM changer (3 required)
74582	Screw—#8-32 x 1¾" special head screw to mount 45 RPM changer (3 required)
74269	Screw—#8-32 x ¾", trimit head screw for door pull (2 required for each pull)
74050	Slide—Station indicator slide
74835	Slide—Slide mechanism for 45 RPM drawer
74736	Slide—Slide mechanism for 78 RPM drawer
73643	Spring—Spring clip for channel marker escutcheons
72845	Spring—Retaining spring for knobs #73994 and 73995
14270	Spring—Retaining spring for knobs #73996, 73997, 73998, 73999, 74056 and 74057
30330	Spring—Retaining spring for knobs #74000 and 74001
74421	Spring—Conical spring to mount 45 RPM changer—upper—R.H. (1 required)
74422	Spring—Conical spring to mount 45 RPM changer—upper—L.H. (2 required)
74423	Spring—Conical spring to mount 45 RPM changer—lower (3 required)
74161	Stud—Locating stud for back cover (2 required)
74881	Switch—Electronic magnifier switch (S106)

To obtain resistors for which no stock number is given, order by stating type, value of resistance, tolerance and wattage.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION
74416	Screw—#10/32 x 1¾" cross recessed round head screw for kinescope retaining strap
71456	Screw—#8/32 wing screw for deflection yoke
74601	Screw—#8/32 x ⅜" cross recessed binder head screw for focus coil mounting (2 required)
74602	Screw—10/32 x 1¼" cross recessed binder head screw for focus coil adjustment (3 required)
73584	Shield—Tube shield
74937	Sleeve—Rubber sleeve for focus coil
73117	Socket—Tube socket, 7 pin, miniature
72927	Socket—Tube socket, 9 pin, miniature
31251	Socket—Tube socket octal, wafer
73249	Socket—Tube socket, octal, ceramic, plate mounted
71508	Socket—Tube socket for 8016
74834	Socket—Kinescope socket
31364	Socket—Pilot lamp socket
73586	Spring—Compression spring used under centering control screws (3 required)
74595	Spring—Anode lead spring
74936	Spring—Suspension spring for kinescope tube socket leads
74893	Strap—Kinescope retaining strap
74596	Support—Bakelite supports (1 set) for mounting hi-voltage rectifier tube mounting plate
74872	Switch—Width selector switch (S104)
74157	Switch—Interlock switch (S105)
74892	Transformer—Power transformer 117 volt, 60 cycle (T111)
74875	Transformer—Vertical output transformer (T108)
73569	Transformer—Vertical oscillator transformer (T107)
74588	Transformer—Horizontal output and hi-voltage transformer (T110)
74589	Transformer—First pix, i-f transformer (T101, C102, R101)
74590	Transformer—Second pix, i-f transformer (T102, C107)
74591	Transformer—Third pix, i-f transformer (T103, C112)
74592	Transformer—Fourth pix, i-f transformer (T104, C116)
73575	Transformer—Fifth pix, i-f transformer (T106, C123, C124)
71424	Transformer—Sound i-f transformer (T112, C173, C174)
71427	Transformer—Sound discriminator transformer (T113 (C178, C179, C180)
73576	Transformer—Horizontal oscillator transformer (T109)
73578	Transformer—Antenna transformer, complete with socket and bracket (T115, J102)
73577	Trap—4.5 mc. trap (L110, C128)
71778	Trap—Sound trap (T105 (C119)
73476	Trap—I-F trap (L116, C189)
74262	Yoke—Deflection yoke (L108, L109, L112, L113, C169, R166, R167)

RADIO CHASSIS ASSEMBLIES

RK 135C

74039	Board—"Tel-Ant" terminal board (TB301)
74026	Bracket—Drive cord bracket complete with two pulleys—R.H.
74027	Bracket—Drive cord bracket complete with pulley—L.H.
74911	Cable—Shielded cable complete with female connector (W307, 311)
71105	Cable—Shielded cable complete with pin plug (W301, W302)
74017	Capacitor—Variable tuning capacitor (C301, 302, 303, 304, 305, 307, 308)
73866	Capacitor—Ceramic, 2 mmf. (C306)
39044	Capacitor—Ceramic, 15 mmf. (C312)
39042	Capacitor—Ceramic, 47 mmf. (C330)
73867	Capacitor—Ceramic, 56 mmf. (C313)
33379	Capacitor—Ceramic, 68 mmf. (C310)
39396	Capacitor—Ceramic, 100 mmf. (C322, 323)
48125	Capacitor—Ceramic, 150 mmf. (C314)
71922	Capacitor—Ceramic, 180 mmf. (C334, 338)
39640	Capacitor—Mica, 330 mmf. (C325, 326)
73748	Capacitor—Ceramic, 1500 mmf. (C309)
74009	Capacitor—Ceramic, dual, 4,000 mmf. (C317, C319, C321)
73473	Capacitor—Ceramic, 5000 mmf. (C318, 329)
73747	Capacitor—Electrolytic, 2 mfd., 50 volts (C328)
32223	Capacitor—Electrolytic, 15 mfd., 300 volts (C333)
71553	Capacitor—Tubular, paper, .005 mfd., 400 volts (C315, C320, C324)
71923	Capacitor—Tubular, paper, .01 mfd., 200 volts (C335)
71925	Capacitor—Tubular, paper, .01 mfd., 400 volts (C311)
70572	Capacitor—Tubular, paper, .015 mfd., 400 volts (C337)
71928	Capacitor—Tubular, paper, .02 mfd., 200 volts (C332)
72596	Capacitor—Tubular, paper, .05 mfd., 200 volts (C336)
74455	Capacitor—Tubular, paper, .05 mfd., 400 volts (C316)
74020	Coil—Antenna coil—AM (L302, L303)
73744	Coil—Oscillator coil—AM (L304, L305, L306)
74024	Coil—Antenna coil—FM (L301)
74025	Coil—Oscillator coil—FM (L307)
36395	Connector—7 contact male connector (P103)
12493	Connector—5 contact female connector (P107B)
39153	Connector—4 prong male connector (P102)
72953	Cord—Drive cord (approx. 42" overall)
74011	Filter—Diode filter, dual 200 mmf. and 47,000 ohms (DF301)
74023	Resistor—Wire wound, 0.51 ohms, 1 watt (R323, 324)
	Resistor—Fixed, composition:—
	10 ohms, ±20%, ½ watt (R311)
	68 ohms, ±20%, ½ watt (R308)
	100 ohms, ±20%, ½ watt (R305, R317)
	120 ohms, ±10%, ½ watt (R314)
	680 ohms, ±20%, ½ watt (R310, R312)
	1200 ohms, ±5%, ½ watt (R319)
	3300 ohms, ±5%, ½ watt (R320)
	3300 ohms, ±10%, ½ watt (R333)
	10,000 ohms, ±20%, ½ watt (R306)
	15,000 ohms, ±10%, ½ watt (R304)
	15,000 ohms, ±20%, ½ watt (R315, R318)
	18,000 ohms, ±10%, ½ watt (R302)
	27,000 ohms, ±10%, ½ watt (R307, R309)
	39,000 ohms, ±10%, ½ watt (R322)
	68,000 ohms, ±10%, ½ watt (R328)
	120,000 ohms, ±10%, ½ watt (R334)
	150,000 ohms, ±10%, ½ watt (R325, R326, R329)
	270,000 ohms, ±10%, ½ watt (R330)
	470,000 ohms, ±10%, ½ watt (R331)
	470,000 ohms, ±20%, ½ watt (R321)
	1 megohm, ±10%, ½ watt (R327, 332)
	2.2 megohm, ±20%, ½ watt (R303)
	3.9 megohm, ±10%, ½ watt (R301)
	22 megohm, ±20%, ½ watt (R316)
74028	Shaft—Tuning knob shaft
73632	Shield—Tube shield
73117	Socket—Tube socket, 7 pin, miniature for V301, V304, V305
74179	Socket—Tube socket, 7 pin, miniature for V302, V303
31364	Socket—Dial lamp socket
74038	Spring—Drive cord spring
74894	Switch—Selector switch (S301)
73745	Transformer—First i-f transformer dual (T301)
74019	Transformer—Second i-f transformer dual (T302)
73743	Transformer—Ratio detector transformer (T303)
33726	Washer—"C" washer for tuning shaft (rear)
34457	Washer—Spring washer for tuning shaft (front)
74172	Washer—Fibre washer to prevent drive cord slippage

STOCK No.	DESCRIPTION
74938	Capacitor—Tubular, paper, oil impregnated, .012 mfd., 200 volts (C195)
73797	Capacitor—Tubular, paper, oil impregnated, .015 mfd., 600 volts (C204)
74727	Capacitor—Tubular, moulded paper, oil impregnated, .018 mfd., 1000 volts (C164)
73562	Capacitor—Tubular, paper, oil impregnated, .022 mfd., 400 volts (C155)
73553	Capacitor—Tubular, paper, oil impregnated, .047 mfd., 400 volts (C130, C139, C201)
73592	Capacitor—Tubular, moulded paper, oil impregnated, .047 mfd., 600 volts (C150, C156)
73597	Capacitor—Tubular, paper, oil impregnated, .047 mfd., 1000 volts (C163)
73815	Capacitor—Tubular, moulded paper, oil impregnated, .068 mfd., 1000 volts (C165)
73551	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd., 400 volts (C149)
73557	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd., 600 volts (C131)
73794	Capacitor—Tubular, paper, oil impregnated, 0.22 mfd., 400 volts (C136, C157, C162)
73787	Capacitor—Tubular, paper, oil impregnated, 0.47 mfd., 200 volts (C133, C190, C197)
73154	Choke—Filter choke (L104)
74585	Coil—Focus coil (L118)
71449	Coil—Horizontal linearity control coil (L111)
71429	Coil—Width control coil (L115, L120)
74877	Coil—Vertical peaking coil (L119)
74878	Coil—Series width coil (L121)
74170	Coil—Peaking coil (36 mh.) (L117, R110)
71527	Coil—Peaking coil (93 mh.) (L102)
74214	Coil—Peaking coil (180 mh.) (L103, L105)
71526	Coil—Peaking coil (250 mh.) (L106, L107, L114)
73477	Coil—Filament choke coil (L101)
74879	Connector—2 contact (polarized) female connector for electronic magnifier cable (J104)
72108	Connector—7 contact female connector (J103)
74594	Connector—2 contact male connector for power cord
72172	Connector—3 contact female connector (J108)
5040	Connector—4 contact female connector for speaker cable (P101)
71789	Connector—Anode connector
71521	Connector—Hi-voltage capacitor connector
14786	Connector—5 contact male connector (P107)
72734	Control—Horizontal and vertical hold control (R158, R173)
74047	Control—Brightness and picture control (R122, R131)
74359	Control—Tone control, volume control and power switch (R205, R233, S101)
71441	Control—Vertical linearity control (R162)
71440	Control—Height control (R155)
74597	Control—Focus control (R191)
74475	Control—AGC threshold control (R138)
71457	Cord—Power cord and plug
71437	Cover—Insulating cover for electrolytics #71432 and #73581
74811	Cushion—Rubber cushion for kinescope mounting
73590	Cushion—Rubber cushion for deflection yoke hood (2 required)
73600	Fuse—0.25 amp., 250 volts (F101)
71799	Grommet—Rubber grommet for yoke horizontal lead exit
37396	Grommet—Rubber grommet for mounting ceramic tube socket (2 required)
74030	Grommet—Rubber grommet for mounting radio chassis (3 required)
72283	Grommet—Rubber grommet for mounting relay (2 required)
74823	Magnet—Ion trap magnet (PM type)
73587	Nut—Speed nut to mount hi-voltage capacitor
18469	Plate—Bakelite mounting plate for electrolytics
33514	Receptacle—2 contact female receptacle for audio cable and switching cable (J105, J106)
74873	Relay—Electronic Magnifier relay (K101)
72633	Resistor—Wire wound, 4.7 ohms, 1/3 watt (R187)
72067	Resistor—Wire wound, 5.1 ohms, 1/2 watt (R202)
18471	Resistor—Wire wound, 10 ohms, 1/2 watt (R190)
74049	Resistor—Wire wound, 500 ohms, 20 watts (R230)
73588	Resistor—Voltage divider, comprising 1 section of 850 ohms, 12 watts and 2 sections of 650 ohms, 6 watts (R193A, 193B, 193C)

STOCK No.	DESCRIPTION
	Resistor—Fixed, composition:—
	10 ohms, ±20%, 1/2 watt (R120)
	18 ohms, ±10%, 1/2 watt (R225)
	39 ohms, ±10%, 1/2 watt (R121)
	47 ohms, ±5%, 1/2 watt (R111)
	47 ohms, ±20%, 1/2 watt (R183)
	68 ohms, ±10%, 1/2 watt (R105)
	68 ohms, ±20%, 1/2 watt (R123)
	82 ohms, ±10%, 1/2 watt (R195)
	100 ohms, ±10%, 2 watt (R184)
	150 ohms, ±5%, 1/2 watt (R102)
	150 ohms, ±10%, 1/2 watt (R115)
	150 ohms, ±20%, 1/2 watt (R106, R109, R114, R214)
	220 ohms, ±10%, 1 watt (R223)
	270 ohms, ±10%, 1 watt (R206)
	1000 ohms, ±20%, 1/2 watt (R103, R107, R108, R113, R116, R118, R165, R199)
	1200 ohms, ±10%, 1/2 watt (R196)
	1800 ohms, ±10%, 2 watt (R194, R208)
	2200 ohms, ±10%, 1/2 watt (R219)
	2200 ohms, ±10%, 1 watt (R161, R192)
	2700 ohms, ±10%, 1/2 watt (R217)
	3900 ohms, ±5%, 1/2 watt (R112)
	4700 ohms, ±5%, 1/2 watt (R126)
	4700 ohms, ±10%, 1/2 watt (R144)
	5600 ohms, ±5%, 1/2 watt (R119)
	5600 ohms, ±10%, 1/2 watt (R141, R218)
	5600 ohms, ±10%, 1 watt (R127)
	6800 ohms, ±5%, 1/2 watt (R136)
	6800 ohms, ±10%, 1/2 watt (R150)
	6800 ohms, ±5%, 1 watt (R128)
	6800 ohms, ±10%, 2 watt (R177, R210)
	8200 ohms, ±5%, 1/2 watt (R164, R175)
	8200 ohms, ±10%, 1/2 watt (R152, R153, R171)
	8200 ohms, ±5%, 1 watt (R117)
	8200 ohms, ±10%, 2 watt (R186)
	10,000 ohms, ±5%, 1/2 watt (R104)
	10,000 ohms, ±10%, 1/2 watt (R188)
	12,000 ohms, ±10%, 1/2 watt (R134, R209, R226)
	12,000 ohms, ±10%, 2 watt (R124)
	15,000 ohms, ±10%, 1 watt (R146)
	18,000 ohms, ±10%, 1 watt (R182)
	22,000 ohms, ±10%, 1/2 watt (R151, R156, R197, R220)
	22,000 ohms, ±20%, 1/2 watt (R198, R215)
	27,000 ohms, ±10%, 1/2 watt (R143, R234, R211)
	39,000 ohms, ±5%, 1/2 watt (R135)
	47,000 ohms, ±10%, 1/2 watt (R145)
	47,000 ohms, ±20%, 1/2 watt (R221)
	68,000 ohms, ±10%, 1/2 watt (R172)
	82,000 ohms, ±10%, 1 watt (R179)
	100,000 ohms, ±5%, 1/2 watt (R203, R204)
	100,000 ohms, ±10%, 1/2 watt (R160, R216)
	100,000 ohms, ±20%, 1 watt (R222)
	120,000 ohms, ±5%, 1 watt (R176)
	120,000 ohms, ±10%, 1 watt (R174)
	150,000 ohms, ±10%, 1/2 watt (R168)
	150,000 ohms, ±20%, 1/2 watt (R142)
	180,000 ohms, ±10%, 1/2 watt (R232)
	180,000 ohms, ±5%, 1 watt (R178)
	220,000 ohms, ±10%, 1/2 watt (R129, R154, R181)
	270,000 ohms, ±10%, 1/2 watt (R185)
	330,000 ohms, ±10%, 1/2 watt (R140, R200)
	470,000 ohms, ±10%, 1/2 watt (R137, R139, R224, R180)
	470,000 ohms, ±20%, 1/2 watt (R207)
	560,000 ohms, ±10%, 1/2 watt (R212)
	680,000 ohms, ±10%, 1/2 watt (R133)
	820,000 ohms, ±5%, 1/2 watt (R169)
	1 megohm, ±10%, 1/2 watt (R147)
	1 megohm, ±20%, 1 watt (R189)
	1.2 megohm, ±5%, 1/2 watt (R213)
	1.5 megohm, ±5%, 1/2 watt (R157)
	2.2 megohm, ±10%, 1/2 watt (R130, R132, R159, R163)
	2.7 megohm, ±5%, 1 watt (R170)
	3.9 megohm, ±10%, 1/2 watt (R149)
	6.8 megohm, ±10%, 1/2 watt (R125)
	10 megohm, ±10%, 1/2 watt (R148)
	10 megohm, ±20%, 1/2 watt (R201)

STOCK No.	DESCRIPTION
	R-F UNIT ASSEMBLIES
	KRK5
73465	Belt—Drive belt
75069	Board—R-F unit power connection terminal board
75067	Bracket—Vertical bracket for holding r-f oscillator tube shield
73478	Cable—I-F transmission cable (W1)
73441	Cam—Fine tuning adjustment
74035	Capacitor—Ceramic, 5 mmf. (C4, C5)
53511	Capacitor—Ceramic, 10 mmf. (C3)
54207	Capacitor—Ceramic, 18 mmf. (C20)
73449	Capacitor—Ceramic trimmer comprising 1 section of 150-190 mmf. and 1 section of 65-95 mmf. (C11, C12)
73091	Capacitor—Ceramic, 270 mmf. (C21)
71501	Capacitor—Ceramic, 1500 mmf. (C2, C7, C8, C9, C13, C15, C17, C18, C19)
73473	Capacitor—Ceramic, 5000 mmf. (C16)
73460	Coil—R-F plate coil for channel 6 (L13)
73461	Coil—Rear section—Oscillator plate coil for channel 6 (L20)
73462	Coil—Coupling inductance coil (L4)
73475	Coil—Antenna filter shunt coil (C67)
73476	Coil—I-F trap (L7, C22)
73477	Coil—Choke coil (L10, L11, L12)
73874	Coil—Front section—Oscillator plate coil for channel 6 (L31)
74108	Coil—Fine tuning coil (1½ turns) with adjustable inductance core and capacitor stud (plunger adjustment) (L1, C1)
74109	Coil—Trimmer coil (1½ turns) with adjustable inductance core and capacitor stud (screw adjustment for oscillator section or converter section) (L2, L3, C6, C10)
74110	Coil—Trimmer coil (3 turns) with adjustable inductance core and capacitor stud (screw adjustment) for r-f amplifier section (L5, C14)
73455	Core—Sliding core for fine tuning control trimmer
74187	Core—Adjustable core for coil L9
71493	Connector—Oscillator segment connector
73440	Detent—R-F unit detent mechanism and fibre shaft
71487	Form—Coil form for coil L31
73453	Form—Coil form assembly for L9, L13
73442	Link—Link assembly for fine tuning
71462	Loop—Oscillator to convertor trimmer loop connector
73634	Nut—Speed nut for drive belt shield
73436	Plate—Front plate and bushing
73464	Pulley—Idler pulley
	Resistor—Fixed, composition:—
	47 ohms ±20%, ½ watt (B4)
	150 ohms ±20%, ½ watt (R5, R9, R12)
	390 ohms ±10%, ½ watt (R14)
	1000 ohms ±20%, ½ watt (R7)
	2700 ohms ±10%, ½ watt (R10)
	10,000 ohms ±20%, ½ watt (R1, R11)
	100,000 ohms ±20%, ½ watt (R2, R3, R8, R13)
14343	Retainer—Channel selector shaft retaining ring
30340	Retainer—Retainer ring for fine tuning stud
70881	Screw—#4-40 x ¼" binder head screw for adjusting coils L14, L15, L16, L17, L18, L19
73640	Screw—#4-40 x 5/8" adjusting screw for L66
71475	Screw—#4-40 x 15/32" adjusting screw for coils L21, L22, L23, L24
74575	Screw—#4-40 x 17/32" adjusting screw for L6
73437	Shaft—Channel selector shaft complete with pawl and stud
73438	Shaft—Fine tuning control shaft and pulley
73439	Shaft—Actuating shaft for fine tuning control
72951	Shield—Metal tube shield for V3
73454	Shield—Metal shield for drive belt
73632	Shield—Metal tube shield for V1
75443	Shield—"U" shape shield for bottom of R-F Unit
71494	Socket—Tube socket, moulded, 7 prong
73450	Socket—Tube socket, ceramic, 7 prong
74576	Spacer—Insulating spacer for front plate (4 req'd)
73457	Spring—Return spring for fine tuning control core
74188	Spring—Retaining spring for adjustable core RCA 74187
74578	Spring—Retaining spring for adjusting screws RCA 73640 and RCA 74575
75068	Spring—Retaining spring for r-f oscillator tube shield
73633	Stator—Antenna stator complete with rotor and coils (S5, L6, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L66, C21)
73470	Stator—Convertor stator complete with rotor and coils (S3, L36, L37, L38, L39, L40, L41, L48, L49, L50, L51)
73468	Stator—Front oscillator section stator complete with rotor, segment, coils and adjusting screws (S1, L14, L15, L16, L17, L18, L19, L21, L22, L23, L24)
73469	Stator—Rear oscillator section stator complete with rotor, segment and coils (S2, L25, L26, L27, L28, L29, L30, L32, L33, L34, L35)
73471	Stator—R-F amplifier stator complete with rotor and coils (S4, L42, L43, L44, L45, L46, L47, L52, L53, L54, L55)
75446	Stud—Capacitor stud—brass #4-40 x 13/16" with 3/64" screw driver slot for trimmer coils 74109 and 74110 uncoded or coded "ER"
75447	Stud—Capacitor stud—brass #4-40 x 13/16" with 3/64" screw driver slot for trimmer coils 74109 and 74110 coded numerically or "Hi Q"
73448	Transformer—Convertor transformer (T1, R6)
73466	Washer—Insulating washer for front shield (1 set)
2917	Washer—"C" washer for channel selector shaft or fine tuning shaft and cam
	TELEVISION CHASSIS ASSEMBLIES
	KCS 41-1
74593	Capacitor—Mica trimmer, 1 section of 3-35 mmf. and 1 section of 40-370 mmf. (C153A, C153B)
39604	Capacitor—Mica, 10 mmf. (C126)
74105	Capacitor—Mica, 33 mmf. (C111)
74726	Capacitor—Mica, 39 mmf. (C140)
64062	Capacitor—Ceramic, 82 mmf. (C120)
39396	Capacitor—Ceramic, 100 mmf. (C175)
75060	Capacitor—Mica, 100 mmf. (C138)
73921	Capacitor—Ceramic, 120 mmf. (C129)
39630	Capacitor—Mica, 120 mmf. (C181)
73102	Capacitor—Mica, 180 mmf. (C158)
73922	Capacitor—Ceramic, 270 mmf. (C183, C194, C198)
73091	Capacitor—Mica, 270 mmf. (C106, C115, C121)
39640	Capacitor—Mica, 330 mmf. (C187)
39642	Capacitor—Mica, 390 mmf. (C141, 200)
74153	Capacitor—Hi-voltage 500 mmf., 15,000 volts (C168)
74250	Capacitor—Mica, 560 mmf. (C160)
71501	Capacitor—Ceramic, 1500 mmf. (C101, C103, C104, C105, C108, C109, C110, C113, C114, C117, C118, C122, C125, C127, C132, C171, C172, C176, C177, C188, C192, C193, C196)
71432	Capacitor—Electrolytic, comprising 2 sections of 40 mfd., 450 volts and 1 section of 10 mfd., 450 volts (C148A, 148B, 148C)
73582	Capacitor—Electrolytic, 1 section of 40 mfd., 450 volts, 1 section of 10 mfd., 450 volts and 1 section of 80 mfd., 200 volts (C170A, C170B, V170C)
73583	Capacitor—Electrolytic, 1 section of 40 mfd., 450 volts, 1 section of 90 mfd., 150 volts, and 1 section of 50 mfd., 150 volts (C147A, C147B, C147C)
73581	Capacitor—Electrolytic, comprising 1 section of 60 mfd., 450 volts, 2 sections of 10 mfd., 450 volts and 1 section of 20 mfd., 150 volts (C146A, C146B, C146C, C146D)
73801	Capacitor—Tubular, paper, oil impregnated, .001 mfd., 600 volts (C137, C203)
73802	Capacitor—Tubular, paper, oil impregnated, .0015 mfd., 1000 volts (C186)
73595	Capacitor—Tubular, paper, oil impregnated, .0022 mfd., 600 volts (C142, C154, C161)
73795	Capacitor—Tubular, paper, oil impregnated, .0033 mfd., 600 volts (C184)
73920	Capacitor—Tubular, paper, oil impregnated, .0047 mfd., 600 volts (C143, C144, C145, C202)
73805	Capacitor—Tubular, paper, oil impregnated, .0047 mfd., 1000 volts (C185)
73561	Capacitor—Tubular, paper, oil impregnated, .01 mfd., 400 volts (C135, C166, C167, C182)
73565	Capacitor—Tubular, moulded paper, .01 mfd., 600 volts (C151, C152)
73594	Capacitor—Tubular, moulded paper, oil impregnated, .01 mfd., 600 volts (C159)